



ENVIRONMENTAL ASSESSMENT
PURSUANT TO 7 CFR 650 COMPLIANCE WITH THE
NATIONAL ENVIRONMENTAL POLICY ACT (NEPA)

FOR THE

OCHOA PROPERTY (WRP #66-9104-04-00FML)
EASEMENT MODIFICATION & SUBORDINATION
FOR A HABITAT IMPROVEMENT PROJECT

Yolo County, CA

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1.0 INTRODUCTION

This Environmental Assessment (EA) has been prepared to address the potential environmental impacts of the C & T Ochoa Family Trust, Natural Resources Conservation Service (NRCS) Wetland Reserve Program (WRP) Easement Modification (Proposed Action) in compliance with the National Environmental Policy Act (NEPA). The EA has been prepared in conformance with the requirements of the Natural Resource Conservation Service Regulations for Compliance with NEPA (7 CFR 650) and Part 610 of the National Environmental Compliance Handbook.

The Proposed Action is a modification to the existing NRCS WRP Easement (66-9104-04-00FML, hereafter referred to as the “Easement”) within a 301.5-acre portion of the C & T Ochoa Family Trust property in Yolo County, California. A 2.75-acre right of way easement consisting of upland habitat is proposed to be deeded to Pacific Gas & Electric Company (PG&E) for the installation of power poles and electric service lines (the Project) to support an existing groundwater well and lift pump that will supply supplemental water in support of the Ochoa Habitat Improvement Project. The proposed 2.75-acre PG&E easement is located within the northern portion of the existing C & T Ochoa Family Trust NRCS Easement.

1.1 Project Setting

The modification area (Proposed Action) is located within the northern most section of the current 301.5-acre parcel, south of Oat Creek, immediately southwest of the Colusa Basin Drainage Canal, approximately 4.5 miles southeast of Dunnigan, in Yolo County, California. The Project, which includes PG&E’s installation of power poles and electric service lines, is dependent upon the Easement modification (Proposed Action).

1.2 Background

The WRP is a NRCS program established in response to the historical nationwide loss of wetlands to development. Agricultural and urban development in combination with land reclamation from the 1790s to the 1980s has led to the drainage and alteration of an estimated 54% of the wetlands in the United States. Some states, including California, have lost up to 90% of their wetlands. The goal of the WRP is to restore wetland functions and values on eligible agricultural properties to the extent practicable, while maximizing wildlife habitat values. As of 2007, more than 1.9 million acres of wetlands and associated uplands have been enrolled in the WRP nationwide. California is one of the top ten states in WRP enrollment (NRCS 2009). As part of the 2014 Farm Bill, the WRP was merged into the Agricultural Conservation Easement Program (ACEP), along with other easement programs, so the WRP actually no longer exists as a stand-alone conservation program. However, to avoid confusion, this EA will still refer to the WRP in its analysis of the project, with the understanding that it is now part of the ACEP. Under the WRP program, private landowners voluntarily enroll eligible lands for wetland restoration. The NRCS provides technical and financial assistance to landowners to restore, enhance, and protect wetlands through perpetual or 30-year easements. An “easement” is a right to use or enter a property or a restriction on the use of a property by a party that does not have fee title ownership. For WRP easements, the NRCS pays all costs associated with recording the easement in the local land records office.

The Proposed Action is the modification to the existing NRCS Easement in order for PG&E to install power poles and electric service lines to an existing onsite well and lift pump. The current natural hydrology fails to produce an adequate amount of water for the wetland habitat and inhibits successful management during all but the wettest years, resulting in marginal wetland functions and values. Currently, the only source of hydrology within the NRCS Easement is seasonal precipitation and periodic overland flooding from the Colusa Basin Drainage Canal. The groundwater well will provide a supplemental amount of hydrology that will increase the duration of wetland flooding, improve the habitat value of the property, and provide a source of summer water for breeding birds, resident wildlife, and the Federally threatened giant garter snake. These are among the goals of the WRP.

1.3 Proposed Action Description

The Proposed Action is the modification of the exiting NRCS Easement to accommodate a right of way for PG&E to provide power to an existing well and lift pump for habitat management on the conservation easement. The modification would establish a new right of way easement, approximately 2.75-acres in size, deeded to PG&E for their use in the installation of thirteen power poles and electric service lines to support an existing onsite water well and lift pump. The 2.75 acre right of way would continue to be part of the conservation easement, however, NRCS would subordinate its rights to allow for the PG&E right of way to be established.

1.4 NEPA Environmental Assessment

1.4.1 EA Description and Format

NEPA requires that federal agencies document and consider the potential environmental effects of the agency's project that have the potential to result in direct or indirect physical changes in the environment. A "project" includes the agency's direct activities, along with activities that involve agency approvals or funding (Proposed Action).

Provided that the Proposed Action is not categorically excluded from NEPA, the first step in the agency's consideration of its potential environmental effects is the preparation of an Environmental Assessment (EA). The purpose of an EA is to determine whether the Proposed Action would involve "significant" environmental effects requiring further analysis. In the event that the EA does not identify significant effects, or identifies measures that will mitigate or eliminate all of the significant effects of the Proposed Action, the agency will prepare a Finding of No Significant Impact (FONSI). If this is not the case – that is, if the Proposed Action would involve significant effects that cannot be readily mitigated - the agency must prepare an Environmental Impact Statement (EIS). The NRCS has determined that the Proposed Action requires preparation of an EA, but not an EIS.

This EA follows a format that is consistent with the NRCS NEPA Guidelines. According to Section 610.47 of the NRCS NEPA Guidelines, an EA must include the following elements:

- Statement of Purpose and Need
- Affected/Existing Environment

- Alternatives Including the Proposed Action
- Environmental Impacts
- List of Persons and Agencies Consulted

Chapter 2.0 of this EA discusses the purpose and need for the Proposed Action. Chapter 3.0 discusses the project alternatives, which are the Proposed Action and the No Action alternative. Chapter 4.0 discusses the affected environment in discrete environmental issue areas and the potential environmental impacts on each issue under each project alternative. Chapter 5.0 discusses mitigation measures for identified environmental impacts which are not otherwise mitigated by applicable regulations, programs, or practices. Chapter 6.0 provides a list of references cited and agencies and persons consulted during the preparation of this EA.

NEPA documents for NRCS projects typically analyze environmental impacts on general subjects such as soil, water, air, plants, animals, and humans (i.e., social and economic impacts). In addition, NRCS considers project compliance with what are termed “special environmental concerns” – environmental issues that are addressed by environmental laws, executive orders, and other relevant federal policies and guidance. These special environmental concerns include:

- Clean Air Act
- Clean Water Act/Waters of the U.S.
- Cultural resources/Historic properties
- Endangered and threatened species
- Environmental justice
- Essential fish habitat
- Floodplain management
- Invasive species
- Migratory birds/Bald and Golden Eagle Protection Act
- Prime and unique farmlands
- Riparian areas
- Wetlands

The EA analyzes the impacts of the project on all relevant environmental issues, including special environmental concerns. Issues not analyzed in this EA are discussed in the next section.

1.4.2 Environmental Issues Not Analyzed in This EA

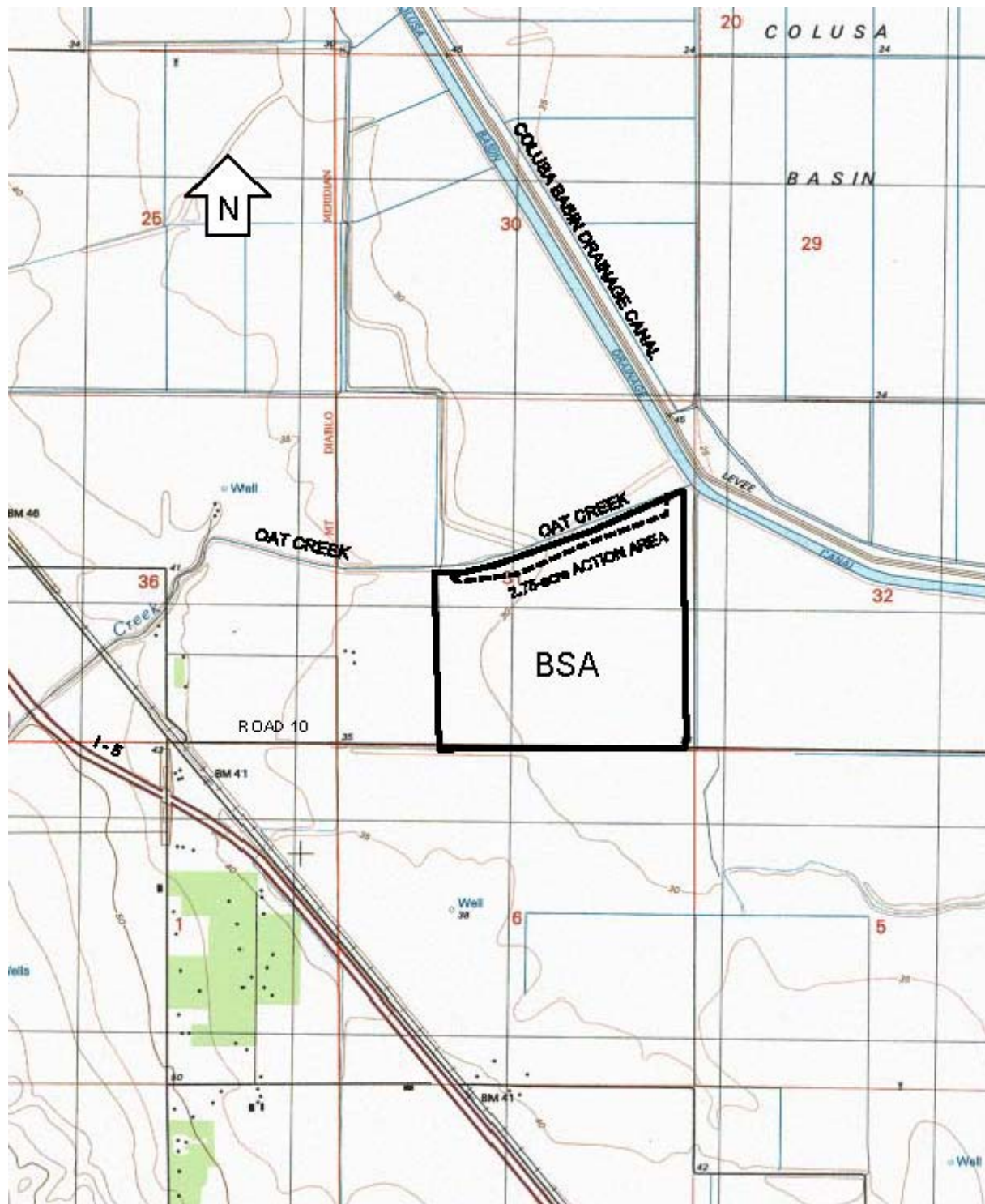
As noted above, the EA analyzes all of the special environmental concerns that are relevant to the project. The special environmental concerns not analyzed in this EA, along with the reasons they are not analyzed, include:

- Coastal zone management – The project is not located in a Coastal Zone designated in accordance with the Coastal Zone Management Act.
- Coral reefs – There are no coral reefs in the project area or vicinity.

- Wild and Scenic Rivers – There are no designated Wild and Scenic Rivers in the project vicinity.

Other issues not analyzed in this EA include:

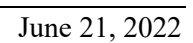
- Section 6(f), Land and Water Conservation Act (LWCA) – There are no lands or easements in or near the project area that have been acquired with LWCA funds (National Park Service 2016).

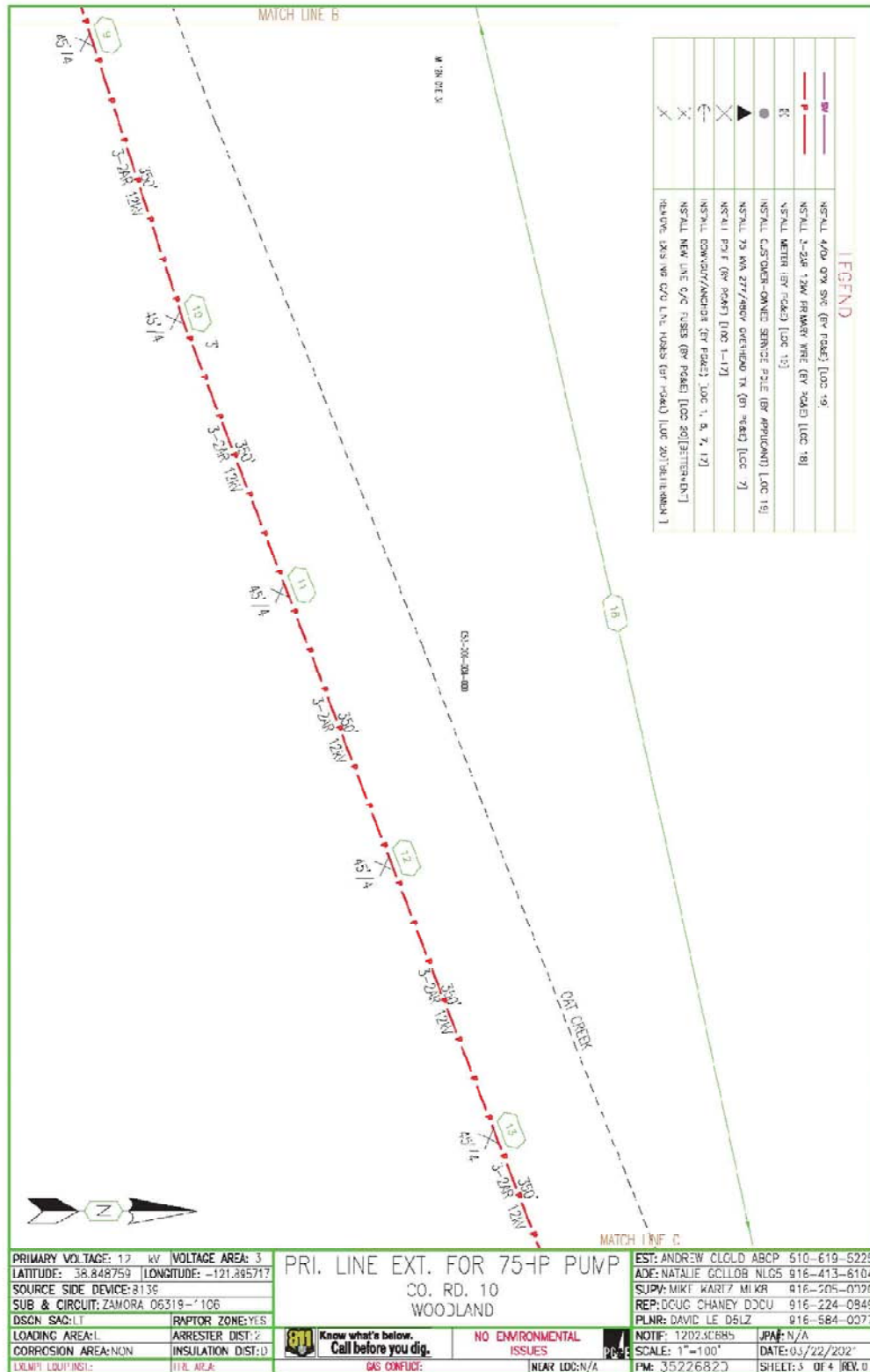


Vicinity Map: Chris Ochoa Project, a 304.49-acre wetland restoration site (Biological Study Area) located in Section 31, Township 12N, Range 1 East, Zamora 7.5 minute USGS Quadrangle. 38.845136 N, -121.908978W. Yolo County APN 053-200-011. 2.75-acre action area shown within northern area of parcel.



Aerial Display: Chris Ochoa Project, a 304.49-acre wetland restoration site (Biological Study Area) located in Section 31, Township 12N, Range 1 East, Zamora 7.5 minute USGS Quadrangle. 38.845136 N, -121.908978W. Yolo County APN 053-200-011. 2.75-acre action area shown within northern area of parcel.





2.0 PURPOSE AND NEED

2.1 Purpose of Project

The C & T Ochoa Family Trust Easement (66-9104-04-00FML, the “Easement”) was established by the NRCS and landowner to encumber a 301.5-acre former rice cropland area for the purpose of restoring wetland and related upland habitats to provide wildlife benefits. As described in Sections 1.3 and 2.2, and elsewhere in this EA, the current hydrology on the easement fails to properly produce an adequate amount of water for the wetland habitat and inhibits successful wetland management during all but the wettest years, resulting in marginal wetland functions and values. The proposed source of supplemental hydrology will increase the duration of wetland flooding, improve the habitat value of the property, and provide a source of summer water for breeding birds, resident wildlife, and the Federally threatened giant garter snake.

2.2 Need for Project

A previous landowner encumbered the 301.5-acre rice cropland area to be developed and managed for wetland and wildlife benefits. Subsequently, the C & T Ochoa Family Trust purchased the 301.5-acre cropland with the easement in place. The Easement, however, has suffered from a significant lack of available water due to drought and changing climatic conditions in California. Reduced water availability has also caused the establishment of undesirable upland vegetation in the wetland area that provides little or no forage value or cover for wetland-dependent wildlife.

The project would fulfill a compelling public need by substantially increasing the wetland and habitat value of the C & T Ochoa Family Trust Easement. The proposed PG&E right of way easement is entirely within upland habitat adjacent to an existing farm road. Among the benefits of wetland restoration are improvement of water quality, provision of wildlife habitat, and aid in the recovery of endangered and threatened species (NRCS 2009).

The project would also fulfill the need of the landowner to maintain the viability of wetland habitat on the associated private lands. The landowner receives no compensation from the NRCS for maintenance of the Easement; however, the Easement modification would allow the landowner to enhance and manage the encumbered 301.5-acre parcel as productive wetlands.

3.0 ALTERNATIVES TO THE PROPOSED ACTION

3.1 Selection of Alternatives

Only one Action Alternative was considered in the EA, which is referred to as the Proposed Alternative. The Proposed Alternative (Proposed Action) is to create a 2.75-acre PG&E right of way easement along the northern portion of the existing Easement to provide PG&E electric

service to the existing onsite well. The No Action Alternative is analyzed pursuant to NEPA requirements.

Other potential alternatives to the Proposed Action were considered by NRCS; however, they would either not meet the purpose and need for the project or would create more environmentally damaging consequences. For example, providing a diesel-powered engine to supply electric service to the well was determined to have detrimental environmental consequences in the form of unacceptable air quality, noise and energy consumption.

3.2 Proposed Action

The Proposed Action is the modification of WRP Easement No. 66-9104-04-00FML. The modification would create a new 2.75-acre PG&E right of way easement for the purpose of supplying electric service to the existing onsite irrigation well. This action would establish electric service to an existing well that will provide supplemental hydrology, increasing the duration of wetland flooding, improving the habitat value of the property, and providing a source of summer water for breeding birds, resident wildlife, and essential habitat for the federally threatened giant garter snake.

3.3 No Action Alternative

Under the No Action Alternative, the proposed Easement modification would not be approved, and the existing lands covered by the Easement would not change. The wetland habitat values of the property would remain less than desirable. Drought and changing climatic conditions in California would continue to reduce the wetland functions of the Easement. Management of the Easement is assumed to remain the same as current conditions.

4.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

This chapter analyzes the potential environmental impacts of the installation of PG&E power poles and electric service to the onsite well and lift pump (the Project). The analysis is consistent with 7 CFR Part 650 and the National Environmental Compliance Handbook Part 610, both of which provide guidance for NRCS compliance with NEPA. References cited in this chapter are listed in Chapter 7.0, References.

