BUREAU OF RECLAMATION

Porterville Irrigation District Turnout on the Friant-Kern Canal for the North Basin Recharge Project

CGB-EA-2024-003
Draft Environmental Assessment/Initial Study and Mitigated Negative Declaration

U.S. Department of the Interior December 2023

Mission Statements

The U.S. Department of the Interior protects and manages the Nation's natural resources and cultural heritage; provides scientific and other information about those resources; and honors its trust responsibilities or special commitments to American Indians, Alaska Natives, and affiliated 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.

Contents

1 Introduction

This Environmental Assessment (EA)/Initial Study (IS) was jointly prepared by the Bureau of Reclamation (Reclamation) as the lead federal agency and Porterville Irrigation District (District) as lead state agency to satisfy the requirements of both the National Environmental Policy Act (NEPA) and California Environmental Quality Act (CEQA). Throughout this document, "Proposed Action" and "Proposed Project" are used interchangeably and both terms reflect the Project as described below.

1.1 Background/Project Overview

The District currently encompasses approximately 16,900 acres of irrigated agriculture, with major crops including walnuts, grapes, cotton, alfalfa, and prunes. Since its establishment, the District has held a contract with Reclamation for surface water supplies from the Friant Division (Friant Division) of the Central Valley Project (CVP). For the Friant Division, surface water from Lake Millerton is delivered via the Friant Kern Canal (FKC), which is owned by Reclamation and operated and maintained by the Friant Water Authority. The District and the City of Porterville have developed plans for a recharge basin and associated turnout along the FKC to make use of surface water supplies when they are available (Figure 1).

The Project proposes constructing a new turnout along the FKC, excavating an approximately five-acre basin for groundwater recharge, and connecting the new facilities with a 290-foot long, 36-inch to 48-inch diameter pipeline (Figure 2).

1.2 Purpose and Need for the Proposed Action/Project Objectives

The District currently contains large areas of land that do not have access to surface water supplies. Due to this lack of infrastructure, farmers rely heavily on groundwater supplies, which has led to overdraft in the area. The District and the City of Porterville need to find a way to provide additional recharge the underlying Tule Subbasin of the San Joaquin Valley Groundwater Basin to work towards its sustainable management in accordance with the Sustainable Groundwater Management Act (SGMA).

The purpose of the Proposed Action/Project is to install a new turnout in the FKC so that surplus water, when available, could be recharged in a new recharge basin. Implementing the Project would enable the District to restore groundwater supplies by utilizing more of its Friant Division CVP water allocation rather than allowing it to leave the District. This recharge project is in response to SGMA and to help offset what is pumped in the surrounding area.

The primary objectives of the Proposed Action/Project include:

- Allow the District to utilize more of its existing Friant Division contract allocation;
- Allow the District to capture more high flow water supplies (floodwater) available from the Friant Division as well as from the Tule River;
- Reduce overdraft and contribute to sustainable groundwater management in accordance with SGMA;
- Recharge the Tule Subbasin;
- Effectively utilize the existing groundwater reservoir beneath the District to store additional water supplies and improve water supply reliability; and
- Raise groundwater levels in the District to reduce pumping costs for private well owners.

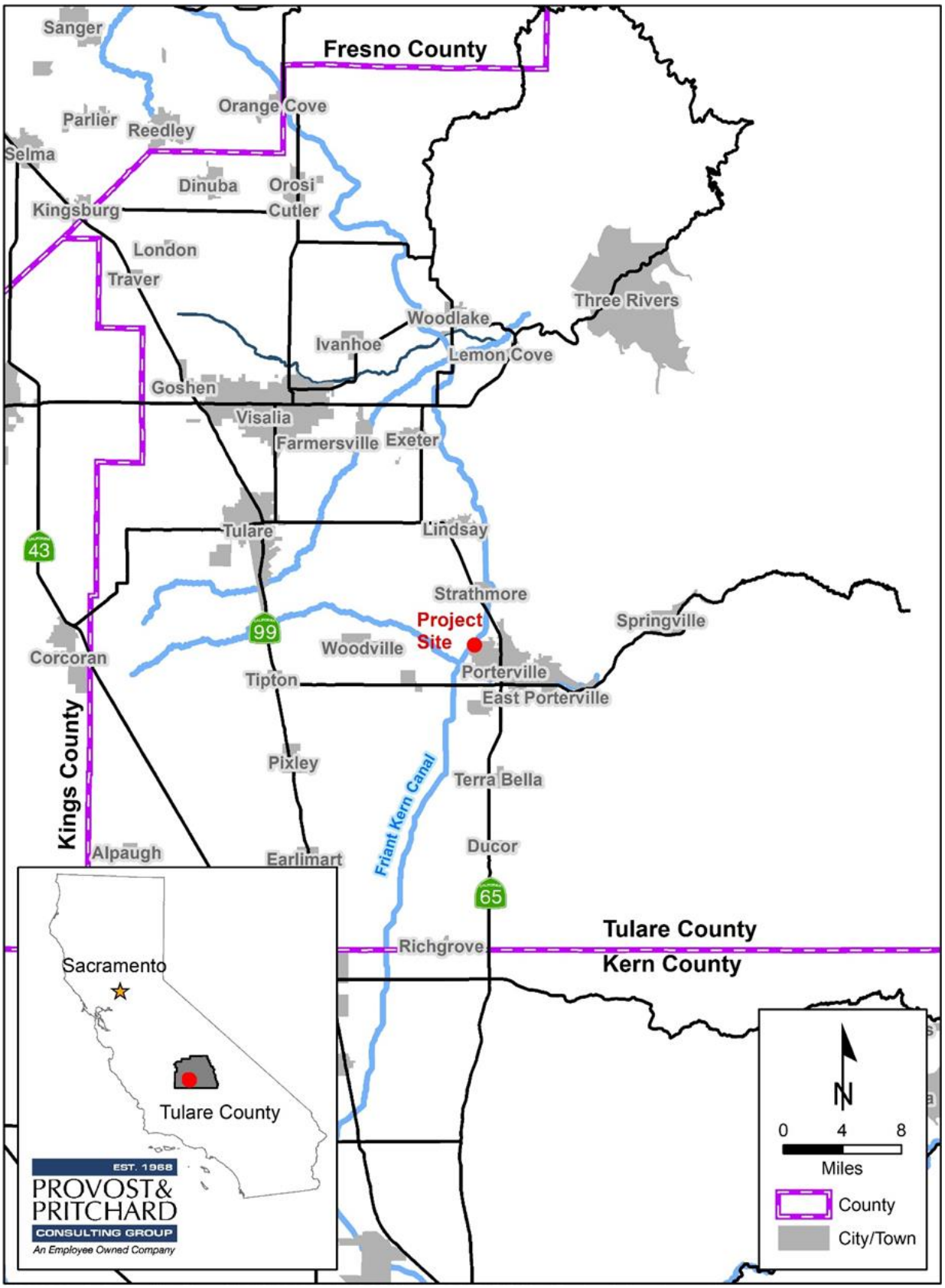

Figure 1. Regional Vicinity Map

Figure 2. Proposed Action Area and Assessor Parcel Numbers for Properties

2 Alternatives Including Proposed Action

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. For purposes of analysis, the No Action Alternative is the same as existing conditions.

2.1 No Action Alternative

Under the No Action Alternative, Reclamation would not issue permits that would allow the proposed pipeline to cross Reclamation land or to install a new turnout in the FKC and the District would not construct the recharge basin.

2.2 Proposed Action

Under the Proposed Action, Reclamation would issue permits to the District that would allow them to place a pipeline across Reclamation land and install a new turnout in the FKC in support of the District's Project. The Proposed Action is located adjacent to the FKC which runs adjacent to the City of Porterville (Figure 2). Details of the Project are included below.

2.2.1 Project Components

The District's Project entails construction of a five-acre recharge basin (referred to as the "North Basin"), a new turnout in the FKC, and a pipeline that would cross Reclamation land connecting the new turnout to the recharge basin. Construction would be conducted over a period of approximately 6-months and is anticipated to start in the fall/winter of 2023/2024.The turnout would be constructed during the first three months, followed by construction of the junction box, pipeline, and grading of the basin. Project construction staging would be located onsite. All excavation material would be balanced onsite.

Friant-Kern Canal Turnout

Once constructed, the turnout would be approximately 31 feet long, 30 feet wide, 25 feet tall (to accommodate the proposed raised liner under the Middle Reach Capacity Correction Project (reference)). Above existing grade, the turnout would be less than two feet tall. The proposed turnout would be installed by excavating a portion of the canal bank, casting in place the concrete structure, then back filling the area and replacing the canal lining.

Pipeline

The length of the 48-inch pipeline from the turnout to the junction box is 136 feet with a trench depth of approximately 18 feet and a width of 20 feet.

The length of the 24-inch pipeline from the junction box to the basin outlet would be 137 feet with a trench depth of approximately 5.5 feet and a trench width of 6 feet.

The pipeline would be installed using an excavator to first dig the trench, set the pipe, and then backfill. The total trench depth would be approximately 20-ft, and the pipe would have approximately five (5) feet of cover. No excavation material would be taken off site.

Five-Acre Recharge Basin

The proposed North Basin will be excavated to a depth of approximately six to eight feet. Excavated material would be used to build levee banks two to five feet in height, allowing for a maximum freeboard of two feet. The interior basin slopes are 6:1 and curve radii would be 100-feet. The total cut will be approximately 14,900 cubic yards with a net cut of roughly 84 cubic yards.

2.2.2 Operation & Maintenance

During wet periods, surplus surface water from the proposed FKC turnout would be delivered to the North Basin for recharge to the underlying Tule Subbasin of the San Joaquin Valley Groundwater Basin. The surplus water would be conveyed to the recharge basin through the new pipeline connecting the turnout and recharge basin.

The proposed turnout would become part of the FKC, so therefore a federal facility, and would be operated and maintained by Friant Water Authority. Reclamation would issue a MP-620 review to the Friant Water Authority that would allow for the modification and/or alternation of the Friant-Kern Canal, consisting of a new turnout and related appurtenances (i.e., pipeline and utility conduit). The pipeline on Reclamation land would be owned and operated by the District under a land use authorization agreement. The recharge basin would be the District's and/or the City's responsibility.

The operation of the facility would be consistent with similar facilities in the area for the District and City in that groundwater conditions would be monitored to minimize negative impacts on the surrounding areas (such as nearby wells, crops, and septic systems). Water would be put into the basin for groundwater recharge whenever surplus water is available. The basin is anticipated to hold a maximum of 20 acre-feet of water at any given point. The infiltration rate is estimated to be 0.5 feet/day. The estimated recharge capacities of the proposed 5-acre basin are described below in Table 1.

Table 1. Estimated Recharge Capacities of the Porterville North Basin

Gross Acres (acres)	Recharge Areas (acres)	Est. Peak Recharge Rate (feet/day)	Est. Long-Term Recharge Rate (feet/day)	Est. Long-Term Recharge (acre-feet/month)	Anticipated Average Annual Recharge Window (months)	Anticipated Average Annual Recharge Capacity (acre-feet/year)	Maximum Est. Annual Recharge Capacity (acre-feet/year)
5	5	0.8	0.8	101	4	405	1,215

Any operation and maintenance (O&M) of the new turnout and pipeline on Reclamation land is required to comply with the U.S. Fish and Wildlife Service (USFWS) 2005 Biological Opinion for *Reclamation's South-Central California Area Office's Operations and Maintenance Program* (2005 BiOp) or with applicable succeeding biological opinion(s) developed per requirements of the Endangered Species Act (16 U.S. C. § 1531, *et seq*.).

2.2.3 Environmental Protection Measures

The District or their representatives shall implement the following mitigation/environmental protection measures to avoid and/or reduce environmental consequences associated with the Proposed Action/Project (Table 2).

Table 2. Environmental Protection Measures and Commitments

Resource	Protection Measure
Biological Resources	**Swainson's Hawk: Mitigation Measure 1a (Avoidance).** If feasible, the project will be constructed outside the Swainson's hawk nesting season, typically defined as March 1–September 15. **Swainson's Hawk: Mitigation Measure 1b (Preconstruction Surveys).** If the project must be constructed between March 1 and September 15, a qualified biologist will conduct preconstruction surveys for Swainson's hawk nests on and within ½ mile of the project site within 30 days of the onset of these activities. **Swainson's Hawk: Mitigation Measure 1c (Establish Buffers).** 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. **Swainson's Hawk: Mitigation Measure 1d (Monitor Nest).** Should construction activity be necessary within the designated buffer around an active Swainson's hawk nest, a qualified biologist will monitor the nest daily for one week, and thereafter once a week, for the duration of the activity or until the nest is no longer active, whichever comes first. Should construction activity within the buffer change such that a higher level of disturbance will be generated, monitoring will occur daily for one week and then resume the once-a-week regime. If, at any time, the biologist determines that construction activity may be compromising nesting success, construction activity within the buffer will be altered or suspended until the biologist determines that the nest is no longer at risk of failing.
Biological Resources	**San Joaquin Kit Fox: Mitigation Measure 2a (Preconstruction Surveys).** Preconstruction surveys for the SJKF shall be conducted on and within 200 feet of the project site, no less than 14 days and no more than 30 days prior to the start of ground disturbance activities on the site. The primary objective is to identify kit fox habitat features (e.g., potential dens and refugia) on and adjacent to the site and evaluate their use by kit foxes. If an active kit fox den is detected within or immediately adjacent to the work area, the USFWS shall be contacted immediately to determine the best course of action. Preconstruction surveys will be repeated following any lapses in construction of 30 days or more. **San Joaquin Kit Fox: Mitigation Measure 2b (Avoidance of Active Dens).** Should active kit fox dens be detected during preconstruction surveys, the Sacramento Field Office of the USFWS and the Fresno Field Office of CDFW will be notified. A disturbance-free buffer will be established around the burrows in consultation with the USFWS and

Resource	Protection Measure
	CDFW, to be maintained until an agency-approved biologist has determined that the burrows have been abandoned. **San Joaquin Kit Fox: Mitigation Measure 2c (Minimization).** The project will observe all minimization measures presented in the *USFWS Standardized Recommendations*. Such measures include, but are not limited to: restriction of construction-related vehicle traffic to established roads, construction areas, and other designated areas; inspection and covering of structures (e.g., pipes), as well as installation of escape structures, to prevent the inadvertent entrapment of kit foxes; restriction of rodenticide and herbicide use; and proper disposal of food items and trash. **San Joaquin Kit Fox: Mitigation Measure 2d (Employee Education Program).** Prior to the start of construction, the applicant will retain a qualified biologist to conduct a tailgate training for all construction staff 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 project vicinity; 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 construction. Attendees will be provided a handout with all of the training information included in it. The applicant will use this handout to train any construction personnel that were not in attendance at the first meeting, prior to those personnel starting work on the site. **San Joaquin Kit Fox: Mitigation Measure 2e (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 construction. 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.
Biological Resources	**Nesting Birds: Mitigation Measure 3a (Avoidance).** In order to avoid impacts to nesting raptors and migratory birds, construction will occur, where possible, outside the nesting season, or between September 1 and January 31. **Nesting Birds: Mitigation Measure 3b (Preconstruction Surveys).** If construction must occur during the nesting season (February 1–August 31), a qualified biologist will conduct preconstruction surveys for active raptor and migratory bird nests within 30 days of the onset of these activities. Nest surveys will include all areas on and within 500 feet of the project site, where accessible. If no active nests are found within the survey area, no further mitigation is required. **Nesting Birds: Mitigation Measure 3c (Establish Buffers).** 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.
Biological Resources	**Roosting Bats: Mitigation Measure 4a (Temporal Avoidance).** To avoid potential impacts to maternity bat roosts, removal of buildings and large trees should occur outside of the period between April 1 and September 30, the time frame within which colony-nesting bats generally assemble, give birth, nurse their young, and ultimately disperse. **Roosting Bats: Mitigation Measure 4b (Preconstruction Surveys).** If removal of buildings or large trees is to occur between April 1 and September 30 (general maternity bat roost season), then within 30 days prior to their removal, a qualified biologist will survey them for the presence of bats. The biologist will look for individuals, guano, and staining, and will listen for bat vocalizations. If necessary, the biologist will wait for nighttime emergence of bats from roost sites. If no bats are observed to be roosting or breeding, then no further action would be required, and construction could proceed.

Resource	Protection Measure
	Roosting Bats: Mitigation Measure 4c (Minimization). If a non-breeding bat colony is detected during preconstruction surveys, the individuals will be humanely evicted under the direction of a qualified biologist. **Roosting Bats: Mitigation Measure 4d (Avoidance of Maternity Roosts**). If a maternity colony is detected during preconstruction surveys, the biologist will identify a suitable disturbance-free buffer around the colony. The buffer will remain in place until the biologist determines that the nursery is no longer active.
Cultural Resources	**Cultural – Archaeological Remains: 5a.** In the unlikely event that buried archaeological deposits are encountered during ground-disturbing work, all work shall be halted and/or redirected in the area of discovery until a qualified archaeologist can assess the significance of the find and make appropriate recommendations for mitigation. If the Project design and/or APE is altered, additional archaeological survey may be needed if Project limits are extended beyond the present APE. Additionally, if archaeological deposits are encountered and cannot be avoided by the Project, it will be necessary to formally evaluate the resource(s) to determine if they meet the criteria of significance and eligibility for listing in the NRHP or CRHR. **Cultural – Human Remains: 5b.** If human remains are uncovered during construction on non-federal lands, the Tulare County Coroner is to be notified to arrange their proper treatment and disposition. If the remains are identified—on the basis of archaeological context, age, cultural associations, or biological traits—as those of a Native American, California Health and Safety Code 7050.5 and Public Resource Code 5097.98 require that the coroner notify the NAHC within 24 hours of discovery. The NAHC will then identify the Most Likely Descendant, who will afford the opportunity to provide input about the manner in which the remains are treated. **Cultural – Human Remains: 5c.** In the event that human remains are identified within the portion of the APE owned by Reclamation, all activities will be stopped, and Reclamation's Regional Cultural Resources Officer shall be notified immediately. This notification shall be followed by a written report within 48 hours. Note that all human remains identified on lands owned by the federal government are subject to the Native American Graves Protection and Repatriation Act (NAGPRA; 25 USC 3001). The procedures for dealing with the discovery of human remains on federal lands are described in the regulations that implement NAGPRA, found at 43 CFR Part 10. Project implementation in the vicinity of the discovery may not resume until Reclamation complies with the 43 CFR Part 10 regulations and provides notification to proceed.
Water Quality	**Soils: Mitigation Measure 6a (Erosion Control Measures).** The applicant will define the limits of any construction taking place on top of the FKC levee or within its banks. Wattles or other appropriate erosion controls will be placed between ground-disturbing activities and ordinary high water of the FKC. **Soils: Mitigation Measure 6b (Storm Water Pollution Prevention Plan).** More than one acre of ground disturbance will require a Storm Water Pollution Prevention Plan (SWPPP). The applicant will arrange for the preparation of a SWPPP that identifies measures to prevent erosion and sedimentation of the FKC and measures to prevent contaminants from entering storm water. The SWPPP will be implemented in full during project construction.

Environmental consequences for resource areas assume the measures specified would be fully implemented.

3 Affected Environment and Environmental Consequences

The Proposed Action/Project area is largely surrounded by agricultural operations (see Figure 2). A housing development is situated across the FKC to the east. The project site consists of ruderal land and a portion of the FKC canal where the turnout would be constructed. The Proposed Action/Project would be developed within land owned by the City of Porterville and a portion of Reclamation right of way where the FKC is located. The closest residence is approximately 200 feet from the project site. The closest scenic highway is State Route (SR) 190 which leads to the Sequoia National Forest. SR 190 is designated as a scenic highway from the point it intersects SR 65 until it reaches Quaking Aspen to the east. The intersection of SRs 190 and 65 is approximately 3.3 miles southeast of the Project area.

Under the No Action alternative, groundwater levels within the regional area may continue to decline, potentially jeopardizing the long-term viability of agriculture within portions of the District and throughout the regional area. If insufficient groundwater exists to sustain agriculture at current levels while maintaining sustainable yield under SGMA, at least some lands within the affected area may require either fallowing or conversion to other uses not dependent on irrigation (e.g., dry-land grazing) at some point in the future. The area could also lose the benefit of future direct recharge opportunities.

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 continue to increase.

3.1 Federal Required Resources Disclosures

Department of Interior Regulations, Executive Orders, and Reclamation guidelines require a discussion of Native American Indian sacred sites, Indian Trust Assets, and Environmental Justice when preparing environmental documentation. Impacts to these resources were considered and found to be minor or absent.

3.1.1 Indian Trust Assets

Indian Trust Assets 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 Proposed Action area. The nearest Indian Trust Asset within the Action area is Tule River Rancheria reservation land about 10 miles to the east of the Proposed Action. The Proposed Action does not have a potential to affect Indian Trust Assets.

3.1.2 Indian Sacred Sites

Executive Order 13007 (May 24, 1996) a requires that federal agencies 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. The Proposed Action would not affect or prohibit access to and ceremonial use of Indian sacred sites.

3.1.3 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 programs, policies, and activities on minority populations and low-income populations. Based on a review of environmental health databases, census data, and other demographic information, Reclamation has not identified adverse human health or environmental effects on any population because of implementing the Proposed Action. Therefore, implementing 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 Other Resources

This section of the EA/IS includes the NEPA and CEQA analysis portion of the potentially affected environment and the environmental consequences involved with the Proposed Action/Proposed Project.

3.2.1 Aesthetics

Would the Project:	**Potentially Significant Impact**	**Less than Significant With Mitigation Incorporation**	**Less than Significant Impact**	**No Impact**
a) Have a substantial adverse effect on a scenic vista?	☐	☐	☐	☒
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	☒
c) In non-urbanized areas, substantially degrade the existing visual character or quality of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage points.) If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	☐	☐	☐	☒
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☐	☒

Environmental Consequences

No Action

There would be no impact to aesthetics since there would be no construction of the turnout and pipeline and conditions would remain the same as existing conditions. The area would continue to be used for the existing canal and surrounding agricultural uses.

Proposed Action

The proposed turnout would be approximately 33 feet long, 29 feet wide, and 22 feet tall and would be located in the FKC. Above existing grade, the turnout is shorter than two feet tall. The 290-ft pipeline would be below ground. While the Proposed Action/Project would modify the existing character of the canal, it would not substantially degrade the visual quality of the site. Neither the temporary construction activities nor proposed permanent turnout and recharge basin would affect a scenic vista and, when the project is completed, it would align aesthetically with the surrounding agricultural and canal facility infrastructure.

Cumulative Impacts

The Proposed Action/Project would not be precedent setting, nor have a cumulative adverse impact. There are not any past, present, or future projects in the area that could potentially contribute to a cumulative effect to aesthetic resources.

3.2.2 Agriculture and Forestry Resources

In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board.

Would the Project:	**Potentially Significant Impact**	**Less than Significant With Mitigation Incorporation**	**Less than Significant Impact**	**No Impact**
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☒
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public	☐	☐	☐	☒

Would the Project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?				
d) Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	☒

Environmental Consequences

No Action

There would be no impact to agriculture as farming conditions in the area would remain the same as existing conditions.

Under the No-Action alternative, groundwater levels within the regional area may continue to decline, potentially jeopardizing the long-term viability of agriculture within portions of the District and throughout the regional area. If insufficient groundwater exists to sustain agriculture at current levels while maintaining sustainable yield under SGMA, at least some lands within the affected area may require either fallowing or conversion to other uses not dependent on irrigation (e.g., dry-land grazing) at some point in the future. The area could also lose the benefit of future direct recharge opportunities.

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 continue to increase.

Proposed Action

Under the Proposed Action/Project, no agriculture would be removed or affected as the Project would occur within the FKC and on land owned by the City of Porterville, both void of agriculture. The Proposed Action/Project would have a beneficial effect on agriculture in the area as the recharge basin would support agricultural operations.

Cumulative Impacts

The canals, groundwater banks, rivers, and conveyance facilities associated with the Proposed Action/Project are managed primarily for agricultural supplies. The Project would not interfere with water deliveries, facility operation, or cause substantial adverse changes to the conveyance facilities. The Proposed Action/Project would not have a considerable contribution to a cumulative adverse impact on agriculture.

3.2.3 Air Quality

Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations.

Would the Project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☒	☐
b) Violate any air quality standard or contribute substantially to an existing or Projected air quality violation?	☐	☐	☒	☐
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is non-attainment under an applicable federal or state ambient air quality standard?	☐	☐	☒	☐
d) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐
e) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	☐	☐	☒	☐

Affected Environment

The Proposed Action/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 a summary of ambient air quality standards and attainment designation of the SJVAB, while the following Table 3 presents the emissions thresholds of the SJVAPCD covering the Proposed Action/Project location.

Table 2. Summary of Ambient Air Quality Standards and Attainment Designation

Pollutant	Averaging Time	California Standards*		National Standards*	
		Concentration*	Attainment Status	Primary	Attainment Status
Ozone (O_3)	1-hour	0.09 ppm	Non-Attainment	-	Non-Attainment (Extreme)**
	8-hour	0.070 ppm		0.075 ppm	
Particulate Matter (PM_{10})	AAM	20 µg/m^3	Non-Attainment	-	Attainment
	24-hour	50 µg/m^3		150 µg/m^3	
Fine Particulate Matter ($PM_{2.5}$)	AAM	12 µg/m^3	Non-Attainment	12 µg/m^3	Non-Attainment
	24-hour	No Standard		35 µg/m^3	
Carbon Monoxide (CO)	1-hour	20 ppm	Attainment/ Unclassified	35 ppm	Attainment/ Maintenance
	8-hour	9 ppm		9 ppm	
	8-hour (Lake Tahoe)	6 ppm		-	
Nitrogen Dioxide (NO_2)	AAM	0.030 ppm	Attainment	0.053 ppm	Attainment/ Unclassified
	1-hour	0.18 ppm		0.100 ppm	
Sulfur Dioxide (SO_2)	AAM	-	Attainment	0.03 ppm	Attainment/ Unclassified
	24-hour	0.04 ppm		0.14 ppm	
	3-hour	-		-	
	1-hour	0.25 ppm		75 ppb	
Lead	30-day Average	1.5 µg/m^3	Attainment	-	No Designation/ Classification
	Calendar Quarter	-		1.5 µg/m^3	
	Rolling 3-Month Average	-		0.15 µg/m^3	
Sulfates	24-hour	25 µg/m^3	Attainment	No federal standards.	
Hydrogen Sulfide	1-hour	0.03 µg/m^3 (42 µg/m^3)	Unclassified		
Vinyl Chloride	24-hour	0.01 ppm (26 µg/m^3)	Attainment		
Visibility-Reducing Particulate Matter	8-hour	Extinction coefficient: 0.23/km-visibility of 10 miles or more (0.07-30 miles or more for Lake Tahoe) due to particles when the relative humidity is less than 70%.	Unclassified		

Source: San Joaquin Valley Air Pollution Control District. 2006-2012.

Table 3. San Joaquin Valley Air Pollution Control District Thresholds of Significance

Pollutant	Construction Emissions (Tons/year)	Operation Emissions (Tons/year)
VOC/ROG (as an ozone precursor)	10	10

Pollutant	Construction Emissions (Tons/year)	Operation Emissions (Tons/year)
NO_X (as an ozone precursor)	10	10
PM_{10}	15	15
$PM_{2.5}$	15	15
CO	100	100
SO_X	27	27

Source: San Joaquin Valley Air Pollution Control District. 2015

Environmental Consequences

No Action

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

Proposed Action

Proposed Action/Project operations would not significantly contribute to criteria pollutant emissions, as water distribution through the facilities would be a passive process; however, there would be emissions associated with construction. Construction of the Proposed Action/Project would be accomplished with graders, loaders, excavators, backhoes, concrete trucks, pumper trucks, water trucks, hauling trucks, and dump trucks.

In years of surplus water, the Proposed Action/Project would help reduce energy usage and pollution. As the recharge efforts reduce the decline of groundwater levels, the well pumps in the area would not have to work as hard to lift the water as compared to conditions that would exist under the No Action Alternative, again reducing energy consumption and air pollution.

There is a residential subdivision across the Friant Kern Canal and a single-family residence on the project side of the canal approximately 0.25 miles away. 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 PM_{10} (particulate matter less than 10 microns in diameter) and $PM_{2.5}$ (particulate matter less than 2.5 microns in diameter). Large earth-moving equipment, trucks, and other mobile sources powered by diesel or gasoline are also sources of combustion emissions, including nitrogen dioxide (NO_2), CO (carbon monoxide), carbon dioxide (CO_2), ROG (reactive organic gases), sulfur dioxide, and small amounts of air pollutants. Table 4 below provides a summary of the estimated emissions during construction of the Proposed Action/Project.

Table 4. Calculated Maximum Unmitigated Proposed Action/Project Construction Emissions

Pollutant	2026 Emissions (tons/year)	SJVAPCD Thresholds of Significance (tons/yr)
VOC/ROG (as an ozone precursor)	0.1171	10
NOx (as an ozone precursor)	1.0053	10
CO	1.2547	100
SOX	2.8400e-003	27
PM10	0.1981	15
PM2.5	0.0937	15

Sources: CalEEMod, December 2023 (see Appendix A).

Comparing the estimated Proposed Action/Project construction emissions as seen above in Table 4 with the thresholds for federal conformity determinations indicates that Proposed Action/Project emissions are estimated to be below these thresholds. As shown by Table 5 below, the Proposed Action/Project would be largely passive during operation so there would be minimal operational emissions generated by its implementation. Emissions would be a result of an estimated two annual vehicle trips to the Proposed Action/Project sites for routine maintenance activities.

Table 5. Calculated Maximum Unmitigated Proposed Action/Project Operational Emissions

Pollutant	Operational Emissions (tons/year)	SJVAPCD Thresholds of Significance (tons/year)
VOC/ROG (as an ozone precursor)	0.0294	10
NOx (as an ozone precursor)	0	10
CO	7.0000e-005	100
SOX	0	27
PM10	0	15
PM2.5	0	15

Sources: CalEEMod, December 2023 (see).

Therefore, construction and operation under the Proposed Action/Project would not result in adverse impacts to air quality by exceeding federal thresholds and a general conformity analysis is not required.

Cumulative Impacts

Emissions for the Proposed Action/Project are well below the *de minimis* thresholds established by the SJVAPCD and would not have a considerable contribution to a cumulative adverse impact on air quality.

3.2.4 Biological Resources

Would the Project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☒	☐	☐
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☐	☒	☐
c) Have a substantial adverse effect on federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☐	☒	☐
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☒	☐	☐
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☐	☒
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☒

Affected Environment

Live Oak Associates, Inc. (Live Oak), on behalf of the District, conducted a biological resources investigation of an approximately 18-acre[1] project and evaluated potential project-related impacts to biological resources.

A field survey of the project site was conducted on April 17, 2018, which consisted of walking through the project site while identifying the principal land uses and associated plant and animal species, and mapping habitat suitable for special status species and other sensitive biological resources. The survey also included an investigation of hydrologic features potentially subject to the jurisdiction of the U.S. Army Corps of Engineers (USACE), California Department of Fish

[1] Initially the project was described as having an 18-acre footprint, which was subsequently reduced to 7.4 acres in March 2022 because the City of Porterville was unable to acquire additional property it originally planned to include in the Proposed Action/Project.

and Wildlife (CDFW), and/or Regional Water Quality Control Board (RWQCB). Vegetation, soils, and hydrology data were collected at representative sample locations on the site in accordance with USACE guidelines. See Appendix B and Appendix D for a complete description of methodology and resources.

At the time of the field survey, the 18-acre project site was described as consisting primarily of an irrigated oat field, several residences and associated outbuildings, and disturbed lands bordering these uses. Four land uses/biotic habitats were identified within the project site: agricultural field, residential, ruderal, and canal. All of these land use/biotic habitats have had some level of human disturbance or modification. The project site is situated within a matrix of agricultural and residential uses.

Environmental Consequences

Under the No Action Alternative, conveyance of surface water would continue to occur through the existing canal. The conditions of special-status wildlife species and habitats under the No Action Alternative would remain the same as are under existing conditions. Therefore, there would be no impacts to biological resources since conditions would remain the same as existing conditions.

Proposed Action

A biological evaluation, prepared for the original 18-acre project, had indicated there was a potential that it could result in mortality of San Joaquin kit fox. The 18-acre project also was described as having the potential to result in construction-related mortality/disturbance of nesting Swainson's hawks and other nesting raptors and migratory birds, construction-related mortality of roosting bats, and degradation of downstream waters.

Based upon further analysis, Reclamation determined there will be *No effect* to kit fox and there would be a minor loss of Swainson's hawk foraging habitat based upon the reduction of the project footprint to 7.4-acres and implementation of Table 2 measures as well as the measures described below.

Project areas of avoidance includes active nests, dens, and roost sites identified during preconstruction surveys. The implementation of minimization measures consistent with the USFWS 2011 *Standardized Recommendations for Protection of the Endangered San Joaquin Kit Fox Prior to or During Ground Disturbance*, implementation of erosion control measures for Project activities occurring within or adjacent to the FKC, and development and implementation of a SWPPP (see Table 2) would also reduce the degree of the Project's potential impacts to less than significant.

According to the biological evaluation, no other biological resources would be significantly impacted by the Project. Impacts associated with Project development would be less than significant for all locally occurring special status plant species, eleven special status animals absent from or unlikely to use the Project site, two special status animals that would use the site for foraging only, wildlife movement corridors, designated critical habitat, and other sensitive habitats. The Project would not result in a significant loss of habitat for special status species.

Cumulative Impacts

The purpose of the Proposed Action/Project is to support the District's and City of Porterville's shared objective of sustainable groundwater management. The construction and operation of the recharge basin, when added to other actions, represents an improvement of existing conditions and is unlikely to result in cumulative impacts to biological resources of the study area. Implementation of the Proposed Action/Project would augment local efforts to recharge the aquifer to ensure the availability of groundwater for beneficial uses. The Project does not conflict with the goals and policies of the Tulare County General Plan or City of Porterville General Plan, or with any other local policies, and there are no known adopted habitat conservation plans in the Project's vicinity.

The Proposed Action/Project would continue to be subject to regulatory constraints imposed pursuant to the state and federal biological protection regulations. Consequently, there would be no cumulative adverse impacts to biological resources because of the Proposed Action/Project.

3.2.5 Climate Change

Affected Environment

In 2006, the State of California issued the California Global Warming Solutions Act of 2006, widely known as Assembly Bill 32, which requires California Air Resources Board (CARB) to develop and enforce regulations for the reporting and verification of statewide GHG emissions. CARB is further directed to set a GHG emission limit, based on 1990 levels, to be achieved by 2020.

In addition, the federal Environmental Protection Agency (EPA) has issued regulatory actions under the Clean Air Act as well as other statutory authorities to address climate change issues (EPA 2014). In 2009, the EPA issued a rule (40 CFR Part 98) for mandatory reporting of GHG by large source emitters and suppliers that emit 25,000 metric tons or more of GHG [as CO_2 equivalents per year] (EPA 2009). The rule is intended to collect accurate and timely emissions data to guide future policy decisions on climate change and is still undergoing revisions (EPA 2014).

Reclamation developed an updated climate model for the Sacramento and San Joaquin Basins in the 2021 Science and Engineering to Comprehensively Understand and Responsibly Enhance (SECURE) Water Act Report to Congress, prepared in accordance with Section 9503(c) of the SECURE Water Act of 2009, Public Law 111-11. The report characterizes the impacts of warmer temperatures, changes to precipitation and snowpack, and changes to the timing and quantity of streamflow runoff across the West. The model predicts increased temperatures, increased precipitation variability, increased runoff, and reduced snowpack at higher latitudes during the 21st century (Reclamation 2021).

Environmental Consequences

No Action

Under the No Action Alternative, there would be no increase resulting from the Proposed Action/Project's construction emissions. Therefore, no impacts or changes to climate change are anticipated under No Action.

Proposed Action

Proposed Action/Project implementation would result in relatively minimal emissions during construction. CalEEMod projects CO_2 emission output during construction would be a total of 256.8042 metric tons/year, see Appendix A. Operational emissions would be a result of estimated vehicle trips to the Proposed Action/Project site for routine maintenance activities by the District. Construction and operation under the Proposed Action/Proposed Project would result in below *de minimis* impacts to the global climate.

Cumulative Impacts

Greenhouse gas emissions are considered cumulatively significant; however, the estimated annual carbon dioxide emissions required to install and operate the proposed facility is well below the 25,000 metric tons per year threshold for reporting greenhouse gas. As a result, the

Proposed Action/Project is not expected to contribute to cumulative adverse impacts to global climate change.

3.2.6 Cultural Resources

The Proposed Action/Project requires compliance with CEQA as well as the National Historic Preservation Act (NHPA) of 1966, as amended. Both the NHPA and CEQA essentially mandate that government agencies take into consideration the effects of their actions on cultural resources listed on or eligible for inclusion in the California Register of Historical Resources (CRHR) (defined as historical resources at 14 CCR § 15064.5[a]) and the National Register of Historic Places (NRHP) (defined as historic properties at 36 CFR § 800.16[l][1]). A cultural resource is a broad term that includes prehistoric, historic, architectural, and traditional cultural properties. While the NRHP and CRHR significance criteria are similar, the former is given precedence in this analysis because cultural resources eligible for the NRHP are also eligible for inclusion in the CRHR, but the reverse is not necessarily true (PRC 5024.1[c]). Therefore, employing the federal standards would be applicable in both federal and state regulatory contexts. Reclamation initiated NHPA Section 106 consultations with the California State Historic Preservation Officer (SHPO) on a finding of no adverse effects to historic properties, pursuant to 36 CFR §800.5(b).

Would the project:	**Potentially Significant Impact**	**Less than Significant With Mitigation Incorporation**	**Less than Significant Impact**	**No Impact**
a) Cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5?	☐	☐	☐	☒
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	☐	☐	☐	☒
c) Disturb any human remains, including those interred outside of formal cemeteries?	☐	☒	☐	☐

Affected Environment

The Project APE encompasses approximately 7.4 acres. The Project APE lies near the border of the San Joaquin Valley and the Sierra Nevada foothills in western Tulare County. The San Joaquin Valley is the southern half of an elongated trough called the Great Valley or Central Valley, a 50mile-wide lowland that extends approximately 500 miles south from the Cascade Range to the Tehachapi Mountains. The San Joaquin Valley parallels an approximately 250 mile stretch of the Sierra Nevada geomorphic province, which encompasses a 40 to 100 mile-wide area ranging in elevation from 400 feet above mean sea level (amsl) along the western boundary to more than 14,000 feet amsl in the east (Norris and Webb 1990). Within the APE, elevation averages 410 feet amsl. Like most of the San Joaquin Valley, surface deposits consist of unconsolidated Pleistocene and recent alluvial sediments, which overlie marine sediments from the Miocene.

Records Search and Archival Research Applied Earthworks (AE), as the District's cultural consultant, conducted the inventory and evaluation efforts for cultural resources (see Appendix C). On March 7, 2018, AE requested a records search from the Southern San Joaquin Valley

Information Center (SSJVIC) of the California Historical Resources Information System at California State University, Bakersfield. The records search encompassed the initial Project design (which was only slightly larger than the current design) and all land within a 0.5mile radius of the APE. SSJVIC staff consulted cultural resource location and survey base maps, reports of previous investigations, cultural resource records, the listings of the Office of Historic Preservation Historic Properties Directory, Archaeological Determinations of Eligibility, and the California Inventory of Historic Resources.

