Appendix 1
Introduction

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Contents

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Appendix 1A
Mitigation Monitoring Plan

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Sites Reservoir Project
Public Draft
Mitigation Monitoring Plan

Prepared by

Sites Project Authority and
Bureau of Reclamation

August 2017

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APPENDIX 1A
Mitigation Monitoring Plan

1A.1 Introduction

This Mitigation Monitoring Plan (MMP) for the proposed Sites Reservoir Project (Project) has been prepared by the Sites Project Authority (Authority) and the United States Bureau of Reclamation (Reclamation). The agencies included a series of mitigation measures in the EIR/EIS for the Project to minimize potential environmental impacts during Project construction, operation, and maintenance. Those mitigation measures are incorporated into this Mitigation Monitoring Plan, and are listed in Table 1A-1.

This MMP will be used by the Authority and Reclamation to ensure that each mitigation measure adopted as a condition for Project approval is implemented. This MMP meets the requirements of the California Environmental Quality Act (CEQA), as amended (Guidelines Section 15074(d)), which mandates the preparation of monitoring provisions for the implementation of mitigation assigned as part of Project approval or adoption.

1A.2 Mitigation Implementation and Monitoring

The Authority and Reclamation will be responsible for monitoring the implementation of the mitigation measures. Implementing measures assigned to mitigate impacts associated with the proposed Project is ultimately the responsibility of the Authority and Reclamation, although for certain measures, others have been assigned the responsibility of actually implementing the measure.

The Authority and Reclamation will retain primary responsibility for ensuring that the proposed Project meets the requirements of this MMP and other permit conditions imposed by participating regulatory agencies.

The Authority and Reclamation will designate specific personnel who will be responsible for monitoring implementation of the mitigation measures that will occur during Project construction**.** The designated personnel will be responsible for submitting all documentation and reports to the Authority and Reclamation in a timely manner necessary for demonstrating compliance with mitigation requirements. The Authority and Reclamation will ensure that the designated personnel have authority to require implementation of mitigation requirements and will be capable of terminating Project construction activities found to be inconsistent with mitigation objectives or Project approval conditions.

The Authority and Reclamation will be responsible for demonstrating compliance with other agency permit conditions to the appropriate regulatory agency. They will also be responsible for ensuring that construction personnel understand their responsibilities for adhering to the performance requirements of the mitigation plan and other contractual requirements related to the implementation of the mitigation measures as part of Project construction.

In addition to the prescribed mitigation measures, Table 1A-1 lists each identified potential impact, the corresponding monitoring and reporting requirement, the party responsible for ensuring implementation of the mitigation measure, and the duration of the mitigation and monitoring effort. Detailed monitoring and reporting requirements associated with each mitigation measure are provided in the Appendix.

1A.3 Mitigation Enforcement

The Authority and Reclamation will be responsible for enforcing all mitigation measures. If alternative mitigation measures are proposed that would be equally effective in mitigating the identified Project impacts, the implementation of these alternative measures will not occur until agreed upon by the Authority and Reclamation.

Table 1A-1
Sites Reservoir Project Mitigation Measure Monitoring Summary

Impact	Mitigation Measure	Mitigation Implementation Duration		Monitoring Duration		Responsibility
		Pre-construction/ Construction	Ongoing	Pre-construction/ Construction	Ongoing	Mitigation Implementation and Monitoring
12. Aquatic Biological Resources						
Impact Fish-1: A Substantial Adverse Effect (Either Directly, through Habitat Modifications, by Interfering with the Movement of Native Fish Species, or by Impeding the Use of Native Fish Nursery/Rearing Sites) on Any Fish Species of Management Concern, Including Species Identified as a Candidate, Sensitive, or Special-status Species in Local or Regional Plans, Policies, or Regulations, or by CDFW, NMFS, or USFWS						
Fish-1a: Aquatic Habitat Modification – Stone Corral and Funks Creeks	**Fish-1a**: Implement Habitat Restoration Actions– Stone Corral and Funks Creeks	Throughout Project construction	As required by permits/authorizations	Throughout Project construction	As required by permits/authorizations	Authority and Reclamation
Fish-1b: Aquatic Habitat Modification – Sacramento River	**Fish-1b**: Implement Habitat Restoration Actions– Sacramento River	Throughout Project construction	As required by permits/authorizations	Throughout Project construction	As required by permits/authorizations	Authority and Reclamation
Fish-1c: Hydrostatic Pressure Waves, Noise, and Vibration – Delevan Facilities	**Fish-1c**: Perform In-water Pile Driving July through September during Daylight Hours – Sacramento River	Throughout Project construction	As required by permits/authorizations	Throughout Project construction		Construction contractor
Fish-1d: Predation Risk – Delevan Facilities	**Fish-1d**: Design Fish Screen in Compliance with NMFS and CDFW Criteria – Sacramento River	Prior to start of Project construction				Authority and Reclamation
Fish-1e: Stranding, Impingement, and Entrainment – Delevan Facilities	**Fish-1e**: Prepare and Implement a Fish Salvage and Rescue Plan – Sacramento River	Prior to start of Project and throughout Project construction		Throughout Project construction		Authority and Reclamation/Construction contractor
	Fish-1f: Sites Reservoir Diversion Restrictions for Pulse Flow Protection and Entrainment Minimization		Throughout Project duration as stipulated in agreements with regulatory agencies		Throughout Project duration as stipulated in agreements with regulatory agencies	Authority
Fish-1f: Modification of Pulse Flows and Entrainment during Diversions at the Delevan Facilities	**Fish-1f**: Sites Reservoir Diversion Restrictions for Pulse Flow Protection and Entrainment Minimization		Throughout Project duration as stipulated in agreements with regulatory agencies		Throughout Project duration as stipulated in agreements with regulatory agencies	Authority
13. Botanical Resources						
Impact Bot-1: A Substantial Adverse Effect, Including Conversion to Non-native Vegetation, on Any Riparian Habitat or Other Sensitive Natural Community Identified in Local or Regional Plans, Policies, Regulations, or by CDFW or USFWS, or Any Native Plant Community Known to Be Rare, Unusual, or Becoming Uncommon in the Biogeographic Region of the Project						
Bot-1a: Loss of Vegetation Community	**Bot-1a**: Implement Compensatory Mitigation Measures for Vegetation Community Impacts in Coordination with USFWS, CDFW, CNPS, and USACE	Prior to start of Project and throughout Project construction	As required by permits/authorizations	Throughout Project construction	As required by permits/authorizations	Authority and Reclamation
Bot-1b: Annual Grassland (of Higher Botanical Value)	**Bot-1a:** Implement Compensatory Mitigation Measures for Vegetation Community Impacts in Coordination with USFWS, CDFW, CNPS, and USACE	Prior to start of Project and throughout Project construction	As required by permits/authorizations	Throughout Project construction	As required by permits/authorizations	Authority and Reclamation
	Bot-1b: Conduct Watershed Hydrological Studies	Prior to start of Project construction				Authority and Reclamation
Bot-1c: Blue Oak Woodland (Includes Savanna and Woodland with Chaparral Understory)	**Bot-1a:** Implement Compensatory Mitigation Measures for Vegetation Community Impacts in Coordination with USFWS, CDFW, CNPS, and USACE	Prior to start of Project and throughout Project construction	As required by permits/authorizations	Throughout Project construction	As required by permits/authorizations	Authority and Reclamation
Bot-1d: Riparian Vegetation	**Bot-1a:** Implement Compensatory Mitigation Measures for Vegetation Community Impacts in Coordination with USFWS, CDFW, CNPS, and USACE	Prior to start of Project and throughout Project construction	As required by permits/authorizations	Throughout Project construction	As required by permits/authorizations	Authority and Reclamation
Bot-1e: Valley Oak Woodland	**Bot-1a:** Implement Compensatory Mitigation Measures for Vegetation Community Impacts in Coordination with USFWS, CDFW, CNPS, and USACE	Prior to start of Project and throughout Project construction	As required by permits/authorizations	Throughout Project construction	As required by permits/authorizations	Authority and Reclamation
Bot-1f: Alkaline Wetland	**Bot-1a:** Implement Compensatory Mitigation Measures for Vegetation Community Impacts in Coordination with USFWS, CDFW, CNPS, and USACE	Prior to start of Project and throughout Project construction	As required by permits/authorizations	Throughout Project construction	As required by permits/authorizations	Authority and Reclamation

Impact	Mitigation Measure	Mitigation Implementation Duration		Monitoring Duration		Responsibility
		Pre-construction/ Construction	**Ongoing**	**Pre-construction/ Construction**	**Ongoing**	**Mitigation Implementation and Monitoring**
	Bot-1b: Conduct Groundwater Hydrological Studies	Prior to start of Project construction				Authority and Reclamation
Impact Bot-2: A Substantial Adverse Effect, Either Directly or through Habitat Modifications, on Any Species Identified As a Candidate, Sensitive, or Special-status Species in Local or Regional Plans, Policies, or Regulations, or by CDFW or USFWS						
Bot-2a: Fed/1B-A Special-status Plant Species: CNPS List 1B and State- or Federally Listed Species	**Bot-2:** Conduct Pre-construction Surveys for Special-status Plants; if Found, Compensate According to USFWS, CDFW, and CNPS Guidelines	Prior to start of Project construction	As required by permits/authorizations	Throughout Project construction	As required by permits/authorizations	Authority and Reclamation
Bot-2b: Special-status Plant Species	**Bot-1b:** Conduct Groundwater Hydrological Studies	Prior to start of Project construction	During first 5 to 10 years of Project operation		During first 5 to 10 years of Project operation	Authority and Reclamation
Impact Bot-3: An Increase in the Potential for Invasion and Spread of Noxious Weeds						
	Bot-3a: Implement Preventive Actions by Following Weed Control BMPs; Minimize Exposed Ground; Reduce Weed Seed by Removal of Onsite and Offsite Weeds	Prior to start of Project and throughout Project construction	During Project operation	Throughout Project construction	During project operation	Authority and Reclamation/Construction contractor
	Bot-3b: Implement Avoidance Measures in Areas Adjacent to the Delevan National Wildlife Refuge	Throughout Project construction		Throughout Project construction		Authority and Reclamation/Construction contractor
Impact Bot-4: Indirect Impacts to Native Plants from Human Disturbance						
	Bot-2: Conduct Pre-construction Surveys for Special-status Plants; if Found, Compensate According to USFWS, CDFW, and CNPS Guidelines	Prior to start of Project construction	As required by permits/authorizations	Throughout Project construction	As required by permits/authorizations	Authority and Reclamation
14. Terrestrial Biological Resources						
Impact Wild-1: Substantial Adverse Effect, Including Alteration of Habitat Suitability, on Any Wildlife Habitat, Especially Riparian Habitat or Other Sensitive Natural Communities Identified in Local or Regional Plans, Policies, or Regulations, or by CDFW or USFWS						
	Wild-1a: Confirm Species/Habitat Presence through Appropriately Timed Surveys Per Protocols Identified in Coordination with USFWS and CDFW	Prior to start of Project and throughout Project construction		Throughout Project construction		Authority and Reclamation
	Wild-1b: Identify and Implement a Combination of Habitat Protection, Enhancement, Restoration, or Conservation Easement Measures, in Consultation with USFWS, CDFW, and USACE	Prior to start of Project construction	As required by permits/authorizations	Throughout Project construction	As required by permits/authorizations	Authority and Reclamation/Construction contractor