4.1 Air Quality and Greenhouse Gas Emissions

4.1.1 Criteria Air Pollutants

The Project is within the Sacramento Valley Air Basin (SVAB). The Yolo-Solano Air Quality Management District (YSAQMD) is responsible for implementing emissions standards and other requirements for Federal and State laws in the project area. As required by the California Clean Air Act (CCAA), YSAQMD has published various air quality planning documents to address

requirements to bring the SVAB into compliance with the Federal and State ambient air quality standards.

The YSAQMD portion of the SVAB is currently in nonattainment for fine particulates (PM_{2.5}) and ozone. Concentrations of all other pollutants meet State and Federal standards.

The project vicinity is used for wetland management. Wetland management activities do not generate criteria air pollutant emissions, other than the limited use of maintenance vehicles and equipment. There are no explicit air quality management rules regarding wetland management activities.

Substances regulated under the National Ambient Air Quality Standard (NAAQS) may be released during the installation of the thirteen power poles and electric service lines. Carbon monoxide (CO), sulfur dioxide (SO₂), nitrogen oxides (NO_x), volatile organic compounds (VOCs), and particulate (PM) may be emitted/generated by construction equipment onsite (gasoline/diesel engines) construction traffic along local roads, and infrequent use of standby generators onsite. The project area is rural agricultural land with few receptors within five miles of the property. Construction equipment operated by PG&E would have to meet California air quality standards. Normal Best Management Practices (BMPs, i.e. dust control) will be made a mitigation measure. The short duration of construction (less than 2 weeks) and appropriate BMPs indicate that the quantity of air pollutants would not be substantial and would not affect human health or safety, or environmental quality. Following the installation of power poles and electric service line, the project would not emit toxic substances during operations or cause long-term effects to ambient air. No other air quality regulations, either federal or state would apply to this project.

Environmental Consequences – No Action

Under the No Action alternative, air pollution levels in the project area and air pollutant emissions associated with the installation of power poles and electric service lines would remain the same as existing conditions. Wetland management activities would continue to generate incidental air pollutant emissions that are limited to occasional vehicle and equipment use. No impacts would occur under this alternative.

Environmental Consequences – Proposed Action

Under the Proposed Action, the establishment of the PG&E easement and the installation of power poles and electric service line will result in the ±300-acre Easement restored to year-round wetland habitat. The use of farm equipment to manage the dry, upland habitats and control weeds through mowing or disking would be reduced significantly. The result of the Proposed Action is expected to be a net decrease in air emissions, as emissions from the maintenance of wetland habitats would be negligible. Overall, the Proposed Action would have a beneficial impact on air quality. Temporary construction impacts to air quality would be less than significant due to enforcement of BMPs and mitigation measures.

4.1.2 Greenhouse Gases

Greenhouse gases (GHGs) are gases that absorb and emit radiation within the thermal infrared range, trapping heat in the earth's atmosphere. GHGs are both naturally occurring and generated by human activity. GHGs include carbon dioxide (CO₂), the most abundant GHG, as well as methane, nitrous oxide and other less-common gases. Major GHG sources in California include transportation, industrial activities, electric power, commercial and residential land uses, and agriculture (ARB 2015). Increased atmospheric concentrations of GHGs are considered a main contributor to global climate change, the potential impacts of which in California include reduced Sierra Nevada snowpack, increased wildfire hazards, greater number of hot days with associated decreases in air quality, and potential decreases in agricultural production (Climate Action Team 2010).

Unlike the criteria air pollutants described above, GHGs have no "attainment" standards established by the federal government. Nevertheless, the EPA has found that GHG emissions endanger both the public health and public welfare under Section 202(a) of the Clean Air Act, due to their impacts associated with climate change (EPA 2009). The State of California has adopted a Climate Change Scoping Plan which involves a range of programs designed to reduce GHG emissions from vehicular transportation, energy production, area sources and other GHG emitters. The applicability of Scoping Plan requirements to agriculture or wetland management is minimal.

Agricultural activities in the project area contribute GHG emissions, mainly from agricultural vehicles and equipment. On the other hand, wetland restoration and revegetation removes GHGs from the atmosphere, as wetland vegetation absorbs CO₂ and sequesters it in the vegetation material and the soils.

Environmental Consequences – No Action

Under the No Action alternative, GHG emissions generally would remain the same as under existing conditions. Management activities within the dry former rice fields would continue to contribute GHG emissions, mainly from agricultural vehicles and equipment.

Environmental Consequences – Proposed Action

Under the Proposed Action, the establishment of the PG&E easement and the installation of power poles and electric service line will result in the ±300-acre Easement restored to year-round wetland habitat. This would expand the CO₂ absorption capacity of the project area, making the Easement a carbon sink. Thus, the Proposed Action would both eliminate the GHG emissions generated by dry habitat maintenance operations and remove an increased amount of GHGs from the atmosphere with the expanded wetland area. Overall, the Proposed Action would have no adverse impact related to GHG emissions, and consequently to global climate change.

4.2 Biological Resources

Unless otherwise cited, information for this section is provided primarily by a biological resource assessment conducted by Marcus H. Bole and Associates. Appendix A contains this assessment, which was conducted by a review of documents and databases and by field surveys to document habitats in the project area and to search for potential listed plant and wildlife species.

4.2.1 Vegetation and Plant Species

Land within the WRP is characterized as remnant rice fields now supporting non-native grasses and forbs (California annual grassland series) as well as a small amount of seasonal wetland grasses. Outside of the remnant rice fields is grassland classified in the California annual grassland series. Dominant grass species include perennial ryegrass, oats, creeping wild-rye, Bermuda grass, foxtail barley, ripgut brome, farmer's foxtail, and Johnsongrass. Intermixed with these grasses are black mustard, bull thistle, common groundsel, wild radish, prickly lettuce, fennel, common mallow, Russian thistle, chicory, and filaree.

All of the trees within or near the project area are associated with bed and banks of Oat Creek, an ephemeral drainage that is dry the majority of the year. Dominant trees include Fremont cottonwood, red willow, Gooding's black willow, and arroyo willow. In the understory of the trees along Oat Creek, dominant shrubs and vines include narrow-leaved willow, California button-willow, Himalayan blackberry, California wild rose, and California wild grape. No blue elderberry shrubs, which is habitat for the listed valley elderberry longhorn beetle, were observed on or adjacent to the Easement.

Environmental Consequences – No Action

Under the No Action alternative, existing conditions regarding vegetation and plant species would be unchanged. Under current drought conditions, the lack of water within the WRP would continue to allow establishment of undesirable upland vegetation in the wetland area.

Environmental Consequences – Proposed Action

Under the Proposed Action, the establishment of the PG&E easement and the installation of power poles and electric service line will result in the ±300-acre Easement restored to year-round wetland habitat. Wetland functions and values would be enhanced. The proposed source of supplemental hydrology will increase the duration of wetland flooding, improve the habitat value of the property, and provide a source of summer water for breeding birds, resident wildlife, the federally threatened giant garter snake.

4.2.2 Wildlife Species

A variety of bird species were observed during field surveys of the project area. Some of the more common birds observed include Canada goose, turkey vulture, red-tailed hawk, red shouldered hawk, American kestrel, northern harrier, great egret, great blue heron, American crow, northern mockingbird, mourning dove, western kingbird, Brewer's blackbird, and

redwinged blackbird. Several potential nest trees suitable for nesting raptors and other migratory birds, including Swainson's hawk, were observed on and near the project area, and a few stick nests also were observed. It is also considered likely that numerous songbirds nest within trees, shrubs, and grassland habitat in or adjacent to the project area. A variety of mammals common to agricultural areas are considered to likely occur in the project area. However, only coyote was directly observed; signs of raccoon and Virginia opossum were also observed. Black-tailed hare, desert cottontail, California ground squirrel, beaver, and striped skunk are expected to occur in the project area. Also expected to occur are small rodents such as mice and voles. Based on habitat types present, a variety of amphibians and reptiles may use the project area. Western fence lizard and Pacific chorus frog were observed, while Pacific pond turtle, bullfrog, common garter snake, and gopher snake are known to occur in the greater vicinity. The giant garter snake has been identified within the Colusa Basin Drainage Canal adjacent to the Easement. Additionally, a Wildlands Mitigation Bank has been established north of the Easement for the benefit of the giant garter snake. Due to the possibility of potential impacts to the giant garter snake, the following Avoidance and Minimization Measures will be incorporated into the project:

1. Construction activity will be limited to daylight hours between May 1 and October 1.
2. Twenty-four-hours prior to the commencement of construction activities, the project area shall be surveyed for giant garter snakes by a Service-approved biologist. The biologist will provide the Service with a written report that adequately documents the monitoring efforts within 24-hours of commencement of construction activities. The project area shall be re-inspected by the monitoring biologist whenever a lapse in construction activity of two weeks or greater has occurred.
3. A Service-approved biological monitor will be onsite during all ground disturbing activities to monitor construction actions. If any giant garter snakes are observed within or near the construction area, the biological monitor will be notified immediately so that they can make a positive identification of the snake. If a giant garter snake is found within the construction area, the biological monitor will have the authority to stop construction activities until appropriate corrective measures have been completed, or it is determined that the individual will not be harmed. Giant garter snakes encountered during construction activities will be allowed to move away from construction activities on their own. If a giant garter snake is unable to move away on its own, is trapped, or is injured, the U.S. Fish and Wildlife Service will be contacted immediately by telephone at (916) 414-6600/6601.
4. All construction vehicles and project related equipment left onsite overnight will be thoroughly inspected each day for giant garter snakes before they are moved.
5. A Worker Environmental Awareness Training Program for construction personnel shall be conducted by a Service-approved biologist for all construction workers, including contractors, prior to the commencement of construction activities.

6. During construction operations, stockpiling of construction materials, portable equipment, vehicles, and supplies will be restricted to the designated construction staging areas (top of farm access roads) and all operations will be confined to the minimal area necessary.
7. Project-related vehicles will observe a 10-mile-per-hour speed limit within construction areas, except on existing paved roads where they will adhere to the posted speed limits.
8. Refueling of heavy equipment and vehicles will not occur within the construction areas.

After completion of power pole installation activities, any disturbed areas will be restored to pre-project conditions wherever feasible. Disturbed areas will be reseeded with native upland grass species as required.

Environmental Consequences – No Action

Under the No Action alternative, existing conditions regarding wildlife species would be unchanged. Wildlife species would continue to utilize the existing available habitat in the project area.

Environmental Consequences – Proposed Action

Under the Proposed Action, the establishment of the PG&E right of way easement and the installation of power poles and electric service line will result in the ±300-acre Easement restored to year-round wetland habitat. Existing habitats for wildlife would generally remain, although the extent and location of these habitats would likely change. Given the common character of these wildlife species, the Proposed Action would have no substantial adverse impact on wildlife species. The supplemental hydrology within the Easement would have a positive effect on the giant garter snake by providing an additional source of year-round water close to already identified giant garter snake habitat.

4.2.3 Special-Status Species

“Special-status species” are plant and animal species that are legally protected under the federal and/or the California Endangered Species Acts. They also include species that are considered rare enough by the scientific community and trustee agencies to warrant special protection. Special-status plant species are those designated rare, threatened, or endangered and candidate species for listing by the U.S. Fish and Wildlife Service, or are considered rare and endangered under the provisions of Section 15380 of the California Environmental Quality Act Guidelines, such as plant species identified on Lists 1A, 1B, and 2 in the Inventory of Rare and Endangered Vascular Plants of California maintained by the California Native Plant Society. Additionally, special-status plant species may include other species that are considered sensitive or of special concern due to limited distribution or lack of adequate information for a decision on state or federal listing.

The biological assessment identified two special-status plant species that have been documented in the greater project vicinity or for which there is potentially suitable habitat in the greater

project vicinity. An analysis of the potential occurrence of these species within the project area concluded that none of these plant species are likely to occur, due to lack of suitable habitat. The biological assessment also identified seven special-status wildlife species that have been documented in the greater project vicinity or for which there is potentially suitable habitat in the greater project vicinity: 3 birds, 1 amphibian, 1 reptile, 1 fish, and 1 invertebrate. In general, the potential for intensive use of habitats in the project area by special-status wildlife species is low, and the site does not provide suitable habitat for several of these species. However, the close proximity to known habitat for the giant garter snake requires avoidance and minimization measures to ensure that the project does not adversely affect the giant garter snake.

Environmental Consequences – No Action

Under the No Action alternative, existing conditions regarding special-status species would be unchanged. Dry habitat management operations associated with ongoing drought conditions would continue to limit the flooding period of the Easement, significantly reducing the available timeframe to provide wetland habitat for migratory birds and wetland-dependent wildlife.

Environmental Consequences – Proposed Action

Under the Proposed Action, the establishment of the PG&E easement and the installation of power poles and electric service line will result in the ±300-acre Easement restored to year-round wetland habitat. This would provide additional habitat for special-status wildlife species that utilize wetland habitat, especially the giant garter snake. It also would enhance wetland management efforts within the Easement. Mitigation described in Chapter 5.0 would require pre-construction surveys prior to and during power pole installation activities to avoid impacts to the giant garter snake. The Proposed Action would have a beneficial impact with the provision of additional wetland habitat that would be of benefit to some special-status wildlife species.

4.2.4 Waters of the U.S. and Wetlands

Waters of the U.S., including wetlands, are broadly defined under 33 Code of Federal Regulations (CFR) 328 to include navigable waterways, their tributaries, and adjacent wetlands. They encompass territorial seas, tidal waters, and non-tidal waters. Non-tidal waters include interstate and intrastate rivers and streams, along with their tributaries. The limit of federal jurisdiction of non-tidal Waters of the U.S. extends to the “ordinary high water mark,” which is established by physical characteristics such as a natural water line impressed on the bank, presence of shelves, disturbance of terrestrial vegetation, or the presence of litter and debris. Jurisdictional wetlands are vegetated areas that meet specific vegetation, soil, and hydrologic criteria defined by the U.S. Army Corps of Engineers (ACOE) Wetlands Delineation Manual and Regional Supplement. Jurisdictional wetlands and Waters of the U.S. include, but are not limited to, perennial and intermittent creeks and drainages; lakes, seeps, and springs; emergent marshes; riparian wetlands; and seasonal wetlands.

Wetlands and Waters of the U.S. provide critical habitat components, such as nest sites and a reliable source of water, for a wide variety of wildlife species. State and federal agencies regulate

these habitats, and Section 404 of the Clean Water Act requires that a permit be secured prior to the discharge of dredged or fill materials into any waters of the U.S., including wetlands.

Environmental Consequences – No Action

Under the No Action alternative, existing conditions regarding Waters of the U.S. and wetlands in the Yolo County area would be unchanged.

Environmental Consequences – Proposed Action

The Proposed Action would not require construction activities or impacts to existing jurisdictional Waters of the U.S. and wetlands in the Yolo County area. However, the Easement would be converted from dry upland habitat to full wetland restoration. Restoration of the Easement will require the installation of power poles and electric service lines to power an onsite well. Overall, the Proposed Action would have no significant adverse impact to Waters of the U.S. and wetlands, and would have a beneficial impact.

4.3 Cultural Resources

Unless otherwise cited, information for this section is provided primarily by a June 2022 cultural resource inventory of the project area by Sean Michael Jensen, M.A., which is available in Appendix B of this EA. The inventory was prepared in accordance with the provisions of Section 106 of the National Historic Preservation Act.

The Area of Potential Effects (APE) for a project is defined in the regulations implementing the Section 106 review process as the geographic area or areas within which an undertaking may directly or indirectly cause changes in the character or use of historic properties, if any such properties exist. For this project, the APE is Yolo County Assessor's Number 053-200-001, which is encompassed by the study area for the Easement.

4.3.1 Archaeological Resources

In the Northern Sacramento Valley generally and in the vicinity of the project area, Aboriginal populations continued to expand between 6,500 and 4,500 years ago. Early Penutian-speaking arrivals in this area may be represented by the archaeological complex known in the literature as the "Windmill" or "Early Horizon." These sites date to about 4,000-5,000 years ago, with the connection to Penutian-speaking peoples suggested on the basis of extended burials, large leaf-shaped and stemmed projectile points similar to points of the Stemmed Point Tradition in the Plateau and portions of the Great Basin, large villages established along major waterways, and elaborate material culture with a wide range of ornamental and other non-utilitarian artifact types being present. The continuation of this pattern through the "Middle Horizon", or from about 1,000 B.C. to A.D. 300, has also been documented at riverine sites within the Sacramento Valley, including sites along the Feather River north of its confluence with the Bear River, and along the Sacramento River at Knights Landing and northward to Colusa west of the Sutter Buttes.

The project area is located within territory which, at the time of initial contact with European/American culture (*circa* AD 1830's), was occupied by the Patwin. The Patwin spoke a language belonging to the Penutian language family, along with the nearby Nisenan and Maidu, as well as Miwok, Costanoan, Yokuts, and other Valley and Bay groups. The boundary separating the Patwin and the Nisenan to the east of the Sacramento River was fluid and likely shifted over time, but the project area, located wholly west of the Sacramento River and south of its confluence with the Feather River, appears to have been located within lands claimed and utilized by the Patwin.

The 2022 cultural resource inventory conducted a records search for recorded archaeological sites within the project area, along with a field survey. Existing records at the Northwest Information Center document that none of the present APE had been subjected to previous pedestrian archaeological investigation, and that one resource had been plotted within the APE due to a mapping error. Otherwise, no cultural resources have been documented within the APE. As well, the present effort included an intensive-level pedestrian survey. No prehistoric or historic-era cultural resources were identified during the pedestrian survey.

Environmental Consequences – No Action

Under the No Action alternative, existing land use conditions related to archaeological resources would remain the same. No new areas that could potentially contain archaeological resources would be disturbed. No impacts would occur under this alternative.

Environmental Consequences – Proposed Action

Under the Proposed Action, the Easement would be converted from dry, upland habitats to full wetland restoration. Given the negative results of the survey and past disturbance by agricultural activities, it is unlikely that any archaeological resources would be uncovered by wetland restoration activities within the Easement.

4.3.2 Historical Resources

Recorded history in the project area begins with the attempts of Spanish colonists to explore parts of California beyond the coastal zone. Gabriel Moraga's expedition was undertaken in 1806, with additional incursions occurring through the late 1830's and 1840's, including John Work's fur trapping expedition through central California in 1832-33, one of the best documented of the early forays into the Great Central Valley. Work's expedition introduced several communicable diseases to the Native inhabitants that turned out to be devastating to Patwin culture and society.

Additional major incursion by European American populations followed John Sutter's petition for and award of the New Helvetia Land Grant colony in 1839, with the Grant defining much of present-day Sacramento. Operating initially from Sutter's Fort, the Swiss emigrant planted wheat and raised cattle and horses, and employed many local Nisenan people on his Hock Farm on the west side of the Feather River, northeast of the present project area.

Discovery of gold in 1848 at Coloma resulted in the influx of thousands of fortune seekers into California and the Sacramento area, ultimately destroying Sutter's hopes for a northern agrarian empire. The embarcadero became a trading center instead, with supplies from San Francisco sold to miners departing for the foothills east of Sacramento and elsewhere in the Sierra Nevada.

By 1849, Sutter's son had assumed title to New Helvetia, and began a systematic survey of the extensive land grant, resulting eventually in a network of straight 80-foot wide streets and 20-foot wide alleys within Sacramento. Proximity to the American and Sacramento Rivers prompted levee construction as early as 1850.

