

Environmental Assessment/Initial Study

Tulare Irrigation District Cordeniz Basin Project



November 2015

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 interest of the American public.

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Abbreviations and Acronyms

AF	Acre Feet
AF/y	Acre Feet per Year
APE	Area of Potential Effects
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CH ₄	Methane
CNDDDB	California Natural Diversity Database
CO	Carbon Monoxide
CO ₂	Carbon Dioxide
CRHR	California Register of Historical Resources
CVP	Central Valley Project
District	Tulare Irrigation District
DWR	Department of Water Resources
EA/IS	Environmental Assessment/Impact Study
EPA	Environmental Protection Agency
FMMP	Farmland Mapping and Monitoring Program
FWCA	Fish and Wildlife Coordination Act
GHG	Greenhouse Gases
ITA	Indian Trust Assets
KDWCD	Kaweah Delta Water Conservation District
MBTA	Migratory Bird Treaty Act
NAHC	Native American Heritage Commission
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NO ₂	Nitrogen Dioxide
NO _x	Oxides of Nitrogen
NRDC	Natural Resources Defense Council
PEIS/R	Program Environmental Impact Statement/Impact Report
PM	Particulate Matter
PM ₁₀	Particulate Matter Less Than 10 Microns in Diameter
PM _{2.5}	Particulate Matter Less Than 2.5 Microns in Diameter
Reclamation	Bureau of Reclamation
ROD	Record of Decision
ROG	Reactive Organic Gases
SCADA	Supervisory Control and Data Acquisition
SHPO	State Historic Preservation Officer
SJRRP	San Joaquin River Restoration Project
SJVAB	San Joaquin Valley Air Basin
SJVAPCD	San Joaquin Valley Air Pollution Control District
TID	Tulare Irrigation District
UFSWS	United States Fish and Wildlife Services

Section 1 Introduction

1.1 Background

Tulare Irrigation District (TID) is a political subdivision of the State of California – an independent agency operating under the California Water Code. The District obtains and delivers surface water for the purpose of agricultural irrigation to approximately 230 farms in Tulare County and groundwater recharge within the underlying basin¹. Farmers within the District pump groundwater from private wells when surface water is not available to meet irrigation needs. The District is proposing to construct a recharge basin to capture storm water which would help sustain the local aquifer.

In 1988, a coalition of environmental groups, led by the Natural Resources Defense Council (NRDC), filed a lawsuit challenging renewal of long-term water service contracts between the United States and Central Valley Project (CVP) Friant Division. After more than 18 years of litigation, *NRDC, et al., v. Kirk Rodgers, et al.*, a settlement was reached (Settlement). On September 31, 2006, the Settling Parties, including NRDC, Friant Water Users, Authority (now represented by Friant Water Authority), and the U.S. Departments of the Interior and Commerce, agreed on the terms and conditions of the Settlement, which was subsequently approved by the U.S. Eastern District Court of California on October 23, 2006. The Settlement establishes two primary goals:

- Restoration Goal – To restore and maintain fish populations in “good condition” in the main stem of the San Joaquin River below Friant Dam to the confluence of the Merced River, including naturally reproducing and self-sustaining populations of salmon and other fish.
- Water Management Goal – To reduce or avoid adverse water supply impacts on all of the Friant Division Long-term Contractors that may result from the Interim Flows and Restoration Flows provided for in the Settlement.

The Secretary of the Interior is authorized and directed to implement the terms and conditions of the Settlement in the San Joaquin River Settlement Act, included in Public Law 111-11. The San Joaquin River Restoration Program (SJRRP) is implementing the Settlement. The SJRRP Implementing Agencies are: U.S. Bureau of Reclamation (Reclamation), U.S. Fish and Wildlife Service (USFWS), National Marine Fisheries Service, Department of Water Resources (DWR), and the California Department of Fish and Wildlife (CDFW).

The SJRRP Environmental Impact Statement/Impact Report (PEIS/R) was finalized in July 2012 and the corresponding Record of Decision (ROD) was issued on September 28, 2012 (Reclamation 2012a and 2012b). The PEIS/R and ROD analyzed at a project-level the reoperation of Friant Dam to release Interim and Restoration Flows to the San Joaquin River,

¹ Tulare Irrigation District Website, <http://tulareid.org/district-profile>

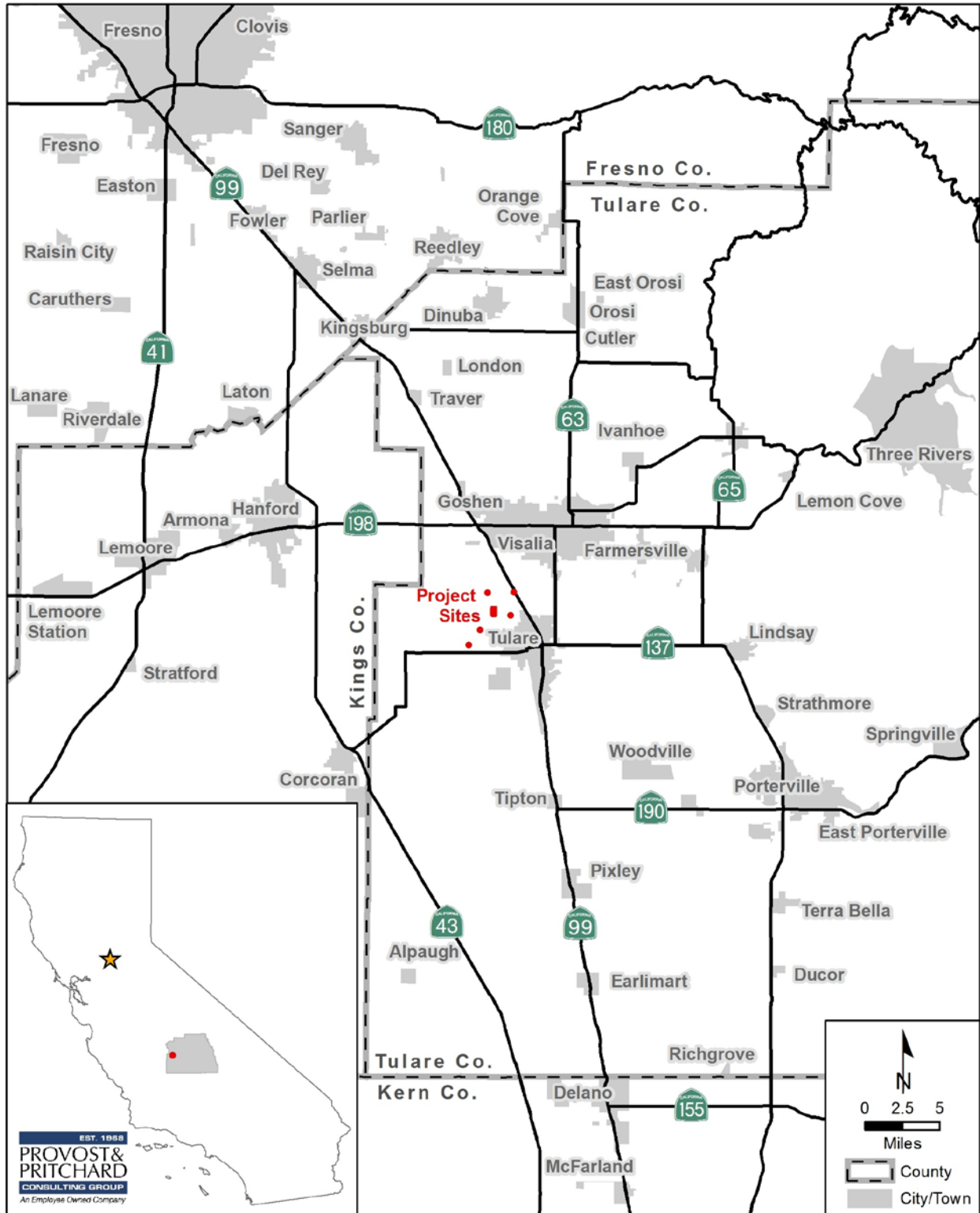
making water supplies available to Friant Division long-term contractors at a pre-established rate, and the recapture of Interim and Restoration Flows at existing facilities within the Restoration Area and the Delta.

Part III of Title X, Subtitle A of Public Law 111-11 (Part III) authorizes the U.S. Department of the Interior, Reclamation, to provide financial assistance to local agencies within the CVP of California for the planning, design, environmental compliance, and construction of local facilities to bank water underground or to recharge groundwater to reduce, avoid, or offset the quantity of expected water supply impacts to Friant Division long-term contractors caused by Restoration flows authorized by Public Law 111-11. Because the Part III Guidelines were in development at the time of preparation of the SJRRP PEIS/R, potential actions in accordance with Part III were not included as an element of any of the alternatives analyzed in the PEIS/R.

The District now desires to implement a recharge basin in order to offset water supplies lost due to the release of Restoration Flows. To achieve this goal the District is proposing to expand, to the south, an existing basin with a footprint of approximately 20 acres to about 80 acres. Water would be conveyed to this new facility via the realigned Serpa Ditch. The realigned portion of the Serpa Ditch would be a concrete pipeline transitioning back to an open channel after crossing the intersection of Cartmill Road and Enterprise Avenue. Additional information about the Project is described in Section 2.2 of this Environmental Assessment/Impact Study (EA/IS).

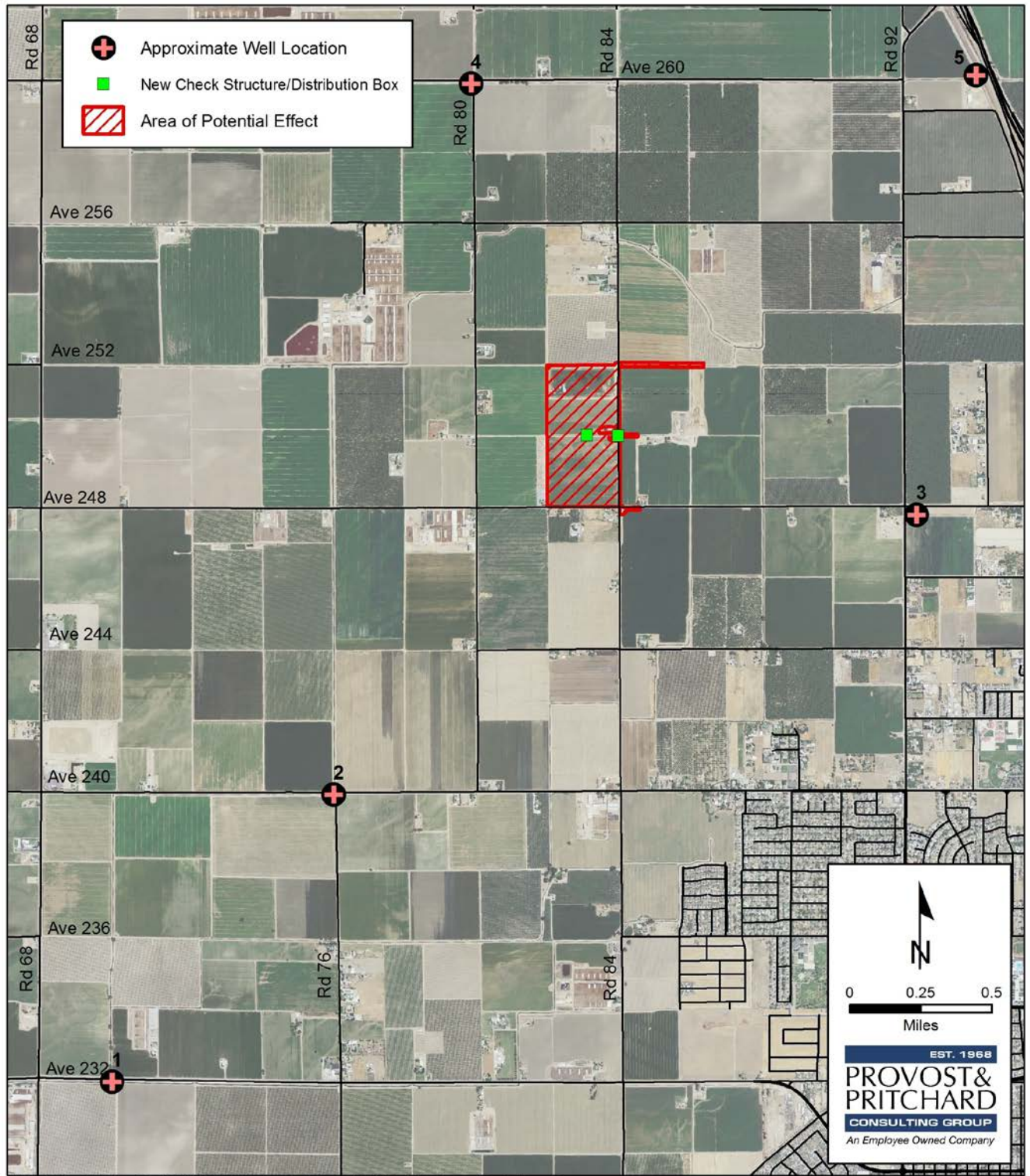
1.2 Purpose and Need

The release of Restoration Flows will reduce annual surface water deliveries to Friant Division long-term contractors, potentially placing greater stress on the region's groundwater basins and the region's agricultural economy. To assist in offsetting these water supply impacts, and in support of the Settlement Water Management Goal, Reclamation is providing assistance for groundwater banking and recharge activities in accordance with Part III. The purpose of the Proposed Action is to implement a groundwater recharge project in accordance with Part III to contribute to offsetting water supply impacts to TID caused by the release of Restoration Flows.



