

RECLAMATION

Managing Water in the West

Final Environmental Assessment

Cawelo Water District Calloway Canal Lining Project – Reach B

EA-14-02-MP



**U.S. Department of the Interior
Bureau of Reclamation
Mid Pacific Region**

July 2014

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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List of Acronyms and Abbreviations

APE	Area of potential effect
CAA	Clean Air Act
CALFED	CALFED Bay-Delta Program
CDFG	California Department of Fish and Game
CDFW	California Department of Fish and Wildlife
CEQ	Council on Environmental Quality
CFR	Code of Federal regulations
CNDDDB	California Natural Diversity Data Base
CWD	Cawelo Water District
Delta	Sacramento-San Joaquin River Delta
DOI	Department of the Interior
EA	Environmental Assessment
FONSI	Finding of No Significant Impact
ITA	Indian Trust Assets
MBTA	Migratory Bird Treaty Act
NEPA	National Environmental Policy Act
NKWSD	North Kern Water Storage District
O & M	Operation and maintenance
PM ₁₀	Particulate matter less than 10 micrometers in diameter
PM _{2.5}	Particulate matter less than 2.5 micrometers in diameter
Reclamation	U.S. Bureau of Reclamation
ROW	Right-of-way
Service	U.S. Fish and Wildlife Service
SJVAB	San Joaquin Valley Air Board
SJVAPCD	San Joaquin Valley Air Pollution Control District
SHPO	State Historic Preservation Officer
SIP	State Implementation Plan
SOIP	System Operations Improvement Project
SWP	State Water Project
TLHR	Tulare Lake Hydrologic Region
USGS	U. S. Geological Survey

Section 1 Introduction

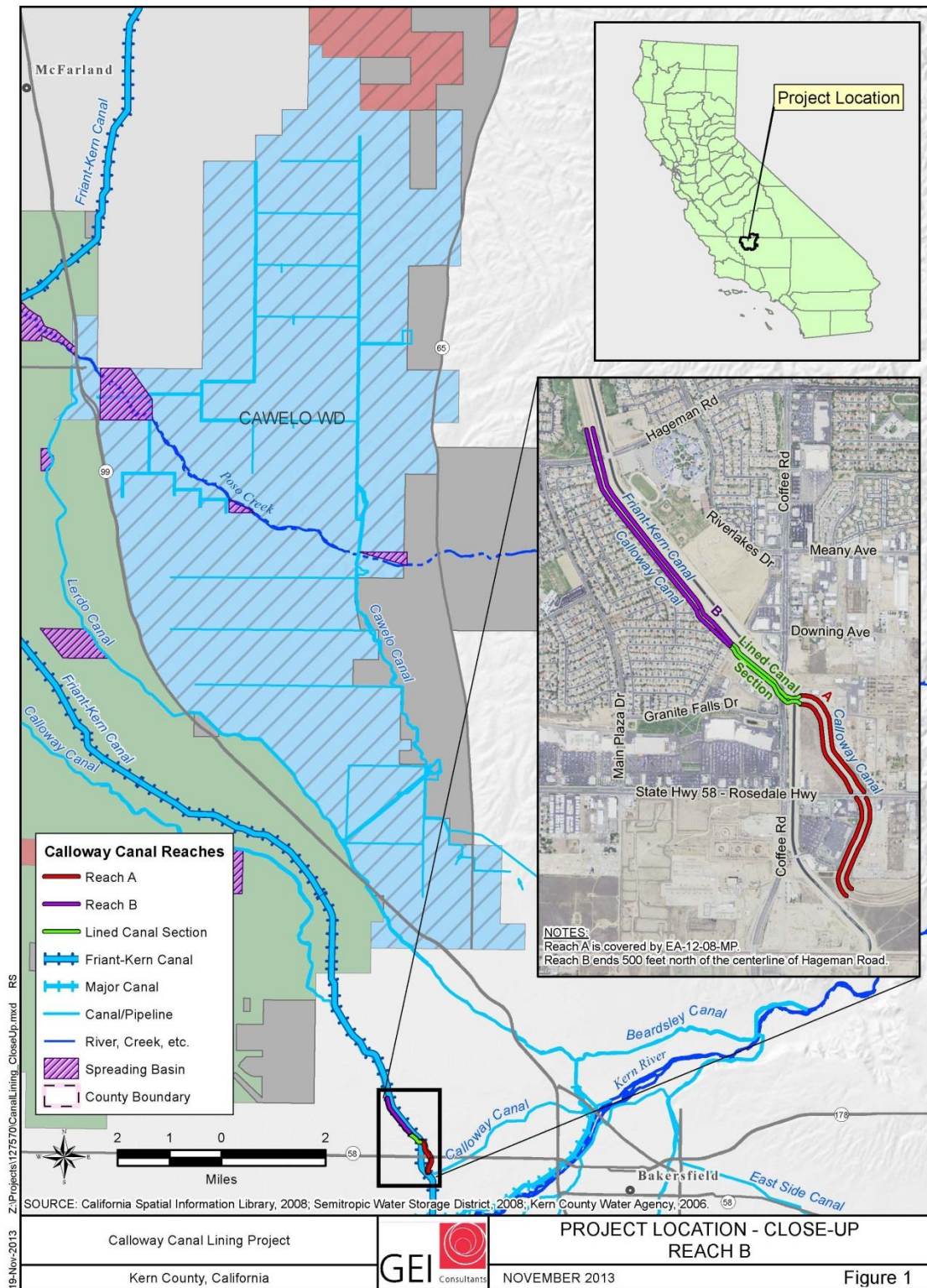
1.1 Background

In conformance with the National Environmental Policy Act of 1969 (NEPA), Council on Environmental Quality (CEQ) regulations (40 CFR 1500-1508), and DOI Regulations (43 CFR Part 46), the Bureau of Reclamation (Reclamation) has prepared this Environmental Assessment (EA) to evaluate and disclose any potential environmental impacts associated with implementation of the Cawelo Water District's (CWD) Calloway Canal Lining Project, Reach B (Proposed Action). (See Figure 1). The Proposed Action would decrease seepage to a groundwater basin containing constituents of concern by lining 4,124 linear feet of the Calloway Canal with concrete. The Proposed Action would further the goals and objectives of the CALFED program as they apply to water supply reliability and water quality. Reclamation proposes to provide a Department of the Interior (DOI) CALFED Bay-Delta Program grant to the CWD to support implementation of the Proposed Action.

The CWD was formed in 1965 as part of the State Water Project (SWP). The district is located in the Southern San Joaquin Valley, Kern County, California. Encompassing nearly 45,000 acres, the district lies between State Highway 99 on the west, State Highway 65 on the east, Oildale on the south and the community of McFarland on the north (Figure 1). About 34,000 of CWD's 45,000 acres are irrigated. The principle crops are grapes, citrus, deciduous fruits, and nuts. The CWD's average annual water supply is 44,052 acre-feet per year. CWD provides raw water for direct irrigation or water spreading for groundwater recharge, with no water provided for municipal services.

The Calloway Canal is a 30-mile long canal that is both lined and unlined. The first seven miles of canal were constructed between 1975 by O.P. Calloway and 1977 by the Kern County Land and Water Company, who subsequently expanded it to its current 30 mile length. Shortly after its creation, the CWD began cooperating with neighboring North Kern Water Storage District (NKWSD) in the use of conveyance facilities. In 2006, CWD and NKWSD formulated a plan to enhance the flexibility and efficiency of coordinated operations. The overall project, known as the Systems Operation Improvement Project (SOIP), consists of canal interties, pump stations, flow control structures, and canal lining. In conformance with the California Environmental Quality Act guidelines, NKWSD prepared and completed an Initial Study/Negative Declaration (IS/ND) for the SOIP, including plans to line the length of the Calloway Canal. (NKWSD 2006).

Previously, CWD, in partnership with NKWSD, applied for and was selected as a recipient of a CALFED Water Use Efficiency Grant to help fund lining 3,523 feet of the Calloway Canal (Reach A) between the CVC Intertie and Coffee Road. Reclamation prepared an EA and signed a Finding of No Significant Impact (FONSI) in April, 2013 on the lining of Reach A of the canal (Reclamation 2013).



