

# RECLAMATION

*Managing Water in the West*

## **Garden Highway Mutual Water Company 2015 System Modernization and Real-Time Monitoring and Control**

**Bay-Delta Program: CALFED Water Use Efficiency Grant**

**Environmental Assessment 16-12-MP**



## **Mission Statements**

The mission of the Department of the Interior is to protect and provide access to our Nation's natural and cultural heritage and honor our trust responsibilities to Indian Tribes and our commitments to island communities.

The mission of the Bureau of Reclamation is to manage, develop, and protect water and related resources in an environmentally and economically sound manner in the

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# List of Acronyms and Abbreviations

AF	Acre-feet
CAAQS	California Ambient Air Quality Standards
CFS	Cubic Feet per Second
CNDDDB	California Natural Diversity Data Base
EA	Environmental Assessment
FRAQMD	Feather River Air Quality Management District
FRAPCD	Feather River Air Pollution Control District
GHG	Greenhouse gases
GHGMWC	Garden Highway Mutual Water Company
ITA	Indian Trust Assets
NAAQS	National Ambient Air Quality Standards
NHPA	National Historic Preservation Act
PM <sub>10</sub>	Particulate matter less than 10 micrometers in diameter
Reclamation	U.S. Bureau of Reclamation
ROG	Reactive organic gases
SCADA	Supervisory Control and Data Acquisition
Service	U.S. Fish and Wildlife Service
SHPO	State Historic Preservation Officer
SVAB	Sacramento Valley Air Basin
VELB	Valley Elderberry Longhorn Beetle
VOC	Volatile organic compounds

# **Section 1     Introduction**

## **1.1 Background**

This Environmental Assessment (EA) examines the potential direct, indirect, and cumulative impacts to the affected environment associated with the U.S. Bureau of Reclamation (Reclamation) providing CALFED Water Use Efficiency Grant funding to the Garden Highway Mutual Water Company (GHMWC) to modernize the SAG Weir, integrate a Supervisory Control and Data Acquisition (SCADA) system, and use real-time flow measurement, monitoring, and control of system flows. The proposed project would conserve water by reducing operational spillage and tailwater through a combination of infrastructure improvements and implementation of real-time flow monitoring and diversion control. GHMWC is located in Sutter County on the west side of the Feather River, approximately 14 miles south of Yuba City, California. (Figure 1). The GHMWC water system is shown in Figure 2.

## **1.2 Need for Action**

California is entering its fourth consecutive year of drought, and water supplies within the Bay-Delta watershed would likely be insufficient to meet environmental, agricultural, and urban needs. It is likely these shortages would occur increasingly in the future as a result of climate change and other factors. Shortages in available surface water supplies necessitate reduced water demand and improved operational efficiency. The proposed project would help to reduce negative impacts of future droughts through the conservation of approximately 280 acre-feet (AF) of water that could be used to satisfy unmet ecosystem, agricultural, or urban demands.

## **Section 2   Alternatives Including the Proposed Action**

### **2.1 No Action**

Under No Action, Reclamation would not provide grant funds to GHMWC for modernizing the SAG weir and providing real time measurement, monitoring and controls for their water supply system. GHMWC would construct the project over several years as funds became available. If GHMWC could not get alternative funding, GHMWC would construct only part of the project over several years. (Jon Munger, pers. comm.).

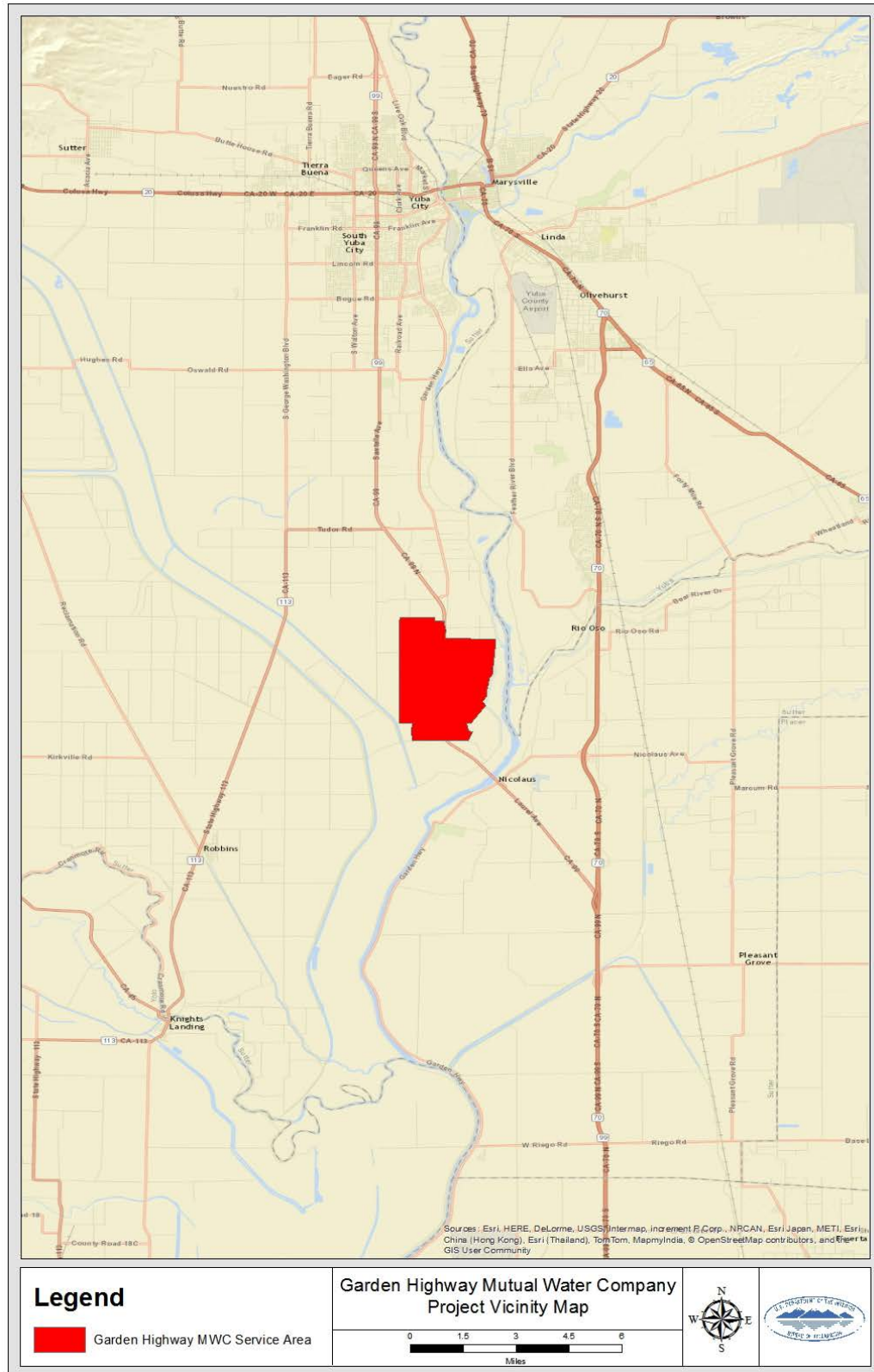
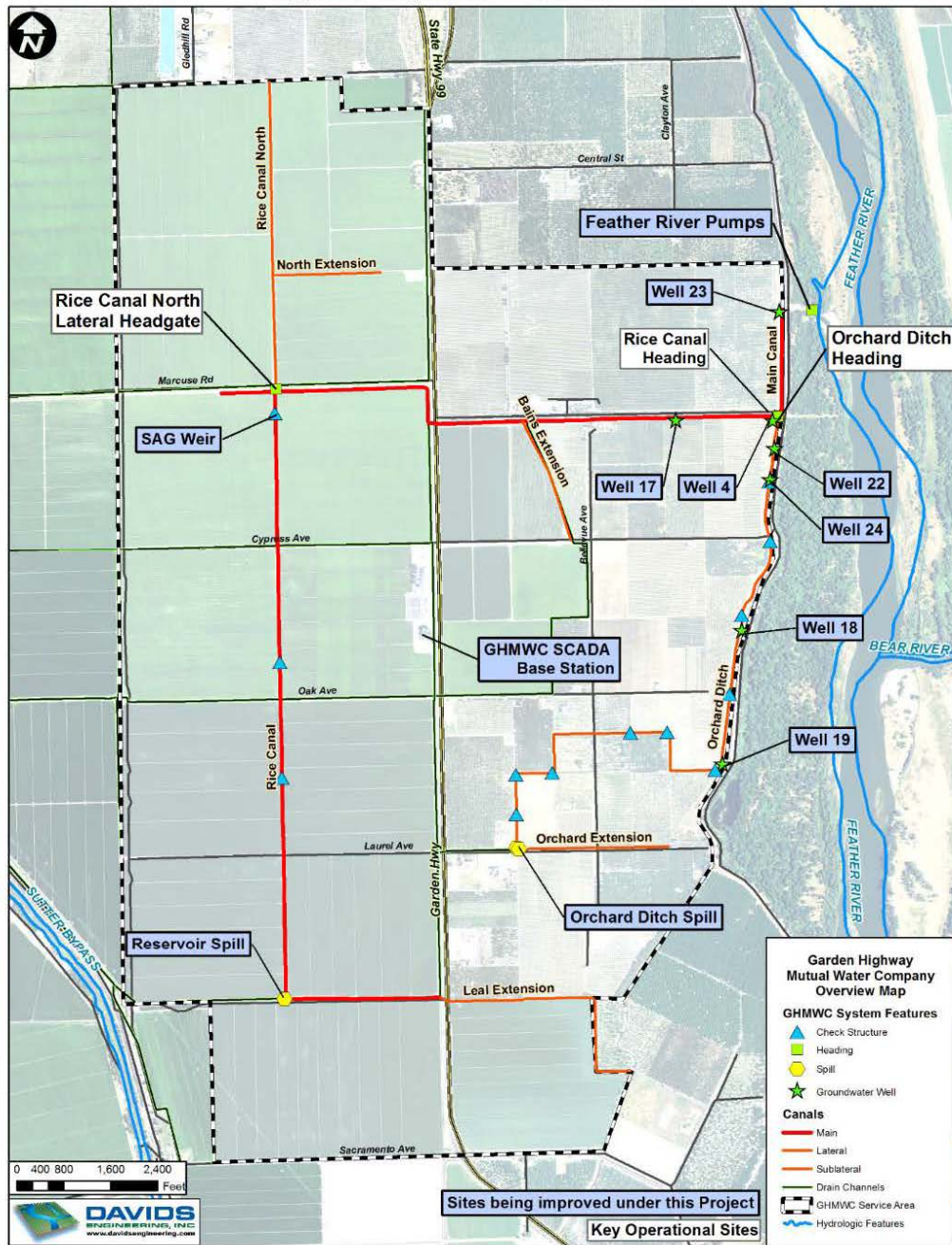