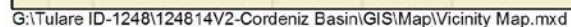
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Figure 1 - Regional Map



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Figure 2- Area of Potential Effect



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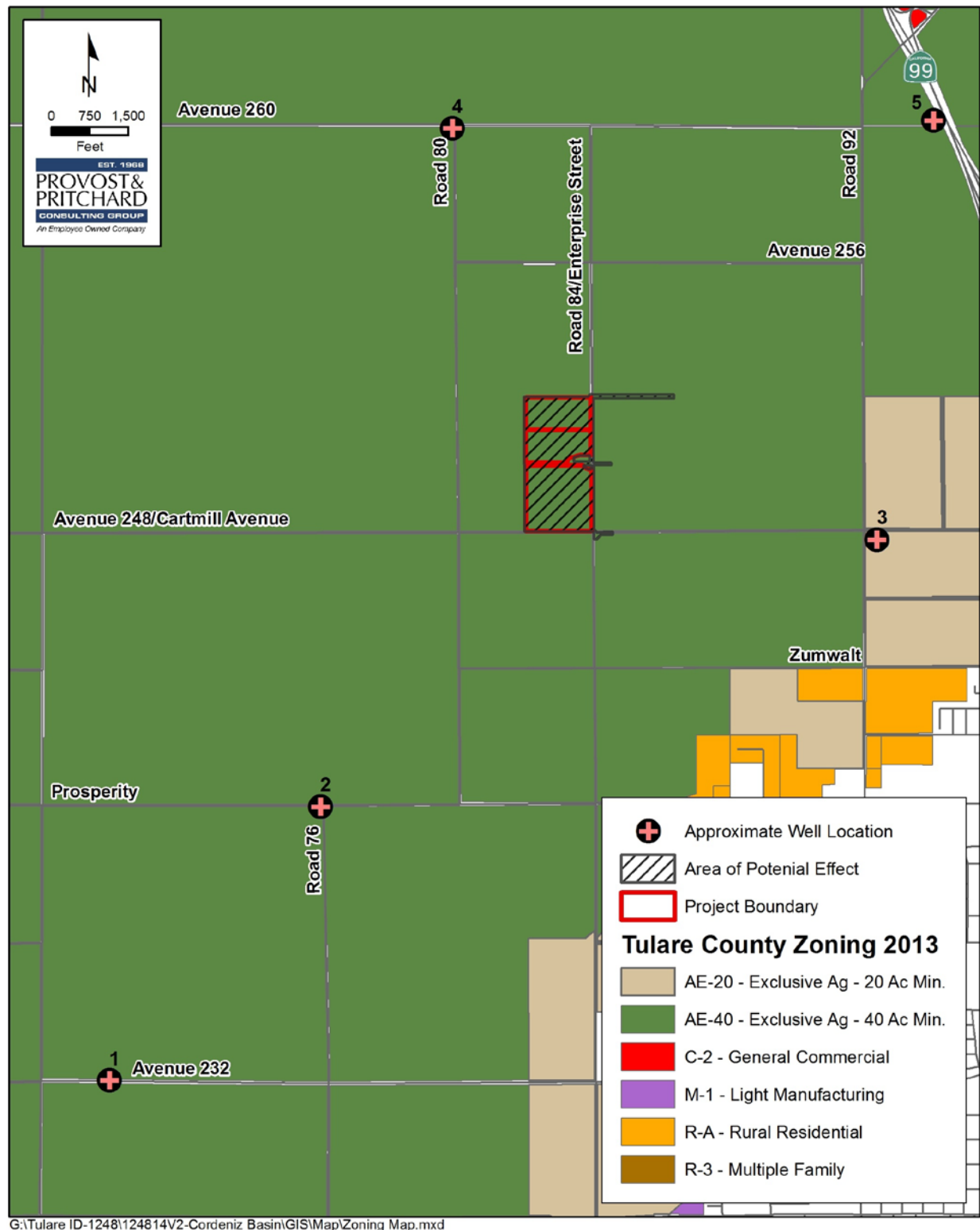


Figure 4 - Tulare County Zoning

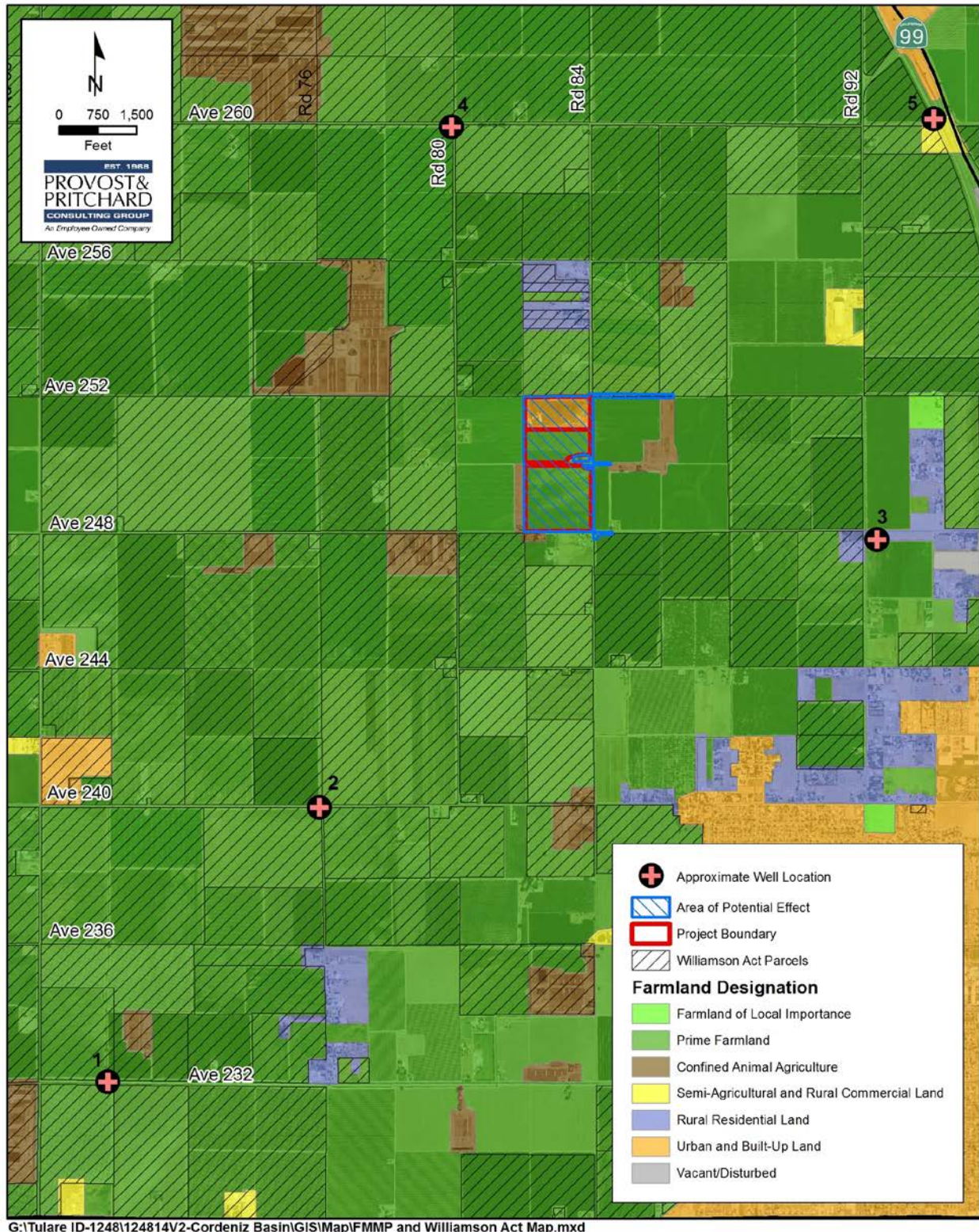
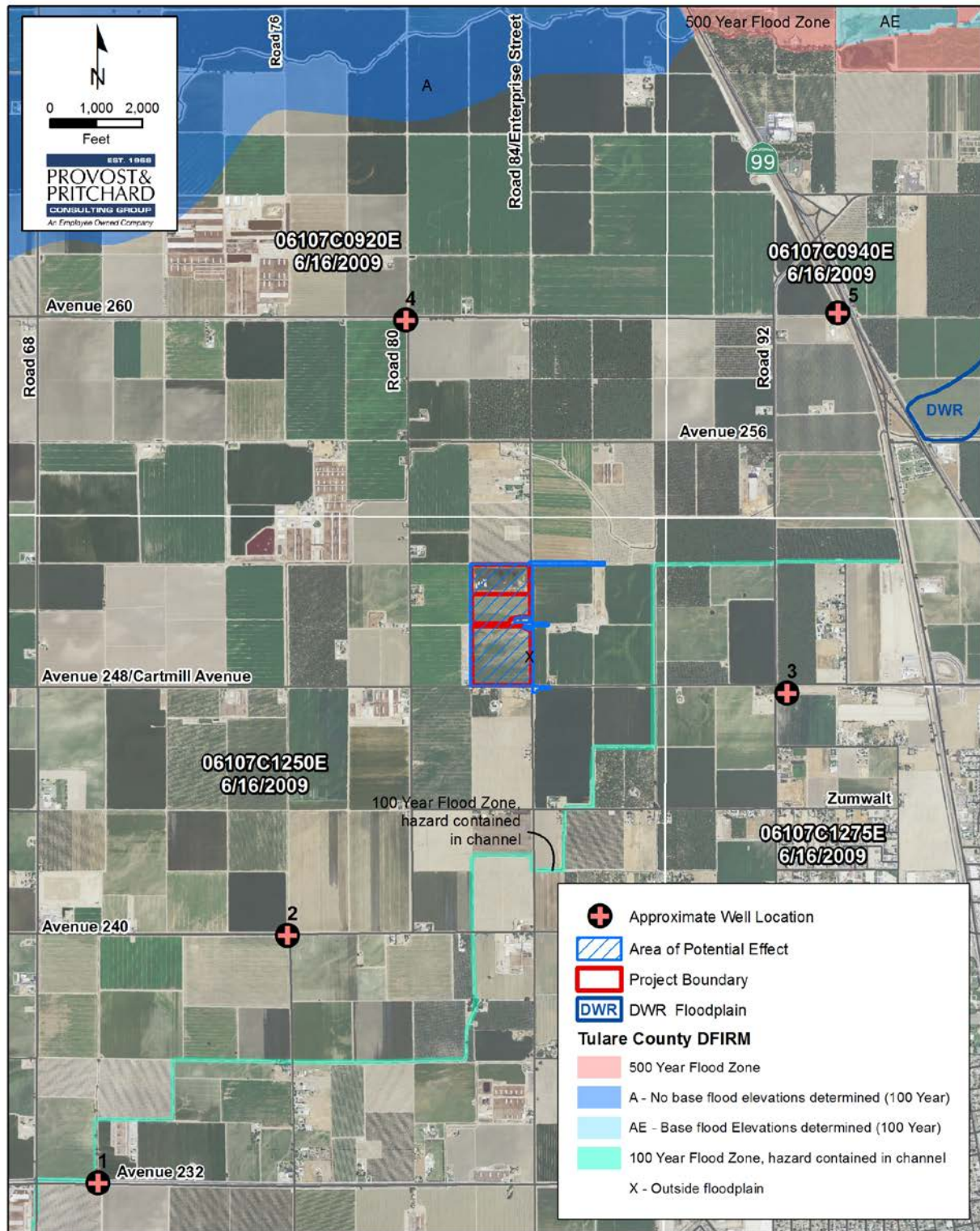


Figure 5 - Farmland Designation



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Figure 6 - Tulare County Digital Flood Insurance Rate Map

Section 2 Alternatives

This EA/IS considers two possible actions: the No Action Alternative and the Proposed Action. The No Action Alternative reflects future conditions without the Proposed Action and serves as a basis of comparison for determining potential effects to the human environment.

2.1 No Action Alternative

Under the No Action/Project Alternative, Reclamation would not provide funding for construction for the Cordeniz Basin Project. Without the assistance of federal funding resources, the District may elect to find alternative funding sources for the Project or seek to implement other actions. In the event that no action is implemented the District would have to postpone construction and would still experience a loss of approximately 20% of its CVP Friant surface water supply. The continued demand on water to meet irrigation supplies would force landowners to increase groundwater pumping and the depth to groundwater within the District would increase. Without any increased capacity for recharge, the District would be limited to only its current facilities; therefore, the continued loss and reliance on groundwater would cause water levels to further decline.

The amount of CVP Friant Division water available to Friant long-term water contractors will be reduced in all years in which Restoration Flow releases are made. This reduction will decrease the availability of wet year recharge water and dry year irrigation supplies. Without measures to reduce, avoid or offset these reductions in water supply, the increased pressure on an already limited supply would force market prices for water up. This would create a significant impact to the conjunctive use of operations within the District, which depend on a wet-year pricing structure to acquire large quantities of surface water for groundwater recharge.

2.2 Proposed Action Alternative

Proposed Action/Project Description:

Under the Proposed Action/Proposed Project, Reclamation would provide funding through the Part III grant to the District for the purpose of constructing the Cordeniz Basin Project. Funds provided to the District to date have only been authorized to study the Project and conduct environmental analysis. Construction related activities under the Proposed Action/Proposed Project will not proceed until completion of all applicable environmental compliance documentation.

The Proposed Action includes the construction and operation of an 80-acre groundwater recharge basin and accessory project actions such as 1) installation of Supervisory Control and Data Acquisition (SCADA) equipment, 2) relocation of a segment of the Serpa Ditch, and 3) construction of five groundwater monitoring wells within the District. Collectively, these actions would allow TID to expand groundwater recharge efforts and improve monitoring of

groundwater levels. The Proposed Action/Proposed Project components are located 0.5 to 2.5 miles west to northwest of the city of Tulare, within a region dominated by agricultural uses. The Project would provide mutual benefit to the District and the city of Tulare as both draw from the same aquifer.