This EA describes the existing environmental resources in the Proposed Action area, evaluates the effects of the No Action and Proposed Action alternatives on the resources, and proposes measures to avoid, minimize, or mitigate any adverse effects.

1.2 Need for the Proposal

Currently, Reach B loses approximately 1,442 acre-feet per year or over 72,100 acre-feet over the life of the project through seepage to a groundwater basin in the Tulare Lake Hydrologic Region containing phenol, a constituent of concern (DWR 2009). Water is not recovered from the groundwater basin due to the cost of treatment to remove the contaminant. The implementation of the Proposed Action would increase operational efficiency in the CWD and decrease recharge to the underlying groundwater basin.

Section 2 Alternatives Including Proposed Action

This EA 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 that would result from implementation of the Proposed Action.

2.1 No Action Alternative

Under the No Action Alternative, Reclamation would not award a CALFED Water Use Efficiency Grant to the CWD that would partially fund the lining of Reach B of the Calloway Canal. The unlined canal would continue to lose water to seepage.

2.2 Proposed Action Alternative

Under the Proposed Action Alternative, Reclamation would award CWD with a \$500,000 CALFED Water Use Efficiency Grant to assist in funding the lining of Reach B to reduce surface water and increase water supply reliability. CWD will split the local cost share with neighboring North Kern WSD. The two districts will provide the \$1,216,704 in funding from capital improvement accounts supported with water fees or from sale of past bonds.

Reach B extends from Coffee Road in the south to 500 feet north of Hageman Road. (See Figure 2). The total length of Reach B is 4,265 linear feet of which 141 feet are already lined; the total length to be lined is therefore 4,124 feet. The Proposed Action would be implemented when the canal is not being utilized for surface water conveyance within the CWD and therefore canal dewatering measures would not be necessary. The proposed land disturbance activities would include trimming the sides and bottom of the Calloway Canal to the desired design depths prior to lining the canal. All associated construction activities would occur on existing facilities and previously disturbed right-of-way's (ROW) that are owned and operated by the CWD. The material that would be removed from the areas where the canal is too narrow and/or shallow would be utilized in the areas where the canal section is too wide and/or deep. Access to the project site would be obtained through the existing Calloway Canal Operations and Maintenance (O&M) roads. Additional fill material is not anticipated for the completion of the Proposed Action during this study.



Figure 2. Calloway Canal Lining Project Detailed Area

Construction activities would include the following:

- The existing canal would be trimmed to provide a canal prism with a 50-foot wide bottom width, 8.5-foot nominal depth and approximately 29-foot sides 3:1 side slopes.
- Trimming foundation work and the placement of backfill would be completed with an excavator, loader, and compaction equipment.
- Concrete lining work would be completed with a self-propelled lining machine. About 5,500 cubic yards of concrete would be used assuming a liner thickness of 4-inches.

Proposed construction activities are expected to start on about November 1, 2014. The construction would take approximately 4 months.

2.2.1 Environmental Protection Measures

CWD would implement the following environmental protection measures to reduce potential environmental consequences associated with the Proposed Action (Table 1). Environmental consequences for resource areas assume the measures specified would be fully implemented.

Table 1. Environmental Protection Measures	
Resource	Measure
Biological Resources	CWD would follow Standardized Recommendations for Protection of the San Joaquin kit fox prior to and during ground disturbance (Service 2011). This includes conducting U.S. Fish and Wildlife Service (Service) approved pre-construction protocol level surveys for San Joaquin kit fox no fewer than 14 days and no more than 30 days prior to the onset of any ground-disturbing activity (Service 2011).
Biological Resources	A protocol level pre-construction burrowing owl survey shall be conducted within 250 feet of areas subject to disturbance no fewer than 14 days and no more than 30 days prior to start of construction according to established guidelines (CDFG 2012). Appropriate avoidance, minimization, or protection measures shall be determined in consultation with the California Department of Fish and Wildlife in the event an active burrow or nest is located in an area subject to disturbance, or within the typical setback.
Air Quality	Implement control measures for construction emissions of particulate matter less than 10 microns in diameter (PM ₁₀) according to the San Joaquin Valley Air Pollution Control District's (SJVAPCD) Regulation VIII (SJVAPCD 2012b). One measure includes the use of water with all "land clearing, grubbing, scraping, excavation, land leveling, grading, cut and fill, and demolition activities" for fugitive dust suppression.

Section 3 Affected Environment & Environmental Consequences

This section identifies the potentially affected environmental resources and the environmental consequences that could result from the Proposed Action and the No Action Alternatives.

3.1 Resources Not Analyzed in Detail

Department of the Interior Regulations, Executive Orders, and Reclamation guidelines require a discussion of the following items when preparing environmental documentation:

3.1.1 Cultural Resources

Reclamation conducted historic property identification efforts and identified that the Calloway Canal was previously determined to be ineligible for inclusion in the National Register of Historic Places under consensus with the State Historic Preservation Officer (SHPO). With no historic properties within the area of potential effect, Reclamation determined that a finding of no historic properties affected, pursuant to 36 CFR §800.4(d)(1), was appropriate for this undertaking.

Reclamation initiated consultation with the SHPO on August 1, 2013 via a mailed consultation package for this undertaking. On August 13, 2013, Reclamation received concurrence on this finding of effect. (See Appendix A).

3.1.2 Indian Trust Assets

ITAs are legal interests in assets that are held in trust by the United States for federally recognized Indian tribes or individuals. There are no Indian reservations, rancherias or allotments in the project area. The nearest ITA is a Public Domain Allotment approximately 39 miles east of the project location. The Proposed Action does not have a potential to affect ITAs. (See Appendix B).

3.1.3 Indian Sacred Sites

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

3.1.4 Environmental Justice

Executive Order 12898 requires each Federal agency to identify and address disproportionately high and adverse human health or environmental effects, including social and economic effects of its program, policies, and activities on minority populations and low-income populations. No significant changes in agricultural communities or practices would result from the Proposed

Action. Therefore, , the Proposed Action would not have a significant or disproportionately negative impact on low-income or minority individuals within the Proposed Action area.

3.2 Water Resources

3.2.1 Affected Environment

Surface Water Resources

A large portion of CWD's surface water supplies is SWP water, through a contract with Kern County Water Agency, with supplementary supplies from the Kern River, Poso Creek and recycled water. In order to meet CWD's average requirements of over 100,000 acre-feet, amounts in excess of available surface water supplies are met through groundwater sources. The Calloway Canal's nominal design is 1,000 cubic feet per second and may convey water up to nine months of the year.

Groundwater Resources

The underlying groundwater is part of the Kern County subbasin of the Tulare Lake Hydrologic Region (TLHR), one of seven subbasins designated by the California Department of Water Resources (DWR 2006). The region is essentially a closed basin, with principal drainages from the Kings, Kaweah, Tule, and Kern Rivers. These streams are the principal source of natural recharge to the underlying groundwater basin with applied irrigation also being a large contributor. Figure 3 shows that the underlying aquifer in the area of the Proposed Action is contaminated by phenol due to refinery operations. (Kern County Water Agency 1979). While this map was prepared in 1979, recent inquiry to the Regional Water Quality Control Board database indicates that several sites in this vicinity are still under active cleanup orders. CWD does not operate any groundwater recovery wells in the location of the Proposed Action although CWD has groundwater wells in other areas where there is no contamination.