Figure 1. Garden Highway Mutual Water Company Project Vicinity





GHMWC 2015 System Modernization  
and Real-Time Monitoring and Control

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March 2015

Figure 2. Garden Highway Mutual Water Company System Features.

## 2.2 Proposed Action

Under the Proposed Action Alternative, Reclamation would provide \$170,319 to GHMWC to partially fund system modernization and real-time monitoring and control. Following are the components of the Proposed Action.

### 2.2.1 SAG Weir

GHMWC would replace the SAG Weir on Rice Canal with a reinforced concrete long-crested weir (LCW) and associated 3' x 4' canal gate, two 12" diameter adjustable gates, new culvert, and create a road-crossing over the canal. The SAG Weir is a 6' wide water level control or "check" structure constructed of two 3' wide steel boxes placed side by side. Water spills over the weir boards into a 60" diameter corrugated steel pipe under a canal road crossing. The short weir length of 6' requires frequent adjustment of the weir boards to maintain upstream water levels as system flows change. Fluctuations in system flows result in significant fluctuation in upstream water levels, resulting in delivery fluctuations to turnouts served from the canal pool upstream of the structure. The proposed LCW would have a much longer effective weir crest length, providing substantially improved upstream water level control over a wide range of flows. The proposed LCW would increase the existing weir crest length to 60 feet or about 10 times the existing weir length. A similar structure to the proposed weir was constructed by GHMWC in January 2015 and is shown in Figure 3.



Figure 3. GHMWC Long-Crested Weir on Main Canal at Rice Canal/Orchard Ditch Heading.

### **2.2.2 Real-Time Flow Measurement, Monitoring, and Control**

GHMWC would implement a SCADA network to monitor their primary system inflows and outflows, and also to remotely control the three diversion pumps on the Feather River. The telemetry-based SCADA network would utilize radio communications to transmit operational data collected from remote sites along the canal distribution system to a base station computer at the GHMWC main office, and also to portable units carried by the GHMWC water operators. The availability of real-time system data would enhance GHMWC's water management capabilities, allowing for reductions in operational spillage and diversion, and improved flexibility in water ordering by and delivery to customers. In addition, the data collection and storage features of the SCADA system would enhance data analysis and historical data reporting.

Remote sites to be integrated into the proposed SCADA system include the three diversion pumps at the Feather River, two primary spill sites, the Orchard Ditch Heading (a key operational site where diverted flows are divided between the Rice Canal and Orchard Ditch), and seven groundwater wells currently owned by GHMWC and operated in certain years (Figure 2). Each of these sites is discussed in further detail below.

#### **2.2.2.1 Feather River Pumps**

GHMWC's primary inflow points are the Feather River lift pumps located near the northeastern Company boundary. The three pumps, one with a variable frequency drive (VFD), supply a maximum of approximately 100 cubic feet per second (cfs) to a concrete lined ditch called the Main Canal. The Main Canal later transitions to the Rice Canal after it splits with the Orchard Ditch. The proposed action would allow operators to remotely monitor the operational status and the individual flow rate of each of the three Feather River Pumps, and operators would also have the ability to remotely control the set point of the VFD-controlled pump and also on/off status of the other two pumps. The water level in the Feather River will also be monitored.

The proposed action would require the purchase and installation of telemetry equipment, radio communication equipment, programmable logic controllers, a pressure transducer, and related wiring, switches, relays, and other ancillary equipment. Each pump is currently fitted with a McCrometer flow meter, so these will be retained and integrated into the SCADA system to provide flow measurement.

#### **2.2.2.2 Orchard Ditch Spill and Reservoir Spill**

The Orchard Ditch Spill and the Reservoir Spill sites are located at the tail-end of the Orchard Ditch and the Rice Canal, respectively, and are the primary outflow locations for these two canals. The portion of the Rice Canal downstream of the Laurel Avenue crossing is termed the "Reservoir" for its ability to accommodate a modest change in storage and compensate for minor fluctuations in the system. The Reservoir also collects drain water from the end of the Orchard Ditch. The accumulated volume is drawn upon by the lift pump station near Highway 99 that supplies lands in the southeast corner of the Company.

Both spill sites contain an overflow spill box provides relief should the water levels in the canal rise above the set board level. There is currently no means of flow measurement at these sites

other than manual measurement of water level and estimation of flow over the weirs and the short weir lengths have limited capacity and require frequent adjustments to prevent the canal from over topping.

The proposed action would replace the existing overflow spill boxes with new, precast weir boxes that provide a longer weir length and sharp weir crests to improve measurement accuracy. Pressure transducers would be installed upstream of the boxes to measure water depth passing over the weir which can be correlated to flow rate. Telemetry equipment, radio communication equipment, and related wiring, switches, relays, and other ancillary equipment would be installed at each site to provide remote and real-time data access.

#### **2.2.2.3 Orchard Ditch Heading**

The Orchard Ditch is the primary lateral canal branching from the Main Canal and supplies predominately orchard crops that lie to the east of Garden Highway. Flow into the lateral is controlled by an adjustable canal gate and measured using a McCrometer propeller meter. The proposed action would install the necessary electronic hardware and telemetry equipment to integrate the existing McCrometer flow meter into the SCADA system to provide remote monitoring of the flows at the heading.

#### **2.2.2.4 Groundwater Wells**

GHMWC operates a total of seven groundwater wells that are capable of supplementing the year-round supply if needed. Two of the wells supply water to the Main and Rice Canals and five provide additional supply to the Orchard Ditch along its length. Discharge of wells is currently measured using propeller meters and manually read and recorded by operators.

The proposed action would install the necessary electronic hardware to retrofit the existing meters, and the necessary telemetry equipment to integrate each of the flow meters into the SCADA system. The operational status of each of the pumps would also remotely available to operators.