Under the Proposed Action/Proposed Project Reclamation would provide funding for construction of the Cordeniz Basin, which would include excavating and temporarily stockpiling earthen material on the adjacent Enterprise Basin until it can be removed. Two individual basin cells would be created, and would be separated by the Serpa Ditch. The southern cell is anticipated to be approximately 39 acres and the northern cell would be approximately 38 acres. The northern cell would require the project to remove the existing southern embankment of the Enterprise Basin once the stockpiled excavation material has been removed. The depth of the basin cells is anticipated to be approximately 7 feet in total depth. Compacted embankments would be installed around the perimeter of the basin and extend approximately 2 to 4 feet above the existing grade. Levees would have a top width of approximately 15 feet and would serve as an access road for operations and maintenance purposes. Internal slopes are anticipated to be approximately 6 to 1 and outer toe slopes of embankments are anticipated to be approximately 2 to 1.

The basins would be outfitted with inlet facilities from the Serpa Ditch. The inlet facilities would include the use of reinforced concrete pipe with canal gates, control structures, and flow meters to measure the inflow of water. Each basin cell would include SCADA equipment to monitor diversions into a basin and water levels within each basin. SCADA equipment would require installation of a vandal proof enclosure, radio antenna, pressure transducer casings (located in the basins), and the required conduit and wiring to each piece of equipment. The SCADA equipment would be powered by a solar panel mounted to the radio antenna.

In order to facilitate the efficient conveyance of surface water to the basin, the District intends to redesign and relocate the Serpa Ditch to the west side of Road 84. A portion of the Serpa Ditch on APN 149-100-002 would be abandoned in-place with the underlying property owner potentially filling in the abandoned canal and incorporating this area into existing farm operations. This realignment involves installation of a pipeline (plastic or reinforced concrete), up to 48 inches in diameter, from where the existing Serpa Ditch turns south at the Road 86 alignment to the west side of Road 84. This pipeline would be buried approximately 3 to 4 feet below grade and located within a newly established easement that generally conforms to an existing dirt roadway. A new reinforced concrete headworks would be built on the east end of the pipeline and generally consist of a metal trash rack, slide gate, canal rip rap and potentially other improvements to the canal prism.

Once the relocated Serpa Ditch crosses Road 84 it would turn to the south continuing parallel to Road 84 (on the west side of the road) until it intersects the existing Serpa Ditch that travels in an east/west direction. This portion of the alignment would continue as pipeline or be converted to an earthen channel, depending on hydraulics and cost. At the intersection, a portion of the Serpa Ditch (pipe or earthen channel) would turn to the west and travel beyond the existing homes and terminate into a distribution structure that would allow for the diversion of water into the basins and downstream into the existing Serpa Ditch.

Water would be delivered along the eastern edge of the southern cell to a turnout located near the southeast corner of Road 84 and Avenue 248. This small canal or pipeline would start from the Serpa Ditch junction between the two homes and travel south to the intersection of Road 84 and Avenue 248. A small pipeline would be installed across the intersection and connect to an existing canal.

After the existing Serpa Ditch travels east/west (splitting the two proposed basin cells), it travels in the north/south direction to deliver water to growers and the original Enterprise Basin. As part of the construction for this project, this existing ditch on the west side of the proposed basins would be converted to a pipeline. The new pipeline would connect to an existing grower turnout west of the project property and also connect to an existing culvert that crosses Avenue 248 to the south to connect to the existing Serpa Ditch system.

The Proposed Action/Proposed Project would include the installation of 5 dedicated monitoring wells surrounding the site. The monitoring wells would be deeper wells than the shallow piezometers wells and would be utilized for long-term groundwater level monitoring. The five proposed deep monitoring wells would be placed to the north, east, and southwest of the proposed Cordeniz Basin. Because the groundwater gradient within the District generally flows from northeast to southwest, placing the monitoring wells along a northeast-to-southwest direction centered on the Cordeniz Basin would allow the District to monitor the project's deep percolation and changes in groundwater gradient. The depths of the monitoring wells would be determined during pilot-hole borings at each well site, and would be based on depth to water and locations of water-bearing strata. As described below, these wells would be placed within District right-of-way and would be alongside various existing canals.

- *Monitoring Well Site 1 – Rocky Ford Canal at Avenue 232:* Located on the east side of the Rocky Ford Canal and on the south side of Avenue 232. The location is set back off of the road and within an area that is not traveled by the District.

Latitude and Longitude: N 36°12'38.436" W -119°24'59.427"

- *Monitoring Well Site 2 – Rocky Ford Canal at Road 76:* Located on the southwest corner of Avenue 240 and Road 76 at the culvert structure of Rockford Canal.

Latitude and Longitude: N 36°13'31.191" W -119°24'9.65"

- *Monitoring Well Site 3 – Sand Ditch located on the west side of Northridge Street:* Site is located near culvert crossing and is protected by headwall structure. The well can be installed within the footprint of the structure and not interfere with the canal roadway.

Latitude and Longitude: N 36°13'40.226" W -119°21'44.27"

- *Monitoring Well Site 4 - On Little Tulare Canal along Avenue 260 just west of Road 80:* Located well on the north side of canal and within the area where the riprap is placed on the canal bank.

Latitude and Longitude: N 36°15'41.95" W -119°23'39.466"

- *Monitoring Well Site 5 - On Little Tulare canal just east of Road 92:* Site is a little farther from the basin than expected, but provide a sheltered and safe location.

Latitude and Longitude: N 36°15'43.595" W -119°21'44.898"

The dedicated monitoring wells may consist of PVC pipe up to 6 inches in diameter with the upper 5 to 7 feet placed inside a metal pipe with a lockable access hatch. Information collected during the field reconnaissance would be used to determine where the perforations would be placed and their length.

Operation and Maintenance:

The groundwater recharge basins and inlet facilities would be equipped with SCADA equipment that would allow the District, if they so desire, to remotely operate and monitor facilities. Water conveyed to this basin may be floodwater captured during wet periods or spill water generated when the irrigation system becomes unbalanced, or potentially other water sources, subject to supplemental environmental compliance, as necessary. On average, the District is able to recharge water approximately 30 days per year with recharge rates varying from 0.25 to 0.5 acre-feet per acre per day. Water would percolate from this recharge basin into the underlying aquifer where landowners would extract it during dry years thereby helping to reduce overdraft conditions within the District. Occasional service employees may be on-site for scheduled, preventive maintenance as well as unscheduled service. Site maintenance would include levee maintenance, weed abatement, trash removal, periodic sediment removal and water control structure adjustments and maintenance.

Construction:

Construction activity for the recharge basin portion of this project may be split into two phases with activity commencing during the fall of 2015. The first phase of construction would focus on Serpa Ditch improvements, the south cell and the southern half of the north cell of the Cordeniz Basin, and other improvements needed to convey water to the basin. This initial phase of construction is anticipated to last approximately 10 months. During the second phase of construction the northern half of the north cell of the Cordeniz Basin would be reshaped to its build-out footprint of approximately 38 acres. Assuming Phases 1 and 2 occur concurrently, construction activities would be completed in about 15 months. If stockpiled material cannot be removed in a timely manner and must be stockpiled onsite within the existing Enterprise Basin until it can be removed, then Phase 2 construction activity may be about 12 months, increasing the overall duration to approximately 22 months. Eventually, stockpiled material would be removed so that the basin is completed to its build-out capacity. Construction of the Proposed Action/Proposed Project is estimated to require a maximum of 20 workers who would work in single shifts, five days per week.

Installation of the 5 monitoring wells is anticipated to be completed following completion of environmental compliance documentation, in the fall of 2015. On average, well drillers are typically able to complete a 300-ft deep well in about 3 days, which means monitoring well installation would be anticipated to take about 2 weeks to complete.

The Proposed Action/Proposed Project construction would require the use of scrapers, graders, compacters, trenchers, backhoes, forklifts, front end loaders, water trucks, and materials and equipment hauling trucks. The aforementioned vehicles are diesel and gasoline-powered equipment.

Section 3 Affected Environment and Environmental Consequences

Environmental Issues Not Further Analyzed

There would be no impacts to aesthetics due to the low profile nature of the basin; no lights are proposed in this Project. The Project would not involve the use or transport of hazardous materials and there are no mineral resources in the project vicinity. The Project does not involve the addition of any new housing and would not require the need for any additional public services or recreational facilities. The Project would not cause an increase in local traffic nor would it create additional demand from utility providers. There would be no impact regarding the above mentioned analysis areas.

3.1 Water Resources

3.1.1 Affected Environment

Tulare Irrigation District

The Tulare Irrigation District is a Friant contractor and holds surface water rights (pre-1914) on the Kaweah River. The District has a contract (175r-2854l) for 30,000 acre-feet (AF) of Class 1 water and 141,000 AF of Class 2 water from the CVP Friant Unit. The District also enters into annual contracts for Section 215 water (surplus CVP water).

The District has a combined average annual surface water supply of approximately 163,000² AF to meet grower demand and, in years of excess, recharge deliveries. In order to utilize the highly variable surface water supplies that the District receives - which can range widely from approximately 15,000 to 350,000 acre feet per year (AF/y) - the District has developed over time a conjunctive use system by which irrigation demands not fully met by surface water are met with landowner deep wells that pump groundwater. Over the last several decades the District has observed a decline in groundwater elevations on the average of 8.3 inches per year, due to the heavy reliance that farmers have had to put on groundwater to meet crop consumption needs. The trend in groundwater levels has been both up and down largely as a function of wet and dry cycles; however, the long-term average trend has been downwards.

TID provides only agricultural water supplies to approximately 230 farms within its service area and does not serve municipal and industrial water. The District does not own or operate any groundwater extraction facilities for the delivery of irrigation supplies; therefore, each individual landowner within TID must use private groundwater wells to sustain irrigation during periods when the District is not diverting surface water into its system.

TID's central conveyance facility, the Main Intake Canal, begins northeast of the District and generally extends southwesterly to convey surface water throughout the district. Main Canal is located approximately 5.5 miles from the Proposed Action/Proposed Project site. Water would

² Average annual surface water supply generated from data for the period from 1986 to 2011.

be delivered to Cordeniz Basin via the following network of TID canals and ditches: Main Canal to Cameron Creek; from Cameron Creek to Rocky Ford Ditch; from Rocky Ford Ditch to Serpa Ditch; and finally from Serpa Ditch to Cordeniz Basin.

Groundwater Resources

The Proposed Action/Proposed Project area overlies the Kaweah Groundwater Subbasin of the San Joaquin Valley Basin, and is confined within the Tulare Lake Hydrologic Region. Major rivers and streams in the subbasin include the Kaweah and St. Johns Rivers, which account for most of the estimated 62,400 AF/y of natural recharge to the subbasin. There is approximately 286,000 AF/y of applied water recharge into the subbasin. Annual urban and agricultural extraction is estimated to be 58,800 AF and 699,000 AF, respectively. On average, the subbasin water level has declined about 12 feet total from 1970 through 2000 (DWR 2004)³.

In the early 1900s, groundwater levels were high in TID and many wells experienced artesian flow. Since the early 1950s, the District has observed declining groundwater levels and the Kaweah sub-basin has been identified by the DWR as a sub-basin subject to critical conditions of overdraft. Critical conditions of overdraft are defined as a groundwater basin in which continuation of present practices would probably result in significant adverse overdraft-related environmental, social or economic impacts.

Throughout the years Kaweah Delta Water Conservation District (KDWCD) has accomplished various studies that examined groundwater supplies. In a most recent study titled "*The Water Resources Investigation of the Kaweah Delta Water Conservation District*", completed in 2003 and updated in 2007, this basin was confirmed to be a state of overdraft. The study was a comprehensive review of the elements required to determine safe yield for the aquifers within the District. The final conclusion was that annual groundwater supplies in KDWCD were insufficient for water demands not met by surface water in the range of 20,000 to 36,000 AF annually.

TID has been monitoring groundwater levels within and adjacent to its service area since the 1940s. This is accomplished through groundwater level measurements taken in the late fall and early spring. This data is provided to Reclamation as part of that agency's assessment of groundwater trends within the Friant Unit service area. The KDWCD also measures depths to groundwater basin-wide. Based on historical water level readings by these and other entities, there is an overall trend of declining groundwater levels within the subbasin. It is important to note that the basin does have the ability to respond to positive conditions and this is demonstrated during years of above-average precipitation when the decline h

as been periodically interrupted by short-term groundwater recovery, as a result of reduced groundwater pumping and increased surface water imports. The most severe water level declines within the basin from 1950 to 2000 occurred in the extreme western end, which is westerly of TID.

Between 1950 and 2000, groundwater levels fluctuated seasonally and according to climatic conditions. Fugro (2007, Plate 30) shows 18 hydrographs for wells throughout TID. Almost all

³ Department of Water Resources, San Joaquin Valley Groundwater Basin Kaweah Subbasin, Section 5-22.11, Page 3. Site Accessed March 2015. <http://www.water.ca.gov/groundwater/bulletin118/tularelake.cfm>

of the hydrographs show a precipitous drop in groundwater levels from 1987 to 1995, a 7-year drought. The water level drops ranged from 50 to 120 feet, with most wells seeing about an 80-foot drop in water levels. From 1995 to 2000 the hydrographs show that water levels recovered and in some cases were slightly higher than in 1950.

3.1.2 Environmental Consequences

No Action Alternative

Under the No Action Alternative, Reclamation would not help fund construction of the basin. Groundwater levels underlying TID would not be able to benefit from the additional recharge and TID would not be able to further regulate its surface water supplies to control seepage losses. TID would continue to use its surface water supplies as has historically occurred.

Proposed Action

The Proposed Action/Proposed Project would not generate a new supply of water; rather, it would improve the reliability of TID's water supplies by using surface water to recharge the underlying groundwater subbasin for use by private landowners within the District when groundwater pumping is necessary. Water that infiltrates in the groundwater basin would spread out in a radial pattern with most of the water following the flow path of the existing groundwater. The Proposed Action/Proposed Project does not include installation of any wells capable of extracting groundwater; instead, it would help to mitigate the water-level impacts associated with existing groundwater pumping because water that infiltrates into the local groundwater subbasin would then be available for extraction by landowners. In particular, the increased ability to recharge available surface water supplies would help to mitigate the projected long-term decline in groundwater levels. Therefore, the Proposed Action would have beneficial impacts to TID's water resources.