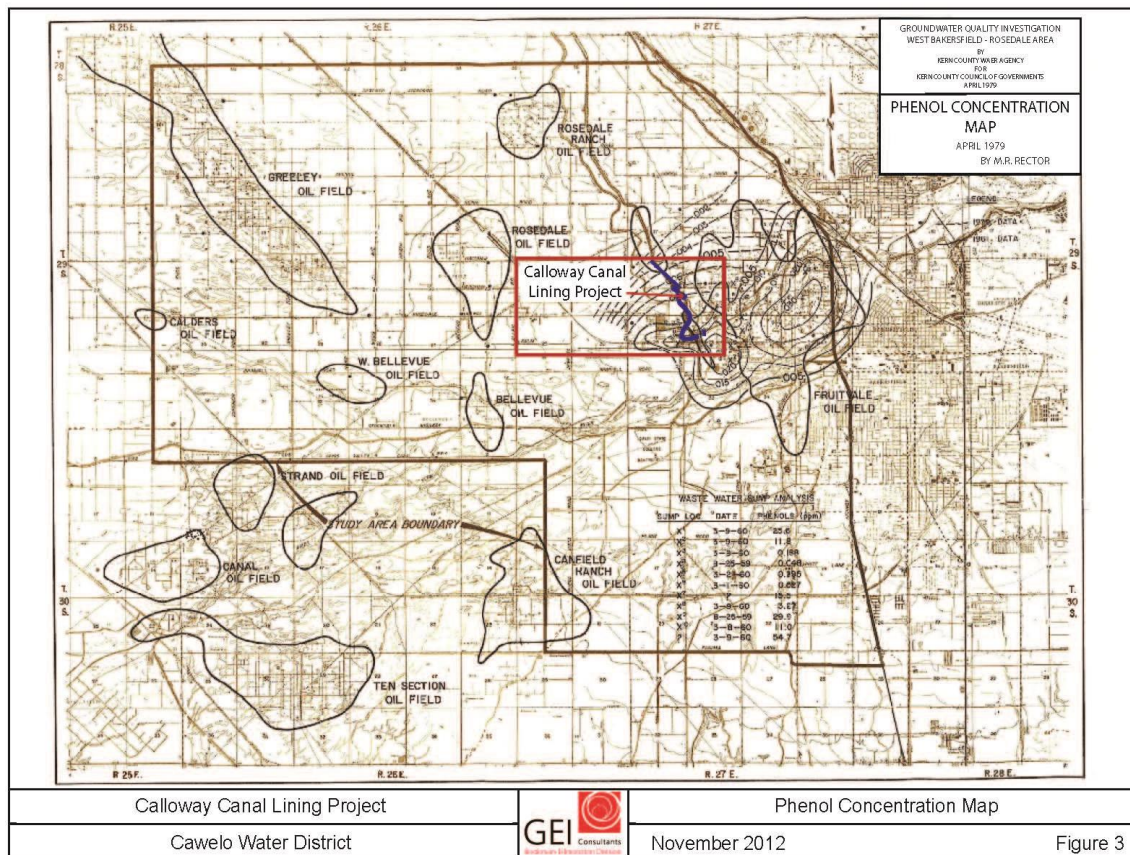
3.1.2 Environmental Consequences

No Action Alternative

Under the No Action Alternative, the existing operations of both surface water and ground water would be utilized under their current conditions and seepage into the groundwater basin would continue.

Proposed Action

Surface Water Resources - Through the Proposed Action, surface water would be conserved that would otherwise be recharged from the unlined canal; potentially about 1,442 acre-feet per year of surface supply would be conserved, based on historic use and use by new facilities under construction. (See Appendix D for how this was calculated). The conserved water would be delivered directly to the growers for crop irrigation or spread for groundwater recharge in an area where the groundwater is of usable quality. The conserved water would result in reduced



dependence on Bay-Delta diversions during the typical nine month duration that the CWD receives water. In addition to direct water savings the project would result in more beneficial use of water supplies, increased regional flexibility, increased operational efficiency, and associated water quality benefits. The Proposed Action would be implemented when the canal is not being utilized for surface water conveyance within the CWD and therefore canal dewatering measures would not be necessary.

Groundwater Resources – Implementation of the Proposed Action would reduce groundwater recharge in the vicinity of the Calloway Canal Reach B area where there is phenol contamination. There are no plans to treat and use the contaminated water, so the Proposed Action would not affect the use of this groundwater.

Once the canal is lined, the surface supply would be delivered within the irrigation district, thus offsetting an equal amount of groundwater pumping in the groundwater basin in areas with groundwater of quality suitable for irrigation. The irrigation demand would remain the same, with or without the Proposed Action. The total potential conserved water with the Proposed Action is 1,442 acre-feet per year. (Appendix D describes how this was calculated.) If the saved

groundwater is not used for other demands, reducing groundwater pumping could allow groundwater levels to rise in areas of usable groundwater. This could reduce the pumping lift and thus reduce the cost of pumping.

3.2 Biological Resources

3.2.1 Affected Environment

The Proposed Action would occur within a maintained canal right-of-way (ROW) and surrounded entirely by fully developed urban areas (Figure 2). There is no natural habitat remaining on the canal ROW or the immediately adjoining areas due to operation and maintenance activities occurring throughout the year. There is no critical habitat in the affected area.

On July 30, 2013, a species list of federally listed, proposed and candidate species potentially occurring in Kern County and the Oildale 7 ½ minute U.S. Geological Survey (USGS) Quadrangle was obtained from the Service's website. Table 2 summarizes the species' status, determination of effects from the Proposed Action, and a summary of the rationale supporting the determination.

Based on the habitat requirements of the listed species that could potentially occur within the Proposed Action area, suitable habitat is absent for the Swainson's hawk, Southwestern willow flycatcher, vernal pool fairy shrimp, valley elderberry longhorn beetle, Tipton kangaroo rat, Bakersfield cactus, San Joaquin woolly-threads, blunt-nosed leopard lizard, giant garter snake, and delta smelt. Therefore, these species are not discussed in this section.

Western Burrowing Owl

Although not listed under the federal Endangered Species Act, the burrowing owl is protected by the Migratory Bird Treaty Act (MBTA). This small ground-dwelling owl is a year-long resident that exhibits high site fidelity. They live in ground squirrel and other mammal burrows that it appropriates and enlarges for its own purposes (CDFG 2012). Burrowing owls are typically found in short-grass grasslands, open scrub habitats, and a variety of open, human-altered environments, such as the edges of canals or roadways, ditches, and drains along agricultural fields. These owls are active day and night and are opportunistic feeders. Their diet includes insects, amphibians, reptiles, small mammals, and grass material.

Burrowing owls have shown significant declines throughout California in recent years principally due to the conversion of grassland and pasturelands to agricultural and urban uses, and to poisoning programs to control California ground squirrels. Other hazards common to agricultural areas in the state that could impact burrowing owls include automobiles, barbed-wire fences, and electric fences (Gervais et al. 2008). CNDDDB records indicate owl burrows and kit fox occurrences within a 1-mile radius and den sites historically within a 3 mile radius of the project.

A field inspection of the canal right-of-way in August 2013 did not find any burrowing owls, burrowing owl tracks, whitewash, or pellets outside potential dens and burrows along the Calloway Canal (Meier 2013). Another survey was done in September 2013 (Vanherweg 2013) following guidelines contained in the CDFG Staff Report on Burrowing Owl Mitigation (CDFG 1995). Again, no burrowing owls or sign were found. Burrowing owls have been seen by residents who frequent the area; these are from the adjacent Friant-Kern Canal.

San Joaquin Kit Fox

The San Joaquin kit fox is federally listed as an endangered species. Their diet varies based on prey availability, and includes small to mid-sized mammals, ground-nesting birds, and insects. Kit foxes excavate their own dens, or may use other animals', and human-made structures (culverts, abandoned pipelines, and banks in sumps or roadbeds).

Table 2. Special Status Species in Surrounding USGS 7.5-minute Quadrangles

<u>Common Name</u>	<u>Scientific Name</u>	<u>Status</u> <u>1</u>	<u>Effect</u> ²	<u>Summary of Effects Determination</u> ³
Birds				
Swainson's hawk	<i>Buteo swainsoni</i>	MBTA	NE	CNDDDB ⁴ records indicate this species occurs within a 10-mile radius of the Proposed Action area. No suitable habitat present.
Southwestern willow flycatcher	<i>Empidonax traillii extimus</i>	E, MBTA	NE	No suitable habitat in the Proposed Action area.
Western burrowing owl	<i>Athene cunicularia</i>	MBTA	NLAA	Surveys did not find indication of owls along canal although CNDDDB ⁴ records indicate this species occurs within a 1-mile radius of the Proposed Action area. Environmental Protection Measures would be implemented to avoid potential effects.
Invertebrates				
Valley elderberry longhorn beetle	<i>Desmocerus californicus dimorphus</i>	T	NE	No suitable habitat in the Proposed Action area. No elderberry shrubs would be disturbed.
Vernal pool fairy shrimp	<i>Branchinecta lynchi</i>	T	NE	No suitable habitat in the Proposed Action area. No elderberry shrubs would be disturbed.
Mammals				
San Joaquin kit fox	<i>Vulpes macrotis mutica</i>	E	NLAA	Potential kit fox dens within canal right-of-way for Reach B. Known kit fox dens greater than 200 feet north of Reach B. CWD is paying into the Metropolitan Bakersfield Habitat Conservation Plan and would implement the Service's <i>Standardized Recommendations for Protection of the San Joaquin Kit Fox</i>
Tipton kangaroo rat	<i>Dipodomys nitratooides nitratooides</i>	E	NE	Previously recorded CNDDDB ⁴ sites within a 5-mile radius of the Proposed Action area have been developed for housing. No suitable habitat in project area.