AE performed archival research to provide information on the built environment history and to identify the potential for buried historical deposits to exist within the APE. The investigation compiled information from several sources, including:

- Map Aerial Locator Tool (MALT) of the Henry Madden Library at California State University, Fresno (http://malt.lib.csufresno.edu/MALT/);
- Aerial Photography FrameFinder of University of California, Santa Barbara (UCSB) Library, Santa Barbara (https://www.library.ucsb.edu/geospatial/aerial-photography);
- U.S. Department of the Interior, Bureau of Land Management, General Land Office (GLO) Records online land patent database;
- Various online resources for historical maps and documents; and
- AE's in-house library, which includes local histories.

Specifically, AE consulted GLO land patent records and survey plats available online and reviewed a series of historical atlases dating between 1891 and 1935 as well as aerial photographs of the APE dating between 1946 and 1994 from the online collection accessed through Fresno State's MALT and UCSB's FrameFinder. AE also reviewed online historical United States Geological Survey topographic maps and accessed recent aerials (dating from 1998 to the present) on Google Earth.

Native American Outreach Pursuant to California PRC Section 5097.9, state and local agencies cooperate with and assist the Native American Heritage Commission (NAHC) in its efforts to preserve and protect locations of sacred or special cultural and spiritual significance to Native Americans. AE contacted the NAHC to request a search of its Sacred Lands File to identify Native American resources in the study vicinity and to obtain the names and contact information for individuals knowledgeable of such resources. The NAHC responded on March 16, 2018, with its findings and attached a list of Native American tribes and individuals culturally affiliated with the study area. AE sent a letter summarizing the cultural resource investigations to each of the contacts identified by the NAHC. In the letter, AE sought input on known sacred areas within the APE. On May 24 and 25, 2018 AE followed up with a telephone call or email to each Native American contact to confirm that the correspondence was received and to provide an opportunity for comment.

Pedestrian Survey On March 15, 2018, AE staff surveyed the initially designed Project APE to identify prehistoric and historical archaeological and historic-era built environment resources. At the time, the Project was expected to encompass approximately 6.5 acres in APN 240-310-001 only.

On May 1, 2023, AE staff surveyed the newly added canal segment in APN 240-310-002 (approximately 0.9 acres).

To comply with federal and state standards to produce a legally defensible environmental document, both surveys included an intensive, systematic, close-interval examination of the ground surface. To accomplish this, surveyors systematically traversed the APE on foot walking parallel transects spaced 5–10 meters apart. Survey conditions (geomorphological context, visibility, disturbances, restricted access, etc.) are detailed in the survey results.

Evaluation of Friant-Kern Canal The FKC is part of the larger Central Valley Project, an integrated system of dams, reservoirs, and canals in the Central Valley designed to alleviate the state's chronic water shortages. The canal is essential for transporting water from the San Joaquin River south to the Bakersfield area in Kern County. Reclamation began construction of the FKC in 1945 and completed it in 1951. The FKC begins at Friant Dam on the San Joaquin River above Fresno and flows 151.8 miles, terminating at the Kern River. It provides additional irrigation water to land in Fresno, Tulare, and Kern counties in the eastern San Joaquin Valley.

The canal was evaluated in its entirety by JRP Historical Consulting in 2019 and recommended eligible for listing in the NRHP under Criterion A with a period of significance of 1945–1958 and Criterion C with a period of significance of 1945–1951. SHPO concurred on December 3, 2019 that the FKC is individually eligible at the state-level of significance under these criteria. A primary number was not included in available site records for the canal, and as such, the Tulare County trinomial is listed for this resource throughout this report.

For the purposes of recording, JRP Historical Consulting divided the canal into 14 segments and prepared a DPR 523-series Linear Feature Record for each segment. The 1,036-foot-long segment of the canal within the APE lies within Segment 8 as defined by JRP Historical Consulting, near milepost 94. AE verified the 2019 description of the canal segment through the APE and found it accurate; thus, an update of the DPR site record forms was not warranted.

The 1,036-foot-long segment within the APE is concrete-lined and was conveying water at the time of survey. A small modern, yellow ladder is attached to the north bank of the canal about 20 feet from the southern boundary of the APE. The canal is 80 feet wide from bank to bank, and each bank is 30 feet wide. It is in good condition and only displays minimal evidence of erosion and animal burrowing on the bank slope.

Summary No archaeological sites, features, or isolated artifacts were identified as a result of the survey, and no other historical built environment buildings, structures, or objects were observed other than the FKC.

Environmental Consequences

No Action

Under the No Action alternative, construction of the turnout, pipeline, and basin would not proceed. There would be no change in operations. Conditions related to cultural resources would remain the same as existing conditions.

Proposed Action

The Proposed Action/Project is the type of activity that has the potential to affect historic properties. No archaeological sites, features, or isolated artifacts were identified as a result of the survey conducted by AE, and no other historical built environment buildings, structures, or objects were observed other than the FKC. The new turnout and pipeline on the FKC would be installed by excavating a portion of the western canal bank, casting the concrete structure in place, then backfilling the area and replacing the canal lining. The addition of a new turnout on the FKC is consistent with its use to deliver water along the eastern side of the Central Valley. Overall, the proposed new turnout is relatively minor when taken in context of the 152-mile-long canal. The new turnout would not detract from the overall appearance of the canal. Upon completion of the Project, the FKC would retain its integrity, character-defining features, and historical significance. Therefore, there would be no adverse effect to the FKC.

Based upon the identification and evaluation efforts of AE, Reclamation determined that the undertaking would have a finding of no adverse effect for the proposed project pursuant to 36 CFR § 800.5(b). Reclamation initiated consultation with the SHPO on the findings via letter that was digitally submitted on September 28, 2023. Pursuant to the regulations at 36 CFR § 800.5(c), the SHPO has 30 days from receipt to review an agency finding. The SHPO has yet to respond to Reclamation's finding of effect. If after 30 days the SHPO has not responded, the regulations state that "…the agency official shall then carry out the undertaking in accordance with paragraph (d)(1) of this section" [§ 800.5(c)(1)]. Because the SHPO did not to comment on Reclamation's finding within the period of time provided to them pursuant to the Section 106 regulations, Reclamation may move on to the next step of the Section 106 process. Reclamation has decided to move forward with the undertaking without receiving a response from the SHPO.

Cumulative Impacts

Reclamation has determined that the Proposed Action would not result in impacts to cultural resources; therefore, there would be no cumulative impacts.

3.2.7 Geology and Soils

Would the Project:	**Potentially Significant Impact**	**Less than Significant With Mitigation Incorporation**	**Less than Significant Impact**	**No Impact**
a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving: i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☐	☒
ii) Strong seismic ground shaking?	☐	☐	☒	☐

Would the Project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
iii) Seismic-related ground failure, including liquefaction?	☐	☐	☐	☒
iv) Landslides?	☐	☐	☐	☒
b) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the Project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	☐	☐	☐	☒
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?	☐	☐	☐	☒
e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	☐	☐	☐	☒
f) Directly or indirectly destroy a unique paleontological resource or site or unique geological feature?	☐	☐	☒	☐

Affected Environment

The topography of the site is relatively level with an elevation of about 407 feet above mean sea level. Soils within the site include three soil mapping units: Exeter loam, 0 to 2 percent slopes; Tagus loam, 0 to 2 percent slopes; and water-perennial. None of the soils are considered hydric soils under natural conditions. The soils of the site have been significantly disturbed by years of agricultural and residential use and construction and maintenance of the FKC. Such activities include deep-ripping, trenching, discing, grading, and importing of material.

Environmental Consequences

No Action

With the No Action alternative, there would be no ground disturbance or digging performed on site. There would be no impact to geology and soils as conditions would remain the same as existing conditions.

Proposed Action

Under the Proposed Action/Project, no habitable structures would be constructed on the site, nor would the basin construction and grading change the topography such that the Project would expose people or structures to potential substantial adverse effects. There would be no import of soil. All soil would be balanced onsite. In addition, there would be no substantial risk to life or

property due to the project being located on expansive soils. No septic tanks or alternative wastewater disposal systems are proposed as part of the project. There would be no impact to geology and soils.

The area potentially affected is 7.4 acres, while the basin, when completed, would cover approximately five acres. More than one acre of ground disturbance triggers the requirement of a SWPPP. A SWPPP is a fundamental requirement of stormwater permits from the State Water Resources Control Board. As part of the SWPPP, the contractor would be required to provide best management practices (BMPs) to protect the topsoil. This is a regulatory requirement and would be incorporated into the Project (see Table 2).

Cumulative Impacts

No cumulative adverse impacts are anticipated to Geology and Soils.

3.2.8 Hazards and Hazardous Materials

Would the Project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☐	☒
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☐	☒
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☒	☐
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	☒
e) For a Project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the Project result in a safety hazard or excessive noise for people residing or working in the Project area?	☐	☐	☐	☒
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒
g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?	☐	☐	☐	☒

Affected Environment

The Proposed Action/Project area 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 (California Department of Toxic Substances Control 2023). EnviroStor is the Department of Toxic Substances Control's data management system for tracking cleanup, permitting, enforcement and investigation efforts at hazardous waste facilities and sites with known contamination or sites where there may be reasons to investigate further.

GeoTracker is the Water Boards' data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater. GeoTracker contains records for sites that require cleanup, such as Leaking Underground Storage Tank Sites, Department of Defense Sites, and Cleanup Program Sites. GeoTracker also contains records for various unregulated projects as well as permitted facilities including: Irrigated Lands, Oil and Gas production, operating Permitted USTs, and Land Disposal Sites.

There is an airport located approximately 3.7 miles south of the Project area. William R. Buckley Elementary and Burton Middle Schools are located approximately 200 feet south of the Project area. Land about 2.5 miles northeast of the Project site is designated as a zone of high fire hazard severity by CalFire. This land is also a State Responsibility Area.

Environmental Consequences

No Action

Under the No Action alternative, there would be no potential impact from hazards or hazardous materials as conditions would remain the same as existing conditions.

Proposed Action

The Proposed Action/Project does not involve the generation of any hazardous emissions or the transport, use, storage, or disposal of any hazardous materials and would not create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment. The Project site is not located within an airport land use plan or within two miles of an airport. Though the site is located within one-quarter mile of two schools, as demonstrated in Section 3.2.3 Air Quality, temporary construction-related emissions would not exceed established thresholds while operations would generate minimal emissions. The Project does not involve habitable structures and operations would not require staff to be onsite at all times. Project implementation would not create a safety hazard for people in the vicinity.

Cumulative Impacts

No cumulative adverse impacts from hazards are anticipated.

3.2.9 Hydrology and Water Quality

Would the Project:	**Potentially Significant Impact**	**Less than Significant With Mitigation Incorporation**	**Less than Significant Impact**	**No Impact**
a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?	☐	☐	☐	☒
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	☐	☐	☐	☒
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would: i) result in substantial erosion or siltation on- or off-site;	☐	☒	☐	☐

Would the Project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;	☐	☐	☒	☐
iii) create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or	☐	☐	☐	☒
iv) impede or redirect flood flows?	☐	☐	☐	☒
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	☐	☐	☐	☒
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	☐	☐	☐	☒

Affected Environment

The Proposed Action area is located in rural Tulare County, in the San Joaquin Valley within the Tule Groundwater Basin. The basin is part of the Tulare Lake Hydrologic Region which stretches from north of Fresno to south of Bakersfield. The Tule Basin spans approximately 467,000 acres, bordered by the Kaweah Subbasin to the north, the Kern Subbasin to the south, the Tulare Lake Subbasin to the west, and the Sierra Nevada Mountains to the east. The groundwater gradient of the region generally flows from east to west and primarily contains alluvial sediments.

The District and the City of Porterville are members of the Eastern Tule Groundwater Sustainability Agency (ETGSA). The ETGSA is one of six Groundwater Sustainability Agencies (GSAs) within the Tule Subbasin. The Tule Subbasin has been designated by DWR as a critically overdrafted basin with an estimated historical annual overdraft of 115,300-feet per year based on the average hydrologic period from 1990/1991 to 2009/2010 (ETGSA 2019). Under SGMA, local GSAs in high and medium-priority basins are required to prepare and implement Groundwater Sustainability Plans (GSPs) that contain action items to reduce and/or prevent undesirable results. As a member of the ETGSA, the District and the City are actively involved in achieving groundwater sustainability in the Tule Subbasin. The overdraft conditions have caused issues for those reliant on groundwater pumping, which include municipal, domestic, and agricultural users. Groundwater overdraft has caused land subsidence, which has created issues along critical infrastructure along the FKC.

The Proposed Action/Project area consists of the construction footprint from the FKC to the parcel intended for basin construction. This area is not within a Federal Emergency Management Agency (FEMA) 100-year Flood Zone (FEMA 2023). The nearest floodway to the Proposed Action/Project area is the Porter Slough, located approximately 0.4 miles south.

Environmental Consequences

No Action

Under the No Action alternative, groundwater levels within the region may continue to decline, potentially affecting the future viability of agriculture in the area. If insufficient groundwater exists to sustain agriculture at current levels, at least some lands within the affected area may require either fallowing or conversion to other uses not dependent on water (e.g., dry-land grazing) at some point in the future. The area could also lose the benefit of future direct recharge opportunities. Therefore, there could be an adverse impact to groundwater levels as a result of the No Action alternative.

Proposed Action

As seen in Table 1, the anticipated average annual recharge capacity of the proposed basin would be 405 AF, with a maximum estimate of 1,215 AF. During wet periods surplus surface water from the FKC would be delivered to the basin for recharge to the underlying groundwater aquifer via a new proposed turnout in the FKC. Recharging the aquifer would help to stabilize groundwater levels in the District, to the benefit of overall groundwater levels in the regional area and adjacent areas. This would contribute to the long-term viability of agriculture in the area and would support the objectives of the ETGSA GSP under SGMA.

During construction, water would likely be needed for dust control for grading and pipeline installation.

The Proposed Action/Project would not interfere with water deliveries, facility operation, or cause substantial adverse changes to the conveyance facilities or local hydrology. The Proposed Action/Project would not trigger other water service actions. The Proposed Action/Project would potentially have beneficial impacts on groundwater resources.

Cumulative Impacts

The Proposed Action/Project would not interfere with water deliveries, facility operation, or cause substantial adverse changes to the conveyance facilities. The Proposed Action/Project would not trigger other water service actions and does not contribute to cumulative effects to physical resources when added to other water service actions. The Proposed Action/Project would have beneficial impacts on water resources and public health; and therefore, would not contribute to adverse cumulative impacts on these areas.

3.2.10 Land Use and Planning

Would the Project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
a) Physically divide an established community?	☐	☐	☐	☒

Would the Project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
b) Cause a significant environmental impact due to a conflict with land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☐	☒

Affected Environment

The District encompasses approximately 16,900 acres. Land use is predominantly agricultural including annual crops, vineyard orchards, and other semi-agricultural uses or agricultural related infrastructure. The pipeline and canal turnout would be constructed in land owned by Reclamation while the basin would be installed in land designated as Prime Farmland and owned by the City of Porterville. As the recharge basin supports agricultural operations, project implementation would not alter land use or convert land used for agricultural purposes to a different use. Lands in the area are classified by the California Department of Conservation (CDC) as prime farmland, Farmland of Local Importance, Unique Farmland, and Urban/Built-Up Land.

The project area is zoned "Agricultural Rural Exclusive – 20 acres" by Tulare County.

Environmental Consequences

No Action

Under the No Action alternative, there would be no impact to land use as conditions would remain the same as existing conditions.

Proposed Action

Construction of the basin, turnout, and pipeline would not change existing land uses. Under the Proposed Action/Project, construction of the project would not require the removal of any agriculture and no new lands would be brought into agricultural production. The construction of water facilities is considered to be a compatible agricultural use and would not change its land use designation. The Proposed Action/Project would maintain current land uses and would have no adverse impacts to land use.

Cumulative Impacts

In recent years, land use changes within the San Joaquin Valley have involved the urbanization of agricultural lands. These types of changes are typically driven by economic pressures and are as likely to occur with or without the Proposed Action/Project. Accordingly, no cumulative adverse impacts to land use are anticipated as a result of the Proposed Action/Project.

3.2.11 Mineral Resources

Would the Project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☒
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	☐	☐	☐	☒

Affected Environment

There are no known mineral resources at the Proposed Action/Project site. The project site is not classified in the Tulare County General Plan as an area containing mineral deposits.

Environmental Consequences

No Action

Under the No Action alternative, there would be no impact to mineral resources as conditions would remain the same as existing conditions. There would be no ground disturbance or digging performed on site.

Proposed Action

The Proposed Action/Project does not have the potential to impact the availability of any known mineral resources or mineral resource recovery sites. Additionally, project implementation would not preclude mineral extraction from the area. There would be no impact.

Cumulative Impacts

There would be no cumulative impacts to mineral resources.

3.2.12 Noise

Would the Project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☐	☒	☐
b) Generation of excessive groundborne vibration of groundborne noise levels?	☐	☐	☒	☐

Would the Project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
c) For a project located within the vicinity of a private airstrip or an airport land use plan or where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☒	☐

Affected Environment

The Project site is located in the midst of land used for agricultural operations and across the canal, approximately 200 feet from the site, is a residential subdivision with a few dozen homes. There is also a single-family residence on the project side of the canal located approximately 0.25 miles away.

Environmental Consequences

No Action

Under the No Action alternative, there would be no potential noise impacts as conditions would remain the same as existing conditions.

Proposed Action

Under the Proposed Action/Project, operation of the turnout and basin would be passive and would generate little to no noise. As mentioned, the Proposed Action/Project is located in the midst of agricultural land that contains various outputs of noise from farming activities. Project implementation would not substantially increase noise in the area. Project construction activities would involve temporary noises anticipated to last from construction initiation to February 2026, which is the next anticipated standard shutdown of the FKC. Typical construction equipment would include an excavator, backhoe/loader, concrete truck, concrete pumper, and miscellaneous equipment (e.g. pneumatic tools, generators, and portable air compressors). During the construction phases of the Project, noise from construction activities could contribute to the noise environment in the immediate Project vicinity. However, activities involved in construction would not generate noise levels substantially beyond existing conditions.

Cumulative Impacts

The Proposed Action/Project would not have a substantial contribution to a cumulative adverse impact on noise.

3.2.13 Population and Housing

Would the Project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
a) Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☐	☒
b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

Affected Environment

The Project site is located in the midst of land used for agricultural operations and across the canal, approximately 200 feet from the site, is a residential subdivision with a few dozen homes.

Environmental Consequences

No Action

Under the No Action alternative, there would be no impact to population and housing as conditions would remain the same as existing conditions.

Proposed Action

The Proposed Action/Project does not include any features that would require the destruction or relocation of existing housing or the construction of replacement housing. In addition, the Proposed Action/Project would not increase or decrease the number of available dwelling units in the area. The Project would not displace any people. The Proposed Action/Project would have no effect on population growth.

Cumulative Impacts

There would be no cumulative impacts to population and housing from the Proposed Action/Project.

3.2.14 Public Services

Would the Project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
a) Would the Project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause	☐	☐	☐	☒

Would the Project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services: i) Fire protection?				
ii) Police protection?	☐	☐	☐	☒
iii) Schools?	☐	☐	☐	☒
iv) Parks?	☐	☐	☐	☒
v) Other public facilities?	☐	☐	☐	☒

Affected Environment

The closest fire station is the Porterville Fire Department Station 2 located 1.6 miles south-southeast of the proposed project. The Project site would be served by the Porterville Office of the Tulare County Sheriff, approximately four miles southeast of the site. William R. Buckley Elementary and Burton Middle Schools are located approximately 200 feet south of the site. The closest park/recreational area is Veteran's Memorial Park approximately 1.26 miles southeast of the Project site.

Environmental Consequences

No Action

Under the No Action alternative, there would be no impact to public services as conditions would remain the same as existing conditions.

Proposed Action

The Proposed Action/Project does not include any features or facilities that would require additional or unusual fire protection resources, enhanced levels of police protection, nor does it have the potential to increase or decrease the area's population and therefore would not impact demand for schools or parks. The Proposed Action/Project would not result in adverse physical impacts associated with the provision of new or physically altered governmental facilities. No habitable structures would be constructed on the site that would require any public services.

The District and/or City would be responsible for any operation or maintenance on the facility.

Cumulative Impacts

There would be no cumulative impacts to public services from this project.

3.2.15 Recreation

Would the Project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
a) Would the Project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☐	☒
b) Does the Project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	☐	☐	☐	☒

Affected Environment

No habitable structures are proposed as part of this project and therefore would not increase the use of local parks. The closest park/recreational area is Veteran's Memorial Park approximately 1.26 miles southeast of the Project site.

Environmental Consequences

No Action

Under the No Action alternative, there would be no impact to recreation as conditions would remain the same as existing conditions.

Proposed Action

The Proposed Action/Project does not have the potential to increase or decrease the area's population and would therefore not result in increased or decreased use of parks or other recreational facilities. Additionally, the Proposed Action/Project does not include recreational facilities and would not require the construction or expansion of any recreational facilities. Project implementation would have no impact on area parks.

Cumulative Impacts

There would be no cumulative impacts to parks and recreation from this project.

3.2.16 Transportation

Would the Project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
a) Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities?	☐	☐	☐	☒

Would the Project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
b) Conflict with or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b)?	☐	☐	☐	☒
c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☐	☒
d) Result in inadequate emergency access?	☐	☐	☐	☒

Affected Environment

The Proposed Action/Project involves Assessor Parcel Numbers (APNs) 240-310-001 and 240-310-002. The only traffic this project would create is the occasional District worker visiting the site for maintenance. The access roads surrounding the site are existing.

Environmental Consequences

No Action

Under the No Action alternative, there would be no additional impact to existing traffic patterns in the area. Currently the existing roads adjacent to the canal allow for Friant Water Authority vehicles to access the FKC for maintenance. Conditions would remain the same as existing conditions.

Proposed Action

The Proposed Action/Project is not anticipated to create any significant additional traffic. The FKC is an existing Reclamation structure operated by Friant Water Authority. The new turnout would be located in the existing canal and could require a two annual vehicle trips to clean the trash rack in the canal. Any monitoring and maintenance activities that would occur at the proposed turnout would be performed by the District. The Proposed Action/Project would not result in any impacts to transportation or traffic.

Cumulative Impacts

The Proposed Action/Project, when added to other projects, would not contribute to significant road improvements or degradation in environmental conditions. The Proposed Action/Project would not be precedent setting.

3.2.17 Utilities and Service Systems

Would the Project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	☐	☐	☒	☐
b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?	☐	☐	☐	☒
c) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☐	☒
d) Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	☐	☐	☐	☒
e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	☐	☐	☐	☒

Affected Environment

No habitable structures are a part of this project and therefore no wastewater or solid waste disposal would be required for the project.

Environmental Consequences

No Action

Under the No Action alternative, there would be no impact to utilities and service systems as conditions would remain the same as existing conditions.

Proposed Action

The Proposed Action/Project involves improvements that would increase the local groundwater recharge capacity and would in turn increase the reliability of water supplies to agricultural users in the area. The Proposed Action/Project would not result in a change to facilities or operations at existing wastewater treatment plants, nor would it require additional water supplies or generate wastewater. The amount of runoff at the Project site would not increase as a result of this Proposed Action/Project nor would implementation of the Project generate any solid waste. There would be no adverse impacts to utilities and service systems.

Cumulative Impacts

There would be no cumulative impacts to utilities and service systems from this project.

3.2.18 Mandatory Findings of Significance

Would the Project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
a) Does the Project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☐	☒	☐	☐
b) Does the Project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a Project are considerable when viewed in connection with the effects of past Projects, the effects of other current Projects, and the effects of probable future Projects)?	☐	☐	☒	☐
c) Does the Project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	☒	☐

The analysis conducted in this document results in a determination under CEQA that the Proposed Action/Project would have a less than significant effect on the local environment. As described in the sections above, the potential for impacts to biological resources from the construction of the basin, turnout, and pipeline would be less than significant with the incorporation of mitigation measures (see Table 2).

Accordingly, the Proposed Action/Project would involve no potential for significant impacts through the degradation of the quality of the environments, the reduction in the habitat or population of fish or wildlife, including endangered plants or animals, the elimination of a plant or animal community or example of a major period of California history or prehistory.

As discussed above, the Proposed Action/Project would result in less than significant impacts to biological and cultural resources, with mitigation incorporation listed in Table 2 and described in sections 3.2.3 Air Quality and 3.2.5 Climate Change of this environmental document. Project operations and maintenance would not require any on-site personnel. It is anticipated that there would be an estimated two annual trips to the Project site during irrigation season. As such, the Proposed Action/Project would generate minimal vehicle trips upon project implementation. The turnout, pipeline, and basin would not result in ongoing impacts that are individually limited or cumulatively considerable. Executing the identified Proposed Action/Project-specific mitigation measures and compliance in Table 2 combined with applicable codes, ordinances, laws, and

other required regulations would reduce the magnitude of any impacts associated with project implementation to a less than significant level.

The Proposed Action/Project would not result in substantial adverse effects on human beings, either directly or indirectly. Mitigation measures are listed in Table 2 and described in sections 3.2.3 Air Quality and 3.2.5 Climate Change of this environmental document. The implementation of the identified mitigation measures would reduce the Proposed Action/Project's potential environmental effects on the public and the environment to less than significant levels. No additional mitigation measures would be required. Adverse effects on human beings resulting from implementation of the Proposed Action/Project would be less than significant.

4 Consultation and Coordination

4.1 List of Agencies and Persons Consulted

Reclamation and/or the District has consulted with the following regarding the Proposed Action/Project.

- State Historic Preservation Officer (SHPO)

Reclamation and/or the District is coordinating the Proposed Action/Project with the City of Porterville.

4.2 Public Involvement

Reclamation intends to provide the public with an opportunity to comment on the Draft IS/EA (acting as Lead Agency for NEPA) during a 30-day public review period. Through the State Clearinghouse, the District (acting as Lead Agency for CEQA) will make the Draft IS/EA and the proposed adoption of a mitigated negative declaration available to the public.

5 Preparers and Reviewers

5.1 Bureau of Reclamation

Chris Rigby, Senior Natural Resources Specialist, SCCAO
Shauna McDonald, Wildlife Biologist, SCCAO
Carrie Reichardt, Archaeologist, MP-153
Brian Lopez, Natural Resource Specialist, SCCAO - reviewer
David E. Hyatt, Resources Management Division Chief, SCCAO – reviewer

5.2 Porterville Irrigation District

Sean Geivet, General Manager

5.3 Provost & Pritchard Consulting Group

Matt Klinchuch, PE
Evan Nydam, EIT
Briza Sholars, Senior Planner
Ryan McKelvey, Technical Writer
Mallory Serrao, GIS
Jackie Lancaster, Project Assistant

5.4 City of Porterville

Javier Sanchez, City Engineer
Michael Knight, Public Works Director
Julie Phillips, Community Development Manager

6 References

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California Department of Conservation's Farmland Mapping and Monitoring Program: http://www.conservation.ca.gov

California Department of Fish and Wildlife: https://www.wildlife.ca.gov/Data/CNDDB

California Department of Forestry and Fire Protection, Fire Hazard Severity Zone: https://www.arcgis.com/home/item.html?id=5e96315793d445419b6c96f89ce5d153

California Department of Forestry and Fire Protection, Forest and Range Assessment Project: https://frap.fire.ca.gov/

California Department of Forestry and Fire Protection, State Responsibility Areas: https://www.arcgis.com/home/item.html?id=5ac1dae3cb2544629a845d9a19e83991

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Caltrans: http://www.dot.ca.gov/hq/LandArch/16_livability/scenic_highways/index.htm

City of Porterville, General Plan: http://www.ci.porterville.ca.us/depts/communitydevelopment/generalplan.cfm
County of Tulare, General Plan: http://generalplan.co.tulare.ca.us/
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Appendix A. Air Quality - CalEEMod

North Basin Project
Tulare County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	7.90	Acre	7.90	344,124.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	51
Climate Zone	7			**Operational Year**	2023
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - Construction to begin November 2020 and end by February 2022; no architectural coatings involved

Grading - APE is 7.9 acres. Assumes area to be graded is 7 acres.

Construction Off-road Equipment Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	20.00	5.00
tblConstructionPhase	NumDays	20.00	40.00
tblConstructionPhase	NumDays	20.00	45.00
tblConstructionPhase	PhaseEndDate	11/26/2021	12/3/2021
tblConstructionPhase	PhaseEndDate	11/27/2020	11/6/2020
tblConstructionPhase	PhaseEndDate	1/8/2021	1/15/2021
tblConstructionPhase	PhaseEndDate	12/24/2021	2/4/2022
tblConstructionPhase	PhaseEndDate	12/11/2020	11/20/2020
tblConstructionPhase	PhaseStartDate	1/9/2021	1/18/2021
tblConstructionPhase	PhaseStartDate	12/12/2020	11/23/2020
tblConstructionPhase	PhaseStartDate	11/27/2021	12/6/2021
tblConstructionPhase	PhaseStartDate	11/28/2020	11/9/2020
tblGrading	AcresOfGrading	20.00	7.00
tblGrading	MaterialExported	0.00	27,000.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2020	0.0754	1.0206	0.4624	1.7200e-003	0.2124	0.0348	0.2472	0.1062	0.0321	0.1383	0.0000	158.2634	158.2634	0.0232	0.0000	158.8440
2021	0.3413	3.1492	2.7816	6.8900e-003	0.2391	0.1268	0.3659	0.0730	0.1190	0.1919	0.0000	618.8303	618.8303	0.0873	0.0000	621.0127
2022	0.0145	0.1395	0.1871	3.0000e-004	1.4900e-003	7.1100e-003	8.6000e-003	4.0000e-004	6.5400e-003	6.9400e-003	0.0000	26.2333	26.2333	8.1300e-003	0.0000	26.4365
Maximum	**0.3413**	**3.1492**	**2.7816**	**6.8900e-003**	**0.2391**	**0.1268**	**0.3659**	**0.1062**	**0.1190**	**0.1919**	**0.0000**	**618.8303**	**618.8303**	**0.0873**	**0.0000**	**621.0127**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2020	0.0754	1.0206	0.4624	1.7200e-003	0.1118	0.0348	0.1466	0.0522	0.0321	0.0843	0.0000	158.2633	158.2633	0.0232	0.0000	158.8439
2021	0.3413	3.1492	2.7816	6.8900e-003	0.2180	0.1268	0.3448	0.0626	0.1190	0.1816	0.0000	618.8299	618.8299	0.0873	0.0000	621.0124
2022	0.0145	0.1395	0.1871	3.0000e-004	1.4900e-003	7.1100e-003	8.6000e-003	4.0000e-004	6.5400e-003	6.9400e-003	0.0000	26.2333	26.2333	8.1300e-003	0.0000	26.4365
Maximum	**0.3413**	**3.1492**	**2.7816**	**6.8900e-003**	**0.2180**	**0.1268**	**0.3448**	**0.0626**	**0.1190**	**0.1816**	**0.0000**	**618.8299**	**618.8299**	**0.0873**	**0.0000**	**621.0124**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**26.86**	**0.00**	**19.57**	**35.88**	**0.00**	**19.10**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**11-2-2020**	**2-1-2021**	1.4168	1.4168
2	**2-2-2021**	**5-1-2021**	0.8512	0.8512
3	**5-2-2021**	**8-1-2021**	0.8781	0.8781
4	**8-2-2021**	**11-1-2021**	0.8790	0.8790
5	**11-2-2021**	**2-1-2022**	0.5800	0.5800
6	**2-2-2022**	**5-1-2022**	0.0132	0.0132
		Highest	1.4168	1.4168

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0294	0.0000	7.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.4000e-004	1.4000e-004	0.0000	0.0000	1.5000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0294**	**0.0000**	**7.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**1.4000e-004**	**1.4000e-004**	**0.0000**	**0.0000**	**1.5000e-004**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0294	0.0000	7.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.4000e-004	1.4000e-004	0.0000	0.0000	1.5000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0294**	**0.0000**	**7.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**1.4000e-004**	**1.4000e-004**	**0.0000**	**0.0000**	**1.5000e-004**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	11/2/2020	11/6/2020	5	5	
2	Site Preparation	Site Preparation	11/9/2020	11/20/2020	5	10	
3	Grading	Grading	11/23/2020	1/15/2021	5	40	
4	Building Construction	Building Construction	1/18/2021	12/3/2021	5	230	
5	Paving	Paving	12/6/2021	2/4/2022	5	45	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 7

Acres of Paving: 7.9

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Excavators	3	8.00	158	0.38
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Grading	Excavators	1	8.00	158	0.38
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Paving	Pavers	2	8.00	130	0.42
Paving	Rollers	2	8.00	80	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Grading	Graders	1	8.00	187	0.41
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Paving	Paving Equipment	2	8.00	132	0.36
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Building Construction	Welders	1	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	3,375.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	145.00	56.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Demolition - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	8.2800e-003	0.0830	0.0544	1.0000e-004		4.1500e-003	4.1500e-003		3.8500e-003	3.8500e-003	0.0000	8.4997	8.4997	2.4000e-003	0.0000	8.5596
Total	**8.2800e-003**	**0.0830**	**0.0544**	**1.0000e-004**		**4.1500e-003**	**4.1500e-003**		**3.8500e-003**	**3.8500e-003**	**0.0000**	**8.4997**	**8.4997**	**2.4000e-003**	**0.0000**	**8.5596**

Demolition - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.8000e-004	1.2000e-004	1.2000e-003	0.0000	3.0000e-004	0.0000	3.0000e-004	8.0000e-005	0.0000	8.0000e-005	0.0000	0.2566	0.2566	1.0000e-005	0.0000	0.2568
Total	**1.8000e-004**	**1.2000e-004**	**1.2000e-003**	**0.0000**	**3.0000e-004**	**0.0000**	**3.0000e-004**	**8.0000e-005**	**0.0000**	**8.0000e-005**	**0.0000**	**0.2566**	**0.2566**	**1.0000e-005**	**0.0000**	**0.2568**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	8.2800e-003	0.0830	0.0544	1.0000e-004		4.1500e-003	4.1500e-003		3.8500e-003	3.8500e-003	0.0000	8.4996	8.4996	2.4000e-003	0.0000	8.5596
Total	**8.2800e-003**	**0.0830**	**0.0544**	**1.0000e-004**		**4.1500e-003**	**4.1500e-003**		**3.8500e-003**	**3.8500e-003**	**0.0000**	**8.4996**	**8.4996**	**2.4000e-003**	**0.0000**	**8.5596**

Demolition - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.8000e-004	1.2000e-004	1.2000e-003	0.0000	3.0000e-004	0.0000	3.0000e-004	8.0000e-005	0.0000	8.0000e-005	0.0000	0.2566	0.2566	1.0000e-005	0.0000	0.2568
Total	**1.8000e-004**	**1.2000e-004**	**1.2000e-003**	**0.0000**	**3.0000e-004**	**0.0000**	**3.0000e-004**	**8.0000e-005**	**0.0000**	**8.0000e-005**	**0.0000**	**0.2566**	**0.2566**	**1.0000e-005**	**0.0000**	**0.2568**

Site Preparation - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0903	0.0000	0.0903	0.0497	0.0000	0.0497	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0204	0.2121	0.1076	1.9000e-004		0.0110	0.0110		0.0101	0.0101	0.0000	16.7153	16.7153	5.4100e-003	0.0000	16.8505

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Total	**0.0204**	**0.2121**	**0.1076**	**1.9000e-004**	**0.0903**	**0.0110**	**0.1013**	**0.0497**	**0.0101**	**0.0598**	**0.0000**	**16.7153**	**16.7153**	**5.4100e-003**	**0.0000**	**16.8505**

3.2 Site Preparation - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.2000e-004	2.8000e-004	2.8800e-003	1.0000e-005	7.2000e-004	1.0000e-005	7.2000e-004	1.9000e-004	0.0000	2.0000e-004	0.0000	0.6159	0.6159	2.0000e-005	0.0000	0.6163
Total	**4.2000e-004**	**2.8000e-004**	**2.8800e-003**	**1.0000e-005**	**7.2000e-004**	**1.0000e-005**	**7.2000e-004**	**1.9000e-004**	**0.0000**	**2.0000e-004**	**0.0000**	**0.6159**	**0.6159**	**2.0000e-005**	**0.0000**	**0.6163**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0407	0.0000	0.0407	0.0223	0.0000	0.0223	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0204	0.2121	0.1076	1.9000e-004		0.0110	0.0110		0.0101	0.0101	0.0000	16.7153	16.7153	5.4100e-003	0.0000	16.8505
Total	**0.0204**	**0.2121**	**0.1076**	**1.9000e-004**	**0.0407**	**0.0110**	**0.0516**	**0.0223**	**0.0101**	**0.0325**	**0.0000**	**16.7153**	**16.7153**	**5.4100e-003**	**0.0000**	**16.8505**

3.3 Site Preparation - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.2000e-004	2.8000e-004	2.8800e-003	1.0000e-005	7.2000e-004	1.0000e-005	7.2000e-004	1.9000e-004	0.0000	2.0000e-004	0.0000	0.6159	0.6159	2.0000e-005	0.0000	0.6163
Total	**4.2000e-004**	**2.8000e-004**	**2.8800e-003**	**1.0000e-005**	**7.2000e-004**	**1.0000e-005**	**7.2000e-004**	**1.9000e-004**	**0.0000**	**2.0000e-004**	**0.0000**	**0.6159**	**0.6159**	**2.0000e-005**	**0.0000**	**0.6163**

3.4 Grading

Grading 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0926	0.0000	0.0926	0.0486	0.0000	0.0486	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0352	0.3826	0.2328	4.3000e-004		0.0185	0.0185		0.0170	0.0170	0.0000	37.7852	37.7852	0.0122	0.0000	38.0907
Total	**0.0352**	**0.3826**	**0.2328**	**4.3000e-004**	**0.0926**	**0.0185**	**0.1110**	**0.0486**	**0.0170**	**0.0656**	**0.0000**	**37.7852**	**37.7852**	**0.0122**	**0.0000**	**38.0907**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	9.8400e-003	0.3418	0.0566	9.8000e-004	0.0268	1.1800e-003	0.0280	7.1900e-003	1.1300e-003	8.3200e-003	0.0000	92.9024	92.9024	3.1200e-003	0.0000	92.9805
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0300e-003	6.8000e-004	6.9500e-003	2.0000e-005	1.7300e-003	1.0000e-005	1.7400e-003	4.6000e-004	1.0000e-005	4.7000e-004	0.0000	1.4883	1.4883	5.0000e-005	0.0000	1.4895
Total	**0.0109**	**0.3425**	**0.0636**	**1.0000e-003**	**0.0285**	**1.1900e-003**	**0.0297**	**7.6500e-003**	**1.1400e-003**	**8.7900e-003**	**0.0000**	**94.3907**	**94.3907**	**3.1700e-003**	**0.0000**	**94.4700**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0417	0.0000	0.0417	0.0219	0.0000	0.0219	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0352	0.3826	0.2328	4.3000e-004		0.0185	0.0185		0.0170	0.0170	0.0000	37.7851	37.7851	0.0122	0.0000	38.0907
Total	**0.0352**	**0.3826**	**0.2328**	**4.3000e-004**	**0.0417**	**0.0185**	**0.0601**	**0.0219**	**0.0170**	**0.0389**	**0.0000**	**37.7851**	**37.7851**	**0.0122**	**0.0000**	**38.0907**