3.2 Biological Resources

3.2.1 Affected Environment

The Area of Potential Effect (APE) comprises the 80-acre Cordeniz Basin site, realignment of a segment of the Serpa Ditch and five individual well sites located to the north, east, and southwest of the Cordeniz Basin site. The six project components are located 0.5 to 2.5 miles west to northwest of the city of Tulare, within a region dominated by agricultural uses. The Cordeniz Basin site was surveyed on December 9, 2014, and the five well sites were surveyed on April 28, 2015. At the time of the field surveys, the Cordeniz Basin site consisted of agricultural fields, the existing Enterprise Basin, Serpa Ditch, two residential houses on the Cordeniz property, a row of residential houses along Cartmill Ave south of the basin site, and ruderal habitats, while the five well sites consisted entirely of ruderal habitats.

Agricultural Field

Agricultural fields comprised much of the proposed Cordeniz Basin site. These fields have historically been planted to corn (*Zea mays ssp. mays*) and wheat (*Triticum sp.*), with the most recent crop consisting of wheat. At the time of Live Oak Associates, Inc's December field survey, the agricultural fields contained little vegetation besides the agricultural crop. Some

weedy vegetation occurred sparingly within the interior and along the field edges consisting of Canada horseweed (*Erigeron canadensis*), Johnson grass (*Sorghum halepense*), mallow (*Malva* sp.), redroot amaranth (*Amaranthus retroflexus*), and fiddleneck (*Amsinckia* sp.).

Intensive agricultural practices in these fields limit their value to wildlife; however, some wildlife species undoubtedly occur in the fields. Amphibians with the potential to use agricultural fields include Pacific chorus frogs (*Pseudacris regilla*) and western toads (*Bufo boreas*), both of which may breed in nearby irrigation ditches and subsequently disperse through the fields. Reptiles that could occur in the fields include the side-blotched lizard (*Uta stansburiana*), Pacific gopher snake (*Pituophis catenifer catenifer*), and common kingsnake (*Lampropeltis getulus*).

Agricultural fields also provide foraging habitat for a number of avian species. Common resident species likely to forage in the agricultural fields include mourning doves (*Zenaida macroura*) (observed) and American crows (*Corvus brachyrhynchos*) (observed), as well as mixed flocks of Brewer's blackbirds (*Euphagus cyanocephalus*), brown-headed cowbirds (*Molothrus ater*), and European starlings (*Sturnus vulgaris*) (observed). Summer migrants that would be common on agricultural lands include the western kingbird (*Tyrannus verticalis*), while common winter migrants include the savannah sparrow (*Passerella sandwichensis*) (observed) and American pipit (*Anthus rubescens*) (observed).

Although less common, certain birds may use agricultural fields for nesting. For example, both red-winged blackbirds (*Agelaius phoeniceus*) and tricolored blackbirds (*Agelaius tricolor*) may nest in wheat.

A few mammal species may also occur within the agricultural fields. Small mammals such as deer mice (*Peromyscus maniculatus*) and California voles (*Microtus californicus*) would occur in fluctuating numbers depending on the season and yearly agricultural practices. Botta's pocket gopher (*Thomomys bottae*) burrows were observed, and California ground squirrels (*Otospermophilus beecheyi*), while not observed, could burrow around the perimeter of active fields, or within fields during fallow periods. Audubon cottontail rabbits (*Sylvilagus audubonii*) may also occasionally occur here. Various species of bat may also forage over the fields for flying insects.

The presence of amphibians, reptiles, birds and small mammals is likely to attract foraging raptors and mammalian predators. Raptors such as red-tailed hawks (*Buteo jamaicensis*), northern harriers (*Circus cyaneus*), and American kestrels (*Falco sparverius*) would likely forage over agricultural fields. Mammalian predators occurring in agricultural fields would most likely be limited to raccoons (*Procyon lotor*), striped skunks (*Mephitis mephitis*), coyotes (*Canis latrans*) and red foxes (*Vulpes vulpes*), as these species are relatively tolerant of human disturbance.

Recharge Basin

The Enterprise recharge basin occurs in the northern portion of the proposed Cordeniz Basin site. At the time of the December 2014 field survey, the basin had been disced and contained only uprooted, remnant vegetation. Vegetation identified in the disced basin consisted of curly dock (*Rumex crispus*), knotweed (*Persicaria* sp.), and common sunflower (*Helianthus annuus*).

Wildlife use of the recharge basin would vary depending on the timing and degree to which the basin is inundated or saturated. During periods of inundation, amphibians such as the Pacific chorus frog and western toad could opportunistically breed in the basins and subsequently disperse through surrounding lands. During dry periods, reptile and amphibian use of the basins would be similar to that described for agricultural fields of the site.

Birds expected to use the basin during periods of inundation may include the great blue heron (*Ardea herodias*) and great egret (*Ardea alba*), assuming amphibian and/or invertebrate prey is present. Black phoebes (*Sayornis nigricans*) may glean insects from the surface of the water, or extract mud from the banks for nest-building. When the basin is saturated but not inundated, avian use may include those species that feed on mudflats, such as the killdeer (*Charadrius vociferus*). When the basin is dry, avian use would be similar to that described for agricultural fields of the study area.

Periodic inundation likely precludes occupation of the basin floors by burrowing rodents; however, Botta's pocket gophers and California ground squirrels could burrow on the banks. Deer mice and western harvest mice (*Reithrodontomys megalotis*) could also inhabit the margins of the basin and could forage for insects, seeds, and plant parts in the basin when the basin is dry. Mammalian predator and raptor use of the basin would be similar to that described for agricultural areas of the site.

Ruderal

Ruderal (disturbed) areas comprised the entirety of the proposed well sites, consisting of levee roads, road shoulders, and the margins of agricultural fields and orchards. Ruderal areas of the proposed Cordeniz Basin site consisted of roads and the margins of agricultural fields and the existing recharge basin. In general, ruderal areas were barren or sparsely vegetated with common agricultural weeds, which included puncture vine (*Tribulus terrestris*), common tarweed (*Centromadia pungens*) pigweed amaranth (*Amaranthus albus*), common sunflower, and Canada horseweed, among others. However, at several of the proposed well sites, the ruderal margins of off-site agricultural fields experienced intermittent saturation from agricultural runoff, and contained dense growth of bearded sprangletop (*Leptochloa fusca* ssp. *uninervia*), purple flat sedge (*Cyperus rotundus*), dwarf nettle (*Urtica urens*), and mallow.

Although the wildlife habitat value of ruderal lands is relatively low, these lands certainly support some wildlife species. The reptile and amphibian species listed for agricultural fields could potentially use ruderal habitats, as well. Mourning doves (observed) and northern mockingbirds (*Mimus polyglottos*) could be expected to occur on these ruderal lands, as could the disturbance-tolerant killdeer (observed), which often nests on gravel or bare ground.

Small mammals that would be expected to occur on ruderal lands of the site include California ground squirrels, Botta's pocket gophers, deer mice, California voles, and house mice (*Mus*

musculus). Several California ground squirrels were observed on the levee road at the Well No. 5 site, and gopher burrows were commonly observed in the ruderal margins of agricultural fields. Mammalian predators with the potential to occur on ruderal lands of the study area include disturbance-tolerant species such as the raccoon, red fox, and coyote.

Residential

Residential areas comprised a small portion of the proposed Cordeniz Basin site. A portion of two residences are within project disturbance areas; however, all dwelling structures are outside the project disturbance areas. Residential areas within the project site included turf, ornamental and native shade trees, and an animal paddock. Ornamental trees consisted of chinaberry (*Melia azedarach*), mulberry (*Morus alba*), and common fig (*Ficus carica*). Several native valley oak trees (*Quercus lobata*) were found in the residential area.

A number of wildlife species adapted to human disturbance could be expected to occur in the residential land of the site. For example, amphibians such as Pacific chorus frogs and western toads might disperse through residential land during the winter and spring, and reptiles such as the western fence lizard (*Sceloporus occidentalis*) and common garter snake (*Thamnophis sirtalis*) could forage in this land use type. Buildings and other human-made structures located within the residential land of the site provide potential nesting habitat for a number of avian species such as the house finch (*Haemorhous mexicanus*), house sparrow (*Passer domesticus*), and Eurasian collared dove (*Streptopelia decaocto*), all of which were observed in the field surveys. Trees and shrubs associated with the two residences could be used for nesting by a variety of avian species, including the Bullock's oriole (*Icterus bullockii*), northern mockingbird, and Anna's hummingbird (*Calypte anna*). Mammal species attracted to this land use type may include the house mouse, Norway rat (*Rattus norvegicus*), and Virginia opossum (*Didelphis virginiana*).

Birds of prey such as the red-tailed hawk and American kestrel may occasionally forage over the residential area.

Irrigation Ditch

An earthen irrigation ditch known as the Serpa Ditch runs through the proposed recharge basin site. The ditch was mostly dry during the December field survey. The density of vegetation varied from abundant to sparse. Vegetation observed within the ditch included bearded sprangletop, flax-leaved horseweed (*Erigeron bonariensis*), and Canada horseweed.

Many native wildlife species utilizing other habitats of the site could make use of the ditch. Amphibians such as the Pacific chorus frog and the western toad could utilize areas of the ditch for breeding. Ground foraging birds could use the ditch for cover and forage. Small mammal burrows, primarily Botta's pocket gopher, were abundant on the ditch banks.

The *California Natural Diversity Data Base* (CDFW 2015) was queried for special status species occurrences in the sixteen USGS 7.5-minute quadrangle containing and surrounding the Project site (*Paige, Goshen, Visalia, Tulare, Burris Park, Traver, Monson, Ivanhoe, Exeter, Cairns Corner, Woodville, Tipton, Taylor Weir, Corcoran, Waukena, and Remnoy*). The U.S. Fish and Wildlife Service's Information for Planning and Conservation system was queried for federally

listed species with the potential to be affected by the Project, based on a general polygon encompassing all Project components (USFWS 2015). These species, and their potential to occur on the Project site, are listed in Table 1 on the following pages.

Table 1 - Special Status - Species Lists

Species	Status	Habitat	*Occurrence on the Project site
PLANTS			
California Jewel-flower (<i>Caulanthus californicus</i>)	FE, CE, CNPS 1B.1	Chenopod scrub, pinyon and juniper woodland, and sandy valley and foothill grassland at elevations up to 3000 ft. Blooms February-May.	Absent. Suitable habitat for this species is absent from the project site. Any suitable habitat that may have once been present has been highly modified by years of agricultural and water conveyance practices on the site.
Hoover's Spurge (<i>Euphorbia hooveri</i>)	FT, CNPS 1B.2	Occurs in vernal pools of California's Central Valley; blooms July-September; elevation 80-820 ft.	Absent. Vernal pools are absent from the project site and adjacent lands.
San Joaquin Valley Orcutt Grass (<i>Orcuttia inaequalis</i>)	FT, CE, CNPS 1B.1	Occurs in vernal pools of the Central Valley; blooms April-September; elevation 100-2480 ft.	Absent. Vernal pools are absent from the project site and adjacent lands.
San Joaquin Adobe Sunburst (<i>Pseudobahia peirsonii</i>)	FT, CE, CNPS 1B.1	Occurs in grasslands of the western foothills of the Sierra Nevada in heavy clay soils of the Porterville, Cibo, Mt. Olive and Centerville series. Blooms March-April.	Absent. The habitat and soils occurring onsite are unsuitable for this species.
Heartscale (<i>Atriplex cordulata</i> var. <i>cordulata</i>)	CNPS 1B.2	Occurs in cismontane woodland and valley and foothill grasslands of the San Joaquin Valley; saline or alkaline soils; blooms April-October; elevations below 1,230 ft.	Absent. Suitable habitat for this species is absent from the project site. Any suitable habitat that may have once been present has been highly modified by years of agricultural and water conveyance practices on the site.
Earlimart Orache (<i>Atriplex cordulata</i> var. <i>erecticaulis</i>)	CNPS 1B.2	Occurs in valley and foothill grasslands between 130 and 330 ft. in elevation; blooms August-September.	Absent. Suitable habitat for this species is absent from the project site. Any suitable habitat that may have once been present has been highly modified by years of agricultural and water conveyance practices on the site.
Brittlescale (<i>Atriplex depressa</i>)	CNPS 1B.2	Occurs in relatively barren areas with alkaline clay soils in chenopod scrub, playas, valley grasslands, and vernal pools of the Central Valley.	Absent. The habitat and soils occurring onsite are unsuitable for this species.
Lesser Saltscale (<i>Atriplex minuscula</i>)	CNPS 1B.1	Occurs in cismontane woodland and valley and foothill grasslands of the San Joaquin Valley; alkaline/sandy soils; blooms May-October; elevation 50-660 ft.	Absent. Suitable habitat for this species is absent from the project site. Any suitable habitat that may have once been present has been highly modified by years of agricultural and water conveyance practices on the site.
Vernal Pool Smallscale (<i>Atriplex persistens</i>)	CNPS 1B.2	Occurs in alkaline vernal pools; blooms July-October; elevations below 400 ft.	Absent. Vernal pools are absent from the project site and adjacent lands.