Plants				
Bakersfield cactus	<i>Opuntia treleasei</i>	E	NE	CNDDDB ⁴ records indicate isolated clumps in Kern County, about 5 miles northeast of project area. Believed to be extirpated from Bakersfield due to development. No suitable habitat in project area.
San Joaquin woolly-threads	<i>Monolopia congdonii</i>	E	NE	Native vegetation and habitat has been eliminated at previously recorded CNDDDB ⁴ sites. Believed to be extirpated from Bakersfield due to development. No suitable habitat in project area.
Reptiles				
Blunt-nosed leopard lizard	<i>Gambelia sila</i>	E	NE	CNDDDB ⁴ records indicate this species occurs within the Oildale Quad and a 5-mile radius of the project area. No suitable habitat present.
Giant garter snake	<i>Thamnophis gigas</i>	T	NE	No suitable habitat present.
Amphibians				
California red-legged frog	<i>Rana draytonii</i>	T	NE	No suitable habitat present.

Fish				
Delta smelt	<i>Hypomesus transpacificus</i>	T	NE	No suitable habitat present.

¹ Status= Listing of Federally special status species, unless otherwise indicated

E: Listed as Endangered

MBTA: Birds protected by the Migratory Bird Treaty Act

T: Listed as Threatened

X: Critical Habitat designated for this species

² Effects = Effect determination

NE: No Effect to federally listed species anticipated from the Proposed Action.

NLAA: Not Likely to Adversely Affect with Environmental Protection Measures

MA: May Affect federally listed species

³ Summary of rationale supporting determination

⁴ CNDDB = California Natural Diversity Database 2013

Kit fox currently inhabit the western and southern San Joaquin Valley in grassland and scrubland communities. Primary reasons for the species' decline include loss and degradation of habitat (Service 1998), in addition to vehicular traffic.

Surveys conducted between 1998 and 2004 to support a report prepared for the California Department of Transportation (Caltrans), indicates that there is known San Joaquin kit fox activity in the immediate vicinity of Calloway Canal (Bjurlin, Cypher, Wingert, & Job, 2005). Kit fox were observed during daytime and nighttime during this study.

A biologist walked the canal right-of-way in August 2013 (Meier 2013). Evidence was found that red fox use the canal corridor. The presence of tracks, scat, and dens that would be made only by foxes smaller than the red fox indicate that there is the potential for San Joaquin kit fox to use the Calloway Canal corridor not only for movement, but also for denning.

Another biologist conducted a similar daytime ground survey for San Joaquin kit foxes, their dens, and sign at the proposed project corridor in September 2013. (Vanherweg 2013). The ground surveys were completed by walking transects 50 feet wide. The survey found 12 potential kit fox dens along the proposed project corridor for Reach B. Potential kit fox dens and known kit fox dens were found along the canal north of Reach B; kit fox and red fox scat was found at all the known dens. The nearest known den was more than 200 feet from the northern end of Reach B.

3.2.1 Environmental Consequences

No Action Alternative

Under the No Action Alternative, Reclamation would not provide grant funds for the lining of the Calloway Canal and conditions would remain the same as described above. There would be

no impacts to wildlife and special-status species as no new construction would occur and historical operation and maintenance practices would continue.

Proposed Action

Western Burrowing Owl

The Proposed Action is not likely to adversely affect the Western burrowing owl since they were not found along the canal. Since they have been found within a mile of the canal and appropriate burrows are present along the canal, one or more pair could potentially occupy a burrow prior to construction. Construction could affect the owl's survivorship or disturb their foraging habitat if the owls are within or along the edge of the canal (Gervais et al. 2008). Owls could also become disturbed from factors such as noise and vibration due to heavy equipment which could cause the owls to flee and result in nest failure as well as vehicular strikes. During construction, there is the potential that if owls are present along or near the canal, they could become buried inside burrows.

Environmental Protection Measures

A survey for burrowing owls would be conducted by a qualified biologist within 250 feet of the project area no fewer than 14 days and no more than 30 days prior to construction activities (CDFG 2012). (CDFG is now the California Department of Fish and Wildlife (CDFW)). If the survey indicates the presence of burrowing owls, then the mitigation measures to minimize impacts to burrowing owls, their burrows and foraging habitat according to established guidelines would be followed. CDFW would be consulted in the event occupied burrows or nests within 150 feet of an area subject to disturbance during the non-breeding season (September 1 through January 31), or within 250 feet of an area subject to disturbance during the breeding season (February 1 through August 31) are discovered within the Proposed Project area (CDFG 2012).

San Joaquin Kit Fox

The Proposed Action could cause negative impacts to prey abundance or reduce the number of potential den sites through habitat modification during construction (Service 1998). Impacts to kit foxes may also result if an individual uses the canal as a migratory corridor during construction. The Proposed Action may adversely affect the kit fox even though known kit fox dens do not occur within 200 feet of Reach B.

On May 22, 2014, CWD and funding partner NKWSD requested to participate in the Metropolitan Bakersfield Habitat Conservation Plan (MBHCP) and to use the related Incidental Take Permits to avoid any potential impacts from the Proposed Action to the San Joaquin kit fox. CWD and NKWSD were accepted to participate in the MBHCP. They will pay into the MBHCP for the acquisition or enhancement of habitat for kit fox.

Procedures to Obtain Compliance with the MBHCP. CWD would submit a map illustrating the location of the project to the MBHCP staff. MBHCP staff would then review the map. Following this review, MBHCP staff will determine the need for a Biological Clearance Survey. The survey would be performed by a qualified biologist and delivered to the U.S. Fish and Wildlife Service, the California Department of Fish and Wildlife, and City of Bakersfield Planning Division prior to approval of grading plans. The Clearance Survey would determine if there are any kit fox dens

on site. CWD would follow the *U.S. Fish And Wildlife Service Standardized Recommendations For Protection Of The Endangered San Joaquin Kit Fox Prior To Or During Ground Disturbance*. (See Appendix E).

Upon completion of the Biological Clearance Survey, MBHCP would specify the appropriate fees to be paid for the project. Once the fees are paid, MBHCP would provide the MBHCP Compliance Acknowledgement Form for the Proposed Action.

3.3 Air Quality

Section 176 (c) of the Clean Air Act (CAA) (42 USC 7506 (c)) requires that any entity of the Federal government that engages in, supports, or in any way provides financial support for, licenses or permits, or approves any activity to demonstrate that the action conforms to the applicable State Implementation Plan (SIP) required under Section 110 (a) of the CAA (42 USC 7401 (a)) before the action is otherwise approved. In this context, conformity means that such federal actions must be consistent with a SIP's purpose of eliminating or reducing the severity and number of violations of the National Ambient Air Quality Standards and achieving expeditious attainment of those standards. Each federal agency must determine that any action that is proposed by the agency and that is subject to the regulations implementing the conformity requirements would, in fact conform to the applicable SIP before the action is taken.

3.3.1 Affected Environment

The Proposed Action 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 all State and Federal health-based air quality standards. To protect health, the SJVAPCD is required by Federal law to adopt stringent control measures to reduce emissions. On November 30, 1993, the Environmental Protection Agency 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.

3.3.2 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

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

Short-term air quality impacts would be associated with construction, and would generally arise from dust generation (fugitive dust) and operation of construction equipment. Fugitive dust results from 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}.

Earth-moving equipment, trucks, and other mobile sources powered by diesel or gasoline are also sources of combustion emissions, including nitrogen dioxide, carbon monoxide, volatile organic compounds, sulfur dioxide, and small amounts of air toxics. Table 3 below shows the type of equipment and duration of operation estimated for the Proposed Action. Table 4 below provides a summary of the estimated emissions during construction against federal and local emission thresholds in tons per year. Calculated emissions from the Proposed Action were estimated using the 2013 California Emissions Estimator Model (CalEEMOD) software (version 2013.2.1), which incorporates emission factors for reactive organic gases (ROG), NO_x, CO, SO₂, and both fugitive and exhaust PM₁₀, and PM_{2.5}.