### **2.3 Schedule**

Construction of the SAG weir and installation of the precast concrete structures and pipes at the spill sites is expected to require 40 days of work and be complete on or about March 1, 2017. Procurement, installation, commissioning and testing of SCADA equipment and software would start as soon as practicable following the grant award and would be completed as the civil improvements are completed and fully operable by April 15, 2017

### **2.4 Environmental Protection Measures and Commitments**

As part of the Proposed Action, GHMWC would implement the following environmental protection measures and commitments to avoid, minimize, or reduce potential environmental impacts associated with the Proposed Action:

#### **2.4.1 Giant Garter Snake Avoidance/Minimization Measures**

GHMWC and its construction contractors would implement the following reasonable and prudent conservation measures to minimize the effects of the proposed projects on the giant garter snake (GGS):

1. Twenty-four-hours prior to the commencement of construction activities, the project area shall be surveyed for giant garter snakes by a qualified biologist. The biologist will provide the Service with a written report that adequately documents the monitoring efforts within 24-hours of commencement of construction activities. The project area shall be re-inspected by the monitoring biologist whenever a lapse in construction activity of two weeks or greater has occurred.
2. A Worker Environmental Awareness Training Program for construction personnel shall be conducted by a qualified biologist for all construction workers, including contractors, prior to the commencement of construction activities.
3. During construction operations, stockpiling of construction materials, portable equipment, vehicles, and supplies will be restricted to the designated construction staging areas and all operations will be confined to the minimal area necessary.
4. Project-related vehicles will observe a 20-mile-per-hour speed limit within construction areas, except on existing paved roads where they will adhere to the posted speed limits.
5. Aquatic habitat for the snake will be dewatered, and then remain dry and absent of aquatic prey for 15 days prior to the initiation of construction activities. If complete dewatering is not possible, the Service will be contacted to determine what additional measures may be necessary to minimize effects to the snake.
6. Refueling of heavy equipment and vehicles will not occur within the construction areas, near lateral canals, ditches or the adjacent wetland/riparian habitat.
7. After completion of construction activities, any temporary fill and construction debris will be removed, and any disturbed areas will be restored to pre-project conditions wherever feasible.

#### **2.4.2 Yellow-billed Cuckoo Avoidance/Minimization Measures**

Fifteen days prior to construction activities, a qualified biologist would survey for yellow-billed cuckoos in the adjacent Feather River riparian forest. If yellow-billed cuckoos are observed at that time, GHMWC would implement the following avoidance/minimization and mitigation measures:

1. Construction personnel will participate in a worker awareness program to identify sensitive habitat and areas to avoid during construction. A qualified biologist will conduct environmental awareness training for all individuals that will be working on the proposed project before any work begins. The education program will briefly cover threatened and endangered species and any of their habitats that may be encountered during the proposed project. Awareness training will cover all restrictions and guidelines that must be followed by crews to avoid or minimize impacts to threatened and endangered species and their habitat. Upon completion of training, crews will sign a form stating that they attended the training and understand all the field personnel conservation and protection measures.

2. To the maximum extent practical, all construction will be confined to areas outside of potential nesting and foraging habitat for the Western yellow-billed cuckoo. Any vegetation removal will occur between October 1 and June 1. However, for the purpose of the proposed projects, no vegetation removal is anticipated.

3. To the maximum extent practical, the GHMWC will avoid construction in areas within 500 feet of the Feather River riparian habitats during the period from June 1 through September 30.

#### **2.4.3 Swainson's Hawk Avoidance/Minimization Measures**

Any construction activities conducted during the normal nesting season (mid-February to August) for all raptors would be preceded by a preconstruction survey no later than fifteen days prior to the start of construction. Noise, vibration, dust and vehicle movement should be kept to the absolute minimum necessary to accomplish the upgrades. Under no circumstances should vehicles travel at more than 10 miles per hours on unpaved roads. If it appears that a nesting raptor is being disturbed by construction activities associated with the upgrades, the biological monitor will halt all construction activities and evaluate the potential for continued construction or suspending construction activities until the young hawks have fledged. Construction personnel would receive Service-approved worker environmental awareness training to recognize all raptors, as well as potential nesting sites.

#### **2.4.4 Air Quality Mitigation**

Watering will be required to control fugitive dust, as part of the Feather River Air Quality Management District's Standard Mitigation Measures for construction projects.

## **Section 3    Affected Environment and Environmental Consequences**

### **3.1 No Action Alternative**

Under No Action, Reclamation would not provide grant funds to GHMWC for modernizing the SAG weir and providing real time measurement, monitoring and controls for their water supply system. GHMWC would construct the project over several years as funds became available. If GHMWC could not get alternative funding, GHMWC would construct only part of the project over several years and the improvements to water supply and fish discussed in Section 1.2 would only partially occur at this time

### **3.2 Proposed Action**

#### **3.2.1 Cultural Resources**

The proposed action constitutes an undertaking with the potential to cause effects to historic properties, assuming such properties are present, requiring compliance with Section 106 of the National Historic Preservation Act (NHPA) as amended.

Based on historic properties identification efforts conducted Reclamation, and in-house background research, Reclamation consulted with, and received concurrence from, the State Historic Preservation Officer (SHPO) on a finding of no historic properties affected pursuant to 36 CFR §800.4(d)(2). (See Appendix A).

#### **3.2.2 Indian Trust Assets**

Indian Trust Assets (ITAs) are legal interests in assets that are held in trust by the United States for federally recognized Indian tribes or individuals. There are no Indian reservations, rancherias or allotments in the project area. The nearest ITA is the United Auburn Indian Community of the Auburn Rancheria approximately 14 miles northeast of the Proposed Action. The Proposed Action does not have a potential to affect ITAs. (See Appendix B).

#### **3.2.3 Indian Sacred Sites**

Sacred sites are defined in Executive Order 13007 (May 24, 1996) as "any specific, discrete, narrowly delineated location on Federal land that is identified by an Indian tribe, or Indian individual determined to be an appropriately authoritative representative of an Indian religion, as sacred by virtue of its established religious significance to, or ceremonial use by, an Indian religion; provided that the tribe or appropriately authoritative representative of an Indian religion has informed the agency of the existence of such a site." The Proposed Action is not located on

federal land and therefore would not affect or prohibit access to and ceremonial use of Indian sacred sites.

### **3.2.4 Environmental Justice**

Executive Order 12898 requires each Federal agency to identify and address disproportionately high and adverse human health or environmental effects, including social and economic effects of its program, policies, and activities on minority populations and low-income populations. Reclamation has not identified adverse human health or environmental effects on any population as a result of implementing the Proposed Action. Therefore, implementing the Proposed Action could not have a significant or disproportionately negative impact on low-income or minority individuals within the Proposed Action area.

### **3.2.5 Hydrology**

It is estimated that 5 to 15 percent of existing operational spillage and drainage (tailwater) outflows (75 to 225 AF, or 150 AF annually, on average) can be conserved through real-time monitoring of diversions and outflows. The proposed project would implement real-time monitoring and control of diversions and real time monitoring of groundwater wells and operational spillage, with monitoring of drainage outflows to be implemented in the future. For the proposed project, it is estimated that approximately two thirds of the potential conservable amount, or 100 AF annually would be conserved through real-time monitoring and control.

The additional spill reduction from improved flow routing for the proposed long-crested weir is estimated to be approximately 100 AF annually.

Based on an estimated average reduction in tailwater runoff of 20 gallons per minute (0.045 cfs) per delivery, runoff could be reduced by approximately 0.45 AF per day for the 5 deliveries during the 180 day growing season. Thus, the estimated on-farm water conservation from improved water level control and reduced tailwater is approximately 80 AF per year.

### **3.2.6 Biological Resources**

Habitat within the GHMWC consists of agriculture development and roads with no natural habitat. Between 1999 and 2012, there were an average of approximately 3,500 cropped acres within the service area. The main crop within the service area is rice, comprising an average of approximately 2,700 acres, representing 78% of the total cropped area. The second most prominent crops are orchards, which primarily consist of prunes, peaches, and walnuts, comprising an average of approximately 700 acres during this period, or 21% of the total cropped area. Other crops were grown on the remaining cropped land (1% of the total cropped area).



For the Proposed Action, the action areas are the construction footprints, including the staging areas and proposed access routes. Within the immediate vicinity of the Proposed Action, the terrain is flat, leveled during the past 50 years for agricultural applications.

Rice fields provide habitat and nourishment for ducks and geese migrating along the Pacific Flyway. Rice fields provide open space and habitat for wildlife, including the federal and state threatened giant garter snake. Unpaved access roads and road shoulders within the project areas are cleared of vegetation periodically. However, between the rice fields within the checks, are introduced, annual, non-native grasses and forbs. Construction activities would not directly impact rice fields, rice checks or road shoulders bordering the rice fields.

Interspersed between orchards trees are introduced, annual, non-native grasses and forbs. Construction activities would not impact grasslands associated with orchards. The vegetation adjacent to the Feather River consists of a dense, broad-leaved, winter deciduous riparian forest. Construction activities would not directly impact riparian habitats associated with the Feather River. For Reservoir and Orchard Ditch projects the riparian habitats associated with the Feather River are between one and three miles away. For the groundwater well SCADA flow meter installation projects, the riparian habitats are over 500 feet away

There are no wetlands or other surface waters inside the project boundaries that fall under the Clean Water Act jurisdiction as “Waters of the United States.”

A list of federal endangered or threatened species was generated for the project on October 27, 2015, from the U.S. Fish & Wildlife Service to help determine if the Proposed Action would have the potential to affect federally-listed species within the action areas.

Table 1 describes special status species potentially occurring within the project area. Included is a brief description of each species’ status, habitat, and potential for occurrence and impacts.