Species	Status	Habitat	*Occurrence on the Project site
Subtle Orache (<i>Atriplex subtilis</i>)	CNPS 1B.2	Occurs in valley and foothill grasslands of the San Joaquin Valley; blooms August-October; elevation 130-330 ft.	Absent. Suitable habitat for this species is absent from the project site. Any suitable habitat that may have once been present has been highly modified by years of agricultural and water conveyance practices on the site.
Recurved Larkspur (<i>Delphinium recurvatum</i>)	CNPS 1B.2	Occurs in cismontane woodland and valley and foothill grass-lands; blooms March-June; alkaline soils; elevations below 2,500 ft.	Absent. Suitable habitat for this species is absent from the project site. Any suitable habitat that may have once been present has been highly modified by years of agricultural and water conveyance practices on the site.
Spiny-sealed Button-celery (<i>Eryngium spinosepalum</i>)	CNPS 1B.2	Occurs in vernal pools and valley and foothill grasslands of the San Joaquin Valley and the Tulare Basin; blooms April-May; elevation 330-840 ft.	Absent. Suitable habitat for this species is absent from the project site. Any suitable habitat that may have once been present has been highly modified by years of agricultural and water conveyance practices on the site.
ANIMALS			
Conservancy Fairy Shrimp (<i>Branchinecta conservatio</i>)	FE	Occurs in vernal pools of California's Central Valley.	Absent. Vernal pools required by this species are absent from the project site. Furthermore, this species has never been documented in Tulare County.
Vernal Pool Fairy Shrimp (<i>Branchinecta lynchi</i>)	FT	Occurs in vernal pools of California.	Absent. Vernal pool habitat required by this species is absent from the project site and adjacent lands.
Vernal Pool Tadpole Shrimp (<i>Lepidurus packardii</i>)	FE	Primarily found in vernal pools of California's Central Valley.	Absent. Vernal pool habitat required by this species is absent from the project site and adjacent lands.
Valley Elderberry Longhorn Beetle (<i>Desmocerus californicus dimorphus</i>)	FT	Lives in mature elderberry shrubs of California's Central Valley and Sierra foothills.	Absent. The newly revised range of this species by the USFWS does not include Tulare County.
Delta Smelt (<i>Hypomesus transpacificus</i>)	FT	This slender-bodied fish is endemic to the San Francisco Bay and Sacramento-San Joaquin Delta upstream through Contra Costa, Sacramento, San Joaquin, Solano, and Yolo Counties.	Absent. The project site is situated well outside of the known distribution of this species.
Little Kern Golden Trout (<i>Oncorhynchus aguabonita whitei</i>)	FT	Native to high elevation streams and lakes in the Little Kern River in the southern Sierra Nevada.	Absent. The project site is situated well outside of the known distribution of this species.
California Tiger Salamander (<i>Ambystoma californiense</i>)	FT , CSC	Found primarily in annual grasslands. Breeds in vernal/ seasonal pools or perennial pools which lack fish or bullfrogs. Requires rodent burrows for refuge.	Absent. Historic and current use of the project site has rendered it unsuitable for this species. Breeding pools required by this species are absent from the project site and surrounding lands. Furthermore, the project site is well south of this species' known range within the San Joaquin Valley.

Species	Status	Habitat	*Occurrence on the Project site
California Red-Legged Frog (<i>Rana aurora draytonii</i>)	FT	Perennial rivers, creeks and stock ponds of the Coast Range and northern Sierra foothills with overhanging vegetation.	Absent. The project site does not provide suitable habitat for this species and is outside of its current known range.
Blunt-nosed Leopard Lizard (<i>Gambelia silus</i>)	FE, CE, CFP	Frequents grasslands, alkali meadows and chenopod scrub of the San Joaquin Valley from Merced south to Kern County.	Absent. Habitats required by this species have been highly disturbed or eliminated as a result of agricultural activities.
Giant Garter Snake (<i>Thamnophis gigas</i>)	FT	Occurs in marshes, sloughs, drainage canals, irrigation ditches, rice fields, and adjacent uplands. Occasionally found in slow-moving creeks. Prefers locations with emergent vegetation for cover and open areas for basking.	Absent. The project site does not provide suitable habitat for this species and is outside of this species' current known range.
Swainson's Hawk (<i>Buteo swainsoni</i>)	CT	Breeds in stands with few trees in juniper-sage flats, riparian areas, and in oak savannah. Requires adjacent suitable foraging areas such as grasslands or alfalfa fields supporting rodent populations.	Possible. The CNDDB lists three recorded observations of nesting Swainson's hawks within 3 miles of the project site. The 60 acres of onsite wheat fields and the existing 20-acre Enterprise Basin provide suitable foraging habitat for this species. The onsite trees provide atypical nesting habitat due to the proximity of the trees to active residences. Suitable foraging and nesting habitat for this species is absent from the five proposed well sites.
Tricolored Blackbird (<i>Agelaius tricolor</i>)	CE, CSC	Breeds near fresh water, primarily emergent wetlands, with tall thickets. Forages in grassland and cropland habitats.	Possible. Potential foraging habitat for this species occurs on the Cordeniz Basin site. Marginal breeding habitat occurs in the form of onsite wheat fields.
Fresno Kangaroo Rat (<i>Dipodomys nitratooides exilis</i>)	FE, CE	Inhabits grassland on gentle slopes generally less than 10°, with friable, sandy-loam soils.	Absent. Habitats required by this species are absent from the project site and surrounding agricultural lands due to intensive agricultural use.
Tipton Kangaroo Rat (<i>Dipodomys nitratooides nitratooides</i>)	FE, CE	Inhabits grassland on gentle slopes generally less than 10°, with friable, sandy-loam soils.	Absent. Habitats required by this species are absent from the project site and surrounding agricultural lands due to intensive agricultural use.
San Joaquin Kit Fox (<i>Vulpes macrotis mutica</i>)	FE, CT	Frequents desert alkali scrub and annual grasslands and may forage in adjacent agricultural habitats. Utilizes enlarged (4 to 10 inches in diameter) ground squirrel burrows as denning habitat.	Unlikely. No burrows of suitable size for kit fox were observed on the project site during the field surveys. The project site has been highly modified for agricultural and water conveyance uses and, as a result, provides only marginal foraging habitat for the kit fox. Therefore, kit fox are not expected to breed or regularly forage on the site, but may pass through during dispersal movements.
Western Spadefoot (<i>Scaphiopus hammondi</i>)	CSC	Primarily occurs in grasslands, but also occurs in valley and foothill hardwood woodlands. Requires vernal pools or other temporary wetlands for breeding.	Absent. No vernal pool habitat required by this species occurs on the project site or surrounding lands.

Species	Status	Habitat	*Occurrence on the Project site
Western Pond Turtle (<i>Actinemys marmorata</i>)	CSC	Intermittent and permanent waterways including streams, marshes, rivers, ponds and lakes possessing basking habitat.	Unlikely. The recharge basin and irrigation canal of the Cordeniz Basin provide extremely marginal habitat for this species, due to irregular inundation of these features. Suitable habitat is absent from the five well sites.
Northern Harrier (Nesting) (<i>Circus cyaneus</i>)	CSC	Frequents meadows, grasslands, open rangelands, freshwater emergent wetlands; uncommon in wooded habitats.	Absent (nesting). While northern harriers may occasionally forage over the Cordeniz Basin site, suitable nesting habitat is absent.
White-tailed Kite (<i>Elanus leucurus</i>)	CFP	Open grasslands and agricultural areas throughout central California.	Possible. Suitable foraging habitat and atypical breeding habitat occurs on the Cordeniz Basin site. Suitable habitat is absent from the five well sites.
Mountain Plover (<i>Charadrius montanus</i>)	CSC	Forages in short grasslands and freshly plowed fields of the Central Valley.	Possible. The Cordeniz Basin site provides suitable winter foraging habitat for this species. This species breeds outside of California.
Burrowing Owl (<i>Athene cunicularia</i>)	CSC	Frequents open, dry annual or perennial grasslands, deserts, and scrublands characterized by low growing vegetation. Dependent upon burrowing mammals, most notably the California ground squirrel, for nest burrows.	Unlikely. The intensively managed habitats of the Cordeniz Basin site and five well sites are marginal to unsuitable for the burrowing owl. Suitable burrows were absent from all but the Well No. 5 site, where several California ground squirrel burrows occurred in the levee road. Burrowing owls would not be expected to nest or roost in burrows on this or other actively-traveled roads. Burrowing owls are relatively uncommon in the project vicinity; the CNDDB lists only one occurrence within a 10 mile radius, located approximately 7 miles southwest of the Well No. 1 site.
Loggerhead Shrike (<i>Lanius ludovicianus</i>)	CSC	Frequents open habitats with sparse shrubs and trees, bare ground, and low herbaceous cover. Can often be found in cropland.	Possible. Suitable foraging and nesting habitat occurs on the Cordeniz Basin site.
Pallid Bat (<i>Antrozous pallidus</i>)	CSC	Found in grasslands, chaparral, and woodlands, where it feeds on ground- and vegetation-dwelling arthropods. Prefers to roost in rock crevices, but may also use tree cavities, caves, bridges, and buildings.	Possible. The project site provides no roosting habitat for this species, but bats could forage in the agricultural fields of the Cordeniz Basin site.
Western Mastiff Bat (<i>Eumops perotis</i> ssp. <i>californicus</i>)	CSC	Frequents open, semi-arid to arid habitats, including conifer, and deciduous woodlands, coastal scrub, grasslands, palm oasis, chaparral and urban. Roosts in cliff faces, high buildings, trees and tunnels.	Possible. The project site provides no roosting habitat for this species, but bats could forage over any of the six disjunct locations of the site.

Species	Status	Habitat	*Occurrence on the Project site
American Badger (<i>Taxidea taxus</i>)	CSC	Found in drier open stages of most shrub, forest and herbaceous habitats with friable soils.	Unlikely. No burrows of the size and shape suitable for the badger were observed on the project site. The regular agricultural and water conveyance practices occurring on the project site create unsuitable conditions for the badger.

***Explanation of Occurrence Designations and Status Codes**

Present: Species observed on the sites at time of field surveys or during recent past.

Likely: Species not observed on the site, but it may reasonably be expected to occur there on a regular basis.

Possible: Species not observed on the sites, but it could occur there from time to time.

Unlikely: Species not observed on the sites, and would not be expected to occur there except, perhaps, as a transient.

Absent: Species not observed on the sites, and precluded from occurring there because habitat requirements not met.

FE	Federally Endangered
FT	Federally Threatened
FPE	Federally Endangered (Proposed)
FC	Federal Candidate
CNPS	California Native Plant Society Listing
1A	Plants Presumed Extinct in California
1B	Plants Rare, Threatened, or Endangered in California and elsewhere
2	Plants Rare, Threatened, or Endangered in California, but more common elsewhere
CE	California Endangered
CT	California Threatened
CR	California Rare
CP	California Fully Protected
CSC	California Species of Special Concern
3	Plants about which we need more information – a review list
4	Plants of limited distribution – a watch list

3.2.2 Environmental Consequences

No Action Alternative

No changes in conditions or habitats would occur under the No Action Alternative. Operations and water management practices would not change. Therefore, the No Action Alternative would not result in changes to biological resources or habitats.

Proposed Action

Any native habitats once present on the project site have been heavily altered by human enterprise such that the site no longer provides suitable habitat for any locally occurring special status plant species; hence, the Proposed Action/Proposed Project would not impact special status plants. Since there was not any forage material onsite the Proposed Action/Proposed Project would have no effect on wildlife movement corridors. The five well sites are all located immediately adjacent to several Tulare Irrigation District canals, and well construction has the potential to result in the degradation of water quality in these channels. This impact would be mitigated through the development and implementation of a Storm Water Pollution Prevention Plan. Potential project impacts to Swainson's hawk foraging habitat – an actively farmed hay pasture within about 1 mile of the project site – was analyzed and determined to have little to no adverse impacts on Swainson's hawks. However, construction during the nesting season has a small potential to result in disturbance to nesting Swainson's hawks such that nest failure may result. Mitigation measures to reduce or eliminate direct and indirect impacts to nesting

Swainson's hawks include avoidance of project construction during the nesting season, and preconstruction surveys and buffers around active nests if construction activity is to occur within the nesting season (see Attachment A).

The Proposed Action/Proposed Project may also result in impacts to nesting birds protected under the federal Migratory Bird Treaty Act. Birds nesting on or adjacent to the project site have the potential to be killed or disturbed by construction activities. Preconstruction surveys and avoidance, should active nests be found, would avoid and reduce impacts to nesting birds. Preconstruction surveys and avoidance or passive relocation would reduce impacts to burrowing owls to a less than significant level.

Preconstruction surveys and avoidance and minimization measures consistent with the USFWS *Standardized Recommendations for Protection of the Endangered San Joaquin Kit Fox Prior to or During Ground Disturbance* would reduce and avoid the potential for impacts to San Joaquin Kit Fox (see Attachment A).

The Proposed Action/Proposed Project would not have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species with implementation of the mitigation measures below:

Mitigation Measures. Prior to the construction of the Proposed Action/Proposed Project one or more of the following measures will be implemented.

BIO -1: Swainson's hawk

- **(Avoidance).** In order to avoid impacts to Swainson's hawk all onsite Proposed Action/Proposed Project activities will commence after the nesting season has concluded (August 31st). Major construction (i.e. PV panel installation, perimeter fencing, trenching, excavating, or any activity that would require the use of heavy equipment) will occur before the start of the nesting season (April 1st).
- **(Pre-construction Surveys).** If Proposed Action/Proposed Project delays occur and construction must be initiated during the nesting season, prior to any construction related activity, preconstruction surveys will be conducted on the Proposed Action/Proposed Project site and adjacent lands within 0.5 mile of the site to identify any nesting pairs of Swainson's hawks that may be present. These surveys will conform to the requirements of CDFW as presented in *Recommended Timing And Methodology For Swainson's Hawk Nesting Surveys In California's Central Valley*, Swainson's Hawk Technical Advisory Committee, May 31, 2000. If no nesting pairs are found on or within the vicinity of the Proposed Action/Proposed Project site, no further mitigation is required.
- **(Establish buffers).** Should any active nests be discovered in or near proposed construction zones, they shall be avoided by one-quarter mile in accordance with CDFW's 1994 Staff Report Regarding Mitigation for Impacts to Swainson's Hawks in the Central Valley. All other nests shall be protected from all construction activities within 50 feet of the nest site. In the event that nests cannot be successfully avoided, the applicant may be required to obtain authorization from CDFW or USFWS. This buffer

will be identified on the ground with flagging or fencing, and will be maintained until the biologist has determined that the young have fledged.