Comparison of the estimated Proposed Action emissions (without mitigation) and the thresholds for Federal and local conformity determinations (Table 4) indicates that project emissions are estimated to be below these thresholds. Nonetheless, the Proposed Action would implement the SJVAPCD's Regulation VIII (SJVAPCD 2012b) control measures for construction emissions of PM₁₀. One of these control measures includes the use of water with all "land clearing, grubbing, scraping, excavation, land leveling, grading, cut and fill, and demolition activities" for fugitive dust suppression.

Table 3- Type of Equipment and Duration of Operation for Reach B Lining			
Type of Equipment	Proposed Use	Number of Equipment	Duration of Operation ¹
Skip Loader	Loading of excess materials, moving material, cleanup	1	1.5-2 months
Compactor	Scarify and re-compact material	1	1.5-2 months
Excavator	Digging and material handling	1	1.5-2 months
Power-Operated Vibratory Screed	Leveling out/vibrating concrete mixture	1	1.5-2 months
Concrete Trucks	Transportation of concrete mix	1	1.5-2 months
Motor Grader	Final grading of canal embankments and clean up	1	1.5-2 months
Water Truck	Dust abatement and moisture conditioning of soil	2	1.5-2 months
Pick-up Trucks	Service of equipment	2	3 months

¹Equipment operated 8 hours/day for 5 days/week

Table 4 - Estimated Calloway Canal Reach B Lining Emissions During Construction and Federal and Local Emissions Thresholds in tons per year				
Pollutant	Attainment Status ^a	Thresholds for Federal Conformity Determinations ^b	Local Significance Thresholds ^b	Estimated Project Emissions ^c
VOC ¹ (as an ozone precursor)	Nonattainment/Extreme (8-hour ozone)	10	10	0.71
NO _x ² (as an ozone precursor)	Attainment	50	10	0.61
PM ₁₀ ³	Nonattainment	100	15	0.37
PM _{2.5} ⁴	Nonattainment	100	15	0.08
CO ₂	-	-	---	49.31

1 = volatile organic compounds

2 = nitrogen oxides

3 = particulate matter less than 10 micrometers in diameter

4 = particulate matter less than 2.5 micrometers in diameter

^aSJVAPCD (2012a)

^b40 CFR 93.153

^cConstruction emissions estimated with CalEEMOD Windows Version 2013.2.1

3.4 Cumulative Effects

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

Greenhouse gas (GHG) impacts are considered to be cumulative impacts since any increase in GHG emissions would add to the existing inventory of gases that could contribute to climate change. The estimated GHG emission due to temporary Proposed Action construction activities is 49.31 metric tons of carbon dioxide equivalents, using CalEEMOD. There are no on-going operational emissions from the Project.

There are no other known past, present, and reasonably foreseeable future actions that would cumulatively result in significant impacts to the human environment when taking into consideration the actions analyzed within this EA

Section 4 Consultation & Coordination

Several Federal laws, permits, licenses and policy requirements have directed or guided the NEPA analysis and decision making process of this EA.

4.1 Public Review Period

Reclamation will make the EA available for a 15 day period. Additional analysis will be prepared if substantive comments identify impacts that were not previously analyzed or considered.

4.2 State Historic Preservation Officer

Reclamation consulted with SHPO August 1, 2013 regarding a finding of no effects to historic properties pursuant to 36 CFR Part 800.4(d)(1). SHPO concurred with Reclamations' findings and determination on August 13, 2013. (See Appendix C).

4.3 Endangered Species Act (16 USC § 1531 et seq.)

Section 7 of the Endangered Species Act requires Federal agencies to ensure that discretionary federal actions do not jeopardize the continued existence of threatened or endangered species or result in the destruction or adverse modification of the critical habitat of these species.

Reclamation sent a memo to the Service dated January 8, 2014 requesting concurrence with the determination that the Proposed Action may affect but is not likely to adversely affect the San Joaquin kit fox, based on implementation of the avoidance measures presented previously in Section 3.2.2. (Appendix C). Subsequent discussions with the Service indicated that the Proposed Action would lead to a "may affect" determination and Reclamation would have to formally consult. The Service recommended that CWD apply to participate in the Metropolitan Bakersfield Habitat Conservation Plan (MBHCP) instead of formal consultation. The purpose of the MBHCP is to acquire, preserve and enhance native habitats which support endangered and threatened species while allowing urban development to proceed within the Bakersfield and Kern County areas. The MBHCP has an Incidental Take Permit under Section 10(a) of the Endangered Species Act. The MBHCP describes a method of collecting funds for the acquisition and/or enhancement of natural lands for purposes of creating preserves, and also provides a reduction of take of endangered species within the developed areas.

On May 22, 2014, CWD and funding partner NKWSD requested to participate in the MBHCP and to use the related Incidental Take Permit to avoid any potential impacts to the San Joaquin kit fox. CWD and NKWSD were accepted to participate and will pay into the MBHCP.

On June 6, 2014, Reclamation, at the Service's request, sent a memo to the Service canceling the request for concurrence. (Appendix C).

Section 5 References

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Appendix A

Cultural Resources Compliance Memo



IN REPLY
REFER TO:
MP-153
ENV-3.00

United States Department of the Interior

BUREAU OF RECLAMATION
Mid-Pacific Regional Office
2800 Cottage Way
Sacramento, California 95825-1898

August 19, 2013
MEMORANDUM

To: Doug Kleinsmith
Natural Resources Specialist – Division of Environmental Affairs

From: BranDee Bruce
Architectural Historian – Division of Environmental Affairs

Subject: 13-MPRO-170 – Section 106 Conclusion Memo for a CALFED Grant to the Cawelo Water District (CWD)
for the Installation of Concrete Lining on the Calloway Canal, Kern County, California

The proposed undertaking to fund the installation of 9,000 linear feet of concrete lining on the Calloway Canal through a CALFED grant has resulted in no historic properties affected pursuant to 36 CFR §800.4(d)(1) of the National Historic Preservation Act of 1966 (16 USC 470) Section 106 implementing regulations, as amended.

The proposed action includes Reclamation issuing a CALFED grant to CWD for the installation of 9,000 linear feet of concrete lining on the Calloway Canal, in Kern County, California. Reclamation conducted historic property identification efforts and identified that the Calloway Canal was previously determined to be ineligible for inclusion in the National Register of Historic Places (National Register) under consensus with the State Historic Preservation Officer (SHPO). With no historic properties within the area of potential effect, Reclamation determined that a finding of no historic properties affected, pursuant to 36 CFR §800.4(d)(1), was appropriate for this undertaking.

Reclamation initiated consultation with the SHPO on August 1, 2013 via a mailed consultation package for this undertaking. On August 13, 2013, Reclamation received concurrence on our finding of effect (see attached SHPO concurrence to email).

This memorandum is intended to convey the completion of the NHPA Section 106 process for this undertaking. Please retain a copy in the administrative record for this action. Should changes be made to this project, additional NHPA Section 106 review, possibly including additional consultation with the SHPO, may be necessary. Thank you for providing the opportunity to comment.

CC: MP-153 Cultural Resources Branch, MP 150 Anastasia Leigh Regional Environmental Officer

Appendix B

Indian Trust Assets Compliance Memo



KLEINSMITH, DOUGLAS <dkleinsmith@usbr.gov>

Re: Cawelo Canal Lining ITA request

RIVERA, PATRICIA <privera@usbr.gov>
To: DOUGLAS KLEINSMITH <dkleinsmith@usbr.gov>

Mon, Aug 5, 2013 at 2:09 PM

Doug,

I reviewed the proposed action to award Calloway Water District with a CALFED Water Use Efficiency Grant to assist in funding the lining of the Calloway Canal between the Cross Valley Canal Intertie and Coffee Road to reduce surface water seepage into a contaminated groundwater basin and increase water supply reliability. The existing canal would be trimmed to provide a canal prism with a 50-foot wide bottom width, 8.5-foot nominal depth and approximately 29-foot sides with 3:1 side slopes. Approximately 108 square feet of the Canal would be lined with unreinforced concrete for each linear foot of canal; the total length to be concrete lined is approximately 8,990 feet.