Yolo County was one of the original 27 counties when California became a State in 1850. Initially, the County's territory was nearly twice as large as it is now and included a large portion of present-day Colusa County. By 1923, the boundaries were redrawn to their current configuration. It is thought that the name "Yolo" is derived from the word *yoloy*, the Native American word signifying "a place filled with rushes."

The project area has historically been used for agriculture, and the Easement is currently being used for seasonal wetland and upland conservation purposes. The 2022 cultural resource inventory conducted a records search for historical resources, along with a field survey. A review of Google Earth aerial photos taken since 1993 showed no buildings or other structures within the project area. The field survey did not encounter any historical resources.

Environmental Consequences – No Action

Under the No Action alternative, existing conditions regarding historical resources would be unchanged. Given the lack of record of historic resources and past disturbance by agricultural activities, it is unlikely that there are any historical resources within the project area. No impacts or historic properties would occur under this alternative.

Environmental Consequences – Proposed Action

Under the Proposed Action, the Easement would be converted from dry, upland habitats to full wetland restoration. Given past disturbance of the Easement area by agricultural activities plus the lack of record of historic resources, it is unlikely that any historical resources would be uncovered by wetland restoration activities within the Easement.

4.4 Geology and Soils

The project site is located within the alluvial Great (Central) Valley geomorphic province, which is an approximately 450-mile long, and 50 mile-wide sediment-filled trough flanked on the east and west by the Sierra Nevada and Coast Ranges. A custom soil survey of the project area, based upon previous work by the Natural Resources Conservation Service, indicates the project area is underlain by two soil types (NRCS 2022):

The Capay component makes up the majority of the map unit. This component is on basin floors on valleys. The parent material consists of silty and clayey alluvium derived from igneous,

metamorphic and sedimentary rock. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is moderately well drained. Water movement in the most restrictive layer is moderately low. Available water to a depth of 60 inches (or restricted depth) is moderate. Shrink-swell potential is high. This soil is frequently flooded. It is frequently ponded. A seasonal zone of water saturation is at 48 inches in January and February. Organic matter content in the surface horizon is about 2 percent. Nonirrigated land capacity classification is 4w. Irrigated land capability classification is 4w. This soil meets hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a maximum sodium adsorption ratio of 7 within 30 inches of the soil surface.

The Willows component makes up a substantial part of the map unit. Slopes are 0 percent. This component is on flood basin floors on valleys. The parent material consists of clayey alluvium derived from igneous, metamorphic and sedimentary rock. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is poorly drained. Water movement in the most restrictive layer is low. Available water to a depth of 60 inches (or restricted depth) is moderate. Shrink-swell potential is very high. This soil is frequently flooded. It is frequently ponded. A seasonal zone of water saturation is at 13 inches during January and February. Organic matter content in the surface horizon is about 3 percent. Nonirrigated land capacity classification is 4w. Irrigated land capacity classification is 4w. This soil meets hydric criteria. The calcium carbonate equivalent within 40 inches, typically does not exceed 1 percent. There are no saline horizons within 30 inches of the soil surface. The soil has a maximum sodium adsorption ratio of 18 within 30 inches of the soil surface.

There are no active or potentially active faults located within or near the project area. No Alquist-Priolo Earthquake Fault Zones, designated by the California State Geologist as areas of potential surface fault rupture, are located within the project area (California Geological Survey 2015).

Environmental Consequences – No Action

Under the No Action alternative, existing conditions regarding geology and soils would remain. There would be no new disturbance of soils, other than from periodic upland management activities such as light disking to create fire breaks. No impacts would occur under this alternative.

Environmental Consequences – Proposed Action

Under the Proposed Action, the establishment of the PG&E easement and the installation of power poles and electric service line will result in the ±300-acre Easement restored to year-round wetland habitat. This land use would not be adversely affected by soil conditions or geologic hazards. The Proposed Action would have no adverse impacts on geology and soils.

4.5 Hazards and Hazardous Materials

Data on hazardous material sites in California are kept in the GeoTracker database, maintained by the State Water Resources Control Board (SWRCB), and in the EnviroStor database,

maintained by the California Department of Toxic Substances Control (DTSC). Both databases include sites monitored by the state, while the EnviroStor database also includes federal Superfund sites. A search of GeoTracker and EnviroStor indicated no record of active hazardous material sites (i.e., sites not cleaned up) or any other recorded sites within or in the immediate vicinity of the project area (DTSC 2022). The project area is predominantly fallowed agricultural land, with no significant industrial or commercial activities that would require the use and storage of hazardous materials. Agricultural operations may involve the use of pesticides and herbicides that may have accumulated in the soil. Wetland restoration activities also include weed control, which may include the periodic use of herbicides. All herbicides applied to the Easement must be done so in compliance with a Compatible Use Authorization from NRCS which includes working with a certified Pesticide Control Advisor. Under NRCS Conservation Practice Code 657 – Wetland Restoration, sites suspected of containing hazardous materials shall be tested to identify appropriate remedial measures. If remedial measures are not possible or practicable, then the practice shall not be planned.

Wildland fires are an annual hazard in Yolo County, predominantly in the foothill regions. Wildland fires burn natural vegetation on undeveloped lands and include rangeland, brush, and grass fires. Long, hot, and dry summers with temperatures often exceeding 100°F add to the County's fire hazard. The County wildfire hazard is mainly located in the foothill regions, while the project area is located within the Sacramento Valley, a region with much more abundant surface and groundwater. The project area itself consists of mostly wetlands and fallowed agricultural fields, which are not prone to wildfires.

Environmental Consequences – No Action

Under the No Action alternative, existing conditions regarding hazards and hazardous materials would remain. Existing habitat management operations would continue within the Easement at the landowner's and NRCS' discretion. No new impacts would occur under this alternative.

Environmental Consequences – Proposed Action

Under the Proposed Action, the establishment of the PG&E easement and the installation of power poles and electric service line will result in the ±300-acre Easement restored to year-round wetland habitat. Steps taken to avoid or minimize potential impacts shall be conducted in accordance with NRCS Conservation Practice Code 657 – Wetland Restoration. With implementation of this practice, the Proposed Action would have no adverse impacts related to hazardous materials.

4.6 Hydrology and Water Quality

4.6.1 Surface Waters and Water Quality

Water quality is regulated by the U.S. Army Corps of Engineers under its Section 404 permit program and Section 401 water quality certification program. Under Section 404 of the Clean Water Act, a permit is required for the discharge of dredged or fill material into Waters of the U.S. The 401 certification is required in conjunction with 404 permits. Neither the Proposed

Action nor the No Action alternative propose such discharges into nearby Waters of the U.S. Agricultural activities in California are subject to the state's Irrigated Lands Regulatory Program, which is designed to control discharges from agricultural fields into both surface and ground waters. Under this program, farms subject to this program are to implement management practices and to verify the effectiveness of these practices in protecting water quality. All farms in the program are required to submit information on their activities, including a Farm Evaluation and a nitrogen management plan. The Farm Evaluation determines what farm practices are being implemented and if improvements can be made to protect water quality. The nitrogen management plan applies to farms in areas where groundwater is impacted by nitrates or other constituents associated with agriculture. Surface and ground waters are monitored either by the individual grower or by a third-party coalition group that a farm can join. Compliance and enforcement is often conducted at an informal level, but formal enforcement by the RWQCB may occur.

Environmental Consequences – No Action

Under the No Action alternative, existing conditions regarding surface waters and water quality would remain. Water use, which is strictly seasonal precipitation and periodic flooding from the Colusa Basin Drain, within the Easement is expected to remain similar to past usage. No hydrology or water quality impacts would occur under this alternative.

Environmental Consequences – Proposed Action

Under the Proposed Action, the Easement would be able to obtain supplemental water from the onsite well and be fully converted to year-round wetland wildlife habitat. The Proposed Action would have no adverse impacts on surface waters and their quality.

4.6.2 Groundwater and Groundwater Quality

The Easement lies within the Yolo Subbasin (5-021.67) of the Sacramento Groundwater Basin (5-021). It is bounded on the east by the Sacramento River, on the west by the Coast Range, on the north by Cache Creek, and on the south by Putah Creek. The basin is roughly bisected by an anticlinal structure, but otherwise is gently sloping from west to east with elevations ranging from approximately 400 feet at the base of the Coast Range to the west to nearly sea level in the eastern areas. As stated in *California Groundwater Bulletin 118* published by the Department of Water Resources (DWR), groundwater levels are impacted by periods of drought but recover quickly in “wet” years. Long term trends do not indicate any significant decline in water levels. Past studies (Scott, 1975) have concluded that the Yolo subbasin is subject to overdraft, however the completion of Indian Valley Reservoir in 1976 provided significant relief in the form of additional available surface water.

Groundwater found within the subbasin is characterized as a sodium magnesium, calcium magnesium, or magnesium bicarbonate type. The quality is considered good for both agricultural and municipal uses, even though it is hard to very hard overall (generally over 180 mg/l CaCO₃).

Environmental Consequences – No Action

Under the No Action alternative, existing conditions regarding groundwater and groundwater quality would remain. Existing activities would not use groundwater, and groundwater contamination would not occur. No impacts would occur under this alternative.

Environmental Consequences – Proposed Action

Under the Proposed Action, supplemental water will be obtained through the use of an existing groundwater well. The amount of groundwater used to supplement seasonal precipitation would not significantly impact the Yolo Subbasin or contribute to significant subbasin overdraft especially since additional water could be made available from the Colusa Basin Drain through the use of a lift pump. No significant impacts would occur under the Proposed Action.

4.6.3 Floodplain Management

According to floodplain maps issued by the Federal Emergency Management Agency (FEMA), the entire Easement is located within Zone A. Flood Zone A is defined as the 1% annual chance flood, no base flood elevations determined. As previously noted, the project area is used for wetland management and floodwater retention.

Environmental Consequences – No Action

Under the No Action alternative, existing conditions related to floodplain management would be unchanged. Existing activities would not alter the existing flood hazard. No structures would be constructed that would either be threatened by flooding or would alter flood flows. No floodplain-related impacts would occur under this alternative.

Environmental Consequences – Proposed Action

Under the Proposed Action, changes to land uses would not alter the existing flood hazard. No structures would be constructed that would either be threatened by flooding or would alter flood flows. No floodplain-related impacts would occur under the Proposed Action.

4.7 Land Use and Agriculture

4.7.1 Land Uses and Housing

The project area is located in rural Yolo County. Agricultural fields dominate the landscape in the vicinity of the Easement area, primarily row crops and orchards. The Easement has been set-aside for wetland wildlife enhancement and use. There are no buildings or other structures within or near the Easement area.

Environmental Consequences – No Action

Under the No Action alternative, existing land use and housing conditions would be unchanged. There are no residences in the project area or vicinity, and no housing units are planned. There would be no impact on residents or housing under the alternative.

Environmental Consequences – Proposed Action

Existing conditions regarding population and housing would remain. There are no residences in the project area or vicinity, and no housing units are planned or would be removed. The project would have no impact on residents or housing.

4.7.2 Agriculture

The Yolo County Assessor identifies APN 053-200-011 (the Easement) as Agricultural Preserve (A-P). Recent changes to the Yolo County Zoning Ordinance indicates that A-P zones will be reclassified as Agricultural Intensive (A-N). The surrounding area is characterized as agriculturally zoned with no proposals to change this status. The Easement is Deed Restricted as a Wetland Reserve under the jurisdiction of the Natural Resource Conservation Service and with ownership designated as C & T Ochoa Family Trust.

Environmental Consequences – No Action

Under the No Action alternative, existing conditions regarding agriculture would remain. The Easement would remain without modification and no further impacts on use would occur under this alternative.

Environmental Consequences – Proposed Action

Under the Proposed Action, the Natural Resource Conservation Service would agree to modify Easement 66-9104-04-00FML to allow a 2.75-acre portion of the Easement to be placed in a PG&E right of way easement for the installation of thirteen power poles and electric service lines to power an existing onsite irrigation well. Easement modification is the subject of this Environmental Assessment. The positive result of granting the easement modification is the availability of supplemental water that will allow the Easement to maintain year-round water and result in increased wetland wildlife functions and values.

Overall, the Proposed Action would have positive impact by allowing the purpose of the Wetland Reserve to achieve the original intent of creating a fully functioning year-round high value wetland wildlife habitat.

4.8 Noise

The potential for noise impacts from a project is related to noise levels it generates and the noise sensitivity of potential “receptors” (i.e., land uses) in the vicinity of the noise source. In the project area, sources of noise include occasional vehicle traffic, and equipment currently used to

maintain the Easement to keep it from becoming a fire hazard. There are no noise-sensitive land uses in the project vicinity, such as residences, schools, churches, or health care facilities.

Environmental Consequences –No Action

Under the No Action alternative, existing noise conditions would be unchanged. Existing Easement maintenance activities would continue to generate the same amount of noise as under existing conditions. No noise-sensitive land uses exist or are expected to be established in the vicinity. Existing land use activities would not be subject to adverse noise impacts. No new noise impacts would occur under this alternative.

Environmental Consequences – Proposed Action

Under the Proposed Action the flooded fields would no longer need maintenance to lower potential fire hazards, noise would be more intermittent (power pole and electric service maintenance), and no noise-sensitive land uses exist or are expected to be established in the vicinity. Noise associated with the construction of the power poles and electric service lines will be of short duration. The area around the project site is rural with few receptors within a five mile radius. Overall, the Proposed Action would have a positive impact on current noise levels.

4.9 Public Services and Utilities

4.9.1 Public Services

The Easement area is serviced by the Yolo County Sheriff's Department. The Zamora Volunteer Fire District provides fire protection. Waste Management would be the company providing garbage service; however, these services have not been required within the Easement to date.

Environmental Consequences – No Action

Under the No Action alternative, there would be no change to existing public services conditions. Demand for public services from the wetland Easement would continue to be low, especially as there are no residents in or in the immediate vicinity of the project area. No impacts would occur under this alternative.

Environmental Consequences – Proposed Action

Under the Proposed Action, there would be no substantial change to existing public services conditions. Demand for public services from the wetland Easement area would be low, especially as there are and would be no residents in or in the immediate vicinity of the project area. Land uses within the project area would not substantially change under the Proposed Action. No impacts would occur under the Proposed Action.

4.9.2 Utilities

The project area is located in a rural area of Yolo County. Organized domestic water, sewage collection and treatment, and storm drainage services are not available. The Easement currently does not have access to irrigation water from groundwater wells or from the Colusa Basin Drain. No septic or other on-site disposal systems serve the project area.

Environmental Consequences – No Action

Under the No Action alternative, there would be no change to existing conditions regarding utilities and service systems. There would be no foreseeable demand for additional utility services that would require construction of facilities or extension of existing services. Water use would be unchanged from existing conditions. No utility impacts would occur under this alternative.

Environmental Consequences – Proposed Action

Under the Proposed Action, there is one major change, the addition of PG&E power poles and electric service lines to power a groundwater well and lift pump. There would be no foreseeable demand for additional utility services that would require construction of facilities or extension of existing services.

4.10 Transportation

Access to the Easement is provided by Yolo County Road 10 and unnamed farm roads that service the Ochoa property. No regular public transit service is provided to the project area. There are no designated bike routes nor pedestrian sidewalks. There are no airports, railroad tracks, or other transportation facilities in the vicinity.

Environmental Consequences – No Action

Under the No Action alternative, there would be no change to existing conditions regarding transportation. Existing vehicle traffic conditions would not change, and no transportation facilities would be constructed. No impacts would occur under this alternative.

Environmental Consequences – Proposed Action

Under the Proposed Action, there would be no change to existing conditions regarding transportation. Existing vehicle traffic conditions would not change, and no transportation activities would be constructed. No impacts would occur under the Proposed Action.

4.11 Visual Resources

As described in Section 4.7, Land Use and Agriculture, the Easement is within Yolo County, containing agricultural lands, along with scattered residences and small towns. The project area

itself contains a mix of preserved wetlands and upland areas associated with the former rice fields. In the distance, views of the Coast Ranges to the west and the Sierra Nevada to the east constitute the major scenic vistas in the project area, when visibility conditions permit.

Environmental Consequences – No Action

Under the No Action alternative, visual conditions in the project area would remain the same as existing conditions. The Easement would continue to be used for wetland management, and except for the addition of supplement water, would retain its current landscape. There would be no impacts on visual resources.

Environmental Consequences – Proposed Action

Under the Proposed Action, visual conditions in the project area would remain the same as existing conditions. The Easement would continue to be used for wetland management, and except for the addition of supplement water, would retain its current landscape. The Proposed Action would have no adverse visual impacts.

4.12 Environmental Justice

Executive Order 12898 requires each Federal agency to achieve environmental justice as part of its mission. This is to be accomplished by identifying and addressing disproportionately high adverse human health or environmental effects, including social and economic effects, of its programs and activities on minority populations and low-income populations of the United States. In analyzing the environmental impacts of NRCS actions, it must be determined if low-income populations, minority populations, Indian Tribes, or other specified populations would experience disproportionately high and adverse health impacts resulting from the proposed action.

As noted in Section 4.9, Population and Housing, the project area has no residences; thus, no permanent population resides there, including minority and lower-income residents, and there are no disadvantaged communities located in the area. Only workers related to agricultural activities or wetland management visit the project area.

Environmental Consequences – No Action

Under the No Action alternative, there would be no change to existing environmental justice conditions. The project area would remain in wetland use, with no permanent residents and only occasional visits by workers. No environmental justice impacts would occur under this alternative.

Environmental Consequences – Proposed Action

Under the Proposed Action, there would be no change to existing environmental justice conditions. The project area would remain in wetland use, with no permanent residents and only

occasional visits by workers. No environmental justice impacts would occur under this alternative.

4.13 Cumulative Effects

According to the NEPA regulations, a cumulative impact is defined as “the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions.” Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. There are no other known foreseeable development projects located in the vicinity of the proposed project. The Proposed Action would modify an existing WRP easement such that PG&E would be able to install power poles and electric service lines to power an existing well and pump. As discussed elsewhere in this EA, the result would be a net increase in wetland wildlife habitat, which would be consistent with the goals of the WRP and would reverse the historical trend of reduced wetland acreage in California. Overall, the Proposed Action would not have substantial cumulative effects on the environment. The net addition of wetland area would be considered a beneficial cumulative effect.

5.0 MITIGATION MEASURES

Chapter 4.0 of this EA identifies the impacts that could be expected to result from the project. This chapter identifies mitigation measures that would avoid or minimize the impacts that are otherwise not mitigated by applicable regulations, programs, or practices. The section of the EA wherein a subject is discussed is indicated in brackets [4.x] following each category heading below.

Air Quality [4.1.1]. Installation of PG&E power pole and electric service lines will require approximately two weeks of vehicles and equipment moving both onsite and offsite. All vehicles will be required to meet California air quality standards. If fugitive dust becomes an issue, water from an appropriate water truck will be used to prevent dust from leaving the immediate area of construction operations.

Biological Resources [4.2.2]. Trees, shrubs, and grasslands in and near the Easement may be used by nesting birds protected by the Migratory Bird Treaty Act and the California Fish and Game Code. Therefore, the following mitigation measure would be implemented:

- If vegetation removal and/or construction of the PG&E power poles and electric service lines occurs between February 1 and August 31, a pre-construction nesting bird survey shall be conducted. If active nests are found within the site, vegetation removal and/or project construction shall be delayed until the qualified onsite biologist monitor determines nesting is complete.
- The close proximity to habitat that supports the giant garter snake will require preconstruction surveys, the possible use of exclusion fencing, and onsite biological monitoring by a Service approved biologist (see Biological Assessment)

Cultural Resources [4.3.1]. Given historic agricultural disturbances within the Easement, it is unlikely that any archaeological or historical resources would be uncovered by power pole and electric service line installation. Nevertheless, it is conceivable that a resource of value could be uncovered in the project area during construction activities. Therefore, the following mitigation measure would be implemented:

- If any subsurface cultural resources are encountered during the installation of power poles and electric service lines within the proposed 2.75-acre PG&E easement, all construction activities in the vicinity of the encounter shall be halted, and the NRCS shall be notified. A qualified archaeologist shall examine these materials, make a determination of their significance, and recommend the protection or disposition of the resource. The client shall be responsible for retaining qualified professionals and for implementing recommended resource disposition.