Grading - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	9.8400e-003	0.3418	0.0566	9.8000e-004	0.0268	1.1800e-003	0.0280	7.1900e-003	1.1300e-003	8.3200e-003	0.0000	92.9024	92.9024	3.1200e-003	0.0000	92.9805

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0300e-003	6.8000e-004	6.9500e-003	2.0000e-005	1.7300e-003	1.0000e-005	1.7400e-003	4.6000e-004	1.0000e-005	4.7000e-004	0.0000	1.4883	1.4883	5.0000e-005	0.0000	1.4895
Total	**0.0109**	**0.3425**	**0.0636**	**1.0000e-003**	**0.0285**	**1.1900e-003**	**0.0297**	**7.6500e-003**	**1.1400e-003**	**8.7900e-003**	**0.0000**	**94.3907**	**94.3907**	**3.1700e-003**	**0.0000**	**94.4700**

Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0384	0.0000	0.0384	0.0188	0.0000	0.0188	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0126	0.1361	0.0872	1.6000e-004		6.3800e-003	6.3800e-003		5.8700e-003	5.8700e-003	0.0000	14.3295	14.3295	4.6300e-003	0.0000	14.4454
Total	**0.0126**	**0.1361**	**0.0872**	**1.6000e-004**	**0.0384**	**6.3800e-003**	**0.0447**	**0.0188**	**5.8700e-003**	**0.0247**	**0.0000**	**14.3295**	**14.3295**	**4.6300e-003**	**0.0000**	**14.4454**

Grading - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	3.5100e-003	0.1193	0.0205	3.7000e-004	0.0235	3.9000e-004	0.0239	6.0100e-003	3.8000e-004	6.3800e-003	0.0000	34.8205	34.8205	1.1500e-003	0.0000	34.8491
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.6000e-004	2.3000e-004	2.3700e-003	1.0000e-005	6.6000e-004	0.0000	6.6000e-004	1.7000e-004	0.0000	1.8000e-004	0.0000	0.5469	0.5469	2.0000e-005	0.0000	0.5473

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Total	**3.8700e-003**	**0.1195**	**0.0229**	**3.8000e-004**	**0.0242**	**3.9000e-004**	**0.0246**	**6.1800e-003**	**3.8000e-004**	**6.5600e-003**	**0.0000**	**35.3674**	**35.3674**	**1.1700e-003**	**0.0000**	**35.3964**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0173	0.0000	0.0173	8.4800e-003	0.0000	8.4800e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0126	0.1361	0.0872	1.6000e-004		6.3800e-003	6.3800e-003		5.8700e-003	5.8700e-003	0.0000	14.3295	14.3295	4.6300e-003	0.0000	14.4454
Total	**0.0126**	**0.1361**	**0.0872**	**1.6000e-004**	**0.0173**	**6.3800e-003**	**0.0236**	**8.4800e-003**	**5.8700e-003**	**0.0144**	**0.0000**	**14.3295**	**14.3295**	**4.6300e-003**	**0.0000**	**14.4454**

Grading - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	3.5100e-003	0.1193	0.0205	3.7000e-004	0.0235	3.9000e-004	0.0239	6.0100e-003	3.8000e-004	6.3800e-003	0.0000	34.8205	34.8205	1.1500e-003	0.0000	34.8491
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.6000e-004	2.3000e-004	2.3700e-003	1.0000e-005	6.6000e-004	0.0000	6.6000e-004	1.7000e-004	0.0000	1.8000e-004	0.0000	0.5469	0.5469	2.0000e-005	0.0000	0.5473
Total	**3.8700e-003**	**0.1195**	**0.0229**	**3.8000e-004**	**0.0242**	**3.9000e-004**	**0.0246**	**6.1800e-003**	**3.8000e-004**	**6.5600e-003**	**0.0000**	**35.3674**	**35.3674**	**1.1700e-003**	**0.0000**	**35.3964**

3.5 Building Construction – 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2186	2.0047	1.9062	3.1000e-003		0.1102	0.1102		0.1037	0.1037	0.0000	266.3829	266.3829	0.0643	0.0000	267.9895
Total	**0.2186**	**2.0047**	**1.9062**	**3.1000e-003**		**0.1102**	**0.1102**		**0.1037**	**0.1037**	**0.0000**	**266.3829**	**266.3829**	**0.0643**	**0.0000**	**267.9895**

3.4 Building Construction - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0207	0.7129	0.1360	1.8000e-003	0.0426	2.0800e-003	0.0447	0.0123	1.9900e-003	0.0143	0.0000	171.1960	171.1960	7.5700e-003	0.0000	171.3851
Worker	0.0723	0.0465	0.4786	1.2200e-003	0.1328	9.0000e-004	0.1337	0.0353	8.3000e-004	0.0361	0.0000	110.5367	110.5367	3.1700e-003	0.0000	110.6158
Total	**0.0930**	**0.7594**	**0.6146**	**3.0200e-003**	**0.1754**	**2.9800e-003**	**0.1784**	**0.0476**	**2.8200e-003**	**0.0504**	**0.0000**	**281.7327**	**281.7327**	**0.0107**	**0.0000**	**282.0010**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					

Off-Road	0.2186	2.0047	1.9062	3.1000e-003		0.1102	0.1102		0.1037	0.1037	0.0000	266.3826	266.3826	0.0643	0.0000	267.9892
Total	**0.2186**	**2.0047**	**1.9062**	**3.1000e-003**		**0.1102**	**0.1102**		**0.1037**	**0.1037**	**0.0000**	**266.3826**	**266.3826**	**0.0643**	**0.0000**	**267.9892**

3.4 Building Construction - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0207	0.7129	0.1360	1.8000e-003	0.0426	2.0800e-003	0.0447	0.0123	1.9900e-003	0.0143	0.0000	171.1960	171.1960	7.5700e-003	0.0000	171.3851
Worker	0.0723	0.0465	0.4786	1.2200e-003	0.1328	9.0000e-004	0.1337	0.0353	8.3000e-004	0.0361	0.0000	110.5367	110.5367	3.1700e-003	0.0000	110.6158
Total	**0.0930**	**0.7594**	**0.6146**	**3.0200e-003**	**0.1754**	**2.9800e-003**	**0.1784**	**0.0476**	**2.8200e-003**	**0.0504**	**0.0000**	**281.7327**	**281.7327**	**0.0107**	**0.0000**	**282.0010**

3.5 Paving - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0126	0.1292	0.1465	2.3000e-004		6.7800e-003	6.7800e-003		6.2400e-003	6.2400e-003	0.0000	20.0235	20.0235	6.4800e-003	0.0000	20.1854
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0126**	**0.1292**	**0.1465**	**2.3000e-004**		**6.7800e-003**	**6.7800e-003**		**6.2400e-003**	**6.2400e-003**	**0.0000**	**20.0235**	**20.0235**	**6.4800e-003**	**0.0000**	**20.1854**

3.5 Paving - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.5000e-004	4.2000e-004	4.3100e-003	1.0000e-005	1.1900e-003	1.0000e-005	1.2000e-003	3.2000e-004	1.0000e-005	3.3000e-004	0.0000	0.9943	0.9943	3.0000e-005	0.0000	0.9950
Total	**6.5000e-004**	**4.2000e-004**	**4.3100e-003**	**1.0000e-005**	**1.1900e-003**	**1.0000e-005**	**1.2000e-003**	**3.2000e-004**	**1.0000e-005**	**3.3000e-004**	**0.0000**	**0.9943**	**0.9943**	**3.0000e-005**	**0.0000**	**0.9950**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0126	0.1292	0.1465	2.3000e-004		6.7800e-003	6.7800e-003		6.2400e-003	6.2400e-003	0.0000	20.0235	20.0235	6.4800e-003	0.0000	20.1854
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0126**	**0.1292**	**0.1465**	**2.3000e-004**		**6.7800e-003**	**6.7800e-003**		**6.2400e-003**	**6.2400e-003**	**0.0000**	**20.0235**	**20.0235**	**6.4800e-003**	**0.0000**	**20.1854**

3.6 Paving - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.5000e-004	4.2000e-004	4.3100e-003	1.0000e-005	1.1900e-003	1.0000e-005	1.2000e-003	3.2000e-004	1.0000e-005	3.3000e-004	0.0000	0.9943	0.9943	3.0000e-005	0.0000	0.9950
Total	**6.5000e-004**	**4.2000e-004**	**4.3100e-003**	**1.0000e-005**	**1.1900e-003**	**1.0000e-005**	**1.2000e-003**	**3.2000e-004**	**1.0000e-005**	**3.3000e-004**	**0.0000**	**0.9943**	**0.9943**	**3.0000e-005**	**0.0000**	**0.9950**

3.6 Paving - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0138	0.1391	0.1823	2.9000e-004		7.1000e-003	7.1000e-003		6.5300e-003	6.5300e-003	0.0000	25.0345	25.0345	8.1000e-003	0.0000	25.2369
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0138**	**0.1391**	**0.1823**	**2.9000e-004**		**7.1000e-003**	**7.1000e-003**		**6.5300e-003**	**6.5300e-003**	**0.0000**	**25.0345**	**25.0345**	**8.1000e-003**	**0.0000**	**25.2369**

3.6 Paving - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.5000e-004	4.7000e-004	4.8800e-003	1.0000e-005	1.4900e-003	1.0000e-005	1.5000e-003	4.0000e-004	1.0000e-005	4.1000e-004	0.0000	1.1989	1.1989	3.0000e-005	0.0000	1.1996
Total	**7.5000e-004**	**4.7000e-004**	**4.8800e-003**	**1.0000e-005**	**1.4900e-003**	**1.0000e-005**	**1.5000e-003**	**4.0000e-004**	**1.0000e-005**	**4.1000e-004**	**0.0000**	**1.1989**	**1.1989**	**3.0000e-005**	**0.0000**	**1.1996**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0138	0.1391	0.1823	2.9000e-004		7.1000e-003	7.1000e-003		6.5300e-003	6.5300e-003	0.0000	25.0344	25.0344	8.1000e-003	0.0000	25.2368
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0138**	**0.1391**	**0.1823**	**2.9000e-004**		**7.1000e-003**	**7.1000e-003**		**6.5300e-003**	**6.5300e-003**	**0.0000**	**25.0344**	**25.0344**	**8.1000e-003**	**0.0000**	**25.2368**

3.6 Paving - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.5000e-004	4.7000e-004	4.8800e-003	1.0000e-005	1.4900e-003	1.0000e-005	1.5000e-003	4.0000e-004	1.0000e-005	4.1000e-004	0.0000	1.1989	1.1989	3.0000e-005	0.0000	1.1996
Total	**7.5000e-004**	**4.7000e-004**	**4.8800e-003**	**1.0000e-005**	**1.4900e-003**	**1.0000e-005**	**1.5000e-003**	**4.0000e-004**	**1.0000e-005**	**4.1000e-004**	**0.0000**	**1.1989**	**1.1989**	**3.0000e-005**	**0.0000**	**1.1996**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Non-Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Non-Asphalt Surfaces	0.533627	0.031932	0.174885	0.126979	0.018773	0.004811	0.020615	0.079394	0.001826	0.001217	0.004186	0.001092	0.000663

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0294	0.0000	7.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.4000e-004	1.4000e-004	0.0000	0.0000	1.5000e-004
Unmitigated	0.0294	0.0000	7.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.4000e-004	1.4000e-004	0.0000	0.0000	1.5000e-004

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	7.1800e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0222					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Landscaping	1.0000e-005	0.0000	7.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.4000e-004	1.4000e-004	0.0000	0.0000	1.5000e-004
Total	**0.0294**	**0.0000**	**7.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**1.4000e-004**	**1.4000e-004**	**0.0000**	**0.0000**	**1.5000e-004**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	7.1800e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0222					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.0000e-005	0.0000	7.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.4000e-004	1.4000e-004	0.0000	0.0000	1.5000e-004
Total	**0.0294**	**0.0000**	**7.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**1.4000e-004**	**1.4000e-004**	**0.0000**	**0.0000**	**1.5000e-004**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			

Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Appendix B. Biological Resources Evaluation

LIVE OAK ASSOCIATES, INC.

an Ecological Consulting Firm

BIOLOGICAL EVALUATION FOR CEQA/NEPA COMPLIANCE
NORTH BASIN RECHARGE PROJECT
PORTERVILLE, TULARE COUNTY, CALIFORNIA

Prepared by:

LIVE OAK ASSOCIATES, INC.

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Wendy Fisher, Senior Project Manager and Staff Ecologist
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286 W. Cromwell Avenue
Fresno, CA 93711-6162

June 13, 2018 PN 2249-01

EXECUTIVE SUMMARY

Live Oak Associates, Inc. (LOA) conducted a biological resources investigation of approximately 18 acres of a larger 26-acre property proposed for the development of the North Basin Recharge Project, a collaborative effort between the City of Porterville and Porterville Irrigation District, and evaluated likely impacts to such resources resulting from project implementation. The project will entail the construction of a stormwater basin, a new turnout on the Friant-Kern Canal (FKC), and a pipeline to enable surplus surface water from the FKC to be delivered to the basin. On April 17, 2018, LOA ecologist Wendy Fisher surveyed the project site for its biotic habitats, the plants and animals occurring in those habitats, and significant habitat values that may be protected by state and federal law.

At the time of the field survey, the project site consisted primarily of an irrigated oat field, several residences and associated outbuildings, and disturbed lands bordering these uses. The project site also contained an approximate 0.35-mile reach of the FKC, a known Water of the U.S. subject to the regulatory authority of the U.S. Army Corps of Engineers. Four land uses/biotic habitats were identified within the project site: agricultural field, residential, ruderal, and canal. All of these land use/biotic habitats have had some level of human disturbance or modification. The project site is situated within a matrix of agricultural and residential uses.

The project has the potential to result in mortality of the San Joaquin kit fox, in the unlikely event that one or more individuals of this species occur on site at the time of construction. The project also has the potential to result in construction-related mortality/disturbance of nesting Swainson's hawks and other nesting raptors and migratory birds, construction-related mortality of roosting bats, and degradation of downstream waters. These impacts, if they occur, would be considered significant under the California Environmental Quality Act (CEQA) and National Environmental Policy Act (NEPA). Project avoidance of active nests, dens, and roost sites identified during preconstruction surveys, implementation of minimization measures consistent with the USFWS 2011 *Standardized Recommendations for Protection of the Endangered San Joaquin Kit Fox Prior to or During Ground Disturbance*, implementation of erosion control measures for project activities occurring within or adjacent to the FKC, and development and implementation of a Stormwater Pollution Prevention Plan will reduce the magnitude of these potential impacts to a less than significant level under CEQA and NEPA.

No other biological resources would be significantly impacted by the project as defined by CEQA and NEPA. Impacts associated with project development would be less than significant for all locally occurring special status plant species, eleven special status animals absent from or unlikely to use the project site, two special status animals that would use the site for foraging only, wildlife movement corridors, Waters of the U.S., designated critical habitat, and other sensitive habitats. Loss of habitat for special status animal species would not be considered a significant impact of the project under CEQA and NEPA. The project does not appear to conflict with the goals and policies of the Tulare County General Plan or City of Porterville General Plan, or with any other local policies.

TABLE OF CONTENTS

1.0 INTRODUCTION

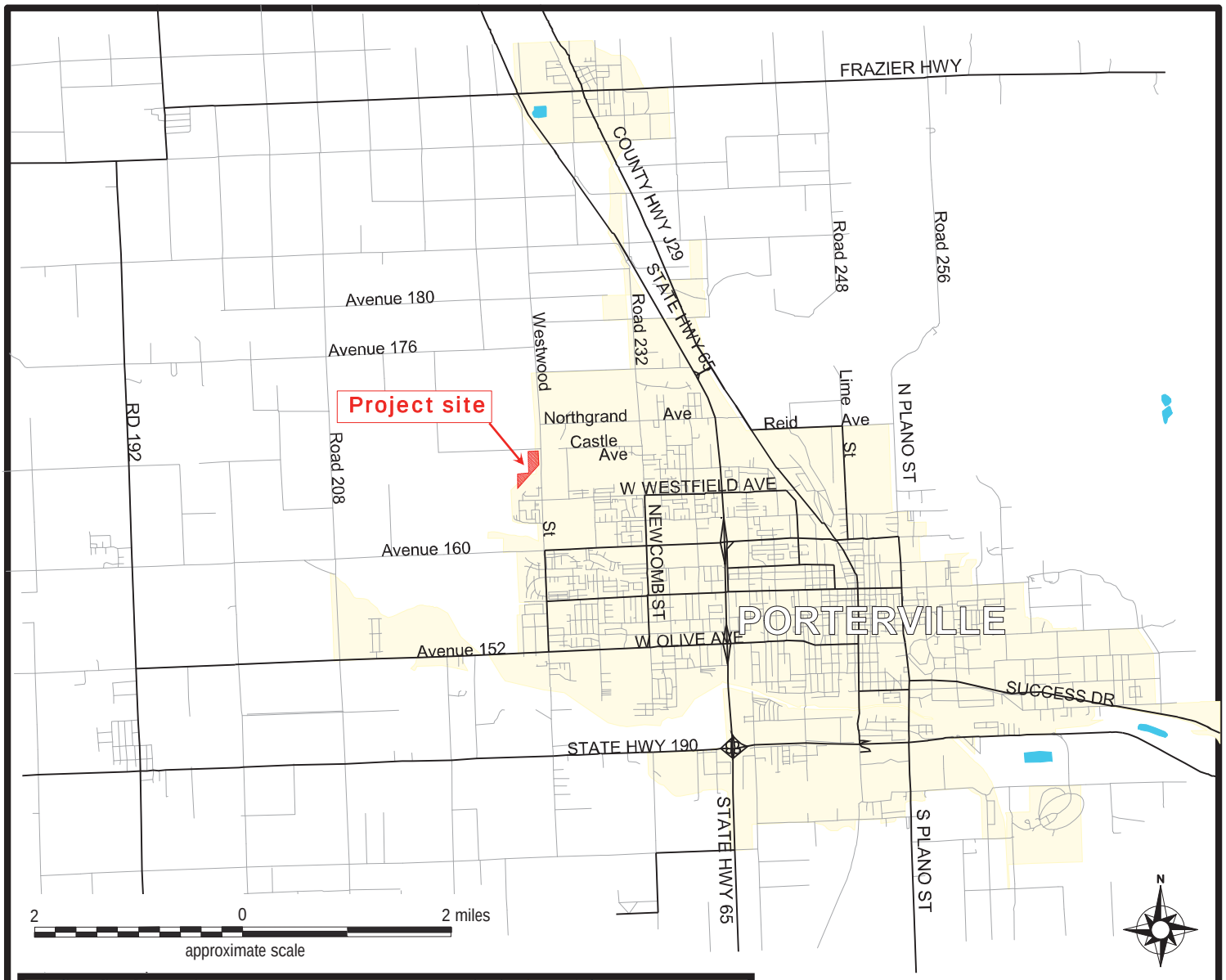
The technical report that follows describes the biotic resources of a property ("project site") that will be impacted by construction of a groundwater basin ("project"), and evaluates possible impacts to sensitive biological resources that could result from project implementation. The project site is located south of Castle Avenue and west of Westwood Avenue, immediately outside of the limits of the City of Porterville, in Tulare County, California (Figure 1). The project site can be found on the *Porterville* quadrangle in the northeast quarter of Section 20 of Township 21 south, Range 27 east; Mount Diablo Base and Meridian (Figure 2).

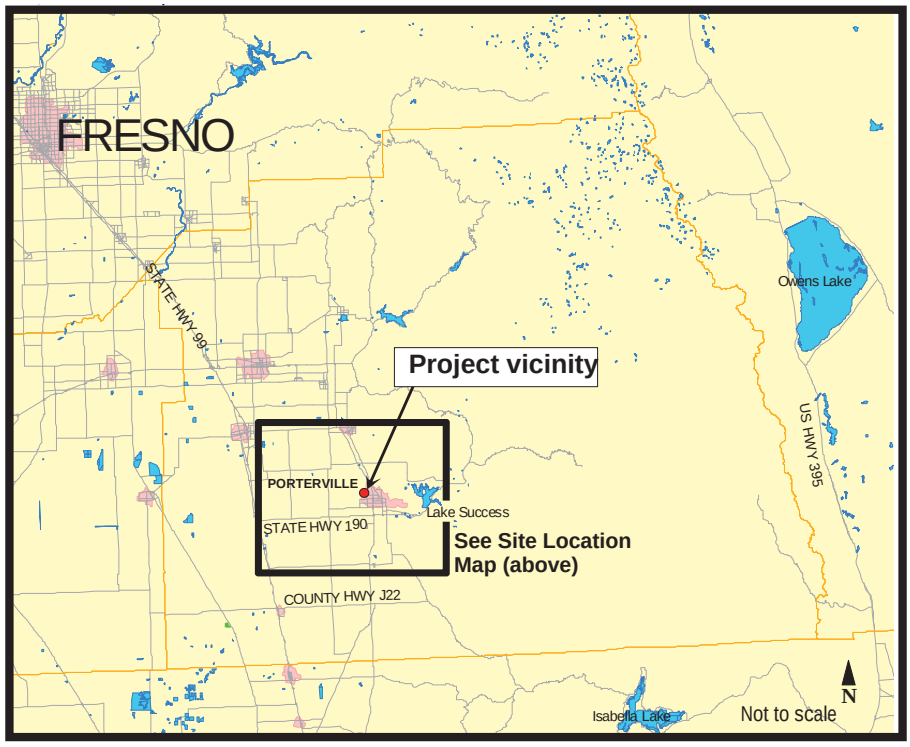
1.1 PROJECT DESCRIPTION

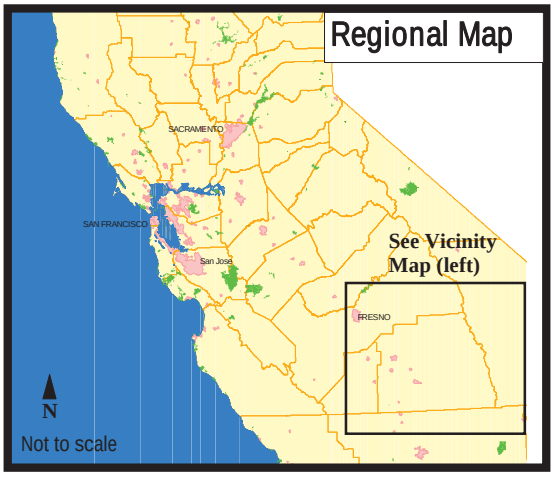
Porterville Irrigation District (PID) will be the Lead Agency for the proposed North Basin Recharge Project, to be located on approximately 18 acres of a larger 26 acres identified as Assessor Parcel Nos. 240-310-001, 240-040-014, and 240-040-013. The specific location within the 26 acres is to be determined during final design. The project will support the PID's and City of Porterville's objective of sustainable groundwater management. During wet periods, surplus surface water from the Friant-Kern Canal (FKC) will be delivered to this basin for recharge to, and storage within, the underlying Tule Sub-basin of San Joaquin Valley Groundwater Basin via a proposed new turnout in the FKC and an associated 50-ft long, 36-in diameter pipeline. The North Basin will be excavated to a depth of approximately 4-7 feet, with excavated material used to build up 2-5 ft. high levee banks, allowing for approximately 1-2 ft. of freeboard, such that water levels in the basin will not be higher than surrounding grade. Excess material will be removed off-site. Approximately 100 square feet of permanent impact and 200 square feet of temporary impact to the canal (a known Water of the U.S) below ordinary high water will be impacted by proposed activities.

1.2 REPORT OBJECTIVES

Construction of groundwater recharge infrastructure such as that proposed by PID may modify biotic habitats used by sensitive plant and wildlife species. As such, site development may be regulated by state or federal agencies, subject to provisions of the California Environmental Quality Act (CEQA) and National Environmental Policy Act (NEPA), and/or covered by



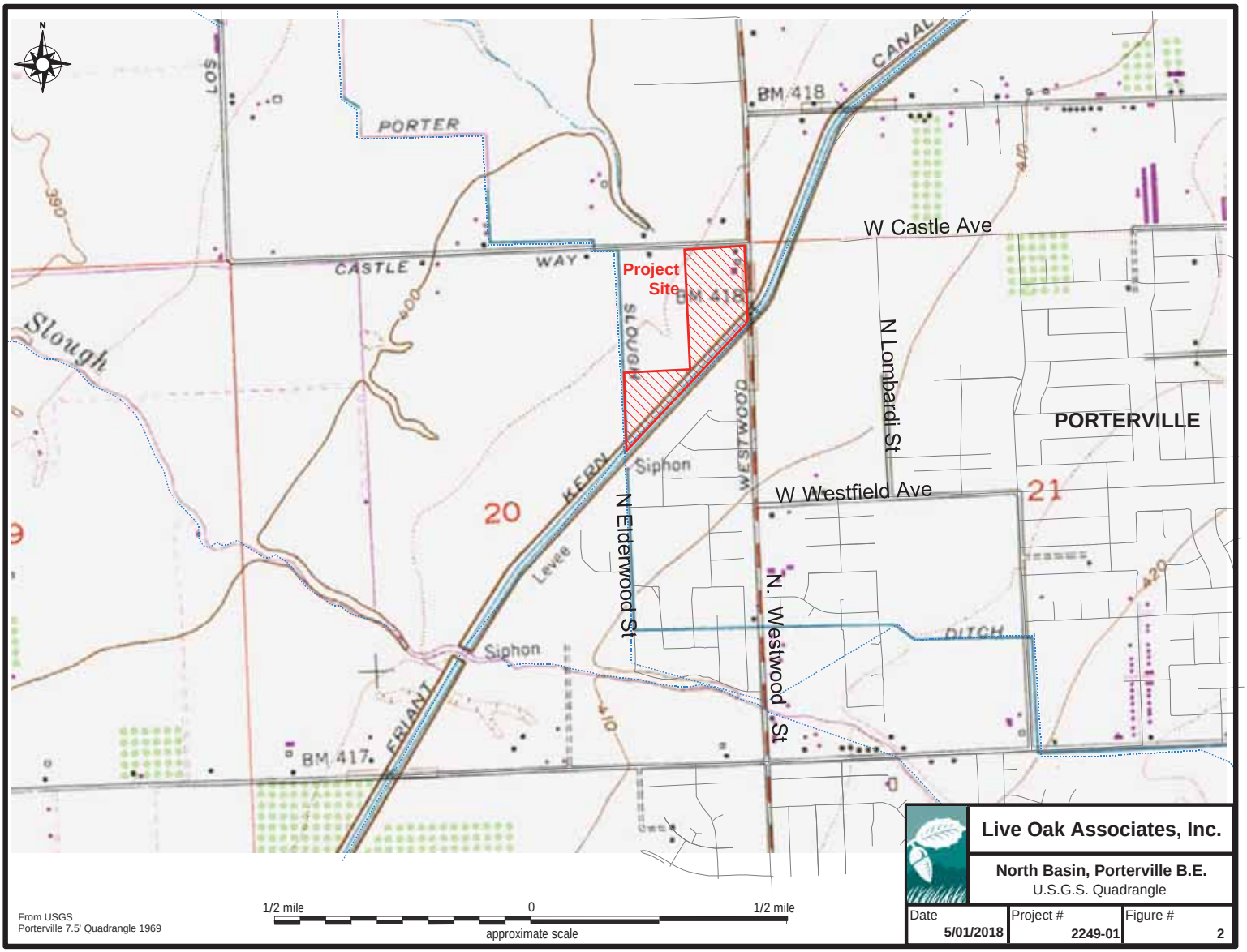




Live Oak Associates, Inc.

North Basin, Porterville B.E.
Site / Vicinity Map

Date	Project #	Figure #
5/01/2018	2249-01	1



From USGS
Porterville 7.5' Quadrangle 1969

Live Oak Associates, Inc.

North Basin, Porterville B.E.
U.S.G.S. Quadrangle

Date	Project #	Figure #
5/01/2018	2249-01	2

policies and ordinances of Tulare County and the City of Porterville. This report addresses issues related to: 1) sensitive biotic resources occurring on the project site; 2) the federal, state, and local laws regulating such resources; and 3) mitigation measures that may be required to reduce the magnitude of anticipated impacts and/or comply with permit requirements of state and federal resource agencies. As such, the objectives of this report are to:

- Summarize all site-specific information related to existing biological resources.
- Make reasonable inferences about the biological resources that could occur onsite based on habitat suitability and the proximity of the site to a species' known range.
- Summarize all state and federal natural resource protection laws that may be relevant to possible future site development.
- Identify and discuss project impacts to biological resources likely to occur on the site within the context of CEQA and NEPA, or any state or federal laws.
- Identify avoidance and mitigation measures that would reduce the magnitude of project impacts in a manner consistent with the requirements of CEQA and NEPA and that are generally consistent with recommendations of the resource agencies regulating affected biological resources.

1.3 STUDY METHODOLOGY

The analysis of impacts, as discussed in Section 3.0 of this report, is based on the known and potential biotic resources of the project site discussed in Section 2.0. Sources of information used in the preparation of this analysis included: (1) the *California Natural Diversity Data Base* (CDFW 2018), (2) the *Online Inventory of Rare and Endangered Vascular Plants of California* (CNPS 2018), and (3) manuals, reports, and references related to plants and animals of the San Joaquin Valley region. A field survey of the project site was conducted on April 17, 2018 by LOA ecologist Wendy Fisher. This survey consisted of walking through the project site while identifying the principal land uses and associated plant and animal species, and mapping habitat suitable for special status species and other sensitive biological resources. The survey also included an investigation of hydrologic features potentially subject to the jurisdiction of the U.S. Army Corps of Engineers (USACE), California Department of Fish and Wildlife (CDFW), and/or Regional Water Quality Control Board (RWQCB). Vegetation, soils, and hydrology data

were collected at representative sample locations on the site in accordance with USACE guidelines.

2.0 EXISTING CONDITIONS

2.1 REGIONAL SETTING

The project site is located in the southern San Joaquin Valley near the Valley's eastern margin. The San Joaquin Valley is bordered by the Sierra Nevada to the east, the Tehachapi Mountains to the south, the California coastal ranges to the west, and the Sacramento-San Joaquin Delta to the north. The project site is located in a portion of the Valley that has, for decades, experienced intensive agricultural and urban disturbances. Current agricultural endeavors in the region include orchards, row crops, pasture, and dairies.

Like most of California, the southern San Joaquin Valley has a Mediterranean climate. Warm dry summers are followed by cool moist winters. Summer temperatures commonly exceed 90 degrees Fahrenheit, and the relative humidity is generally very low. Winter temperatures rarely rise much above 70 degrees Fahrenheit, with daytime highs often below 60 degrees Fahrenheit. Annual precipitation within the project site is about 11 inches, almost 85% of which falls between the months of October and March. Nearly all precipitation falls in the form of rain. Stormwater readily infiltrates the soils of and surrounding the project site.

The principal drainage in the project vicinity is the Tule River, which flows from east to west approximately 1 mile south of the project site at its closest point. Tule River originates in the Sierra Nevada as several distinct forks, with headwater elevations ranging from 7,000 to 9,500 feet National Geodetic Vertical Datum (NVGD). The North and Middle Forks of the Tule River converge just above the river's impoundment at Lake Success, and the South Fork joins the mainstem on the lake's southeastern shore. Downstream of Lake Success, the Tule River enters the San Joaquin Valley.

At one time, the Tule River flowed into Tulare Lake, the largest freshwater lake in the western United States at the time of California's settlement by American immigrants in the mid-19th century. The Tule River and Tulare Lake historically contained large areas of riparian, wetland, and aquatic ecosystems that supported large populations of diverse native plants and animals. By the beginning of the 20th century, Tulare Lake began to shrink in size due to land reclamation,

upstream water impoundments, and agricultural diversions. Today, the lake exists only as isolated ponded areas that form during extremely wet winters, and the surrounding riparian, wetland, and marsh habitats have been converted to irrigated agricultural lands. Similarly, the Tule River supports only a fraction of the riparian habitat it once supported, and its aquatic habitat has been greatly degraded from agricultural runoff and irregular flows.

The project site is situated within a matrix of agricultural and residential uses. It is bordered to the north by an olive orchard and several rural residences, and to the east by an almond orchard. The Friant-Kern Canal and, beyond that, a residential subdivision lie to the southeast. The site is bordered to the west by a pecan orchard and plant nursery.

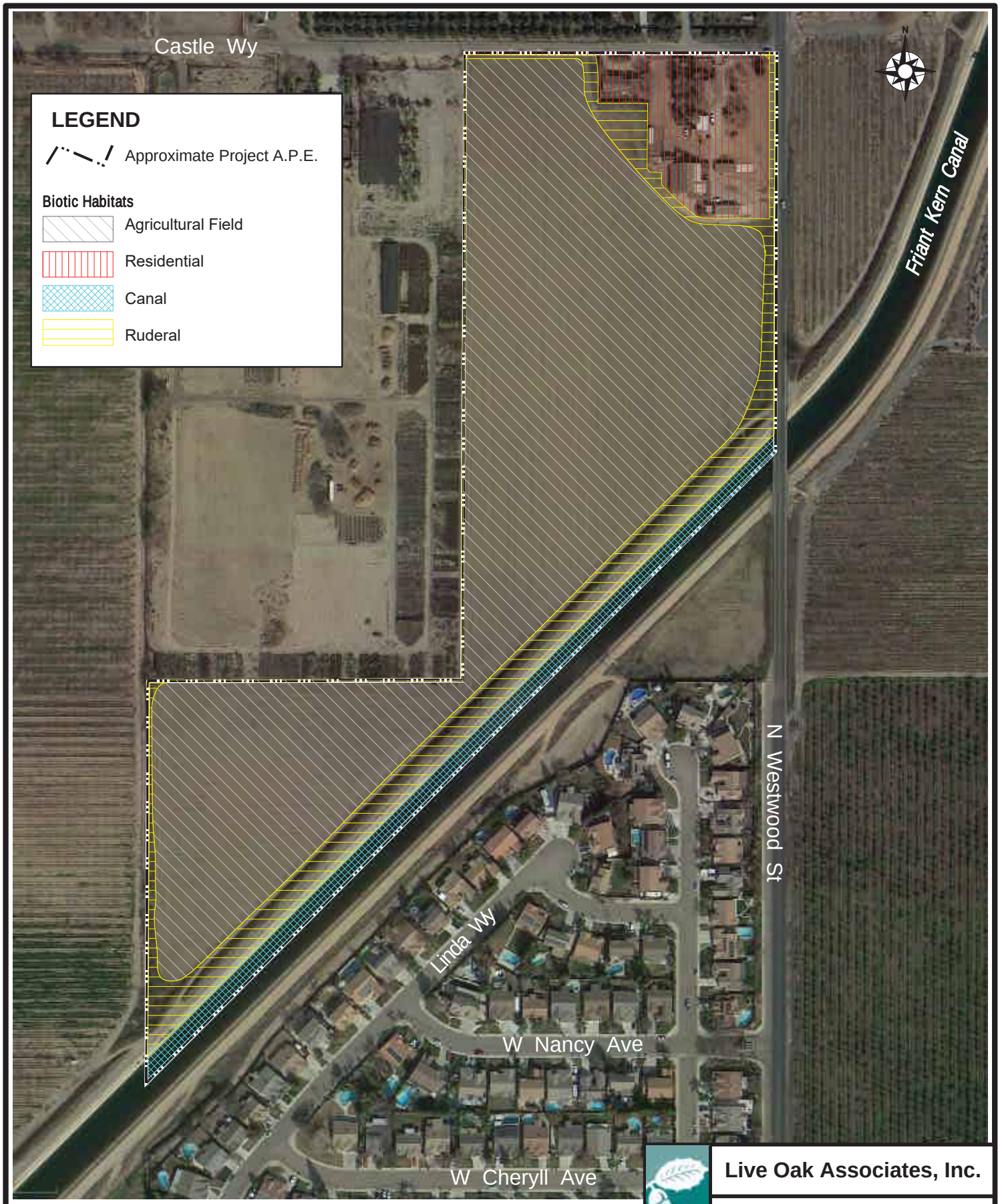
2.2 PROJECT SITE

At the time of the field survey, the project site consisted of an irrigated oat (*Avena fatua*) field, several residences and associated outbuildings, a portion of the Friant-Kern Canal, and disturbed lands bordering these uses. The site is fairly level, with an average elevation of 400 feet NVGD.

The site contains three soil mapping units from two soil series: Exeter loam, 0 to 2 percent slopes, Tagus loam, 0 to 2 percent slopes, and water-perennial. None of the site's soils are considered hydric, meaning that none tend to pond water consistently enough to support the growth of wetland vegetation. Moreover, the soils of the site have been significantly disturbed by years of agricultural and residential use and construction and maintenance of the Friant-Kern Canal. As a result, these soils have no particular significance to biological resources potentially occurring on the site.

2.3 LAND USES/BIOTIC HABITATS

Four land uses/biotic habitats have been identified on the project site: agricultural field, residential, ruderal, and canal (Figure 3). These habitats / land uses and their constituent plant and animal species are described in more detail in the following sections. A list of the vascular plant species observed within the project site and the terrestrial vertebrates using, or potentially using, the site is provided in Appendices A and B, respectively. Selected photographs of the project site are presented in Appendix C.



Aerial Photos courtesy of Google Earth 2/8/2018

Live Oak Associates, Inc.

North Basin, Porterville B.E.
Biotic Habitats

Date	Project #	Figure #
5/01/2018	**2249-01**	**3**

2.3.1 Agricultural Field

At the time of the field survey, the project site consisted primarily of an irrigated oat field. Vegetation in the field was generally limited to the planted crop; however, the margins of the field were characterized by non-native grasses and forbs common in the San Joaquin Valley, such as Bermuda grass (*Cynodon dactylon*), ripgut brome (*Bromus diandrus*), black mustard (*Brassica nigra*), and whitestem filaree (*Erodium botrys*).

Intensive agricultural practices within the oat field limit its value to wildlife; however, some wildlife species would occur in this field in limited numbers. Pacific chorus frogs (*Pseudacris regilla*) and western toads (*Bufo boreas*) could breed in nearby ditches and subsequently disperse across the field. Reptiles that could occur in the field include the 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 field include the mourning dove (*Zenaida macroura*), American crow (*Corvus brachyrhynchos*), and mixed flocks of Brewer's blackbirds (*Euphagus cyanocephalus*), brown-headed cowbirds (*Molothrus ater*), and European starlings (*Sturnus vulgaris*). Summer migrants that would be common in the field include the western kingbird (*Tyrannus verticalis*), and expected winter migrants include the savannah sparrow (*Passerella sandwichensis*) and American pipit (*Anthus rubescens*).

A few mammal species may also occur within the agricultural field of the project site. Small mammals such as deer mice (*Peromyscus maniculatus*) and California voles (*Microtus californicus*) would occur in fluctuating numbers depending on the season and type of crop grown. Botta's pocket gopher (*Thomomys bottae*) and California ground squirrel (*Otospermophilus beecheyi*) generally concentrate their burrows around the perimeter of agricultural fields. At the time of the survey, several gopher burrows were observed near the oat field's perimeter.

The presence of amphibians, reptiles, birds and small mammals is likely to attract foraging raptors and mammalian predators. Raptors such as the red-tailed hawk (*Buteo jamaicensis*),

American kestrel (*Falco sparverius*), and northern harrier (*Circus cyaneus*) would likely forage over the oat field from time to time. Mammalian predators occurring in the field would most likely be limited to the raccoon (*Procyon lotor*), striped skunk (*Mephitis mephitis*), coyote (*Canis latrans*) and red fox (*Vulpes vulpes*), as these species are relatively tolerant of human disturbance.