Wildlife Biologist Marcus H. Bole and Botanist Charlene J. Bole conducted surveys in the project area for special status species in December 2015 and February 2016.

#### **3.2.6.1 Giant Garter Snake (*Thamnophis gigas*)**

The species habitat survey conducted during December, 2015 observed potential suitable habitat for the giant garter snake (GGS) associated with the flooded rice fields near the SAG Weir and the Reservoir Spill project areas. However, a comprehensive “burrow” study did not identify squirrel or rodent holes (for GGS to hibernate in) within the access roads or within 200 feet of the project areas. Although the weir-controlled irrigation ditches associated with these sites are not essential GGS habitat due to high velocity flows (50-60 cfs) and the lack of emergent vegetation, the nearby flooded rice fields are potential but not confirmed habitat for the GGS.

The rice fields within the GHMWC are considered potential, however, unconfirmed habitat for the GGS as opportunities for foraging and concealment are present. The California Department of Fish & Wildlife has reported the nearest confirmed presence of the GGS in the Sutter Bypass, approximately two miles west of the project areas. Although no confirmed sightings of GGS have been reported within the high velocity flows associated with the SAG Weir and the Reservoir Spill canals, biological monitoring would be initiated to prevent potential impacts due

to vehicular strikes on unpaved access roads, filling or crushing burrows and crevices, or the obstruction of snake movement during construction activities.

Table 1. Listed and Special Status Species Potentially Occurring Within or Near the GHMWC Project Area

Species	Federal Status	State Status	Habitat	Potential for Occurrence
<b>Fish</b>				
Delta Smelt ( <i>Hypomesus Transpacificus</i> )	T	E	Sacramento-San Joaquin estuary	<b>None:</b> No river impacts. No suitable habitat in the proposed action area.
Steelhead ( <i>Oncorhynchus (=salmo) Mykiss</i> ) (California Central Valley DPS)	T	None	SF Bay to Upper Sacramento River and tributaries	<b>None:</b> No river impacts. No suitable habitat in the proposed action area
<b>Amphibians</b>				
California Red-legged Frog ( <i>Rana Draytonii</i> )	T	CDFW-SC	Breeds in aquatic habitats including pools and backwaters within streams and creeks, ponds, marshes, springs, sag ponds, dune ponds and lagoons. often associated with still or slow moving water and dense, shrubby riparian or emergent vegetation. Upland dispersal areas.	<b>None:</b> No suitable habitat in the proposed action area.
<b>Birds</b>				
Western yellow-billed cuckoo ( <i>Coccyzus americanus occidentalis</i> )	T	E	Nests in riparian jungles of willow, often mixed with cottonwoods, with lower story of blackberry, nettles, or wild grape	<b>Moderate:</b> The CNDDB lists one confirmed occurrence in the riparian forest (Feather River) approximately three miles from the weir and channel projects and approximately one mile from the SCADA flow meter installation projects. If construction activities take place during the normal nesting season for this species, preconstruction surveys will be required
Swainson's Hawk ( <i>Buteo swainsoni</i> )	MBTA	T	Nests in riparian corridors and isolated mature trees. Forages in adjacent grasslands.	<b>Moderate:</b> The CNDDB lists numerous occurrences of nesting Swainson's hawks in the riparian forest (Feather River) to the east of the Garden Highway Mutual Water Company project areas. Preconstruction Surveys and other avoidance and minimization measures would be required to reduce impacts to <i>less-than-significant</i> .
<b>Reptiles</b>				
Giant garter snake ( <i>Thamnophis gigas</i> ) (GGS)	T	T	Prefers freshwater marsh and low gradient streams. Has adapted to	<b>Moderate:</b> Flooded rice fields and slow moving waters within laterals provide potential habitat for the giant garter snake. Preconstruction surveys and other avoidance

			canals and ditches.	and minimization measures, including biological monitoring, would be required to reduce impacts to <i>less-than-significant</i> .
<b>Invertebrates</b>				
Vernal pool fairy shrimp ( <i>Branchinecta lynchi</i> )	E	None	Vernal pools	<b>None:</b> No suitable habitat in the proposed action area.
Vernal pool tadpole shrimp ( <i>Lepidurus packardii</i> )	T	None	Vernal pools	<b>None:</b> No suitable habitat in the proposed action area.
Valley elderberry longhorn beetle ( <i>Desmoceris californicus dimorphus</i> )	T	None	Prefers to lay eggs in elderberries <i>Sambucus mexicana</i> ) 2-8 inches in diameter.	<b>None:</b> Botanical surveys did not reveal the presence of blue elderberry shrubs within 1,000 feet of any of the proposed project areas. Worker Awareness Training would be conducted to further reduce unintentional impacts.
<b>Plants</b>				
Hartweg's golden sunburst ( <i>Pseudobahia bahiflolia</i> )	E	E	Clay soils, often acidic, on northern slopes of knolls, along shady creeks and vernal pools.	<b>None:</b> Botanical surveys did not reveal the presence of suitable habitat for this species. None observed within 1,000 feet of any of the proposed project areas.
Sanford's arrowhead ( <i>Sagittaria sanfordii</i> )	NONE	CNPS 1B.2	Marshes and swamps, slow moving freshwater ponds.	<b>None:</b> Botanical surveys did not reveal the presence of suitable habitat for this species. None observed within 1,000 feet of any of the proposed project areas.
Woolly rose-mallow ( <i>Hibiscus lasiocarpus</i> var. <i>occidentalis</i> )	NONE	CNPS 1B.2	Marshes and swamps (freshwater), low peat islands in sloughs.	<b>None:</b> Botanical surveys did not reveal the presence of suitable habitat for this species. None observed within 1,000 feet of any of the proposed project areas.
<b>T</b> = Threatened <b>E</b> = Endangered <b>SC</b> = Federal Species of Concern <b>CSC</b> = California Species of Special Concern <b>MBTA</b> = Federal Migratory Bird Treaty Act <b>CNPS</b> = California Native Plant Society <b>CDFW SC</b> = California Department of Fish & Wildlife Species of Concern. <i>Source:</i> California Department of Fish & Wildlife List for Nicolaus and nine adjacent quadrangles and U.S. Fish and Wildlife Service species list.				

The GGS breeding season starts in March and extends through April. Females give birth to live young from late July through early September (Hansen and Hansen 1990). All construction is scheduled to be completed within a few weeks of the starting date. A start date prior to May would decrease the likelihood of snakes moving into the project areas. Onsite biological monitoring during the movement of equipment within 200 feet of flooded rice fields (open water aquatic habitat), along with other avoidance and minimization and mitigation measures (see Section 2.4.1) would be required to reduce the potential for impacts.

With the implementation of the avoidance and minimization measures, there should be no direct or indirect impacts from project activities on the GGS. All construction would take place within the footprint of existing facilities except for minor trenching through unvegetated bare earth that connects existing wells to their electrical enclosures. This trenching would not occur within 1,000 feet of flooded rice fields or other potential GGS habitat.

### 3.2.6.2 Western Yellow-billed Cuckoo (*Coccyzus americanus occidentalis*)

Critical habitat for the yellow-billed cuckoo has been identified in the Sutter Bypass, approximately two miles west of the weir and channel projects and four miles west of the SCADA flow meter installation projects. Unconfirmed nesting habitat for the yellow-billed cuckoo is found in the Feather River riparian forest approximately 500 feet east of the SCADA

flow meter installation projects and two miles east of the weir and channel projects. The California Natural Diversity Database (CNDDB, 2015-2016) lists one confirmed sighting of the yellow-billed cuckoo approximately three miles southeast of the SCADA flow meter installation projects, and five miles southeast of the weir and channel projects. If preconstruction surveys identify active yellow-billed cuckoo nests within 250 feet of any project site, potential impacts could include nest abandonment due to construction noise or fugitive dust.

Nesting surveys were conducted during the normal breeding season on February 14-15, 2016 within one mile of the SCADA flow meter installation projects and within three miles of the weir and channel projects. No yellow-bill cuckoo nests were found. Preconstruction nesting surveys will be conducted during the normal nesting season for this species.

With the implementation of avoidance, minimization and mitigation measures in Section 2.4.2, there would be no direct or indirect impacts to yellow-billed cuckoos. Direct impacts would be avoided or minimized by beginning construction prior to the avian breeding season (June 1 to September 30) or conducting a pre-construction survey prior to the start of construction activities if construction activities would begin during the avian breeding season. By completing construction prior to the avian breeding season there would be no impact to nesting birds within the project area and direct impacts to yellow-billed cuckoos would not occur. Furthermore, beginning construction prior to the avian breeding season would also deter yellow-billed cuckoos from nesting within close proximity of the project area, which would also avoid impacts to the species. If construction activities are to take place during the avian breeding season then a pre-construction survey would be conducted by a Service-approved biologist to determine the absence or presence of yellow-billed cuckoos nesting within or within close proximity to the project area. If an occupied yellow-billed cuckoo nest is observed within 250 feet of the project area, then the Service would be contacted to discuss the need for additional avoidance, minimization and minimization measures. There would be no indirect impacts to yellow-billed cuckoos as the proposed project areas would not disturb potential nesting habitat for yellow-billed cuckoos within or within close proximity of the project areas.