6.0 REFERENCES

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6.2 Persons Consulted

NRCS technical personnel who provided significant contributions to this EA analysis included:

Nathan Key, Natural Resources Conservation Service, Yuba City, California.

Dan Kwasny, Easement Program Specialist, Natural Resource Conservation Service, Davis, California, 95616

APPENDIX A: BIOLOGICAL ASSESSMENT



Marcus H. Bole & Associates
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June 18, 2022

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**BIOLOGICAL ASSESSMENT FOR OCHOA HABITAT IMPROVEMENT PROJECT,
YOLO COUNTY, CALIFORNIA. MHBA FILE 0103-2022-3781.**

INTRODUCTION

This report details the results of a biological resources inventory survey involving approximately 305-acres of land adjacent to the north side of County Road 10, and the south side of Oat Creek, immediately southwest of the Colusa Basin Drainage Canal, approximately 4.5-miles southeast of Dunnigan, in Yolo County, California. Approximately 301.5-acres of the overall 304.49-acres is protected by a wetland reserve program conservation easement in perpetuity, with a 3+ acre building cutout not encumbered with the easement near the southwest corner of the property along County Road 10.

The current conveyance system fails to properly produce an adequate amount of water for the wetland habitat and inhibits successful wetland management during all but the wettest years, resulting in marginal wetland functions and values. The landowner proposes an easement modification to allow a 30' x 4,000' right of way (2.75-acres) along the northerly boundary of the larger property where electric service lines and PG&E power poles will be installed (the action area). These lines will provide power to an existing well on the easement. The proposed source of supplemental hydrology will increase the duration of wetland flooding, improve the habitat value of the property, and provide a source of summer water for breeding birds, resident wildlife, and the Federally threatened giant garter snake, *Thamnophis gigas*. Access to the action area is along existing unpaved farm roads.

This biological assessment has been prepared in accordance with legal requirements set forth under Section 7 of the Endangered Species Act (16 U.S.C. 1536 (c)), and follows the standards established in the Endangered Species Act guidance. Onsite habitat evaluations were conducted during the January - June, 2022 time period by Marcus H. Bole, M.S., Senior Wildlife Biologist, and Charlene J. Bole, M.S., Senior Wetland Scientist, Marcus H. Bole & Associates, 104 Brock Drive, Wheatland, CA 95692.

Habitats within the 304.49-acre biological study area (BSA) includes remnant rice fields now used as enhanced wetland wildlife habitat and unpaved access roads. Assessments were designed to evaluate potential habitat for the giant garter snake, *Thamnophis gigas* (Federal

Threatened, State Threatened). Through avoidance and minimization measures, timing and design, no take of the giant garter snake is expected to occur. No other state or federally listed species are expected to occur in or near the BSA.

THREATENED, ENDANGERED, PROPOSED THREATENED OR PROPOSED ENDANGERED SPECIES

The species considered in this document are:

Giant garter snake, <i>Thamnophis gigas</i>	Federal Threatened
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CRITICAL HABITAT

Giant garter snake, <i>Thamnophis gigas</i>	None Designated
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CONSULTATION TO DATE

January 10, 2022. Email correspondence from Dean Kwasny, Easement Program Specialist, USDA-Natural Resources Conservation Service, coordinating an onsite inspection of Ochoa property being considered for easement modification.

January 24, 2022. Request special status species information and databases from California Department of Fish & Wildlife (California Natural Diversity Database - CNDDDB), and the United States Fish & Wildlife Service (USFWS - IPaC).

March 1, 2022. Email correspondence from Dean Kwasny with Warranty/Easement Deed information on Ochoa property.

April 5, 2022. Email correspondence from Dean Kwasny with PG&E Powerline Design.

PREVIOUS SITE SURVEY INFORMATION REVIEWED

Wylie, G.D. Brian Halstead, Mike Casazza & Julia Ersan, 2013. Surveys for Giant Garter snakes (*Thamnophis gigas*) in Butte, Colusa, Glenn, Yolo, and Yuba Counties, 2008-2011, Data Summary for California Waterfowl Association, United States Geological Survey, Western Ecological Research Center, Dixon, CA. Surveys conducted in rice fields, ditches and laterals in the vicinity of the City of Knights Landing.

Halstead, Brian J., Shannon M. Skolos, Michael L. Casazza, and Glen D. Wyle. A Preliminary Investigation of the Variables Affecting the Distribution of Giant Gartersnakes (*Thamnophis gigas*) in the Sacramento Valley, California. California Department of Water Resources. Open File Report 2015-1178.

DESCRIPTION OF THE PROPOSED ACTION

The BSA is located in Yolo County, adjacent to the north side of County Road 10, and the south side of Oat Creek, immediately southwest of the Colusa Basin Drainage Canal, approximately 4.5-miles southeast of Dunnigan, California. The center of the BSA is approximately 38.845136°North, -121.908978°West, within Section 31, Township 12 North, Range 1 East, Zamora 7.5" USGS Quadrangle. The project consists of an easement modification to allow a 30' x 4,000' right of way along the northern boundary of the parcel where electric service lines and PG&E power poles will be installed. The lines will provide power to an existing well currently within the proposed easement modification area (action area). PG&E will install thirteen power poles within the 4,000 linear foot easement. Installation of power poles and electric service lines is estimated to take approximately two weeks.

The action area is defined as the 2.75-acre area of power pole installation within the 304.49-acre Biological Study Area (BSA) (See Enclosure A). Habitats within the 2.75-acre action area include dirt access farm road running parallel to Oat Creek and non-native grasses and forbs between the access road and Oat Creek. There is no anticipated impact to the bed or banks of Oat Creek. The action area does not include the bed or banks of the Colusa Basin Drain. However, the Colusa Drain and the Wildlands Mitigation Bank to the north of the action area provides suitable habitat for the giant garter snake.

Topography in the action area is nearly flat with the elevation being approximately 30-feet above sea level. The BSA and action area are located within the Northern Central Valley of California. California's Central Valley is characterized by a Mediterranean climate, with cool, rainy winters and hot, dry summers. Summers in California's Central Valley can go from 2-5 months without any significant amount of rainfall. The average annual temperature for the BSA ranges from 51-75°F, with the hottest temperatures occurring in July, reaching on average a maximum of 94°F (weather.com, 2017). The average yearly rainfall totals for the area is approximately 19.37 inches, with the maximum annual precipitation occurring in January. Due to the consecutive months lacking rain during the summer, water features and wetlands in the Central Valley tend to dry down significantly or completely.

SPECIES ACCOUNTS AND STATUS OF SPECIES IN THE ACTION AREA

ENDANGERED SPECIES ACT

This biological assessment analyzes the effects of the project (installation of power poles and electric service lines within 2.75-acre action area) on the giant garter snake (*Thamnophis gigas*). The giant garter snake (GGS) is an endemic species of wetlands in the Central Valley of California. The Central Valley extends 644 kilometers (400 miles) from the vicinity of Red Bluff in the north to Bakersfield in the south and encompasses an area of about 5,260,840 hectares (13,000,000 acres). The Central Valley is made up of the Sacramento Valley in the north and the San Joaquin Valley in the south. Historically, giant garter snakes were found in the Sacramento and San Joaquin Valleys from the vicinity of Butte County southward to Buena Vista Lake, near Bakersfield in Kern County. Today, populations of the giant garter snake are found in the Sacramento Valley and isolated portions of the San Joaquin Valley, making up approximately

nine recognized populations. They historically inhabited natural wetlands and now occupy a variety of agricultural, managed, and natural wetlands including their waterways and adjacent upland habitats. As a result of habitat loss and fragmentation, declining populations, and continuing threats to the remaining populations, the giant garter snake was listed as a federally threatened species on October 20, 1993. The State of California listed the giant garter snake as a threatened species in 1971.

GGs preys primarily on aquatic species such as fish and amphibians. Generally active from April through September, the giant garter snake breeds from March into May, and again briefly in September. Young are brooded internally by females, who give birth to live young from late July into September. Young disperse into dense cover and reabsorb their yolk sacs, then begin feeding on their own. They reach sexual maturity in three to five years. The snake requires enough water during its active season to maintain high densities of prey, emergent wetland vegetation for cover and foraging, and adjacent uplands and openings in streamside vegetation for basking sites. Higher uplands are used for cover and refuge from floodwaters during its non-active season. The giant garter snake is typically absent from wetlands with sand, gravel, or rock substrates, and from riparian woodlands.

ENVIRONMENTAL BASELINE

The environmental baseline is an analysis of the effects of past and ongoing human and natural factors leading to the current status of the species, its habitat, and ecosystem within the action area. For purposes of this Biological Assessment the action area includes the 2.75-acre project footprint within the 304.49-acre BSA comprising remnant rice fields and upland habitat (farm access roads).

The giant garter snakes historical range encompasses the majority of the Central Valley of California, with habitat characteristics, species status, degree of threats, and needed recovery actions varying across the large geographic area. Currently, the USFWS recognizes 9¹ separate populations of giant garter snake, with each population representing a cluster of discrete locality records. The 9 extant population clusters largely coincide with historical riverine flood basins and tributary streams throughout the Central Valley (Hansen 1980, Brode and Hansen 1992):(1) Butte Basin Recovery Unit, (2) Colusa Basin Recovery Unit, (3) Sutter Basin Recovery Unit, (4) American Basin Recovery Unit, (5)Yolo Basin Recovery Unit, (6) Cosumnes-Mokelumne Basin Recovery Unit, (7) Delta Basin Recovery Unit, (8) San Joaquin Basin Recovery Unit, and (9) Tulare Basin Recovery Unit. The 11 counties where the giant garter snake is still presumed to occur are: Butte, Colusa, Glenn, Fresno, Merced, Sacramento, San Joaquin, Solano, Stanislaus, Sutter and Yolo.

Historically, giant garter snakes inhabited the Sacramento and San Joaquin Valleys from the vicinity of Chico, in Butte County southward to Buena Vista Lake, near Bakersfield in Kern County, California. The eastern and western boundaries of the giant garter snake range from the foothills occurring along each side of the Central Valley - the Coast Range to the west and the

¹ USFWS, 2015. Revised Draft Recovery Plan for the Giant Garter Snake (*Thamnophis gigas*). Previously, the USFWS recognized 13 (from listing rule) populations.

Sierra Nevada to the east. Observations of individual giant garter snakes range in elevation from 3 to 12 meters (10 to 40 feet) in the southern Sacramento Valley. Although the boundaries of the giant garter snakes original distribution are undetermined, occurrence records coincide with the historical distribution of the large flood-basins, freshwater wetlands, and tributary streams of the Central Valley's Sacramento and San Joaquin watersheds (Hansen and Brode 1980).

Essential Habitat Components

The giant garter snake inhabits agricultural wetlands and other waterways, such as irrigation and drainage canals, rice lands, marshes, sloughs, ponds, small lakes, low gradient streams, and adjacent uplands in the Central Valley. There are three habitat components that appear to be most important to the giant garter snake (G. Hansen 1982, 1986, 1988, 1996a; Wylie *et al.* 1995, 1997; Halstead *et al.* 2010):

- (1) A fresh-water aquatic component with protective emergent vegetation cover that will allow foraging,
- 2) An upland component near the aquatic habitat that can be used for thermoregulation and for summer shelter in burrow, and,
- 3) An upland refugia component that will serve as winter hibernacula.

Giant garter snakes are absent from larger rivers, and from wetlands with sand, gravel, or rock substrates (Rossman and Stewart 1987, G. Hansen 1988). Riparian woodlands do not typically provide suitable habitat because of excessive shade, lack of basking sites, and the absence of prey populations. The ideal concept of a managed marsh as giant garter snake habitat should be in a configuration with shallow and deep water and variations in topography, including some higher ground resembling the ditch banks or "islands" similar to a rice check.

Riceland Habitats

Rice fields contain warm shallow water with sheltering emergent vegetation (i.e. rice plants) which is present within the fields during the giant garter snake active season in the spring, summer, and early fall. During the late summer when rice fields contain large numbers of mosquito fish and Pacific tree frogs, rice fields may provide important nursery areas for newborn giant garter snakes (Brode and Hansen 1992, Hansen and Brode 1993). The habitat and its associated water conveyance system, if managed properly, provides the giant garter snake ease of movement, protection from predators, warmth to aid metabolism, gestation, and digestion; and a source of food. Giant garter snakes now appear to be most numerous in rice growing regions. The diverse habitat elements of rice lands, the rice fields, tail water marshes, the ditch and drain components of the water conveyance system, delivery canals, and associated levees, all contribute structure and complexity to this man-made ecosystem. Apparently, giant garter snakes can survive in this artificial ecosystem because the spring and summer flooding and fall dry-down of rice culture coincides fairly closely with the biological needs of the species. Giant garter snakes utilize rice lands extensively and depend on them for habitat. Giant garter snake seasonal activity associated with rice cultivation occurs as follows:

Spring: Rice is planted and the fields are flooded with several inches of water. Rice fields that contain prey species such as small fish or frogs attract giant garter snakes.

Summer: While the rice grows, garter snakes continue to use rice fields as long as their prey is present in sufficient densities.

Late Summer/Fall: The water is drained from the rice fields and garter snakes move off the fields to other adjacent habitats. Rice is harvested at this time and female garter snakes have just borne young and need food to regain their body weight. In August and September the snakes can get a good supply of food from the rice lands because prey is concentrated in the rice drains. The dry-down of the rice fields in fall is thought to be important because prey, which have been proliferating, are concentrated in the remaining pockets of standing water where snakes can gorge prior to the period of winter inactivity.

Winter: Giant garter snakes are dormant in the winter and rice fields are fallow. In California, rice seed is planted into standing water by aircraft in mid-April and May. Most rice fields are leveled by laser-directed machinery to a slope of 0.02 to 0.05 meter per 100 meters (0.8 to 1.97 inches per 3,937 feet). Seed bed preparation begins as soon as the winter rains let up in March. Virtually all plant nutrition and weed control practices occur just before or soon after planting. A top dressing of a nitrogen fertilizer is often required later in the summer. Generally, water is maintained on the rice fields from the date of planting until September, when fields are drained to speed the uniform ripening of the grain. At a minimum, growers must "hold" water on their fields for up to 28 days after the application of herbicides and insecticides, to protect the quality of released irrigation water. Drains are monitored throughout the pesticide application season to protect aquatic life. Harvest typically begins in September and lasts into mid-November. Hansen and Brode (1993), reported that giant garter snakes begin utilizing rice fields as habitat as early as June.

In agricultural areas where rice fields and agricultural waterways are available, radio-telemetered giant garter snakes were located in rice fields 19 to 20 percent of the time, in marsh habitat 20 to 23 percent, and in canal and agricultural waterway habitats 50 to 56 percent. Between 48 and 55 percent of snakes used rice fields at some time. Where marsh habitat and adjacent uplands were the only habitat available, giant garter snakes used the marsh edge most of the time (Wylie *et al.* 1997). Giant garter snakes bask in bulrush, cattails, shrubs overhanging the water, patches of waterweed (*Ludwigia peploides*) and other floating vegetation, and on grassy banks. Giant garter snakes use small mammal burrows and other soil crevices above prevailing flood elevations during the winter (i.e., November to mid-March). Giant garter snakes typically select burrows with sunny exposures along south and west facing slopes. Small mammal burrows, crayfish burrows, and soil crevices provide retreats from extreme heat for giant garter snakes during the active season (Hansen and Brode 1993). Wintering sites varied from canal banks and marsh locations to riprap along a railroad grade near the marsh (Wylie *et al.* 1997). Wintering locations of radio-telemetered snakes tended to be in the vicinity of spring capture sites. Giant garter snakes use burrows in the summer as much as 50 meters (164 feet) away from the marsh edge, whereas overwintering snakes use burrows as far as 250 meters (820 feet) from the edge of marsh habitat (Wylie *et al.* 1997).

Reasons for Decline and Current Threats

The current distribution and abundance of the giant garter snake is much reduced from former times. Agricultural and flood control activities have extirpated the giant garter snake from the southern one third of its range in former wetlands which were associated with the historic Buena Vista, Tulare, and Kern lakebeds (Brode and Hansen 1992, Hansen and Brode 1980, R. Hansen 1980). These lakebeds once supported vast expanses of ideal giant garter snake habitat, consisting of cattail and bulrush dominated marshes. South of Fresno, virtually no suitable freshwater habitat remains (Hansen and Brode 1980). Vast expanses of bulrush and cattail floodplain habitat also typified much of the Sacramento Valley historically. Prior to reclamation activities, beginning in the mid- to late 1800's, about 60 percent of the Sacramento Valley was subject to seasonal overflow flooding in broad, shallow flood basins that provided expansive areas of giant garter snake habitat. Valley floor wetlands are subject to the cumulative effects of upstream watershed modifications, water storage and diversion projects, as well as urban and agricultural development.

Most natural habitats have been lost, however, a small percentage of seminatural wetlands remain, only a small percentage of which currently provides suitable habitat for the giant garter snake. Although habitat has been lost or degraded throughout the Central Valley, there have been many recent sightings of giant garter snakes in the Sacramento Valley; while there have been very few recent sightings within the San Joaquin Valley. The 1995 report on the status of giant garter snakes in the San Joaquin Valley indicates that central San Joaquin Valley giant garter snake numbers appear to have declined even more dramatically than has suitable habitat. Other factors, in addition to habitat loss, may be contributing to the decline of the giant garter snake in the area. These are factors which affect giant garter snakes within suitable habitat and include interrupted water supply, poor water quality, and contaminants. Historic changes in the landscape that did not favor giant garter snakes were 1) wetland management techniques that did not provide summer water, 2) use of contaminated agricultural drainwater on wetland areas, and 3) lack of flood control. Selenium contamination and impaired water quality have been identified as a threat to the species and a contributing factor in the decline of giant garter snake populations, particularly for the North and South Grasslands subpopulation.

Though there are little data specifically addressing the toxicity of selenium, mercury, or metals to reptiles, it is expected that reptiles would have toxicity thresholds similar to those of fish and birds. Several large giant garter snake populations inhabit rice lands. These agricultural wetlands, however, are also threatened with urban development in many locations. Cities within the current range of the giant garter snake that are rapidly expanding include (1) Chico, (2) Woodland, (3) Sacramento, (4) Galt, (5) Stockton, (6) Gustine, (7) Los Banos, and (8) Yuba City/Marysville. Giant garter snake populations found in agricultural wetlands are also threatened by incompatible agricultural management practices (e.g., conversion of rice lands to orchards or cotton) within these rice lands. Loss of habitat remains the greatest threat to the survival of the giant garter snake. However, degradation of habitat and additional mortality factors may cumulatively threaten the survival of some giant garter snake subpopulations. Activities which may degrade habitat include maintenance of flood control and agricultural waterways, weed abatement, rodent control, discharge of contaminants into wetlands and waterways, and overgrazing in wetland or streamside habitats. These activities can also result in direct mortality of giant garter snakes.