Impact	Mitigation Measure	Mitigation Implementation Duration		Monitoring Duration		Responsibility
		Pre-construction/ Construction	Ongoing	Pre-construction/ Construction	Ongoing	Mitigation Implementation and Monitoring
Impact Wild-2: **A Substantial Adverse Effect, Including Mortality, Either Directly or through Habitat Modifications, on Any Species Identified As a Candidate, Sensitive, or Special-status Species in Local or Regional Plans, Policies, or Regulations, or by CDFW or USFWS**						
Wild-2a: Nesting Birds and Roosting Bats	**Wild-2a**: Prepare and Implement a Bird and Bat Conservation Strategy	Prior to start of Project and throughout Project construction	As required by permits/authorizations	Throughout Project construction	As required by permits/authorizations	Authority and Reclamation
Wild-2b: Bald Eagle	**Wild-2b**: Obtain Permit for Bald Eagle Nest Tree Removal, Remove Nest Tree Outside of Breeding Season, and Create Suitable Habitat	Prior to start of Project and throughout Project construction	As required by permits/authorizations	Throughout Project construction	As required by permits/authorizations	Authority and Reclamation
Wild-2c: Bank Swallow	**Wild-2c**: Implement Protective Actions to Prevent Bank Swallows from Nesting in the Cut Banks of Project Construction Trenches	Prior to start of Project and throughout Project construction		Throughout Project construction		Authority and Reclamation/Construction contactor+++
Wild-2d: Giant Garter Snake	**Wild-2d**: Conduct Pre-construction Surveys for Giant Garter Snakes and Implement Protective Actions; Conduct Project Construction Activity Between May 1 and October 1 in Giant Garter Snake Habitat; Compensate for Temporary Disturbance of Habitat According to USFWS Guidelines	Prior to start of Project and throughout Project construction	As required by permits/authorizations	Throughout Project construction	As required by permits/authorizations	Authority and Reclamation
Wild-2e: Golden Eagle	**Wild-2e**: Implement Avoidance and Minimization Measures at Historical or Active Golden Eagle Nest Sites. Conduct Satellite Telemetry Studies Pre- and Post-construction to Determine Territory Size. Prepare a Golden Eagle Protection and Monitoring Plan/Conservation Plan as Applicable. Mitigate for Loss of Annual Grassland Foraging Habitat	Beginning 3 to 5 years prior to start of construction	As required by permits/authorizations	Throughout Project construction	As required by permits/authorizations	Authority and Reclamation
Wild-2f: Ringtail	**Wild-2f**: Implement Protective Actions to Minimize Impacts to the Ringtail, and Restore Connectivity of the Riparian Corridor	Prior to start of Project and throughout Project construction	As required by permits/authorizations	Throughout Project construction	As required by permits/authorizations	Authority and Reclamation
Wild 2g: Valley Elderberry Longhorn Beetle	**Wild-2g**: Implement Protective Actions to Avoid or Minimize Impacts to Elderberry Plants. Where Avoidance Is Not Possible, Transplant or Replace Plants, According to USFWS Guidelines	Prior to start of Project and throughout Project construction	As required by permits/authorizations	Throughout Project construction	As required by permits/authorizations	Authority and Reclamation/ Construction contractor
Wild-2h: Western Burrowing Owl	**Wild-2h:** Conduct Pre-construction Surveys for Western Burrowing Owls; If Owls Are Found, Implement Protective Actions	Prior to start of Project and throughout Project construction	As required by permits/authorizations	Throughout Project construction	As required by permits/authorizations	Authority and Reclamation/Construction contractor
Wild-2i: Western Pond Turtle	**Wild-2i**: Conduct Pre-construction Surveys and Provide a Biological Monitor during Project Construction for the Western Pond Turtle; if Found, Turtles Shall Be Captured and Relocated by a Qualified Biologist	Prior to start of Project and throughout Project construction	As required by permits/authorizations	Throughout Project construction	As required by permits/authorizations	Authority and Reclamation
Wild-2j: Western Yellow-billed Cuckoo	**Wild-2j**: Conduct Pre-construction Surveys for the Western Yellow-billed Cuckoo and Schedule Construction Activities to Avoid Impacts to Nest Sites	Prior to start of Project construction				Authority and Reclamation
Impact Wild-3: Substantial Interference with Movement of Native Resident or Migratory Wildlife Species, or with Established Native Resident or Migratory Wildlife Corridors, or Impede Use of Native Wildlife Nursery Sites						
	Wild-3a: During Project Construction, Backfill Trenches within 72 Hours of Pipeline Installation and Provide an Escape Ramp for Trapped Wildlife	Throughout Project construction		Throughout Project construction		Authority and Reclamation/ Construction contractor
	Wild-3b: Construct Overhead Power Lines and Associated Equipment Following Suggested Practices for Avian Protection on Power Lines	Prior to start of Project and throughout Project construction		Throughout Project construction		Authority and Reclamation/ Construction contractor
	Wild-3c: Restore Riparian Habitat Connectivity	Prior to start of Project and throughout Project construction	As required by permits/authorizations	Throughout Project construction	As required by permits/authorizations	Authority and Reclamation
Wetlands and Other Waters						
Impact Wet-1: A Permanent Change in the Use, Quality (Extent in Acres or Miles) of "Other Waters of the U.S." (Including, but Not Limited to, Lakes, Rivers, Streams Tributary to Navigable Rivers, Natural Ponds, Canals, or Ditches) That Are Determined by the USACE to Be Jurisdictional, through Direct Removal, Filling, Obstruction, Hydrological Interruption, or Other Means						
Wet-1a: Streams	**Wet-1a**: Implement Compensatory Mitigation Measures for Streams Pursuant to USACE and State Determination within the Watershed in Which the Impacts Occur	Through Project construction	As required by permits/authorizations	Throughout Project construction	As required by permits/authorizations	Authority and Reclamation
Wet-1b: Canals	**Wet-1b**: Reroute Drainage Ditches and Canals to Ensure Continued Hydrological Connection, or Implement Other Compensatory Mitigation Measures Pursuant to USACE Determination	Through Project construction	As required by permits/authorizations	Throughout Project construction	As required by permits/authorizations	Authority and Reclamation/ Construction contractor

Impact	Mitigation Measure	Mitigation Implementation Duration		Monitoring Duration		Responsibility
		Pre-construction/ Construction	Ongoing	Pre-construction/ Construction	Ongoing	Mitigation Implementation and Monitoring
Wet-1c: Ponds	**Wet-1c**: Restore Pond to Original Condition, or Implement Other Compensatory Mitigation Measures Pursuant to USACE Determination within the Same Hydrologic Unit in Which the Pond Occurs	During Project construction	As required by permits/authorizations	Throughout Project construction	As required by permits/authorizations	Authority and Reclamation
Impact Wet-2: A Permanent Adverse Effect to Federally Protected Wetlands (As Defined by Section 404 of the Clean Water Act [Including, But Not Limited to, Marsh, Vernal Pool, Coastal]) through Direct Removal, Filling, Hydrological Interruption, Discharge of Pollutants, or Other Means						
Wet-2a: Seasonal Wetlands	**Wet-2a:** Conserve, Enhance, Restore, or Create Seasonal Wetlands, or Implement Other Compensatory Mitigation Measures Pursuant to USACE Determination within the Watershed in Which the Impacts Occur	Prior to start of Project and throughout Project construction	As required by permits/authorizations	Throughout Project construction	As required by permits/authorizations	Authority and Reclamation
Wet-2b: Alkaline Wetlands	**Wet-2b**: Conserve, Enhance, Restore, or Create Alkaline Wetlands, or Implement Other Compensatory Mitigation Measures Pursuant to USACE Determination within the Watershed in Which the Impacts Occur	Prior to start of Project and throughout Project construction	As required by permits/authorizations	Throughout Project construction	As required by permits/authorizations	Authority and Reclamation
Wet-2c: Vernal Pools	**Wet-2c**: Conserve, Enhance, Restore, or Create Vernal Pools Equivalent to the Type of Vernal Pools Adversely Impacted, or Implement Other Compensatory Mitigation Measures Pursuant to USACE Determination	Prior to start of Project and throughout Project construction	As required by permits/authorizations	Throughout Project construction	As required by permits/authorizations	Authority and Reclamation
Wet-2d: Emergent Wetlands	**Wet-2d**: Conserve, Enhance, Restore, or Create Emergent Wetlands, or Implement Other Compensatory Mitigation Measures Pursuant to USACE Determination within the Watershed in Which the Impacts Occur	Prior to start of Project and throughout Project construction	As required by permits/authorizations	Throughout Project construction	As required by permits/authorizations	Authority and Reclamation
Wet-2e: Riparian Wetlands	**Wet-2e**: Conserve, Enhance, Restore, or Create Comparable Riparian Wetlands in the Inner Coast Range Foothills, or Implement Other Compensatory Mitigation Measures Pursuant to CDFW Determination	Prior to start of Project and throughout Project construction	As required by permits/authorizations	Throughout Project construction	As required by permits/authorizations	Authority and Reclamation
16. Paleontology						
Impact Paleo-1: **Project Construction, Operation, and Maintenance Effects on Paleontological Resources**						
	Paleo-1a: Retain a Qualified Paleontological Resource Specialist prior to the Start of Construction	Prior to start of Project construction				Authority and Reclamation
	Paleo-1b: Consultation with the Paleontological Resource Specialist prior to and during Project Construction	Prior to start of Project and throughout Project construction		Throughout Project construction		Authority and Construction
	Paleo-1c: Prepare and Implement a Paleontological Resources Monitoring and Mitigation Plan	Prior to start of Project and throughout Project construction		Throughout Project construction	As required by permits/authorizations	Authority and Reclamation
	Paleo-1d: Conduct Paleontological Resources Awareness Training	Prior to start of Project and throughout Project construction		Throughout Project construction		Authority and Reclamation
	Paleo-1e: Conduct Monitoring during Project Construction and Prepare Monthly Reports	Prior to start of Project and throughout Project construction		Throughout Project construction		Authority and Reclamation
	Paleo-1f: Ensure Implementation of the Paleontological Resources Monitoring and Mitigation Plan	Prior to start of Project and throughout Project construction		Throughout Project construction	As required by permits/authorizations	Authority and Reclamation
18. Cultural/Tribal Cultural Resources						
Impact Cul-1: **A Substantial Adverse Change in the Significance of an Archaeological Resource**						
	Cul-1a: Avoid Impacts to Historical Resources/Historic Properties	Prior to start of Project and throughout Project construction		Throughout Project construction	As required by permits/authorizations	Authority and Reclamation/Construction contractor
	Cul-1b: Conduct Archaeological Data Recovery	Prior to start of Project construction		Throughout Project construction		Authority and Reclamation
	Cul-1c: Conduct Archaeological Construction Monitoring	Throughout Project construction		Throughout Project construction	Throughout Project construction	Authority and Reclamation
	Cul-1d: Immediately Halt Construction if Cultural Resources Are Discovered and Implement a Post-review Discovery Plan	Throughout Project construction		Throughout Project construction		Authority and Reclamation/Construction contractor

Impact	Mitigation Measure	Mitigation Implementation Duration		Monitoring Duration		Responsibility
		Pre-construction/ Construction	**Ongoing**	**Pre-construction/ Construction**	**Ongoing**	**Mitigation Implementation and Monitoring**
	CuI-1e: Protection of Archaeological Sites by Capping	Prior to start of Project and throughout Project construction		Throughout Project construction	Throughout Project construction	Authority and Reclamation /Construction contractor
Impact CuI-2: **A Substantial Adverse Change in the Significance of a Historical Resource of the Built Environment**						
	CuI-1a: Avoid Impacts to Historical Resources/Historic Properties	Prior to start of Project and throughout Project construction		Throughout Project construction		Authority and Reclamation/Construction contractor
	CuI-2a: Follow the Secretary of the Interior's Standards for the Treatment of Historical Resources/Historic Properties	Prior to start of Project and throughout Project construction		Throughout Project construction		Authority and Reclamation Archaeologist
	CuI-2b: Record Built Environment Resources	Prior to start of Project and throughout Project construction		Throughout Project construction		Authority and Reclamation
Impact CuI-3: **Disturb a Traditional Cultural Property or a Tribal Cultural Resource as Defined in PCR Section 21074**						
	CuI-1a: Avoid Impacts to Historical Resources/Historic Properties	Prior to start of Project and throughout Project construction		Throughout Project construction		Authority and Reclamation/Construction contractor
	CuI-3: Consult with Affected Communities regarding How to Mitigate for Impacts on TCPs/TCRs	Prior to start of Project and throughout Project construction		Throughout Project construction		Authority and Reclamation
Impact CuI-4: **Disturb Human Remains, Including Those Interred Outside of Dedicated Cemeteries**						
	CuI-1a: Avoid Impacts to Historical Resources/Historic Properties	Prior to start of Project and throughout Project construction		Throughout Project construction		Authority and Reclamation/Construction contractor
	CuI-4a: Relocation of Dedicated or Known Cemeteries	Prior to start of Project and throughout Project construction		Throughout Project construction		Authority and Reclamation
	CuI-4b: Immediately Halt Construction if Human Remains Are Discovered and Implement a Burial Treatment Plan	Throughout Project construction		Throughout Project construction		Authority and Reclamation/Construction contractor
20. Land Use						
Impact Land-2: **Conflict with an Applicable Land Use Plan, Policy, or Regulation of an Agency with Jurisdiction over the Project Adopted for the Purpose of Avoiding or Mitigating an Environmental Effect**						
	Land-2: Work with Glenn and Colusa Counties to Modify or Amend Counties General Plans and/or Zoning Ordinances to Bring Lands into Consistency with the Project Land Uses	Prior to start of Project construction				Authority and Reclamation
Impact Land-7: **Permanent Conflict with Existing Zoning for Agricultural Use, and/or the Permanent Conversion of Lands that Have a Williamson Act Contract**						
	Land-7a: Acquire Lands through Eminent Domain or Work with Land Owners to Acquire Properties and Pay Any Cancellation Fees Associated with Removing Lands from Williamson Act Contracts	Prior to start of Project construction				Authority and Reclamation
	Land-7b: For Land Permanently Acquired Other Than by Eminent Domain, Seek County Approvals to Rescind Williamson Act Contracts and Enter in Open Space Contracts or Open Space Easements	Prior to start of Project construction				Authority and Reclamation
24. Air Quality						
Impact Air Qual-1: **Conflict with an Applicable Air Quality Plan, Contribute Substantially to an Air Quality Violation, and/or Result in a Cumulatively Considerable Net Increase of Nonattainment Pollutants**						
	Air Qual-1a: Develop and Implement a Fugitive Dust Control Plan	Prior to start of Project and throughout Project construction	As required by permits/authorizations	Throughout Project construction	As required by permits/authorizations	Authority and Reclamation/Construction contractor
	Air Qual-1b: Implement Measures to Reduce Equipment and Vehicle Exhaust Emissions	Prior to start of Project and throughout Project construction	As required by permits/authorizations	Throughout Project construction	As required by permits/authorizations	Authority and Reclamation/Construction contractor