### **3.2.6.3 Swainson's Hawk (*Buteo swainsoni*).**

The Swainson's hawk nests in riparian corridors and isolated mature trees and forages in adjacent grasslands. The CNDDB lists numerous occurrences of nesting Swainson's hawks in the riparian forest at the Feather River to the east of the GHMWC project areas.

Onsite surveys for nesting raptors were conducted from February 14-15, 2016 near the Orchard Ditch Pump and wells near the Feather River shown in Figure 1. All trees within ½ mile of each project site were surveyed for "stick nests" and/or raptor nest building activities. These surveys were conducted within the normal nesting season for all raptors, including the Swainson's hawk. One pair of red-tails hawks (*Buteo jamaicensis*) were observed soaring over the riparian vegetation along the Feather River. The pair moved from the south to the north along the Feather River; however, the pair did not stop or appear to be building a nest in any of the trees within a ½ mile of the project sites. No hawk or owl activity was noted on Sunday, February 15, 2016. All the riparian trees (oaks, ash and cottonwoods) within ½ mile of the project sites were observed through both binoculars and 20-60x60 mm Zoom Meade Spotting Scopes to determine the

presence of stick nests. None of the trees within the observation areas supported stick nests capable of being used by raptors.

The movement of equipment and personnel around and near the Feather River from the improvements at the River Pumps could potentially cause nest abandonment due to construction noise and dust. With the implementation of avoidance/minimization and mitigation measures in Section 2.4.3, there would be no direct or indirect impacts to the Swainson's hawk.

#### **3.2.6.4 Valley Elderberry Longhorn Beetle (*Desmocerus californicus dimorphus*)**

The valley elderberry longhorn beetle (VELB) is a federal-listed threatened species. This species inhabits elderberry (*Sambucus sp.*) shrubs associated with riparian and upland habitats throughout the Central Valley and foothill regions of California. Botanical surveys did not reveal the presence of elderberry shrubs within one thousand feet of any of the project areas. The proposed action would not affect the VELB as there is no potential for their occurrence within the project areas or within close proximity of the project areas.

#### **3.2.6.5 Birds Protected Under the Migratory Bird Treaty Act**

Bird species protected under the Migratory Bird Treaty Act that could potentially occur within the Action Area are the American kestrel (*Falco sparverius*) and red-tailed hawk in addition to the Swainson's hawk described above. Suitable habitat exists in the riparian forest at the Feather River across from the GHMWC project areas. The implementation of avoidance/minimization and mitigation measures in Section 2.4.3 would also apply to these species to avoid direct or indirect impacts. Migrating waterfowl would not be affected because the migration season would be over by the time construction is initiated.

### **3.2.7 Air Quality**

The Proposed Action is located in Sutter County, which lies within the Sacramento Valley Air Basin (SVAB). Air basins share a common "air shed", the boundaries of which are defined by surrounding topography. Although mixing between adjacent air basins inevitably occurs, air quality conditions are relatively uniform within a given air basin. Air quality in the Proposed Action area is regulated by the Feather River Air Quality Management District (FRAQMD).

The U.S. Environmental Protection Agency and California Air Resources Board developed federal and state health-based air quality standards, known as National and California ambient air quality standards (NAAQS and CAAQS), for criteria air pollutants. Criteria air pollutants consist of carbon monoxide, ozone, sulfur dioxide, nitrogen dioxide, inhalable particulate matter between 2.5 and 10 microns in diameter (PM<sub>10</sub>), particulate matter less than 2.5 microns in diameter (PM<sub>2.5</sub>), and lead. The CAAQS also set standards for sulfates, hydrogen sulfide and visibility. Regionally, some portions of the SVAB have fewer air quality problems than others. Only the southern portion of the SVAB is in non-attainment for the ozone NAAQS, which includes the southern portion of Sutter County. Regarding CAAQS, the entire SVAB is in nonattainment for ozone and PM<sub>10</sub>. Even though the SVAB does not attain certain standards, air quality has improved over time. Pollutant levels have decreased dramatically since the 1980s even with substantial region-wide population growth. The sources that are most associated with producing these pollutants in Sutter County come from fuel combustion, petroleum production,

farming operations, and motor vehicles. Section 110(a) of the Clean Air Act (42 U.S.C. 7401(a)) requires states to develop plans, known as State Implementation Plans (SIPs), that describe how they will attain NAAQS.

Section 176(c) of the Clean Air Act (42 U.S.C. 7506(c)) requires that any entity of the federal government that engages in, supports, or in any way provided financial support for, licenses or permits, or approves any activity to demonstrate that the action conforms to the applicable SIP before the action is otherwise approved. The U.S. Environmental Protection Agency promulgated the General Conformity Rule to ensure that such federal actions are consistent with a SIP's purpose of eliminating or reducing the severity and number of violations of the NAAQS for criteria air pollutants and achieving expeditious attainment of those standards. If an action does not conform to the SIP, the Federal agency must submit a conformity determination to the U.S. Environmental Protection Agency, State and local air pollution control agencies, and to the public. Federal actions that are exempt from the General Conformity Regulations include, but are not limited to, actions with associated emissions clearly at or below specified *de minimis* levels (USEPA 2016).

### **3.2.7.1 Environmental Consequences**

Construction emissions would vary from day to day and by activity, timing and intensity, and wind speed and direction. Generally, air quality impacts from the Proposed Action would be localized in nature.

Short-term air quality impacts would be associated with construction, and would generally arise from dust generation (fugitive dust) and operation of construction equipment. Fugitive dust results from grading, excavation, concrete work, and vehicle traffic on paved and unpaved roads. Fugitive dust is a source of airborne particulates, including PM<sub>10</sub> and PM<sub>2.5</sub>. Watering would normally be required to control fugitive dust, as part of the FRAQMD's Standard Mitigation Measures for construction projects (FRAQMD 2016a).

Earth-moving equipment, trucks, and other mobile sources powered by diesel or gasoline are also sources of combustion emissions, including nitrogen dioxide, carbon monoxide, volatile organic compounds, sulfur dioxide, and small amounts of air toxics. Table 2 below provides a summary of the estimated emissions (with mitigation) during construction and a comparison to federal and local emission thresholds in tons per year. Calculated emissions from the Proposed Action were estimated using the 2013 California Emissions Estimator Model (CalEEMOD) (version 2013.2.2), which incorporates emission factors for reactive organic gases (ROG<sup>1</sup>) and NO<sub>x</sub> as precursors for ozone, carbon monoxide, sulfur dioxide, and both fugitive and exhaust PM<sub>10</sub>, and PM<sub>2.5</sub>.

Comparison of the estimated Proposed Action emissions (with control measures) and the thresholds for Federal and local conformity determinations (Table 2) indicates that project emissions are estimated to be below these thresholds. Therefore, the Proposed Action is exempt from the General Conformity Regulations, and a Federal general conformity analysis report is not required.

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<sup>1</sup> The term "reactive organic gases" is synonymous with "volatile organic compounds" for the purposes of this document since both terms refer to hydrocarbon compounds that contribute to ozone formation.

Table 2 - Estimated Garden Highway MWD Project Emissions with Control Measures During Construction and Federal and Local Emissions Thresholds in tons per year

Pollutant <sup>a</sup>	State Attainment Status for FRAQMD	Federal Attainment Status for FRAQMD <sup>b</sup>	Thresholds for Federal Conformity Determinations <sup>c</sup>	Local Significance Thresholds <sup>d</sup>	Estimated Project Emissions <sup>e</sup>
ROG (as an ozone precursor)	Nonattainment-transitional (8-hour ozone)	Severe Nonattainment (South Sutter area)	25	4.5	0.0161
PM <sub>10</sub>	Nonattainment	Unclassified	100	14.6	0.0163

<sup>a</sup>Only pollutants with nonattainment status are in the table

<sup>b</sup>FRAQMD (2016b)

<sup>c</sup>40 CFR 93.153

<sup>d</sup>FRAQMD (2016c)

<sup>e</sup> Construction emissions estimated with CalEEMOD Windows Version 2013.2.2

### 3.2.8 Energy

Diversion reduction of approximately 290 AF through the proposed project would result in energy savings of approximately 9.3 megawatts and \$1,200 per year.

### 3.2.9 Cumulative Impacts

According to CEQ regulations for implementing the procedural provisions of NEPA, a cumulative impact is defined as *the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time* (40 CFR 1508.7).