2.3.2 Residential

The project site includes a residential area near its northeastern corner. At the time of the field survey, this area included two homes and associated outbuildings, including a large barn, several smaller animal enclosures, and various storage sheds. Both residences included landscaped areas and paved, gravel, and compacted dirt surfaces. Ornamental trees observed in the residential area included coast redwood (*Sequoia sempervirens*), deodar cedar (*Cedrus deodara)*, mulberry (*Morus* sp.), and elm (*Ulmus* sp.). Ornamental shrubs included lilac (*Syringa vulgaris*) and oleander (*Nerium oleander*). At the time of the field survey, one of the residences included a garden planted with rose (*Rosa* sp.), iris (*Iris* sp.), and various other flowering shrubs and forbs.

A number of wildlife species adapted to human disturbance could be expected to occur in the residential area of the project site. For example, amphibians such as Pacific chorus frogs and western toads might disperse through the residential area during the winter and spring, and reptiles such as the western fence lizard (*Sceloporous occidentalis*) and common garter snake (*Thamnophis sirtalis*) could forage in this land use type. Buildings and other human-made structures located within the residential area provide potential nesting habitat for a number of avian species such as the house finch (*Haemorhous mexicanus*), black phoebe (*Sayornis nigricans*), and house sparrow (*Passer domesticus*). The trees and shrubs in this area could be used for nesting by a variety of avian species, including the Bullock's oriole (*Icterus bullockii*), northern mockingbird (*Mimus polyglottos*), and Anna's hummingbird (*Calypte anna*). Mammal species attracted to this land use type may include the house mouse (*Mus musculus*), Norway rat (*Rattus norvegicus*), and Virginia opossum (*Didelphis virigiana*).

Birds of prey may occasionally forage over the residential area. The red-tailed hawk and American kestrel are likely visitors.

2.3.3 Ruderal

The project site contained a number of ruderal (disturbed) areas including agricultural roads, the Friant-Kern Canal levee road, a large expanse of compacted dirt associated with the residential area, and the disturbed margins of the site's other land uses. The site's ruderal areas were generally barren of vegetation, or sparsely vegetated with common weeds such as mallow (*Malva* sp.), barnyard barley (*Hordeum murinum* ssp. *leporinum*), and puncturevine (*Tribulus terrestris*).

Although the wildlife habitat value of the project site's ruderal areas is relatively low, some wildlife species certainly occur within these lands on occasion. The reptile and amphibian species listed for the agricultural field could potentially occur in ruderal habitats of the site. Avian species using the agricultural field and residential area would also be expected to occur within the site's ruderal areas from time to time. Additionally, the disturbance-tolerant killdeer (*Charadrius vociferous*) is common in ruderal areas, frequently nesting on the ground on gravel or compacted dirt surfaces.

Small mammals that would be expected to occur on ruderal lands of the project site include the California ground squirrel, Botta's pocket gopher, deer mouse, California vole, and house mouse. Mammalian predators with the potential to occur on ruderal lands of the project site include disturbance-tolerant species such as the raccoon, red fox, and coyote.

2.3.4 Canal

The project site includes an approximate 0.35-mile reach of the Friant-Kern Canal from the canal's northwest bank to its approximate centerline. The bed and lower banks of the FKC within the project site are concrete-lined, and the upper banks are earthen. At the time of the field survey, the canal was inundated and flowing. It was entirely barren of vegetation.

Due to the intensive maintenance regimen and lack of vegetation in the FKC, this habitat would be of limited value to native wildlife. However, a variety of introduced fish species are known from the FKC, including catfish (*Ictalurus* sp.), bluegill (*Lepomis macrochirus*), and largemouth bass (*Micropterus salmoides*). These and other prey species may attract wading birds such as the

great blue heron (*Ardea herodias*) and great egret (*Ardea alba*) when the flows are low enough to accommodate their foraging strategies.

At the time of the field survey, barn swallows (*Hirundo rustica*) were observed to be nesting on the Westwood Street bridge over the FKC, which borders the project site to the southeast. This bridge may also be used for nesting by the cliff swallow (*Petrochelidon pyrrhonata*) and black phoebe, and for roosting by various native bat species.

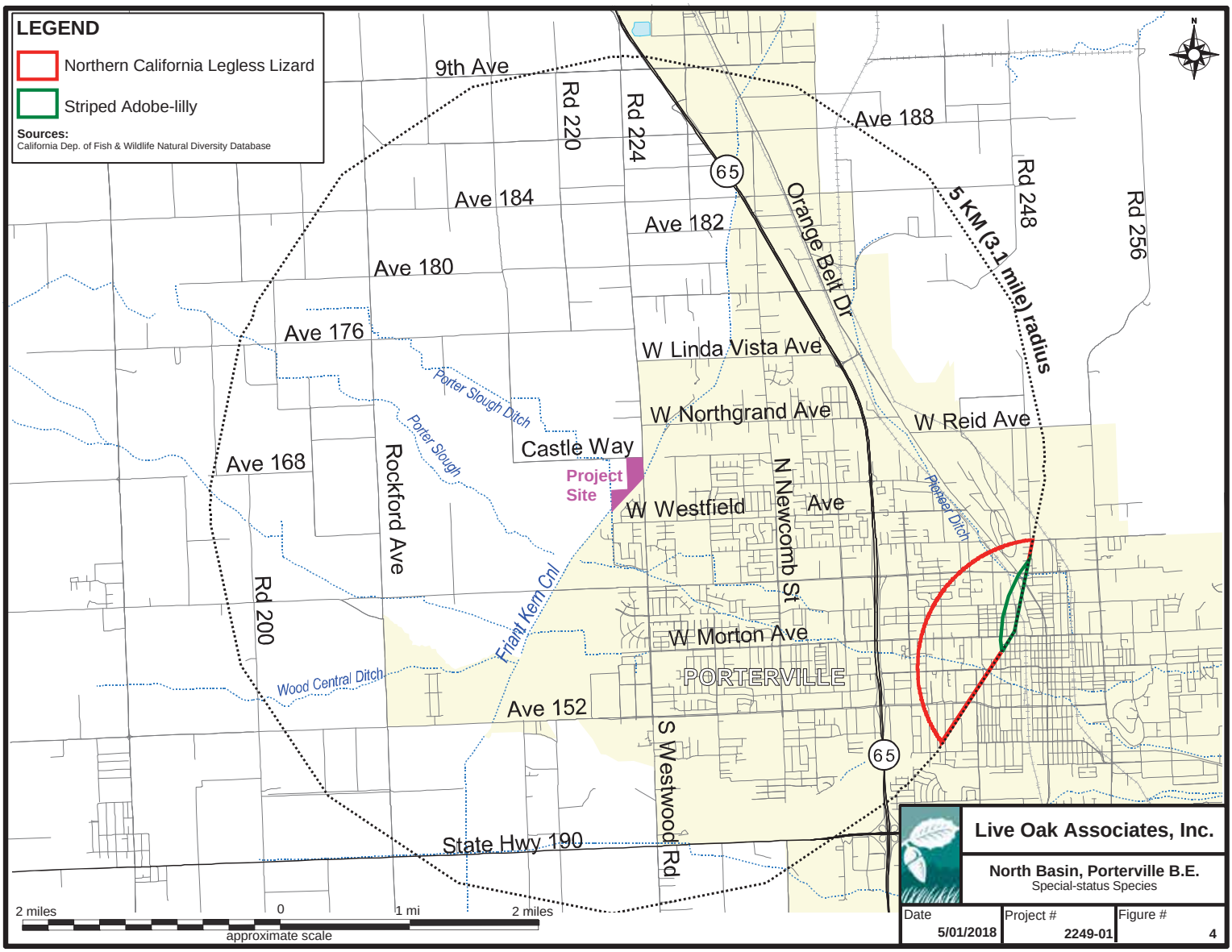
2.4 SPECIAL STATUS PLANTS AND ANIMALS

Several species of plants and animals within the state of California have low populations and/or limited distributions. Such species may be considered "rare" and are vulnerable to extirpation as the state's human population grows and the habitats these species occupy are converted to agricultural and urban uses. As described more fully in Section 3.2, state and federal laws have provided the California Department of Fish and Wildlife (CDFW) and the U.S. Fish and Wildlife Service (USFWS) with a mechanism for conserving and protecting the diversity of plant and animal species native to the state. A sizable number of native plants and animals have been formally designated as "threatened" or "endangered" under state and federal endangered species legislation. Others have been designated as candidates for such listing. Still others have been designated as "species of special concern" by the CDFW. The California Native Plant Society (CNPS) has developed its own set of lists of native plants considered rare, threatened, or endangered (CNPS 2018). Collectively, these plants and animals are referred to as "special status species."

The California Natural Diversity Data Base (CDFW 2018) was queried for special status species occurrences in the nine USGS 7.5-minute quadrangles containing and immediately surrounding the project site (*Porterville, Cairns Corner, Lindsay, Frazier Valley, Woodville, Success Dam, Sausalito School, Ducor,* and *Fountain Springs*). These species, and their potential to occur on the project site, are listed in Table 1 on the following pages. Sources of information for this table included *California's Wildlife, Volumes I, II, and III* (Zeiner et. al 1988), *California Natural Diversity Data Base* (CDFW 2018), the U.S. Fish and Wildlife Service (USFWS) Information for Planning and Consultation (IPaC) system (USFWS 2018), *Endangered and Threatened*

Wildlife and Plants (USFWS 2017), *The Recovery Plan for Upland Species of the San Joaquin Valley, California* (USFWS 1998), *The Jepson Manual: Vascular Plants of California, second edition* (Baldwin et al. 2012), *The California Native Plant Society's Inventory of Rare and Endangered Vascular Plants of California* (CNPS 2018), Calflora.org, and eBird.org.

Special status species occurrences within 3.1 miles (5 kilometers) of the project site are depicted in Figure 4, and San Joaquin kit fox (*Vulpes macrotis mutica*) and Swainson's hawk (*Buteo swainsoni*) occurrences within 10 miles of the site are depicted in Figure 5.


LEGEND
Northern California Legless Lizard
Striped Adobe-lilly
Sources:
California Dep. of Fish & Wildlife Natural Diversity Database
9th Ave
Rd 220
Rd 224
Ave 188
Rd 248
Rd 256
65
Orange Belt Dr
5 KM (3.1 mile) radius
Ave 184
Ave 182
Ave 180
Ave 176
W Linda Vista Ave
W Northgrand Ave
W Reid Ave
Porter Slough Ditch
Porter Slough
Castle Way
Project Site
Ave 168
Rockford Ave
W Westfield Ave
N Newcomb St
Peppers Ditch
Rd 200
Friant Kern Cnl
W Morton Ave
PORTERVILLE
Wood Central Ditch
Ave 152
S Westwood Rd
State Hwy 190
2 miles
0
1 mi
2 miles
approximate scale
N
Live Oak Associates, Inc.
North Basin, Porterville B.E.
Special-status Species
Date
5/01/2018
Project #
2249-01
Figure #
4

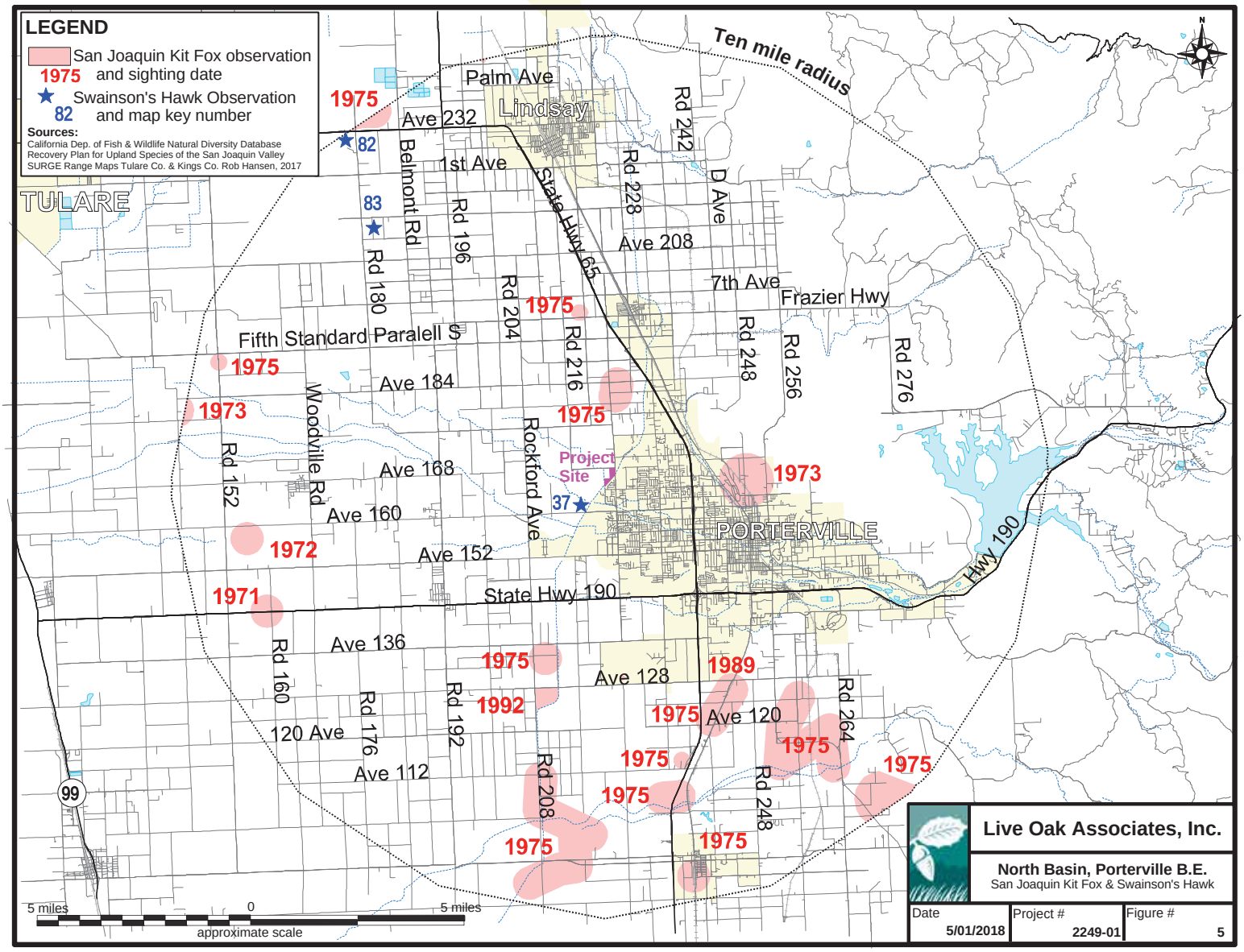

LEGEND
San Joaquin Kit Fox observation
1975 and sighting date
Swainson's Hawk Observation
82 and map key number
Sources:
California Dep. of Fish & Wildlife Natural Diversity Database
Recovery Plan for Upland Species of the San Joaquin Valley
SURGE Range Maps Tulare Co. & Kings Co. Rob Hansen, 2017
Ten mile radius
N
Palm Ave
Lindsay
Ave 232
1st Ave
Belmont Rd
Rd 242
Rd 228
D Ave
Rd 196
State Hwy 65
Ave 208
7th Ave
Frazier Hwy
Rd 180
Rd 204
Rd 216
Rd 248
Rd 256
Rd 276
Fifth Standard Paralell S
Ave 184
Woodville Rd
Rd 152
Rockford Ave
Project Site
Ave 168
Ave 160
Ave 152
PORTERVILLE
Hwy 190
State Hwy 190
Ave 136
Rd 160
Rd 176
Rd 192
Rd 208
Ave 128
Ave 120
Rd 264
120 Ave
Ave 112
99
TULARE
1975
82
83
1973
1972
1971
1992
1989
37
5 miles
0
5 miles
approximate scale
Live Oak Associates, Inc.
North Basin, Porterville B.E.
San Joaquin Kit Fox & Swainson's Hawk
Date
5/01/2018
Project #
2249-01
Figure #
5

TABLE 1. LIST OF SPECIAL STATUS SPECIES THAT COULD OCCUR IN THE PROJECT VICINITY

PLANTS (adapted from CDFW 2018 and CNPS 2018)

Species Listed as Threatened or Endangered under the State and/or Federal Endangered Species Act

Species	Status	Habitat	Occurrence on the Project Site
California Jewelflower (*Caulanthus californicus*)	FE, CE, CNPS 1B	Occurs in sandy, chenopod scrub, pinyon and juniper woodland, and valley and foothill grassland up to 3,280 ft. in elevation. Blooms February-May.	**Absent.** Suitable habitat is absent from the project site. The closest known occurrence of this species is a 1981 sighting at Pixley Vernal Pool Preserve approximately 10.6 miles southeast of the site; that population is considered possibly extirpated (CDFW 2018).
Springville Clarkia (*Clarkia springvillensis*)	FT, CE, CNPS 1B	Occurs in Chaparral, Cismontane Woodland, Valley and Foothill Grasslands with granitic soil between 985 and 2,430 ft. in elevation. Blooms May- July.	**Absent.** The project site is below the elevational range for this species, and suitable habitat is absent. The closest known occurrence of this species is located outside of Lewis Preserve 3 miles east of the project site from 2002 (CDFW 2018).
Striped Adobe-Lily (*Fritillaria striata*)	CT, CNPS 1B	Occurs in heavy clay soils of cismontane woodland and valley and foothill grassland between 1,150 and 2,920 ft. in elevation. Blooms February-April.	**Absent.** Suitable habitat and soils are absent from the project site, and the site is below the elevational range for this species. The closest known occurrence of this species is a population identified approximately 4.5 miles east of the project site in 1927; this habitat has since been plowed for agriculture and the population is considered extirpated (CDFW 2018).
San Joaquin Woollythreads (*Monolopia congdonii*)	FE, CNPS 1B	Occurs in sandy soils in shadscale scrub and valley grassland, between 195 and 2,460 ft. in elevation. Blooms February-May.	**Absent.** Suitable habitat is absent from the project site. The closest known occurrence is approximately 8.5 miles southeast of the site, where a population of this species was generally mapped along Deer Creek in 1881.
San Joaquin Adobe Sunburst (*Pseudobahia peirsonii*)	FT, CE, CNPS 1B	Occurs in foothill grasslands in heavy clay soils of the Porterville and Centerville series, between 300 and 2,625 ft. in elevation. Blooms March-April.	**Absent.** Suitable heavy clay soils are absent from the site. The closest known occurrence of this species is a population identified on Cibo clay soils approximately 3.5 miles east of the site in 1988 (CDFW 2018).
Keck's Checkerbloom (*Sidalcea keckii*)	FE, CNPS 1B	Occurs in cismontane woodland and valley and foothill grassland habitat with serpentine and/or clay soils between 525 and 2,230 ft. in elevation. Blooms April-May.	**Absent.** Suitable habitat and soils are absent from the project site, and the site is below the elevational range for this species. The closest known occurrence is a 1992 observation located approximately 9 miles southeast of the site; that location has since been converted into an orange grove and the population is considered extirpated (CDFW 2018).

TABLE 1. LIST OF SPECIAL STATUS SPECIES THAT COULD OCCUR IN THE PROJECT VICINITY

PLANTS (cont'd)

CNPS-Listed Plants

Species	Status	Habitat	Occurrence on the Project Site
Earlimart Orache (*Atriplex cordulata* var. *erecticaulis*)	CNPS 1B	Occurs in alkaline soils of valley and foothill grasslands between 230 and 395 ft. in elevation. Blooms August-September.	**Absent.** Suitable habitat and soils for this species are absent from the project site. Moreover, the site is located just above the elevational range for this species. The closest know occurrence of this species is a 1999 observation located within the Tulare County Landfill approximately 10 miles west of the site (CDFW 2018).
Lost Hills Crownscale (*Atriplex coronata* var. *vallicola*)	CNPS 1B	Occurs in chenopod scrub, valley and foothill grasslands, and vernal pools on alkaline soils, between 164 and 2,080 ft. in elevation. Blooms April–August.	**Absent.** Suitable habitat and soils for this species are absent from the project site.
Brittlescale (*Atriplex depressa*)	CNPS 1B	Occurs in alkali soils in barren areas within alkali grassland, meadow and scrub at elevations up to 1,000 ft. in elevation. Occasionally found around vernal pools. Blooms April-October.	**Absent.** Suitable habitat and soils for this species are absent from the project site.
Lesser Saltscale (*Atriplex minuscula*)	CNPS 1B	Occurs in widely scattered locations of California's Central Valley with alkaline soils in chenopod scrub, valley grasslands, and vernal pools between 35 and 855 ft. in elevation. Blooms May-October.	**Absent.** Suitable habitat and soils for this species are absent from the project site.
Vernal Pool Smallscale (*Atriplex persistens*)	CNPS 1B	Occurs in alkaline soils of valley and foothill grasslands of the San Joaquin Valley, between 130 and 330 ft. in elevation. Blooms August-October.	**Absent.** Suitable habitat and soils for this species are absent from the project site.
Subtle Orache (*Atriplex subtilis*)	CNPS 1B	Occurs in alkaline soils of valley and foothill grasslands of the San Joaquin Valley, between 130 and 330 ft. in elevation. Blooms August-October.	**Absent.** Suitable habitat and soils for this species are absent from the project site.
Recurved Larkspur (*Delphinium recurvatum*)	CNPS 1B	Occurs in alkaline soils in cismontane woodland and valley and foothill grasslands below 2,500 ft. in elevation. Blooms March-June.	**Absent.** Suitable habitat and soils for this species are absent from the project site.
Calico Monkeyflower (*Diplacus pictus*)	CNPS 1B	Occurs around granitic outcrops or gooseberry shrubs in broadleaf upland forest and cismontane woodland in granitic soils between 330 and 4270 ft. in elevation. May occur in disturbed areas. Blooms March-May.	**Absent.** Suitable habitat for this species is absent from the project site and adjacent lands. The closest known occurrence of this species is a population identified approximately 8 miles east of the site, in the Sierra Nevada foothills in 1983 (CDFW 2018).
Spiny-Sepaled Button-Celery (*Eryngium spinosepalum*)	CNPS 1B	Occurs in vernal pools, swales and valley and foothill grasslands of the San Joaquin Valley and the Tulare Basin between 330 and 840 ft. in elevation. Blooms April-May.	**Absent.** Suitable habitat is absent from the project site. The closest known occurrence of this species was a 1954 population located in a seasonal pool approximately 12 miles northeast of the site (CDFW 2018).

TABLE 1. LIST OF SPECIAL STATUS SPECIES THAT COULD OCCUR IN THE PROJECT VICINITY

PLANTS (cont'd)

CNPS-Listed Plants

Species	Status	Habitat	Occurrence on the Project Site
Madera Leptosiphon (*Leptosiphon serrulatus*)	CNPS 1B	Occurs in openings in cismontane woodland between 980 and 1,400 ft. in elevation. Blooms April-May	**Absent.** Suitable habitat is absent from the project site, and the site is situated outside of this species' elevational range. The closest known occurrence of this species is a population identified approximately 8.5 miles southeast of the project site from 1935 (CDFW 2018).
California Alkali Grass (*Puccinellia simplex*)	CNPS 1B	Occurs in alkaline, vernally mesic; sinks, flats, and lakes in chenopod scrub, meadows and seeps, valley and foothill grassland, and vernal pools between 45 and 2,920 ft. in elevation. Blooms March-May.	**Absent.** Suitable habitat and soils for this species are absent from the project site.

ANIMALS (adapted from CDFW 2018 and USFWS 2018)

Species Listed as Threatened or Endangered under the State and/or Federal Endangered Species Act, and/or as California Fully Protected

Vernal Pool Fairy Shrimp (*Branchinecta lynchi*)	FT	Occurs in vernal pools, clear to tea-colored water in grass or mud-bottomed swales, and basalt depression pools.	**Absent.** Suitable habitat in the form of vernal pools is absent from the project site. The closest known occurrence of this species was documented in vernal pools approximately 4 miles southeast of the site from 2002 (CDFW 2018).
Delta Smelt (*Hypomesus transpacificus*)	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.** Suitable riverine habitat is absent from the project site, and the site is located outside of the range of this species.
California Red-Legged Frog (*Rana aurora draytonii*)	FT	Occurs in perennial rivers, creeks and stock ponds of the Coast Range and northern Sierra foothills with overhanging vegetation.	**Absent.** Suitable habitat for this species is absent from the project site, and the site is located outside of its current known range.
Blunt-Nosed Leopard Lizard (*Gambelia silus*)	FE, CE, CFP	Frequents grasslands, alkali meadows and chenopod scrub of the San Joaquin Valley from Merced south to Kern County.	**Absent.** Suitable habitat for this species is absent from the project site. The closest known occurrence of this species is located 17 miles southwest of the project site from 1959 (CDFW 2018).
Giant Garter Snake (GGS) (*Thamnophis gigas*)	FT, CT	Occurs in marshes, sloughs, drainage canals, irrigation ditches, rice fields, and adjacent uplands. Prefers locations with emergent vegetation for cover and open areas for basking. GGS use small mammal burrows and soil crevices adjacent to aquatic habitats for overwintering and, in the summer, to escape excessive heat.	**Absent.** The project site is located well outside of current known GGS range, over 50 miles from the closest historical or modern occurrence of this species.

TABLE 1. LIST OF SPECIAL STATUS SPECIES THAT COULD OCCUR IN THE PROJECT VICINITY

ANIMALS (cont'd)

Species Listed as Threatened or Endangered under the State and/or Federal Endangered Species Act, and/or as California Fully Protected

Species	Status	Habitat	Occurrence on the Project Site
Swainson's Hawk (*Buteo swainsoni*)	CT	This breeding migrant to California nests in mature trees in riparian areas and oak savannah, and occasionally in lone trees at the margins of agricultural fields. Requires adjacent suitable foraging areas such as grasslands or alfalfa fields supporting rodent populations.	**Possible.** Swainson's hawks could forage over the oat field of the project site from time to time, and could conceivably nest in the residential trees. Swainson's hawks are uncommon along the eastern margin of the San Joaquin Valley; however, a nest was recently documented less than 1 mile southwest of the project site at the intersection of Avenue 160/West Henderson Ave and the Friant-Kern Canal (Occ. No. 87, Hansen 2017).
California Condor (*Gymnogyps californianus*)	FE, CE, CFP	Scavenges for carrion in habitats ranging from Pacific beaches to mountain forests and meadows. Nests in caves on cliff faces in mountains up to 6,000 ft. in elevation. Due to its large size, requires high perches for easier take-off.	**Absent**. Nesting habitat is absent from the project site, and the site would not be a source of the large animal carcasses this species forages on. The closest CNDDB occurrence of this species is a known roost site at the Blue Ridge Condor Area approximately 15 miles northeast of the project site, documented in 1976. In 2015, three condors were observed soaring above municipal Tulare approximately 15 miles northwest of the site (eBird 2018).
Tricolored Blackbird (*Agelaius tricolor*)	CCE	Nests colonially near fresh water in dense cattails or tules, or in thickets of willows or shrubs. In the San Joaquin Valley, has increasingly been documented nesting in wheat fields. Forages in grassland and cropland areas.	**Possible.** Tricolored blackbirds could forage in the project site's oat field, but suitable nesting habitat is absent. The closest known nesting occurrence is approximately 8.5 miles east of the site, where a colony was documented just below the Success Lake Dam in 1971. In 2009, four birds were observed along the Tule River Parkway approximately 3 miles southeast of the site (eBird 2018).
Tipton Kangaroo Rat (*Dipodomys nitratoides nitratoides*)	FE, CE	Inhabits valley saltbrush scrub, valley sink scrub, and grassland habitats located from the Valley floor to 300 ft. in elevation.	**Absent.** The project site is located outside of the known distribution of this species (USFWS 2010). The closest known occurrence is a museum specimen collected approximately 8.5 miles northwest of the site in 1943 (CDFW 2018).

TABLE 1. LIST OF SPECIAL STATUS SPECIES THAT COULD OCCUR IN THE PROJECT VICINITY

ANIMALS (cont'd)

Species Listed as Threatened or Endangered under the State and/or Federal Endangered Species Act, and/or as California Fully Protected

Species	Status	Habitat	Occurrence on the Project Site
San Joaquin Kit Fox (*Vulpes macrotis mutica*)	FE, CT	Frequents desert alkali scrub and annual grasslands and may forage in adjacent agricultural habitats. Utilizes enlarged (5 to 8 inches in diameter) ground squirrel burrows as denning habitat.	**Unlikely.** The intensively maintained habitats of the project site are marginal, at best, for this species. Moreover, modern kit fox occurrences in the project vicinity are scarce. All 17 of the SJKF occurrences listed by the CNDDB within a 10-mile radius of the project site are from over 25 years ago; all but two of those are from the 1970s. The closest occurrence of this species was a den observed between 1972 and 1975 approximately 2 miles north of the site (CDFW 2018). At most, kit fox could occasionally pass through and/or forage within the project site on the way to more suitable habitat elsewhere.

State Species of Special Concern

Western Spadefoot (*Spea hammondii*)	SSC	Mainly occurs in grasslands of San Joaquin Valley. Vernal pools or other temporary wetlands are required for breeding. Aestivates in underground refugia such as rodent burrows, typically within 1200 ft. of aquatic habitat.	**Absent.** Suitable breeding habitat for this species is absent from the project site and surrounding lands. The closest known occurrence was documented approximately 10.5 miles southwest of the project site within the Pixley Vernal Pool Preserve in 1978 (CDFW 2018).
Foothill Yellow-Legged Frog (*Rana boylii*)	SSC	Frequents rocky streams and rivers with open, sunny banks in forests, chaparral, and woodlands. Occurs from sea level to 2,040 meters in elevation.	**Absent.** Suitable habitat for the foothill yellow-legged frog is absent from the project site, and the site is located outside of the known distribution of this species. The closest known occurrence is a 1970 observation in Yokohl Creek approximately 16 miles northeast of the project site (CDFW 2018).
Northern California Legless Lizard (*Anniella pulchra*)	SSC	Occurs in sparsely vegetated areas of beach dunes, chaparral, pine-oak woodlands, desert scrub, sandy washes, and stream terraces with sycamores, cottonwoods, or oaks. Requires moist soils.	**Absent.** The project site does not contain suitable habitat for the Northern California legless lizard. Furthermore, the highly disturbed surrounding lands make it unlikely that this species would occur on site. An occurrence was mapped generally to Porterville in the 1940s; however, most modern occurrences in the project vicinity are known from the valley east/southeast of Porterville below the Success Dam (CDFW 2018).

TABLE 1. LIST OF SPECIAL STATUS SPECIES THAT COULD OCCUR IN THE PROJECT VICINITY

ANIMALS (cont'd)

Species Listed as Threatened or Endangered under the State and/or Federal Endangered Species Act, and/or as California Fully Protected

Species	Status	Habitat	Occurrence on the Project Site
Northern Harrier (*Circus cyaneus*)	CSC	Frequents meadows, grasslands, open rangelands, freshwater emergent wetlands. Nests on ground, generally in marshes, although grassland and pasture habitat may also be used.	**Possible.** This species could forage over the project site's oat field, but suitable nesting habitat is absent.
Pallid Bat (*Antrozous pallidus*)	SSC	Roosts in rocky outcrops, cliffs, and crevices with access to open habitats for foraging. May also roost in caves, mines, hollow trees and buildings.	**Possible.** This species could roost in the site's mature trees and buildings, and could forage in or over any of the site's habitats. The closest known occurrence of the pallid bat is approximately 10 miles southeast of the project site, recorded in 1946 (CDFW 2018).
Townsend's Big-eared Bat (*Corynorhinus townsendii*)	SSC	Primarily a cave-dwelling bat, but may also roost in tunnels, buildings, other human-made structures, and hollow trees. Occurs in a variety of habitats.	**Possible.** This species has the potential to roost in the site's mature trees and buildings, and could forage over any of the site's habitats. The closest known occurrence is at Porterville Mine, approximately 6 miles east of the project site, recorded in 1988 (CDFW 2018).
Western Mastiff Bat (*Eumops perotis californicus*)	SSC	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, and tunnels.	**Possible.** This species could roost in the site's buildings, and could forage over any of the site's habitats. The closest known occurrence is a 1994 observation around Lake Success, approximately 9 miles east of the project site (CDFW 2018).
American Badger (*Taxidea taxus*)	SSC	Found in drier open stages of most shrub, forest and herbaceous habitats with friable soils.	**Unlikely.** The intensively maintained habitats of the project site are marginal, at best, for this species. At most, badgers could occasionally pass through and/or forage on the site on the way to more suitable habitat elsewhere. The closest known occurrence of this species is a museum specimen collected approximately 4.5 miles south of the project site on an unknown date (CDFW 2018).

OCCURRENCE DESIGNATIONS AND STATUS CODES

Present:	Species observed on the site at time of field survey 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 site, but it could occur there from time to time
Unlikely:	Species not observed on the site, and would not be expected to occur there except, perhaps, as a transient
Absent:	Species not observed on the site, and precluded from occurring there due to absence of suitable habitat

STATUS CODES

FE	Federally Endangered	CE	California Endangered
FT	Federally Threatened	CT	California Threatened
FPE	Federally Endangered (Proposed)	CCE	California Endangered (Candidate)
FPT	Federally Threatened (Proposed)	CFP	California Fully Protected
FC	Federal Candidate	CSC	California Species of Special Concern

CNPS LISTING

1A	Plants Presumed Extinct in California	2	Plants Rare, Threatened, or Endangered in California, but more common elsewhere
1B	Plants Rare, Threatened, or Endangered in California and elsewhere		

2.5 ENDANGERED, THREATENED, OR SPECIAL STATUS PLANT AND ANIMAL SPECIES MERITING FURTHER DISCUSSION

2.5.1 Swainson's Hawk (*Buteo swainsoni*). Federal Listing Status: None; State Listing Status: Threatened.

Ecology of the species. The Swainson's hawk is a large, long-winged, broad-tailed hawk with a high degree of mate and territorial fidelity. It is a breeding season migrant to California, with hawks arriving at their nesting sites in March or April. The young typically hatch between May and June and fledge 4 to 6 weeks later. By October, most birds have left for wintering grounds in South America.

In the Central Valley, Swainson's hawks typically nest in large trees along riparian systems, but may also nest in oak groves, or lone, mature trees in agricultural fields or along roadsides. Nest site is typically located adjacent to suitable open habitat for hunting small prey. In the Central Valley, California voles account for about 45% of non-insect prey taken by the Swainson's hawk, followed by mourning doves, ring-necked pheasants (*Phasianus colchicus*), western meadowlarks (*Sturnella neglecta*), and other birds (32%), and pocket gophers, deer mice, and other small mammals (20%) (Estep 1989). Insects comprise a large proportion of individual prey items, but a negligible proportion of total prey biomass, during the breeding season.

The suitability of a particular site for Swainson's hawk foraging is based on a combination of prey abundance and prey accessibility; the latter is determined by the vegetation characteristics of a site (Bechard 1982, Estep 1989). Swainson's hawks preferentially forage in habitats with low-profile vegetation, such as grasslands or pastures, fallow or disced fields, alfalfa and other hay crops, and certain grain and row crops, primarily during or immediately after harvest (Estep

1989, Estep and Dinsdale 2012). Loss of nesting and foraging habitat has greatly reduced the breeding range and abundance of this species in California, leading to its listing as threatened under the California Endangered Species Act in 1983 (CDFG 1994).

Potential to occur onsite. The project site's oat field represents suitable foraging habitat for the Swainson's hawk, particularly during harvest, as cover is removed and prey become visible and accessible. Mature trees associated with the site's two residences are structurally suitable for nesting; however, high levels of ambient disturbance from residential activity and nearby vehicular traffic somewhat decrease their nesting value and likelihood of being used by this species.

Swainson's hawks are relatively uncommon in the eastern portion of the San Joaquin Valley. The closest nesting occurrences of this species in the CNDDB are approximately 11 miles to the northwest of the project site, documented in 2000 and 2008. However, ornithologist Rob Hansen recently identified a Swainson's hawk nest near Avenue 160 / West Henderson Avenue's crossing of the Friant-Kern Canal, approximately ¾ mile southwest of the project site (Hansen 2017). Based on this observation, Swainson's hawks are expected to forage over the project site from time to time. Nesting on site is relatively unlikely for the reasons discussed above, but is considered a theoretical possibility.

2.5.2 San Joaquin Kit Fox (*Vulpes macrotus mutica*). Federal Listing Status: Endangered; State Listing Status: Threatened

Ecology of the species. By the time the San Joaquin kit fox (SJKF) was listed as federally endangered in 1967 and California threatened in 1971, it had been extirpated from much of its historic range. The smallest North American member of the dog family (Canidae), the kit fox historically occupied the dry plains of the San Joaquin Valley, from San Joaquin County to southern Kern County (Grinnell et al. 1937). Local surveys, research projects, and incidental sightings indicate that kit fox currently occupy available habitat on the San Joaquin Valley floor and in the surrounding foothills. Core SJKF populations are located in the natural lands of western Kern County, the Carrizo Plain Natural Area in San Luis Obispo County, and the

Ciervo-Panoche Natural Area in western Fresno and eastern San Benito Counties (USFWS 1998).

The SJKF prefers habitats of open or low vegetation with loose soils. In the southern and central portion of the Central Valley, kit fox are found in valley sink scrub, valley saltbrush scrub, upper Sonoran subshrub scrub, and annual grassland (USFWS 1998). Kit fox may also be found in grazed grasslands, urban settings, and in areas adjacent to tilled or fallow fields (USFWS 1998). They require underground dens to raise pups, regulate body temperature, and avoid predators and other adverse environmental conditions (Golightly and Ohmart 1984). In the central portion of their range, they usually occupy burrows excavated by small mammals such as California ground squirrels. The SJKF is primarily carnivorous, feeding on black-tailed hares, desert cottontails, rodents, insects, reptiles, and some birds.

Potential to occur onsite. The SJKF is known from the Porterville area, with 17 CNDDB occurrences in the 10-mile vicinity of the project site. However, most of these occurrences are historical in nature. Fifteen of the 17 sightings are from more than 40 years ago, and the remaining two are from more than 25 years ago, with the most recent record dating back to 1992. The lack of recent sightings, combined with the fact that the site is located nearly 50 miles from the nearest kit fox core population in western Kern County, suggest a low probability of kit fox occurrence in the project vicinity.

Even if SJKF were to occur in the project vicinity, they would be unlikely to use the intensively maintained habitats of the project site. Although the oat field represents marginally suitable foraging habitat for this species, regular ground disturbance and irrigation practices in the field would preclude its use for denning. Similarly, the outer banks and access road of the FKC levee could theoretically be used for foraging or as a travel route, but kit foxes would not be expected to den here due to ongoing maintenance practices. Kit fox denning is unlikely elsewhere on the site due to high levels of human use.

2.6 JURISDICTIONAL WATERS

Jurisdictional waters are those rivers, creeks, drainages, lakes, ponds, reservoirs, and wetlands that are subject to the authority of the USACE, CDFW, and/or the RWQCB. In general, the USACE regulates navigable waters, tributaries to navigable waters, and wetlands adjacent to these waters, where wetlands are defined by the presence of hydric soils, hydrophytic vegetation, and wetland hydrology. The CDFW has jurisdiction over waters in California that have a defined bed and bank, and the RWQCB has jurisdiction over California surface water and groundwater. The regulation of jurisdictional waters is discussed in more detail in Section 3.2.5.