Although many maintenance practices are necessary to maintain habitat for the giant garter snake, incompatible maintenance regimes may degrade habitat and increase the risk of giant garter snake mortality (Brode and Hansen 1992, G. Hansen 1988, Hansen and Brode 1993). Land management changes also may affect giant garter snake populations. In the Grasslands, wetland management changes on State Wildlife Areas and private duck clubs affect the availability of summer water which is necessary to provide giant garter snake foraging habitat. Changes in the mid-1970's from water grass production to moist-soil management for swamp timothy and smartweed resulted in earlier spring irrigation and decreases in summer water. Irrigation of private duck clubs for cattle provided summer water in canals, sloughs, and other water conveyance systems throughout the basin. However, in the mid-1970's, private duck clubs were encouraged to withhold grazing and to change their focus to moist-soil management. These land management changes resulting in reduced summer water coincided with the apparent declines of giant garter snake populations in the Grasslands.

Cattle grazing and irrigated pastures provide the summer water that giant garter snakes require. However, overgrazing may degrade giant garter snake habitat and eliminate cover. The giant garter snake requires dense vegetative cover in proximity to waterside foraging and basking habitats in which to seek refuge from predators and other forms of disturbance. Livestock overgrazing along the edges of water sources degrades habitat quality in a number of ways: (1) eating and trampling aquatic and riparian vegetation needed for cover from predators, (2) changes in plant species composition, (3) trampling snakes and burrows needed for shelter, (4) water pollution, and (5) reducing or eliminating fish and amphibian prey populations. The introduction of the bullfrog to virtually all areas that are inhabited by the giant garter snake may greatly increase the threat of predation facing the species. A large body of evidence implicates the spread of bullfrogs in the demise of numerous species of native amphibians and reptiles. These studies documented (1) bullfrog ingestion of garter snakes up to 80 centimeters (31.5 inches) in length, (2) depletion of garter snake age class structure less than 80 centimeters (31.5 inches) length (snout-vent), and (3) the disappearance and subsequent resurgence of garter snake populations coincident with the introduction and decline of bullfrog populations. Although these studies were conducted on other species of garter snakes, it is likely that the giant garter snake is similarly affected.

Little information on the threats of disease and parasitism exist for garter snakes. However, George Hansen (*in litt.* 1992) documented parasite infestations in giant garter snakes from the American Basin. G. Hansen suggested that the parasites he observed may contribute to the observed low survival of neonate giant garter snakes in the American Basin (G. Hansen *in litt.* 1992). Unidentified nematode worms were observed in captive-held snakes. The nematode worms were 5 to 8 centimeters (2 to 3 inches) in length, approximately the thickness of a pencil lead and colored with narrow alternating rings of red and beige. Giant garter snakes developed lumps under the skin from which worms frequently exited by burrowing out through the snake's skin. Young snakes with these lumps grew more slowly than the apparently uninfected siblings and several affected young died after lingering malaise. Older snakes exhibited signs of respiratory distress 1 to 2 days prior to death, indicating that the airways may have been blocked by presence of the parasitic worm. G. Hansen did not observe the parasite, the lumps it causes, or any of the symptoms associated with the presence of the worms in any areas except the American Basin.

Road kills of giant garter snakes may also be a significant mortality factor in areas where roadways lie in close proximity to giant garter snake populations. Paved roads tend to have a higher rate of road mortalities than gravel roads because of increased traffic and traveling speeds. Hansen and Brode (1993) documented 31 road killed snakes during their 4-year study within the Natomas Basin.

EFFECTS OF THE ACTION

The planned installation of thirteen power poles will take place within 200 feet of potentially suitable habitat for the giant garter snake (Colusa Basin Drain and Wildlands Mitigation Bank). The proposed project is scheduled to take less than two weeks to complete the power pole installation. All work will take place during the active time of the giant garter snake (May 1 - October 1). Preconstruction surveys and continuous onsite biological monitoring will be accomplished. Currently, within the BSA, the lack of year-around water in the remnant rice fields, there is no emergent vegetation or other elements of essential habitat for the giant garter snake. The proposed installation of the power poles and electric service lines to support an existing well will greatly increase the ability of the remnant rice fields to maintain quality wetland habitat. Within the upland habitats associated with the action area, there is no habitat to support the giant garter snake. Construction activities will have a temporary impact on upland habitat adjacent to Oat Creek, a seasonally dry, ephemeral drainage. Access to the action area will be via established unpaved farm roads.

Direct Effects and Stressors to Listed Species

It is anticipated that vehicle movement within the action area will temporarily remove potential basking habitat for the giant garter snake. Due to the work being scheduled during the active time of the snake (1 May - 1 October), movement of men and equipment within the immediate work area will alert the snake and provide it ample opportunities to seek foraging and basking habitat within the Colusa Drain and the Wildlands Mitigation Bank outside of the immediate project area. Additionally, pre-construction and continuous onsite biological monitoring by a service approved biologist will confirm that the action area is free of small mammal burrows and soil crevices that would serve as retreat sites. These surveys will be designed to prevent giant garter snakes from being crushed, buried or otherwise injured from construction activities.

Indirect Effects of the Action

The installation of power poles will not increase the severity or frequency of flooding that could inundate overwintering snakes or force snakes to seek new flood refugia during their inactive period. Any temporary impacts to the upland habitats to equipment staging and pole installation, will be completely restored to pre-construction conditions.

Cumulative Beneficial Effect of the Action

There are no undetermined numbers of future land use conversions and/or routine agricultural practices not subject to Federal authorization or funding that could potentially alter the action

area. The positive cumulative effect of the power pole and electric service line installation is to allow additional water to be applied to the remnant rice fields within the BSA.

CONSERVATION MEASURES

The Ochoa family is committed to incorporate avoidance and minimization measures² as part of their project construction and operation which are intended to avoid or minimize impacts to GGS.

1. Construction activity will be limited to daylight hours between May 1 and October 1.
2. Twenty-four-hours prior to the commencement of construction activities, the project area shall be surveyed for giant garter snakes by a Service-approved biologist. The biologist will provide the Service with a written report that adequately documents the monitoring efforts within 24-hours of commencement of construction activities. The project area shall be re-inspected by the monitoring biologist whenever a lapse in construction activity of two weeks or greater has occurred.
3. A Service-approved biological monitor will be onsite during all ground disturbing activities to monitor construction actions. If any giant garter snakes are observed within or near the construction area, the biological monitor will be notified immediately so that they can make a positive identification of the snake. If a giant garter snake is found within the construction area, the biological monitor will have the authority to stop construction activities until appropriate corrective measures have been completed, or it is determined that the individual will not be harmed. Giant garter snakes encountered during construction activities will be allowed to move away from construction activities on their own. If a giant garter snake is unable to move away on its own, is trapped, or is injured, the U.S. Fish and Wildlife Service will be contacted immediately by telephone at (916) 414-6600/6601.
4. All construction vehicles and project related equipment left onsite overnight will be thoroughly inspected each day for giant garter snakes before they are moved.
5. A Worker Environmental Awareness Training Program for construction personnel shall be conducted by a Service-approved biologist for all construction workers, including contractors, prior to the commencement of construction activities.
6. During construction operations, stockpiling of construction materials, portable equipment, vehicles, and supplies will be restricted to the designated construction staging areas (top of farm access roads) and all operations will be confined to the minimal area necessary.
7. Project-related vehicles will observe a 10-mile-per-hour speed limit within construction areas, except on existing paved roads where they will adhere to the posted speed limits.

² Appendix C Standard Avoidance and Minimization Measures During Construction Activities in Giant Garter Snake (*Thamnophis gigas*) Habitat, Programmatic Consultation with the U.S. Army Corps of Engineers.
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8. Refueling of heavy equipment and vehicles will not occur within the construction areas.

After completion of power pole installation activities, any disturbed areas will be restored to pre-project conditions wherever feasible. Disturbed areas will be reseeded with native upland grass species as required.

CUMULATIVE EFFECTS

Cumulative effects are those effects of future state or private activities, not involving Federal activities that are reasonably certain to occur within the action area. Cumulative effects that reduce the ability of a listed species to meet its biological requirements may increase the likelihood that the proposed action will result in jeopardy to that listed species or in destruction or adverse modification of a designated critical habitat. Other than normal power line maintenance conducted by PG&E, there are no known future non-Federal activities designated within the action area that could cause impacts to listed species. It is assumed that future private and state actions will continue at similar intensities as in recent years.

CONCLUSION

Incidental Take Statement

Section 9(a) (1) of the ESA prohibits the taking of endangered species without a specific permit or exemption. Protective regulations adopted pursuant to section 4(d) extend the prohibition to threatened species. Among other things, an action that harasses, wounds, or kills an individual of a listed species or harms a species by altering habitat in a way that significantly impairs its essential behavioral patterns is a taking (50 CFR 402.02).

Amount or Extent of Potential Take

Actions necessary to complete the proposed installation of power poles will have a low probability of entrainment of giant garter snake(s). It is extremely unlikely that snakes are present in or near the action area, as the adjacent Colusa Basin Drain and Wildlands Mitigation Bank provides ample forage and escape options for the snake. Habitat assessment surveys conducted by biologists from Marcus H. Bole & Associates during the January to June, 2022 time period, found no evidence of suitable *essential* habitat (low gradient flows with permanent water, emergent wetland vegetation, rodent burrows) within or near the action area. Based upon the project design, the minimal short term impacts associated with the removal and placement of thirteen power poles, and the avoidance (conservation) and minimization measures; it is the professional opinion of Marcus H. Bole & Associates that the project as designed will have a low potential to adversely affect the giant garter snake.

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LIST OF ACRONYMS

MHBA	Marcus H Bole & Associates
BSA	Biological Study Area
CNDDDB	California Natural Diversity Data Base
CDFW	California Department of Fish and Wildlife
GGS	Giant Garter Snake, <i>Thamnophis gigas</i>
NRCS	Natural Resource Conservation Service
USFWS	U.S. Fish and Wildlife Service

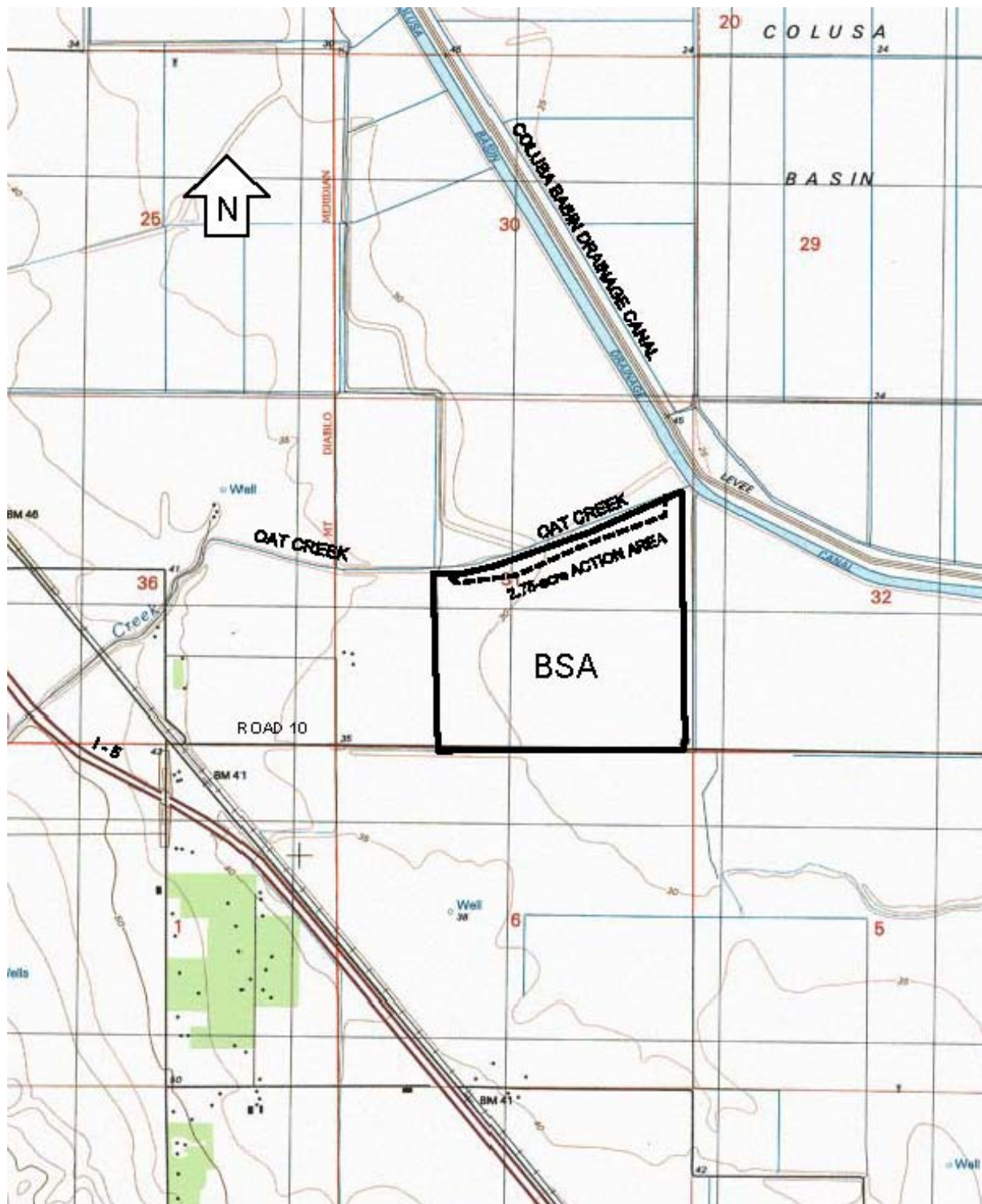
ENCLOSURES

Enclosure A: Site Maps

Enclosure B: Site Photos

Enclosure C: CNDDDB & IPaC Databases

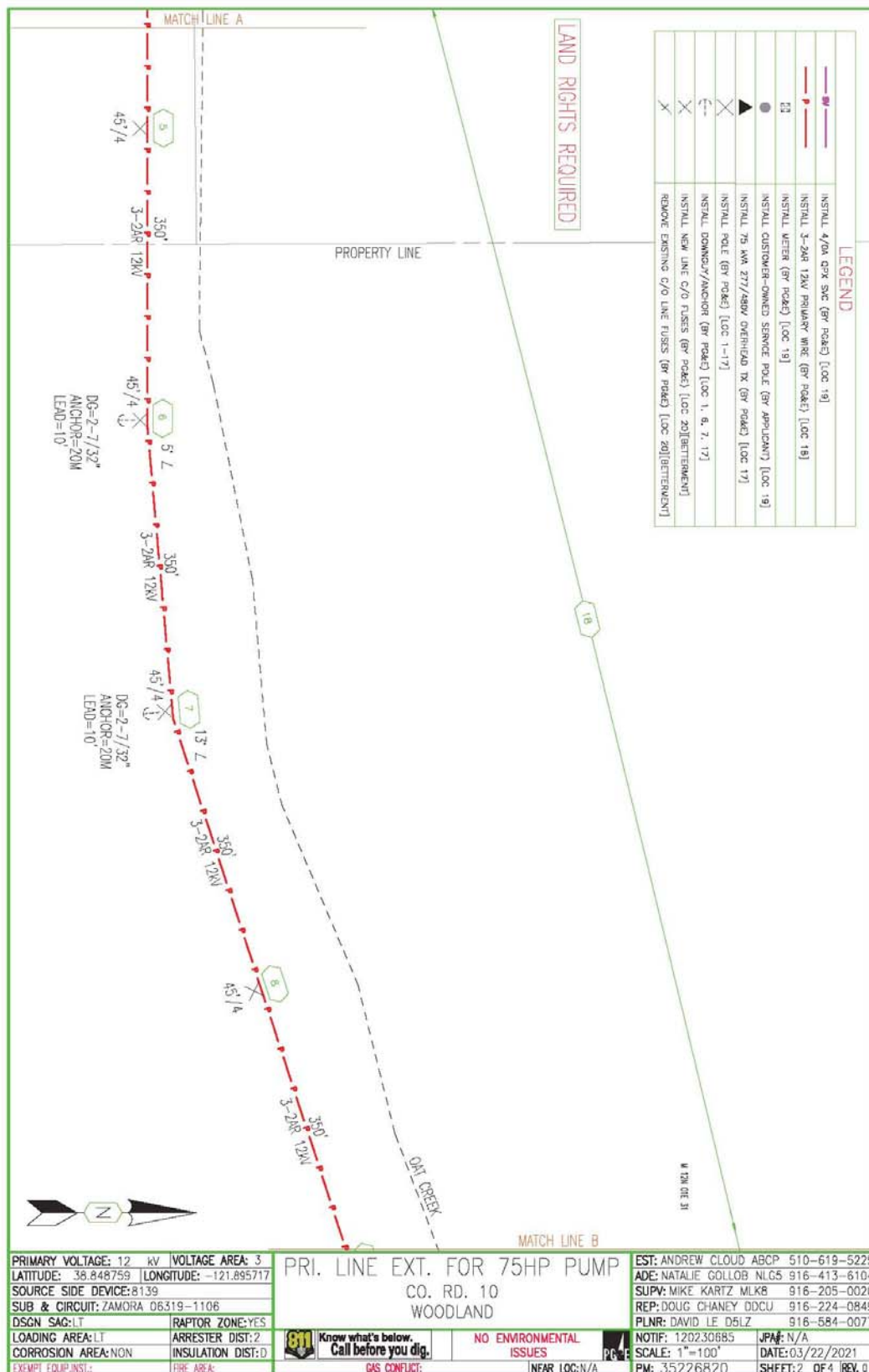
ENCLOSURE A: MAPS

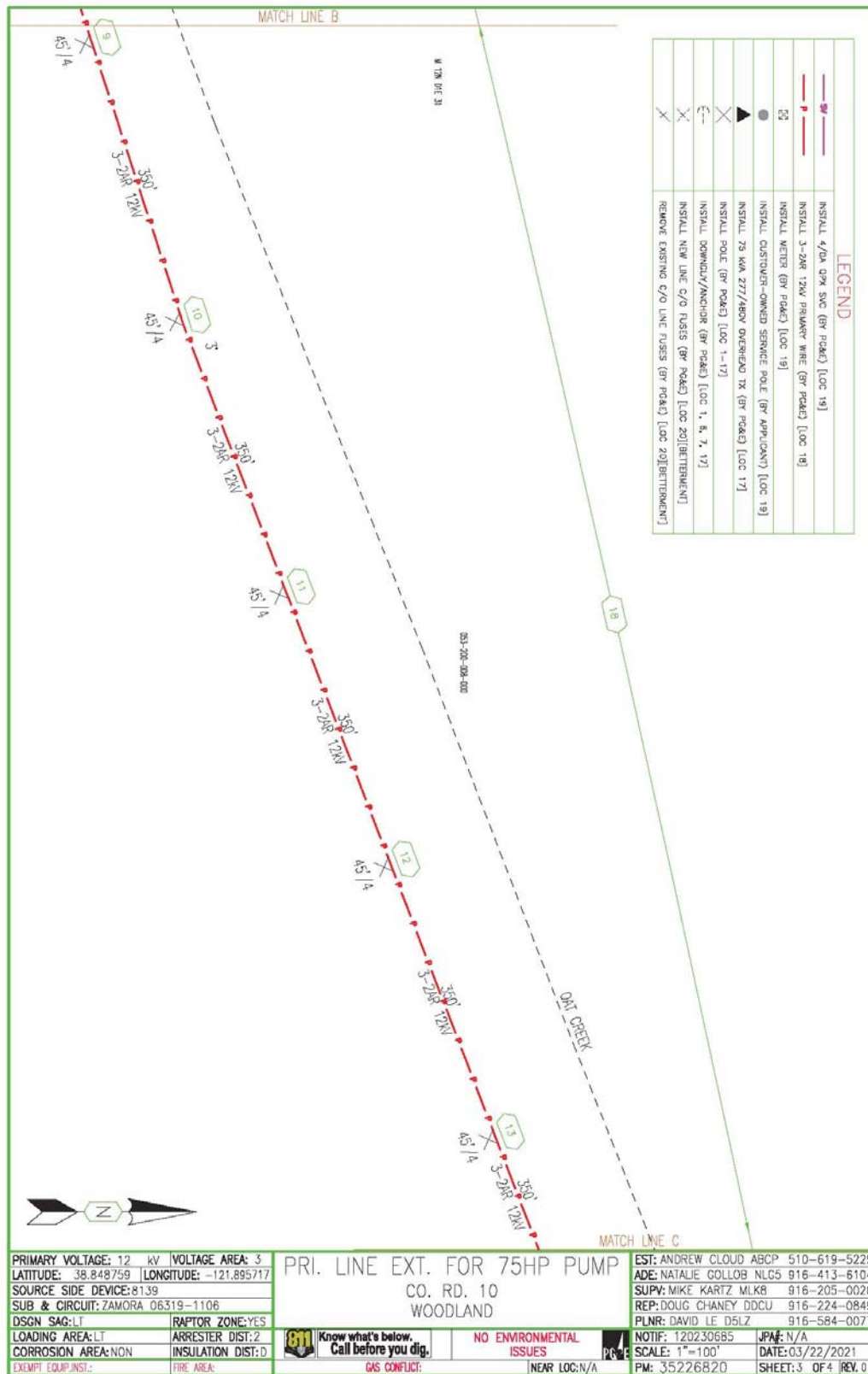


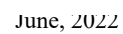
Vicinity Map: Chris Ochoa Project, a 304.49-acre wetland restoration site (Biological Study Area) located in Section 31, Township 12N, Range 1 East, Zamora 7.5 minute USGS Quadrangle. 38.845136 N, -121.908978W. Yolo County APN 053-200-011. 2.75-acre action area shown within northern area of parcel.