The Proposed Action has the potential to impact air quality through emissions of the criteria pollutants of most concern from ground disturbance and construction equipment. As described earlier, the Project lies within the SVAB, which currently does not meet all CAAQS and NAAQS. The above analysis shows that ROG and PM<sub>10</sub> emissions associated with the Proposed Action would be below Federal and local thresholds, and therefore are exempt from the General Conformity Regulations and further minimization measures. Since the SVAB encompasses eleven counties in addition to Sutter County, emissions from projects occurring in those counties within the same general time period as the Proposed Action could lead to a cumulative impact. Table 3 shows examples of similar projects proposed to be implemented simultaneously with the Proposed Action in the SVAB and their estimated emissions.

Table 3. Estimated Cumulative Mitigated Project Emissions (Metric Tons per Year)

Pollutant	Proposed Action <sup>a</sup>	Nimbus Dam Radial Gates Maintenance Project <sup>b</sup>	Sweeney /McCune Creek Outflow Recovery and Automation Project <sup>c</sup>	Total tons/year
ROG/VOC	0.0161	0.36	0.40	0.7761
PM <sub>10</sub>	0.0163	—	0.37	0.3863
Carbon dioxide equivalents	13.22	1.022	280.35	294.592

<sup>a</sup> Source: CalEEMOD Windows Version 2013.2.2

<sup>b</sup> Source: Reclamation 2015

<sup>c</sup> Source: Reclamation 2015

As shown in Table 3, the proposed action and the two other projects have been estimated to individually emit less than the *de minimus* thresholds for ROG/VOC as O<sub>3</sub> precursors and PM<sub>10</sub>. In combination with the Project's emissions, the total for these criteria pollutants are still well below the *Federal and local* thresholds.

Greenhouse gas (GHG) impacts are considered to be cumulative impacts since any increase in greenhouse gas emissions would add to the existing inventory of gases that could contribute to climate change. As shown in Table 3, the estimated GHG emission due to temporary Project construction activities is 13.22 metric tons of carbon dioxide equivalents, and the total with the other two projects is 294.592 metric tons/year. There are no on-going operational emissions from the Project.

In considering when to disclose projected quantitative GHG emissions, CEQ has provided a reference point of 25,000 metric tons of carbon dioxide equivalent emissions on an annual basis below which a GHG emissions quantitative analysis is not warranted unless quantification below that reference point is easily accomplished (CEQ 2014). In California, Assembly Bill 32 established 25,000 metric tons/year as the threshold for mandatory emissions reporting for stationary sources. However, California did not establish a threshold for cumulative emissions from temporary mobile sources such as construction equipment, which would be lower than permanent stationary sources. Since the 294.592 metric tons of carbon dioxide equivalent per year anticipated to be emitted from the Proposed Project is well below 25,000 metric tons/year, the contribution of greenhouse gases is negligible.



## **Section 4 Consultation and Coordination**

### **4.1 Endangered Species Act (16 USC § 1531 et seq.)**

Section 7 of the ESA requires Federal agencies, in consultation with the Secretary of the Interior, to ensure that their actions do not jeopardize the continued existence of endangered or threatened species, or result in the destruction or adverse modification of the critical habitat of these species. Reclamation sent a memorandum to the Service on January 15, 2016 requesting concurrence that the Proposed Action is not likely to adversely affect the western yellow-billed cuckoo and the giant garter snake. The Service concurred with Reclamation's request on May 23, 2016. (See Appendix C).

### **4.2 National Historic Preservation Act (54 USC § 306108 )**

Reclamation is consulting under Title 54 USC § 306108, commonly known as Section 106 of the NHPA, which requires that federal agencies give the Advisory Council on Historic Preservation an opportunity to comment on the effects of an undertaking on historic properties, properties that are eligible for inclusion in the National Register. The 36 CFR Part 800 regulations implement Section 106 of the NHPA. Section 106 of the NHPA requires federal agencies to consider the effects of federal undertakings on historic properties, properties determined eligible for inclusion in the National Register.

Based on review of the available information, Reclamation initiated consultation with the SHPO and requested concurrence on the ineligibility of the GHMWD on February 26, 2016. SHPO concurred on March 24, 2016. (See Appendix A).

## Section 5    References

Assembly Bill 32. The Global Warming Solutions Act of 2006.

Bureau of Reclamation. 2015. Nimbus Dam Radial Gates Maintenance Project. Final Environmental Assessment. May 2015.

Bureau of Reclamation. 2015. Sweeney/McCune Creek Outflow Recovery and Automation Project. Draft Environmental Assessment/Initial Study.

CALFED. 2000. CALFED Water Use Efficiency. Details of Quantifiable Objectives. Appendix A, Subregion 5, Lower Feather and Yuba Rivers. December 2000.

California Emissions Estimator Model (CalEEMOD). 2016. Windows Version 20132.2. January 14, 2016.

Council on Environmental Quality. 2014. Revised Draft Guidance for Federal Departments and Agencies on Consideration of Greenhouse Gas Emissions and the Effects of Climate Change in NEPA Reviews. Federal Register /Vol. 79, No. 247 /Wednesday, December 24, 2014.

FRAQMD (Feather River Air Quality Management District). 2016a. Air Quality CEQA Review, Chapter 4, Construction Generated Emissions. Website <http://www.fraqmd.org/index.htm>. Accessed: January 20, 2016.

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FRAQMD. 2012c. CEQA Project Analysis: Recommended Thresholds of Significant Impact. Website: <http://www.fraqmd.org/CEQA%20Planning.html>. Accessed: January 20, 2016.

USEPA. 2016. Frequent Questions. *General Conformity: Frequent Questions*. U.S. Environmental Protection Agency. Website: <https://www3.epa.gov/airquality/genconform/faq.html>. Accessed: March 21, 2016.

USFWS. 2014. Sacramento Fish and Wildlife Office. Endangered Species List. <http://www.fws.gov/sacramento/>. Accessed: October 27, 2015.

# **Appendix A Cultural Resources Compliance**

**OFFICE OF HISTORIC PRESERVATION  
DEPARTMENT OF PARKS AND RECREATION**

1725 23<sup>rd</sup> Street, Suite 100  
SACRAMENTO, CA 95816-7100  
(916) 445-7000 Fax: (916) 445-7053  
calshpo@parks.ca.gov  
www.ohp.parks.ca.gov



March 24, 2016

Reply in Reference To: BUR\_2016\_0226\_001

Anastasia T. Leigh  
Regional Environmental Officer  
United States Department of the Interior  
Bureau of Reclamation  
Mid-Pacific Regional Office  
2800 Cottage Way  
Sacramento, CA 95825-1898

**Re:** Section 106 Consultation for the Garden Highway Mutual Water District  
Modernization Project, Sutter County, CA (Project #15-NCAO-198)

Dear Ms. Leigh:

On February 26, 2016 the Office of Historic Preservation received your letter requesting to initiate consultation for the above-referenced undertaking. The Bureau of Reclamation (Reclamation) is consulting pursuant to Section 106 of the National Historic Preservation Act and its implementing regulations found at 36 CFR Part 800 (as amended). Along with the consultation letter, the following document was provided:

- *Cultural Resource Survey Report for the Garden Highway Mutual Water Company System Modernization and Real-time Monitoring and Control Project, Sutter County, California.* (Palmer 2016).

Reclamation is considering providing funding to the Garden Highway Mutual Water District (GHMWD) to modernize their existing system. The proposed project would take place at 11 separate locations that total 2.81 acres which Reclamation has determined is the Area of Potential Effects (APE) for the undertaking. Work involves replacing existing Rice Canal "sag" weir and installing pipe, modifying Reservoir Spill weir site, replacing Orchard Ditch spill weir, and adding Supervisory Control and Data Acquisition (SCADA) equipment at these and at an additional seven locations. No ground disturbance would be required at the SCADA meter and monitoring locations.

Efforts to identify historic properties that may be affected by the undertaking included a records search, archival research, pedestrian survey, and Native American consultation. The records search indicated that the area had not been previously surveyed, and no known properties were in the APE. Reclamation conducted additional archival research on the canal system as well as pedestrian archaeological survey of the 11 locations. The archaeological survey did not identify any prehistoric or historic-era deposits.

Reclamation identified the GHMWD / Montna Farms Irrigation System as being within the APE. Rice Canal, Orchard Ditch, and Reservoir Spill, all constructed in the 1950s, were recorded as part of the GHMWD system. Reclamation has determined that

Ms. Leigh  
March 24, 2016

BUR\_2016\_0226\_001  
Page 2 of 2

GHMWD does not meet any of the National Register criteria, nor do any of the components individually meet any of the criteria.

Reclamation sent letters to Enterprise Rancheria of Maidu Indians and the Southern Sierra Miwok Nation. Your letter indicates Enterprise Rancheria responded that they were not aware of any cultural sites within the project boundaries. To date Reclamation has not received any response from the Sierra Miwok Nation. I appreciate your statement that should any Native American concerns be subsequently raised, Reclamation will work to address them and notify my office as appropriate.