LOA's jurisdictional waters investigation identified approximately 68,758 ft^2 (1.58 acres) of the FKC below OHW within project boundaries, a known Water of the U.S. The bed and lower bank of the FKC below ordinary high water (OHW) is considered a tributary water subject to the jurisdiction of the USACE. No portion of the FKC met the three technical criteria of jurisdictional wetlands, however.

2.7 NATURAL COMMUNITIES OF SPECIAL CONCERN

Natural communities of special concern are those that are of limited distribution, distinguished by significant biological diversity, home to special status species, etc. CDFW is responsible for the classification and mapping of all natural communities in California. Natural communities are assigned state and global ranks according to their degree of imperilment. Any natural community with a state rank of 3 or lower (on a 1-5 scale) is considered of special concern. Examples of natural communities of special concern in the project vicinity include vernal pools and various types of riparian forest.

Natural communities of special concern are absent from the project site and adjacent lands.

2.8 WILDLIFE MOVEMENT CORRIDORS

Wildlife movement corridors are routes that animals regularly and predictably follow during seasonal migration, dispersal from native ranges, daily travel within home ranges, and inter-population movements. Movement corridors in California are typically associated with valleys,

ridgelines, and rivers and creeks supporting riparian vegetation. As discussed, an approximate 0.35-mile reach of the Friant-Kern Canal passes through the project site. Although the highly maintained aquatic and bank habitat of the FKC is of low wildlife value overall, the levee road and banks may aid the passage of terrestrial wildlife through the surrounding matrix of agricultural and residential uses.

2.9 DESIGNATED CRITICAL HABITAT

The USFWS often designates areas of "critical habitat" when it lists species as threatened or endangered. Critical habitat is a specific geographic area(s) that contains features essential for the conservation of a threatened or endangered species and that may require special management and protection.

Designated critical habitat is absent from the project site and adjacent lands. The nearest unit of critical habitat is located approximately 4 miles east of the site, and is designated for the protection of the California condor (*Gymnogyps californianus*).

3.0 IMPACTS AND MITIGATIONS

3.1 SIGNIFICANCE CRITERIA

NEPA

Federal projects are subject to the provisions of NEPA. The purpose of NEPA is to assess the effects of a proposed action on the human environment, assess the significance of those effects, and recommend measures that if implemented would mitigate those effects. As used in NEPA, a determination that certain effects on the human environment are "significant" requires considerations of both context and intensity (see 40 CFR 1508.27).

Context means that significance must be analyzed in terms of the affected environment in which a proposed action would occur. For the purposes of assessing effects of an action on biological resources, the relevant context is often local. The analysis requires a comparison of the action area's biological resources to the biological resources of the local area within which the action area is located. The analysis may, however, require a comparison of the action area's biological resources with the biological resources of an entire region.

Intensity refers to the severity of impact. In considering the intensity of impact to biological resources, it is necessary to address the unique qualities of wetlands and ecologically critical areas that may be affected by the action, the degree to which the action will be controversial, the degree to which the effects of the action will be uncertain, the degree to which the action will establish a precedent for future actions that may result in significant effects, and the potential for the action to result in cumulatively significant effects.

The effects of an action on some biological resources are generally considered to be "significant." Actions that adversely affect federally listed threatened and endangered species and waters of the United States are two examples. Other effects may, however, be considered significant as well. An action that impedes the migratory movements of fish and wildlife, for example, may be considered "significant." An action that substantially reduces the areal extent of fish and wildlife habitat may be considered "significant," especially if habitat loss occurs in

areas identified by state and federal governments as ecologically sensitive or of great scenic value.

NEPA requires disclosure of feasible mitigation measures for the effects of an action on the environment. Suitable measures include the following:

(a) Avoiding the impact altogether by not taking a certain action or parts of an action.

(b) Minimizing impacts by limiting the degree or magnitude of the action and its implementation.

(c) Rectifying the impact by repairing, rehabilitating, or restoring the affected environment.

(d) Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the project.

(e) Compensating for the impact by replacing or providing substitute resources or environments.

This report identifies likely project impacts, identifies those that may be considered "significant" per the provisions of NEPA, and recommends mitigation measures that would avoid adverse effects to biological resources.

CEQA

Approval of general plans, area plans, and specific projects is subject to the provisions of CEQA. The purpose of CEQA is to assess the impacts of proposed projects on the environment before they are carried out. CEQA is concerned with the significance of a proposed project's impacts. For example, a proposed development project may require the removal of some or all of a site's existing vegetation. Animals associated with this vegetation could be destroyed or displaced. Animals adapted to humans, roads, buildings, pets, etc., may replace those species formerly occurring on the site. Plants and animals that are state and/or federally listed as threatened or endangered may be destroyed or displaced. Sensitive habitats such as wetlands and riparian woodlands may be altered or destroyed.

Whenever possible, public agencies are required to avoid or minimize environmental impacts by implementing practical alternatives or mitigation measures. According to Section 15382 of the

CEQA Guidelines, a significant effect on the environment means a "substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project, including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic interest."

Specific project impacts to biological resources may be considered "significant" if they would:

- Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.

- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.

- Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.

- Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.

- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.

- Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

Furthermore, CEQA Guidelines Section 15065(a) states that a project may trigger the requirement to make "mandatory findings of significance" if the project has the potential to:

> "Substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of an endangered, rare or threatened species, or eliminate important examples of the major periods of California history or prehistory."

3.2 RELEVANT GOALS, POLICIES, AND LAWS

3.2.1 General Plan Policies of County of Tulare and City of Porterville

In compliance with CEQA, the lead agency must consider conformance with applicable goals and policies of the General Plans of the County of Tulare and the City of Porterville. The Tulare County General Plan released an update in 2003 that is valid through 2030. Implementation of goals in the Tulare County General Plan is accomplished via a set of policies specific to each goal. See Appendix D for more details.

Relevant biological resource goals of the Tulare County General Plan include:

- protecting rare and endangered species;
- limiting development in environmentally sensitive areas;
- supporting the preservation and management of wetland and riparian plant communities for passive recreation, groundwater recharge, and wildlife habitats;
- encouraging the planting of native trees, shrubs, and grasslands preserve;
- requiring open space buffers between development projects and significant watercourse, riparian vegetation, wetlands, and other sensitive habitats and natural communities;
- coordinating with other government land management agencies to preserve and protect biological resources;
- implementing pesticide controls to limit effects on natural resources; and
- supporting the establishment and administration of a mitigation banking program.

The City of Porterville General Plan was adopted in 2008, and has a planning horizon that extends through 2030. Its overall policy for biological resources is to protect habitat for special status species. Relevant implementation policies include:

- Adopt habitat conservation regulations, including requirements and incentives to incorporate natural wildlife habitat features into new development and public landscapes, parks, and other public facilities.

- Require protection of sensitive habitat areas and special status species in new development site designs in the following order: 1) avoidance; 2) onsite mitigation, 3) offsite mitigation, and 4) purchase of mitigation credits.

- Identify and protect wildlife movement corridors that serve critical habitats to minimize wildlife-urban conflicts.

- Establish a "no net loss" policy for wetlands and vernal pools, including credits for land banking and off-site mitigation, and maintain a protection zone around wetlands, riparian corridors, and identified habitat areas where development shall not occur, except as part of a parkway enhancement program (e.g., trails and bikeways).

No habitat conservation plans (HCPs) occur in this part of Tulare County.

3.2.2 Threatened and Endangered Species

In California, imperiled plants and animals may be afforded special legal protections under the California Endangered Species Act (CESA) and/or Federal Endangered Species Act (FESA). Species may be listed as "threatened" or "endangered" under one or both Acts, and/or as "rare" under CESA. Under both Acts, "endangered" means a species is in danger of extinction throughout all or a significant portion of its range, and "threatened" means a species is likely to become endangered within the foreseeable future. Under CESA, "rare" means a species may become endangered if their present environment worsens. Both Acts prohibit "take" of listed species, defined under CESA as "to hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture or kill" (California Fish and Game Code, Section 86), and more broadly defined under FESA to include "harm" (16 USC, Section 1532(19), 50 CFR, Section 17.3).

When state and federally listed species have the potential to be impacted by a project, the USFWS and CDFW must be included in the CEQA process. These agencies review the environmental document to determine the adequacy of its treatment of endangered species issues and to make project-specific recommendations for the protection of listed species. Projects that may result in the "take" of listed species must generally enter into consultation with the USFWS and/or CDFW pursuant to FESA and CESA, respectively. In some cases, incidental take authorization(s) from these agencies may be required before the project can be implemented.

3.2.3 Migratory Birds

The Federal Migratory Bird Treaty Act (FMBTA: 16 USC 703-712) prohibits killing, possessing, or trading in any bird species covered in one of four international conventions to which the United States is a party, except in accordance with regulations prescribed by the Secretary of the Interior. The name of the act is misleading, as it actually covers almost all birds native to the United States, even those that are non-migratory. The FMBTA encompasses whole birds, parts of birds, and bird nests and eggs.

Although the USFWS and its parent administration, the U.S. Department of the Interior, have traditionally interpreted the FMBTA as prohibiting incidental as well as intentional "take" of birds, a January 2018 legal opinion issued by the Department of the Interior now states that incidental take of migratory birds while engaging in otherwise lawful activities is permissible under the FMBTA. However, California Fish and Game Code makes it unlawful to take or possess any non-game bird covered by the FMBTA (Section 3513), as well as any other native non-game bird (Section 3800), even if incidental to lawful activities.

3.2.4 Birds of Prey

Birds of prey are protected in California under provisions of the Fish and Game Code (Section 3503.5), which states that it is unlawful to take, possess, or destroy any birds in the order Falconiformes (hawks and eagles) or Strigiformes (owls), as well as their nests and eggs. The bald eagle and golden eagle are afforded additional protection under the federal Bald and Golden Eagle Protection Act (16 USC 668), which makes it unlawful to kill birds or their eggs.

3.2.5 Nesting Birds

In California, protection is afforded to the nests and eggs of all birds. California Fish and Game Code (Section 3503) states that it is "unlawful to take, possess, or needlessly destroy the nest or eggs of any bird except as otherwise provided by this code or any regulation adopted pursuant thereto." Breeding-season disturbance that causes nest abandonment and/or loss of reproductive effort is considered a form of "take" by the CDFW.

3.2.6 Wetlands and Other Jurisdictional Waters

Natural drainage channels and adjacent wetlands may be considered "waters of the United States" or "jurisdictional waters" subject to the jurisdiction of the USACE. The extent of jurisdiction has been defined in the Code of Federal Regulations but has also been subject to interpretation of the federal courts. Jurisdictional waters generally include:

- All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;
- All interstate waters including interstate wetlands:
- All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce;
- All impoundments of waters otherwise defined as waters of the United States under the definition;
- Tributaries of waters identified in paragraphs (a)(1)-(4) (i.e. the bulleted items above).

As determined by the United States Supreme Court in its 2001 *Solid Waste Agency of Northern Cook County v. U.S. Army Corps of Engineers* (SWANCC) decision, channels and wetlands isolated from other jurisdictional waters cannot be considered jurisdictional on the basis of their use, hypothetical or observed, by migratory birds. Similarly, in its 2006 consolidated *Carabell/Rapanos* decision, the U.S. Supreme Court ruled that a significant nexus between a wetland and other navigable waters must exist for the wetland itself to be considered a navigable and therefore jurisdictional water.

The USACE regulates the filling or grading of Waters of the U.S. under the authority of Section 404 of the Clean Water Act. The extent of jurisdiction within drainage channels is defined by "ordinary high water marks" on opposing channel banks. All activities that involve the discharge of dredge or fill material into Waters of the U.S. are subject to the permit requirements of the USACE. Such permits are typically issued on the condition that the applicant agrees to provide mitigation that result in no net loss of wetland functions or values. No permit can be

issued until the RWQCB issues a Section 401 Water Quality Certification (or waiver of such certification) verifying that the proposed activity will meet state water quality standards.

Under the Porter-Cologne Water Quality Control Act of 1969, the State Water Resources Control Board has regulatory authority to protect the water quality of all surface water and groundwater in the State of California ("Waters of the State"). Nine RWQCBs oversee water quality at the local and regional level. The RWQCB for a given region regulates discharges of fill or pollutants into Waters of the State through the issuance of various permits and orders. Discharges into Waters of the State that are also Waters of the U.S. require a Section 401 Water Quality Certification from the RWQCB as a prerequisite to obtaining certain federal permits, such as a Section 404 Clean Water Act permit. Discharges into all Waters of the State, even those that are not also Waters of the U.S., require Waste Discharge Requirements (WDRs), or waivers of WDRs, from the RWQCB. The RWQCB also administers the Construction Storm Water Program and the federal National Pollution Discharge Elimination System (NPDES) program. Projects that disturb one or more acres of soil must obtain a Construction General Permit under the Construction Storm Water Program. A prerequisite for this permit is the development of a Storm Water Pollution Prevention Plan (SWPPP) by a certified Qualified SWPPP Developer. Projects that discharge wastewater, storm water, or other pollutants into a Water of the U.S. may require a NPDES permit.

CDFW has jurisdiction over the bed and bank of natural drainages and lakes according to provisions of Section 1601 and 1602 of the California Fish and Game Code. Activities that may substantially modify such waters through the diversion or obstruction of their natural flow, change or use of any material from their bed or bank, or the deposition of debris require a Notification of Lake or Streambed Alteration. If CDFW determines that the activity may adversely affect fish and wildlife resources, a Lake or Streambed Alteration Agreement will be prepared. Such an agreement typically stipulates that certain measures will be implemented to protect the habitat values of the lake or drainage in question.

3.3 POTENTIALLY SIGNIFICANT PROJECT IMPACTS/MITIGATION

As discussed, the project is the construction of a groundwater recharge basin and associated infrastructure to enable delivery of surplus surface water into the basin from the Friant-Kern Canal. The basin and other improvements will be located on 18-acres of a larger 26-acre property, with the specific location to be determined during final design. The following analysis of potential project impacts assumes that the entirety of an 18-acre project footprint within the 26-acre property, including a small area just big enough to accommodate a new turnout on the Friant-Kern Canal below ordinary high water (OHW), will be permanently impacted. Approximately 100 square feet of permanent impact and 200 square feet of temporary impact to the canal (a known Water of the U.S) below ordinary high water will be impacted by proposed activities.

3.3.1 Project Impacts to the Swainson's Hawk

Potential Impacts. As discussed in Section 2.5.1, the project site's oat field represents suitable foraging habitat for the Swainson's hawk, and mature trees associated with the residences are structurally suitable for nesting, although of relatively low quality for this species due to ambient disturbance levels. In the unlikely event that Swainson's hawks are nesting on or adjacent to the project site at the time of construction, individual hawks could be injured, killed, or disturbed such that they would abandon their nest(s). Project activities that adversely affect the nesting success or result in mortality of Swainson's hawks would violate state and federal laws (see Sections 3.2.3 to 3.2.5) and would be considered a significant impact under CEQA and NEPA.

Based on the recent discovery of a Swainson's hawk nest less than a mile from the project site (Hansen 2017), it is likely that Swainson's hawks pass over or forage on the project site from time to time. Swainson's hawks are highly mobile while foraging and would be expected to simply fly away from any construction-related disturbance that they encounter; therefore, individual hawks would not be at risk of construction-related injury or mortality while foraging. Although the project site may be temporarily unavailable to foraging Swainson's hawks during construction, it is expected that, following project implementation, Swainson's hawks may continue to forage on the site from time to time. Once in operation, the North Basin is expected

to be dry for much of the Swainson's hawk's annual March-September tenure in California, during which time it would likely support modest populations of small vertebrate and invertebrate prey for this species. Swainson's hawk individuals and populations are therefore unlikely to be adversely affected by project-related loss of foraging habitat. Loss of foraging habitat for the Swainson's hawk is not considered a significant impact of the project under CEQA and NEPA.

Mitigation. The applicant will implement the following measures to avoid and minimize the potential for project-related mortality of nesting Swainson's hawks, as necessary.

> ***Mitigation 3.3.1a* (*Avoidance*).** If feasible, the project will be constructed outside the Swainson's hawk nesting season, typically defined as March 1-September 15.
>
> ***Mitigation 3.3.1b* (*Pre-construction Surveys*).** If the project must be constructed between March 1 and September 15, a qualified biologist will conduct pre-construction surveys for Swainson's hawk nests on and within ½ mile of the project site within 30 days of the onset of these activities.
>
> ***Mitigation 3.3.1c* (*Establish Buffers*).** 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.
>
> ***Mitigation 3.3.1d* (*Monitor Nest*).** Should construction activity be necessary within the designated buffer around an active Swainson's hawk nest, a qualified biologist will monitor the nest daily for one week, and thereafter once a week, for the duration of the activity or until the nest is no longer active, whichever comes first. Should construction activity within the buffer change such that a higher level of disturbance will be generated, monitoring will occur daily for one week and then resume the once-a-week regime. If, at any time, the biologist determines that construction activity may be compromising nesting success, construction activity within the buffer will be altered or suspended until the biologist determines that the nest is no longer at risk of failing.

Implementation of these measures will reduce project-related impacts to the Swainson's hawk to a less than significant level under CEQA and NEPA, and ensure compliance with state laws protecting this species.

3.3.2 Project-Related Mortality of the San Joaquin Kit Fox

Potential Impacts. As discussed in Section 2.5.2, the project site is only marginally suitable as kit fox habitat, and the SJKF has not been documented in the Porterville area for over 25 years. However, the kit fox is a wide-ranging species, and it is theoretically possible that individuals occasionally pass through the project vicinity and the site itself. In the unlikely event that a kit fox were found on-site at the time of construction, it could be at risk of construction-related injury or mortality. Mortality of kit fox individuals would be a violation of state and federal law, and would constitute a significant impact of the project under CEQA and NEPA.

Mitigation. The following measures derived from the USFWS 2011 *Standardized Recommendations for Protection of the San Joaquin Kit Fox Prior to or During Ground Disturbance* (Appendix E) will be implemented:

> ***Mitigation Measure 3.3.2a (Preconstruction Surveys).*** Preconstruction surveys for the SJKF shall be conducted on and within 200 feet of the project site, no less than 14 days and no more than 30 days prior to the start of ground disturbance activities on the site. The primary objective is to identify kit fox habitat features (e.g., potential dens and refugia) on and adjacent to the site and evaluate their use by kit foxes. If an active kit fox den is detected within or immediately adjacent to the work area, the USFWS shall be contacted immediately to determine the best course of action. Preconstruction surveys will be repeated following any lapses in construction of 30 days or more.
>
> ***Mitigation Measure 3.3.2b (Avoidance of Active Dens).*** Should active kit fox dens be detected during preconstruction surveys, the Sacramento Field Office of the USFWS and the Fresno Field Office of CDFW will be notified. A disturbance-free buffer will be established around the burrows in consultation with the USFWS and CDFW, to be maintained until an agency-approved biologist has determined that the burrows have been abandoned.
>
> ***Mitigation Measure 3.3.2c (Minimization).*** The project will observe all minimization measures presented in the *USFWS Standardized Recommendations*. Such measures include, but are not limited to: restriction of construction-related vehicle traffic to established roads, construction areas, and other designated areas; inspection and covering of structures (e.g., pipes), as well as installation of escape structures, to prevent the inadvertent entrapment of kit foxes; restriction of rodenticide and herbicide use; and proper disposal of food items and trash. See Appendix E for more details.
>
> ***Mitigation Measure 3.3.2d (Employee Education Program).*** Prior to the start of construction, the applicant will retain a qualified biologist to conduct a tailgate training

for all construction staff 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 project vicinity; 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 construction. Attendees will be provided a handout with all of the training information included in it. The applicant will use this handout to train any construction personnel that were not in attendance at the first meeting, prior to those personnel starting work on the site.

Mitigation Measure 3.3.2e (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 construction. 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 the above measures will reduce potential project-related impacts to the San Joaquin kit fox to a less than significant level under CEQA and NEPA, and will ensure compliance with state and federal laws protecting this species.

3.3.3 Project-Related Mortality/Disturbance of Nesting Raptors and Migratory Birds

Potential Impacts. The project site contains suitable nesting habitat for a number of avian species protected under California Fish and Game Code. Trees and shrubs in the site's residential area could be used by songbirds such as the Bullock's oriole and northern mockingbird, and possibly also by raptors such as the red-tailed hawk. Residential buildings could be used by house finches or black phoebes. Mourning doves could nest in the site's oat field, and the killdeer could nest on the ground in ruderal areas. If birds were to be nesting on or adjacent to any of the project site at the time of construction, project-related activities could result in the abandonment of active nests or direct mortality to these birds. Construction activities that adversely affect the nesting success of migratory birds and raptors or result in the mortality of individual birds constitute a violation of state laws (see Sections 3.2.3 to 3.2.5) and would be considered a significant impact under CEQA and NEPA.

Mitigation. The applicant will implement the following measures to avoid and minimize the potential for project-related mortality/disturbance of nesting raptors and migratory birds, as necessary.

***Mitigation 3.3.3a* (*Avoidance*).** In order to avoid impacts to nesting raptors and migratory birds, construction will occur, where possible, outside the nesting season, or between September 1st and January 31st.

***Mitigation 3.3.3b* (*Pre-construction Surveys*).** If construction must occur during the nesting season (February 1-August 31), a qualified biologist will conduct pre- construction surveys for active raptor and migratory bird nests within 30 days of the onset of these activities. Nest surveys will include all areas on and within 500 feet of the project site, where accessible. If no active nests are found within the survey area, no further mitigation is required.

***Mitigation 3.3.3c* (*Establish Buffers*).** 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.

Compliance with the above mitigation measures would reduce impacts to nesting raptors and migratory birds to a less than significant level under CEQA and NEPA, and ensure compliance with state laws protecting these species.

3.3.4 Project-Related Mortality of Roosting Bats

Potential Impact. The project site's mature residential trees and buildings have the potential to be used for roosting by a variety of native bat species, possibly including the pallid bat (*Antrozous pallidus*), Townsend's big-eared bat (*Corynorhinus townsendii*), and western mastiff bat (*Eumops perotis californicus*), all California Species of Special Concern. If trees or buildings removed by the project contain maternity colonies, many individual bats could be killed. Such a mortality event would be considered a potentially significant impact of the project under CEQA and NEPA.

Mitigation. The applicant will implement the following measures to avoid and minimize the potential for project-related mortality of roosting bats, as necessary.

Mitigation Measure 3.3.4a (Temporal Avoidance). To avoid potential impacts to maternity bat roosts, removal of buildings and large trees should occur outside of the period between April 1 and September 30, the time frame within which colony-nesting bats generally assemble, give birth, nurse their young, and ultimately disperse.

Mitigation Measure 3.3.4b (Preconstruction Surveys). If removal of buildings or large trees is to occur between April 1 and September 30 (general maternity bat roost season),

then within 30 days prior to their removal, a qualified biologist will survey them for the presence of bats. The biologist will look for individuals, guano, and staining, and will listen for bat vocalizations. If necessary, the biologist will wait for nighttime emergence of bats from roost sites. If no bats are observed to be roosting or breeding, then no further action would be required, and construction could proceed.

Mitigation Measure 3.3.4c (Minimization). If a non-breeding bat colony is detected during preconstruction surveys, the individuals will be humanely evicted under the direction of a qualified biologist.

Mitigation Measure 3.3.4d (Avoidance of Maternity Roosts). If a maternity colony is detected during preconstruction surveys, the biologist will identify a suitable disturbance-free buffer around the colony. The buffer will remain in place until the biologist determines that the nursery is no longer active.

Implementation of the above measures will reduce impacts to roosting bats to a less than significant level under CEQA and NEPA.

3.3.5 Degradation of Water Quality in Seasonal Drainages, Stock Ponds, and Downstream Waters

Potential Impacts. Extensive ground disturbance associated with construction projects often leaves the soils of construction zones barren of vegetation and, therefore, vulnerable to erosion. Eroded soil is generally carried as sediment in surface runoff to be deposited in natural creek beds, canals, and adjacent wetlands. Runoff is often polluted with grease, oil, pesticide and herbicide residues, and/or heavy metals.

The Friant-Kern Canal levee will protect the canal from runoff associated with most project activities. However, those activities occurring on top of the levee or within its banks have the potential to result in sedimentation or pollution of the canal. Degradation of water quality in the FKC as a result of future project activities is considered a potentially significant impact under CEQA and NEPA.

Mitigation. The applicant will implement the following measures to prevent sedimentation and pollution of the FKC.

Mitigation Measure 3.3.5a (Erosion Control Measures). The applicant will define the limits of any construction taking place on top of the FKC levee or within its banks.

Wattles or other appropriate erosion controls will be placed between ground-disturbing activities and ordinary high water of the FKC.

Mitigation Measure 3.3.5b. (Storm Water Pollution Prevention Plan). The applicant will arrange for the preparation of a Storm Water Pollution Prevention Plan (SWPPP) that identifies measures to prevent erosion and sedimentation of the FKC and measures to prevent contaminants from entering storm water. The SWPPP will be implemented in full during project construction.

Implementation of the above measures will reduce potential impacts to water quality to a less than significant level under CEQA and NEPA.

3.4 LESS THAN SIGNIFICANT PROJECT IMPACTS

3.4.1 Loss of Habitat for Special Status Plants

Potential Impacts. Seventeen special status vascular plant species are known to occur in the region: California jewelflower (*Caulanthus californicus*), Springville clarkia (*Clarkia springvillensis*), Striped adobe-lily (*Fritillaria striata*), San Joaquin woollythreads (*Monolopia congdonii*), San Joaquin adobe sunburst (*Pseudobahia peirsonii*), Keck's checkerbloom (*Sidalcea keckii*), Earlimart orache (*Atriplex cordulata* var. *erecticaulis*), Lost Hills crownscale (*Atriplex coronata* var. *vallicola*), brittlescale (*Atriplex depressa*), lesser saltscale (*Atriplex minuscula*), vernal pool smallscale (*Atriplex persistens*), subtle orache (*Atriplex subtilis*), recurved larkspur (*Delphinium recurvatum*), calico monkeyflower (*Diplacus pictus*), spiny- sepaled button celery (*Eryngium spinosepalum*), Madera leptosiphon (*Leptosiphon serrulatus*), and California alkali-grass (*Puccinellia simplex*) (see Table 1). Due to habitat loss or degradation associated with the high level of human disturbance on the project site, the absence of any historical suitable habitat, and/or the site's being situated outside a particular species' range, none of these species are expected to occur on site. Therefore, the proposed project would not affect regional populations of these species and impacts would be less than significant as defined by CEQA and NEPA.

Mitigation. Mitigation is not warranted.

3.4.2 Project Impacts to Special Status Animal Species Absent from or Unlikely to Occur on the Project Site

Potential Impacts. Of the 18 special status animal species that potentially occur in the project vicinity, 12 are considered absent or unlikely to occur on site due to past and ongoing disturbance of the site and surrounding lands, the absence of suitable habitat, and/or the site's being situated outside of the species' known distribution. These species include the vernal pool fairy shrimp (*Branchinecta lynchi*), Delta smelt (*Hypomesus transpacificus*), California red- legged frog (*Rana aurora draytonii*), blunt-nosed leopard lizard (*Gambelia silus*), giant garter snake (*Thamnophis gigas*), California condor (*Gymnogyps californianus*), Tipton kangaroo rat (*Dipodomys nitratoides nitratoides*), San Joaquin kit fox, western spadefoot (*Spea hammondii*), foothill yellow-legged frog (*Rana boylii*), Northern California legless lizard (*Anniella pulchra*), and American badger (*Taxidea taxus*) (see Table 1). Potential impacts to the San Joaquin kit fox were identified and fully mitigated in Section 3.3.2, and will not be re-addressed in this section. The project does not have the potential to significantly impact the remaining 11 species through construction mortality or loss of habitat because there is little or no likelihood that they are present.

Mitigation. Mitigation is not warranted.

3.4.3 Project Impacts to Special Status Animal Species that May Occur on the Project Site as Occasional or Regular Foragers but Breed Elsewhere

Potential Impacts. Two special status animals, the northern harrier (*Circus cyaneus*) and tricolored blackbird (*Agelaius tricolor*), have the potential to forage on the site from time to time but would not breed on-site (see Table 1). Neither species would be vulnerable to construction-related injury or mortality while foraging because they are highly mobile foragers, and would be expected to simply avoid active construction zones.

The northern harrier and tricolored blackbird also would not be adversely affected from project-related loss of habitat. Potential foraging habitat on the project site is not uniquely important for these species, and similar or higher quality foraging habitat is relatively abundant in the region.

Moreover, following project implementation, the site will continue to be intermittently available as foraging habitat for these species, during periods when the North Basin is dry.

Mitigation. Project impacts are less than significant under CEQA and NEPA. Mitigation is not warranted.

3.4.4 Project Impacts to Wildlife Movement Corridors

Potential Impacts. The project site contains an approximate 0.35-mile reach of the Friant-Kern Canal, which may function as a movement corridor for certain terrestrial wildlife species (see Section 2.8). Although wildlife movements may be temporarily disrupted by the construction of a turnout in the FKC, following construction, animals would be expected to utilize the FKC in the same manner as before project buildout. Project impacts to wildlife movement corridors are considered less than significant under CEQA and NEPA.

Mitigation. No mitigation is warranted.

3.4.5 Project Impacts to Waters of the United States

Potential Impacts. The project will impact a small area of the Friant-Kern Canal, a man-made feature consisting of concrete-lined banks and paved levee roads, with the construction of a turnout on the canal's northwest bank. Approximately 100 square feet of permanent impact and 200 square feet of temporary impact to the canal (a known Water of the U.S) below ordinary high water will be impacted by proposed activities. Impacts to the Canal will have no measurable effect on the value or function of waters of the U.S., and will not result in a significant or adverse effect of the project under CEQA and NEPA. Nonetheless, appropriate permits from the USACE and RWQCB are required prior to proposed activities within the FKC.

Mitigation. Due to the small area of impact, no mitigation is warranted.

3.4.6 Project Impacts to Designated Critical Habitat or Other Sensitive Habitats

Potential Impacts. Designated critical habitat, natural communities of special concern, and other sensitive habitats are absent from the project site and adjacent lands. The project will have no impact on such habitats.

Mitigation. No mitigation is warranted.

3.4.7 Local Policies or Habitat Conservation Plans

Potential Impacts. The project appears to be in compliance with the County of Tulare and City of Porterville General Plans. No known Habitat Conservation Plans are in effect for the project vicinity.

Mitigation. No mitigation is warranted.

3.5 SECTION 7 DETERMINATIONS FOR FEDERALLY LISTED SPECIES

The following table summarizes project effect determinations for Federally Listed Species found on the USFWS IPaC list generated on March 8, 2018 (Appendix F) and the CNDDB (CDFW 2018)(Appendix G) for the project.

TABLE 2: SECTION 7 DETERMINATIONS FOR FEDERALLY LISTED SPECIES

Species	Determination	Rational for the Determination
California Jewelflower* (*Caulanthus californicus*)	***No affect***	Habitat absent
San Joaquin Adobe Sunburst (*Pseudobahia peirsonii*)	***No affect***	Habitat absent
San Joaquin Woollythreads* (*Monolopia congdonii*)	***No affect***	Habitat absent
Keck's Checkerbloom* (*Sidalcea keckii*)	***No affect***	Habitat absent
Springville Clarkia (*Clarkia springvillensis*)	***No affect***	Habitat absent
Vernal Pool Fairy Shrimp (*Branchinecta lynchi*)	***No affect***	Habitat absent
Delta Smelt (*Hypomesus transpacificus*)	***No affect***	Habitat absent Project site out of species range
California Red-legged Frog (*Rana aurora draytonii*)	***No affect***	Habitat absent Project site out of species range
Giant Garter Snake (GGS) (*Thamnophis gigas*)	***No affect***	Habitat absent Project site out of species range
Blunt-Nosed Leopard Lizard (BNLL) (*Gambelia sila*)	***No affect***	Habitat absent
Tipon Kangaroo Rat (*Dipodomys nitratoides nitratoides*)	***No affect***	Habitat absent Project site out of species range
San Joaquin Kit Fox (SJKF) (*Vulpes macrotis mutica*)	***May affect, not likely to adversely affect***	Habitat marginal No sitings in area for last 25 years
California Condor* (*Gymnogyps californianus*)	***No effect***	Habitat absent

*Federally-listed Species that occur regionally based on CNDDB, but did not appear on the IPaC list.

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APPENDIX A: VASCULAR PLANTS OF THE PROJECT SITE

APPENDIX A: VASCULAR PLANTS OF THE PROJECT SITE

The vascular plant species listed below were observed on the project site during a site survey conducted by Live Oak Associates, Inc. on April 17, 2018. The U.S. Fish and Wildlife Service wetland indicator status of each plant has been shown following its common name.

OBL - Obligate
FACW - Facultative Wetland
FAC - Facultative
FACU - Facultative Upland
UPL - Upland
NR - No review
NA - No agreement
NI - No investigation

APOCYNACEAE – Dogbane Family		
Nerium oleander	Oleander	UPL
ARALIACEAE – Spikenard Family		
Hedera helix	English Ivy	UPL
ASTERACEAE – Sunflower Family		
Lactuca serriola	Prickly Lettuce	FACU
Helianthus annuus	Common Sunflower	FACU
BERBERIDACEAE – Heavenly Bamboo Family		
Nandina domestica	Heavenly Bamboo	UPL
BRASSICACEAE – Mustard Family		
Brassica nigra	Black Mustard	UPL
Sinapis arvense	Charlock Mustard	UPL
BUXACEAE – Boxwood Family		
Buxus sempervirens	Common Box	UPL
CARYOPHYLLACEAE – Carnation Family		
Spergularia rubra	Red Sandspurry	FAC
CHENOPODIACEAE – Goosefoot Family		
Chenopodium album	Common Lambsquarters	FACU
CUPRESSACEAE – Cypress Family		
Cedrus deodara	Deodar Cedar	UPL
Sequoia sempervirens	Coast Redwood	UPL
CYPERACEAE –Umbrella Sedge Family		
Cyperus eragrostis	Umbrella Sedge	FACW
EBENACEAE –		
Diosporus kaki	Japanese Persimmon	UPL
FABACEAE – Legume Family		
Medicago polymorpha	Toothed Medic	FACU
Robinia pseudoacacia	Black Locust	UPL
GERANIACEAE – Geranium Family		
Erodium botrys	Broad Leaf Filaree	FACU

Erodium cicutarium	Redstem Filaree	UPL
IRIDACEAE – Iris Family		
Iris sp.	Cultivated Iris	UPL
LAMIACEAE – Mint Family		
Salvia sp.	Cultivated Sage	UPL
MALVACEAE – Mallow Family		
Malva nicaaensis	Bull Mallow	-
MORACEAE – Mulberry Family		
Morus alba	Mulberry	UPL
OLEACEAE – Olive Family		
Syringa vulgaris	Lilac	UPL
POACEAE – Grass Family		
Avena fatua	Wild Oats	UPL
Bromus diandrus	Ripgut Brome	UPL
Cynodon dactylon	Bermuda Grass	FAC
Hordeum murinum ssp. *leporinum*	Barnyard Barley	FACU
Hordeum vulgare	Cultivated Barley	UPL
Lolium perenne	Perennial Ryegrass	FAC
Poa annua	Annual Bluegrass	FAC
Vulpia bromoides	Six-weeks Brome Grass	FACU
POLYGONACEAE – Smartweed Family		
Polygonum aviculare	Prostrate Knotweed	FACW
ROSACEAE - Rose Family		
Prunus sp.	Fruit Tree	-
Rosa sp.	Cultivated Rose	UPL
ULMACEAE – Elm Family		
Ulmus sp.	American Elm	UPL
VIOLACEAE – Violet Family		
Viola tricolor	Pansy	UPL
ZYGOPHYLLACEAE – Puncture Vine Family		
Tribulus terrestris	Puncture Vine	UPL

APPENDIX B: TERRESTRIAL VERTEBRATE SPECIES THAT POTENTIALLY OCCUR ON THE PROJECT SITE

APPENDIX B: TERRESTRIAL VERTEBRATE SPECIES THAT POTENTIALLY OCCUR ON THE PROJECT SITE

The species listed below are those that may reasonably be expected to use the habitats of the project site routinely or from time to time. The list was not intended to include birds that are vagrants or occasional transients. Terrestrial vertebrate species observed in or adjacent to the project site during the surveys conducted by Live Oak Associates, Inc. on April 17, 2018 have been noted with an asterisk.