Impact	Mitigation Measure	Mitigation Implementation Duration		Monitoring Duration		Responsibility
		Pre-construction/ Construction	Ongoing	Pre-construction/ Construction	Ongoing	Mitigation Implementation and Monitoring
25. Greenhouse Gas						
Impact GHG-1: **Generation of Cumulative GHG Emissions**						
	BMP 1: Evaluate project characteristics, including location, project work flow, site conditions, and equipment performance requirements, to determine whether specifications of the use of equipment with repowered engines, electric drive trains, or other high-efficiency technologies are appropriate and feasible for the project or specific elements of the project.	Prior to start of Project and throughout Project construction		Throughout Project construction	As required by permits/authorizations	Authority and Reclamation/Construction contractor
	BMP 2: Evaluate the feasibility and efficacy of performing onsite material hauling with trucks equipped with on-road engines.	Prior to start of Project and throughout Project construction		Throughout Project construction	As required by permits/authorizations	Authority and Reclamation
	BMP 3: Ensure that all feasible avenues have been explored for providing an electrical service drop to the construction site for temporary construction power. When generators must be used, use alternative fuels such as propane or solar to power generators to the maximum extent feasible.	Prior to start of Project and throughout Project construction		Throughout Project construction	As required by permits/authorizations	Authority and Reclamation
	BMP 4: Evaluate the feasibility and efficacy of producing concrete onsite and specify that batch plants be set up onsite or as close to the site as possible.	Prior to start of Project and throughout Project construction		Throughout Project construction	As required by permits/authorizations	Authority and Reclamation
	BMP 5: Evaluate the performance requirements for concrete used on the project and specify concrete mix designs that minimize GHG emissions from cement production and curing, while preserving all required performance characteristics.	Prior to start of Project and throughout Project construction		Throughout Project construction	As required by permits/authorizations	Authority and Reclamation
	BMP 6: Limit deliveries of materials and equipment to the site to off-peak traffic congestion hours.	Prior to start of Project and throughout Project construction		Throughout Project construction	As required by permits/authorizations	Authority and Reclamation/Construction contractor
	BMP 7: Minimize idling time by requiring that equipment be shut down after 5 minutes when not in use (as required by the State airborne toxics control measure [Title 13, Section 2485 of the California Code of Regulations]). Provide clear signage that posts this requirement for workers at the entrances to the site and provide a plan for the enforcement of this requirement.	Prior to start of Project and throughout Project construction		Throughout Project construction	As required by permits/authorizations	Authority and Reclamation/Construction contractor
	BMP 8: Maintain construction equipment in proper working condition and perform preventative maintenance. Required maintenance includes compliance with manufacturer's recommendations, proper upkeep and replacement of filters and mufflers, and maintenance of engine and emissions systems in proper operating condition. Maintenance schedules will be detailed in an Air Quality Control Plan prior to commencement of construction.	Throughout Project construction		Throughout Project construction	As required by permits/authorizations	Authority and Reclamation/Construction contractor
	BMP 9: Implement tire inflation program on job site to ensure that equipment tires are correctly inflated. Check tire inflation when equipment arrives onsite and every 2 weeks for equipment that remains onsite. Check vehicles used for hauling materials off-site weekly for correct tire inflation. Procedures for the tire inflation program will be documented in an Air Quality Management Plan prior to commencement of construction.	Throughout Project construction		Throughout Project construction	As required by permits/authorizations	Authority and Reclamation/Construction contractor
	BMP 10: Develop a project-specific ride share program to encourage carpools, shuttle vans, and transit passes, and secure bicycle parking for construction worker commutes.	Throughout Project construction		Throughout Project construction	As required by permits/authorizations	Authority and Reclamation/Construction contractor
	BMP 11: Reduce electricity use in temporary construction offices by using high-efficiency lighting and requiring that heating and cooling units be Energy Star compliant. Require that all contractors develop and implement procedures for turning off computers, lights, air conditioners, heaters, and other equipment each day at close of business.	Throughout Project construction		Throughout Project construction	As required by permits/authorizations	Authority and Reclamation/Construction contractor
	BMP 12: For deliveries to project sites where the haul distance exceeds 100 miles and a heavy-duty Class 7 or Class 8 semi-truck or 53-foot or longer box type trailer is used for hauling, a SmartWay[a] certified truck will be used to the maximum extent feasible.	Throughout Project construction		Throughout Project construction	As required by permits/authorizations	Authority and Reclamation/Construction contractor
	BMP 13: Minimize the amount of cement in concrete by specifying higher levels of cementitious material alternatives, larger aggregate, longer final set times, or lower maximum strength where appropriate.	Throughout Project construction		Throughout Project construction	As required by permits/authorizations	Authority and Reclamation/Construction contractor

Impact	Mitigation Measure	Mitigation Implementation Duration		Monitoring Duration		Responsibility
		Pre-construction/ Construction	Ongoing	Pre-construction/ Construction	Ongoing	Mitigation Implementation and Monitoring
	BMP 14: Develop a project-specific construction debris recycling and diversion program to achieve a documented 50 percent diversion of construction waste.	Prior to start of Project and throughout Project construction		Throughout Project construction	As required by permits/authorizations	Authority and Reclamation/Construction contractor
	BMP 15: Evaluate the feasibility of restricting material hauling on public roadways to off-peak traffic congestion hours. During construction scheduling and execution, minimize, to the extent possible, uses of public roadways that would increase traffic congestion.	Prior to start of Project and throughout Project construction		Throughout Project construction	As required by permits/authorizations	Authority and Reclamation/Construction contractor

[a] The U.S. Environmental Protection Agency has developed the SmartWay truck and trailer certification program to set voluntary standards for trucks and trailers that exhibit the highest fuel efficiency and emissions reductions. These tractors and trailers are outfitted at point of sale or retrofitted with equipment that significantly reduces fuel use and emissions including idle reduction technologies, improved aerodynamics, automatic tire inflation systems, advanced lubricants, advanced powertrain technologies, and low rolling resistance tires.

Note:

BMP = best management practice

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Appendix
Mitigation Monitoring Plan Measure Descriptions

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APPENDIX
Mitigation Monitoring Plan Measure Descriptions

12. Aquatic Biological Resources

Mitigation Measure Fish-1a: Implement Habitat Restoration Actions – Stone Corral and Funks Creeks

Mitigation would be implemented to minimize temporary and permanent impacts associated with the inundation of up to 4 miles of Stone Corral and 7 miles of Funks associated with the filling of Sites Reservoir. Restoration and compensatory mitigation for these portions of these streams would include the following based on coordination and consultation with the USACE, CDFW, and USFWS:

- A waters and wetland mitigation and monitoring plan shall be developed by a qualified biologist in coordination with USACE, CDFW, and USFWS that details mitigation and monitoring obligations for temporary and permanent impacts to waters and wetlands and other waters as a result of construction activities. The plan shall quantify the total acreage lost, describe mitigation ratios for lost habitat, annual success criteria, mitigation sites, monitoring and reporting requirements, and site specific plans to compensate for wetland losses resulting from the project.
- Purchase or dedication of land to provide wetland preservation, restoration or creation as necessary depending on availability and suitability of on-site options. If restoration is available and feasible, then a ratio of at least 2:1 shall be used. If a wetland needs to be created, at least a 3:1 ratio shall be implemented to offset losses. Where practical and feasible, on-site mitigation shall be implemented including the potential enhancement and restoration of upstream and/or downstream portions of Stone Corral and Funks creeks that would not be inundated by the Project.

Mitigation Measure Fish-1b: Implement Habitat Restoration Actions – Sacramento River

Mitigation would be implemented to minimize temporary and permanent impacts to the portion of the Sacramento River associated with the Delevan Pipeline Intake/Discharge Facilities. Restoration and compensatory mitigation for this portion of the river would include the following based on coordination and consultation with the USACE, CDFW, and USFWS:

- A waters and wetland mitigation and monitoring plan shall be developed by a qualified biologist in coordination with USACE, CDFW, and USFWS that details mitigation and monitoring obligations for temporary and permanent impacts to waters and wetlands and other waters as a result of construction activities (see **Mitigation Measure Fish-1a**).
- As mitigation for loss of riparian and SRA habitat on the Sacramento River, degraded habitat shall be restored to provide riparian and/or SRA habitat at or near the areas affected by construction of the intake/discharge facilities at a ratio of 2:1. Proposed restoration activities are anticipated to include the removal of non-native vegetation as necessary and re-vegetation with native riparian species to provide shaded riverine aquatic (SRA) and/or riparian habitat. As a component of SRA habitat, riparian tree species such as alders, cottonwoods and willows, shall be planted as determined in coordination with the USECE, CDFW, and USFWS.

- Given the importance of instream woody material (IWM) to juvenile fishes in the Sacramento River, all IWM needing to be removed as part of the project shall be identified and recorded by a qualified biologist, and such material returned to the river (if practical), or be replaced with a functional equivalent. Specific restoration actions (including replacement of material at least a 1:1 ratio) shall include planting approach and monitoring of restoration sites and shall be included in the waters and wetland mitigation and monitoring (see **Mitigation Measure Fish-1a**) prepared in coordination with CDFW, USFWS, the USACE and other regulatory agencies as appropriate.

Mitigation Measure Fish-1c: Perform In-water Pile Driving during Daylight Hours

In-water pile driving shall only occur during daylight hours. To avoid impacts on the majority of fish species of primary management concern, sheet pile installation and in-stream heavy equipment activity shall be coordinated with NMFS, USFWS, Reclamation, and CDFW to avoid and or minimize potential impacts. In-water pile driving shall only occur in accordance with the timing restrictions identified in the NMFS Biological Opinion to protect salmonids. Coordination with NMFS related to the Biological Opinion shall identify a preferred in-river construction work window in part based on the cessation of the outmigration of juvenile salmon and before the initiation of the upstream migration of adults returning to spawn as determined necessary in coordination with NMFS and CDFW. If feasible depending on substrate conditions, a vibratory hammer shall be used, and pile driving shall commence at low energy levels and slowly build to impact force. In addition, underwater sound levels shall be monitored to ensure that pile driving activities do not create underwater sound levels that would result in direct injury or mortality (FHWG, 2008).

Mitigation Measure Fish-1d: Design Fish Screen in Compliance with NMFS and CDFW Criteria

Fish screens at the Delevan Pipeline Intake/Discharge Facilities shall be designed to comply with NMFS and CDFW salmonid screening criteria. NMFS and CDFW approach velocity criteria have been established to minimize changes in swimming behavior and fish contact with the screen. The Delevan Pipeline Intake/Discharge Facilities shall be designed to meet all screening criteria in coordination with NMFS and CDFW.

Mitigation Measure Fish-1e: Prepare and Implement a Fish Salvage and Rescue Plan

The fish screen at the Delevan Pipeline Intake/Discharge Facilities shall be designed to comply with NMFS and CDFW fish screening criteria (**Mitigation Measure Fish 1-d**). In addition, a Fish Salvage and Rescue Plan to be implemented during construction of the Delevan Pipeline Intake/Discharge Facilities shall be developed and approved by NMFS and CDFW prior to initiation of construction activities, and will include the following measures based on coordination with NMFS and CDFW:

- Progress of installation of the cofferdam and the schedule for dewatering and would be coordinated with the construction contractor and fishery biologist to allow for the rescue to occur when water depths are approximately 2 feet (0.6 meters).
- Cofferdam construction shall be completed at the downstream end to minimize the potential for entrainment of salmonids and sturgeon within the enclosed cofferdam.
- A qualified fisheries biologist shall sample the closed cofferdam to ensure that no salmonids of sturgeon have been trapped within the cofferdam.

All rescued salmonids and sturgeon shall be removed and returned to the river. The fisheries biologist shall note the number of individuals entrained, the number of individuals relocated, and the date and time of collection and relocation.

One of more of the following NMFS-approved capture techniques shall be used: dip net, seine, throw net, minnow trap, or hand.

Electrofishing may be used if NMFS and CDFW have reviewed the biologist's qualifications and provided written approval.

The fisheries biologist shall be empowered to halt work activity and to recommend measures for avoiding adverse effects to salmonids and sturgeon and their habitat.

Mitigation Measure Fish 1f: Sites Reservoir Diversion Restrictions for Pulse Flow Protection and Entrainment Minimization

To address the potential for impacts to anadromous fish migration and impacts resulting from fish exposure to the proposed diversion facilities, the Project shall establish and fund an ongoing juvenile salmon trapping program and data collection network for the purpose of collecting real-time data to inform the operation of Sites diversions to minimize potential fish impacts. The program shall be developed in coordination with CDFW and NMFS, and designed to augment and/or draw from other ongoing fish and environmental data collection efforts in the Sacramento River. The data collection and monitoring program is intended to inform the ongoing refinement of fish protection operations.

Based on proposed ongoing monitoring for fish presence, the Project shall protect naturally occurring, storm-induced pulse flows in the Sacramento River from October through May to minimize mortality of out-migrating juvenile winter-, spring-, fall- and late fall-run Chinook salmon, as well as steelhead. Fish protection shall be accomplished by managing diversions at the three Sites intakes during those pulse flow events that stimulate a spike in juvenile salmon out-migration.

When a pulse in flow is followed by a rapid increase in juvenile salmon downstream migration, as detected by the monitoring program, the Sites Project shall:

- Manage diversions to limit the level of mortality of juvenile salmon in the Sacramento River. The allowable level of diversion will be determined based on the results of fish monitoring and flow conditions, and different diversion rates may be assigned to operations during daylight and nighttime hours.
- The above limitations will apply to each diversion, and operations at each facility will be managed independently to fine-tune fish protection, to the extent possible. The limitations on diversion will remain in effect until real-time monitoring associated with that facility indicates that the peak in juvenile salmon abundance has past.

Pulse flows during periods of peak out-migration are expected to provide flow continuity between the upper and lower Sacramento River that will help support fish migration. It is recognized that research regarding the benefits of pulse flows is ongoing, and results of the Project monitoring program as well as further research and adaptive management will be needed refine the pulse flow protection strategy. This measure is expected to reduce potential mortality of juvenile salmon due to the Sites Project during their peak outmigration periods by: (1) minimizing the effects on fish exposed to the diversion facilities,

(2) minimizing diversion-related effects on survival, and (3) minimizing reductions in migration travel time.

For impact analysis and simulation modeling purposes, pulse flow events are assumed to be initiated when the 3-day trailing average Bend Bridge flow exceeded 15,000 cfs. Such an event would be considered a "qualified" event limiting diversion if the pulse flow was greater than 15,000 cfs for 7 to 10 days[1]. A pulse flow event would be considered terminated if: (1) the 3-day trailing average flow remained greater than 15,000 cfs for 7 to 10 days after initiation (constituting a "qualified" pulse event), or (2) the 3-day trailing average flow dropped below 15,000 cfs before reaching the 7-day duration (not a qualified event). Up to one qualified pulse event would be recognized in each month during the pulse protection period to minimize potential impacts on fish migration. Diversions to Sites Reservoir storage would be restricted if: (1) pulse conditions exist at Bend Bridge, and a qualified pulse event has not already occurred within the given month, and (2) Bend Bridge flows were less than 25,000 cfs during the pulse event (flows above 25,000 cfs are considered to provide lesser benefits to fish migration).

13. Botanical Resources

Mitigation Measure Bot-1a: Implement Compensatory Mitigation Measures for Vegetation Community Impacts in Coordination with USFWS, CDFW, CNPS, and USACE

Impacts to habitat types, and by extension, the corresponding vegetation types that would be adversely affected by the construction and operation/maintenance of the Project shall include mitigation for impacts on grassland that contains wetlands, is suitable habitat for special-status plant species, and/or contains native grass stands; impacts on blue oak woodlands, including savanna and woodlands with chaparral understory; impacts on riparian vegetation, including distinction between degraded/disturbed areas (e.g., Sites Reservoir) versus mature forest (e.g., Funks Creek at Holthouse Reservoir Complex and Delevan Pipeline Intake/Discharge Facilities); impacts on valley oak woodlands, taking into consideration the small and fragmented sites; and impacts on alkaline wetlands.