Reclamation is seeking comments on the delineation of the APE, efforts to identify historic properties, and is seeking concurrence with its determination that GHMWD is not eligible for listing. Reclamation is notifying me of its no historic properties affected finding. Following staff review of the submitted documentation, I have the following comments:

- Pursuant to 36 CFR 800.4(a)(1), I have no objections to the APE as defined.
- Pursuant to 36 CFR 800.4(b), I find that Reclamation has made a reasonable and good faith effort to identify historic properties within the area of potential effects.
- Pursuant to 36 CFR 800.4(c)(2), Reclamation has determined GHMWD is not eligible for the National Register, nor are any components individually eligible. I concur.
- Pursuant to 36 CFR 800.4(d)(2); it appears that there are no historic properties located within the project area for this undertaking and, therefore, I do not object to a finding of *no historic properties affected*.

Please be advised that under certain circumstances, such as unanticipated discovery or a change in project description, Reclamation may have additional future responsibilities for this undertaking under 36 CFR Part 800 (as amended). Should you require further information, please contact Anmarie Medin of my staff at (916) 445-7023 or [Anmarie.Medin@parks.ca.gov](mailto:Anmarie.Medin@parks.ca.gov) or Kathleen Forrest, Historian, at [Kathleen.Forrest@parks.ca.gov](mailto:Kathleen.Forrest@parks.ca.gov) or (916) 445-7022.

Respectfully,



Julianne Polanco  
State Historic Preservation Officer

# Appendix B Indian Trust Assets Compliance

## Indian Trust Assets Request Form (MP Region)

Submit your request to your office's ITA designee or to MP-400, attention Kevin Clancy.

**Date: 10/27/15**

<b>Requested by</b> (office/program)	Doug Kleinsmith, MP-152
<b>Fund</b>	15XR0680A1
<b>WBS</b>	RY30180006TCINVOE
<b>Fund Cost Center</b>	2015000
<b>Region #</b> (if other than MP)	
<b>Project Name</b>	Garden Highway Mutual Water Company 2015 System Modernization and Real-Time Monitoring and Control
<b>CEC or EA Number</b>	
<b>Project Description</b> (attach additional sheets if needed and include photos if appropriate)	Reclamation proposes to give CALFED Water Use Efficiency Grant funding to the Garden Highway Mutual Water Company (GHMWC) to modernize the SAG weir, integrate a Supervisory Control and Data Acquisition system, and use real-time flow measurement, monitoring, and control of system flows. The proposed project would conserve water by reducing operational spillage and tailwater through a combination of infrastructure improvements and implementation of real-time flow monitoring and diversion control.

<b>*Project Location</b> <b>(Township, Range,</b> <b>Section, e.g., T12</b> <b>R5E S10, or</b> <b>Lat/Long cords,</b> <b>DD-MM-SS or</b> <b>decimal degrees).</b> <b>Include map(s)</b>	-121.48 long., 39.01 lat. See below map
--	--

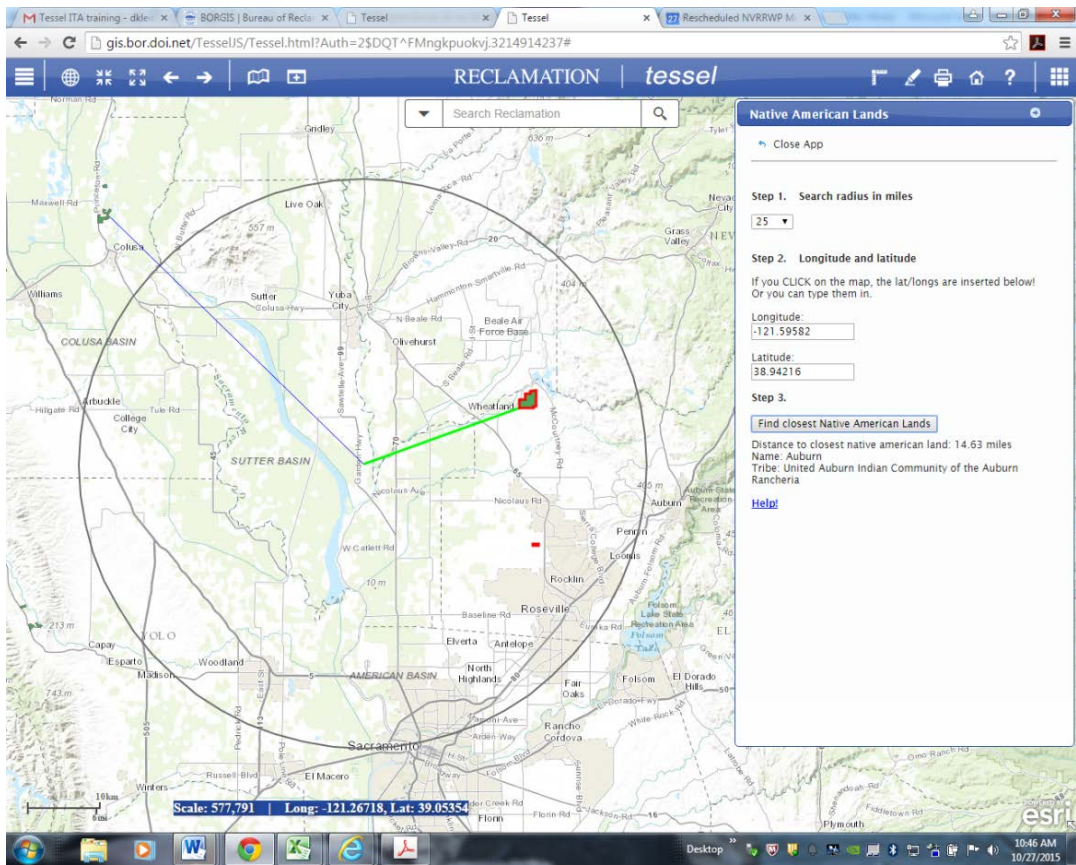
<u>/s/ Doug Kleinsmith</u>	<u>Doug Kleinsmith</u>	<u>10/27/15</u>
Signature	Printed name of preparer	Date

**ITA Determination:**

The closest ITA to the proposed **Garden Highway Mutual Water Company** grant activity is the **United Auburn Indian Community of the Auburn Rancheria** about **14 miles** to the **northeast**.  
(see attached image).

Based on the nature of the planned work it **does** appear to be in an area that would impact Indian hunting or fishing resources or water rights nor is the proposed activity on actual Indian lands. It is reasonable to assume that the proposed action **would not** have any impacts on ITAs.

<u><i>K. Clancy</i></u>	<u>Kevin Clancy</u>	<u>10-28-2015</u>
Signature	Printed name of approver	Date





## **Appendix C Endangered Species Correspondence**



In Reply Refer to:  
08ESMF00-  
2016-I-1289-1

## United States Department of the Interior

FISH AND WILDLIFE SERVICE  
Sacramento Fish and Wildlife Office  
2800 Cottage Way, Suite W-2605  
Sacramento, California 95825-1846



MAY 23 2016

### Memorandum

To: Natural Resources Specialist, Mid-Pacific Regional Office  
U.S. Bureau of Reclamation, Sacramento, California

From: Chief, Sacramento Valley Division, Sacramento Fish and Wildlife Office,  
Sacramento, California *Keri Berry*

Subject: Informal Consultation on the Garden Highway Mutual Water Company 2015 System  
Modernization and Real-Time Monitoring and Control Project (MP-150 ENV-7.00),  
Sutter County, California

This memorandum is in response to the U.S. Bureau of Reclamation's (BOR) January 15, 2016, request for initiation of informal consultation with the U.S. Fish and Wildlife Service (Service) on the proposed Garden Highway Mutual Water Company 2015 System Modernization and Real-Time Monitoring and Control Project (proposed project) in Sutter County, California. Your request, which included the revised *Biological Resources Evaluation and Proposed Avoidance/Minimization Measures for Garden Highway Mutual Water Company Infrastructure Upgrade Projects* (biological assessment) prepared by Marcus H. Bole & Associates (consultant) was received by the Service on May 12, 2016. The biological assessment presents an evaluation of the proposed project's effects on species federally-listed under the Endangered Species Act of 1973, as amended (16 U.S.C §1531 et seq.) (Act).

The federal action we are consulting on is the issuance of funding under the CALFED Water Use Efficiency Grant Program by the BOR to the Garden Highway Mutual Water Company (applicant) to modernize a water level control structure, integrate a Supervisory Control and Data Acquisition (SCADA) system, and use real-time flow measurement, monitoring, and control of system flows. This response is provided under the authority of the Act, and in accordance with the implementing regulations pertaining to interagency cooperation (50 CFR 402).