CLASS: AMPHIBIA (Amphibians)
ORDER: SALIENTIA (Frogs and Toads)
FAMILY: BUFONIDAE (True Toads)
Western Toad (*Bufo boreas*)
FAMILY: HYLIDAE (Treefrogs and relatives)
Sierran Treefrog (*Pseudacris sierra*)
FAMILY: RANIDAE (True Frogs)
American Bullfrog (*Lithobates catesbeianus*)

CLASS: REPTILIA (Reptiles)
ORDER: SQUAMATA (Lizards and Snakes)
SUBORDER: SAURIA (Lizards)
FAMILY: PHRYNOSOMATIDAE
Western Fence Lizard (*Sceloporus occidentalis*)
Side-blotched Lizard (*Uta stansburiana*)
SUBORDER: SERPENTES (Snakes)
FAMILY: COLUBRIDAE (Colubrids)
Gopher Snake (*Pituophis melanoleucus*)
Common Kingsnake (*Lampropeltis getulus*)
Common Garter Snake (*Thamnophis sirtalis*)
FAMILY: VIPERIDAE (Vipers)
Western Rattlesnake (*Crotalus viridis*)

CLASS: AVES (Birds)
ORDER: CICONIIFORMES (Herons, Storks, Ibises and Relatives)
FAMILY: ARDEIDAE (Herons and Bitterns)
Great Blue Heron (*Ardea herodias*)
Great Egret (*Ardea alba*)
Snowy Egret (*Egretta thula*)
Cattle Egret (*Bubulcus ibis*)
Green Heron (*Butorides virescens*)
FAMILY: CATHARTIDAE (American Vultures)
Turkey Vulture (*Cathartes aura*)
ORDER: ANSERIFORMES (Screamers, Ducks and Relatives)
FAMILY: ANATIDAE (Swans, Geese and Ducks)

Canada Goose (*Branta canadensis*)
Mallard (*Anas platyrhynchos*)

ORDER: FALCONIFORMES (Vultures, Hawks, and Falcons)

FAMILY: ACCIPITRIDAE (Hawks, Old World Vultures, and Harriers)

Red-tailed Hawk (*Buteo jamaicensis*)
Red-Shouldered Hawk (*Buteo lineatus*)
Northern Harrier (*Circus cyaneus*)
Swainson's Hawk (*Buteo swainsoni*)

FAMILY: FALCONIDAE (Caracaras and Falcons)

American Kestrel (*Falco sparverius*)

ORDER: GRUIFORMES (Cranes, Rails, and Allies)

FAMILY: RALLIDAE (Rails, Gallinules, and Coots)

American Coot (*Fulica americana*)

ORDER: CHARADRIIFORMES (Shorebirds, Gulls, and relatives)

FAMILY: CHARADRIIDAE (Plovers and relatives)

Killdeer (*Charadrius vociferus*)

FAMILY: COLOPACIDAE (Sandpipers and Relatives)

Greater Yellowlegs (*Tringa melanoleuca*)
Least Sandpiper (*Calidris minutilla*)

FAMILY: LARIDAE (Skuas, Gulls, Terns and Skimmers)

Ring-billed Gull (*Larus delawarensis*)
California Gull (*Larus californicus*)

ORDER: COLUMBIFORMES (Pigeons and Doves)

FAMILY: COLUMBIDAE (Pigeons and Doves)

Rock Dove (*Columba livia*)
Eurasian Collared Dove (*Streptopelia decaocto*)
*Mourning Dove (*Zenaida macroura*)

ORDER: STRIGIFORMES (Owls)

FAMILY: TYTONIDAE (Barn Owls)

Common Barn Owl (*Tyto alba*)

FAMILY: STRIGIDAE (Typical Owls)

Great Horned Owl (*Bubo virginianus*)

ORDER: APODIFORMES (Swifts and Hummingbirds)

FAMILY: TROCHILIDAE (Hummingbirds)

Anna's Hummingbird (*Calypte anna*)
Rufous Hummingbird (*Selasphorus rufus*)
Black-chinned Hummingbird (*Archilochus alexandri*)

ORDER: PICIFORMES (Woodpeckers and relatives)

FAMILY: PICIDAE (Woodpecker and Wrynecks)

Northern Flicker (*Colaptes chrysoides*)
Nuttall's Woodpecker (*Picoides nuttallii*)

ORDER: PASSERIFORMES (Perching Birds)

FAMILY: TYRANNIDAE (Tyrant Flycatchers)

Black Phoebe (*Sayornis nigricans*)
Say's Phoebe (*Sayornis saya*)

Western Kingbird (*Tyrannus verticalis*)
FAMILY: CORVIDAE (Jays, Magpies, and Crows)
*Western Scrub Jay (*Aphelocoma coerulescens*)
American Crow (*Corvus brachyrhynchos*)
Common Raven (*Corvus corax*)
FAMILY: ALAUDIDAE (Larks)
Horned Lark (*Eremophila alpestris*)
FAMILY: HIRUNDINIDAE (Swallows)
Tree Swallow (*Tachycineta bicolor*)
Cliff Swallow (*Petrochelidon pyrrhonota*)
*Barn Swallow (*Hirundo rustica*)
FAMILY: TROGLODYTIDAE (Wrens)
House Wren (*Troglodytes aedon*)
Bewick's Wren (*Thryomanes bewickii*)
FAMILY: REGULIDAE (Kinglets)
Ruby-Crowned Kinglet (*Regulus calendula*)
FAMILY: TURDIDAE (Thrushes)
Western Bluebird (*Sialia mexicana*)
American Robin (*Turdus migratorius*)
FAMILY: MIMIDAE (Mockingbirds and Thrashers)
Northern Mockingbird (*Mimus polyglottos*)
FAMILY: STURNIDAE (Starlings)
European Starling (*Sturnus vulgaris*)
FAMILY: MOTACILLIDAE (Wagtails and Pipits)
American Pipit (*Anthus rubescens*)
FAMILY: BOMBYCILLIDAE (Waxwings)
Cedar Waxwing (*Bombycilla cedrorum*)
FAMILY: PARULIDAE (Wood Warblers and Relatives)
Yellow-Rumped Warbler (*Dendroica coronata*)
FAMILY: EMBERIZIDAE (Emberizines)
Savannah Sparrow (*Passerculus sandwichensis*)
White-Crowned Sparrow (*Zonotrichia leucophrys*)
Golden-Crowned Sparrow (*Zonotrichia atricapilla*)
Dark-Eyed Junco (*Junco hyemalis*)
FAMILY: ICTERIDAE (Blackbirds, Orioles and Allies)
Red-winged Blackbird (*Agelaius phoeniceus*)
Western Meadowlark (*Sturnella neglecta*)
Great-Tailed Grackle (*Quiscalus mexicanus*)
Brewer's Blackbird (*Euphagus cyanocephalus*)
Brown-headed Cowbird (*Molothrus ater*)
Bullock's Oriole (*Icterus bullockii*)
FAMILY: FRINGILLIDAE (Finches)
*House Finch (*Carpodacus mexicanus*)
Lesser Goldfinch (*Carduelis psaltria*)
Lawrence's Goldfinch (*Spinus lawrencei*)

American Goldfinch (*Spinus tristis*)
FAMILY: PASSERIDAE (Old World Sparrows)
House Sparrow (*Passer domesticus*)

CLASS: MAMMALIA (Mammals)
ORDER: DIDELPHIMORPHIA (Marsupials)
FAMILY: DIDELPHIDAE (Opossums)
Virginia Opossum (*Didelphis virginiana*)
ORDER: INSECTIVORA (Insectivores)
Ornate Shrew (*Sorex ornatus*)
FAMILY: TALPIDAE (Moles)
Broad-Footed Mole (*Scapanus latimanus*)
ORDER: CHIROPTERA (Bats)
FAMILY: PHYLLOSTOMIDAE (Leaf-nosed Bats)
Southern Long-nosed Bat (*Leptonycteris curasoae*)
FAMILY: VESPERTILIONIDAE (Evening Bats)
Yuma Myotis (*Myotis yumanensis*)
California Myotis (*Myotis californicus*)
Western Pipistrelle (*Pipistrellus hesperus*)
Big Brown Bat (*Eptesicus fuscus*)
Hoary Bat (*Lasiurus cinereus*)
Pallid Bat (*Antrozous pallidus*)
FAMILY: MOLOSSIDAE (Free-tailed Bat)
Brazilian Free-tailed Bat (*Tadarida brasiliensis*)
ORDER: LAGOMORPHA (Rabbits, Hares, and Pikas)
FAMILY: LEPORIDAE (Rabbits and Hares)
Audubon Cottontail Rabbit (*Sylvilagus audubonii*)
Black-tailed (Hare) Jackrabbit (*Lepus californicus*)
ORDER: RODENTIA (Rodents)
FAMILY: SCIURIDAE (Squirrels, Chipmunks, and Marmots)
California Ground Squirrel (*Otospermophilus beecheyi*)
FAMILY: GEOMYIDAE (Pocket Gophers)
*Botta's Pocket Gopher (*Thomomys bottae*)
FAMILY: HETEROMYIDAE (Pocket Mice and Kangaroo Rats)
San Joaquin Pocket Mouse (*Perognathus inornatus*)
FAMILY: MURIDAE (Old World Rats and Mice)
Western Harvest Mouse (*Reithrodontomys megalotis*)
Deer Mouse (*Peromyscus maniculatus*)
Norway Rat (*Rattus norvegicus*)
House Mouse (*Mus musculus*)
California Vole (*Microtus californicus*)
ORDER: CARNIVORA (Carnivores)
FAMILY: CANIDAE (Foxes, Wolves, and relatives)
Coyote (*Canis latrans*)
Feral Dog (*Canis lupus familiaris*)

Red Fox (*Vulpes vulpes*)
Gray fox (*Urocyon cinereoargenteus*)

FAMILY: PROCYONIDAE (Raccoons and relatives)

Raccoon (*Procyon lotor*)

FAMILY: MEPHITIDAE (Skunks)

Striped Skunk (*Mephitis mephitis*)

FAMILY: FELIDAE (Cats)

*Feral Cat (*Felis domesticus*)
Bobcat (*Lynx rufus*)

APPENDIX C: SELECTED PHOTOGRAPHS OF THE PROJECT SITE

Photo #1 (above). The Friant-Kern Canal forms the southern boundary of the property.

Photo #2 (below). Swallows were actively nesting on the Westwood Street bridge at the time of the April 17, 2018 field survey.

Photo #3 (above). Oat field in the foreground and residential in the background. **Photo #4 (below).** Ornamental landscaping associated with the residence along Road 224.

Photo #5 (above). Ruderal areas adjacent to residential provided extremely limited wildlife habitat.

Photo #6 (below). Ruderal areas adjacent to the oat field did not contain any small mammal burrows.

APPENDIX D: PAGES FROM THE TULARE COUNTY GENERAL PLAN, BIOLOGICAL RESOURCES ELEMENT

the assurance of rail transport for commodities such as grain, row crops, and fruit, a number of farming colonies soon appeared throughout the region.

The colonies grew to become cities such as Tulare, Visalia, Porterville, and Hanford. Visalia, the County seat, became the service, processing, and distribution center for the growing number of farms, dairies, and cattle ranches. By 1900, Tulare County boasted a population of about 18,000. New transportation links such as SR 99 (completed during the 1950s), affordable housing, light industry, and agricultural commerce brought steady growth to the valley. The U.S. Census Bureau estimated the 2003 Tulare County population to be 390,791.

8.1 Biological Resources

ERM-1 To preserve and protect sensitive significant habitats, enhance biodiversity, and promote healthy ecosystems throughout the County. [*New Goal]*

ERM-1.1 Protection of Rare and Endangered Species
The County shall ensure the protection of environmentally sensitive wildlife and plant life, including those species designated as rare, threatened, and/or endangered by State and/or federal government, through compatible land use development. [*New Policy based on ERME IV-C; Biological Resources; Issue 12, and ERME; Pg 32*]

ERM-1.2 Development in Environmentally Sensitive Areas
The County shall limit or modify proposed development within areas that contain sensitive habitat for special status species and direct development into less significant habitat areas. Development in natural habitats shall be controlled so as to minimize erosion and maximize beneficial vegetative growth. [*New Policy based on EMRE; Water; Issue 3; Recommendation 3, ERME; Pg 28]*

ERM-1.3 Encourage Cluster Development
When reviewing development proposals, the County shall encourage cluster development in areas with moderate to high potential for sensitive habitat. [*New Policy*]

ERM-1.4 Protect Riparian Areas
The County shall protect riparian areas through habitat preservation, designation as open space or recreational land uses, bank stabilization, and development controls. [*New Policy*]

ERM-1.5 Riparian Management Plans and Mining Reclamation Plans
The County shall require mining reclamation plans and other management plans include measures to protect, maintain and restore riparian resources and habitats. [*New Policy*]

ERM-1.6 Management of Wetlands
The County shall support the preservation and management of wetland and riparian plant communities for passive recreation, groundwater recharge, and wildlife habitats. [*New Policy*]

ERM-1.7 Planting of Native Vegetation
The County shall encourage the planting of native trees, shrubs, and grasslands in order to preserve the visual integrity of the landscape, provide habitat conditions suitable for native vegetation and wildlife, and ensure that a maximum number and variety of well-adapted plants are maintained. [*New Policy*]

ERM-1.8 Open Space Buffers
The County shall require buffer areas between development projects and significant watercourses, riparian vegetation, wetlands, and other sensitive habitats and natural communities. These buffers should be sufficient to assure the continued existence of the waterways and riparian habitat in their natural state. [*New Policy based on EMRE policies*]

ERM-1.9 Coordination of Management on Adjacent Lands
The County shall work with other government land management agencies (such as the Bureau of Land Management, US Forest Service, National Park Service) to preserve and protect biological resources while maintaining the ability to utilize and enjoy the natural resources in the County. [*New Policy*]

ERM-1.10 Appropriate Access for Recreation
The County shall encourage appropriate access to resource-managed lands. [*New Policy*]

ERM-1.11 Hunting and Fishing
The County shall provide opportunities for hunting and fishing activities within the County pursuant to appropriate regulations of the California Fish & Game Code. [*New Policy*]

ERM-1.12 Management of Oak Woodland Communities
The County shall support the conservation and management of oak woodland communities and their habitats. [*New Policy*]

ERM-1.13 Pesticides
The Tulare County Agricultural Commissioner/Sealer will cooperate with State and federal agencies in evaluating the side effects of new materials and techniques in pesticide controls to limit effects on natural resources. *[ERME IV-C; Pesticides; Recommandation 1] [ERME; Pg 131, Modified*]

ERM-1.14, Mitigation and Conservation Banking Program
The County shall support the establishment and administration of a mitigation banking program, including working cooperatively with TCAG, federal, State, not-for-profit and other agencies and groups to evaluate and identify appropriate lands for protection and recovery of threatened and endangered species impacted during the land development process. [*New Policy*]

8.2 Mineral Resources - Surface Mining

ERM-2 To conserve protect and encourage the development of areas containing mineral deposits while considering values relating to water resources, air quality, agriculture, traffic, biotic, recreation, aesthetic enjoyment, and other public interest values. [*New Goal based on MRPAC June 28, 2006*]

ERM-2.1 Conserve Mineral Deposits
Emphasize the conservation of identified and/or potential mineral deposits, recognizing the need for identifying, permitting, and maintaining a 50 year supply of locally available PCC grade aggregate. [*MRPAC June 28, 2006*]

ERM-2.2 Recognize Mineral Deposits
Recognize as a part of the General Plan those areas which have identified and/or potential mineral deposits. [*MRPAC June 28, 2006*]

ERM-2.3 Future Resource Development
Provide for the conservation of identified and/or potential mineral deposits within Tulare County as areas for future resource development. Recognize that mineral deposits are significantly limited within Tulare County and that they play an important role in support of the economy of the County. [*MRPAC June 28, 2006*]

ERM-2.4 Identify New Resources
Encourage exploration, evaluation, identification, and development of previously unrecognized but potentially significant hard rock resources for production of crushed stone aggregate. [*MRPAC June 28, 2006*]

ERM-2.5 Resources Development
The County will promote the responsible development of identified and/or potential mineral deposits. [*MRPAC June 28, 2006*]

ERM-2.6 Streamline Process
Create a streamlined and timely permitting process for the mining industry, which will help encourage long-range planning and the reasonable amortization of investments. [*MRPAC June 28, 2006*]

ERM-2.8 Minimize Adverse Impacts
Minimize the adverse effects on environmental features such as water quality and quantity, air quality, flood plains, geophysical characteristics, biotic, archaeological and aesthetic factors. [*MRPAC June 28, 2006*]

ERM-2.9 Minimize Hazards and Nuisances
Minimize the hazards and nuisances to persons and properties in the area during extraction, processing and reclamation operations. [*MRPAC June 28, 2006*]

ERM-2.10 Compatibility
Develop mineral deposits in a manner compatible with surrounding land uses. [*MRPAC June 28, 2006*]

ERM-2.11 Incompatible Development
Proposed incompatible land uses shall not be on lands containing, or adjacent to identified mineral deposits, or along key access roads, unless adequate mitigation measures are adopted or a statement of overriding considerations stating public benefits and overriding reasons for permitting the proposed use are adopted. [*MRPAC June 28, 2006*]

ERM-2.12 Conditions of Approval
Procedures shall be established to ensure compliance with conditions of approval on all active and idle mines. [*MRPAC June 28, 2006*]

ERM-2.13 Approved Limits
Procedures shall be established to ensure that vested interest mining operations remain within their approved area and/or production limits. [*MRPAC June 28, 2006*]

ERM-2.14 SMARA Requirements
All surface mines, unless otherwise exempted, shall be subject to reclamation plans that meet SMARA requirements. Reclamation procedures shall restore the site for future beneficial use of the land. Mine reclamation costs shall be borne by the mine operator, and guaranteed by financial assurances set aside for restoration procedures. [*MRPAC June 28, 2006*]

8.3 Mineral Resources

ERM-3 To protect the current and future extraction of mineral resources that are important to the County's economy while minimizing impacts of this use on the public and the environment. [*ERME IV-B; Land; Issue 8*] [ERME; Pg 30, *Modified*]

ERM-3.1 Environmental Contamination
All mining operations shall be required to take precautions to avoid contamination from wastes or incidents related to the storage and disposal of hazardous materials, or general operating activity at the site. [*New Policy*]

ERM-3.2 Limited In-City Mining
Within UDBs, new commercial mining operations should be limited due to environmental and compatibility concerns. [*New Policy*]

ERM-3.3 Small-Scale Oil and Gas Extraction
The County shall permit by special use permit small-scale oil and gas extraction activities and facilities that can be demonstrated to not have a significant adverse effect on surrounding or adjacent land and are within an established oil and gas field outside of a UDB. [*New Policy*]

ERM-3.4 Oil and Gas Extraction
Facilities related to oil and gas extraction and processing may be allowed in identified oil and gas fields subject to a special use permit. The extraction shall demonstrate that it will be compatible with surrounding land uses and land use designations. [*New Policy*]

ERM-3.5 Reclamation of Oil and Gas Sites
The County shall require the timely reclamation of oil and gas development sites upon termination of such activities to facilitate the conversion of the land to its primary land use as designated by the General Plan. Reclamation costs shall be born by the mine operator, and guaranteed by financial assurances set aside for restoration procedures. [*New Policy, MRPAC Goals, Policies, Implementation Measures, and Development Standards, Goal F and associated policies*]

8.4 Energy Resources

ERM-4 To encourage energy conservation in new and existing developments throughout the County. [*New Goal*]

ERM-4.1 Energy Conservation and Efficiency Measures
The County shall encourage the use of solar energy, solar hot water panels, and other energy

conservation and efficiency features in new

APPENDIX E: USFWS 2011 STANDARDIZED RECOMMENDATIONS FOR THE PROTECTION OF THE ENDANGERED SAN JOAQUIN KIT FOX PRIOR TO OR DURING GROUND DISTURBANCE

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 an6y 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 pre-project 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 (CNDDB). 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.

APPENDIX F: IPAC LIST OF THREATHENED AND ENDANGERED SPECIES (USFWS 2018)

United States Department of the Interior

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

In Reply Refer To:
Consultation Code: 08ESMF00-2018-SLI-1459
Event Code: 08ESMF00-2018-E-04213
Project Name: North Basin Project

March 08, 2018

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

To Whom It May Concern:

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

Please follow the link below to see if your proposed project has the potential to affect other species or their habitats under the jurisdiction of the National Marine Fisheries Service:

http://www.nwr.noaa.gov/protected_species/species_list/species_lists.html

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

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

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

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

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

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm; http://www.towerkill.com; and http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html.

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

Attachment(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Sacramento Fish And Wildlife Office
Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846
(916) 414-6600

Project Summary

Consultation Code: 08ESMF00-2018-SLI-1459

Event Code: 08ESMF00-2018-E-04213

Project Name: North Basin Project

Project Type: LAND - FLOODING

Project Description: Located on the west side of Porterville in Tulare County, the parcel ("project site") is approximately 6.5 acres in size, and is identified as APN: 240-050-005. The project site is adjoined by the Friant Kern Canal (FKC) on the southeast and agricultural lands on all other sides. The project as we understand it will entail construction of a new turnout along the FKC, a short pipeline, and a small basin. Analysis of aerial imagery indicates that the project site presently consists of agricultural land, and includes an approximate 750-foot segment of an agricultural ditch along its western boundary

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/36.090272027000054N119.0747059042548W

Counties: Tulare, CA

Endangered Species Act Species

There is a total of 9 threatened, endangered, or candidate species on this species list. Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

Mammals

NAME	STATUS
San Joaquin Kit Fox *Vulpes macrotis mutica* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/2873	Endangered
Tipton Kangaroo Rat *Dipodomys nitratoides nitratoides* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/7247	Endangered

Reptiles

NAME	STATUS
Blunt-nosed Leopard Lizard *Gambelia silus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/625	Endangered
Giant Garter Snake *Thamnophis gigas* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/4482	Threatened

Amphibians

NAME	STATUS
California Red-legged Frog *Rana draytonii* There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/2891	Threatened

Fishes

NAME	STATUS
Delta Smelt *Hypomesus transpacificus* There is final critical habitat for this species. Your location is outside the critical habitat.	Species profile: https://ecos.fws.gov/ecp/species/321

Threatened

APPENDIX G: CNDDB LIST OF SPECIAL STATUS SPECIES OCCURRING REGIONALLY (CDFW 2018)

Selected Elements by Scientific Name

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad IS (Porterville (3611911) OR Cairns Corner (3611922) OR Lindsay (3611921) OR Frazier Valley (3611828) OR Woodville (3611912) OR Success Dam (3611818) OR Sausalito School (3511982) OR Ducor (3511981) OR Fountain Springs (3511888))

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Agelaius tricolor tricolored blackbird	ABPBXB0020	None	Candidate Endangered	G2G3	S1S2	SSC
Anniella pulchra northern California legless lizard	ARACC01020	None	None	G3	S3	SSC
Antrozous pallidus pallid bat	AMACC10010	None	None	G5	S3	SSC
Atriplex cordulata var. erecticaulis Earlimart orache	PDCHE042V0	None	None	G3T1	S1	1B.2
Atriplex coronata var. vallicola Lost Hills crownscale	PDCHE04250	None	None	G4T2	S2	1B.2
Atriplex depressa brittlescale	PDCHE042L0	None	None	G2	S2	1B.2
Atriplex minuscula lesser saltscale	PDCHE042M0	None	None	G2	S2	1B.1
Atriplex persistens vernal pool smallscale	PDCHE042P0	None	None	G2	S2	1B.2
Atriplex subtilis subtle orache	PDCHE042T0	None	None	G1	S1	1B.2
Bombus crotchii Crotch bumble bee	IIHYM24480	None	None	G3G4	S1S2	
Branchinecta lynchi vernal pool fairy shrimp	ICBRA03030	Threatened	None	G3	S3	
Buteo swainsoni Swainson's hawk	ABNKC19070	None	Threatened	G5	S3	
Caulanthus californicus California jewelflower	PDBRA31010	Endangered	Endangered	G1	S1	1B.1
Clarkia springvillensis Springville clarkia	PDONA05120	Threatened	Endangered	G2	S2	1B.2
Corynorhinus townsendii Townsend's big-eared bat	AMACC08010	None	None	G3G4	S2	SSC
Delphinium recurvatum recurved larkspur	PDRAN0B1J0	None	None	G2?	S2?	1B.2
Desmocerus californicus dimorphus valley elderberry longhorn beetle	IICOL48011	Threatened	None	G3T2	S2	
Diplacus pictus calico monkeyflower	PDSCR1B240	None	None	G2	S2	1B.2

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Dipodomys nitratoides nitratoides Tipton kangaroo rat	AMAFD03152	Endangered	Endangered	G3T1T2	S1S2	
Eryngium spinosepalum spiny-sepaled button-celery	PDAPI0Z0Y0	None	None	G2	S2	1B.2
Eumops perotis californicus western mastiff bat	AMACD02011	None	None	G5T4	S3S4	SSC
Fritillaria striata striped adobe-lily	PMLIL0V0K0	None	Threatened	G2?	S2?	1B.1
Gymnogyps californianus California condor	ABNKA03010	Endangered	Endangered	G1	S1	FP
Lasiurus cinereus hoary bat	AMACC05030	None	None	G5	S4	
Leptosiphon serrulatus Madera leptosiphon	PDPLM09130	None	None	G3	S3	1B.2
Lytta hoppingi Hopping's blister beetle	IICOL4C010	None	None	G1G2	S1S2	
Lytta molesta molestan blister beetle	IICOL4C030	None	None	G2	S2	
Lytta morrisoni Morrison's blister beetle	IICOL4C040	None	None	G1G2	S1S2	
Monolopia congdonii San Joaquin woollythreads	PDASTA8010	Endangered	None	G2	S2	1B.2
Northern Claypan Vernal Pool Northern Claypan Vernal Pool	CTT44120CA	None	None	G1	S1.1	
Perognathus inornatus San Joaquin Pocket Mouse	AMAFD01060	None	None	G2G3	S2S3	
Pseudobahia peirsonii San Joaquin adobe sunburst	PDAST7P030	Threatened	Endangered	G1	S1	1B.1
Puccinellia simplex California alkali grass	PMPOA53110	None	None	G3	S2	1B.2
Rana boylii foothill yellow-legged frog	AAABH01050	None	Candidate Threatened	G3	S3	SSC
Senecio aphanactis chaparral ragwort	PDAST8H060	None	None	G3	S2	2B.2
Sidalcea keckii Keck's checkerbloom	PDMAL110D0	Endangered	None	G2	S2	1B.1
Spea hammondii western spadefoot						

	AAABF02020	None	None	G3	S3	SSC
Sycamore Alluvial Woodland	CTT62100CA	None	None	G1	S1.1	
Sycamore Alluvial Woodland						
Taxidea taxus	AMAJF04010	None	None	G5	S3	SSC
American badger						

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Vulpes macrotis mutica San Joaquin kit fox	AMAJA03041	Endangered	Threatened	G4T2	S2	

Record Count: 40

Appendix C. Cultural Resources Inventory

Cultural Resource Inventory for the City of Porterville North Basin Recharge Project, Tulare County, California

Project No. 20-SCAO-133.001

Jena Orlowski, Cheyenne Good-Peery, and Mary Baloian

Prepared By

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1391 W. Shaw Ave., Suite C
Fresno, CA 93711

Prepared For

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286 W. Cromwell Avenue
Fresno, CA 93711

August 2023
draft

USGS Porterville 7.5-min. quad, T21S, R27E, Sec. 20; APNs 240-310-001, 240-310-002
7.4 acres surveyed
Resources: Friant-Kern Canal (CA-TUL-2873H); no archaeological resources

MANAGEMENT SUMMARY

Applied EarthWorks, Inc. (Æ) performed a cultural resource inventory in support of the City of Porterville (City) North Basin Recharge Project (Project) just west of Porterville in Tulare County, California. The Project involves construction of a 5-acre recharge basin (North Basin), a new turnout in the Friant-Kern Canal, and a pipeline that would cross the Bureau of Reclamation (Reclamation) land connecting the new turnout to the recharge basin. This would allow the Porterville Irrigation District (District) to restore groundwater supplies by utilizing more of its existing allocation from the Friant-Kern Canal. The Project covers 7.4 acres within Assessor's Parcel Numbers 240-310-001 and 240-310-002.

The District is the lead state agency for the proposed Project ensuring compliance with the regulations of the California Environmental Quality Act (CEQA). Additionally, because the Project involves construction of water conveyance pipelines over Reclamation lands, the District requires a land-use authorization from Reclamation. The Project is therefore considered a "federal undertaking" subject to the requirements of Section 106 of the National Historic Preservation Act (NHPA; 54 U.S. Code [USC] § 306108 *et seq.*) and its implementing regulations at Title 36, Code of Federal Regulations (CFR), Part 800.

Under contract to Provost & Pritchard Consulting Group, Æ completed a cultural resource inventory to determine if cultural resources are present within the Project's Area of Potential Effects (APE). The APE encompasses the project components described above and totals approximately 7.4 acres. The investigation included a records search at the Southern San Joaquin Valley Information Center (SSJVIC) of the California Historical Resources Information System to identify prior studies and previously recorded cultural resources in the APE as well as a search of the Sacred Lands File maintained by the Native American Heritage Commission (NAHC) to identify resources that have tribal significance that may occur within the APE. Æ supplemented these efforts with archival research that included a review of historical topographic maps and aerial images. Finally, Æ staff completed an archaeological and built environment pedestrian survey of the Project APE, and prepared a buried site sensitivity analysis.

The SSJVIC records search indicated that no cultural resource studies had occurred in the Project APE, however, four previous cultural resource studies had been conducted within a 0.5-mile radius of the APE. The SSJVIC also indicated that there were no previously recorded resources within the Project APE or within a 0.5-mile radius of the APE. No Native American resources were identified as a result of contact with the NAHC and local tribal representatives.

Although not identified in the SSJVIC records search, Æ's subsequent background research and pedestrian inventory identified one historic-era built environment resource within the APE. The Friant-Kern Canal (built between 1945 and 1951) flows through the southern APE. The canal is part of the larger Central Valley Project (CVP) and is essential for transporting water from the San Joaquin River south to the Bakersfield area in Kern County. This historic-era cultural resource (CA-TUL-2873H) has been determined eligible for listing in the National Register of Historic Places (NRHP) under Criteria A and C through a 2019 consensus determination between Reclamation and the State Historic Preservation Officer (SHPO). As such, it is also eligible for listing in the California Register of Historical Resources under Criteria 1 and 3. Æ

applied the criteria of adverse effect and concluded that the undertaking would have no adverse effect to the Friant-Kern Canal pursuant to 36 CFR § 800.5(b).

No archaeological sites, features, or isolated artifacts were identified as a result of the survey or Native American outreach. Æ's assessment of buried site sensitivity for the APE concluded that there is a low potential to discover intact buried archaeological sites within the APE. No historic-era built environment buildings, structures, or objects were observed within the APE other than the Friant-Kern Canal. Thus, Æ concludes that no historic properties or historical resources will be adversely affected as a result of Project activities.

Provided that the Project APE does not change, no additional cultural resources studies are necessary. Consistent with federal and state statutes, Æ advises that if cultural remains are encountered during Project development or ground-moving activities within any portion of the APE, all work in the vicinity of the find should be halted until a qualified archaeologist can identify the discovery and assess its age and significance.

In addition, if human remains are uncovered during construction on non-federal lands, the Tulare County Coroner is to be notified to arrange their proper treatment and disposition. If the remains are identified—on the basis of archaeological context, age, cultural associations, or biological traits—as those of a Native American, California Health and Safety Code 7050.5 and Public Resource Code 5097.98 require that the coroner notify the NAHC within 24 hours of discovery. The NAHC will then identify the Most Likely Descendant, who will be afforded the opportunity to provide input about the manner in which the remains are treated.

If human remains are identified within the portion of the APE owned by Reclamation, all activities will be stopped and Reclamation's Regional Cultural Resources Officer and Native American Graves Protection and Repatriation Act (NAGPRA) Coordinator shall be notified immediately. This notification shall be followed by a written report within 48 hours. Note that all human remains identified on lands owned by the federal government are subject to the NAGPRA (25 USC § 3001). The procedures for dealing with the discovery of human remains on federal lands are described in the regulations that implement NAGPRA, found at 43 CFR Part 10. Project implementation in the vicinity of the discovery may not resume until Reclamation complies with the 43 CFR Part 10 regulations and provides notification to proceed.

A copy of this report and the associated cultural resource records will be transmitted to the SSJVIC at California State University, Bakersfield for inclusion in the California Historical Resources Information System. Field notes and photographs are on file at Æ's office in Fresno, California.

CONTENTS

FIGURES

TABLE OF ABBREVIATIONS

AB	Assembly Bill
Æ	Applied EarthWorks, Inc.
APE	Area of Potential Effects
APN	Assessor's Parcel Number
ARPA	Archaeological Resources Protection Act
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
City	City of Porterville
CRHR	California Register of Historical Resources
CVP	Central Valley Project
District	Porterville Irrigation District
DPR	California Department of Parks and Recreation
GLO	General Land Office
GPS	Global Positioning System
Project	North Basin Recharge Basin
MALT	Map Aerial Locator Tool
NAGPRA	Native American Graves Protection and Repatriation Act
NAHC	Native American Heritage Commission
NHPA	National Historic Preservation Act
NRHP	National Register of Historic Places
Reclamation	Bureau of Reclamation
RPA	Registered Professional Archaeologist
SHPO	State Historic Preservation Office
SSJVIC	Southern San Joaquin Valley Information Center
USGS	U.S. Geological Survey
UCSB	University of California, Santa Barbara

1
INTRODUCTION

At the request of Provost and Pritchard Consulting Company, Applied EarthWorks, Inc. (Æ) conducted a cultural resource inventory for the City of Porterville North Basin Recharge Project (Project), in Tulare County, California (Figure 1-1). The proposed Project involves construction of a 5-acre recharge basin (North Basin), a new turnout in the Friant-Kern Canal, and a pipeline that would cross the U.S. Bureau of Reclamation (Reclamation) land connecting the new turnout to the recharge basin. The Project covers approximately 7.4 acres within Assessor's Parcel Numbers (APNs) 240-310-001 and 240-310-002. It is on the western edge of the city of Porterville and includes the Friant-Kern Canal and undeveloped land to the west (Figure 1-2). Specifically, the Project is within Section 20 of Township 21 South, Range 27 East as shown on the U.S. Geological Survey (USGS) 1951 Porterville, California, 7.5-minute quadrangle (Figures 1-2 and 1-3).

1.1 PROJECT DESCRIPTION

The proposed Project consists of constructing and operating a recharge basin that will receive surplus water via a pipeline connected to a new turnout in the Friant-Kern Canal (Figure 1-4). The Porterville Irrigation District (District) currently contains large areas of land that do not have access to surface water supplies. Due to this lack of infrastructure, farmers rely heavily on groundwater supplies that has led to overdraft in the area. Implementing the Project would enable the District to restore groundwater supplies by utilizing more of its Friant Division Central Valley Project (CVP) water allocation rather than allowing it to leave the District.

The project consists of three main components—the North Basin, the Friant-Kern Canal turnout, and pipeline.

- North Basin: The proposed North Basin will be excavated to approximately 6 to 8 feet deep. Excavated material will build levee banks 2 to 5 feet high around the basin, allowing for a maximum freeboard of 2 feet.

- Friant-Kern Canal Turnout: The turnout would be approximately 31 feet long, 30 feet wide, and 23 feet tall and would be in the Friant-Kern Canal. The structure is 20 feet below the existing top of the Friant-Kern Canal and about 1.5 feet deeper than the bottom of the canal. Above existing grade, the proposed turnout is about 3 feet tall. It would be installed by excavating a portion of the canal bank, casting the concrete structure in place, then back filling the area, and replacing the canal lining similar to current condition and construction.

- Pipeline: The pipeline consists of two segments. A 136-foot-long by 48-inch-diameter pipeline will be placed from the turnout to the junction box within a trench measuring approximately 18 feet deep and 20 feet wide. A 137-foot-long by 24-inch-diameter pipeline will be placed from the junction box to the basin outlet in a trench dug approximately 5.5 feet deep by 6.0 feet wide. An excavator will be used to dig both trenches and set the pipe in. The excavator will also be used to backfill the trench. No

Figure 1-1 Project vicinity in Tulare County, California.

Figure 1-2 Project location on the USGS Porterville 7.5-minute quadrangle.

Figure 1-3 Aerial view of the Project APE.

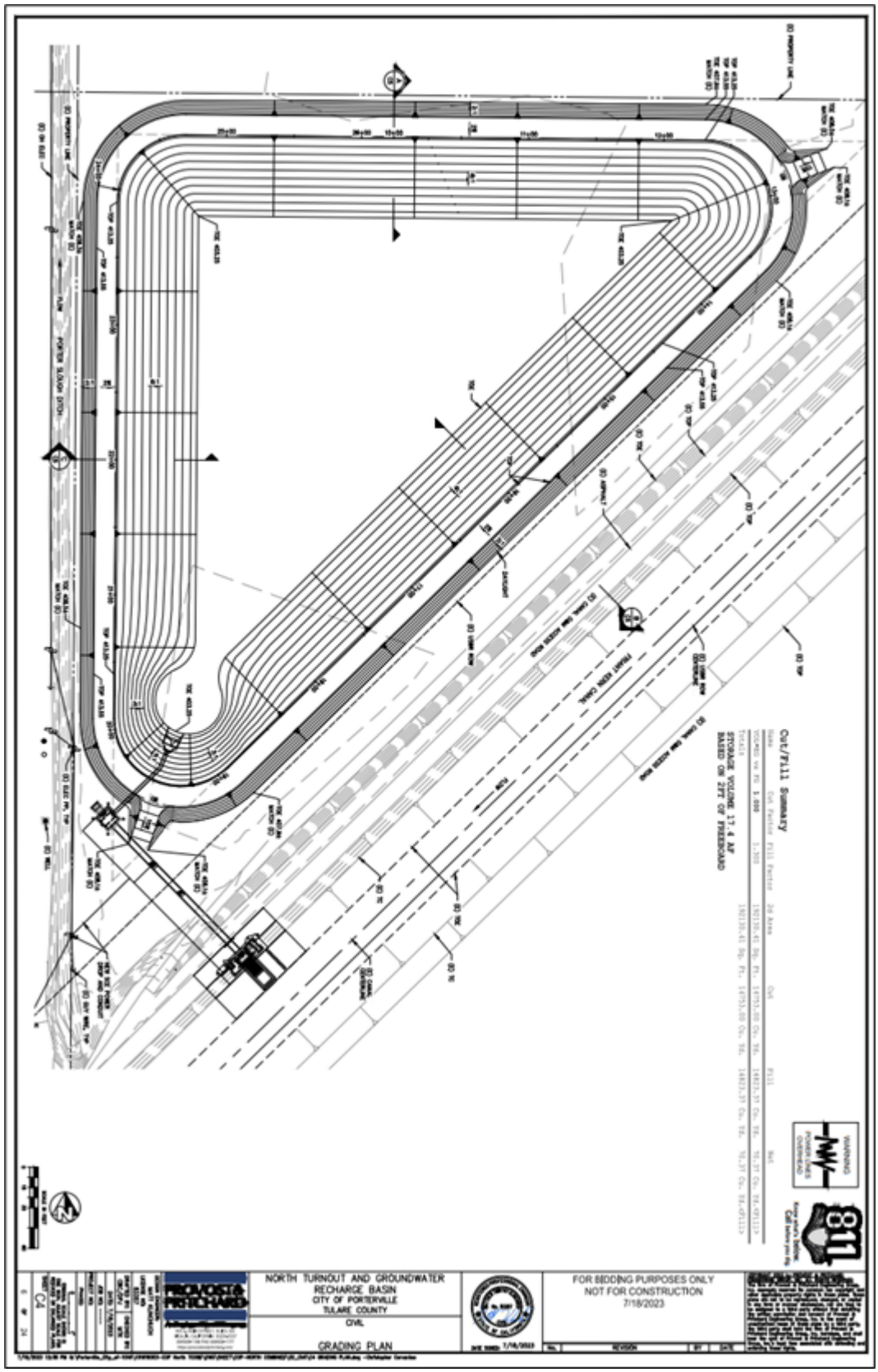

Figure 1-4 Project site plan.

excavation material will be taken off site. The trench would be approximately 20 feet deep; however, once the pipe is installed it would have approximately 5 feet of cover.

1.2 REGULATORY CONTEXT

The District is the lead state agency for the proposed Project ensuring compliance with the regulations of the California Environmental Quality Act (CEQA). Additionally, because the Project involves construction of water conveyance pipelines over Reclamation lands, the District requires a permit from Reclamation that would allow them land-use authorization. The Project is therefore considered a "federal undertaking" subject to the requirements of Section 106 of the National Historic Preservation Act (NHPA; 54 USC § 306108 *et seq.*) and its implementing regulations at 36 CFR Part 800. Reclamation is the lead federal agency for the National Environmental Policy Act and Section 106 of the NHPA.

Both the NHPA and CEQA (California PRC 21000[g]) mandate that government agencies consider the impacts of their actions on cultural resources. For the purposes of this report, a cultural resource is defined as a prehistoric or historical (i.e., 50 years or older) archaeological site or a historic-era building, structure, or object. Consistent with 36 CFR § 800.16(l)(1), the term "historic property" is defined as archaeological artifacts and features as well as buildings, structures, or objects that are 50 years old or older and are determined eligible for inclusion in the National Register of Historic Places (NRHP). The term "historical resource" is a resource listed in, or eligible for listing in, the California Register of Historical Resources (CRHR; Title 14, Chapter 3, Article 5, Section 15064.5 of the California Code of Regulations [14 CCR 15064.5]). To assist the District with its compliance efforts, and under subcontract to Provost & Pritchard Consulting Group, Æ conducted a cultural resource inventory to determine whether cultural resources are present within the Area of Potential Effects (APE).

1.3 AREA OF POTENTIAL EFFECTS

The APE is the geographic area that an undertaking may directly or indirectly cause alterations in the character or use of historic properties if they exist per 36 CFR 800.16(d). The Project APE encompasses 7.4 acres and has an anticipated vertical extent of 20 feet deep with the planned excavation of the turnout within the Friant-Kern Canal (Figures 1-3 and 1-4).