Restoration and compensatory mitigation for special status botanical resources impacted by the Project would include the following based on coordination and consultation with the USFWS, CDFW, CNPS, and USACE:

- A waters and wetland mitigation and monitoring plan (**Mitigation Measure Wet-1a**) shall be developed by a qualified biologist in coordination with USACE, Regional Water Quality Control Board, and USFWS that details mitigation and monitoring obligations for temporary and permanent impacts to waters and wetlands as a result of construction and operation activities. Appropriate mitigation ratios from 1:1 to 3:1 replacement shall be determined following USACE's 12501-SPD Regulatory Program Standard Operating Procedure for Determination of Mitigation Ratios as well as USACE's Final 2015 Regional Compensatory Mitigation and Monitoring Guidelines. The plan shall quantify the total acreage lost, describe mitigation ratios for lost habitat, annual success criteria, mitigation sites, monitoring and reporting requirements, and site specific plans to compensate for waters and wetland losses resulting from the Project.

- Purchase or dedication of land to provide botanical resources (including wetlands) preservation, restoration or creation as necessary depending on availability and suitability of on-site options. If restoration is available and feasible, then a ratio of at least 1:1 shall be used. If habitat needs to be created, at least a 1:1 ratio and up to 3:1 shall be implemented to offset losses. Where practical and feasible, on-site mitigation shall be implemented within adjacent areas that would not be inundated or impacted by the Project. Compensation ratios may be greater depending of quality, types and functions and values of the wetlands included in the preservation area.

In addition, a botanical natural community mitigation and monitoring plan shall be developed that outlines the specific mitigation and monitoring obligations including restoration, enhancement and preservation activities for those special status botanical resources not associated with jurisdictional waters or wetlands. The plan will include measures for transplanting, seed collection, enhancement and/or protection of known occurrences in nearby habitat. The plan will include specific success criteria and performance standards, monitoring and reporting requirements long term maintenance plans and a process for adaptive management. Unavoidable impacts to sensitive natural communities such as oak woodlands and riparian areas, would be mitigated at a 1:1 ratio for restoration and a minimum of 2:1 for enhancement or preservation. Final vegetation community compensatory mitigation ratios will be determined on the conditions of the mitigation sites and ecological value added as a result of restoration or enhancement of replacement vegetation communities and will be at a 1:1 ratio or greater depending on species and coordination with USFWS and CDFW and consistent with CNPS policy guidelines. The nature and amount of mitigation will adequately compensate for impacts to natural vegetation communities. Specific mitigation measures would include:

- On-site and off-site restoration, enhancement and preservation of oak woodland habitat.
- Reseeding of temporarily disturbed areas with appropriate native grass and wildflower seed mixes.

Mitigation Measure Bot-1b: Conduct Groundwater Hydrological Studies

Hydrological studies to determine how much of the grassy upland acts as a watershed for the alkaline wetland swale that feeds the downstream alkaline marsh shall be conducted. The studies shall provide guidance regarding how to avoid impacts on the grasslands that direct water to the marsh. In the event the studies indicate that the Project would result on unavoidable impacts to the alkaline marsh hydrology, the Authority shall initiate a monitoring program to determine the effect of the altered hydrology on the marsh vegetation community. The monitoring plan will include collection of pre-project (baseline conditions) on plant species diversity and abundance (cover). Post project, the alkaline marsh vegetation will be monitored for a minimum of 5 years to assess whether or not the Project has resulted in an impact. In the event the monitoring indicated that the altered hydrology is resulting in adverse impacts to the alkaline marsh, compensatory mitigation including restoration, enhancement and/or preservation of alkaline marsh habitat will be implemented in accordance with **Mitigation Measure Wet-2b** which includes the conservation, enhancement, restoration and/or creation of alkaline wetlands.

Mitigation Measure Bot-2: Conduct Pre-construction Surveys for Special-status Plants; if Found, Compensate According to USFWS, CDFW, and CNPS Guidelines

Prior to construction surveys will be completed following USFWS, CDFW, and CNPS special-status plant survey guidelines and protocols and the location, extent, and size of the occurrences provided to CDFW and USFWS. To the extent possible, occurrences of special-status plant species will be avoided. Exclusion fencing and signage will be installed around all special-status plant occurrences near work

areas to prevent accidental intrusion into sensitive areas. If impacts to special-status botanical resources are unavoidable, compensatory mitigation proposed as part of **Mitigation Measure Bot-1a** will be implemented.

Mitigation Measure Bot-3a: Implement Preventive Actions by Following Weed Control BMPs; Minimize Exposed Ground; Reduce Weed Seed by Removal of Onsite and Offsite Weeds

The potential for introduction of new weed seeds into the construction disturbance area or transport of weed seeds between construction disturbance areas shall be preparing a weed control plan to mitigate for potential Project construction and operation/maintenance impacts. The weed control plan shall include the following:

- During Project preconstruction and construction, all erosion control materials shall be weed-free rice straw
- During Project preconstruction and construction, vehicles and all equipment shall be washed (including wheels and undercarriages) before entering project sites to avoid the potential for weed seed transport across habitat types and agricultural areas.
- All plant materials used during restoration shall be native (to the extent possible) and certified weed-free
- On-site weeds within or adjacent to areas to be disturbed shall be removed as practicable prior to construction
- Weed control treatments shall incorporate all legally permitted herbicide, manual, and mechanical methods in compliance with all State and federal laws and regulations and in coordination with Glenn and Colusa counties

The potential spread of noxious weeds shall also be minimized by limiting the exposed ground within the construction disturbance area that is available for weed colonization or spread by mulching with weed-free materials or planting the exposed ground with native cover crops local to the Project area.

Mitigation Measure Bot-3b: Implement Avoidance Measures in Areas Adjacent to the Delevan National Wildlife Refuge

During construction of the Delevan Pipeline and associated facilities, potential impacts to the Delevan National Wildlife refuge shall be minimized by avoiding the placement of large staging areas within the portion of the construction disturbance area that borders the Delevan NWR. A minimum of a 100-foot buffer will be established between large staging areas and the NWR to the extent practicable.

14. Terrestrial Biological Resources

Mitigation Measure Wild-1a: Confirm Species/Habitat Presence through Appropriately Timed Surveys Per Protocols Identified in Coordination with USFWS and CDFW

Appropriately timed preconstruction surveys shall be required to confirm presence of species previously either observed or thought to potentially occur based on previous project investigations. All construction facility temporary and permanent area footprints will be identified, and appropriately timed surveys shall be conducted per appropriate protocols for all species as necessary in coordination with USFWS and CDFW. Upon completion of all necessary surveys, mitigation and/or environmental commitments

identified below will be implemented to reduce potential construction and operations impacts as appropriate and required.

Mitigation Measure Wild-1b: Identify and Implement a Combination of Habitat Protection, Enhancement, Restoration, or Conservation Easement Measures, in Consultation with USFWS, CDFW, and USACE

The acreage of permanent habitat loss associated with the construction and operation of any Project facility shall be determined and documented as part of preconstruction surveys by a qualified biologist. Habitat for sensitive species shall be protected to the extent possible (including construction buffers and exclusion areas) where possible. For unavoidable Project footprint impacts, suitable habitat shall be identified in coordination and consultation with USFWS, CDFW, and the USACE and appropriate actions/agreements developed ranging from on-site restoration, enhancement, acquisition of conservation easements, land purchase, or mitigation bank credit acquisition. Compensation of such habitat lands shall occur per all appropriate protocols (including replacement ratios) for each such species. Mitigation Measure Wild-1b will comply the compensatory mitigation conditions set forth in the Eagle Take Permit Title 50 FCR Part 22, Subpart C, §22.25 & §22.26.

Mitigation Measure Wild-2a: Prepare and Implement a Bird and Bat Conservation Strategy

Preconstruction nesting bird and bat surveys will be conducted and appropriate avoidance measures identified for special status nesting birds and bats. A Bird and Bat Conservation Strategy will be developed which shall include:

- Nest and overall survey protocols describing the survey methodologies
- A management plan describing the methods to be used to minimize impacts to nesting birds and bats during Project construction and operation
- A monitoring component of the plan detailing the information to be collected with sufficient details to enable CDFW and USFWS to monitor the applicant's compliance with Fish and Game Code Sections 3503, 3503.5, 3511, and 3513
- All measures the applicant will implement to preclude special status birds and bats from utilizing Project-related construction equipment, facilities, or materials for nesting

Nesting Birds

For work activities occurring between February 15 and August 31, preconstruction nesting bird surveys and ongoing nesting surveys will be conducted by a qualified biologist within 14 days of construction, covering a radius of 0.5 mile for Swainson's hawk. The survey area shall include a survey buffer of 500 feet, 250 feet for non-listed raptors, and 100 feet for non-listed passerines at all work locations. If nesting birds are found, the biologist will evaluate whether existing screening buffers (such as buildings, trees, intervening topography) or work exclusion buffers (Table 1) or nest monitoring is needed.

- To meet the CDFW recommendations for protection of SWHA nest sites for construction activities, surveys shall be conducted in a 0.5-mile radius around all Project activities to identify potential SWHA nesting locations.
- If construction occurs during the nesting season (March 1 – September 15 annually), preconstruction surveys should be conducted by a qualified biologist within 14 days prior to construction to detect the

presence of nesting birds within or adjacent to the Project locations. If construction occurs during the non-breeding season for nesting birds (September 1 through February 14), preconstruction surveys are not required. The survey area should include a survey buffer of 500 feet.

- Surveys specifically for nesting Swainson's hawk should be conducted within 0.5-mile radius of designated disturbance areas following TAC 2000 guidelines.
- If active nests (including Swainson's hawk) are detected during the survey, a no-disturbance buffer zone (protected area surrounding the nest, the size of which is to be determined by the qualified biologist or in consultation with CDFW and USFWS for certain species) will be established and nest monitoring for all active nest will be required. General species buffers are provided below.
- Consultation with CDFW will be required for construction within 0.5 mile of an active Swainson's hawk nest to ensure that no take of Swainson's hawk occurs during Project construction.
- On-site monitoring could be included as part of CDFW's conditions and mitigation measures for construction within 0.5 mile of nesting Swainson's hawk (CDFG, 1994).

Table 1
Avoidance Distances and Restrictions for Nesting Species

Species	Buffer	Seasonal Restrictions
Swainson's hawk*	0.5 mile from an active nest in non-urban area.	No construction activities in buffer area should be conducted between March 1 and September 15 or until the young have fledged unless appropriate measures have been taken to ensure no adverse impacts on Swainson's hawk in coordination with CDFW.
Red-tailed hawk*	200 feet during nesting season.	(Feb 1 – Aug 31)
Nests of sensitive raptors*	To be determined in consultation with the qualified biologist.	(Feb 1 – Aug 31)
Killdeer*	To be determined in consultation with the qualified biologist.	Any time active nests are present.
Nests of birds protected by the MBTA*	To be determined in consultation with the qualified biologist.	Any time active nests are present.

*The exclusion zone would be circular in shape with the radius measured outward from the center of the species' burrow entrances or nests.

Bats

To determine presence bats that Project activities may affect, surveys shall be conducted within the Project area. The survey protocols will include a detailed description of methodologies utilized by CDFW-approved biologists to search for bat roosts and describe behaviors that indicate bat use. The protocols should include but are not limited to the size of Project area being surveyed, method of search, and behavior that indicates bat activity.

Prior to any structure demolition, structures shall be inspected by a qualified biologist to determine if bats are present, and if present, to determine if the structure is being used as a day, night, or maternity roost. If a roost is present, appropriate bat exclusion measures shall be implemented at least 5 to 7 days prior to structure demolition outside of the maternity season, which can range from mid-April through August 31,

and outside of the winter months (generally November to mid-March) when bats could be hibernating or a period identified in coordination with CDFW and USFWS. Bat exclusion measures will include one-way devices such as polypropylene netting, plastic sheeting, or tube-type excluders that would be placed at all active entry points as determined appropriate by a qualified biologist.

Mitigation Measure Wild-2b: Obtain Permit for Bald Eagle Nest Tree Removal, Remove Nest Tree Outside of Breeding Season, and Create Suitable Habitat

If an active bald eagle nest is found to be present prior to Project construction, an Eagle Take Permit to remove or relocate the nest shall be obtained from USFWS. Removal of bald eagle nest trees shall be scheduled outside of the breeding season, which ranges from January through July, to avoid direct impacts. Following inundation, releases downstream of Golden Gate Dam would restore flows to Funks Creek to maintain fisheries and bald eagle foraging habitat.

If construction occurs during the bald eagle nesting season, surveys will be conducted within a 0.5-mile radius around the construction area. If nesting bald eagles are detected, a 0.5-mile buffer will be established around nests that are sufficient to ensure that breeding is not likely to be disrupted or adversely impacted by construction. Buffers will be maintained until a qualified biologist has determined that young have fledged or the nest has failed.

Construction activities shall be modified to ensure that nesting bald eagles are protected. To avoid or minimize possible impacts to nesting bald eagles, some or all of the following measures shall be implemented:

- A bird deterrent program shall be implemented near historical bald eagle nest sites to discourage eagles from returning to those sites.
- Construction near active nest sites shall start outside the active nesting season or as determined appropriate in coordination with the USFWS and CDFW. The nesting period for bald eagles is from January through July.
- If groundbreaking activities begin during the nesting period, a qualified biologist shall perform a preconstruction survey 14 to 30 days before the start of each new construction phase to search for bald eagle nest sites in appropriate habitat within 0.5 mile of proposed activities. If active nests are not identified, no further action is required.
- If active nests are identified, a minimum 0.5-mile buffer zone (or sufficient distance identified in in coordination with the USFWS and CDFW) around active bald eagle nests shall be established. Buffer zones shall remain until young have fledged or the nest is confirmed to have failed by a qualified biologist. For activities conducted with agency approval within this buffer zone, a qualified biologist shall monitor construction activities and the eagle nest(s) to monitor eagle reactions to activities. If activities are deemed to have a negative effect on nesting eagles, the biologist shall immediately inform the construction manager that work should be halted, and CDFW and USFWS will be consulted.
- For bald eagles that begin nesting within the buffer zone after start of construction, the same avoidance and minimization measures as described for active eagle nests found before start of construction (0.5-mile buffer or other as determined appropriate in coordination with the USFWS and CDFW) shall be implemented. A smaller buffer of 0.25 to 0.5 mile may be used if there is a visual barrier, such as a hill or dense trees, between the construction activity and the nest.