Pursuant to 50 CFR 402.12(j), you submitted the revised biological assessment for our review and requested concurrence with the findings presented therein. These findings conclude that the proposed project may affect, but is not likely to adversely affect the federally-listed as threatened giant garter snake (*Thamnophis gigas*) (snake) and the western distinct population segment of the yellow-billed cuckoo (*Coccyzus americanus*) (cuckoo). The proposed project is not within designated or proposed critical habitat for any federally-listed species.

In considering your request, we based our evaluation on the following: (1) your January 15, 2016, memorandum initiating informal consultation; (2) the revised biological assessment received by the

Service on May 12, 2016; (3) the May 4, 2016, site visit with the Service, the applicant, and the consultant; (4) telephone and email correspondence between the Service, the BOR, and the applicant; and (5) additional information available to the Service.

The proposed project is located in the North Central Valley of California east of the Sutter Bypass and west of the Feather River, approximately 12 miles south of Yuba City, California. The proposed action areas are relatively small and consist primarily of existing structures (weirs, spill structures, and pumps), unpaved access roadways, and man-made concrete lined and unlined irrigation canals. Within the immediate vicinity of the proposed project, the terrain is flat and has been leveled during the past 50 years for agricultural (rice and orchards) applications. Surrounding the rice fields and orchards, the vegetation consists of annual grassland and riparian habitat adjacent to the Feather River.

A portion of the area affected by the proposed project is adjacent to rice fields that represent suitable habitat for the snake. The nearest confirmed presence of the snake is approximately 3 miles west of the proposed project within the Sutter Bypass, (California Natural Diversity Database [CNDDB] 2016).

Another portion of the area affected by the proposed project is along access roads approximately 500 feet from riparian habitat along the Feather River. Riparian habitat east of the proposed project area is potential nesting and foraging habitat for the cuckoo. The nearest confirmed nesting habitat for the cuckoo has been reported approximately 3 miles southeast of the proposed project, within the riparian corridor associated with the Feather River (CNDDB 2016).

A detailed description for each of the activities for the proposed project is listed below:

#### **SAG Weir**

The SAG weir is a metal flow-control device that regulates the volume of water available to an irrigation canal. The proposed replacement of the steel weir and corrugated metal pipe with a vertical headwall and concrete weir structure will require dewatering sections of the man-made irrigation canal. It is estimated that the SAG weir construction will require the excavation of approximately 20 cubic yards (cy) of earth over an area of 340 square feet (sf) for the concrete structure, approximately 2,000 sf of canal shaping, 65 cy of riprap replacement, 30 cy of earth removed and replaced for pipe installation (under the existing unpaved roadway), and approximately 7,300 sf of possible minor surface disturbance by equipment tracks or tires on existing unpaved access roads in the immediate proximity of the weir site.

#### **Reservoir and Orchard Ditch Spill Structures**

The reservoir and orchard ditch spill structures control the volume and direction of irrigation water to various concrete lined and unvegetated irrigation ditches. The upgrades to the two operational spill structures will require dewatering of the irrigation ditches. It is estimated that construction at the operational spill structure areas will each require the excavation of approximately 9 cy of earth over an area of 120 sf for the concrete structure, approximately 550 sf for canal shaping, 40 cy of riprap replacement, 9 cy of earth removed and replaced for pipe installation (approximately 60 sf under an existing unpaved access road), and approximately 3,000 sf of possible minor surface disturbance by equipment tracks or tires on existing unpaved access roads in the immediate proximity of the spill structures.

### Feather River Pumps

There are three electrical Feather River pumps that pump water from the Feather River to the canals that supply water to the agricultural fields. The pumps are suspended on a steel platform above the water surface located within the riparian corridor. Existing variable frequency drive and pump controllers will be integrated into the new SCADA system to allow remote monitoring and limited control of pump operation and function. The improvements at the Feather River pumps will not require heavy equipment. Implementation will be accomplished using hand tools, where necessary. No earth disturbance will occur.

### Groundwater Wells

The proposed alteration of seven groundwater wells consist of installing the SCADA system to the existing steel discharge pipes, along with the installation of a new 2 inch diameter mast to mount the solar panels at each well site. Flow meter installation will be within the existing footprint of the well pad. Installation of remote communication and data logging equipment at the groundwater wells is anticipated to require minor trenching from the location of the flow meter to the location of the electrical enclosure. Trenching will be 4 inches wide, 18 inches deep, and approximately 15 feet long through unvegetated bare earth that connects the well to the electrical enclosure. Existing flow measurement devices will be retrofitted or upgraded using small hand tools. Electrical enclosures, solar systems, and related components will be mounted to existing power poles or meter box panels using hand tools. The concrete lined canal is regularly maintained and lacks emergent vegetation with heavily managed ruderal vegetation along the banks. Each well site is approximately 500 feet from the Feather River riparian corridor.

Construction of the SAG weir and the reservoir and orchard ditch spill structures are scheduled to occur during the winter season, when the water in the irrigation canal is no longer flowing.

Construction and electrical upgrades to the Feather River pumps and groundwater wells will be completed at the applicant's convenience. All work will be completed within a few days to a few weeks (with a maximum 30 day work period).

The applicant proposes to implement the following avoidance and minimization measures in order to minimize disturbance to the snake and its habitat:

- Twenty-four-hours prior to the commencement of construction activities, the project area shall be surveyed for the snake by a Service-approved biologist. The biologist will provide the Service with a written report that adequately documents the monitoring efforts within 24-hours of commencement of construction activities. The project area shall be re-inspected by the monitoring biologist whenever a lapse in construction activity of two weeks or greater has occurred.
- A Worker Environmental Awareness Training Program for construction personnel shall be conducted by a Service-approved biologist for all construction workers, including contractors, prior to the commencement of construction activities.
- During construction operations, stockpiling of construction materials, portable equipment, vehicles, and supplies will be restricted to the designated construction staging areas and all operations will be confined to the minimal area necessary.

- Project-related vehicles will observe a 20-mile-per-hour speed limit within construction areas, except on existing paved roads where they will adhere to the posted speed limits.
- Aquatic habitat for the snake will be dewatered, and then remain dry and absent of aquatic prey for 15 days prior to the initiation of construction activities. If complete dewatering is not possible, the Service will be contacted to determine what additional measures may be necessary to minimize effects to the snake.
- Refueling of heavy equipment and vehicles will not occur within the construction areas, near lateral canals, ditches or the adjacent wetland/riparian habitat.
- After completion of construction activities, any temporary fill and construction debris will be removed, and any disturbed areas will be restored to pre-project conditions wherever feasible.

After reviewing all the available information, we concur with your determination that the proposed project is not likely to adversely affect the snake. The proposed project reached the 'may affect' level due to the fact that the proposed project occurs within the known range of the snake, and there is suitable aquatic habitat for the snake within the proposed project. The proposed project will only result in temporary impacts to suitable snake habitat. Within the proposed project area, high water levels are continuously flowing reaching levels approaching the surrounding farm roads. These high water levels result in limited suitable basking habitat for the snake, as well as restricted access to banks for hibernation. Due to the temporary nature of potential impacts to snake habitat, the lack of vegetation and essential suitable habitat for the snake associated with the action areas, and the avoidance and minimization measures that will be implemented, the Service believes that any potential indirect adverse effects to the snake are unlikely to result in take of the snake and are therefore insignificant for the purposes of this consultation.

The Service also concurs with your determination that the proposed project is not likely to adversely affect the cuckoo. The proposed project reached the 'may affect' level due to the fact that the proposed project occurs within known range of the cuckoo, and there are known observations of the cuckoo within 3 miles of the proposed project (eBird 2016). Considering maintenance will only occur to already existing pumps along the Feather River and no disturbance will occur to the surrounding riparian habitat, and each well site is more than 500 feet from potential habitat, the Service believes that any potential adverse effects to the cuckoo from construction of the proposed project will be unlikely to result in take of the cuckoo and are therefore insignificant for the purposes of this consultation.

This concludes the Service's review of the proposed project. No further action pursuant to the Act is necessary unless new information reveals effects of the proposed project that may affect listed species in a manner or to an extent not considered; the proposed project is subsequently modified in a manner that causes an effect to federally-listed species or critical habitat that was not considered in this determination; or a new species or critical habitat is designated that may be affected by the proposed project.

If you have any questions regarding the proposed project, please contact Adam Stewart, Fish and Wildlife Biologist (Adam\_Stewart@fws.gov), or myself (Kellie\_Berry@fws.gov) at (916) 414-6631.

cc:

Ms. Jenny Marr, California Department of Fish and Wildlife, Chico, CA

**LITERATURE CITED**

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eBird. 2016. eBird: An online database of bird distribution and abundance (web application). eBird, Cornell Lab of Ornithology, Ithaca, New York. Available: <http://www.ebird.org>. Accessed: May 12, 2016.