1.4 ARCHAEOLOGICAL RESOURCES PROTECTION ACT FIELDWORK AUTHORIZATION

The Archaeological Resources Protection Act (ARPA;16 USC 470aa et seq.), enacted in 1979, provides for the protection of archaeological resources more than 100 years old that occur on federally owned or managed lands. The statute makes it unlawful to excavate or remove items of archaeological interest from federal lands without a permit, and it defines the process for obtaining such a permit from the responsible federal agency. The law establishes a process for prosecuting individuals who excavate, remove, damage, or otherwise alter or deface archaeological resources on federal lands without a permit subject to the ARPA. The law also requires the permanent curation in a federally qualified institution of any archaeological artifacts, excavation notes, records, photographs, and other items associated with collections made on federal lands. Standards for curation are provided in regulations at 36 CFR Part 79 and provide

for the confidentiality of archaeological information. Both civil and felony penalties apply to violations of the ARPA.

Æ applied for an ARPA fieldwork authorization within the Project APE on March 31, 2023. Reclamation issued a fieldwork authorization for survey and recordation on April 7, 2023 (Appendix E). This fieldwork authorization granted Æ permission to conduct a non-invasive cultural resources pedestrian survey on Reclamation-owned land.

1.5 PROJECT PERSONNEL

The cultural resource inventory was conducted in two phases due to changes to the APE and Project design. In 2018, Æ Principal Archaeologist Mary Clark Baloian (Ph.D., Registered Professional Archaeologist [RPA 15189]) served as project manager, providing technical and administrative oversight, and co-authored this report. Staff Archaeologist Josh Tibbet (B.A.) performed an archaeological pedestrian survey of the proposed recharge basin, assisted by Field Technician Charles Pansarosa (B.A.).

In 2023, Principal Archaeologist Anna Hoover (M.S., RPA 2857661) served as Project Manager. She has more than 24 years of experience in California archaeology. Associate Archaeologist Ward Stanley (B.A.) conducted the pedestrian archaeological survey of the Friant-Kern Canal portion of the APE. Stanley has more than 15 years of experience conducting archaeological surveys in California. Staff Architectural Historian Cheyenne Good-Peery (B.A.) accompanied Stanley on the survey to document the segment of the Friant-Kern Canal. She has more than 1.5 years of experience in architectural history. Principal Architectural Historian Carlos van Onna (M.A.) oversaw the built environment portion of the project and preparation of the finding of effects for the Friant-Kern Canal. He has over 12 years of experience. Staff Archaeologist Jena Orlowski (M.A., RPA 61015544) prepared this report with assistance from Good-Perry. Orlowski has more than 15 years of experience in archaeology. Résumés for key personnel are provided in Appendix A.

As per the fieldwork authorization, all work was conducted to the Department of the Interior's Standards and Guidelines for *Archaeological and historical Preservation* and Reclamation's *Directives and Standards for Cultural Resources Management* (LND 02-01). Fieldwork was conducted under the direct supervision of either Dr. Baloian, Ms. Hoover, and/or Mr. van Onna, all of whom meet the Secretary of the Interior's *Standards and Guidelines, Professional Qualifications Standards* (36 CFR Part 61) in their appropriate discipline.

1.6 REPORT ORGANIZATION

This document consists of six chapters. Following this introduction, Chapter 2 describes the environmental and cultural setting of the APE. Chapter 3 presents Æ's methods for the inventory, including archival research and field investigations. Results of the research, Native American outreach, pedestrian survey, and buried site sensitivity analysis are discussed in Chapter 4 along with a finding of effect for the Friant-Kern Canal. Chapter 5 contains a summary and recommendations. A complete listing of references cited is provided in Chapter 6. Appendix A provides résumés for key personnel; Appendix B presents the results of the records search; Appendix C contains the documentation of communication with the Native American

Heritage Commission (NAHC) and local tribal representatives; Appendix D contains the State Historic Preservation Office (SHPO) concurrence letter, and Appendix E contains the signed Reclamation fieldwork authorization.

2
SETTING

The environmental discussion focuses primarily on natural conditions and resources that played a major role in human occupation and resource utilization. The archaeological overview discusses previous studies that defined the temporal-cultural divisions of prehistoric occupation in the Central Valley and Porterville area. The ethnographic section describes the native people who occupied the Project area during the late prehistoric and early historic eras, while the history section provides specific details about historic-era activities in the APE vicinity. Understanding local history is critical for defining important local, state, and/or regional events, trends, or patterns in history and prehistory; and interpreting the significance of prehistoric and historic-era resources.

2.1 ENVIRONMENTAL SETTING

The APE lies near the border of the San Joaquin Valley and the Sierra Nevada foothills in western Tulare County. The San Joaquin Valley is the southern half of an elongated trough called the Great Valley or Central Valley, a 50-mile-wide lowland that extends approximately 500 miles south from the Cascade Range to the Tehachapi Mountains (Norris and Webb 1990:412). The San Joaquin Valley parallels an approximately 250-mile stretch of the Sierra Nevada geomorphic province, which encompasses a 40 to 100-mile-wide area ranging in elevation from 400 feet above mean sea level (amsl) along the western boundary to more than 14,000 feet amsl in the east (Norris and Webb 1990:63). Within the APE, elevation averages 410 feet amsl. Like most of the San Joaquin Valley, surface deposits consist of unconsolidated Pleistocene and recent alluvial sediments, which overlie marine sediments from the Miocene.

The development of agriculture in the APE vicinity has resulted in the replacement of native plants and animals with domesticated species. Common native plants would have included white, blue, and live oak as well as walnut, cottonwood, willow, and tule, many of which still occur along drainages. The APE occupies the Lower Sonoran life zone, marked by prairie grassland communities that cover the plains and low rolling hillocks that border the Sierra Nevada. These grasslands are interspersed with narrow bands of riparian woodland that follow the valley stream corridors. The Project area and surrounding vicinity has been farmed intensively for many years, and few areas of original grassland remain.

The Tule River, which flows through the southern portion of Porterville, is one of the principal water courses in Tulare County. It passes 1 mile southwest of the APE. Preston (1981:17) notes that it is perennial only east of Porterville and rarely flows more than 4 miles across the valley in late summer. Today, discharge from the Tule River is regulated by Success Dam, which is approximately 5 miles upstream from Porterville. Porter Slough, which is a natural tributary of the Tule River, also flows through Porterville and lies just south of the APE. Portions of the slough have been channelized and used to distribute water for irrigation.

2.2 PREHISTORY

The first large-scale excavations of the southern San Joaquin Valley were conducted near Tulare and Kern lakes by Gifford and Schenck (1926), who unearthed flexed burials, pottery, obsidian arrow points, milling stones and mortars, and intricately fashioned steatite artifacts. In the late 1940s, Riddell (1951) investigated a Yokuts cemetery (CA-KER-74) near the town of Delano. The graves contained Euro-American items along with shell ornamentation, flaked stone tools, and steatite artifacts. Less than 10 years later, a team of archaeologists from University of California, Los Angeles, excavated CA-TUL-90, another burial site at the edge of former Tulare Lake approximately 25 miles west of the APE. By comparing their findings at CA-TUL-90 with those of earlier studies, Warren and McKusick (1959) constructed a chronological sequence of mortuary practices, which could then be used to infer the period (i.e., early, middle, or late) of interment.

Although no extensive archaeological work has occurred in the APE vicinity, excavations along the shores of extinct lakes to the west have provided a general chronology of the southern San Joaquin Valley. Later archaeological investigations at Kern and Tulare lakes revealed that occupation occurred possibly as early as 11,000 years ago (Sampson 1991). The Witt Site (CA-KIN-32) on the southwest shore of Tulare Lake contains fluted projectile points as well as later types, suggesting continuous occupation of the basin from Paleo-Indian times until historical contact (Fenenga 1993; Moratto 1984:81-82).

Excavation of CA-KER-116, a prehistoric site at Buena Vista Lake, found a deeply buried component ascribed to the Western Pluvial Lakes Tradition that dated from circa 11,500–7,500 years ago (Fredrickson and Grossman 1977; Grossman 1968; Moratto 1984). Population density was low at that time, and settlement focused around the shores of ancient lakes. Between 8000 and 4000 B.P., prehistoric economy centered on hunting and fishing, although mortars and pestles as well as ornamental *Olivella* and *Haliotis* shell appear occasionally in assemblages (Sutton 1997).

Beginning about 4000 B.P., the subsistence base expanded to include seed processing as a supplement to foraging for fish and fowl. Intensive occupation of the valley and foothill region may not have occurred until around 4500 B.P. Sites dating to this period contain assemblages comparable to the Early Horizon components of the Sacramento–San Joaquin Delta region (Moratto 1984; Riddell 1951; Walker 1947; Wedel 1941). It is difficult to clearly determine the ancestry of these early peoples, although artifact assemblages associated with occupations postdating 2950 B.P. may be linked to the ancestors of the ethnographic Yokuts. The latest period of occupation, from 1500 B.P. to historic contact, indicates a greater reliance on acorns and other plant foods as well as trade with the Central Coast region and Southern California interior (Moratto 1984:183, 188).

Several large-scale surveys have been conducted in the APE vicinity, including a study for Southern California Edison's Tule River Project (Jones 1969) and various investigations near Springville (Weinberger 1985, 1988, 1992). A survey within the Tule River Indian Reservation discovered 148 archaeological sites; based on datable and diagnostic artifacts, Gehr (1981) concluded that occupation of the area around the reservation probably began about 2000 B.P. In the late 1980s, a research team from the University of California, Los Angeles, undertook a

comprehensive investigation at Lake Kaweah (Meighan et al. 1988a) and of the Lake Success area (Meighan et al. 1988b) for the U.S. Army Corps of Engineers. At Success Lake, the survey team revisited two previously recorded sites and discovered 11 new sites, including a late prehistoric village (CA-TUL-971) and a magnesite mine (CA-TUL-970H). More recently, archaeological surveys have been conducted along the Southern California Edison Camp Nelson Circuit electric distribution line (Jackson and O'Neill 2007) and along the northern boundary of the Tule River Indian Reservation (Coleman and Phillips 2010). Although only 25 percent of the requested 2,264 acres could be surveyed for that project, archaeologists located several previously recorded bedrock outcrop and midden sites and discovered one bedrock basin "tub" site (Coleman and Phillips 2010).

Despite the abundance of prehistoric sites along the Tule River, the focus of excavations in the southern Sierra Nevada has been to the north, around the Terminus Reservoir (Lake Kaweah). Investigations at Slick Rock Village (CA-TUL-10) revealed 14 house pits, 3 large bedrock milling stations, more than 1,000 sherds of Tulare plainware ceramics, pictographs, obsidian points, bone awls, glass and steatite beads, and other artifacts. Fenenga (1952) concluded that the site was a protohistoric Wukchumni (Foothill Yokuts) settlement. The Greasy Creek Site (CA-TUL-1) yielded artifacts similar to those at CA-TUL-10; large projectile points, core choppers, and a cobble mortar were found in the lower component, indicating a longer and possibly older period of occupation than at Slick Rock Village (Moratto 1984:330; Pendergast and Meighan 1959). The Cobble Lodge Site (CA-TUL-145) also appears to have a long period of occupation. Although at least two separate instances of disturbance (1860s and 1930s) were apparent at CA-TUL-145, excavations revealed an early component with large projectile points and cobble mortars underlying a later component containing pottery, arrow points, and steatite beads (Berryman and Elasser 1966; Von Werlhof 1961).

2.3 ETHNOGRAPHIC SETTING

The APE lies within the homeland of the Koyeti Yokuts, one of the many autonomous tribes that make up the Southern Valley Yokuts linguistic group. At the time of first contact with the Spanish missionaries, the Yokuts people, including Northern Valley and Foothill groups, collectively inhabited the San Joaquin Valley as well as the eastern foothills of the Sierra Nevada from the Calaveras River southward to the Kern River (Wallace 1978a, 1978b). The Yokuts language belongs to the broader Penutian family, which subsumes a relatively diverse assemblage of languages including Miwok, Costanoan, Maiduan, and Wintuan (Silverstein 1978). Compared to other Penutian languages, however, Yokuts shows considerable internal linguistic homogeneity despite the vast number of dialects recorded for the language group, especially given the extent of its geographic distribution (Golla 2011:148). Dialects differ minimally and were mutually intelligible, at least among individuals from contiguous groups. This relative lack of linguistic differentiation suggests that ancestors of the Yokuts entered California after the arrival and subsequent radiation of the more linguistically diverse Penutian groups such as the Miwok and Costanoan (Moratto 1984:554).

Tulare Lake and its tributary rivers were a central part of Southern Valley Yokuts subsistence, providing food, building material, and avenues of travel for small watercraft. Not surprisingly, most Yokuts villages were situated near major waterways or around Tulare Lake (Wallace 1978b:448). The village of *Chokowisho* (named for the rushes that grow along its banks) was

located along the Tule River and is represented by archaeological sites on Murry Hill and Martin Hill northeast of the APE. Although the lower Tule River flows irregularly (Preston 1981:17), the upper portion of the waterway is perennial and stocked an abundant supply of fish and waterfowl and also attracted other game to the river. The tule stalk was used in the manufacture of mats, baskets, and other goods (Wallace 1978b:451). The abundance of such resources allowed many tribes in Southern Valley Yokuts territory to occupy permanent dwellings for most of the year (Wallace 1978b:450). Most stone artifacts were fashioned from obsidian and other imported material (Wallace 1978b:452).

At the broader interregional level, the villages of the Southern Valley Yokuts profited from the east-west trade of goods that flowed between the Pacific Coast and the High Sierra and Great Basin (Davis 1961). The Southern Valley Yokuts bartered their local staples (e.g., freshwater fish, acorns, and tule reeds) for such goods as *Olivella* beads and other shell material from the west as well as obsidian from the east. Along with locally produced soapstone bowls and ground stone implements, beads and pendants made from Pacific coast seashells are found at CA-FRE-49, the site of *Udjiu* (Latta 1977).

As with other Indian groups in California, the lifeways of the Yokuts were dramatically altered as a result of contact with Spanish explorers and missionaries, miners, ranchers, and other immigrants who entered the San Joaquin Valley after 1700. In 1857, the Tule River Indian Reservation was established for the Koyeti and Yaudanchi tribes (City of Porterville 2012). The reservation was moved from its original site just east of town, now designated as State Historical Landmark 388, to its present location in 1873. As late as 1926, adobe ruins from the original reservation (Figure 2-1) were still present (Small 1926:469). The introduction of European culture and new diseases proved devastating to the native population. In the 1860s, smallpox decimated Indians living at the Cobble Lodge Site (CA-TUL-145) near Lake Kaweah (Moratto 1984:331).

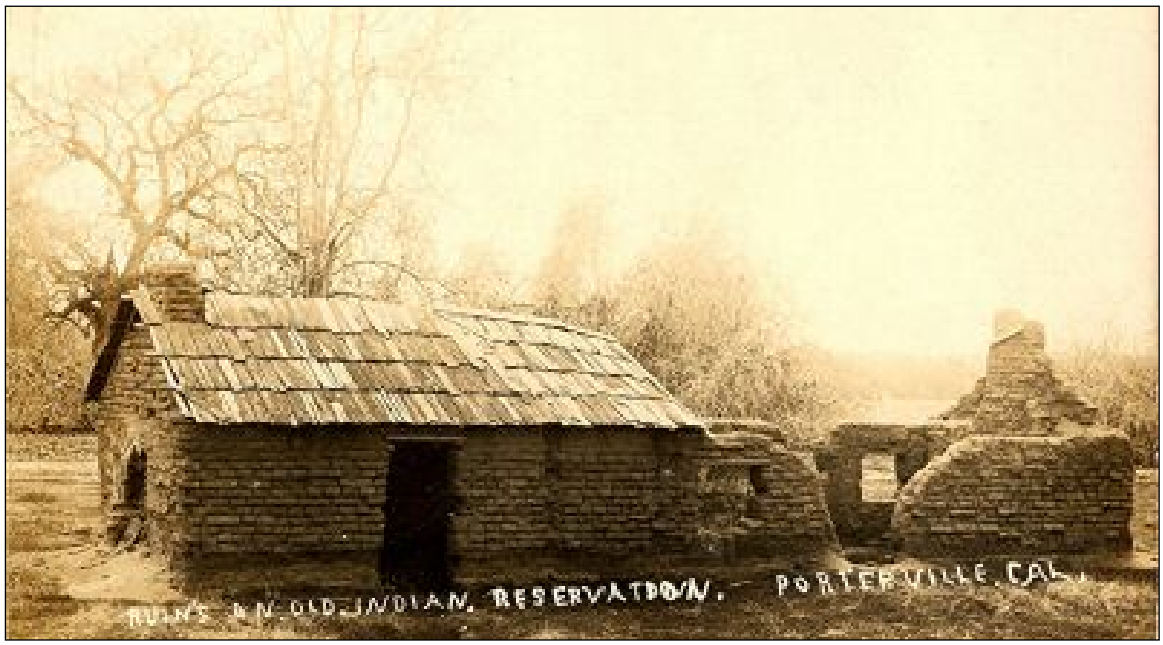

Figure 2-1 Adobe ruins at the original site of the Tule River Indian Reservation, circa 1908 (Small 1926:469).

Despite these pressures, there are Yokuts tribal groups that have survived into the present time and have developed language apprenticeship programs and early childhood education centers to serve tribal members, including the Wukchumne of the Tule-Kaweah near Porterville, Choynimni speakers of the Kings River tribes, the Chukchansi at the Picayune and Table Mountain rancherias near Fresno, and Yawelmani speakers of the Tule River Reservation (Golla 2011:154). Several Yokuts tribal groups are governed by elders' councils and operate auxiliary departments that serve local tribal populations in areas of healthcare, education, and cultural resource management.

2.4 HISTORICAL SETTING

The discovery of gold in the Sierra Nevada and the accession of California to the Union were watershed events in the history of the state and valley. During the late 1840s and early 1850s, prospectors from across the nation and around the world flocked to California to mine the precious ore. While crossing the valley on their way to mine gold in the foothills in 1849, J. B. Hockett and his party camped on the Tule River at a spot that would become the town of Porterville (Small 1926:457). Hockett would later return to Porterville to settle in 1864. Many of the prospectors entered and traveled through the valley via the Stockton–Los Angeles Road, which later became the route for the Butterfield Overland Mail. The road hugged the western edge of the foothills and crossed the valley sloughs as well as countless rivers and streams flowing down from the highlands.

Many of the first settlements emerged at these crossing points, which typically provided ferry services, supplies, lodgings, and, by the late 1850s, stage stops. J. C. Smith, who built his shack near present-day Fourth and Putnam avenues in 1853, was the first settler in the Porterville area (Small 1926:457). A year later, Peter Goodhue opened a way station on the north bank of the Tule River, which served as a stop along the Butterfield Overland route (Winckel 2002:4). Located at the southwest corner of Main Street and Henderson Avenue, the site of the Tule River Stage Station has been designated as State Historical Landmark 473. Before adopting its current name, the Porterville area was referred to as "The Tule Crossing" or "Goodhue's Crossing" (Edwards 1987:27). The 1855 General Land Office (GLO) map shows that aside from Goodhue's building, the only other structure in the area was the Elisha Packwood homestead located less than a mile upstream. Early subsistence focused on stock raising (Angel 1892:210-211).

In 1863, Goodhue sold his interests to Royal Porter Putnam, after whom Porterville is named. By 1864 Putman had subdivided 40 acres into town lots and built a two-story building that housed a store, hotel, and bar (Winckel 2002:4). Selling property that previously lay in the path of the Tule River was no small task, but Putnam sweetened the deal by offering a free lot to anyone building a home or starting a business (Byron 1951:27).

The erratic climate patterns of the 1860s and early 1870s perhaps prompted the onset of grain farming during this time. Following the great flood of 1862, a 2-year-long drought parched the valley and nearly obliterated herds of old Spanish cattle stock throughout the state (Byron 1951:26). Within the Porterville area, hay and flour prices soared to $50 per ton and $1 per pound, respectively (Small 1926:458). Given the price of flour and their dwindling herds, homesteaders may have begun tilling former pastureland and planting grain crops. Although

wheat and other grains can be grown successfully in some valley soils without irrigation during normal seasons, these crops were by no means insulated from the effects of drought. Irrigation water carried by the Pioneer Ditch and other local canals boosted crop yields and provided relief during prolonged dry periods, such as the 1870 drought.

Despite its growing agrarian base, the area remained sparsely populated throughout the 1860s and early 1870s. Building construction suggests that by the mid-1870s Putnam had been at least reasonably successful in attracting newcomers to the area. Porterville's first school was built in 1874 on land donated by Putnam (Small 1926:462). The First Congressional Church, located at Mill Avenue and Fourth Street, was constructed in 1878 and is currently listed in the NRHP (Conner 2002). With the coming of the Southern Pacific Railroad in 1888, however, the pace of growth accelerated and brick buildings replaced the older wooden structures (Winckel 2002:4). The population of the town doubled from about 300 in 1883 to 606 in 1890 (Angel 1892:210; Elliott 1883:175).

For farmers, the railroad meant that their crops could now be shipped to both northern and southern markets. In 1890, grain fields still covered most of Tulare County, but citrus was beginning to make inroads into the local economy. Orange groves began appearing in the area as early as 1870, when Deming Gibbons planted a 60-tree orchard on his Plano farm (Small 1926:462). The 1883 *History of Tulare County, California*, notes that Gibbons had added lemon, lime, and other tree fruit to his grove; however, citrus and other fruit crops amounted to little more than a curiosity compared to the grain-dominated agricultural industry (Elliott 1883:174). By 1892 the outlook of citrus crops had improved, and a county history published that same year correctly portended that "soon the orange industry will be among the profitable ones in the county" (Angel 1892:170). Like many valley towns that sit at the base of the foothills, Porterville's winter climate is conducive to the cultivation of oranges and other citrus crops—it is cold enough to enhance the sugar content of the fruit, yet comparably less prone to hard freezes that beset other valley regions.

Beginning in the early 1890s, magnesite, which is used in the production of paper, was mined in the hills east of town. By the early twentieth century, Porterville Hill and Success Hill accounted for a significant portion of California's production of the mineral (Young 2002b:88-89). William Pitt Bartlett, who headed the magnesite mining operations of the Willamette Pulp and Paper Company, was also instrumental in developing the granite industry (Young 2002a:91-93). Granite mined from quarries just a few miles from town was used in the construction of several buildings in the first decade of the twentieth century, including the new high school, Pioneer Bank Building, and Masonic Temple. A second railroad, the Porterville Northeastern Railroad, steamed into town in 1911 (Bourquin 2002:134). Operated by F. U. Nofziger, the railway transported lumber and ore from the foothills and highlands.

Infrastructural improvements continued into the 1920s. The City expanded its sewer system, originally constructed in the early 1910s, and motorized its fire-fighting force (Menefee and Dodge 1913; Small 1926). The Santa Fe Railroad arrived in 1917, and a paved road connected the town with Visalia to the north and Delano to the south. Citrus had supplanted grain as the area's dominant crop. In her history of Tulare County, Small (1926:469) lists Porterville's leading revenue producers (in descending order) as citrus orchards, beef cattle, deciduous orchards (including grapes), cotton, magnesite mining, poultry raising, and dairying.

The construction of U.S. Highway 99 (present route of California State Route 99) in 1926 and the Eastside Freeway (present-day State Route 65) in Tulare County in 1955 provided a means for twentieth century truck transport of agricultural products, particularly with the advent of refrigerated trucks in the 1940s. The reliability and efficiency of roadways soon replaced rails as the preferred method for conveyance of agricultural goods.

Like many other valley communities, water management was a major theme in the period from World War II to the early 1970s. Conceived during the Depression, the Central Valley Project Act of 1933 created a massive water conveyance system that was built throughout the 1940s. The CVP captures and redistributes much of the natural runoff from the Sierra Nevada and integrated the Delta-Mendota Canal, Madera Canal, and the Friant-Kern Canal into a single system. Located within the APE, the Friant-Kern Canal was constructed by the U.S. Department of the Interior Bureau of Reclamation between 1945 and 1951 to carry water from Millerton Lake south to the Kern River in the Bakersfield area, providing irrigation supplies for Fresno, Tulare, and Kern counties (Autobee 1994). Prior to that, private irrigators and farmers within Tulare County drew water from the Tule and Kaweah rivers. The Hubbs-Miner Ditch, lying just over 0.5 mile to the south, is an example of one of the oldest irrigation conveyances in the Porterville area that served to irrigate the holdings of its private owners (Pomeroy 1906:414). However, with the establishment of the Friant-Kern Canal by 1951, water distribution became more centralized and available for irrigation districts to distribute and resell.

The Porterville Irrigation District formed in 1949 as a result of the canal, which nearly tripled the amount of irrigated land in the vicinity of Porterville. Today, the District encompasses about 17,400 acres in Tulare County (City of Porterville 2012). The major crops within the District are walnuts, grapes, cotton, alfalfa, and prunes.

3
METHODS

This chapter describes the methods used to complete the cultural resource inventory, including a records search to identify previously recorded resources and studies, archival research, contact with Native Americans who may have knowledge about the area, and an intensive pedestrian survey. The cultural resource inventory was conducted in two phases due to changes to the APE and Project design. The first phase occurred in 2018 and included the records search, background research, Native American outreach, and a pedestrian survey of the proposed recharge basin. The second phase occurred in 2023 and included archival research, a pedestrian survey, and finding of effect for the Friant-Kern Canal.

3.1 RECORDS SEARCH

On March 7, 2018, Æ requested a records search from the Southern San Joaquin Valley Information Center (SSJVIC) of the California Historical Resources Information System at California State University, Bakersfield. The records search encompassed the initial Project design (which was only slightly larger than the current design) and all land within a 0.5-mile radius of the APE. SSJVIC staff consulted cultural resource location and survey base maps, reports of previous investigations, cultural resource records, the listings of the Office of Historic Preservation Historic Properties Directory, Archaeological Determinations of Eligibility, and the California Inventory of Historic Resources (Appendix B).

3.2 ARCHIVAL RESEARCH

The purpose of archival research for the inventory is to provide information on potential cultural resources to exist within the APE. The investigation compiled information from several sources, including:

- Map Aerial Locator Tool (MALT) of the Henry Madden Library at California State University, Fresno (http://malt.lib.csufresno.edu/MALT/);
- Aerial Photography FrameFinder of University of California, Santa Barbara (UCSB) Library (https://www.library.ucsb.edu/geospatial/aerial-photography);
- U.S. Department of the Interior, Bureau of Land Management, GLO Records online land patent database;
- Various online resources for historical maps and documents; and
- Æ's in-house library, which includes local histories.

Specifically, Æ consulted GLO land patent records and survey plats available online and reviewed a series of historical atlases dating between 1891 and 1935 as well as aerial photographs of the APE dating between 1946 and 1994 from the online collection accessed through Fresno State's MALT and UCSB's FrameFinder. Æ also reviewed online historical

USGS topographic maps and accessed recent aerials (dating from 1998 to the present) on Google Earth.

3.3 NATIVE AMERICAN OUTREACH

On March 7, 2018, Æ contacted the NAHC requesting a search of its Sacred Lands File and the contact information for local Native American tribal representatives who may have an interest in sharing information about the Project area and surrounding vicinity. The NAHC responded on May 16, 2018 with its findings and attached a list of six Native American tribes and individuals culturally affiliated with the Project area. Æ prepared and sent a letter to each of the contacts identified by the NAHC and kept a log of all responses. Sending letters and recording responses received are part of Æ's standard tribal outreach to complete an inventory report and are not intended to serve the purpose of satisfying Assembly Bill (AB) 52 or federal Native American tribal consultation. Reclamation conducted separate Native American consultation to meet their Section 106 compliance requirements as the federal lead agency for Section 106 of the NHPA. Æ's record of tribal outreach is included in Appendix C.

3.4 PEDESTRIAN FIELD SURVEY

On March 15, 2018, Æ Staff Archaeologist Josh Tibbet and Field Technician Charles Pansarosa surveyed the original Project APE to identify prehistoric and historical archaeological and historic-era built environment resources. At the time, the Project was expected to encompass approximately 6.5 acres in APN 240-310-001 only.

On May 1, 2023, Æ Associate Archaeologist Ward Stanley and Staff Architectural Historian Cheyenne Good-Peery surveyed the newly added canal segment in APN 240-310-002 to identify prehistoric and historical archaeological and historic-era built environment resources in this portion of the APE (approximately 0.9 acres).

To comply with federal and state standards to produce a legally defensible environmental document, both surveys included an intensive, systematic, close-interval examination of the ground surface. To accomplish this, surveyors systematically traversed the APE on foot walking parallel transects spaced 5–10 meters apart. Survey conditions (geomorphological context, visibility, disturbances, restricted access, etc.) are detailed in the survey results.

Æ's archaeologists photographed the survey area using a digital camera and iPad to document the environmental setting and ground visibility at the time of the survey. Æ recorded information about discovered resources on California Department of Parks and Recreation (DPR) cultural resource record forms and used a Trimble Geo 7X Global Positioning System and Arrow 100 (Global Navigation Satellite System) unit to collect spatial information. Photographs and field notes have been digitally stored and are on file at Æ's office in Fresno, California.

3.5 BURIED SITE SENSITIVITY ASSESSMENT

Æ Principal Archaeologist Mary Baloian conducted a geologic review of the APE to identify the potential for buried cultural resources. She consulted geological maps, historical maps, geologic/sediment databases, geoarchaeological studies, and soil surveys documenting areas within the APE. These sources provided information regarding the natural watercourses in the

area as well as data about local soils and sediments, parent rock formations, and historical vegetation. This information was used to estimate the age of the sediments surrounding the APE, consider the hydrologic and geologic forces that created and placed these sediments, and assess the probability of encountering buried cultural resources during Project activities.

3.6 ASSESSMENT OF ADVERSE EFFECTS

Under Section 106 of the NHPA and its implementing regulations (36 CFR Part 800), federal agencies, or their delegates, must assess the potential effects of their undertakings on historic properties. Similarly, under CEQA, the lead state agency must determine whether a project will demolish or materially alter the physical characteristics of a historical resource that convey its historical significance. Because the Friant-Kern Canal (CA-TUL-2873H) is considered a historic property (i.e., is eligible for listing in the NRHP) and is by default a historical resource (i.e., is eligible for listing in the CRHR), Æ applied the criteria of adverse effect pursuant to 36 CFR § 800.5(a) to determine if the proposed Project activities will diminish characteristics that qualify CA-TUL-2873H as eligible for listing in the NRHP and/or CRHR.

Examples of adverse effects to historic properties include, but are not limited to:

- Physical destruction of or damage to all or part of the property;
- Alteration of a property, including restoration, rehabilitation, repair, maintenance, stabilization, hazardous material remediation, and provision of handicapped access, that is not consistent with the Secretary of the Interior's Standards for the Treatment of Historic Properties (36 CFR Part 68) and applicable guidelines;
- Removal of the property from its historic location;
- Change of the character of the property's use or of physical features within the property's setting that contribute to its historic significance;
- Introduction of visual, atmospheric, or audible elements that diminish the integrity of the property's significant historic features;
- Neglect of a property which causes its deterioration, except where such neglect and deterioration are recognized qualities of a property of religious and cultural significance to an Indian tribe or Native Hawaiian organization; and
- Transfer, lease, or sale of property out of federal ownership or control without adequate and legally enforceable restrictions or conditions to ensure long-term preservation of the property's historic significance.

A finding of no adverse effect to historic properties is established when the Project's effects do not meet the criteria listed above.

4
FINDINGS

This chapter provides results of the records search and archival research, Native American outreach, and pedestrian survey including observations of field conditions in the APE. It also provides a finding of effect for the Friant-Kern Canal (CA-TUL-2873H).

4.1 RECORDS SEARCH RESULTS

The SSJVIC responded to Æ's records search request on May 19, 2018, with an inventory of previous studies conducted within the original Project APE as well as within a 0.5-mile search radius (Records Search File No. 18-114). The SSJVIC reported that four previous cultural resource studies have been conducted within a 0.5-mile radius of the APE, but none directly within the APE (Appendix B). The search did not identify any previously recorded resources within the Project APE or within a 0.5-mile radius of the APE (Appendix B).

Although not identified in the SSJVIC records search in 2018, the Friant-Kern Canal (built between 1945 and 1951) flows through the southern APE. Background research revealed that this historic-era cultural resource (CA-TUL-2873H) was recorded and evaluated in its entirety by JRP Historical Consulting in 2019. It has been determined eligible for listing in the NRHP under Criteria A and C through a 2019 consensus determination between Reclamation and the SHPO (Appendix D). It also is eligible for listing in the CRHR under Criteria 1 and 3. The character-defining features of the Friant-Kern Canal prism includes the canal channel, its dimensions, lining, embankments, side slopes, alignment, the topography it traverses, and operation and maintenance roads (JRP Historical Consulting 2019:60).

4.2 ARCHIVAL HISTORY

Two ownership records of Section 20, Township 21 South, Range 27 East, were available in the GLO Records online database. In December 1865, 160 acres containing the APE were deeded through a homestead grant to Jesse Lewis (General Land Office 1865). In March 1867, the parcel was deeded to the State of California (General Land Office 1867). Today, the parcel is owned by the City.

Æ consulted historical topographic maps and aerial photographs to determine the potential for historic-era cultural resources within the APE. The USGS 1929 Porterville, Calif., 7.5-minute quadrangle shows the region prior to the construction of the Friant-Kern Canal (Figure 4-1). No structures are depicted in the APE on the 1929 map, although both the Porter Slough Ditch (then named Hunsaker Ditch) and Westwood Drive were firmly established outside the APE. The ditch has not changed alignment since the 1929 recordation and still lies outside the APE's western boundary. According to Grunsky (1898), construction of the Hunsaker Ditch began in 1871. It was used in conjunction with the Fulweiler Ditch to irrigate about 400 acres of land (Grunsky 1898:88). It is unclear exactly when the ditch was renamed the Porter Slough Ditch; however, it likely occurred prior to 1951 when it first appears as the "Porter Slough Ditch" on the USGS topographic map (U.S. Geological Survey 1951).

The APE remained undeveloped from 1929 until the construction of the Friant-Kern Canal in 1951. The canal first appears on the USGS 1951 Porterville, Calif., 7.5-minute quadrangle map, crossing through the APE in Section 20 (. It is also visible in a 1956 aerial photograph (Figure 4-2). In a 1969 aerial photograph, the land within the APE was cultivated into row crops (NETROnline 2023). No aerial photographs of the APE between 1969 and 1994 are available. By 1994, the non-canal portion of the APE was developed into an orchard (Figure 4-3). Today, the non-canal portion of the APE is overgrown with tall grass.

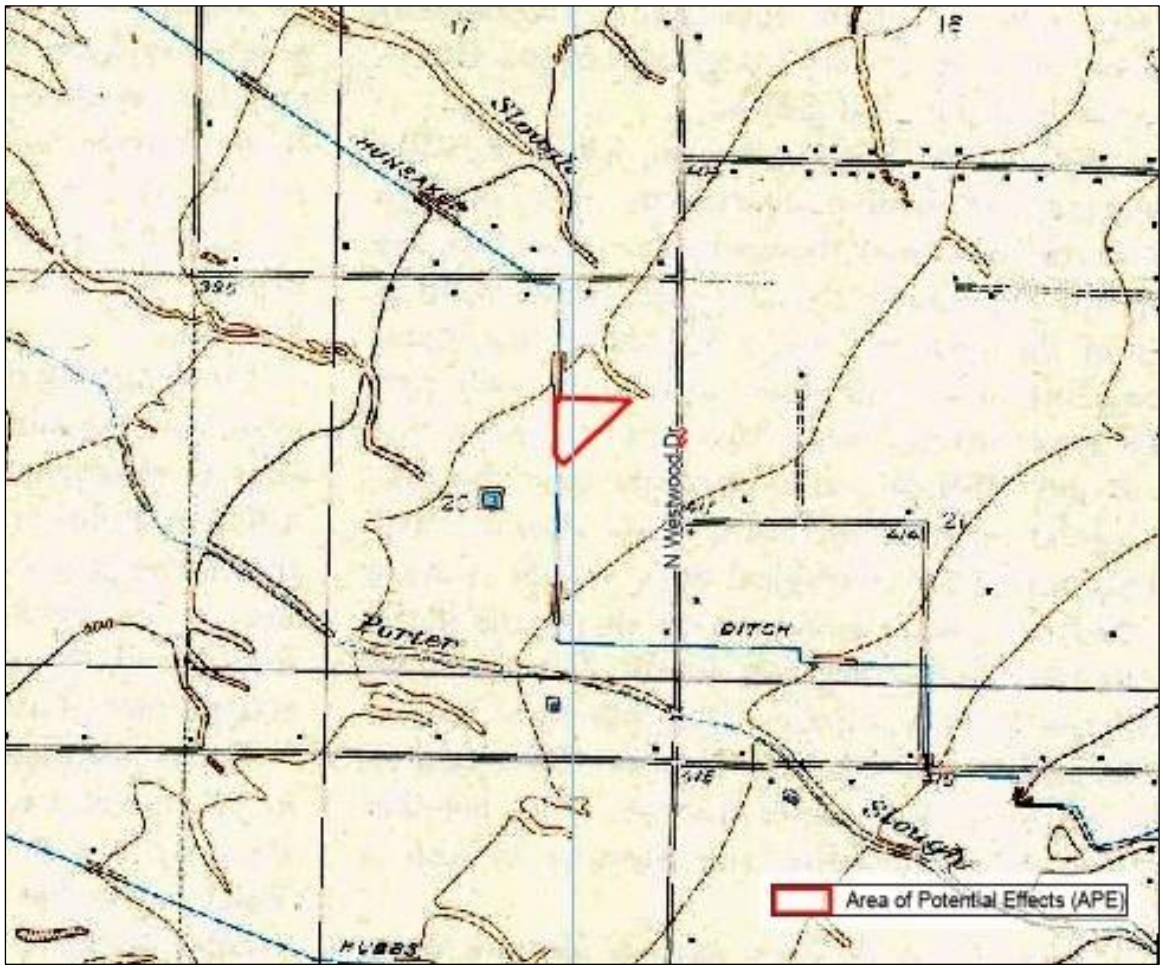

Figure 4-1 The Project APE as depicted on the USGS 1929 Porterville, Calif., 7.5-minute quadrangle (U.S. Geological Survey 1929).