Aerial Display: Chris Ochoa Project, a 304.49-acre wetland restoration site (Biological Study Area) located in Section 31, Township 12N, Range 1 East, Zamora 7.5 minute USGS Quadrangle. 38.845136 N, -121.908978W. Yolo County APN 053-200-011. 2.75-acre action area shown within northern area of parcel.







ENCLOSURE B: PHOTOS



MARCUS H. BOLE & ASSOCIATES
104 Brock Drive, Wheatland, CA 95692
(530) 633-0117, email: mbole@aol.com

SITE: Ochoa Habitat Improvement Project
ITEM: 2.75-acre Action Area
DATE: May 16, 2022 **PLATE:** 1



MARCUS H. BOLE & ASSOCIATES
 104 Brock Drive, Wheatland, CA 95692
 (530) 633-0117, email: mbole@aol.com

SITE: Ochoa Habitat Improvement Project
ITEM: Existing Well
DATE: May 16, 2022 **PLATE:** 2

ENCLOSURE C: CNDDDB & IPaC



Selected Elements by Scientific Name
California Department of Fish and Wildlife
California Natural Diversity Database



Query Criteria: Quad IS (Zamora (3812178) OR Wildwood School (3812281) OR Dunnigan (3812188) OR Kirkville (3812187) OR Bird Valley (3812271) OR Eldorado Bend (3812177) OR Esparto (3812261) OR Madison (3812168) OR Woodland (3812167))
 AND (Federal Listing Status IS (Endangered OR Threatened OR Proposed Endangered OR Proposed Threatened OR Candidate) OR State Listing Status IS (Endangered OR Threatened OR Rare OR Candidate Endangered OR Candidate Threatened))

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
<i>Agelaius tricolor</i> tricolored blackbird	ABPBXB0020	None	Threatened	G1G2	S1S2	SSC
<i>Ambystoma californiense</i> pop. 1 California tiger salamander - central California DPS	AAAAA01181	Threatened	Threatened	G2G3T3	S3	WL
<i>Buteo swainsoni</i> Swainson's hawk	ABNKC19070	None	Threatened	G5	S3	
<i>Chloropyron palmatum</i> palmate-bracted bird's-beak	PDSCR0J0J0	Endangered	Endangered	G1	S1	1B.1
<i>Desmocerus californicus dimorphus</i> valley elderberry longhorn beetle	IICOL48011	Threatened	None	G3T2T3	S3	
<i>Oncorhynchus mykiss irideus</i> pop. 11 steelhead - Central Valley DPS	AFCHA0209K	Threatened	None	G5T2Q	S2	
<i>Riparia riparia</i> bank swallow	ABPAU08010	None	Threatened	G5	S2	
<i>Sidalcea keckii</i> Keck's checkerbloom	PDMAL110D0	Endangered	None	G2	S2	1B.1
<i>Thamnophis gigas</i> giant gartersnake	ARADB36150	Threatened	Threatened	G2	S2	

Record Count: 9



United States Department of the Interior

FISH AND WILDLIFE SERVICE
Sacramento Fish And Wildlife Office
Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846
Phone: (916) 414-6600 Fax: (916) 414-6713



In Reply Refer To:
Project Code: 2022-0044240
Project Name: Ochoa NRCS Easement Modification Project

May 18, 2022

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2))

(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

<http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF>

Migratory Birds: In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts see <https://www.fws.gov/birds/policies-and-regulations.php>.

The MBTA has no provision for allowing take of migratory birds that may be unintentionally killed or injured by otherwise lawful activities. It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures see <https://www.fws.gov/birds/bird-enthusiasts/threats-to-birds.php>.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit <https://www.fws.gov/birds/policies-and-regulations/executive-orders/e0-13186.php>.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Project Summary

Project Code: 2022-0044240

Event Code: None

Project Name: Ochoa NRCS Easement Modification Project

Project Type: Acquisition of Lands

Project Description: Approximately 300-acre project, Section 31, T12N, R1E. Zamora 7.5
Quadrangle

Project Location:

Approximate location of the project can be viewed in Google Maps: [https://
www.google.com/maps/@38.840476100000004,-121.9068581997952,14z](https://www.google.com/maps/@38.840476100000004,-121.9068581997952,14z)



Counties: Yolo County, California

Endangered Species Act Species

There is a total of 7 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

-
1. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Reptiles

NAME	STATUS
Giant Garter Snake <i>Thamnophis gigas</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/4482	Threatened

Amphibians

NAME	STATUS
California Tiger Salamander <i>Ambystoma californiense</i> Population: U.S.A. (Central CA DPS) There is final critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/2076	Threatened

Fishes

NAME	STATUS
Delta Smelt <i>Hypomesus transpacificus</i> There is final critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/321	Threatened

Insects

NAME	STATUS
Monarch Butterfly <i>Danaus plexippus</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9743	Candidate
Valley Elderberry Longhorn Beetle <i>Desmocerus californicus dimorphus</i> There is final critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/7850	Threatened

Crustaceans

NAME	STATUS
Vernal Pool Fairy Shrimp <i>Branchinecta lynchi</i> There is final critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/498	Threatened
Vernal Pool Tadpole Shrimp <i>Lepidurus packardii</i> There is final critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/2246	Endangered

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

APPENDIX B: CULTURAL RESOURCE INVENTORY

CULTURAL RESOURCES INVENTORY SURVEY

**Ochoa Habitat Improvement Project
circa 305-Acres
Yolo County, California**

Prepared for

Marcus H. Bole & Associates
104 Brock Drive
Wheatland, CA 95692

Author

Sean Michael Jensen, M. A.

Keywords *for Information Center Use:*

Cultural Resources Inventory Survey, circa 305-acres, Yolo County, CEQA, USGS Zamora, Ca. 7.5' Quadrangle, No Significant Historical Resources, No Unique Archaeological Resources

June 18, 2022

ABSTRACT

This report details the results of a cultural resources inventory survey involving approximately 305-acres of land adjacent to the north side of County Road 10, and the south side of Oat Creek, immediately southwest of the Colusa Basin Drainage Canal, approximately 4.5-miles southeast of Dunnigan, in Yolo County, California.

Approximately 301.5-acres of the overall 304.49-acres is protected by a wetland reserve program conservation easement in perpetuity, with a 3+ acre building cutout not encumbered with the easement near the southwest corner of the property along County Road 10.

The current conveyance system fails to properly produce an adequate amount of water for the wetland habitat and inhibits successful wetland management during all but the wettest years, resulting in marginal wetland functions and values. The landowner proposes an easement modification to allow a 30' x 4,000' right of way along the northerly boundary of the larger property where electric service lines and PG&E power poles will be installed. These lines will provide power to an existing well and lift pump on the easement.

The proposed source of supplemental hydrology will increase the duration of wetland flooding, improve the habitat value of the property, and provide a source of summer water for breeding birds, resident wildlife, and the Federally threatened Giant Garter Snake.

Existing records at the Northwest Information Center document that none of the present APE had been subjected to previous pedestrian archaeological investigation, and that one resource had been plotted within the APE due to a mapping error. Otherwise, no cultural resources have been documented within the APE. As well, the present effort included an intensive-level pedestrian survey. No prehistoric or historic-era cultural resources were identified during the pedestrian survey.

Consultation was undertaken with the Native American Heritage Commission (NAHC) re. sacred land listings for the property. An information request letter was delivered to the NAHC on May 13, 2022. The NAHC response is pending. The NAHC findings will be provided to the federal lead agency which will engage in formal consultation in compliance with Section 106 of the National Historic Preservation Act.

The probability of encountering buried archaeological sites within the APE is low. This conclusion is derived in part from the observed soil matrices which have been subjected to a high degree of disturbance associated with past impacts to the subject property. Evidence of ground disturbance assisted in determining whether or not subsurface resources were present within the APE. Overall, the soil types present and contemporary disturbance would warrant a finding of low probability for encountering buried archaeological sites.

Based on the absence of historic properties, significant historical resources, or unique archaeological resources within the APE, archaeological clearance is recommended for the project/undertaking as presently proposed.

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ATTACHMENTS

APE Map.

Records Search from NWIC File No. 21-1911, dated June 1, 2022.

Information request letter to the Native American Heritage Commission (NAHC).

Response from the NAHC (Pending).

1. INTRODUCTION

Project Background

This report details the results of a cultural resources inventory survey involving approximately 305-acres of land adjacent to the north side of County Road 10, and the south side of Oat Creek, immediately southwest of the Colusa Basin Drainage Canal, approximately 4.5-miles southeast of Dunnigan, in Yolo County, California.

Approximately 301.5-acres of the overall 304.49-acres is protected by a wetland reserve program conservation easement in perpetuity, with a 3+ acre building cutout not encumbered with the easement near the southwest corner of the property along County Road 10.

The current conveyance system fails to properly produce an adequate amount of water for the wetland habitat and inhibits successful wetland management during all but the wettest years, resulting in marginal wetland functions and values. The landowner proposes an easement modification to allow a 30' x 4,000' right of way along the northerly boundary of the larger property where electric service lines and PG&E power poles will be installed. These lines will provide power to an existing well and lift pump on the easement.

The proposed source of supplemental hydrology will increase the duration of wetland flooding, improve the habitat value of the property, and provide a source of summer water for breeding birds, resident wildlife, and the Federally threatened Giant Garter Snake.

Since the project will involve physical disturbance to ground surface and sub-surface components in conjunction with habitat improvement efforts, it has the potential to impact cultural resources that may be located within the area of potential effects (APE). In this case, the APE would consist of the circa 305-acre parcel. Evaluation of the project's potential to impact cultural resources must be undertaken in conformity with Yolo County rules and regulations, and in compliance with requirements of the California Environmental Quality Act of 1970, Public Resources Code, Section 21000, et seq. (CEQA), and The California CEQA Environmental Quality Act Guidelines, California Administrative Code, Section 15000 et seq. (Guidelines as amended).

Additionally, since the project will or may involve federal review by one or more federal agencies, the project must also conform with federal guidelines for assessing effects to cultural resources, including in particular Section 106 of the National Historic Preservation Act (NHPA) and its implementing regulations (36 CFR Part 800), Section 2(b) of Executive Order 11593, Section 101(b)(4) of the National Environmental Policy Act, the Archaeological Resources Protection Act, and other rules and regulations.

Regulatory Context

The following section provides a summary of the applicable regulations, policies and guidelines relating to the proper management of cultural resources.

Federal

National Historic Preservation Act

The NHPA established the National Register of Historic Places (NRHP) and the President's Advisory Council on Historic Preservation (ACHP), and provided that states may establish State Historic Preservation Officers (SHPOs) to carry out some of the functions of the NHPA. Most significantly for federal agencies responsible for managing cultural resources, Section 106 of the NHPA directs that "[t]he head of any Federal agency having direct or indirect jurisdiction over a proposed Federal or federally assisted undertaking in any State and the head of any Federal department or independent agency having authority to license any undertaking shall, prior to the approval of the expenditure of any Federal funds on the undertaking or prior to the issuance of any license, as the case may be, take into account the effect of the undertaking on any district, site, building, structure, or object that is included in or eligible for inclusion in the NRHP." Section 106 also affords the ACHP a reasonable opportunity to comment on the undertaking (16 U.S.C. 470f).

36 Code of Federal Regulations, Part 800 (36 CFR 800) implements Section 106 of the NHPA. It defines the steps necessary to identify historic properties (those cultural resources listed in or eligible for listing in the NRHP), including consultation with federally recognized Native American tribes to identify resources with important cultural values; to determine whether or not they may be adversely affected by a proposed undertaking; and to outline the process for eliminating, reducing, or mitigating the adverse effects.

The content of 36 CFR 60.4 defines criteria for determining eligibility for listing in the NRHP. The significance of cultural resources identified during an inventory must be formally evaluated for historical significance in consultation with the California SHPO to determine if the resources are eligible for inclusion in the NRHP. Cultural resources may be considered eligible for listing if they possess integrity of location, design, setting, materials, workmanship, feeling, and association.

Regarding NRHP Criteria A through D, the quality of significance in American history, architecture, archaeology, engineering, and culture is present in districts, cultural resources, 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 patterns of our history; or
- B. Are associated with the lives of persons significant in our past; or

- C. Embody the distinctive characteristics of a type, period, or method of construction, 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 [36 CFR 60.4].

The ACHP provides methodological and conceptual guidance for identifying historic properties. In 36 CFR 800.4, the steps necessary for identifying historic properties include:

- Determine and document the APE (36 CFR 800.16(d))
- Review existing information on historic properties within the APE, including preliminary data
- Confer with consulting parties to obtain additional information on historic properties or concerns about effects to these
- Consult with Native American tribes (36 CFR 800.3(f)) to obtain knowledge on resources that are identified with places which they attach cultural or religious significance
- Appropriate fieldwork (including phased identification and evaluation)
- Apply NRHP criteria to determine a resource eligibility for NRHP listing

Fulfilling these steps is generally thought to constitute a reasonable effort to identify historic properties within the APE for an undertaking. The obligations of a federal agency must also assess whether an undertaking will have an adverse effect on cultural resources. An undertaking will have an adverse effect when:

“an undertaking may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the National Register in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association. Consideration shall be given to all qualifying characteristics of a historic property, including those that may have been identified subsequent to the original evaluation of the property's eligibility for the National Register. Adverse effects may include reasonably foreseeable effects caused by the undertaking that may occur later in time, be farther removed in distance or be cumulative” (36 CFR Part 800.5(1)).

The process of determining whether an undertaking may have an adverse effect requires the federal agency to confer with consulting parties in order to appropriately consider all relevant stakeholder concerns and values. Consultation regarding the treatment of a historic property may result in a Programmatic Agreement (PA) and/or Memorandum of Agreement (MOA) between consulting parties that typically include the lead federal agency, SHPO, and Native American tribes if they agree to be signatories to these documents. Treatment documents—whether resource-specific or generalized—provide guidance for resolving potential or realized adverse effects to known historic properties or to those that may be discovered during implementation of the undertaking. In all cases, avoidance of adverse effects to

historic properties is the preferred treatment measure and it is generally the burden of the federal agency to demonstrate why avoidance may not be feasible. Avoidance of adverse effects may not be feasible if it would compromise the objectives of an undertaking that can be reasonably said to have public benefit. Other non-archaeological considerations about the benefit of an undertaking may also apply, resulting in the determination that avoidance is not feasible. In general, avoidance of adverse effects is most difficult when a permitted undertaking is being implemented, such as identification of an NRHP-eligible archaeological resource during earthmoving.

State

The California Register of Historical Resources

In California, the term “historical resource” includes “any object, building, structure, site, area, place, record, or manuscript which is historically or archaeologically significant, or is significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California” (Public Resources Code (PRC) Section 5020.1(j)). In 1992, the California legislature established the California Register of Historical Resources (CRHR) “to be used by state and local agencies, private groups, and citizens to identify the state’s historical resources and to indicate what properties are to be protected, to the extent prudent and feasible, from substantial adverse change” (PRC Section 5024.1(a)). The criteria for listing resources on the CRHR were developed to be in accordance with previously established criteria developed for listing in the NRHP. According to PRC Section 5024.1(c)(1–4), a resource is considered historically significant if it (i) retains “substantial integrity,” and (ii) meets at least one of the following criteria:

- (1) Is associated with events that have made a significant contribution to the broad patterns of California’s history and cultural heritage
- (2) Is associated with the lives of persons important in our past
- (3) Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values
- (4) Has yielded, or may be likely to yield, information important in prehistory or history

To understand the historic importance of a resource, sufficient time must have passed to obtain a scholarly perspective on the events or individuals associated with the resource. A resource less than 50 years old may be considered for listing in the CRHR if it can be demonstrated that sufficient time has passed to understand its historical importance (see 14 CCR 4852(d)(2)). The CRHR protects cultural resources by requiring evaluations of the significance of prehistoric and historic resources. The criteria for the CRHR are nearly identical to those for the NRHP, and properties listed or formally designated as eligible for listing in the NRHP are automatically listed in the CRHR, as are state landmarks and points of interest. The CRHR also includes properties designated under local ordinances or identified through local historical resource surveys.

California Environmental Quality Act

As described further, the following CEQA statutes and CEQA Guidelines are of relevance to the analysis of archaeological, historic, and tribal cultural resources:

- PRC Section 21083.2(g) defines “unique archaeological resource.”
- PRC Section 21084.1 and CEQA Guidelines Section 15064.5(a) define “historical resources.” In addition, CEQA Guidelines Section 15064.5(b) defines the phrase “substantial adverse change in the significance of an historical resource.” It also defines the circumstances when a project would materially impair the significance of a historical resource.
- PRC Section 21074(a) defines “tribal cultural resources.”
- PRC Section 5097.98 and CEQA Guidelines Section 15064.5(e) set forth standards and steps to be employed following the accidental discovery of human remains in any location other than a dedicated ceremony.

California Health and Safety Code Section 7050.5

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. California Health and Safety Code Section 7050.5 requires that if human remains are discovered in any place other than a dedicated cemetery, no further disturbance or excavation of the site or nearby area reasonably suspected to contain human remains can occur until the County Coroner has examined the remains (Section 7050.5b). PRC Section 5097.98 also outlines the process to be followed in the event that remains are discovered. If the County Coroner determines or has reason to believe the remains are those of a Native American, the coroner must contact the California NAHC within 24 hours (Section 7050.5c). The NAHC will notify the Most Likely Descendant. With the permission of the landowner, the Most Likely Descendant may inspect the site of discovery. The inspection must be completed within 48 hours of notification of the Most Likely Descendant by the NAHC. The Most Likely Descendant may recommend means of treating or disposing of, with appropriate dignity, the human remains and items associated with Native Americans.