The proposed action does not have a potential to impact Indian Trust Assets. The nearest ITA is a Public domain Allotment approximately 39 miles East of the project location.

Patricia Rivera
Native American Affairs Program Manager
US Bureau of Reclamation
Mid-Pacific Region
2800 Sacramento, California 95825
(916) 978-5194

Appendix C

Endangered Species Correspondence



IN REPLY REFER TO:

MP-152
ENV-7.00

United States Department of the Interior

BUREAU OF RECLAMATION
Mid-Pacific Regional Office
2800 Cottage Way
Sacramento, CA 95825-1898

JAN 08 2014

MEMORANDUM

To: Field Supervisor, Sacramento Fish and Wildlife Office
Attn: Thomas Leeman

From: Anastasia T. Leigh
Regional Environmental Officer

Subject: Request for Concurrence on Potential Effects to San Joaquin Kit Fox for the Cawelo Water District (CWD) Calloway Canal Lining Project – Reach B (Proposed Action)

Pursuant to Section 7 of the Endangered Species Act (16 U.S.C. § 1536), the Bureau of Reclamation requests written concurrence from the U.S. Fish and Wildlife Service that the Proposed Action may affect, but is not likely to adversely affect, the San Joaquin kit fox (SJKF) (*Vulpes macrotis mutica*). Reclamation's determination is based on implementation of the avoidance and minimization measures provided in the attached Environmental Assessment (EA) for the project.

The action area is located near Bakersfield in Kern County, California. Reclamation would award CWD a CALFED Water Use Efficiency Grant to assist in funding the lining of Reach B of the Calloway Canal, which is the section of the canal beyond the already lined section north west of Coffee Road up to 500 feet past Hageman Road (Figure 1). The Proposed Action would decrease seepage to a groundwater basin by lining 4,124 linear feet of the Calloway Canal with concrete. Currently, Reach B loses approximately 1,442 acre-feet per year.

This action is similar to the Calloway Canal Lining Project for lining the canal south of Reach B, between the Cross Valley Canal Intertie and just north of Coffee Road (the portion of the canal in red in Figure1); the Service concurred with Reclamation's not likely to adversely affect determination for that project on March 7, 2013 (File number 08ESMF00-2013-1-0135).

The Proposed Action would be constructed within the existing disturbed canal rights-of-way in a developed urban area. Potential SJKF dens occur within Reach B and SJKF could potentially use the project area as a migratory corridor during the construction window. Known dens are greater than 200 feet from Reach B. The Service's Standardized Recommendations for the Protection of the Endangered SJKF outlined in the EA would be implemented prior to and

during all stages of the Proposed Action to avoid adverse impacts to the species. Reclamation would reinitiate consultation if any known kit fox dens are planned to be destroyed.

When taking into consideration the avoidance and minimization measures which have been incorporated into the Proposed Action, adverse impacts to the SJKF from the project are discountable and insignificant. Reclamation has determined that the SJKF is not likely to be adversely affected by the Proposed Action.

If you have any questions, please contact Mr. Douglas Kleinsmith, Natural Resources Specialist, at 916-978-5034 or dkleinsmith@usbr.gov.

Attachments - 2

cc: SCC-424 (SMcDonald)
(w/attachment)



United States Department of the Interior

BUREAU OF RECLAMATION
Mid-Pacific Regional Office
2800 Cottage Way
Sacramento, California 95825-1898

IN REPLY
REFER TO:

MP-152
ENV-7.00

JUN 06 2014

MEMORANDUM

To: Field Supervisor, Sacramento Fish and Wildlife Office
Attn: Thomas Leeman

From: Anastasia T. Leigh
Regional Environmental Officer

Subject: Cancel Request for Concurrence on Potential Effects to San Joaquin Kit Fox for the Cawelo Water District (CWD) Calloway Canal Lining Project – Reach B (Proposed Action)

On January 8, 2014, Reclamation sent a memo to the U.S. Fish and Wildlife Service (FWS) requesting written concurrence that the Proposed Action may affect, but is not likely to adversely affect, the San Joaquin kit fox. Reclamation's determination was based on implementation of the avoidance and minimization measures provided in the Environmental Assessment for the project. Subsequent discussions with FWS indicated that the Proposed Action would lead to a "may affect" determination and we would have to formally consult. FWS recommended that CWD apply to participate in the Metropolitan Bakersfield Habitat Conservation Plan (MBHCP) instead of formal consultation.

On May 22, 2014, CWD and funding partner North Kern Water Storage District (NKWSD) requested to participate in the MBHCP and to use the related Incidental Take Permits for the Proposed Action. CWD intends to get coverage for Reach B and future lining proposals for Reaches C and D.

Reclamation understands that CWD and NKWSD were accepted to participate in the MBHCP and we anticipate that the endangered species compliance will be through the MBHCP as discussed above. Consequently, we are withdrawing our request for concurrence. CWD and NKWSD will pay into the MBHCP prior to construction and will get a receipt and instructions from the MBHCP Implementation Trust Group.

If you have any questions, please contact Mr. Douglas Kleinsmith, Natural Resources Specialist, at 916-978-5034 or dkleinsmith@usbr.gov.

cc: MP-400 (GLee)
SCC-424 (SMcDonald)

Appendix D

Calculations for Amount of Water Conserved by Lining

The groundwater basin in Kern County is estimated to be about 40,000,000 acre-feet in volume . Implementation of the Proposed Action would reduce groundwater recharge to an area where recovery of the groundwater would be problematic due to constituents of concern; if groundwater is recovered in the unlined canal area, an added cost to treat would be necessary prior to beneficial use of the groundwater supply. Once the canal is lined, the surface supply will be delivered within the irrigation district, thus offsetting an equal amount of groundwater pumping in the groundwater basin in an area with groundwater of quality suitable for irrigation, since the irrigation demand remains the same, with or without the Proposed Action. Historical data is collected at various locations along the Calloway Canal and reported in the North Kern Water Storage District Calloway Canal Diversion Summary available from the annual Kern River Report prepared by the City of Bakersfield. (City of Bakersfield 1990-2010). The reports used in this analysis are from 1990 to 2010. The Calloway Canal is used by NKWSD mainly in “wet” years and therefore the flow in the canal is highly variable with the canal being unused during dry periods. To determine the average annual seepage losses, two different flow measurement locations along the canal were compared, specifically the Buck Owens Weir and the Olive Drive Weir, which includes Reach B. Taking into account all deliveries and inflows, the difference between the two points is the amount of water lost due to seepage . The seepage loss at Buck Owens Weir for the approximate six mile reach of canal lost on average 6,975 acre-feet per year. Therefore the amount of water lost in this reach per year is 1,125 acre-feet per mile. However, during some of the months, the canal was only operated for part of the month; therefore, averages are not truly reflective of daily losses. When the canal was typically operated for the entire month, the average loss was 1,994 acre-feet per month or 322 acre-feet per month per mile. The implied average loss is 11 acre-feet per day per mile and the operations averaged 3.14 months per year (96 days per year). The length of the reach proposed to be lined under the Proposed Action is roughly 4,124 feet (0.78 miles). Therefore, the amount water saved would be about 824 acre-feet of water conserved per year (11 acre-feet per day/mile x 0.78 miles x 96 days per year) based on historical use of the NKWSD facilities.

A new canal linking the Cross Valley Canal (which delivers SWP water to CWD) and the Calloway Canal will be completed before implementation of the Proposed Action. With the new canal connection and associated operation scheme, the Calloway Canal could see an increased operation of 2.4 months per year (72 days). This would allow the Proposed Action to save an additional 618 acre-feet per year (11 acre-feet per day/mile x 0.78 miles x 72 days.) The total potential conserved water with the Proposed Action is 1,442 acre-feet per year, based on the historic use plus use associated with the new canal connection.

Appendix E

U.S. Fish and Wildlife Service Standardized Recommendations for Protection of the Endangered San Joaquin Kit Fox Prior to or During Ground Disturbance.