BIO -2: Migratory Bird Nests

- **(Avoidance).** In order to avoid impacts to all nesting birds from grading and construction, these activities will occur outside of the typical avian nesting season, or between September 1 and January 31.
- **(Pre-construction surveys).** If the Proposed Action/Proposed Project must be initiated during the typical avian nesting season (February 1 to August 31), a qualified biologist will conduct pre-construction surveys for active migratory bird nests within 14 days of the onset of construction. Should any active nests be discovered in or near proposed construction zones, the biologist will identify a suitable construction-free buffer around the nest. This buffer will be identified on the ground with flagging or fencing, and will be maintained until the biologist has determined that the young have fledged.

BIO-3: Burrowing Owl

- **(Take Avoidance Surveys).** A pre-construction “take avoidance” survey will be conducted by a qualified biologist for burrowing owls no less than 14 days from the onset of construction according to methods described in the *Staff Report on Burrowing Owl Mitigation* (CDFW 2012).
- **(Avoidance of Active Nests).** If take avoidance surveys and subsequent Proposed Action/Proposed Project activities are undertaken during the breeding season (February 1 to August 31) and active nest burrows are located within or near construction zones, a suitable construction-free buffer will be established around all active burrowing owl nests. The buffer areas will be enclosed with temporary fencing to prevent the entry of construction equipment and workers. Buffers will remain in place for the duration of the breeding season, unless otherwise arranged with CDFW. After the breeding season (i.e. once all young have left the nest), passive relocation of any remaining owls may take place as described below.
- **(Passive Relocation of Resident Owls).** In the unlikely event that burrowing owls occupy areas proposed for development, they may be relocated to alternative habitat during the non-breeding season (September 1 to January 31). The relocation of resident burrowing owls must be conducted according to a relocation plan prepared by a qualified biologist. Passive relocation will be the preferred method of relocation.

Bio-4: San Joaquin kit fox

- **(Pre-construction surveys).** Pre-construction surveys shall be conducted no less than 14 days and no more than 30 days prior to the beginning of ground disturbance, construction activities, and/or any Proposed Action/Proposed Project activity likely to impact the San Joaquin kit fox. These surveys will be conducted in accordance with the USFWS Standard Recommendations. The primary objective is to identify kit fox habitat features

(e.g., potential dens and refugia) on the Proposed Action/Proposed Project site and evaluate their use by kit foxes. If an active kit fox den is detected within or immediately adjacent to the area of work, the USFWS shall be contacted immediately to determine the best course of action.

- **(Avoidance).** Should kit fox be found using the site during preconstruction surveys the Proposed Action/Proposed Project will avoid the habitat occupied by kit fox in accordance with the USFWS Standard Recommendations and the Sacramento Field Office of the USFWS and the Fresno Field Office of CDFW will be notified.
- **(Minimization).** Permanent and temporary construction activities and other types of Proposed Action/Proposed Project-related activities will be carried out in a manner that minimizes disturbance to kit foxes. In accordance with the USFWS Standard Recommendations, minimization measures include, but are not limited to:
 - Restriction of on-site Proposed Action/Proposed Project-related vehicle traffic to established roads, construction areas, and other designated areas, with a speed limit no greater than 15 mph; after dark, speed will be limited to 10 mph. Off-road traffic outside of designated project areas will be prohibited. Work at night will not be allowed.
 - All construction pipes, culverts, or similar structures with a diameter of 4 inches or greater that are stored at a construction site for one or more overnight periods shall be thoroughly inspected for kit foxes before the pipe is subsequently buried, capped, or otherwise used or moved in any way. If a kit fox is discovered inside a pipe, that section of pipe shall not be moved until the Service has been consulted. If necessary, and under the direct supervision of a biologist, the pipe may be moved only once to remove it from the path of construction activity, until the fox has escaped; all excavated, steep-walled holes or trenches more than 2 feet deep will be covered with plywood or similar materials at the end of each work day. If the trenches cannot be closed, one or more escape ramps constructed of earthen-fill or wooden planks will be installed. Before such holes or trenches are filled, they will be inspected for trapped animals; holes or trenches more than 8 feet deep will be covered or fenced at the end of each day.
 - Restriction of rodenticide and herbicide use, if rodent control must be conducted, zinc phosphide shall be used because of a proven lower risk to kit fox; and proper disposal of food items and trash.
- **(Employee Education Program).** Prior to the start of construction the applicant will retain a qualified biologist to conduct a tailgate meeting to train all construction staff that will be involved with the Proposed Action/Proposed Project on the San Joaquin kit fox. This training will include a description of the kit fox and its habitat needs; a report of the occurrence of kit fox in the Proposed Action/Proposed Project area; an explanation of the status of the species and its protection under the endangered species act; and a list of the measures being taken to reduce impacts to the species during Proposed Action/Proposed Project construction and implementation.

- All food-related trash items such as wrappers, cans, bottles, and food scraps will be disposed of in securely closed containers and removed at least once a week from the Project Area.
- No pets will be permitted in the Project Area.
- Upon completion of the Project, all areas subject to temporary ground disturbances, including staging areas temporary roads, and borrow sites will be recontoured, if necessary, and revegetated to promote restoration of the area to pre-project conditions.
- SJKF sightings will be reported to CNDDDB.
- **(Mortality Reporting).** The Sacramento Field Office of the USFWS and the Fresno Field Office of CDFW will be notified in writing within three working days in case of the accidental death or injury to a San Joaquin kit fox during Proposed Action/Proposed Project-related activities. Notification must include the date, time, location of the incident or of the finding of a dead or injured animal, and any other pertinent information.

Implementation of mitigation measures **BIO-1** through **BIO-4** would reduce any potential impacts to sensitive or special status species to less than significant. Reclamation has received USFWS concurrence with the determination that the proposed action is not likely to adversely affect San Joaquin kit fox.

3.3 Land Use

3.3.1 Affected Environment

TID is comprised of roughly 70,000 acres, of which approximately 62,000 acres are irrigated to alfalfa, field corn, wheat, cotton and other agricultural crops. The Proposed Action area contains disturbed lands consisting of wheat fields, the Enterprise Basin, Serpa Ditch, ruderal land, and residential land. The project site is situated within a region dominated by agricultural land uses. Additionally, there are several rural residences located approximately 100 feet south of the Proposed Action/Proposed Project site; one residence located approximately 300 feet east of the southeast corner of the Project site and three residences located adjacent to the site within 100 feet.

3.3.2 Environmental Consequences

No Action Alternative

Under the No Action Alternative, TID would not expand its current groundwater recharge facility, and thus would not construct and operate a nearly 60-acre expansion to the south of the existing Enterprise Basin. Conditions related to the current use and operation of fallowed lands and existing groundwater recharge facility would remain the same, and would not impact land use.

Proposed Action

The Proposed Action/Proposed Project would not result in adverse impacts to lands designated as prime agricultural land since the construction of water facilities have been determined to be

compatible uses within any agricultural preserve. Also, the Proposed Action is not envisioned to lead to the development of new agricultural lands since the majority of the land within TID has already been developed for agricultural uses. Any homesteads located within close proximity to the Proposed Action/Proposed Project may see water levels within their private wells stabilize or even rebound when Cordeniz Basin is operational. Therefore, no adverse impacts to land use would occur.

3.4 Cultural Resources

A cultural resource is a broad term that includes prehistoric, historic, architectural, and traditional cultural properties. The National Historic Preservation Act (NHPA) of 1966 is the primary Federal legislation that outlines the Federal Government's responsibility to cultural resources while the CEQA process is the primary State process for considering effect to cultural resources. Section 106 of the NHPA requires the Federal Government to take into consideration the effects of an undertaking on cultural resources listed on or eligible for inclusion in the National Register of Historic Places (NRHP), while CEQA requires the State and local governments to identify cultural resources that could be eligible for inclusion or listing on the California Register of Historic Resources (CRHR). Those resources that are on or eligible for inclusion in the NRHP are referred to as historic properties while those eligible for listing on the CRHR are called Historic Resources. For Federal projects, cultural resource significance can be evaluated in terms of eligibility for listing in the NRHP.

The Section 106 process is outlined in the Federal regulations at 36 Code of Federal Regulations (CFR) Part 800. These regulations describe the process that the Federal agency (Reclamation) takes to identify cultural resources and the level of effect that the proposed undertaking would have on historic properties. In summary, Reclamation must first determine if the action is the type of action that has the potential to affect historic properties. If the action is the type of action to affect historic properties, Reclamation must identify the APE, determine if historic properties are present within that APE, determine the effect that the undertaking would have on historic properties, and consult with the State Historic Preservation Officer (SHPO), to seek concurrence on Reclamation's findings. In addition, Reclamation is required through the Section 106 process to consult with Indian Tribes concerning the identification of sites of religious or cultural significance, and consult with individuals or groups who are entitled to be consulting parties or have requested to be consulting parties.

3.4.1 Affected Environment

The Central Valley of California is abundant with cultural resources ranging from small archaeological sites to pre-historic villages, and historic era resources ranging from bridges and buildings to canals and roads. Native Americans broadly used the landscapes south of the San Joaquin River; cultural resources related to that use have been identified and recorded within region. Historic use of the landscape is also quite prevalent and broadly distributed over the landscape. The contemporary landscape is a heavily altered landscape consisting of agricultural fields of permanent and rotational crops, supporting infrastructure such as water conveyance systems, roads, farm outbuildings, residences, and other components of the built environment. While the potential for archaeological resources exists it is somewhat anticipated, due to the large scale landscape modification, that much of their context is heavily disturbed.

In an effort to identify cultural resources the District contracted ASM Affiliates to conduct the investigation to identify resources that are eligible for inclusion or listing on the NRHP or CRHR. These efforts are documented in a Class III cultural resources inventory report by Carey et al. (2015) (Appendix D). ASM Affiliates conducted background research which included archival document review, coordination with the Native American Heritage Commission (NAHC), coordination with Native American groups, individuals, and organizations and Indian Tribes and other interested parties. In addition, ASM Affiliates studied buried site potential through existing buried site sensitivity data, conducted archaeological survey, and inventories built environment features. These combined efforts resulted in the identification of one cultural resource, the Serpa Ditch which was determined to not be individually eligible for inclusion or listing on the NRHP or the CRHR.

3.4.2 Environmental Consequences

No Action Alternative

Under the No Action Alternative, there would be no impacts to cultural resources since there would be no change in operations and no ground disturbance. Conditions related to cultural resources would remain the same as existing conditions.

Proposed Action

Under the proposed action, Reclamation would fund the construction of the Cordeniz Basin ground water recharge basin. The action to construct the basin will involve the use of heavy machinery and excavation of earth. Due to the nature of the activities associated with this project it was determined that the proposed action is the type of activity that has the potential to cause effects to historic properties pursuant to 36 CFR § 800.3(a)(1) of the Section 106 implementing regulations. Reclamation entered into Section 106 consultation with the California SHPO on October 15, 2015 seeking their concurrence on Reclamation's finding that the proposed undertaking to fund the Cordeniz Basin Ground Water Recharge Project would have no adverse effect to historic properties pursuant to 36 CFR § 800.5(b). The SHPO concurred with Reclamation's finding on November 6, 2015. Based on the findings provided by Reclamation to the SHPO and SHPO concurrence on those findings, Reclamation concludes that the Proposed Action will have no impact on cultural resources.

3.5 Indian Trust Assets

3.5.1 Affected Environment

Indian Trust Assets (ITA) are legal interests in assets that are held in trust by the United States (U.S.) for federally recognized Indian tribes or individuals. The trust relationship usually stems from a treaty, executive order, or act of Congress. The Secretary of the Interior is the trustee for the U.S. on behalf of federally recognized Indian tribes. "Assets" are anything owned that holds monetary value. "Legal interests" means there is a property interest for which there is a legal remedy, such as compensation or injunction, if there is improper interference. ITAs cannot be sold, leased or otherwise alienated without the U.S.' approval. "Assets" can be real property, physical assets, or intangible property rights, such as a lease, or right to use something; which may include lands, minerals and natural resources in addition to hunting, fishing, and water rights. Indian reservations, rancherias, and public domain allotments are examples of lands that

are often considered trust assets. In some cases, ITAs may be located off trust land. Reclamation shares the Indian Trust responsibility with all other agencies of the Executive Branch to protect and maintain ITAs reserved by or gran

3.5.2 Environmental Consequences

No Action Alternative

Under the No Action Alternative, there would be no impacts to ITA as there would be no ground-disturbing activities and conditions would remain the same as existing conditions.

Proposed Action

The closest Indian Trust lands, the Santa Rosa Rancheria, is located 20 miles to the west of the project area, with the Tule River Tribal Indian Trust lands located 34 miles to the southwest. Neither the Santa Rosa Rancheria nor the Tule River Tribe will have ITA impacts resulting from proposed project. As a result there is no effect to ITA's by the proposed undertaking.

3.6 Indian Sacred Sites

Executive Order 13007 provides that in managing Federal lands, each Federal agency with statutory or administrative responsibility for management of Federal lands would, to the extent practicable and as permitted by law, accommodate access to and ceremonial use of Indian sacred sites by Indian religious practitioners, and avoid adversely affecting the physical integrity of such sacred sites.

3.6.1 Affected Environment

The Proposed Action involves construction of a groundwater recharge facility on land that is not owned by a federal agency and therefore is not subject to Executive Order 130007. Additional information about how the Proposed Action would comply with local state requirements regarding Native American consultation is discussed in Appendix D.