PRC Sections 21083.2(b)–(c) and CEQA Guidelines Section 15126.4 provide information regarding the mitigation framework for archaeological and historic resources, including examples of preservation-in-place mitigation measures; preservation-in-place is the preferred manner of mitigating impacts to significant archaeological sites because it maintains the relationship between artifacts and the archaeological context, and may also help avoid conflict with religious or cultural values of groups associated with the archaeological site(s).

Under CEQA, a project may have a significant effect on the environment if it may cause “a substantial adverse change in the significance of an historical resource” (PRC Section 21084.1; CEQA Guidelines Section 15064.5(b)). If a site is either listed or eligible for listing in the CRHR, or if it is included in a local register of historic resources, or identified as significant in a historical resources survey (meeting the requirements of PRC Section

5024.1(q)), it is a “historical resource” and is presumed to be historically or culturally significant for purposes of CEQA (PRC Section 21084.1; CEQA Guidelines Section 15064.5(a)). The lead agency is not precluded from determining that a resource is a historical resource, even if it does not fall within this presumption (PRC Section 21084.1; CEQA Guidelines Section 15064.5(a)).

A “substantial adverse change in the significance of an historical resource” reflecting a significant effect under CEQA means “physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of an historical resource would be materially impaired” (CEQA Guidelines Section 15064.5(b)(1); PRC Section 5020.1(q)). In turn, the significance of a historical resource is materially impaired when a project does any of the following:

- (1) Demolishes or materially alters in an adverse manner those physical characteristics of an historical resource that convey its historical significance and that justify its inclusion in, or eligibility for, inclusion in the California Register; or
- (2) Demolishes or materially alters in an adverse manner those physical characteristics that account for its inclusion in a local register of historical resources pursuant to Section 5020.1(k) of the PRC or its identification in an historical resources survey meeting the requirements of Section 5024.1(g) of the PRC, unless the public agency reviewing the effects of the project establishes by a preponderance of evidence that the resource is not historically or culturally significant; or
- (3) Demolishes or materially alters in an adverse manner those physical characteristics of a historical resource that convey its historical significance and that justify its eligibility for inclusion in the California Register as determined by a lead agency for purposes of CEQA [CEQA Guidelines Section 15064.5(b)(2)].

Pursuant to these sections, the CEQA inquiry begins with evaluating whether a project site contains any “historical resources,” then evaluates whether that project will cause a substantial adverse change in the significance of a historical resource such that the resource’s historical significance is materially impaired.

If it can be demonstrated that a project will cause damage to a unique archaeological resource, the lead agency may require reasonable efforts be made to permit any or 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) defines 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

Impacts to non-unique archaeological resources are generally not considered a significant environmental impact (PRC Section 21083.2(a); CEQA Guidelines Section 15064.5(c)(4)). However, if a non-unique archaeological resource qualifies as tribal cultural resource (PRC 21074(c); 21083.2(h)), further consideration of significant impacts is required.

CEQA Guidelines Section 15064.5 assigns special importance to human remains and specifies procedures to be used when Native American remains are discovered. As described in the following text, these procedures are detailed in PRC Section 5097.98.

Native American Historic Cultural Sites

State law (PRC Section 5097 et seq.) addresses the disposition of Native American burials in archaeological sites and protects such remains from disturbance, vandalism, or inadvertent destruction; establishes procedures to be implemented if Native American skeletal remains are discovered during construction of a project; and established the Native American Heritage Commission (NAHC).

In the event that Native American human remains or related cultural material are encountered, Section 15064.5(e) of the CEQA Guidelines (as incorporated from PRC Section 5097.98) and California Health and Safety Code Section 7050.5 define the subsequent protocol. In the event of the accidental discovery or recognition of any human remains, excavation or other disturbances shall be suspended of the site or any nearby area reasonably suspected to overlie adjacent human remains or related material. Protocol requires that a county-approved coroner be contacted in order to determine if the remains are of Native American origin. Should the coroner determine the remains to be Native American, the coroner must contact the NAHC within 24 hours. The most likely descendent may make recommendations to the landowner or the person responsible for the excavation work, for means of treating, with appropriate dignity, the human remains and any associated grave goods as provided in PRC Section 5097.98 (14 CCR 15064.5(e)).

Scope of Work

Compliance with CEQA (and County rules and regulations) requires completion of projects in conformity with the amended (October 1998) Guidelines, including in particular Section 15064.5. Based on these rules, regulations and Guidelines, the following specific tasks were considered an adequate and appropriate Scope of Work for the present archaeological survey:

- Conduct a records search at the Northwest Information Center of the California Historical Resources Information System and consult with the Native American Heritage Commission. The goals of the records search and consultation are to determine (a) the extent and distribution of previous archaeological surveys, (b) the locations of known archaeological sites and any previously recorded archaeological districts, and (c) the relationships between known sites and environmental variables. This step is designed to ensure that, during subsequent field survey work, all significant/eligible cultural resources are discovered, correctly identified, fully documented, and properly interpreted.
- Conduct a pedestrian survey of the APE in order to record and evaluate any previously unidentified cultural resources. Based on map review, a complete coverage, intensive survey was considered appropriate, given the presence of moderate archaeological sensitivity within the property. The purpose of the pedestrian survey is to ensure that any previously identified sites are re-located and evaluated in relation to the present project/undertaking. For any previously undocumented sites discovered, the field survey would include formally recording these resources on State of California DPR-523 Forms.
- Upon completion of the records search and pedestrian survey, prepare a Final Report that identifies project effects and recommends appropriate mitigation measures for sites that might be affected by the undertaking and that are considered significant or potentially significant per CEQA, and/or eligible or potentially eligible for inclusion on the National Register of Historic Places.

The remainder of the present document constitutes the Final Report for this project, detailing the results of the records search, consultation and pedestrian survey and providing recommendations for treatment of significant/eligible archaeological and historic sites. All field survey work followed guidelines provided by the Office of Historic Preservation (Sacramento) and conforms to accepted professional standards.

2. Location, Environmental and Cultural Context

Location

The project area consists of approximately 305-acres of land adjacent to the north side of County Road 10, and the south side of Oat Creek, immediately southwest of the Colusa Basin Drainage Canal, approximately 4.5-miles southeast of Dunnigan, in Yolo County, California. Lands affected are located within a portion of Section 31 of Township 31 North, Range 1 East, as shown on the USGS Zamora, California, 7.5' Series quadrangle (see attached *APE Map*).

Environment

The project area is located within the Sacramento Valley, the northern half of the Great Central Valley of California, within flat valley bottomland where elevation averages approximately 30 feet above sea level. The majority of the APE is located on an outcrop of the Pliocene (5.3 to 2.6 million years ago) Tehama Formation of the Vacaville Assemblage (Graymer et al. 2002). Overlaying this formation, in many areas, are Holocene (present to 10,000 years ago) basin deposits composed of fine-grained sediments defined as Capay silty clay, and Marvin silty clay loam, both of which are indicative of frequent flooding.

There is little resemblance between today's environmental context and that which existed 150 years ago, since all of the land area has either been leveled and intensively farmed, dredged and channelized (creeks and sloughs), or has been built out (communities of Woodland, Davis, farm complexes, excavated drainage areas and other features). One of the consequences of these historic through contemporary activities is that much of the native vegetation no longer exists. The same conclusion applies to the riparian plant and animal associations once linked with sloughs and stream courses, as well as avian and land fauna. Prior to effects of Euro-American settlement, however, the natural resources of this area were abundant and supported stable and very substantial Native American populations, for whom habitation concentrated along waterways and in association with levees and other elevated lands.

Prior to the 20th century, these plant communities dominate the vegetation surrounding the project area. These communities also supplied the needed resources for a variety of fauna. Vegetation communities, especially the riparian corridor would be highly attractive to animals, many utilizing the various grasses as food. The relative availability of fresh water from the Sacramento River (located approximately 4 miles east of the present APE), and the various tributary creeks and streams (such as Oat Creek adjacent to the present APE's northern boundary) along with natural resources would not only attract game, but also humans. The concentration of diverse resources along the riparian corridors would supply ample opportunity to exploit many different resources.

Animals that frequented this vegetation community include a variety of large and small mammals, various birds, several fish species and invertebrate resources. Prior to the contact period, grizzly bear, elk and condor were present but are now extirpated. The large and small mammals currently present in this environment include black-tailed deer, black bear, mountain lion, coyote, bobcat, ground squirrels, rabbits and many other small mammals.

All of the above species mentioned play an intimate role in the lives of the tribes who inhabited this area and its' associated streams and margins. The adaptation to these environments secured a subsistence resource base that was abundant throughout most of the year. The annual round or seasonal round associated with the tribes of this area was intricately meshed with the available resources within the Great Central Valley.

Prehistory

The earliest residents in the Great Central Valley are represented by the Fluted Point and Western Pluvial Lakes Traditions, which date from about 11,500 to 7,500 years ago (Moratto 2004). Within portions of the Central Valley of California, fluted projectile points have been found at Tracy Lake (Heizer 1938) and around the margins of Buena Vista Lake in Kern County. Similar materials have been found to the north, at Samwel Cave near Shasta Lake and near McCloud and Big Springs in Siskiyou County. These early peoples are thought to have subsisted using a combination of generalized hunting and lacustrine exploitation (Moratto 2004).

These early cultural assemblages were followed by an increase in Native population density after about 7,500 years ago. One of the most securely dated of these assemblages in north-central California is from the Squaw Creek Site located north of Redding. Here, a charcoal-based C-14 date suggests extensive Native American presence around 6,500 years ago, or 4,500 B.C. Most of the artifactual material dating to this time period has counterparts around Borax (Clear) Lake, and the Farmington Area in a Valley setting east of Stockton. Important artifact types from this time period include large wide-stemmed projectile points and manos and metates.

In the Northern Sacramento Valley generally and in the vicinity of the project area, aboriginal populations continued to expand between 6,500 and 4,500 years ago. Early Penutian-speaking arrivals in this area may be represented by the archaeological complex known in the literature as the “Windmill” or “Early Horizon.” These sites date to about 4,000-5,000 years ago, with the connection to Penutian-speaking peoples suggested on the basis of extended burials, large leaf-shaped and stemmed projectile points similar to points of the Stemmed Point Tradition in the Plateau and portions of the Great Basin, large villages established along major waterways, and elaborate material culture with a wide range of ornamental and other non-utilitarian artifact types being present (Ragir 1972). The continuation of this pattern through the “Middle Horizon”, or from about 1,000 B.C. to A.D. 300, has also been documented at riverine sites within the Sacramento Valley, including sites along the Feather River north of its confluence with the Bear River, and along the Sacramento River at Knights Landing and northward to Colusa west of the Sutter Buttes.

Sometime around AD 200-300, the Valley may have experienced another wave of Penutian immigration. Arriving ultimately from southern Oregon and the Columbia and Modoc Plateau region and proceeding down the major drainage systems (including the Feather, Yuba and American Rivers and of course the Sacramento River), these Penutian-speaking arrivals may have displaced the earlier populations, including remnant Hokan-speaking peoples still resident within the Valley. Presumably introduced by these last Penutian-speaking peoples to arrive were more extensive use of bulbs and other plant foods, animal and fishing products more intensively processed with mortars and pestles, and perhaps the bow and arrow and associated small stemmed- and corner-notched projectile points.

Ethnography

The project area is located within territory which, at the time of initial contact with European/American culture (*circa* AD 1830's), was occupied by the Patwin (Johnson 1978: Figure 1). The Patwin spoke a language belonging to the Penutian language family, along with the nearby Nisenan and Maidu, as well as Miwok, Costanoan, Yokuts, and other Valley and Bay groups. The boundary separating the Patwin and the Nisenan to the east of the Sacramento River was fluid and likely shifted over time, but the project area, located wholly west of the Sacramento River and south of its confluence with the Feather River, appears to have been located within lands claimed and utilized by the Patwin.

The basic social unit for the Patwin was the family, although the village may also have functioned as a social, political and economic unit. Villages were usually located near water sources, with major villages inhabited mainly in the winter as it was necessary for at least some of the population to relocate into the hills and higher elevation zones to establish temporary camps during food gathering seasons (i.e., spring, summer and fall). Villages typically consisted of a variable number of bark houses, numbering from four or five to several dozen in larger villages such as the large village once situated at Knights Landing, with each house containing a single family of from three to seven people.

As with all northern California Indian groups, economic life for the Patwin revolved around hunting, fishing and the collecting of plant foods. Deer was an important meat source and the animals were hunted by individuals by stalking or snaring, or by groups in community drives. Salmon runs, and other food resources available along the Sacramento River and its major tributaries, also contributed significantly to local economies. While much of the fish protein was consumed immediately, a significant percentage, particularly during the fall salmon run, was prepared for storage and consumed during winter months. Acorns represented one of the most important vegetal foods and were particularly abundant within the Oak Park Woodland which once dominated lands located adjacent to the east side of the study area along the Sacramento River, and in association with higher ground and natural stream courses at both Davis and Woodland.

Relations between Euro-Americans and Native Americans in the Sacramento Valley followed the course of interaction documented in most other parts of North America, but with particularly devastating consequences for the Sacramento Valley Indians. John Work's fur trapping expedition through the region in 1832-33 resulted in the introduction of several communicable diseases, the results of which were devastating to Native culture and society (Work 1945; Cook 1976).

Historic Context

Recorded history in the project area begins with the attempts of Spanish colonists to explore parts of California beyond the coastal zone. Gabriel Moraga's expedition was undertaken in 1806, with additional incursions occurring through the late 1830's and 1840's, including John Work's fur trapping expedition through central California in 1832-33, one of the best documented of the early forays into the Great Central Valley. Work's expedition introduced several communicable diseases to the Native inhabitants that turned out to be devastating to Patwin culture and society (Work 1945; Cook 1976).

Additional major incursion by European American populations followed John Sutter's petition for and award of the New Helvetia Land Grant colony in 1839, with the Grant defining much of present-day Sacramento. Operating initially from Sutter's Fort, the Swiss emigrant planted wheat and raised cattle and horses, and employed many local Nisenan people on his Hock Farm on the west side of the Feather River, northeast of the present project area.

Discovery of gold in 1848 at Coloma resulted in the influx of thousands of fortune seekers into California and the Sacramento area, ultimately destroying Sutter's hopes for a northern agrarian empire. The embarcadero became a trading center instead, with supplies from San Francisco sold to miners departing for the foothills east of Sacramento and elsewhere in the Sierra Nevada.

By 1849, Sutter's son had assumed title to New Helvetia, and began a systematic survey of the extensive land grant, resulting eventually in a network of straight 80-foot wide streets and 20-foot wide alleys within Sacramento. Proximity to the American and Sacramento Rivers prompted levee construction as early as 1850.

Yolo County was one of the original 27 counties when California became a State in 1850. Initially, the County's territory was nearly twice as large as it is now and included a large portion of present-day Colusa County. By 1923, the boundaries were redrawn to their current configuration. It is thought that the name "Yolo" is derived from the word *yoloy*, the Native American word signifying "a place filled with rushes."

Fremont, the County's first town, was founded in 1849 along the confluence of the Sacramento and Feather rivers (south of present-day Knights Landing). It became the first County seat in 1850. After Fremont suffered flood damage in 1851, the County government was moved to Washington (now West Sacramento). Between 1856 and 1861, the County seat moved from Washington to Cacheville (present day Yolo) and back to Washington. Flooding finally motivated voters to choose centrally located Woodland as the permanent County seat in 1862.

In 1849, "Uncle Johnny" Morris, a native of Kentucky, was the first to settle in the land area that would become known as Woodland. During the 1850s and 1860s, other farmers followed and established farms and livestock operations in the area. By 1862, Woodland was designated the permanent County seat. Two years following the induction of the railroad in

1869, Woodland incorporated and quickly evolved into the commercial and financial center of the County. During the early 1900s, agricultural industries in Woodland flourished, and by the 1930s the city had rice mills, a sugar refinery, canneries, and facilities to build and repair farm machinery. Throughout the 1960s the population of Woodland grew rapidly and, following the construction of Interstate 5, the northeastern section of town expanded to include industrial plants and distribution centers.

In 1853, Charles F. Reed surveyed and founded a town he called Knights Landing, named in honor of his father-in-law, early pioneer William Knight. By the 1860s, the river town began to flourish, and in 1869 a bridge was constructed across the river to carry wagons and the newly completed California Pacific Railroad. Beginning in the 1930s, local businesses moved near a newly created highway and highway bridge to take advantage of the new means of transporting goods.

Population and economic expansion of the region was prompted through the introduction of the railroad. The City of Davis was reached by what is now the Southern Pacific in 1868. The California Pacific Railroad Company was incorporated in 1865 at San Francisco as the California Pacific Rail Road Company. It was renamed the California Pacific Railroad Extension Company in the spring of 1869, then renamed the California Pacific Railroad later that same year. The railroad was constructed just months prior to completion of the Central Pacific/Union Pacific Transcontinental Railway. The railroad ran from Sacramento to Vallejo and then via passenger ferry to San Francisco. It also had a branch from Napa Junction to Calistoga, and another from the City of Davis northward to Marysville via Woodland and Knights Landing. The California Pacific operated independently for eleven years, from 1865 to 1876, at which point it was acquired by the Central Pacific and finally sold to the Southern Pacific.

When the railroad arrived in 1868, the City of Davis was known as “Davisville” (after Jerome C. Davis, a prominent local farmer and land owner). By 1870, two years following construction of the railroad and the new depot at Davis, much more land around the community was being intensively farmed. With construction of the land grant university in 1908 (U. C. Davis), animal husbandry and veterinary care were both elevated to professional, scientific levels.

As noted above, the route of the original California Pacific Railroad northward from Davis proceeded to Woodland, which was reached in 1869. Connected to the outside world by regular train and telegraph service, Woodland, like the City of Davis to the south, soon enjoyed a full range of city services – gas, water, electricity, telephones, streetlights and graveled streets, and by 1888 Woodland was being called the richest town in the U.S. in proportion to its population.

3. RECORDS SEARCH and SOURCES CONSULTED

Several types of information were considered relevant to evaluating the types of archaeological sites and site distribution that might be encountered within the project area. The information evaluated prior to conducting the pedestrian survey includes data maintained by the Northwest Information Center, and available published and unpublished documents relevant to regional prehistory, ethnography, and early historic developments.

Northwest Information Center Records

The official Yolo County archaeological records were examined on June 1, 2022 (NWIC File No. 21-1911). This search documented the following existing conditions for a 0.25-mile radius centered on the APE:

- According to the Information Center's records, one cultural resource (P-57-000705) has been documented within the present APE's boundary. Consisting of the Colusa Basin Drainage Canal, examination of the site record with the present project boundary confirmed that this resource is actually located outside of the present APE, and its notation as within the APE was simply due to a mapping discrepancy. No other cultural resources have been documented within the 0.25-mile search radius.
- According to the Information Center, a very small portion of the present APE has been subjected to previous archaeological investigation as a result of six (6) investigations, none of which involved pedestrian survey. All six (6) have investigations have been identified as "Other" studies (general overviews or studies with no field survey). Two (2) additional investigations have been conducted within the 0.25-mile search radius. These eight (8) investigations (along with an addendum investigation) are summarized below.