STANDARD RECOMMENDATIONS

U.S. FISH AND WILDLIFE SERVICE STANDARDIZED RECOMMENDATIONS FOR PROTECTION OF THE ENDANGERED SAN JOAQUIN KIT FOX PRIOR TO OR DURING GROUND DISTURBANCE

Prepared by the Sacramento Fish and Wildlife Office

January 2011

INTRODUCTION

The following document includes many of the San Joaquin kit fox (*Vulpes macrotis mutica*) protection measures typically recommended by the U. S. Fish and Wildlife Service (Service), prior to and during ground disturbance activities. **However, incorporating relevant sections of these guidelines into the proposed project is not the only action required under the Endangered Species Act of 1973, as amended (Act) and does not preclude the need for section 7 consultation or a section 10 incidental take permit for the proposed project.** Project applicants should contact the Service in Sacramento to determine the full range of requirements that apply to your project; the address and telephone number are given at the end of this document. Implementation of the measures presented in this document may be necessary to avoid violating the provisions of the Act, including the prohibition against "take" (defined as killing, harming, or harassing a listed species, including actions that damage or destroy its habitat). These protection measures may also be required under the terms of a biological opinion pursuant to section 7 of the Act resulting in incidental take authorization (authorization), or an incidental take permit (permit) pursuant to section 10 of the Act. The specific measures implemented to protect kit fox for any given project shall be determined by the Service based upon the applicant's consultation with the Service.

The purpose of this document is to make information on kit fox protection strategies readily available and to help standardize the methods and definitions currently employed to achieve kit fox protection. The measures outlined in this document are subject to modification or revision at the discretion of the Service.

IS A PERMIT NECESSARY?

Certain acts need a permit from the Service which includes destruction of any known (occupied or unoccupied) or natal/pupping kit fox dens. Determination of the presence or absence of kit foxes and /or their dens should be made during the environmental review process. All surveys and monitoring described in this document must be conducted by a qualified biologist and these activities do not require a permit. A qualified biologist (biologist) means any person who has completed at least four years of university training in wildlife biology or a

related science and/or has demonstrated field experience in the identification and life history of the San Joaquin kit fox. In addition, the biologist(s) must be able to identify coyote, red fox, gray fox, and kit fox tracks, and to have seen a kit fox in the wild, at a zoo, or as a museum mount. Resumes of biologists should be submitted to the Service for review and approval prior to any survey or monitoring work occurring.

SMALL PROJECTS

Small projects are considered to be those projects with small foot prints, of approximately one acre or less, such as an individual in-fill oil well, communication tower, or bridge repairs. These projects must stand alone and not be part of, or in any way connected to larger projects (i.e., bridge repair or improvement to serve a future urban development). The Service recommends that on these small projects, the biologist survey the proposed project boundary and a 200-foot area outside of the project footprint to identify habitat features and utilize this information as guidance to situate the project to minimize or avoid impacts. If habitat features cannot be completely avoided, then surveys should be conducted and the Service should be contacted for technical assistance to determine the extent of possible take.

Preconstruction/preactivity surveys shall be conducted no less than 14 days and no more than 30 days prior to the beginning of ground disturbance and/or construction activities or any project activity likely to impact the San Joaquin kit fox. Kit foxes change dens four or five times during the summer months, and change natal dens one or two times per month (Morrell 1972). Surveys should identify kit fox habitat features on the project site and evaluate use by kit fox and, if possible, assess the potential impacts to the kit fox by the proposed activity. The status of all dens should be determined and mapped (see Survey Protocol). Written results of preconstruction/preactivity surveys must be received by the Service within five days after survey completion and prior to the start of ground disturbance and/or construction activities.

If a natal/pupping den is discovered within the project area or within 200-feet of the project boundary, the Service shall be immediately notified and under no circumstances should the den be disturbed or destroyed without prior authorization. If the preconstruction/preactivity survey reveals an active natal pupping or new information, the project applicant should contact the Service immediately to obtain the necessary take authorization/permit.

If the take authorization/permit has already been issued, then the biologist may proceed with den destruction within the project boundary, except natal/pupping den which may not be destroyed while occupied. A take authorization/permit is required to destroy these dens even after they are vacated. Protective exclusion zones can be placed around all known and potential dens which occur outside the project footprint (conversely, the project boundary can be demarcated, see den destruction section).

OTHER PROJECTS

It is likely that all other projects occurring within kit fox habitat will require a take authorization/permit from the Service. This determination would be made by the Service during

the early evaluation process (see Survey Protocol). These other projects would include, but are not limited to: Linear projects; projects with large footprints such as urban development; and projects which in themselves may be small but have far reaching impacts (i.e., water storage or conveyance facilities that promote urban growth or agriculture, etc.).

The take authorization/permit issued by the Service may incorporate some or all of the protection measures presented in this document. The take authorization/permit may include measures specific to the needs of the project and those requirements supersede any requirements found in this document.

EXCLUSION ZONES

In order to avoid impacts, construction activities must avoid their dens. The configuration of exclusion zones around the kit fox dens should have a radius measured outward from the entrance or cluster of entrances due to the length of dens underground. The following distances are **minimums**, and if they cannot be followed the Service must be contacted. Adult and pup kit foxes are known to sometimes rest and play near the den entrance in the afternoon, but most above-ground activities begin near sunset and continue sporadically throughout the night. Den definitions are attached as Exhibit A.

Potential den**	50 feet
Atypical den**	50 feet
Known den*	100 feet
Natal/pupping den (occupied and unoccupied)	Service must be contacted

*Known den: To ensure protection, the exclusion zone should be demarcated by fencing that encircles each den at the appropriate distance and does not prevent access to the den by kit foxes. Acceptable fencing includes untreated wood particle-board, silt fencing, orange construction fencing or other fencing as approved by the Service as long as it has openings for kit fox ingress/egress and keeps humans and equipment out. Exclusion zone fencing should be maintained until all construction related or operational disturbances have been terminated. At that time, all fencing shall be removed to avoid attracting subsequent attention to the dens.

**Potential and Atypical dens: Placement of 4-5 flagged stakes 50 feet from the den entrance(s) will suffice to identify the den location; fencing will not be required, but the exclusion zone must be observed.

Only essential vehicle operation on existing roads and foot traffic should be permitted. Otherwise, all construction, vehicle operation, material storage, or any other type of surface disturbing activity should be prohibited or greatly restricted within the exclusion zones.

DESTRUCTION OF DENS

Limited destruction of kit fox dens may be allowed, if avoidance is not a reasonable alternative,

provided the following procedures are observed. The value to kit foxes of potential, known, and natal/pupping dens differ and therefore, each den type needs a different level of protection.

Destruction of any known or natal/pupping kit fox den requires take authorization/permit from the Service.

Destruction of the den should be accomplished by careful excavation until it is certain that no kit foxes are inside. The den should be fully excavated, filled with dirt and compacted to ensure that kit foxes cannot reenter or use the den during the construction period. If at any point during excavation, a kit fox is discovered inside the den, the excavation activity shall cease immediately and monitoring of the den as described above should be resumed. Destruction of the den may be completed when in the judgment of the biologist, the animal has escaped, without further disturbance, from the partially destroyed den.

Natal/pupping dens: Natal or pupping dens which are occupied will not be destroyed until the pups and adults have vacated and then only after consultation with the Service. Therefore, project activities at some den sites may have to be postponed.

Known Dens: Known dens occurring within the footprint of the activity must be monitored for three days with tracking medium or an infra-red beam camera to determine the current use. If no kit fox activity is observed during this period, the den should be destroyed immediately to preclude subsequent use.

If kit fox activity is observed at the den during this period, the den should be monitored for at least five consecutive days from the time of the observation to allow any resident animal to move to another den during its normal activity. Use of the den can be discouraged during this period by partially plugging its entrances(s) with soil in such a manner that any resident animal can escape easily. Only when the den is determined to be unoccupied may the den be excavated under the direction of the biologist. If the animal is still present after five or more consecutive days of plugging and monitoring, the den may have to be excavated when, in the judgment of a biologist, it is temporarily vacant, for example during the animal's normal foraging activities.

The Service encourages hand excavation, but realizes that soil conditions may necessitate the use of excavating equipment. However, extreme caution must be exercised.

Potential Dens: If a take authorization/permit has been obtained from the Service, den destruction may proceed without monitoring, unless other restrictions were issued with the take authorization/permit. If no take authorization/permit has been issued, then potential dens should be monitored as if they were known dens. If any den was considered to be a potential den, but is later determined during monitoring or destruction to be currently, or previously used by kit fox (e.g., if kit fox sign is found inside), then all construction activities shall cease and the Service shall be notified immediately.