3.6.2 Environmental Consequences

No Action Alternative

Under the No Action Alternative, there would be no impacts to Indian sacred sites since conditions would remain the same as existing conditions.

Proposed Action

Native American consultation activities consisted of a Sacred Land File Search performed by the Native American Heritage Commission (NAHC) and no resources were identified. Notification letters and requests for consultation were sent to designated Native American contacts as identified by the NAHC, and no responses were received regarding the Proposed Action. In addition, Reclamation sent letters to both the Santa Rosa Rancheria and the Tule River Tribe requesting their assistance in identifying sites of religious and cultural significance which received no reply. The Proposed Action is not located on Federal lands and does not limit access to any known resources on Federal lands. As a result there is no impact to Indian Sacred Sites as defined by Executive Order 13007.

3.7 Air Quality

3.7.1 Affected Environment

The Proposed Action/Proposed Project lies within the San Joaquin Valley Air Basin (SJVAB), the second largest air basin in the State. 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. The San Joaquin Valley experiences episodes of poor atmospheric mixing caused by inversion layers formed when temperature increases with elevation above ground, or when a mass of warm, dry air settles over a mass of cooler air near the ground.

Despite years of improvements, the SJVAB does not meet some State and Federal health-based air quality standards. To protect health, the San Joaquin Valley Air Pollution Control District (SJVAPCD) is required by Federal law to adopt stringent control measures to reduce emissions. On November 30, 1993, the Environmental Protection Agency (EPA) promulgated final general conformity regulations at 40 CFR 93 Subpart B for all federal activities except those covered under transportation conformity. The general conformity regulations apply to a proposed Federal action in a non-attainment or maintenance area if the total of direct and indirect emissions of the relevant criteria pollutants and precursor pollutant caused by a proposed action equal or exceed certain emissions thresholds, thus requiring the Federal agency to make a conformity determination. Table 2 below presents the emissions thresholds and attainment status covering the project location’s overlying air basin.

Table 2 - . San Joaquin Valley General Conformity “de minimis” Thresholds

Pollutant	Federal Status	de minimis (Tons/year)	de minimis (Pounds/day)
VOC/ROG (as an ozone precursor)	Nonattainment serious 8-hour ozone	50	274
NO _x (as an ozone precursor)	Nonattainment serious 8-hour standard	50	274
PM ₁₀	Attainment	100	548
CO	Attainment	100	548

Sources SJVAPCD 2009a; 40 CFR 93.153

Proposed Action operations would not contribute to criteria pollutant emissions, as water banking is largely a passive process; however, emissions would be associated with construction. Construction of the Proposed Action would be accomplished with scrapers, long-boom excavators, graders, loaders, dump trucks, hauling trucks and water trucks. Construction of the Proposed Action would occur over a 22-month period.

3.7.2 Environmental Consequences

No Action Alternative

Under the No Action Alternative, there would be no impacts to air quality since no construction would take place.

Proposed Action

There are several rural residences located approximately 100 feet south of the Proposed Action/Proposed Project site; one residence located approximately 300 feet east of the southeast corner of the Project site and three residences located adjacent to the site within 100 feet. 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 land clearing, grading, excavation, concrete work, and vehicle traffic on paved and unpaved roads. Fugitive dust is a source of airborne particulates, including PM₁₀ and PM_{2.5}. Large earth-moving equipment, trucks, and other mobile sources powered by diesel or gasoline are also sources of combustion emissions, including nitrogen dioxide (NO₂), CO, carbon dioxide (CO₂), reactive organic gas (ROG), sulfur dioxide, and small amounts of air pollutants. Table 3 below provides a summary of the estimated emissions during construction of the Proposed Action/Proposed Project.

Table 3 - Calculated Proposed Action Construction Emissions.

Pollutant	Federal Status	de minimis (Tons/year)	2015 Proposed Action emissions (Tons/year)	2016 Proposed Action emissions (Tons/year)	2017 Proposed Action emissions (Tons/year)
VOC/ROG (as an ozone precursor)	Nonattainment serious 8-hour ozone	50	0.3759	0.7995	0.1933
NO _x (as an ozone precursor)	Nonattainment serious 8-hour standard	50	3.8266	8.2874	1.4675
PM ₁₀	Attainment	100	1.5887	1.4289	0.1080
CO	Attainment	100	2.6503	5.5703	1.0687

Sources: SJVAPCD 2009a; 40 CFR 93.153, CalEEMod, May 2015

Table 4- Calculated Proposed Action Construction Emissions

Pollutant	Federal Status	de minimis (Tons/year)	Proposed Action emissions (Tons/year)
VOC/ROG (as an ozone precursor)	Nonattainment serious 8-hour ozone	50	0.0186
NO _x (as an ozone precursor)	Nonattainment serious 8-hour standard	50	0.0199
PM ₁₀	Attainment	100	0.0007
CO	Attainment	100	0.0672

Sources: SJVAPCD 2009a; 40 CFR 93.153, CalEEMod, May 2015

Comparison of the estimated Proposed Action/Proposed Project operational emissions as seen above in Table 4, with the thresholds for Federal conformity determinations indicates that Project emissions are estimated to be below these thresholds. Therefore, Project construction and operations under the Proposed Action/Proposed Project would not result in adverse impacts to air quality beyond Federal thresholds.

3.8 Global Climate Change

Climate change refers to change in measures of climate (e.g., temperature, precipitation, or wind) lasting for decades or longer. Many environmental changes (changes in sun's intensity, changes in ocean circulation, deforestation, urbanization, burning fossil fuels, etc.) can contribute to climate change (EPA 2009a). Gases that trap heat in the atmosphere are often called greenhouse gases (GHG). Some GHG such as CO₂ occur naturally and are emitted to the atmosphere through natural processes and human activities. Other GHG (e.g., fluorinated gases) are created and emitted solely through human activities. The principal GHG that enters the atmosphere because of human activities are: CO₂, methane (CH₄), nitrous oxides, and fluorinated gasses (EPA 2009a). During the past century, humans have substantially added to the amount of GHG in the atmosphere by burning fossil fuels such as coal, natural gas, oil, and gasoline to power our cars, factories, utilities, and appliances. The added gases, primarily CO₂ and CH₄, are enhancing the natural greenhouse effect, and likely contributing to an increase in global average temperature and related climate changes. At present, there are uncertainties associated with the science of climate change (EPA 2009). More than 20 million Californians rely on regulated delivery of water resources such as the State Water Project and the CVP, as well as established water rights from rivers. Increases in air temperature may lead to changes in precipitation patterns, runoff timing and volume, sea level rise, and changes in the amount of irrigation water needed due to modified evapotranspiration rates. These changes may lead to impacts to the State's water resources and project operations. While there is general consensus in their trend, the magnitudes and onset-timing of impacts are uncertain and are scenario-dependent (Anderson et al. 2008).

3.8.1 Affected Environment

In 2002, with the passage of Assembly Bill 1493, the State launched an innovative and proactive approach to dealing with GHG emissions and climate change at the state level. Assembly Bill 1493 requires the California Air Resources Board to develop and implement regulations to reduce automobile and light truck GHG emissions. The State also adopted Assembly Bill 32, which identified GHG reduction goals and noted the effect of increased GHG emissions as they relate to global climate change. While the emissions of one single project would not cause global climate change, GHG emissions from multiple projects throughout the world could result in an adverse impact with respect to global climate change.

3.8.2 Environmental Consequences

No Action Alternative

Under the No Action Alternative, there would be no impacts to global climate change since no construction would take place.

Proposed Action

The Proposed Action/Proposed Project would involve short-term impacts consisting of emissions during construction and long-term impacts are attributable to Project operations and would involve the employee trips to the Project site (approximately 30 per year). These emissions would vary annually. The estimated unmitigated overall GHG emission due to temporary Project construction activities (see Attachment A - CEQA – Initial Study Checklist) is 1,101.38 metric tons of carbon dioxide equivalents. The estimated unmitigated overall GHG emissions due to on-going operational activities are 9.87 metric tons of carbon dioxide equivalents. Since

the combined amount of GHGs emitted from the Proposed Action/Proposed Project is well below 25,000 metric tons/year threshold, no report is required to be submitted to the U.S. EPA and California Air Resources Board Accordingly, construction and operation under the Proposed Action/Proposed Project would result in below *de minimis* impacts to the global climate.

3.9 Socioeconomic Resources

3.9.1 Affected Environment

The agricultural industry in Tulare County contributes to the overall economic stability of the San Joaquin Valley. In addition, other industries include dairy and food processing. The market for seasonal workers on local farms draws thousands of migrant workers.

3.9.2 Environmental Consequences

No Action Alternative

Under the No Action Alternative, Reclamation would not help fund construction of the basin. Groundwater levels underlying TID would not be able to benefit from the additional recharge and TID would not be able to further regulate its surface water supplies to control seepage losses. TID would continue to use its surface water supplies as has historically occurred.

Local farmers rely on irrigation water from TID and could be impacted during years when surface water supplies are insufficient.

Proposed Action

The Proposed Action/Proposed Project would increase the water reliability for TID. As a result, the viability of farming practices would also benefit from a more reliable irrigation water supply, and would help to protect agriculture related jobs within the District. There would be slight potential for a beneficial impact to socioeconomics from the increased water supply reliability facilitated by the Proposed Action/Proposed Project.

3.10 Environmental Justice

Environmental justice refers to the fair treatment of peoples of all races, income levels, and cultures with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. Fair treatment implies that no person or group of people should shoulder a disproportionate share of negative impacts resulting from the execution of Federal programs. Executive Order 12898, dated February 11, 1994, establishes the achievement of environmental justice as a Federal agency priority. The memorandum accompanying the order directs heads of departments and agencies to analyze the environmental effects of federal actions, including human health, economic, and social effects when required by National Environmental Policy Act (NEPA), and to address significant and adverse effects on minority and low-income communities.

3.10.1 Affected Environment

Tulare County employs seasonal workers on local farms that include migrant workers, commonly of Hispanic origin. Approximately 62.3 percent of the population within Tulare County is of Hispanic origin⁴, and the communities in which they reside depend on the City of Tulare for municipal and industrial water.

3.10.2 Environmental Consequences

No Action Alternative

Under the No Action Alternative, Reclamation would not help fund construction of the basin. Groundwater levels underlying TID would not be able to benefit from the additional recharge and TID would not be able to further regulate its surface water supplies to control seepage losses. TID would continue to use its surface water supplies as has historically occurred. All of the surrounding communities rely upon groundwater for municipal and industrial use and local farms depend on surface water delivered by TID for irrigation purposes; therefore, the No Action Alternative could result in slight adverse impacts to minority or low-income populations near the Project location.

Proposed Action/Proposed Project

To the extent that water supply reliability is improved in Tulare County under the Proposed Action/Proposed Project, it would serve to support the continued viability of available agricultural water to the surrounding local farms, as well as improving the reliability of groundwater supplies relied upon by surround homes and other users down gradient of the basin. As a result, there would be slight beneficial impacts to minority and/or disadvantaged populations from implementation of the Proposed Action/Proposed Project and not any adverse impact to minority groups. In addition, the Proposed Action would not disproportionately affect one community over another.

3.11 Agriculture Resources

Agriculture is the dominant landuse practice within the region surrounding the Project Area. It is identified as the largest private employer in the region accounting for a quarter of the jobs in the area.

3.11.1 Affected Environment

A review of the “Important Farmlands” mapping by the California Department of Conservation’s Farmland Mapping and Monitoring Program (FMMP) shows that the Proposed Action/Proposed Project basin site is designated as Prime Farmland. Surrounding properties are also designated as Prime Farmland, with the exception of the existing recharge basins which are designated as Urban and Built-up Land. The FMMP provides statistics on conversion of farmland to nonagricultural uses for Tulare County, where the Project site is located. Of the total land area that was inventoried (1,585,869 acres) in 2010, Tulare County had approximately 859,991 acres of Important Farmlands (including Prime Farmland, Farmland of Statewide Importance, Unique Farmland, and Farmland of Local Importance) and an additional 440,042 acres of grazing land. The remaining 285,836 acres of land were Urban and Built-up Land, Other Land, and Water

⁴ US Census Bureau, 2010. Site Accessed May 2015. <http://quickfacts.census.gov/qfd/states/06/06107.html>

Area. In the period between 2008 and 2010, Prime Farmlands had shown a net decrease of 4,870 acres within the County⁵.

Historically, land use at the Proposed Action/Proposed Project site has been furrow irrigated agricultural land and canal road right-of-way. Crops generally grown on the basin site included corn and wheat. According to the FMMP, the land is designated as Prime Farmland. No forest or timber land is present at the Proposed Action/Proposed Project site or in the Proposed Action/Proposed Project vicinity. According to the United States Department of Agriculture Natural Resources Conservation Service, there is predominantly one soil type present on the basin portion of the site, which is Nord fine sandy loam (78.1 acres) with Tagus loam covering approximately 2.4 acres (Appendix A). The Nord soil series originates from alluvial fans with a parent material of mixed alluvium derived mainly from granitic rock sources⁶. Nord fine sandy loam soils are nonsaline (0.0 to 2.0 mmhos/cm), well drained, and have a moderate available water capacity, with no documented cases of ponding.

3.11.2 Environmental Consequences

No Action Alternative

Under the no action alternative, agricultural lands within the Project area would continue to be used. There would be no alteration of agricultural lands or conversion of these lands out of agricultural production. Because the Project would not be built, there would be no impacts resulting from the selection of the No Action Alternative.

Proposed Action Alternative

The Project would include the construction of a recharge basin and accessory Project actions such as 1) installation of SCADA equipment, 2) relocation of a segment of the Serpa Ditch, and 3) construction of five groundwater monitoring wells within the District. This would allow the District to bank surface water supplies when water is available and pump the banked groundwater during times of water scarcity. The proposed basin site is currently an agricultural field. Water recharge facilities are an allowed agricultural use. Approximately 11,700 cubic yards of soil would be excavated and the excavated material would be used to build up the levees at a 2:1 slope. The wells would have a casing diameter of 16" and a 28" bore hole. They would measure 1200-1800 feet in depth, and would have a capacity of up to 2,500 gpm.