NWIC #	Date	Author(s)
S-000595	1974	King
S-009795	1986	Jackson
S-017835	1975	Suchey
S-017949	1992	Shapiro
S-020058	1997	Peak
S-020058a	1998	Widell, Doyle
S-030204	2003	Gillette
S-034850	2005	Neuenschwander
S-051085	2018	Crull

Other Sources Consulted

In addition to examining the archaeological site and survey records of Yolo County maintained at the Northwest Information Center, the following sources were also included in the search conducted at the Information Center, or were evaluated separately:

- The National Register of Historic Places (1986, Supplements).
- The California Register of Historical Resources.
- The California Inventory of Historic Resources (State of California 1976).
- The California Historical Landmarks (State of California 1996).
- The California Points of Historical Interest (May 1992 and updates).
- The Historic Property Data File (OHP 2012).
- GLO Plat T12N, R1E (1907).
- J.S. Henning 1871 map of Yolo County.
- P.N. Ashley 1900 map of Yolo County
- Yolo County-Proctor 1926.
- NETR topographic maps (1907, 1916, 1920, 1941, 1948, 1955, 1959, 1966, 1975, 1980, 1997, 2012, 2015, 2018).
- NETR Aerials (1973, 1984, 1993, 2005, 2009, 2010, 2012, 2014, 2016, 2018).
- Existing published and unpublished documents relevant to prehistory, ethnography, and early historic developments in the vicinity. These sources, reviewed below, provided a general environmental and cultural context by means of which to assess likely site types and distribution patterns for the project area.

4. CULTURAL RESOURCES SURVEY and CULTURAL INVENTORY

Survey Strategy and Field Work

All of the APE was subjected to intensive pedestrian survey by means of walking parallel transects spaced at 20-meter intervals.

In searching for cultural resources, the surveyor considered the results of background research and was alert for any unusual contours, soil changes, distinctive vegetation patterns, exotic materials, artifacts, feature or feature remnants and other possible markers of cultural sites.

Fieldwork was undertaken on June 14, 2022 by Principal Investigator, Sean Michael Jensen, M.A. Mr. Jensen is a professional archaeologist, historian and architectural historian, with 36 years of experience in archaeology, architectural history and history, who meets the professional requirements of the Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation (Federal Register, Vol. 48, No. 190), as demonstrated in his listing on the California Historical Resources Information System list of qualified

archaeologists, architectural historians and historians. No special problems were encountered and all survey objectives were satisfactorily achieved.

General Field Observations

Fieldwork identified the following general conditions within the project area. All of the present APE has been impacted by past reclamation, subsequent farming activities, and ultimately the creation of waterfowl habitat.

Examination of the USGS quadrangles, NETR topographic maps (1907, 1916, 1920, 1941, 1948, 1955, 1959, 1966, 1975, 1980, 1997, 2012, 2015, 2018), and historic aerials (1973, 1984, 1993, 2005, 2009, 2010, 2012, 2014, 2016, 2018), confirmed that no buildings or structures have ever been documented within the APE.

Up until approximately 2005-2009, the project property was subjected to rice farming, but examination of these aerial images indicate that waterfowl habitat construction activities had been completed by 2009. These modifications include grading, bulldozing, creation of nesting islands, and access road construction (see photos, below). As well, Oat Creek, which is located along the subject property's northern boundary, has been subjected to channelization. Finally, a graded pad, with utilities, was observed within the southwestern portion of the property (see photos, below).



Constructed habitat, view northwesterly



Graded pad, view southerly

Prehistoric Resources

No evidence of prehistoric activity or occupation was observed during the present pedestrian survey. The absence of such resources may be explained, at least in part, by the historic through contemporary disturbances to the entire APE. Secondly, the absence of such resources may be partially explained by the more suitable habitation settings which can be found southeast of the present APE, closer to Cache Creek.

Historic Resources

No historic-era sites were observed within the present APE. The absence of such resources is best explained by the degree of disturbance to which all of the APE has been subjected.

5. ELIGIBILITY RECOMMENDATIONS

Sites identified within the project area have been evaluated for eligibility for inclusion on the National Register of Historic Places, and for significance per CEQA. This evaluation represents a set of recommendations only, as the actual determinations must be made by federal agencies in consultation with the California State Historic Preservation Office (SHPO).

The National Register of Historic Places is a listing of properties that are considered significant in American history, architecture, archeology, engineering and culture (36 CFR Part 60.1(a)) on the national, state, or local level. Sites that are listed or determined to be eligible for listing in the National Register are defined as historic properties. Historic properties must possess integrity of location, design, workmanship, feeling, and association, and meet at least one of the following criteria:

- Associated with events which have made significant contributions to the broad patterns of the history of the United States.
- Associated with the lives of people significant in United States history.
- Embody the distinctive characteristics of a type, period, or method of construction; or represent the work of a master, or possess high artistic value, or represent a significant and distinguishable entity whose components may lack individual distinction.
- Has yielded, or is likely to yield, information important in prehistory or history.

Historical resources per CEQA are defined as buildings, sites, structures, objects, or districts, each of which may have historical, architectural, archaeological, cultural, or scientific significance. CEQA requires that, if a project results in an effect that may cause a substantial adverse change in the significance of a historical resource, alternative plans or mitigation measures must be considered; however, only significant historical resources need to be addressed. Therefore, before developing mitigation measures, the significance of cultural resources must be determined in relation to criteria presented in PRC 15064.5, which defines a historically significant resource (one eligible for listing in the California Register of

Historical Resources, per PRC SS5024.1) as an archaeological site which possess one or more of the following attributes or qualities:

- a) Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage
- b) Is associated with the lives of persons important in our past
- c) Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values
- d) Has yielded, or may be likely to yield, information important in prehistory or history

In addition, CEQA further distinguishes between archaeological sites that meet the definition of a significant historical resource as described above (for the purpose of determining effects), and "unique archaeological resources." An archaeological resource is considered "unique" (Section 21083.2(g)) when the resource not merely adds to the current body of knowledge, but when there is a high probability that the resource also:

- Contains information needed to answer important scientific research questions and there is a demonstrable public interest in that information.
- Has a special and particular quality such as being the oldest of its type or the best available example of its type.
- Is directly associated with a scientifically recognized important prehistoric or historic event or person.

6. PROJECT EFFECTS

A project may have a significant impact or adverse effect on significant historical resources/unique archaeological resources if the project will or could result in the physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance or values of the historic resource would be materially impaired. Actions that would materially impair a cultural resource are actions that would alter or diminish those attributes of a site that qualify the site for inclusion in either the National Register of Historic Places, or the California Register of Historical Resources.

Based on the specific findings detailed above under ***Cultural Resources Survey and Cultural Inventory***, no historic properties, significant historical resources, or unique archaeological resources are present within the project area and no historic properties, significant historical resources, or unique archaeological resources will be affected by the undertaking, as presently proposed.

7. NATIVE AMERICAN CONSULTATION

Consultation was undertaken with the Native American Heritage Commission (NAHC) re. sacred land listings for the property. An information request letter was delivered to the NAHC on May 13, 2022. The NAHC response is pending.

The NAHC findings will be provided to the federal lead agency which will engage in formal consultation in compliance with Section 106 of the National Historic Preservation Act.

8. PROJECT SUMMARY

This report details the results of a cultural resources inventory survey involving approximately 305-acres of land adjacent to the north side of County Road 10, and the south side of Oat Creek, immediately southwest of the Colusa Basin Drainage Canal, approximately 4.5-miles southeast of Dunnigan, in Yolo County, California.

Approximately 301.5-acres of the overall 304.49-acres is protected by a wetland reserve program conservation easement in perpetuity, with a 3+ acre building cutout not encumbered with the easement near the southwest corner of the property along County Road 10.

The current conveyance system fails to properly produce an adequate amount of water for the wetland habitat and inhibits successful wetland management during all but the wettest years, resulting in marginal wetland functions and values. The landowner proposes an easement modification to allow a 30' x 4,000' right of way along the northerly boundary of the larger property where electric service lines and PG&E power poles will be installed. These lines will provide power to an existing well and lift pump on the easement.

The proposed source of supplemental hydrology will increase the duration of wetland flooding, improve the habitat value of the property, and provide a source of summer water for breeding birds, resident wildlife, and the Federally threatened Giant Garter Snake.

Existing records at the Northwest Information Center document that none of the present APE had been subjected to previous pedestrian archaeological investigation, and that one resource had been plotted within the APE due to a mapping error. Otherwise, no cultural resources have been documented within the APE. As well, the present effort included an intensive-level pedestrian survey. No prehistoric or historic-era cultural resources were identified during the pedestrian survey.

Consultation was undertaken with the Native American Heritage Commission (NAHC) re. sacred land listings for the property. An information request letter was delivered to the NAHC on May 13, 2022. The NAHC response is pending. The NAHC findings will be provided to the federal lead agency which will engage in formal consultation in compliance with Section 106 of the National Historic Preservation Act.

The probability of encountering buried archaeological sites within the APE is low. This conclusion is derived in part from the observed soil matrices which have been subjected to a high degree of disturbance associated with past impacts to the subject property. Evidence of ground disturbance assisted in determining whether or not subsurface resources were present within the APE. Overall, the soil types present and contemporary disturbance would warrant a finding of low probability for encountering buried archaeological sites.

Based on the absence of historic properties, significant historical resources, or unique archaeological resources within the APE, archaeological clearance is recommended for the project/undertaking as presently proposed, although the following general provisions are considered appropriate:

1. **Consultation in the event of inadvertent discovery of human remains:** In the event that human remains are inadvertently encountered during any project-associated ground-disturbing activity or at any time subsequently, State law shall be followed, which includes but is not limited to immediately contacting the County Coroner's office upon any discovery of human remains.
2. **Consultation in the event of inadvertent discovery of cultural material:** The present evaluation and recommendations are based on the findings of an inventory-level surface survey only. There is always the possibility that important unidentified cultural materials could be encountered on or below the surface during the course of future construction activities. This possibility is particularly relevant considering the constraints generally to archaeological field survey, and particularly where past ground disturbance activities (e.g., flooding, discing, habitat construction, adjacent road, utilities, etc.) have partially obscured historic ground surface visibility, as in the present case. In the event of an inadvertent discovery of previously unidentified cultural material, archaeological consultation should be sought immediately.

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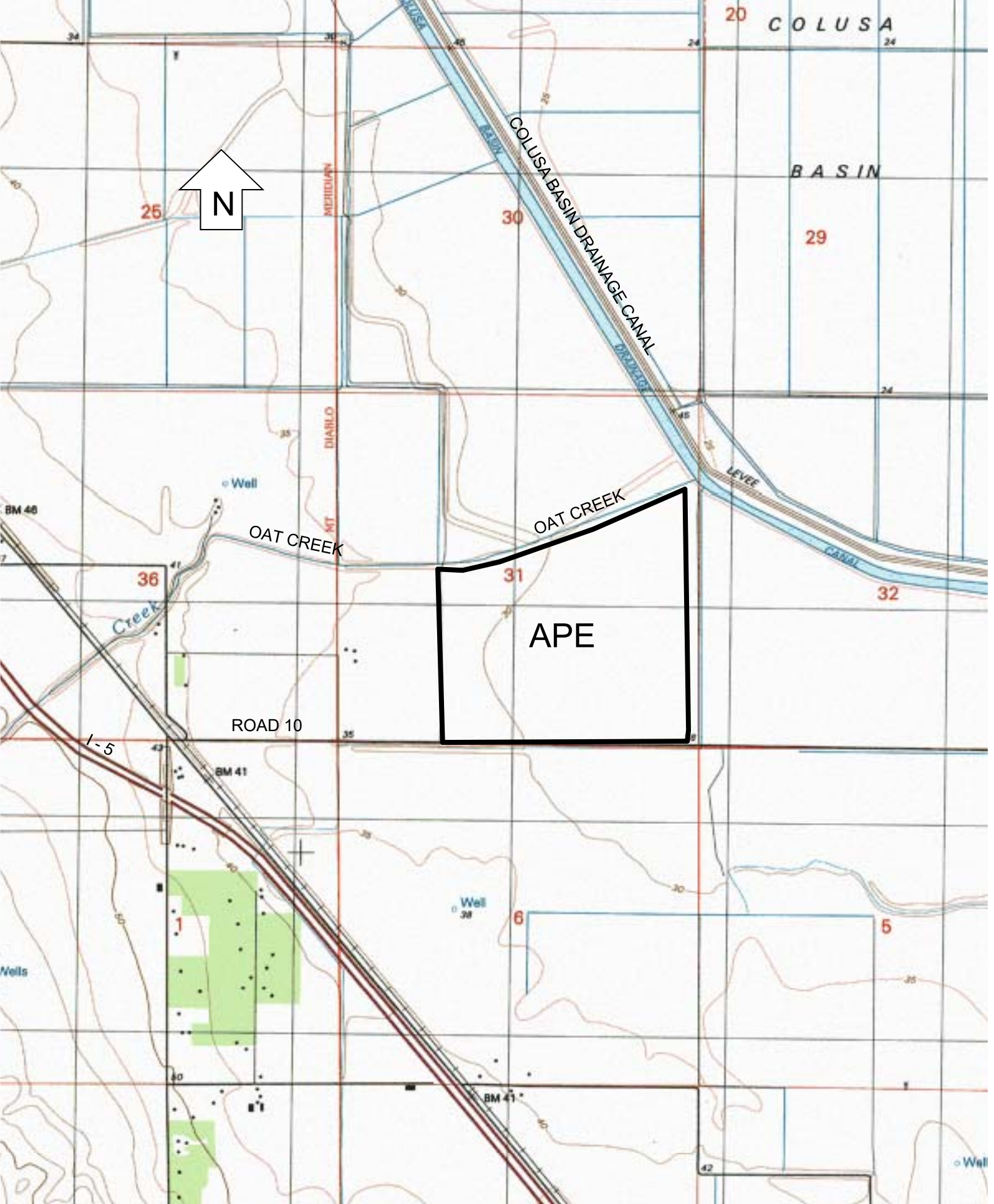
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CULTURAL RESOURCES INVENTORY SURVEY

**Ochoa Habitat Improvement Project
circa 305-Acres
Yolo County, California**

ATTACHMENTS

- APE Map
- Records Search from Northwest Information Center (NWIC)
- Information request letter to the Native American Heritage Commission (NAHC)
- Response from the NAHC (Pending)



APE Map: Chris Ochoa Project, a 300-acre wetland restoration site located in Section 31, Township 12N, Range 1 East, Zamora 7.5 minute USGS Quadrangle. 38.845136 N, -121.908978 W. Yolo County APN 053-200-011

CALIFORNIA
HISTORICAL
RESOURCES
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SYSTEM



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SAN BENITO

SAN FRANCISCO
SAN MATEO
SANTA CLARA
SANTA CRUZ
SOLANO
SONOMA
YOLO

Northwest Information Center
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1400 Valley House Drive, Suite 210
Rohnert Park, California 94928-3609
Tel: 707.588.8455
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<http://nwic.sonoma.edu>

6/1/2022

NWIC File No.: 231-1911

Sean Jensen
Genesis Society
123 East Swift Creek Way
Kalispell, MT 59901

Re: Ochoa

The Northwest Information Center received your record search request for the project area referenced above, located on the Yolo USGS 7.5' quad(s). The following reflects the results of the records search for the project area and a ¼ mi. radius:

Resources within project area:	P-57-000705
Resources within ¼ mi. radius:	None listed
Reports within project area: [all 'Other' Reports]	S-595*, 9795*, 17835*, 20058*, 30204*, 51085*
Reports within ¼ mi. radius:	S-17949, 34850

Resource Database Printout (list):

☒ enclosed ☐ not requested ☐ nothing listed

Resource Database Printout (details):

☐ enclosed ☒ not requested ☐ nothing listed

Resource Digital Database Records:

☐ enclosed ☒ not requested ☐ nothing listed

Report Database Printout (list):

☒ enclosed ☐ not requested ☐ nothing listed

Report Database Printout (details):

☐ enclosed ☒ not requested ☐ nothing listed

Report Digital Database Records:

☐ enclosed ☒ not requested ☐ nothing listed

Resource Record Copies:

☐ enclosed ☐ not requested ☐ nothing listed

Report Copies: [within only, no 'Other' reports]

☐ enclosed ☐ not requested ☒ nothing listed

OHP Built Environment Resources Directory:

☒ enclosed ☐ not requested ☐ nothing listed

Archaeological Determinations of Eligibility:

☐ enclosed ☐ not requested ☒ nothing listed

CA Inventory of Historic Resources (1976):

☐ enclosed ☐ not requested ☒ nothing listed

GLO and/or Rancho Plat Maps:

☒ enclosed ☐ not requested ☐ nothing listed

Historical Maps:

☒ enclosed ☐ not requested ☐ nothing listed

Local Inventories:

☒ enclosed ☐ not requested ☐ nothing listed

Caltrans Bridge Survey:

☐ enclosed ☒ not requested ☐ nothing listed

Ethnographic Information:

☐ enclosed ☒ not requested ☐ nothing listed

Historical Literature:

☐ enclosed ☒ not requested ☐ nothing listed

Soils Survey:

☒ enclosed ☐ not requested ☐ nothing listed

***Notes:**

****** Current versions of these resources are available on-line:

Soils Survey: <http://www.nrcs.usda.gov/wps/portal/nrcs/surveylist/soils/survey/state/?stateId=CA>

Please forward a copy of any resulting reports from this project to the office as soon as possible. Due to the sensitive nature of archaeological site location data, we ask that you do not include resource location maps and resource location descriptions in your report if the report is for public distribution. If you have any questions regarding the results presented herein, please contact the office at the phone number listed above.

The provision of CHRIS Data via this records search response does not in any way constitute public disclosure of records otherwise exempt from disclosure under the California Public Records Act or any other law, including, but not limited to, records related to archeological site information maintained by or on behalf of, or in the possession of, the State of California, Department of Parks and Recreation, State Historic Preservation Officer, Office of Historic Preservation, or the State Historical Resources Commission.

Due to processing delays and other factors, not all of the historical resource reports and resource records that have been submitted to the Office of Historic Preservation are available via this records search. Additional information may be available through the federal, state, and local agencies that produced or paid for historical resource management work in the search area. Additionally, Native American tribes have historical resource information not in the CHRIS Inventory, and you should contact the California Native American Heritage Commission for information on local/regional tribal contacts.

Should you require any additional information for the above referenced project, reference the record search number listed above when making inquiries. Requests made after initial invoicing will result in the preparation of a separate invoice.

Thank you for using the California Historical Resources Information System (CHRIS).

Sincerely,

Annette Neal

Researcher

GENESIS SOCIETY

a Corporation Sole

Historic Preservation Services

May 13, 2022

Native American Heritage Commission

1550 Harbor Boulevard,
West Sacramento, California 95691

Subject: Ochoa Habitat Improvement Project, 305-acres, Yolo County, California.

Dear Commission:

We have been requested to conduct an archaeological survey, for the above-cited project, and are requesting any information you may have concerning archaeological sites or traditional use areas for this area. Any information you might supply will be used to supplement the archaeological and historical study being prepared for this project.

Project Name: Ochoa Habitat Improvement Project
County: Yolo
Map: USGS Zamora, 7.5'
Location: Portion of T31N, R1E, Section 31

Thanks in advance for your assistance.

Regards,

Sean Michael Jensen

Sean Michael Jensen, Administrator

(530) 680-6170

California

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Kingsburg, CA 93631

Montana

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Kalispell, MT 59901

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