CONSTRUCTION AND ON-GOING OPERATIONAL REQUIREMENTS

Habitat subject to permanent and temporary construction disturbances and other types of ongoing project-related disturbance activities should be minimized by adhering to the following

activities. Project designs should limit or cluster permanent project features to the smallest area possible while still permitting achievement of project goals. To minimize temporary disturbances, all project-related vehicle traffic should be restricted to established roads, construction areas, and other designated areas. These areas should also be included in preconstruction surveys and, to the extent possible, should be established in locations disturbed by previous activities to prevent further impacts.

1. Project-related vehicles should observe a daytime speed limit of 20-mph throughout the site in all project areas, except on county roads and State and Federal highways; this is particularly important at night when kit foxes are most active. Night-time construction should be minimized to the extent possible. However if it does occur, then the speed limit should be reduced to 10-mph. Off-road traffic outside of designated project areas should be prohibited.

2. To prevent inadvertent entrapment of kit foxes or other animals during the construction phase of a project, all excavated, steep-walled holes or trenches more than 2-feet deep should be covered at the close of each working day by plywood or similar materials. If the trenches cannot be closed, one or more escape ramps constructed of earthen-fill or wooden planks shall be installed. Before such holes or trenches are filled, they should be thoroughly inspected for trapped animals. If at any time a trapped or injured kit fox is discovered, the Service and the California Department of Fish and Game (CDFG) shall be contacted as noted under measure 13 referenced below.

3. Kit foxes are attracted to den-like structures such as pipes and may enter stored pipes and become trapped or injured. 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 should 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 should not be moved until the Service has been consulted. If necessary, and under the direct supervision of the biologist, the pipe may be moved only once to remove it from the path of construction activity, until the fox has escaped.

4. All food-related trash items such as wrappers, cans, bottles, and food scraps should be disposed of in securely closed containers and removed at least once a week from a construction or project site.

5. No firearms shall be allowed on the project site.

6. No pets, such as dogs or cats, should be permitted on the project site to prevent harassment, mortality of kit foxes, or destruction of dens.

7. Use of rodenticides and herbicides in project areas should be restricted. This is necessary to prevent primary or secondary poisoning of kit foxes and the depletion of prey populations on which they depend. All uses of such compounds should observe label and other restrictions mandated by the U.S. Environmental Protection Agency, California

Department of Food and Agriculture, and other State and Federal legislation, as well as additional project-related restrictions deemed necessary by the Service. If rodent control must be conducted, zinc phosphide should be used because of a proven lower risk to kit fox.

8. A representative shall be appointed by the project proponent who will be the contact source for any employee or contractor who might inadvertently kill or injure a kit fox or who finds a dead, injured or entrapped kit fox. The representative will be identified during the employee education program and their name and telephone number shall be provided to the Service.

9. An employee education program should be conducted for any project that has anticipated impacts to kit fox or other endangered species. The program should consist of a brief presentation by persons knowledgeable in kit fox biology and legislative protection to explain endangered species concerns to contractors, their employees, and military and/or agency personnel involved in the project. The program should include the following: A description of the San Joaquin kit fox and its habitat needs; a report of the occurrence of kit fox in the project area; an explanation of the status of the species and its protection under the Endangered Species Act; and a list of measures being taken to reduce impacts to the species during project construction and implementation. A fact sheet conveying this information should be prepared for distribution to the previously referenced people and anyone else who may enter the project site.

10. Upon completion of the project, all areas subject to temporary ground disturbances, including storage and staging areas, temporary roads, pipeline corridors, etc. should be re-contoured if necessary, and revegetated to promote restoration of the area to preproject conditions. An area subject to "temporary" disturbance means any area that is disturbed during the project, but after project completion will not be subject to further disturbance and has the potential to be revegetated. Appropriate methods and plant species used to revegetate such areas should be determined on a site-specific basis in consultation with the Service, California Department of Fish and Game (CDFG), and revegetation experts.

11. In the case of trapped animals, escape ramps or structures should be installed immediately to allow the animal(s) to escape, or the Service should be contacted for guidance.

12. Any contractor, employee, or military or agency personnel who are responsible for inadvertently killing or injuring a San Joaquin kit fox shall immediately report the incident to their representative. This representative shall contact the CDFG immediately in the case of a dead, injured or entrapped kit fox. The CDFG contact for immediate assistance is State Dispatch at (916)445-0045. They will contact the local warden or Mr. Paul Hoffman, the wildlife biologist, at (530)934-9309. The Service should be contacted at the numbers below.

13. The Sacramento Fish and Wildlife Office and CDFG shall be notified in writing within

three working days of the accidental death or injury to a San Joaquin kit fox during project related activities. Notification must include the date, time, and location of the incident or of the finding of a dead or injured animal and any other pertinent information. The Service contact is the Chief of the Division of Endangered Species, at the addresses and telephone numbers below. The CDFG contact is Mr. Paul Hoffman at 1701 Nimbus Road, Suite A, Rancho Cordova, California 95670, (530) 934-9309.

14. New sightings of kit fox shall be reported to the California Natural Diversity Database (CNDDDB). A copy of the reporting form and a topographic map clearly marked with the location of where the kit fox was observed should also be provided to the Service at the address below.

Any project-related information required by the Service or questions concerning the above conditions or their implementation may be directed in writing to the U.S. Fish and Wildlife Service at:

Endangered Species Division
2800 Cottage Way, Suite W2605
Sacramento, California 95825-1846
(916) 414-6620 or (916) 414-6600

EXHIBIT "A" – DEFINITIONS

"Take" - Section 9 of the Endangered Species Act of 1973, as amended (Act) prohibits the "take" of any federally listed endangered species by any person (an individual, corporation, partnership, trust, association, etc.) subject to the jurisdiction of the United States. As defined in the Act, take means " . . . to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct". Thus, not only is a listed animal protected from activities such as hunting, but also from actions that damage or destroy its habitat.

"Dens" - San Joaquin kit fox dens may be located in areas of low, moderate, or steep topography. Den characteristics are listed below, however, the specific characteristics of individual dens may vary and occupied dens may lack some or all of these features. Therefore, caution must be exercised in determining the status of any den. Typical dens may include the following: (1) one or more entrances that are approximately 5 to 8 inches in diameter; (2) dirt berms adjacent to the entrances; (3) kit fox tracks, scat, or prey remains in the vicinity of the den; (4) matted vegetation adjacent to the den entrances; and (5) manmade features such as culverts, pipes, and canal banks.

"Known den" - Any existing natural den or manmade structure that is used or has been used at any time in the past by a San Joaquin kit fox. Evidence of use may include historical records, past or current radiotelemetry or spotlighting data, kit fox sign such as tracks, scat, and/or prey remains, or other reasonable proof that a given den is being or has been used by a kit fox. The Service discourages use of the terms "active" and "inactive" when referring to any kit fox den because a great percentage of occupied dens show no evidence of use, and because kit foxes change dens often, with the result that the status of a given den may change frequently and abruptly.

"Potential Den" - Any subterranean hole within the species' range that has entrances of appropriate dimensions for which available evidence is insufficient to conclude that it is being used or has been used by a kit fox. Potential dens shall include the following: (1) any suitable subterranean hole; or (2) any den or burrow of another species (e.g., coyote, badger, red fox, or ground squirrel) that otherwise has appropriate characteristics for kit fox use.

"Natal or Pupping Den" - Any den used by kit foxes to whelp and/or rear their pups. Natal/pupping dens may be larger with more numerous entrances than dens occupied exclusively by adults. These dens typically have more kit fox tracks, scat, and prey remains in the vicinity of the den, and may have a broader apron of matted dirt and/or vegetation at one or more entrances. A natal den, defined as a den in which kit fox pups are actually whelped but not necessarily reared, is a more restrictive version of the pupping den. In practice, however, it is difficult to distinguish between the two, therefore, for purposes of this definition either term applies.

"Atypical Den" - Any manmade structure which has been or is being occupied by a San Joaquin kit fox. Atypical dens may include pipes, culverts, and diggings beneath concrete slabs and buildings.