- After construction is complete, it is possible that bald eagles will nest within the constructed Recreation Areas. In this situation, the following avoidance and minimization measures shall be implemented:
  - After construction, bald eagle nesting sites shall be surveyed and monitored within and adjacent to the Recreation Areas to ensure that recreational activities do not disrupt bald eagle nesting activities. Surveys shall be performed at the beginning of, and continue through, the nesting season. Consistent with avoidance guidelines, recreational access and other disruptive activities shall be suspended within 0.5 mile of active bald eagle nests until the young eagles have fledged or a qualified biologist has determined that the nest has failed.

Mitigation Measure Wild-2c: Implement Protective Actions to Prevent Bank Swallows from Nesting in the Cut Banks of Project Construction Trenches

Given construction of the Delevan Pipeline would begin in May due to giant garter snake restrictions, bank swallows may still be present and seeking nesting opportunities as their breeding/fledging season generally ranges from March through July. Protective and preventative actions shall be taken to prevent bank swallows from attempting to nest within the cut banks of the pipeline trenches. Actions shall include the placement of a mesh net on all cut banks during the bank swallow nesting season within areas of open trench, and implementation of **Mitigation Measure Wild-1d** to ensure that trenches are backfilled within 72 hours of pipeline installation. Trenches shall be inspected each day by the biologist or biological monitor prior to initiating construction and if bank swallows are found to be present a qualified biologist shall determine if nests are active (eggs or young are present) and take appropriate actions to ensure nesting swallows are not harmed. Appropriate actions, prior to nesting, could include removal of nest starts or other measures to discourage continued nesting attempts. If an active swallow nest (eggs or young birds) is found in the trench walls, construction activities shall cease in that area until the young have fledged and left the nest.

Mitigation Measure Wild-2d: Conduct Pre-construction Surveys for Giant Garter Snakes and Implement Protective Actions; Conduct Project Construction Activity between May 1 and October 1 in Giant Garter Snake Habitat; Compensate for Temporary Disturbance of Habitat According to USFWS Guidelines

Protective actions shall be taken to avoid or minimize impacts to the giant garter snake associated with the construction of the Delevan Pipeline and associated facilities within giant garter snake habitat. Protective actions and mitigation measures shall comply with the USFWS's Programmatic Biological Opinion (USFWS, 1997), or USFWS mitigation guidelines current at the time of the surveys. These actions would include the following:

- A Sacramento Office USFWS-approved biologist would perform preconstruction surveys and oversee removal of the existing structure and installation of any needed best management practices or exclusion fencing.
- Preconstruction surveys shall be conducted within 24 hours prior to the start of construction or any ground disturbing activities in giant garter snake habitat. The biologist will provide the Service with a field report form documenting the monitoring efforts within 24-hours of commencement of construction activities. The survey of the Project area would be repeated if a lapse in construction activity of 2 weeks or greater has occurred.

- Construction activities within 200 feet from the banks of giant garter snake aquatic habitat will be avoided whenever feasible or be conducted between May 1 and October 1. This is the active period for GGS, and direct mortality is lessened because snakes are expected to actively move and avoid danger. Movement of heavy equipment will be confined to existing roadways to minimize habitat disturbance. Exclusion fencing shall be placed around construction areas within giant garter snake habitat to ensure that snakes do not enter the area. Exclusion fencing shall also be used around any agricultural irrigation ditches within 200 feet of the disturbance area or other distance agreed to in coordination with USFWS and CDFW to allow for safe construction.
- If a snake is encountered during construction, the monitoring biologist will have activities cease until the snake leaves the area on its own or it has been determined that the snake would not be harmed. Snake occurrences would be reported immediately to the USFWS-approved biologist who would determine if additional protective measures are needed. No snakes shall be harassed, harmed, or killed; and they shall be allowed to leave the construction area on their own volition. If a possible GGS is observed retreating into an underground burrow or is otherwise stationary within the Project area, construction activities will not begin or will cease immediately in the reach where the snake is present; the monitoring biologist shall be notified immediately; and appropriate actions would be taken to minimize potential for harm of the snake.
- If a snake is encountered during construction activities, the monitoring biologist shall have the authority to stop construction activities until appropriate corrective measures have been completed or it is determined that the snake will not be harmed. Giant garter snakes encountered during construction activities shall be allowed to move away from construction activities on their own. Capture and relocation of trapped or injured individuals can only be attempted by personnel or individuals with current USFWS Recovery and Interstate Commerce 10(a)(1)(A) permit or a section 10(a)1(b) incidental take permit.
- Construction activity within giant garter snake habitat shall be conducted between May 1 and October 1. If work outside of this time period is necessary, USFWS's Sacramento Fish and Wildlife Office shall be contacted to determine if additional protection measures are necessary.
- Clearing shall be confined to the defined construction disturbance area during the GGS active season May 1 through October 1.
- Rice fields shall be fallowed prior to the start of construction, and any dewatered habitat shall remain dry for at least 15 consecutive days after April 15 and prior to excavating or filling of the dewatered habitat.
- A trained biological monitor shall be on-site during construction activities to inspect around the work equipment and within the trench and surrounding disturbance area each day before work begins.
- After construction is complete, habitat shall be restored to pre-Project conditions.

Disturbance to fresh emergent wetland habitat could, and shall to the extent feasible, be avoided by reducing the use of the construction buffer in areas of this habitat type, or altering the footprint of the road. Mitigation for rice habitat would already be partially compensated for by implementation of the mitigation measures for loss of wildlife habitat types described above.

Permanent loss of GGS habitat will be compensated at a ratio and at a manner agreed upon in consultation with the USFWS. Compensation may include preservation and enhancement of existing populations,

restoration or creation of suitable habitat, or purchase of credits at a regulatory agency approved mitigation bank in a sufficient quantity to compensate for the effect. Credit purchases, land preservation or enhancement to minimize effects to giant garter snakes should occur geographically close to the impact area. If off-site compensation is chosen, it will include dedication of conservation easements, purchase of mitigation credits, or other off-site conservation measures, and the details of these measures will be included in the mitigation plan and must occur with full endowments for management in perpetuity. The plan will include information on responsible parties for long-term management, holders of conservations easements, long-term management requirements, and other details, as appropriate, for the preservation of long-term viable populations.

Mitigation Measure Wild-2e: Implement Avoidance and Minimization Measures at Historic or Active Golden Eagle Nest Sites; Conduct Satellite Telemetry Studies Pre- and Post-construction to Determine Territory Size; Prepare a Golden Eagle Protection Plan and a Golden Eagle Monitoring Plan/Conservation Plan as Applicable. Mitigate for Loss of Annual Grassland Foraging Habitat

The construction and ultimate filling of Sites Reservoir would result in the loss of more than 11,600 acres (Alternative A) and almost 13,200 acres (Alternatives B, C, and D) of annual grassland that provides foraging habitat for golden eagles. To assess the impact of this loss of foraging habitat, the following measures shall be implemented prior to the start of Project construction in close coordination with USFWS and CDFW per current protocols:

- A Golden Eagle Protection and Monitoring Plan /Conservation Plan shall be prepared.
- Satellite telemetry studies shall be conducted for 3 to 5 years prior to the start of construction to establish the number of golden eagles and the size of their territories. These studies will include the project footprint and extend a minimum of 10 miles out from the project footprint.
- Surveys shall be conducted by USFWS-approved biologists.

Golden eagle nests were observed within the footprint of three of the five proposed Recreation Areas during field surveys. Previous surveys documented that the nest at the proposed Lurline Headwaters Recreation Area no longer exists, the nest at the proposed Peninsula Hills Recreation Area was still active, and the nest at the proposed Stone Corral Recreation Area was degraded, but was still active. An active golden eagle nest also was present in the vicinity of the Sites Dam footprint.

Construction activities shall be conducted to ensure that nesting golden eagles are protected. To avoid or minimize possible impacts to nesting golden eagles in other construction areas, some or all of the following measures shall be implemented:

- A bird deterrent program shall be implemented near historical golden eagle nest sites to discourage eagles from returning to those sites.
- Construction near active nest sites shall start outside the active nesting season. The nesting period for golden eagles is from mid-January to August 31.
- If groundbreaking activities begin during the nesting period, a qualified biologist shall perform a preconstruction survey 14 to 30 days before the start of each new construction phase to search for golden eagle nest sites in appropriate habitat within 0.5 mile of proposed activities. If active nests are not identified, no further action is required and construction may proceed.

- If active nests are identified, a minimum 0.5-mile buffer zone around active golden eagle nests shall be established. Buffer zones shall remain until young have fledged or the nest is confirmed to have failed by a USFWS-approved biologist. For activities conducted with agency approval within this buffer zone, a qualified biologist shall monitor construction activities and the eagle nest(s) to monitor eagle reactions to activities. If activities are deemed to have a negative effect on nesting eagles, the biologist shall immediately inform the construction manager that work should be halted, and CDFW and USFWS will be consulted.
- For golden eagles that begin nesting within the buffer zone after start of construction, the same avoidance and minimization measures as described for active eagle nests found before start of construction (0.5-mile buffer) shall be implemented. A smaller buffer of 0.25 to 0.5 mile may be used if there is a visual barrier, such as a hill or dense trees, between the construction activity and the nest.
- After construction is complete, it is possible that golden eagles will nest within the constructed Recreation Areas. In this situation, the following avoidance and minimization measures shall be implemented:
  - After construction, golden eagle nesting sites shall be surveyed and monitored within and adjacent to the Recreation Areas to ensure that recreational activities do not disrupt golden eagle nesting activities. Surveys shall be performed at the beginning of, and continue through, the nesting season. Consistent with avoidance guidelines, recreational access and other disruptive activities shall be suspended within 0.5 mile of active golden eagle nests until the young eagles have fledged or a USFWS-approved biologist has determined that the nest has failed.

After construction is complete, up to 10 years of telemetry studies (to be determined during consultation with USFWS) shall be conducted to determine the effect of habitat loss. The specific methods for mitigating the loss of the annual grassland habitat shall be determined in consultation with USFWS. CDFW, and USACE per **Mitigation Measure Wild-1b** listed above; mitigation may include the preservation of annual grassland habitat through conservation easement and/or land purchase located near the Primary Study Area that could provide foraging habitat for golden eagles, and/or could consist of restoring a historical foraging site that is no longer used as foraging habitat.

If it is determined that an eagle take permit is required, compensatory mitigation will be developed in compliance with the conditions set forth in the Eagle Take Permit Title 50 FCR Part 22, Subpart C, §22.25 & §22.26.

Mitigation Measure Wild-2f: Implement Protective Actions to Minimize Impacts to the Ringtail, and Restore Connectivity of the Riparian Corridor

The CDFW fully-protected ringtail is associated with riparian and rocky habitats, and this species may occur within the Primary Study Area where Project construction will occur. A ringtail was observed within the riparian habitat that would be removed during construction of the Delevan Pipeline Intake/Discharge Facilities. To minimize potential direct impacts to ringtail, the following measures shall be implemented:

- Focused preconstruction surveys will be conducted within 200 feet of any ground disturbing activity in suitable habitat in the Project area to detect ringtail presence and potential dens including but not limited to nests in the hollows of trees, rock crevices or abandoned wooden structures.

- Occupied dens or other den structures will be flagged and ground-disturbing activities within 200 feet will be avoided.
- If occupied dens or are found in the Project area and avoidance is not possible, denning ringtails shall be safely removed under the direction of a qualified biologist with approval of CDFW. The qualified biologist shall facilitate the removal of denning ringtail and their young by delaying construction activity for a minimum 20 days during the early pup-rearing season (May 1 to 15 June 15) and a minimum of 5 days during the rest of the year (June 16 to April 30).
- If the qualified biologist documents ringtail voluntarily vacating the den site during this period, then construction may begin within 7 days following this observation. If the ringtails do not vacate the den voluntarily within the required period, then the qualified biologist will coordinate with CDFW to passively relocate ringtail as appropriate.
- All activities that involve the ringtail shall be documented and reported to the CDFW within 30 days of the activity.
- In areas of potentially suitable habitat for ringtail, riparian vegetation removal shall not occur during the early pup-rearing season (May 1 through June 15).

The removal of riparian habitat within the footprint of the facilities also could reduce connectivity of the riparian corridor. Restoration of riparian corridor connectivity shall occur through the implementation of **Mitigation Measure Wild-3c** to maintain connectivity and minimize impacts on ringtail. Restoration of riparian corridor connectivity shall include inclusion of other habitat enhancements, such as providing ringtail nesting cavities and planting food sources.

Mitigation Measure Wild-2g: Implement Protective Actions to Avoid or Minimize Impacts to Elderberry Plants; Where Avoidance Is Not Possible, Transplant or Replace Plants, According to USFWS Guidelines

A limited number of elderberry shrubs have been documented within the potential construction disturbance area for Sites Reservoir. Shrubs shall be avoided through establishment and maintenance of a 100-foot-wide or wider from the edge of the dripline and well-signed buffer where feasible. Elderberry shrubs located immediately adjacent to the footprint of the Delevan Pipeline Intake/Discharge Facilities near an existing irrigation canal and access road immediately adjacent to the existing Maxwell Sites Road would be less than 100 feet from the proposed temporary construction area and would require consultation with USFWS related to encroachment on typical buffer distances.

Measures to protect elderberry core avoidance areas during construction will be instituted prior to construction and will include fencing and signs, as follows:

- Orange construction fencing will be placed 100-feet outward from the dripline of the shrub to be avoided.
- Signs will be erected and attached to the fencing a minimum of 50 feet apart, stating the following: “This area is habitat for the valley elderberry longhorn beetle, a threatened species, and must not be disturbed. This species is protected by the Endangered Species Act of 1973, as amended. Violators are subject to prosecution, fines, and imprisonment.” The signs will be placed in clearly visible locations and will be readable from a distance of 20 feet (USFWS, 1999).