Proposed Action/Proposed Project construction would not convert farmland to non-farmland uses. The Proposed action site is zoned for agricultural uses and is not under a Williamson Act Contract. Impacts from the earthwork would be less than significant.

3.12 Geology and Soils

3.12.1 Affected Environment

Tulare County is divided into two major physiographic and geologic provinces: the Sierra Nevada Mountains and the Central Valley. The Sierra Nevada Physiographic Province, in the

⁵ California Department of Conservation. FMMP – Report and Statistics.

<http://www.conservation.ca.gov/dlrp/fmmp/products/Pages/ReportsStatistics.aspx>. Site accessed December 2014.

⁶ United States Department of Agriculture Natural Resources Conservation Service. Soil Survey of Tulare County, California Western Part, pg. 71.

eastern portion of the county, is underlain by metamorphic and igneous rock. It consists mainly of homogeneous granitic rocks, with several islands of older metamorphic rock. The central and western parts of the county are part of the Central Valley Province, underlain by marine and non-marine sedimentary rocks. It is basically a flat, alluvial plain, with soil consisting of material deposited by the uplifting of the mountains.⁷

Faulting and Seismicity

The Proposed Action/Proposed Project site is not located within an Alquist-Priolo Earthquake Fault Zone and no known faults cut through the local soil at the site. There are several faults located within a 70 mile radius of the Proposed Action/Proposed Project site. An unnamed fault is approximately 26.6 miles southeast (near Terra Bella), Poso Creek Fault is 33.9 miles south, San Andreas Fault, Parkfield section is approximately 61 miles southwest of the Proposed Action/Proposed Project site. Ground shaking is the primary seismic hazard in Tulare County because of the county's seismic setting and its record of historical activity. The San Joaquin Valley portion of the Tulare County is located on alluvial deposits, which tend to experience greater ground shaking intensities than areas located on hard rock⁸. In 1973, five counties within the Southern San Joaquin Valley undertook the preparation of the Five County Seismic Safety Element to assess seismic hazards which projected that with the maximum probable earthquake of a magnitude 8 to 8.5 centered along the San Andreas Fault, "relatively low levels of shaking should be expected in the eastern and central parts of the San Joaquin Valley⁹."

Soils

According to the United States Department of Agriculture Natural Resources Conservation Service, there is predominantly one soil type present on the Proposed Action/Proposed Project site, which is Nord fine sandy loam (78.1 acres) with Tagus loam covering approximately 2.4 acres (Appendix A). The Nord soil series originates from alluvial fans with a parent material of mixed alluvium derived mainly from granitic rock sources¹⁰. Nord fine sandy loam soils are nonsaline (0.0 to 2.0 mmhos/cm), well drained, and have a moderate available water capacity, with no documented cases of ponding¹¹.

3.12.2 Environmental Consequences

No Action Alternative

Under the no Action Alternative, there will be no funding by Reclamation for construction related activities. Current conditions would prevail. The existing storage basin will be used as it has historically been operated. There would be no impacts to geology and soils resulting from selection of the no action alternative.

Proposed Action Alternative

⁷ County of Tulare. 2010. General Plan Background Report. Page 8-4

County of Tulare. 2010. General Plan Background Report. Page 8-7

⁹ Ibid. Page 8-6 and 7

¹⁰ United States Department of Agriculture Natural Resources Conservation Service. Soil Survey of Tulare County, California Western Part, pg. 71.

¹¹ Appendix A- Soils Report

Grading activities associated with the construction of the Proposed Action/ Proposed Project would involve earthmoving, excavation, stockpiling, drilling and grading. These activities could expose soils to erosion processes. The extent of erosion would vary depending on slope steepness/stability, vegetation/cover, concentration of runoff, and weather conditions. The site is relatively flat which would reduce the potential for erosion and loss of topsoil to a certain degree. Topsoil materials would be stripped from the ground surface and used in part for construction of the earthen levees of the recharge basin. This would ensure that organic matter, the existing seed bank, and topsoil texture are maintained for soil-stabilizing efforts at the Proposed Action/Proposed Project site. The Project would result in a less than significant impact regarding soil erosion and topsoil loss.

No substantial faults are known to exist in the Tulare County area according to the Alquist-Priolo Earthquake Fault Zoning Map; thus the Project would have no impact regarding the danger associated with geologic instability. According to the United States Department of Agriculture Natural Resources Conservation Service, the site contains three soil mapping units representing three soil series. Colpien loam, 0 to 2 percent slopes; Nord fine sandy loam, 0 to 2 percent slopes; and Tagus loam, 0 to 2 percent slopes. None of these soil mapping units are classified as hydric in the California Hydric Soils List. Furthermore, all soils of the site have been significantly altered through decades of agricultural and water conveyance and storage practices such as grading, disking, and excavation. These soils are not considered to be expansive. No subsidence-prone soils, oil or gas production or overdraft exists at the Project site, and soil conditions on the site are not prone to soil instability due to their low shrink-swell behavior.

No habitable structures would be constructed on the site nor would substantial grading change the topography to the point where the Project would expose people or structures to potential substantial adverse affects. No septic tanks or alternative waste water disposal systems are proposed as part of the Project. There would be no impact.

3.13 Noise

3.13.1 Affected Environment

The proposed basin site is comprised of furrow irrigated agricultural land. Crops generally grown on the property included corn and wheat. The five monitoring wells are located along various canals within a 2.6 mile radius of the proposed basin site. All of these sites are surrounded by vacant land, canals, agricultural fields, rural residences and an existing recharge basin.

Noise levels generated by farm related equipment ranged from 69 to 100 dB at a distance of 50 feet from the equipment according to noise measurements conducted by Tulare County¹². Due to the seasonal nature of the agricultural industry, there are often extended periods of time when no noise is generated at the Proposed Action/Proposed Project site, followed by short-term periods of intensive mechanical equipment usage and corresponding noise generation.

¹² Tulare County General Plan Background Report, Pages 8-71 through 8-73

According to Table 3.5-1 Land Use Compatibility for Community Noise Environment in the Tulare County General Plan Recirculated Draft EIR normally acceptable noise exposure for agricultural zoned property is between 50 and 75 Ldn.

3.13.2 Environmental Consequences

No Action Alternative

If the no action alternative is selected, there will be no changes to the current setting. The current noise levels will persist related to agricultural activities and operations maintenance of the existing of the existing settling basin. There will be no additional impacts to noise if the no action alternative is selected.

Proposed Action Alternative

The proposed action includes the construction and operation of an 80-acre groundwater recharge basin and accessory project actions such as 1) installation of SCADA equipment, 2) relocation of a segment of the Serpa Ditch, and 3) construction of five groundwater monitoring wells within the District. The noise and vibration associated with these construction activities depends on the equipment used and distance from the source to the receptor.

Typical construction equipment would include scrapers, backhoes, drilling rigs and miscellaneous equipment (i.e. pneumatic tools, generators, and portable air compressors). Typical noise levels generated by this type of construction equipment at various distances from the noise source are listed below:

Table 5 - Noise Levels

Construction Equipment Noise Source	dBA at 50 ft	dBA at 100 ft	dBA at 1.0 mile
Pneumatic tools	85	79	45
Truck (e.g. dump, water)	88	82	48
Concrete mixer (truck)	85	79	45
Scraper	88	82	48
Bulldozer	87	81	47
Backhoe	85	79	45
Generator	76	70	36
Portable air compressor	81	75	41

Source: Borba Farms Dairy EIR, BASELINE Consulting, 1999, Cunniff 1977

Noise levels generated by the equipment would range from 76 to 88 dBA at a distance of 50 feet from the noise source; at 100 feet, the noise levels would range from 70 to 82 dBA. There are several rural residences located approximately 100 feet south of the Proposed Action/Proposed Project site; one residence located approximately 300 feet east of the southeast corner of the Project site and three residences located adjacent to the site within 100 feet. Noise from construction activities would exceed the Tulare County General Plan Noise Element (2012) “normally acceptable” noise standards of 75 dBA at the exterior of nearby residences. However, noise from construction activities is considered temporary and construction activities would be limited to the hours of 7 am to 7 pm, Monday through Friday and best practices guidelines would

be implemented as appropriate and feasible in accordance with Tulare County General Plan policies. The impact would be less than significant.

3.14 Cumulative Impacts

According to the Council on Environmental Quality regulations for implementing the procedural provisions of National Environmental Policy Act, 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 effects can result from individually minor but collectively significant actions taking place over a period of time.

The Proposed Action/Proposed Project does not involve land that is listed as a hazardous materials site pursuant to Government Code Section 65962.5 and is not included on a list compiled by the Department of Toxic Substances Control.

Biological resources would continue to be affected by other types of activities that are ongoing but unrelated to the Proposed Action/Proposed Project. Impacts to biological resources from the implementation of the Proposed Action/Proposed Project would occur only during construction activities. The Proposed Project would not have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species with implementation of mitigation as shown on page 3-38 through 3-43 of Attachment A.

Therefore, the Proposed Action/Proposed Project, when added to other similar past, existing, and future actions would not contribute to cumulative adverse impacts to wildlife resources since construction activities are short-term.

The Proposed Action/Proposed Project would result in an increase in TID's surface water supply reliability and improve groundwater conditions. As a result of improved water resource conditions, the Proposed Action could contribute to minor beneficial cumulative impacts in regards to socioeconomic resources resulting from increased local water supply reliability.

Section 4 Consultation and Coordination

Several Federal Laws, permits, licenses, and policy requirements have directed limited or guided the NEPA analysis and decision making process of this EA/IS. Sections 401 and 404 of the Clean Water Act are not applicable since the Proposed Action does not occur within waters of the United States. However, the Proposed Action would prepare a Stormwater Pollution Prevention Plan as part of its compliance with the State and other local entities with governing stormwater related issues.

4.1 National Environmental Policy Act

This EA/IS has been prepared pursuant to NEPA, which was signed into law in 1969 (42 USC Section 4321 et seq.). In addition, it was prepared in accordance with CEQ regulations for implementing NEPA, 40 CFR Parts 1500- 1508, and General Services Administration Order ADM 1095.1F. This EA/IS analyzes and discloses the potential impacts to the human environment from implementation of the Proposed Action. This EA/IS was circulated for public review and comment for 30 days. No comments were received.

4.2 Endangered Species Act

Section 7 of the Endangered Species Act 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 conducted informal consultation with the USFWS on potential effect of the Proposed Action on SJKF. The Proposed Action includes implementation of avoidance and minimization measures as described in Section 3.2.1. Reclamation has determined that the Proposed Action is not likely to adversely affect SJKF. Reclamation has received USFWS concurrence with this determination.

4.3 Fish and Wildlife Coordination Act

The Fish and Wildlife Coordination Act (FWCA) requires that Reclamation consult with fish and wildlife agencies (federal and state) on all water development projects that could affect biological resources. Reclamation is coordinating with USFWS on FWCA issues.

4.4 National Historic Preservation Act

Pursuant to the Section 106 regulations at 36 CFR § 800, Reclamation must consult with the SHPO on certain determinations and findings if the undertaking is determined by the Agency Official to be the type of undertaking that has the potential to cause effects to historic properties assuming such properties are present (36 CFR § 800.3[a][1]). Additionally, agencies may identify Indian tribes that may attach religious and cultural significance to cultural resources that could be affected by a Proposed Action. Once those tribes are identified, the agency official

shall invite them to assist in the identification of such properties and invite the Indian tribe to participate in the Section 106 process. Letters to the Santa Rosa Rancheria and Tule River Tribe were sent on two separate occasions, May 6 and August 5, 2015 requesting assistance in identifying sites of religious and cultural significance and inviting both tribes to participate in the Section 106 process. No responses to Reclamation's requests were received. Reclamation initiated consultation with the SHPO on September 1, 2015 seeking their concurrence on a finding of no adverse effect to historic properties. The SHPO concurred with Reclamation's determination on November 6, 2015.

4.5 Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) implements various treaties and conventions between the U.S. and Canada, Japan, Mexico and the former Soviet Union for the protection of migratory birds. Unless permitted by regulations, the MBTA provides that it is unlawful to pursue, hunt, take, capture or kill; attempt to take, capture or kill; possess, offer to or sell, barter, purchase, deliver or cause to be shipped, exported, imported, transported, carried or received any migratory bird, part, nest, egg or product, manufactured or not. Subject to limitations in the MBTA, the Secretary of the Interior may adopt regulations determining the extent to which, if at all, hunting, taking, capturing, killing, possessing, selling, purchasing, shipping, transporting or exporting of any migratory bird, part, nest or egg would be allowed, having regard for temperature zones, distribution, abundance, economic value, breeding habits and migratory flight patterns. As described in Section 3.2.1, mitigation measures would be implemented to avoid any impacts to MBTA protected species.

4.6 Executive Order 113007 and American Indian Religious Freedom Act and Sacred Sites on Federal Lands

A search of the Native American Heritage Commission (NAHC) *Sacred Lands File* was completed on October 30, 2014. These investigations determined that the study area, which included the APE and a buffer, had not been previously surveyed and no sacred sites or traditional cultural places had been identified within or adjacent to this area. (Appendix C).

4.7 Executive Order 12898 – Environmental Justice in Minority and Low-Income Populations

Executive Order 12898 requires Federal agencies to identify and address disproportionately high and adverse human health and environmental effects of Federal programs, policies, and activities on minority and low-income populations. The Proposed Action/Proposed Project would not cause dislocation, changes in employment, or increase flood, drought, or disease nor would it disproportionately impact economically disadvantaged or minority populations. Further discussion can be seen in section 3.10.

Section 5 List of Preparers and Reviewers

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Attachment A

CEQA – Initial Study Checklist