- No insecticides, herbicides, fertilizers, or other chemicals that might harm the beetle or its host plant will be used within 100 feet of any elderberry plant with one or more stems measuring 1.0 inch or greater in diameter at ground level.

Elderberry shrubs within the footprint of Sites Reservoir, Sites Dam, and Golden Gate Dam, as well as the one shrub within the footprint of the Delevan Pipeline Intake/Discharge Facilities would be inventoried by an approved biologist and transplanted or replaced, depending on the likelihood of survival post-transplantation. Transplantation procedures shall comply with USFWS's 1999 Conservation Guidelines for the Elderberry Longhorn Beetle (USFWS, 1999). If transplantation is not feasible, USFWS general guidelines would be followed for replacement of elderberry plants in designated mitigation areas through the implementation of **Mitigation Measure Wild-1b** identified above. Elderberry plants shall be replaced at a ratio outlined in Table 1 of the USFWS's 1999 Conservation Guidelines for the Elderberry Longhorn Beetle (USFWS, 1999).

Mitigation Measure Wild-2h: Conduct Pre-construction Surveys for Western Burrowing Owls; if Owls Are Found, Implement Protective Actions

Preconstruction surveys shall be conducted in annual grasslands or other suitable burrowing owl habitat within the footprint of Sites Reservoir and within the construction disturbance area for associated facilities, including pipelines, to determine if burrowing owls are present. These surveys shall be conducted within 30 days of ground-disturbing construction activities and prior to the start of the filling of reservoir. Surveys shall be conducted by a qualified biologist in compliance with the burrowing owl protocols identified in Appendix D of the CDFG Staff Report on Burrowing Owl Mitigation (CDFG, 2012) or the current guidelines in place at the time the surveys are conducted. If burrowing owl burrows are found, protective measures shall be developed through coordination with CDFW and shall be implemented.

The following protective measures shall include avoidance of occupied burrows during the nesting season, which is from February 1 through August 31, with the peak of the season occurring from April 15 through July 15 for areas where such avoidance is feasible and not within the footprint of Project facilities. Any unoccupied burrows located within the immediate construction area shall be excavated to completion using hand tools, and then filled to prevent reoccupation.

If destruction of occupied burrows is unavoidable, such as within the footprint of Sites Reservoir, burrow entrances may be altered, outside of the nesting season, to allow resident burrowing owls to exit but not re-enter the burrow. Burrowing owls may be excluded from burrows by installing one-way doors in burrow entrances. One-way doors would be left in place for at least 48 hours to ensure burrowing owls have left the burrow before the start of construction. After the 48-hour period, burrows will be scoped and/or excavated to completion using hand tools, and then filled to prevent reoccupation. Mitigation will include the creation of artificial burrows in adjacent suitable habitat as determined appropriate by a qualified biologist in consultation and coordination with CDFW and USFWS.

Loss of annual grassland habitat would be compensated for through the implementation of **Mitigation Measure Wild-1b** identified above.

Mitigation Measure Wild-2i: Conduct Pre-construction Surveys and Provide a Biological Monitor during Project Construction for the Western Pond Turtle; if Found, Turtles Shall Be Captured and Relocated by a Qualified Biologist

Before construction activities begin, a qualified biologist shall conduct western pond turtle surveys along creeks and other ponded areas within the footprint of Sites Reservoir, Sites Dam, and Holthouse Reservoir, as well as along the irrigation canals within the construction disturbance area of the Delevan Pipeline. Adjacent upland areas shall also be examined for evidence of nests or individual turtles. A Project biologist shall be responsible for conducting the survey and relocating any turtles found within footprints or construction disturbance areas. If a nest is observed, a biologist with appropriate permits and prior approval from CDFW shall move eggs to a suitable location or facility for incubation. However, some individuals may be undetected or enter sites after surveys are conducted, and could be subject to mortality. A biological monitor shall, therefore, be present during Project construction to minimize take.

Loss of western pond turtle habitat would be compensated for through the implementation of **Mitigation Measure Wild-1b** identified above.

Mitigation Measure Wild-2j: Conduct Pre-construction Surveys for the Western Yellow-billed Cuckoo and Schedule Construction Activities to Avoid Impacts to Nest Sites

- Preconstruction surveys for Western yellow-billed cuckoo shall be conducted by a qualified biologist in areas considered potential habitat for the species.
- If active nests are identified, a minimum 250 - 500 foot (depending on terrain) construction buffer shall be established around any nest sites unless a qualified CDFW or FWS approved biologist determines that smaller buffers would be sufficient to avoid impacts to nesting birds in consultation with the agencies. Factors to be considered for determining buffer size will include: the presence of natural buffers provided by vegetation or topography; nest height; locations of foraging territory; and baseline levels of noise and human activity. Buffers will be maintained until a qualified CDFW biologist has determined that young have fledged and are no longer reliant upon the nest or parental care for survival.
- Loss of yellow-billed cuckoo habitat would be compensated for through the implementation of **Mitigation Measure Wild-1b** identified above.

Mitigation Measure Wild-3a: During Project Construction, Backfill Trenches within 72 hours of Pipeline Installation and Provide an Escape Ramp for Trapped Wildlife

Pipeline trenches shall be backfilled within 72 hours of pipeline installation to prevent potential impacts to trapped wildlife to the extent practical. All trenches shall be inspected for wildlife each day prior to initiating construction and prior to being filled. At the end of each day, a ramp shall be placed at the end of each trench at an approximate 45-degree slope to allow trapped wildlife to escape. In addition to ramps, trenches shall be covered to the extent possible to prevent wildlife entry.

Mitigation Measure Wild-3b: Construct Overhead Power Lines and Associated Equipment Following Suggested Practices for Avian Protection on Power Lines

The Delevan Overhead Power Line, poles, and associated equipment shall be properly fitted with wildlife protective devices to isolate and insulate structures to prevent injury or mortality to wildlife, especially avian species. Protective measures shall follow the guidelines provided in Suggested Practices for Avian

Protection on Power Lines (APLIC, 2006), or the current guidelines in place at the time the surveys are conducted, and shall include insulating hardware or conductors against simultaneous contact, using poles that minimize impacts to birds, and increasing the visibility of conductors or wires to prevent or minimize bird collisions.

Mitigation Measure Wild-3c: Restore Riparian Habitat Connectivity

The removal of riparian habitat within the footprint of the facilities also could reduce connectivity of the riparian corridor. Restoration of riparian habitat shall occur through the implementation of **Mitigation Measure Wild-1b** identified above to minimize impacts on ringtail as well as maintain connectivity. Restoration of riparian corridor connectivity shall include inclusion of other habitat enhancements, such as providing ringtail nesting cavities and planting food sources.

15. Wetlands and Other Waters

Mitigation Measure Wet-1a: Implement Compensatory Mitigation Measures for Streams Pursuant to USACE and State Determination within the Watershed in Which the Impacts Occur

Compensatory mitigation for impacts to streams and waters impacted by the construction and operation of Project facilities shall be identified and developed in coordination with the USACE, CDFW, and USFWS. Appropriate restoration, enhancement or creation shall be included in a mitigation and monitoring plan with specific performance standards as appropriate as proposed below. Mitigation ratios for anticipated impacted streams and waters shall be a minimum of 1:1 and shall occur within the watershed in which the impacts occur:

- Sites Reservoir and Dams, Recreation Areas - Funks/Hunter/Antelope/Grapevine/Stone Corral Creek watersheds.
- Delevan Pipeline Intake/Discharge Facilities – Sacramento River adjacent to facility location.
- Road Relocations, Funks Reservoir, Holthouse Reservoir Complex, Sites Inlet/Outlet Structure and associated facilities, Field Office Maintenance Yard, Electrical Switchyard –Funks Creek watershed.

Restoration and compensatory mitigation for portions of the streams identified above to be impacted by the Project would include the following based on coordination and consultation with the USACE, RWQCB, and CDFW:

- A waters and wetland mitigation and monitoring plan shall be developed by a qualified biologist in coordination with USACE, RWQCB, and USFWS that details mitigation and monitoring obligations for temporary and permanent impacts to waters and wetlands as a result of construction and operation activities. Appropriate mitigation ratios from 1:1 to 3:1 replacement shall be determined following USACE's 12501-SPD Regulatory Program Standard Operating Procedure for Determination of Mitigation Ratios as well as USACE's Final 2015 Regional Compensatory Mitigation and Monitoring Guidelines. The plan shall quantify the total acreage lost, describe mitigation ratios for lost habitat, annual success criteria, mitigation sites, monitoring and reporting requirements, and site-specific plans to compensate for waters and wetland losses resulting from the Project.
- Purchase or dedication of land to provide wetland preservation, restoration or creation as necessary depending on availability and suitability of on-site options. If restoration is available and feasible, then a ratio of at least 1:1 shall be used. If a wetland needs to be created, at least a 1:1 ratio and up to

3:1 shall be implemented to offset losses. Where practical and feasible, on-site mitigation shall be implemented including the potential enhancement and restoration of upstream and/or downstream portions of creeks that would not be inundated by the Project. If wetland preservation is included a minimum of up to a 3:1 ratio shall be used, but the ratio may be greater depending of quality, types and functions and values of the wetlands included in the preservation area.

Mitigation Measure Wet-1b: Reroute Drainage Ditches and Canals to Ensure Continued Hydrological Connection, or Implement Other Compensatory Mitigation Measures Pursuant to USACE Determination

For impacts to jurisdictional drainage ditches and canals involving the inability to avoid such features, mitigation shall include re-routing all jurisdictional drainage ditches or canals to ensure continued hydrological function were possible. For such features that cannot be avoided, **Mitigation Measure Wet-1a** shall be implemented.

Mitigation Measure Wet-1c: Restore Ponds to Original Condition, or Implement Other Compensatory Mitigation Measures Pursuant to USACE Determination within the Same Hydrologic Unit in Which the Ponds Occur

Construction and filling of Sites Reservoir would result in the permanent loss of 28 small stock ponds (20.2 acres). To offset the loss, additional ponds would be created at a minimum ratio of 1:1 for acreage of ponds permanently lost. A pond located 3.5 miles west of the Sacramento River within the Delevan Pipeline construction disturbance area shall be restored (assuming it is in place and functioning prior to Project construction) and returned to its condition as an agricultural pond. If restoration is not possible, compensatory mitigation measures, including a minimum of 1:1 restoration or creation to offset the loss shall be implemented within the Hunters Creek-Logan Creek watershed downstream of their confluence as part of **Mitigation Measure Wet-1a**.

Mitigation Measure Wet-2a: Conserve, Enhance, Restore, or Create Seasonal Wetlands, or Implement Other Compensatory Mitigation Measures Pursuant to USACE Determination within the Watershed in Which the Impacts Occur

In accordance with **Mitigation Measure Bot-1b**, Hydrological studies to determine how much of the grassy upland acts as a watershed for the alkaline wetland swale that feeds the downstream alkaline marsh shall be conducted. The studies shall provide guidance regarding how to avoid impacts in the grasslands that direct water to the marsh. In the event the studies indicate that the Project would result on unavoidable impacts to the alkaline marsh hydrology, the Authority shall initiate a monitoring program to determine the effect of the altered hydrology on the marsh vegetation community. The monitoring plan will included collection of pre-Project, baseline conditions, on plant species diversity and abundance (cover). Post Project the alkaline marsh vegetation will be monitored for a minimum of 5 years to assess whether or not the Project has resulted in an impact.

Mitigation for unavoidable impacts to seasonal wetlands shall be determined following USACE's *12501-SPD Regulatory Program Standard Operating Procedure for Determination of Mitigation Ratios* as well as USACE's *Final 2015 Regional Compensatory Mitigation and Monitoring Guidelines*. For the seasonal wetlands located along the edge of Funks Reservoir, the potential exists to alter the extent of dredging so that the slope of the reservoir bottom would be more tapered at this point. Mitigation shall be a minimum of 1:1 per **Mitigation Measure Wet-1a** and measures shall include one or more of the following:

- Obtaining credits from a mitigation bank;
- Making a payment to an in-lieu fee program that would conduct wetland, stream, or other aquatic resource restoration, creation, enhancement, or preservation activities; or
- Aquatic resource restoration, establishment, enhancement, and/or preservation activities within the same watershed as the Project impacts (off-site mitigation) where on-site mitigation would not be possible.

Mitigation Measure Wet-2b: Conserve, Enhance, Restore, or Create Alkaline Wetlands, or Implement Other Compensatory Mitigation Measures Pursuant to USACE Determination within the Watershed in Which the Impacts Occur

Mitigation for unavoidable impacts to seasonal wetlands shall be determined following USACE's *12501-SPD Regulatory Program Standard Operating Procedure for Determination of Mitigation Ratios* as well as USACE's *Final 2015 Regional Compensatory Mitigation and Monitoring Guidelines*. The local saline spring areas further upslope in same geological formation as the springs that feed Salt Lake shall be mitigated at up to a 3:1 ratio as part of the implementation of **Mitigation Measure Wet-1a**. These springs are located outside of the Sites Reservoir footprint but in the creases of the foothills due north of Salt Lake. Some could be partially protected from grazing impacts with the installation of protective fencing. Protective measures potentially include a conservation agreement to manage and protect the entire alkaline wetland area southeast of Holthouse Reservoir. Management could include burning and grazing regimes similar to those used effectively on the Sacramento NWR.

A purchase or conservation agreement may be entered into with the utilities or other landowners to protect and manage other saline/alkaline wetland habitats in parcels east of the Tehama-Colusa Canal, north of the Primary Study Area subject to landowner approval and coordination with USACE and CDFW as determined appropriate. Protected areas could include a potential alkaline wetland area southeast of the Colusa Generating Station located along the Tehama-Colusa Canal.

For the Holthouse Reservoir alkaline wetlands, a hydrogeologic study shall be conducted to determine the direction and sources of water supplying the seeps, swales, and main wetland area, to better inform evaluation of potential effects of placing the dam and reservoir in proximity of the wetland's west edge.

Mitigation Measure Wet-2c: Conserve, Enhance, Restore, or Create Vernal Pools Equivalent to the Type of Vernal Pools Adversely Impacted, or Implement Other Compensatory Mitigation Measures Pursuant to USACE Determination

For vernal pools, the type of vernal pools created, restored, enhanced and/or conserved elsewhere shall be equivalent to the type impacted within the Primary Study Area including claypan and alkaline vernal pools as appropriate. Mitigation for unavoidable impacts to vernal pools shall be determined following USACE's *12501-SPD Regulatory Program Standard Operating Procedure for Determination of Mitigation Ratios* as well as USACE's *Final 2015 Regional Compensatory Mitigation and Monitoring Guidelines*. Creation, restoration, enhancement and preservation of vernal pool habitat shall be at a ratio of at least 1:1 up to 3:1, depending on the quality and functions of the impacted pools relative to the mitigation vernal pools per **Mitigation Measure Wet-1a**.

Mitigation Measure Wet-2d: Conserve, Enhance, Restore, or Create Emergent Wetlands, or Implement Other Compensatory Mitigation Measures Pursuant to USACE Determination within the Watershed in Which the Impacts Occur

Mitigation for unavoidable impacts to emergent wetlands shall be determined following USACE's *12501-SPD Regulatory Program Standard Operating Procedure for Determination of Mitigation Ratios* as well as USACE's *Final 2015 Regional Compensatory Mitigation and Monitoring Guidelines.* Mitigation shall include creation, restoration, enhancement and preservation of emergent wetlands and is expected to be a minimum of 1:1 and up to 3:1 depending on the quality and functions of the impacted wetland relative to the mitigation wetland per **Mitigation Measure Wet-1a**.

Mitigation Measure Wet-2e: Conserve, Enhance, Restore, or Create Comparable Riparian Wetlands in the Inner Coast Range Foothills, or Implement Other Compensatory Mitigation Measures Pursuant to USACE Determination

Mitigation for unavoidable impacts to riparian vegetation shall include restoration and enhancement of degraded riparian areas in the inner coast range foothills. Restoration and enhancement may include such things as bank stabilization, planting native riparian trees and shrubs, and removal of invasive species and other beneficial activities as determined on a site-specific basis. Restoration and enhancement of riparian areas shall occur at a minimum ratio of 1:1 and up to 3:1 for unavoidable impacts to riparian areas per **Mitigation Measure Wet-1a**.

16. Geology, Minerals, Soils and Paleontology

Mitigation Measure Paleo-1a: Retain a Qualified Paleontological Resource Specialist prior to the Start of Construction

The Authority and Reclamation shall retain a qualified Paleontological Resource Specialist at least 90 days prior to the start of construction. The Authority and Reclamation shall keep resumes on file for the Paleontological Resource Specialist as well as qualified Paleontological Resource Monitors working on the Project. The Paleontological Resource Specialist shall meet the minimum or equivalent qualifications for a paleontological resources manager, as described in the Society of Vertebrate Paleontology (SVP) guidelines (2010). The experience of the Paleontological Resource Specialist shall include the following:

- Ability to recognize and collect fossils in the field
- Geological and biostratigraphic expertise
- Proficiency in identifying vertebrate and invertebrate fossils, and in assessing their scientific significance
- At least 3 years of paleontological resource mitigation and field experience in California and at least 1 year of experience leading paleontological resource mitigation and field activities

The Authority and Reclamation shall require that the Paleontological Resource Specialist obtains qualified paleontological resource monitors to monitor Project construction activities, as the Paleontological Resource Specialist determines necessary on the Project. Paleontological Resource Monitors shall have the equivalent of the following qualifications:

- BS or BA degree in geology or paleontology and 1 year of experience monitoring in California

- AS or AA in geology, paleontology, or biology and 4 years' experience monitoring in California
- Enrollment in upper division classes pursuing a degree in the fields of geology or paleontology and 2 years of monitoring experience in California

Mitigation Measure Paleo-1b: Consultation with the Paleontological Resource Specialist prior to and during Project Construction

At least 30 days prior to the start of Project construction, the Authority and Reclamation shall provide maps or drawings to the Paleontological Resource Specialist that show the planned construction footprint. Maps shall identify all areas of the Project where ground disturbance is anticipated. (Site grading plan and plan and profile drawings for the utility lines are appropriate for this purpose). The plan drawings shall show the location, depth, and extent of all ground disturbances affecting paleontologically sensitive sediment. If Project construction proceeds in phases, maps and drawings may be submitted prior to the start of each phase. In addition, the proposed schedule of each Project phase shall be provided to the Paleontological Resource Specialist. Before work commences on affected phases, the Authority and Reclamation shall notify the Paleontological Resource Specialist of any construction phase scheduling changes. If paleontological resources monitoring is ongoing, the Authority and Reclamation shall ensure that the Paleontological Resource Specialist or Paleontological Resource Monitor consults weekly with the Project superintendent or construction field manager to confirm area(s) to be worked the following week and until ground disturbance is completed.

Mitigation Measure Paleo-1c: Prepare and Implement a Paleontological Resources Monitoring and Mitigation Plan

The Authority and Reclamation shall ensure that the Paleontological Resource Specialist prepares a Paleontological Resources Monitoring and Mitigation Plan (PRMMP) to identify general and specific measures to minimize potential impacts to significant paleontological resources. Approval of the PRMMP by the Authority and Reclamation shall occur prior to any ground disturbance. The PRMMP shall function as the formal guide for paleontological resources monitoring, collecting, and sampling activities, and may be modified by the Paleontological Resource Specialist to accommodate new data or Project changes. This document shall be used as the basis of discussion when on-site decisions or changes are proposed. Copies of the PRMMP shall reside with the Paleontological Resource Specialist, each monitor, the Authority's and Reclamation's on-site manager, and the Authority and Reclamation.

The PRMMP shall be developed in accordance with professional guidelines, and be consistent with those issued by SVP (2010) and shall include the following:

Procedures for the performance and sequence of resource-related tasks, such as any literature searches, preconstruction surveys, appropriate worker environmental training module, construction monitoring, mapping and data recovery, discovery situations, fossil preparation and collection, identification and inventory, preparation of final reports, transmittal of materials for curation, and final report shall be provided in the PRMMP, including:

- A discussion of the geologic units expected to be encountered, the location and depth of the units relative to the Project, when known, and the known paleontological sensitivity of those units
- A discussion of the locations of where the monitoring of Project construction activities is deemed necessary, and a proposed plan for monitoring and sampling

- An explanation of why, how, and how much sampling is expected to take place and in what units, including descriptions of different sampling procedures that may be used
- A discussion of procedures to be followed in the event of a significant fossil discovery, diverting construction away from a find, resuming construction, and how notifications shall be performed
- A discussion of equipment and supplies necessary for collection of fossil materials and any specialized equipment needed to prepare, remove, load, transport, and analyze large-sized fossils or extensive fossil deposits
- Procedures for inventory, preparation, and delivery for curation into a retrievable storage collection in a public repository or museum, which meet SVP standards and requirements for the curation of paleontological resources
- Identification of the institution(s) that shall be approached to receive data and fossil materials collected, and requirements or specifications for materials delivered for curation

The PRMMP shall also provide guidance for preparation of a Paleontological Resources Report by the designated Paleontological Resource Specialist at the conclusion of ground-disturbing activities that may affect paleontological resources. The Paleontological Resources Report shall include an analysis of the collected fossil materials and related information, including a description and inventory of recovered fossil materials, a map showing the location of paleontological resources encountered, determinations of sensitivity and significance, and a statement by the Paleontological Resource Specialist that Project impacts to paleontological resources have been mitigated below the LOS.

Mitigation Measure Paleo-1d: Conduct Paleontological Resources Awareness Training

Prior to ground disturbance and for the duration of Project construction activities involving ground disturbance, the Paleontological Resource Specialist shall prepare, and the Authority and Reclamation shall conduct, weekly paleontological resources awareness training for the following workers: project managers, construction supervisors, forepersons, and general workers involved with or who operate ground-disturbing equipment or tools. Workers shall not excavate in paleontologically sensitive sediments prior to receiving paleontological resources awareness training. Worker training shall consist of a video or in-person presentation. The paleontological resources awareness training module may be combined with other training modules prepared for cultural and biological resources, hazardous materials, or other areas of interest or concern.

The paleontological resources awareness training shall address the possibility of encountering paleontological resources in the field, the sensitivity and importance of these resources, and legal obligations to preserve and protect those resources. The training shall include:

- A discussion of applicable laws and penalties under the law
- Good quality photographs or physical examples of vertebrate fossils
- Information that the Paleontological Resource Specialist or Paleontological Resource Monitor has the authority to halt or redirect construction in the vicinity of a fossil discovery or unanticipated impact to a paleontological resource
- Instruction that employees are to halt or redirect work in the vicinity of a find and to contact their supervisor and the Paleontological Resource Specialist or Paleontological Resource Monitor

- An informational brochure that identifies reporting procedures in the event of a discovery
- A certification of completion form signed by each worker indicating that he/she has received the training

Mitigation Measure Paleo-1e: Conduct Monitoring during Project Construction and Prepare Monthly Reports

The Authority and Reclamation shall ensure that the Paleontological Resource Specialist and Paleontological Resource Monitor(s) monitor construction excavations consistent with the PRMMP in areas where potential fossil-bearing materials have been identified, both at reservoir sites and along any constructed linear facilities associated with the Project. In the event that the Paleontological Resource Specialist determines full-time monitoring is not necessary in locations that were identified as potentially fossil-bearing in the PRMMP, the Paleontological Resource Specialist shall notify the Authority and Reclamation.

The Authority and Reclamation shall ensure that the Paleontological Resource Specialist and Paleontological Resource Monitor(s) have the authority to halt or redirect construction if paleontological resources are encountered. The Authority and Reclamation shall ensure that there is no interference with monitoring activities, as directed by the Paleontological Resource Specialist.

The Authority and Reclamation shall ensure that the Paleontological Resource Specialist prepares and submits monthly summaries of monitoring and other paleontological resources management activities. The summary shall include the name(s) of the Paleontological Resource Specialist or Paleontological Resource Monitor(s) active during the month, general descriptions of training and monitored construction activities; and general locations of excavations, grading, and other activities. A section of the report shall include the geologic units or subunits encountered, descriptions of samplings, if any, and a list of identified fossils. A final section of the report shall address any issues or concerns about the Project relating to paleontological resources mitigation activities, including any incidents of non-compliance or any changes to the monitoring plan by the Paleontological Resource Specialist. If no monitoring took place during the month, the report shall include an explanation as to why monitoring was not conducted.

Mitigation Measure Paleo-1f: Ensure Implementation of the Paleontological Resources Monitoring and Mitigation Plan

The Authority and Reclamation, through the designated Paleontological Resource Specialist, shall ensure that all components of the PRMMP are adequately performed during construction.

18. Cultural/Tribal Cultural Resources

Mitigation Measure Cul-1a: Avoid Impacts on Historical Resources/Historic Properties

If feasible, impacts on identified historical resources/historic properties, including prehistoric and historic-era archaeological sites, buildings and structures, TCPs/TCRs, and human remains shall be avoided. Methods of avoidance may include, but are not limited to, Project re-design, or, when appropriate, deeding the site into a permanent conservation easement; incorporation of sites into parks, greenspace, or other open space; and protection measures, such as fencing. These measures would be implemented after consultation with Native American tribes or other affected communities, as appropriate.

Mitigation Measure Cul-1b: Conduct Archaeological Data Recovery

If it is infeasible to avoid impacts on archaeological sites that have been determined to be eligible for listing on the CRHR or the NRHP, additional research including, but not necessarily limited to, archaeological excavation will be conducted. This work shall be directed by a qualified archaeologist who meets the U.S. Secretary of Interior's professional standards, and may include preparation of a research design; additional archival and historical research to supplement the research design, when appropriate; archaeological excavation; analysis of artifacts, features, and other attributes of the resource; and preparation of a technical report documenting the methods and results of the investigation in accordance with the California Office of Historic Preservation Guidelines for Archaeological Research Design (1991). The purpose of this work is to recover a sufficient quantity of data to compensate for damage to or destruction of a resource that is eligible for the CRHR pursuant to criterion 4 of the California Code of Regulations 4852(b) or the NRHP pursuant to 36 CFR 60.4(d). The procedures to be used in this data recovery program shall be determined in consultation with responsible agencies and interested parties such as Native American tribes, as appropriate.

Mitigation Measure Cul-1c: Conduct Archaeological Construction Monitoring

A qualified archaeological and Native American monitor (as appropriate for a given location) shall be retained to monitor all ground disturbing activities associated with the Project. If any important prehistoric or historic-era features, or human remains, are exposed during construction, the archaeological monitor shall have the authority to notify the appropriate contractor supervisor to stop work in the vicinity of the find and implement **Mitigation Measure Cul-1d**.

Details of the construction monitoring shall be presented in the Post-review Discovery Plan described for **Mitigation Measure Cul-1d**: Immediately Halt Construction If Cultural Resources Are Discovered, and Implement a Post-review Discovery Plan.

Mitigation Measure Cul-1d: Immediately Halt Construction if Cultural Resources Are Discovered, and Implement a Post-review Discovery Plan

Not all cultural resources are visible on the ground surface. Protocols for addressing the accidental discovery of archaeological resources that are not visible on the ground surface during Project construction shall be outlined in a Post Review Discovery Plan. If important cultural resources, such as structural features, unusual amounts of bone or shell, flaked or ground stone artifacts, historic-era artifacts, human remains, or architectural remains are encountered during any Project construction activities, work shall be suspended in coordination with the appropriate contractor supervisor immediately at the location of the find and within an appropriate radius, with a minimum of 50 feet. A qualified archaeologist shall conduct a field investigation of the specific site and recommend mitigation deemed necessary for the protection or recovery of any cultural resource concluded by the archaeologist to represent an historical resource or unique archaeological resource. Mitigation measures shall be developed in consultation with responsible agencies and, as appropriate, interested parties such as Native American tribes. Implementation of the approved mitigation would be required before resuming construction activities at the archaeological site. All of the activities shall be detailed in a Post Review Discovery Plan developed at least 3 months prior to construction so that all parties are aware of the actions required if buried archaeological resources are uncovered during Project construction. Discoveries of human remains shall be treated as described in the following sections for **Mitigation Measure Cul-4b**.

At a minimum, the Post Review Discovery Plan shall (1) materials to be covered in the archaeological sensitivity training, included in the Worker Environmental Awareness Program (see Chapter 3 Description of the Sites Reservoir Project Alternatives), (2) protocols for monitoring construction, including documentation and chain-of-command notifications, (3) procedures for securing an area where cultural remains are discovered, (4) procedures for evaluating the nature of the finds, and (5) the schedule for notifications and conducting activities associated with evaluating the finds.

Mitigation Measure Cul-1e: Protection of Archaeological Sites by Capping

Capping archaeological sites that are considered historical resources with soil, gravels, rock, or specific kinds of vegetation can be a viable way to protect the deposits under some circumstances. For example, sites subject to inundation and water level fluctuations may be protected from erosion by applying a layer of gravel/rock (rip-rap), soil, cloth, or some combination of treatments. In such circumstances, regular monitoring may be required to evaluate the efficacy of the mitigation, and to identify if and when it is necessary to refresh the protection. A layer of soil, i.e., sterile fill, may also be placed over a site where construction of a building was planned, such that all construction disturbance would occur in the fill material. Planting vegetation, such as poison oak, wild rose, or blackberry brambles, over the top of a site is a useful deterrent for areas subject to looting. Potential capping methods would be assessed according to the resource type and circumstance, as determined by a qualified archeologist after consultation with affected parties, such as Native American tribes, as appropriate.

Mitigation Measure Cul-2a: Follow the Secretary of the Interior's Standards for the Treatment of Historical Resources/Historic Properties

Because construction of Project facilities has the potential to modify buildings or structures that are considered historical resources/historic properties, any alterations, including relocation, to historic buildings or structures shall conform, when feasible, to the Secretary of the Interior's Standards for the Treatment of Historic Properties and Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings (1995).

Mitigation Measure Cul-2b: Record Built Environment Resources

If avoidance or relocation of a building or structure that is considered eligible for the CRHR or NRHP is not feasible, and the resource must be demolished, a qualified architectural historian who meets the U.S. Secretary of Interior's professional standards shall be retained to document the impacted historical architectural resource. Some methods for documentation may include photographs, architectural drawings, or development of an historical narrative.

Mitigation Measure Cul-3: Consult with Native American Affected Communities Regarding How to Mitigate for Impacts to TCPs/TCRs

TCPs/TCRs are often locations on the landscape that have sacred or other special meaning to Native American communities. Visible manifestations, such as an archaeological deposit, are not always present. Early and meaningful consultation with Native American communities shall occur to identify ways to mitigate impacts on TCPs/TCRs.

TCPs are not always associated with Native American tribes, and TCPs in the Project area may be associated with the early settlers and ranching families. If such TCPs are identified in the Project area, mitigation measures shall be developed in consultation with the affected communities.

Mitigation Measure Cul-4a: Relocation of Dedicated or Known Cemeteries

The Authority shall consult with the entity (County, City, private) and interested parties, as appropriate, that have jurisdiction over any cemetery that requires relocation of human remains, in order to identify a satisfactory place that is protected from future disturbance, according to the requirements of the California Health and Safety Code. Similarly, if Native American burials are known to exist in a specific location, marked or unmarked, the Authority shall work with the appropriate tribe(s) having a traditional and cultural affiliation with the cemetery to identify a satisfactory location for re-interment of burials in a protected location, if that is the desire of the tribe(s) affiliated with the cemetery.

Mitigation Measure Cul-4b: Immediately Halt Construction if Human Remains Are Discovered and Implement a Burial Treatment Plan

Project construction activities have the potential to have unanticipated potentially significant impacts to buried human remains where there is no surface indication of their presence. In these circumstances, the requirements of California Health and Human Safety Code 7050.5 must be followed. In accordance with the California Health and Safety Code, if human remains are uncovered during ground-disturbing activities, the potentially damaging excavation must halt in the area of the remains and the local County Coroner must be notified. The Coroner is required to examine all discoveries of human remains within 48 hours of receiving notice of a discovery on private or state lands (Health and Safety Code Section 7050.5[b]). If the Coroner determines that the remains are those of a Native American, he or she must contact the Native American Heritage Commission (NAHC) by phone within 24 hours of making that determination (Health and Safety Code Section 7050[c]). Pursuant to the provisions of California Public Resources Code Section 5097.98, the NAHC shall identify a Most Likely Descendent (MLD). The MLD designated by the NAHC shall have at least 48 hours to inspect the site and propose treatment and disposition of the remains and any associated grave goods. All of the activities identified above shall be detailed in a Burial Treatment Plan and developed in consultation with local Native American tribes prior to Project construction so that all parties are aware of the actions required if buried human remains of Native American origin are uncovered during Project construction. If human remains that are not of Native American origin are discovered, disposition of the remains shall be determined in consultation with the Coroner or possible descendants, if they can be identified.

20. Land Use

Mitigation Measure Land-2: Work with Glenn and Colusa Counties to Modify or Amend Their General Plans and/or Zoning Ordinances to Bring Lands into Consistency with the Project Land Uses

Prior to the start of Project construction, the Authority and Reclamation shall work with Glenn and Colusa Counties to request modifications or amendments to their general plans and zoning ordinances to ensure consistency with Project land uses.

Mitigation Measure Land-7a: Acquire Lands through Eminent Domain or Work with Land Owners to Acquire Properties and Pay Any Cancellation Fees Associated with Removing Lands from Williamson Act Contracts

The Authority and Reclamation shall either acquire lands through eminent domain, or work with property owners to acquire project lands. For lands that are enrolled in Williamson Act contracts, fees associated with cancellation of contracts will be incurred by the project sponsors.

Mitigation Measure Land-7b: For Land Permanently Acquired that Will Require Removal from Williamson Act Contracts, Seek County Approvals to Enter into Open Space Contracts or Open Space Easements

Prior to permanently acquiring and removing lands that are enrolled in Williamson Act contracts, the Authority and Reclamation shall seek County opportunities to enter into Open Space Use Agreements or Open Space Easements with each of the counties.

24. Air Quality

Mitigation Measure Air Qual-1a: Develop and Implement a Fugitive Dust Control Plan

The Fugitive Dust Control Plan to be developed and implemented during construction, operations, and maintenance of the Project shall include the following information and measures to reduce fugitive PM_{10} and $PM_{2.5}$ emissions:

- Name(s), address(es), and phone number(s) of person(s) responsible for the preparation, submission, and implementation of the plan.
- Description and location of construction activities.
- Listing of all fugitive dust emissions sources.

Land Clearing/Earth Moving:

- Water shall be applied by means of truck(s), hoses, and/or sprinklers as needed prior to any land clearing or earth movement to minimize dust emissions.
- Haul vehicles transporting soil into or out of the property shall be covered.
- Water shall be applied to disturbed areas a minimum of two times per day or more as necessary.
- A publicly visible sign shall be posted with the telephone number and person to contact regarding dust complaints. This person shall respond and take corrective action within 24 hours. The telephone number of the local air district shall also be included and visible on the sign.
- All excavation, grading, and/or earth moving activities shall be suspended when average wind speeds exceed 25 mph.

Visibly Dry Disturbed Soil Surface Areas:

- All visibly dry disturbed soil surface areas of operation shall be treated with a dust palliative agent and/or watered to minimize dust emissions.

Paved Road Track-Out:

- Existing roads and streets adjacent to the Project shall be cleaned at least once per day unless conditions warrant a greater frequency.

Visibly Dry Disturbed Unpaved Roads:

- All visibly dry disturbed unpaved road surface areas of operation shall be watered to minimize dust emissions.

- Unpaved roads shall be graveled to reduce dust emissions, to the extent feasible.
- Water shall be applied to disturbed areas a minimum of two times per day or more as necessary.
- On-site vehicles shall be limited to a speed of 15 miles per hour on unpaved roads.
- Haul roads shall be sprayed down at the end of the work shift to form a thin crust. This application of water shall be in addition to the minimum rate of application.

Vehicles Entering/Exiting Construction Area:

- Vehicles entering or exiting the construction area shall travel at a speed which minimizes dust emissions.

Employee Vehicles:

- Construction workers shall park in designated parking areas(s) to help reduce dust emissions.

Soil Piles:

- Soil pile surfaces shall be moistened if dust is being emitted from the pile(s). Adequately secured tarps, plastic, or other material may be required to further reduce dust emissions. This includes materials stored in piles for use in the concrete batch plant.

Mitigation Measure Air Qual-1b: Implement Measures to Reduce Equipment and Vehicle Exhaust Emissions

Measures to reduce equipment and vehicle exhaust emissions to be implemented during construction, operation, and maintenance of the Project shall include the following to reduce NOx, PM_{10}, and ROG emissions:

- All construction-type equipment shall be maintained according to manufacturer's specifications.
- Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California Airborne Toxics Control Measure, codified in Title 13, Section 2485 of the California Code of Regulations [CCR]).
- During all activities, diesel-fueled portable equipment with maximum power greater than 25 horsepower shall be registered under the ARB's Statewide Portable Equipment Registration Program.
- All fleets of diesel-fueled off-road vehicles and equipment shall comply with emissions standards and requirements pursuant to CCR Title 13, Section 2449. To the extent feasible, operate off-road construction vehicles and equipment with engines certified to the Tier 3 or higher emissions standards. If off-road construction vehicles and equipment with engines that meet Tier 3 or 4 standards is not available, the best available emissions control technology shall be used.
- All diesel-fueled on-road trucks shall be operated in compliance with the emission standards per CCR Title 13, Section 2025. To the extent feasible, operate on-road trucks with engines certified to the 2012 model year or newer heavy-duty diesel engine emissions standards.
- To the extent feasible, electric equipment shall be operated.
- Alternatively fueled equipment shall be used, to the extent feasible, such as compressed natural gas, liquefied natural gas, propane, or biodiesel.

- Electricity used to power facilities and equipment shall be generated by renewable energy sources with state-of-the-art emissions control systems, to the extent feasible.

25. Climate Change and Greenhouse Gases

The following measures are considered best management practices (BMPs) for DWR construction and maintenance activities. Implementation of these practices will reduce greenhouse gas (GHG) emissions from construction projects by minimizing fuel usage by construction equipment, reducing fuel consumption for transportation of construction materials, reducing the amount of landfill material, and reducing emissions from the production of cement.

Pre-construction and Final Design BMPs

Pre-construction and Final Design BMPs are designed to ensure that individual projects are evaluated and their unique characteristics taken into consideration when determining if specific equipment, procedures, or material requirements are feasible and efficacious for reducing GHG emissions from the project. While all projects will be evaluated to determine if these BMPs are applicable, not all projects will implement all the BMPs listed below.

BMP 1. Evaluate project characteristics, including location, project work flow, site conditions, and equipment performance requirements, to determine whether specifications of the use of equipment with repowered engines, electric drive trains, or other high efficiency technologies are appropriate and feasible for the project or specific elements of the project.

BMP 2. Evaluate the feasibility and efficacy of performing on-site material hauling with trucks equipped with on-road engines.

BMP 3. Ensure that all feasible avenues have been explored for providing an electrical service drop to the construction site for temporary construction power. When generators must be used, use alternative fuels, such as propane or solar, to power generators to the maximum extent feasible.

BMP 4. Evaluate the feasibility and efficacy of producing concrete on-site and specify that batch plants be set up on-site or as close to the site as possible.

BMP 5. Evaluate the performance requirements for concrete used on the project and specify concrete mix designs that minimize GHG emissions from cement production and curing while preserving all required performance characteristics.

BMP 6. Limit deliveries of materials and equipment to the site to off peak traffic congestion hours.

Construction BMPs

Construction BMPs apply to all construction and maintenance projects that DWR completes or for which DWR issues contracts. All projects are expected to implement all Construction BMPs unless a variance is granted by the Division of Engineering Chief, Division of Operation and Maintenance Chief, or Division of Flood Management Chief, as applicable and the variance is approved by the DWR CEQA Climate Change Committee. Variances will be granted when specific project conditions or characteristics make implementation of the BMP infeasible and where omitting the BMP will not be detrimental to the project's consistency with the Greenhouse Gas Reduction Plan.

BMP 7. Minimize idling time by requiring that equipment be shut down after five minutes when not in use (as required by the State airborne toxics control measure [Title 13, Section 2485 of the California Code of Regulations]). Provide clear signage that posts this requirement for workers at the entrances to the site and provide a plan for the enforcement of this requirement.

BMP 8. Maintain all construction equipment in proper working condition and perform all preventative maintenance. Required maintenance includes compliance with all manufacturer's recommendations, proper upkeep and replacement of filters and mufflers, and maintenance of all engine and emissions systems in proper operating condition. Maintenance schedules shall be detailed in an Air Quality Control Plan prior to commencement of construction.

BMP 9. Implement tire inflation program on jobsite to ensure that equipment tires are correctly inflated. Check tire inflation when equipment arrives on-site and every two weeks for equipment that remains on-site. Check vehicles used for hauling materials off-site weekly for correct tire inflation. Procedures for the tire inflation program shall be documented in an Air Quality Management Plan prior to commencement of construction.

BMP 10. Develop a project specific ride share program to encourage carpools, shuttle vans, transit passes and/or secure bicycle parking for construction worker commutes.

BMP 11. Reduce electricity use in temporary construction offices by using high efficiency lighting and requiring that heating and cooling units be Energy Star compliant. Require that all contractors develop and implement procedures for turning off computers, lights, air conditioners, heaters, and other equipment each day at close of business.

BMP 12. For deliveries to project sites where the haul distance exceeds 100 miles and a heavy-duty class 7 or class 8 semi-truck or 53-foot or longer box type trailer is used for hauling, a SmartWay [1] certified truck will be used to the maximum extent feasible.

BMP 13. Minimize the amount of cement in concrete by specifying higher levels of cementitious material alternatives, larger aggregate, longer final set times, or lower maximum strength where appropriate.

BMP 14. Develop a project specific construction debris recycling and diversion program to achieve a documented 50% diversion of construction waste.

BMP 15. Evaluate the feasibility of restricting all material hauling on public roadways to off-peak traffic congestion hours. During construction scheduling and execution minimize, to the extent possible, uses of public roadways that would increase traffic congestion.

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