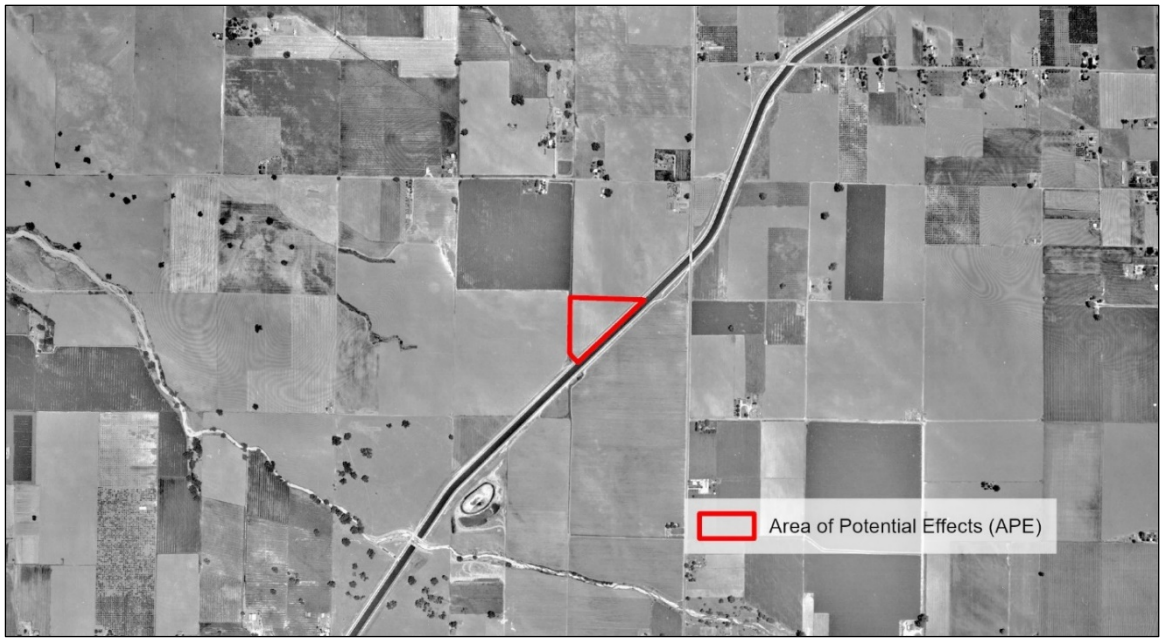

Figure 4-2 **Project APE as it appears on a 1956 aerial image showing the Friant-Kern Canal (U.S. Department of Agriculture 1956).**

Figure 4-3 **Project APE as depicted on a 1994 aerial image (U.S. Geological Survey 1994).**

4.3 NATIVE AMERICAN OUTREACH

In its letter dated March 16, 2018, the NAHC replied that a search of the Sacred Lands File failed to indicate the presence of Native American cultural resources in the immediate APE (Appendix C). However, the NAHC cautioned that the absence of specific site information in its file does not indicate the absence of cultural resources in that area. The NAHC supplied a list of six parties to contact for information regarding Native American use of the APE and locations of sacred or special sites of cultural and spiritual significance in the APE and nearby vicinity.

On March 19, 2018, Æ sent a letter describing the Project and its location to:

- Chairperson Robert Robinson, Kern Valley Indian Community;
- Secretary Julie Turner, Kern Valley Indian Community;
- Chairperson Rueben Barrios Sr, Santa Rosa Indian Community of the Santa Rosa Rancheria;
- Chairperson Neil Peyron, Tule Indian Tribe;
- Chairperson Robert L. Gomez Jr., Tubatulabals of Kern Valley; and
- Chairperson Kenneth Woodrow, Wuksache Indian Tribe/Eshom Valley Band.

Æ followed up with all six individuals by e-mail and/or telephone on May 24 and 25, 2018. No information has been received to date, and there have been no requests for formal consultation under AB 52. A log of all correspondence is included in Appendix C.

4.4 PEDESTRIAN SURVEY AND FIELD INSPECTION

On March 15, 2018, Æ Staff Archaeologists Josh Tibbet and Field Technician Charles Pansarosa conducted an intensive survey of approximately 6.5 acres of APN 240-310-001 adjacent to the Friant-Kern Canal (Figure 4-4). The survey area consisted of a leveled agricultural field and dirt farm roads. Sediments were a tan loamy sand with few pebbles and no cobbles. The area had been continually plowed; at the time of the survey, short (roughly 4 to 6-inch-tall) grasses covered the field, reducing visibility to 30 percent (Figure 4-5). Surveyors did not identify any prehistoric or historic-era archaeological sites, isolates, or features within the APE.

On May 1, 2023, Æ Associate Archaeologist Ward Stanley and Staff Architectural Historian Cheyenne Good-Peery conducted an intensive survey of the portion of the APE (approximately 0.9 acre) within APN 240-310-002, the Friant-Kern Canal (Figure 4-4). The top of the embankment (an character-defining feature of the canal prism), which can serve as a utility road, was covered with loose gravel offering no visibility (Figure 4-6) except in very small, isolated areas where the gravel was chipped away. Visibility was 100 percent along the sloped southeastern embankment (side facing the canal channel). There, modern debris, gravel, granite rocks, and other rock materials could be observed within the soil. The levee's northwest embankment (side facing the field) was completely covered in grass offering no visibility. Although just beyond the canal, the operation and maintenance dirt road running alongside the canal embankment's northwest edge (Figures 4-4 through 4-7), did offer 100 percent visibility

Figure 4-4 Aerial view showing survey coverage in 2018 and 2023 and CA-TUL-2873H.

Figure 4-5 Overview of survey field conditions from the southeast end of APN 240-310-001, facing northwest.

Figure 4-6 Surveyed canal levee road from northeastern portion of APE, facing southwest.

Figure 4-7 Access road alongside canal levee, facing northeast.

and was surveyed for extra measure. A segment of this road is within the APE. It is also a character-defining feature of the Friant-Kern Canal.

Æ staff surveyed the entire 7.4-acre APE. Surveyors did not identify any prehistoric or historic-era archaeological sites, isolates, or features within the APE and no historic-built environment resources were identified within the APE other than the Friant-Kern Canal (CA-TUL-2873H), which forms the southeastern boundary of the APE.

4.4.1 Friant-Kern Canal (CA-TUL-2873H)

The Friant-Kern Canal is part of the larger CVP, an integrated system of dams, reservoirs, and canals in the Central Valley designed to alleviate the state's chronic water shortages. The canal is essential for transporting water from the San Joaquin River south to the Bakersfield area in Kern County. Reclamation began construction of the Friant-Kern Canal in 1945 and completed it in 1951. The Friant-Kern Canal begins at Friant Dam on the San Joaquin River above Fresno and flows 151.8 miles, terminating at the Kern River. It provides additional irrigation water to land in Fresno, Tulare, and Kern counties in the eastern San Joaquin Valley.

The canal was evaluated in its entirety by JRP Historical Consulting in 2019 and recommended eligible for listing in the NRHP under Criterion A with a period of significance of 1945–1958 and Criterion C with a period of significance of 1945–1951. JRP identified the operation and maintenance road adjacent to the canal as a contributing element of the Friant-Kern Canal prism (JRP Historical Consulting 2019:60). The dirt road atop the embankment also is a contributing

elements of the canal. The embankments serve the primary function of redirecting overflowing water in times of flooding, while it is wide enough to also function as an access road. SHPO concurred on December 3, 2019 that the Friant-Kern Canal is individually eligible at the state-level of significance under these criteria (JRP Historical Consulting 2019; JRP Historical Consulting Services and California Department of Transportation 2000; Polanco 2019). A primary number was not included in available site records for the canal, and as such, the Tulare County trinomial is listed for this resource throughout this report.

For the purposes of recording, JRP Historical Consulting divided the canal into 14 segments and prepared a DPR 523-series Linear Feature Record for each segment. The 1,036-foot-long segment of the canal within the APE lies within Segment 8 as defined by JRP Historical Consulting, near milepost 94 (JRP Historical Consulting 2019:Appendix A, Sheet 94). Æ verified the 2019 description of the canal segment through the APE and found it accurate; thus, an update of the DPR site record forms was not warranted.

The 1,036-foot-long segment within the APE is concrete-lined and was conveying water at the time of survey (Figures 4-8 and 4-9). A small modern, yellow ladder is attached to the north bank of the canal about 20 feet from the southern boundary of the APE (Figures 4-9 and 4-10). The canal is 80 feet wide from bank to bank, and each bank is 30 feet wide. It is in good condition and only displays minimal evidence of erosion and animal burrowing on the bank slope (Figure 4-11).

Figure 4-8 Overview of Friant-Kern Canal from southwest corner of APE, facing northeast.

Figure 4-9 Detail of ladder on north bank of Friant-Kern Canal, facing east.

Figure 4-10 View of opposite (south) bank of Friant-Kern Canal with yellow circle indicating position of ladder on north bank, facing southeast.

Figure 4-11 Representative examples of north bank conditions, with animal burrowing at left and erosion at right, facing southeast.

4.5 BURIED SITE SENSITIVITY ANALYSIS

4.5.1 Geomorphology

Tulare County is made up of two geologic provinces: the Sierra Nevada mountains and the Central Valley. The APE lies within the Central Valley Province, which is underlain by marine and nonmarine sedimentary rocks. Sedimentation in the valley is dominated by cycles of erosion from the high mountains, producing granitic parent material deposited on the floor of the valley below, forming vast alluvial fans and piedmont landforms. Local hydrology moves granitic sediments throughout the valley and deposits these sediments into existing basins. During periods of high effective moisture, rivers overflow and deposit fine-grained and often organic-rich sediments across the valley floodplain. The accumulation of these fine organic sediments along with periods of stability over millennia has resulted in a soil-rich region, making the San Joaquin Valley a prime landscape for agricultural practices.

The APE is in the Tule Groundwater Subbasin of the San Joaquin Valley Basin, confined within the Tulare Lake Hydrologic Region. Major rivers and streams in the subbasin include the Tule and White rivers and Deer Creek, which accounts for most of the recharge (groundwater) to the subbasin. These waterways are an important part of the local hydrology. Tributaries of the rivers provided a reliable water source that was channeled, accessed, and divided amongst the early homesteaders within the surrounding communities. Today, groundwater produced by the Tule Groundwater Subbasin supports commercial, private, and domestic uses.

Geologic maps (Matthews and Burnett 1965) indicate that the APE is underlain by late Holocene alluvial fan deposits. These are unconsolidated to locally cemented, undissected deposits of gravel and sand that form active parts of alluvial fans. There is essentially no pedogenic soil development. The National Resources Conservation Service (NRCS) Soils Survey for the APE indicates that most of the APE consists of Tagus loam (97 percent) while a small amount of Yettem sandy loam (3 percent) occurs in the southern corner of the APE (Soil Survey Staff 2021). Both soil types are typical in alluvial fan remnant or floodplain settings. Their parent

material is alluvium derived from granitic rock sources. They are well-drained soils with weak concentrations of salt and alkali, found on terraces with slopes of 0 to 2 percent, and are prime for farmland if irrigated (Soil Survey Staff 2021).

Alluvial deposits in the San Joaquin Valley are derived from hydrologic action occurring along the Tule River as it erodes large amounts of granite and soil sediments from the southern Sierra Nevada. These erosional processes have been in place for millennia, creating a dynamic geomorphologic cycle that has direct bearing on the potential for encountering buried archaeological deposits. The onset of the latest Holocene (2000–150 cal B.P.) brought increased shifts in rainfall, episodic droughts, and the Little Ice Age. This increase in variability contributed to rapid and extensive landscape modification, which is observable on exposed landforms. Large-scale flooding led to large-scale deposition. The majority of the valley is capped by these vast latest Holocene alluvial deposits. The climate oscillations between wet and dry also contributed to the destabilization of large portions of the landscape, contributing to the widespread deposition that spans the valley floor (Meyer et al. 2010).

4.5.2 Buried Site Sensitivity

In general, the sensitivity of an area for buried archaeological resources is based on distance to water, landform slope, and the distribution and age of geological deposits present at the modern ground surface. The Tule River lies 1 mile southwest of the APE and one of its natural tributaries, the Porter Slough, is approximately 0.5 mile south of the APE. Prior to the construction of modern irrigation systems, the region was characterized by seasonal flood and dry cycles. Early inhabitants who exploited the complexity of the riverine ecosystem would have established their camps on the higher, drier portions of the floodplain. Taken together, the APE's Holocene-age sediments and its proximity to the Tule River and its smaller tributaries suggest a moderate potential to discover buried cultural material.

However, there are other factors that must be considered when assessing the likelihood for uncovering intact buried archaeological sites during Project activities. For one, archaeological sites are typically formed on stable, long-lived surfaces and thus, soils in the APE would require the presence of a buried A horizon (i.e., buried stable surface) that could harbor archaeological materials. Notable in the description of Tagus soils, is the absence of a buried A horizon. It appears this unconsolidated soil, which has been mapped to 63 inches directly overlies a C horizon (i.e, bedrock substrate). This is also true for Yettem series soils, which were found to extend only 26 inches deep before reaching the C horizon. The NRCS notes that geographically associated soils such as Exeter and San Joaquin soils have a duripan at 20 to 40 inches deep (Soil Survey Staff 2021). While soil maps are a useful guide, it is not possible to know the actual soil type and depth of underlying bedrock without subsurface geotechnical data, which is not available for the APE.

In addition to the evidence suggesting little to no possibility for development of a buried stable surfaces within the APE, all soils have been significantly altered through decades of agricultural practices, such as grading, disking, tilling for the planting of trees and row crops, as well as by the construction of the Friant-Kern Canal. Typically, if buried archaeological sites are present within the first 5 feet below ground surface, agricultural disking/tilling and rodent bioturbation churns the deposit such that cultural material is brought to the surface and identifiable during an

intensive pedestrian survey. Æ's pedestrian survey of the APE did not identify any cultural material on the ground surface or within rodent back dirt.

The proposed Project has an anticipated vertical extent of 20 feet deep with the planned excavation of the turnout within the Friant-Kern Canal; approximately 1.5 feet lower than the previously excavated canal. The pipeline will be excavated to a maximum 18 feet deep between the Friant-Kern Canal turnout and the junction box, and to 5.5 feet deep between the junction box to the basin outlet. The basin itself will be excavated 6 to 8 feet deep. Based on the soil data provided by the NRCS, alluvial sediments within the APE may extend only 5 feet deep or less before meeting bedrock. Thus, although Project construction will extend as deep as 20 feet in portions of the APE, the first 5 feet below the surface is the area of concern for assessing the potential for buried resources. Assuming the soils have been mapped correctly, the lack of pedogenic development and absence of buried A horizons combined with the landscape modifications caused by the development of the Friant-Kern Canal and farming activities, suggest a low potential for discovering intact buried archaeological sites in the APE.

4.6 FINDING OF EFFECTS

As mentioned in Section 3.5, an adverse effect to a historic property occurs when an undertaking may directly or indirectly alter characteristics of a historic property that qualify it for inclusion in the NRHP in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association (see 36 CFR § 800.5).

The new turnout and pipeline on the Friant-Kern Canal would be installed by excavating a portion of the western canal bank, casting a concrete structure in place, then backfilling the area and replacing the concrete canal liner in kind (Figure 4-12). The addition of this new turnout on the Friant-Kern Canal will not impact the integrity of the character-defining features for which the canal is eligible for the NRHP or CRHR. Per JRP's (2019:Appendix C) pivotal study of the Friant-Kern Canal, it is eligible for the NRHP and CRHR because it meets the following Criteria:

> NRHP Criterion A and CRHR Criterion 1 at the state level because of its primary role in accomplishing the visionary goals of the CVP [Central Valley Project], and because of the transformation of land use it enabled in the counties it served. Friant-Kern Canal is also individually eligible for listing in the NRHP and CRHR under Criterion C and Criterion 3 because its size and scale demonstrate the magnitude of the engineering and construction feat accomplished by the CVP, and because it demonstrates Reclamation engineer Harry McBirney's important contributions to canal standardization (JRP Historical Consulting 2019)[JRP Historical Consulting 2019: Appendix C, page 103].

SHPO concurred that the Friant-Kern Canal is individually eligible at the state-level of significance under these criteria (JRP Historical Consulting 2019; JRP Historical Consulting Services and California Department of Transportation 2000; Polanco 2019).The proposed turnout's function in this segment of the Friant-Kern Canal will be consistent with its use to deliver water along the eastern side of the Central Valley and its design approximates other modern turnouts. In Segment 8, as defined by JRP (2019), there are eight such turnouts representing 7.69 percent of the geographic distribution along this segment. Overall, the proposed new turnout additions are relatively minor when taken in context of the 151.8-mile-

long canal and the numerous turnouts that were part of the canal's original construction or added subsequently to enhance the canal's function of delivering water to improve agriculture.

As currently designed, the turnout would be approximately 31 feet long, 30 feet wide, and 23 feet tall and would draw water from the Friant-Kern Canal. The structure will extend 20 feet below the existing top of the Friant-Kern Canal embankment to a depth of 1.5 feet deeper than the bottom of the canal. Above grade, the visible portion of the proposed turnout will be 3 feet tall. It would be installed by excavating a portion of the canal bank, casting a concrete structure in place, then back filling the area, and replacing the canal lining (which is a character-defining feature of the canal) similar to its current condition and construction. Other such turnouts with similar construction exist along the Friant-Kern Canal. Some have been defined as contributing elements; some have not due to age and/or integrity.

A pipeline consisting of two segments will be constructed from the turnout to the basin outlet. The first segment is 136-foot-long by 48-inch-diameter and will be placed from the turnout to the junction box within a trench approximately 18 feet deep and 20 feet wide. The second segment consists of a 137-foot-long by 24-inch-diameter pipeline that will be placed from the junction box to the basin outlet in a trench approximately 5.5 feet deep by 6.0 feet wide. An excavator will be used to dig trenches, set the pipe, and backfill the trench. The pipe will be installed under approximately 5 feet of cover and will not be visible from the surface. The only visible element will be the access point that will draw water from the Friant-Kern Canal for transfer to the nearby basin. Once the earthen embankment and pipeline are recontoured to preconstruction appearance, there will be no adverse effect to the Friant-Kern Canal from Project implementation. If Project designs are altered, then additional consideration of effects to this historic-era resource may be necessary.

Other character-defining features of the Friant-Kern Canal would not be altered. There would be no changes to the canal prism including the canal channel, its dimensions, side slopes, alignment, or general topography. The pipeline will be constructed under the operation and maintenance road, which is a contributing element of the canal. However, following construction the road would be returned to its original appearance. Thus, the proposed project would not adversely affect the resource's location, setting, material, workmanship, feeling, or association. There would be an elemental alteration to the original design—the addition of the turnout and pipeline. However, these changes are consistent with the use of the resource as a water conveyance system required to supplement local agriculture.

Upon completion of the Project, the Friant-Kern Canal would retain its integrity, character-defining features, and historical significance. Thus, Æ concludes that the undertaking would have no adverse effect to the Friant-Kern Canal.

Figure 4-12 Overview of Friant-Kern Canal from northeast corner of APE, facing southwest.

5
SUMMARY AND RECOMMENDATIONS

Æ performed a cultural resource inventory in support of the City of Porterville North Basin Recharge Project. The Project would provide for sustainable management of surface and groundwater by recharging the groundwater aquifer with available surface supplies. The proposed Project involves construction of a 5-acre recharge basin, a new turnout in the Friant-Kern Canal, and a pipeline that would cross Reclamation land connecting the new turnout to the recharge basin. The Project covers approximately 7.4 acres within APNs 240-310-001 and 240-310-002.

The District is the lead state agency for the proposed Project ensuring compliance with the regulations of the CEQA. Additionally, because the Project involves construction of water conveyance pipelines over Reclamation lands, the District therefore requires a land-use authorization from Reclamation to complete the undertaking. The Project is therefore considered a "federal undertaking" subject to the requirements of Section 106 of the NHPA (54 USC § 306108 *et seq.*) and its implementing regulations at 36 CFR Part 800.

To meet federal and state standards, Æ conducted a cultural resource inventory to determine if cultural resources are present within the APE. The APE encompasses all Project components described above and covers a 7.4-acre area. The investigation included a records search at the SSJVIC, a search of the Sacred Lands File maintained by the NAHC, contact with local Native American tribal representatives, archival research, and an archaeological and built environment pedestrian survey of the APE.

The SSJVIC records search indicated that four previous cultural resource studies had been conducted within a 0.5-mile radius of the APE, although none have occurred within the APE. They also indicated that there were no previously recorded resources within the APE or within a 0.5-mile radius of the APE. No Native American resources were identified in the APE as a result of a search of the NAHC's Sacred Lands File or contact with local tribal representatives. Although not identified in the SSJVIC records search, the Friant-Kern Canal (built between 1945 and 1951) lies within the APE.

No archaeological sites, features, or isolated artifacts were identified as a result of the pedestrian survey. Æ's buried site analysis concluded that although the APE's Holocene-age alluvial sediments and its proximity to the Tule River and Porter Slough may have been attractive to Early inhabitants who would have established their camps on the higher, drier portions of the floodplain, the lack of pedogenic development and buried stable land surfaces in the soil types mapped in the APE combined with the landscape modifications as a result of decades of farming and the development of the Friant-Kern Canal, suggest a low potential for discovering intact buried archaeological sites in the APE. No historic-era built environment buildings, structures, or objects were observed in the APE other than the Friant-Kern Canal.

The Friant-Kern Canal (CA-TUL-2873H) is a historic property that was determined eligible for listing in the NRHP under Criteria A and C through a 2019 consensus determination between Reclamation and the SHPO. It also is eligible for listing in the CRHR under Criteria 1 and 3. Æ

applied the criteria of adverse effect and concluded that the undertaking would have no adverse effect to the Friant-Kern Canal. Thus, no historic properties or historical resources will be adversely affected as a result of Project activities pursuant to 36 CFR § 800.5(b).In the unlikely event that buried archaeological deposits are encountered during ground-disturbing work, Æ recommends that work be halted and/or redirected in the area of discovery until a qualified archaeologist can assess the significance of the find and make appropriate recommendations for mitigation. If the Project design and/or APE is altered, additional archaeological survey may be needed if Project limits are extended beyond the present APE. Additionally, if archaeological deposits are encountered and cannot be avoided by the Project, it will be necessary to formally evaluate the resource(s) to determine if they meet the criteria of significance and eligibility for listing in the NRHP or CRHR.

In addition, if human remains are uncovered during construction on non-federal lands, the Tulare County Coroner is to be notified to arrange their proper treatment and disposition. If the remains are identified—on the basis of archaeological context, age, cultural associations, or biological traits—as those of a Native American, California Health and Safety Code 7050.5 and Public Resource Code 5097.98 require that the coroner notify the NAHC within 24 hours of discovery. The NAHC will then identify the Most Likely Descendant, who will afford the opportunity to provide input about the manner in which the remains are treated.

In the event that human remains are identified within the portion of the APE owned by Reclamation, all activities will be stopped and Reclamation's Regional Cultural Resources Officer and NAGPRA Coordinator shall be notified immediately. This notification shall be followed by a written report within 48 hours. Note that all human remains identified on lands owned by the federal government are subject to the NAGPRA (25 USC 3001). The procedures for dealing with the discovery of human remains on federal lands are described in the regulations that implement NAGPRA, found at 43 CFR Part 10. Project implementation in the vicinity of the discovery may not resume until Reclamation complies with the 43 CFR Part 10 regulations and provides notification to proceed.

6
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Appendix D. Wetlands Study

LIVE OAK ASSOCIATES, INC.

an Ecological Consulting Firm

POTENTIAL WATERS OF THE UNITED STATES
NORTH BASIN RECHARGE PROJECT
PORTERVILLE, TULARE COUNTY, CALIFORNIA

Live Oak Associates, Inc.

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Prepared for:

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July 2018 PN 2249-01

EXECUTIVE SUMMARY

Live Oak Associates, Inc. (LOA) investigated a 26-acre property proposed for the development of the North Basin Recharge Project in Porterville, California for potential waters of the United States. Waters of the U.S. generally include navigable waters, interstate drainages, impoundments of jurisdictional waters, tributaries to navigable and interstate waters, and wetlands adjacent to such waters. The discharge of fill into or the construction of structures within such waters is regulated by the U.S. Army Corps of Engineers.

LOA plant/wetland ecologist Wendy Fisher and staff ecologist Anna Godinho examined the entire study area for possible waters of the U.S. and gathered vegetation, soils and hydrology data at two sampling locations within and adjacent to such waters on April 17 and May 22 of 2018. Aquatic features that may be considered waters of the U.S. were limited to an approximate 0.35-mile reach of the Friant-Kern Canal that passes through the study area. This jurisdictional feature is a manmade canal in which the extent of jurisdiction is determined by the width of the canal at ordinary high water. The area of potential jurisdiction of the Friant-Kern Canal within the study area has been determined to be 68,758 square feet (1.58 acres).

The remainder of the study area consisted of agricultural, ruderal, and residential areas from which hydrologic features were absent. No portion of the study area met the technical criteria of jurisdictional wetlands.

TABLE OF CONTENTS

1.0 INTRODUCTION

Live Oak Associates, Inc. (LOA) conducted an investigation of possible waters of the United States (also referred to as "jurisdictional waters") on 26 acres proposed for development of the North Basin Recharge Project ("study area"). LOA's primary objective was to identify and define the extent of hydrological features with the potential to fall under the jurisdiction of the U.S. Army Corps of Engineers (USACE). Such features typically include navigable waters, interstate waters, impoundments of such waters, tributaries to such waters, and wetlands adjacent to such waters.

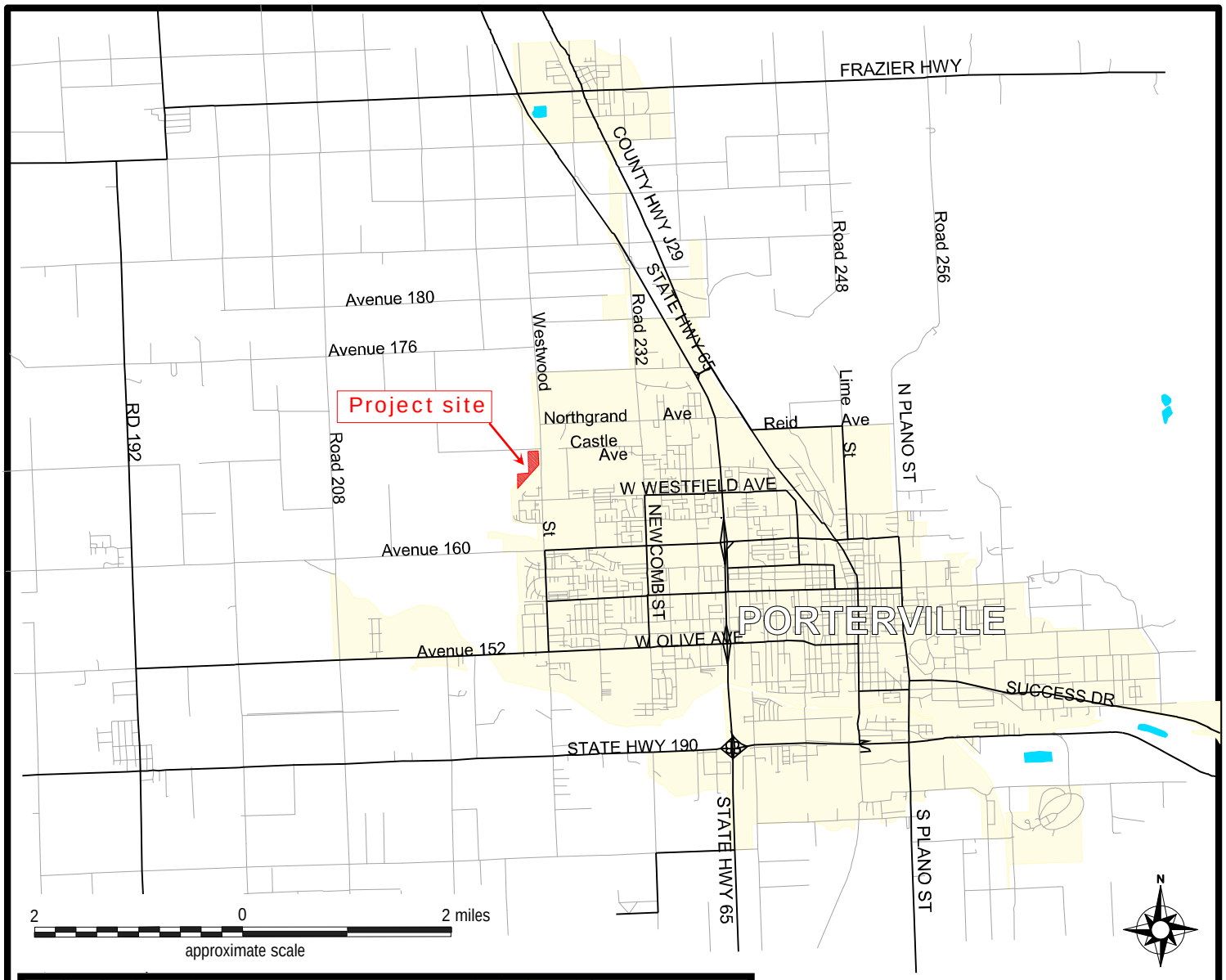
The study area is located south of Castle Avenue and west of Westwood Avenue, immediately outside of the limits of the City of Porterville, in Tulare County, California (Figure 1). It can be found on the *Porterville* quadrangle in the northeast quarter of Section 20 of Township 21 south, Range 27 east; Mount Diablo Base and Meridian (Figure 2).

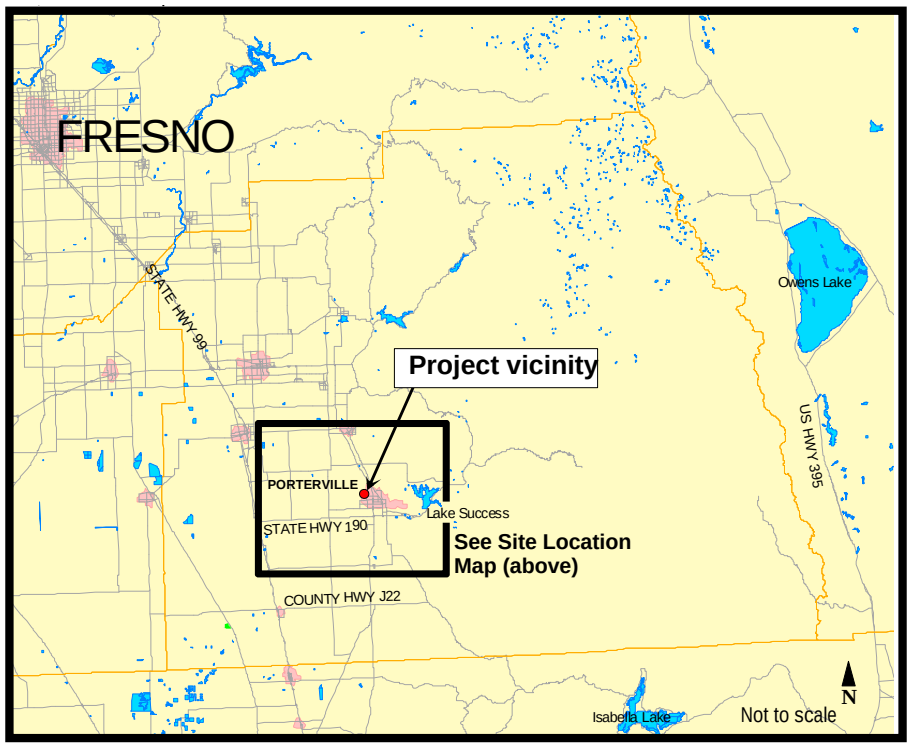
1.1 REGULATORY DEFINITION OF WATERS OF THE U.S.

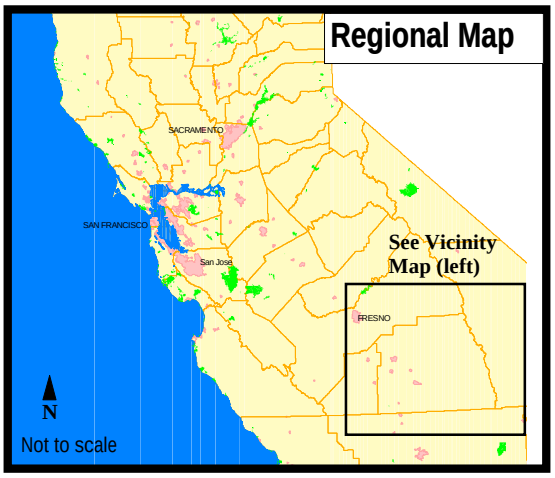
Section 404 of the federal Clean Water Act (CWA) regulates the discharge of dredged or fill material into "navigable waters" (33 U.S.C. §1344). The CWA defines "navigable waters" as "the waters of the United States, including the territorial seas" (33 U.S.C. §1362(7). By regulation (33 CFR § 328.3(a) (3)), the USACE has defined "waters of the United States" to include some non-navigable waters, as well, provided they are hydrologically connected to navigable waters. Therefore, waters of the United States include the following:

(1) All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;

(2) All interstate waters including interstate wetlands;



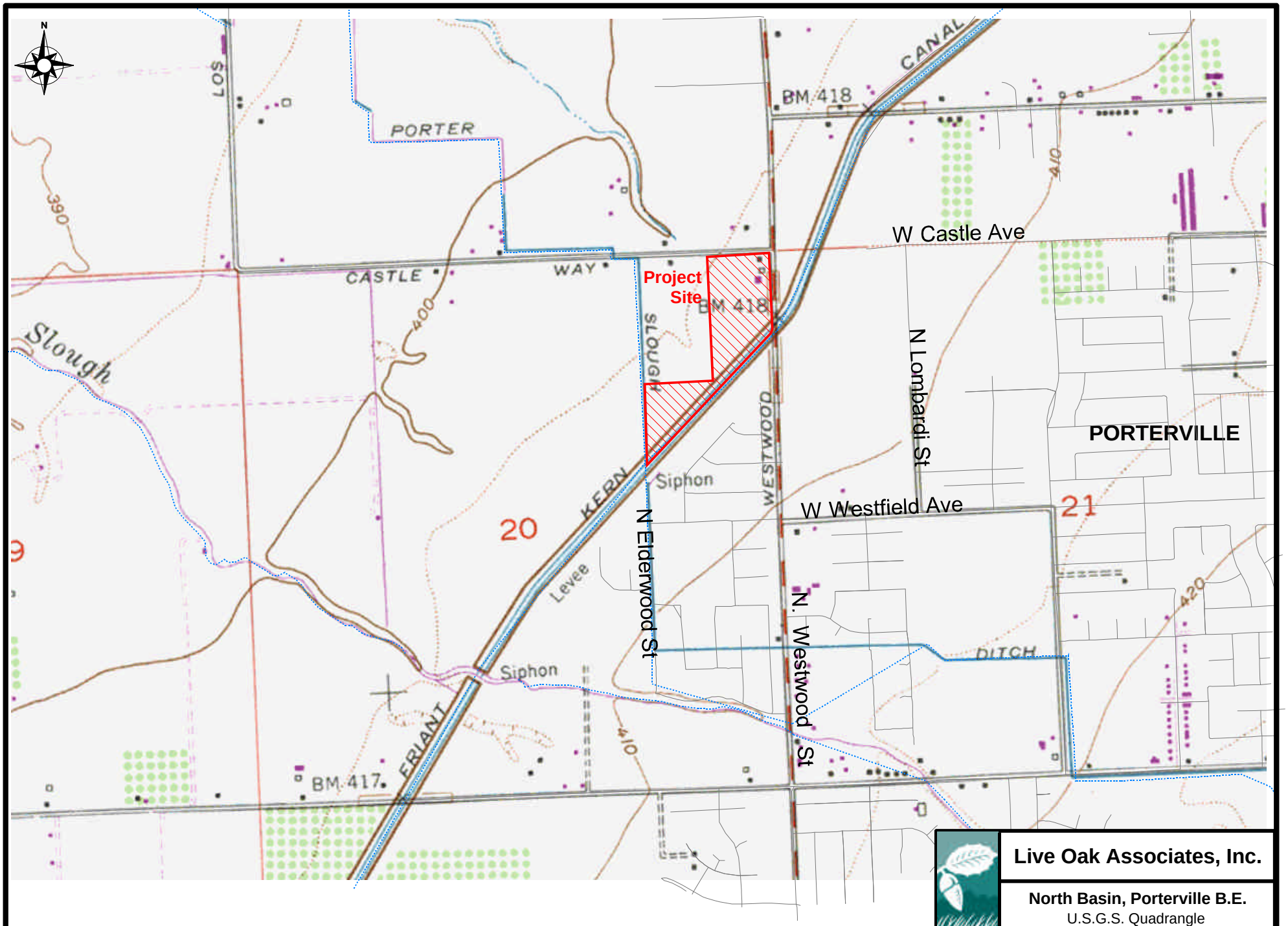




Live Oak Associates, Inc.

North Basin, Porterville B.E.
Site / Vicinity Map

Date	Project #	Figure #
5/01/2018	2249-01	1



From USGS
Porterville 7.5' Quadrangle 1969

Live Oak Associates, Inc.

North Basin, Porterville B.E.
U.S.G.S. Quadrangle

Date	Project #	Figure #
5/01/2018	**2249-01**	**2**

(3) All other waters such as intrastate lakes, rivers, streams (including intermittent

streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce including any such waters:

(i) Which are or could be used by interstate or foreign travelers for recreational or other purposes; or

(ii) From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or

(iii) Which are used or could be used for industrial purpose by industries in interstate commerce;

(4) All impoundments of waters otherwise defined as waters of the United States under the definition;

(5) Tributaries of waters identified in (1) through (4) above;

(6) The territorial seas;

(7) Wetlands adjacent to waters (other than waters that are themselves wetlands) identified in (1) through (6) above (33 CFR § 328.3(a) (3)).

"Waters of the United States" are subject to the jurisdiction of the USACE and, per provisions of Section 404 of the CWA, the discharge of fill into such waters requires a federal permit issued by the USACE. Therefore, one objective of this report is to determine if possible waters of the United States are located within the study area such that the discharge of fill into them would necessitate a Department of the Army (DA) permit.

1.2 FEDERAL COURT DECISIONS AFFECTING THE DEFINITIONS OF WATERS OF THE UNITED STATES

A number of federal appellate court decisions have attempted to address the jurisdictional status of aquatic features that are not hydrologically connected to navigable waters or their tributaries, or have such an insignificant connection that destruction or modification of the aquatic feature would have little effect on downstream waters of the United States. These following court decisions have further refined the definition of Waters of the U.S. beyond what is provided for in the Code of Federal Regulations.

1.2.1 SWANCC Decision

In January of 2001, the U.S. Supreme Court ruled in *Solid Waste Agency of Northern Cook County v. U.S. Army Corps of Engineers* (the SWANCC decision) that "non-navigable, isolated, intrastate" waters could not be claimed as jurisdictional by the USACE on the basis of their use by migratory birds. Although the Court did not specifically address the meaning of the word "isolated," it upheld the jurisdictional status of "adjacent" wetlands (and other waters), which are by definition wetlands that are "bordering, contiguous, or neighboring" other jurisdictional waters. Therefore, the term "isolated wetland" has implicitly been defined as 'wetlands that are not bordering, contiguous, or neighboring' other jurisdictional waters. This definition does not, however, address the degree of proximity necessary to establish that one wetland (or other water) is "adjacent" to a known jurisdictional water. As established by the Supreme Court in the *United States v. Riverside Bayview Homes, Inc.* in 1985, "wetlands separated from other waters by man-made dikes or barriers, natural river berms, beach dunes, and the like are 'adjacent wetlands.'"

1.2.2 Consolidated Carabell/Rapanos Decision

In June of 2006 the U.S. Supreme Court ruled in the consolidated cases of *June Carabell v. U.S. Army Corps of Engineers* and *John Rapanos v. United States* that wetlands are waters of the United States "if the wetlands, either alone or in combination with similarly

situated lands in the region, significantly affect the chemical, physical, and biological integrity of other covered waters more readily understood as 'navigable.'" When, in contrast, wetland's effects on water quality are speculative or insubstantial, they fall outside the zone fairly encompassed by the statutory term 'navigable waters.'

On June 5, 2007, the Environmental Protection Agency (EPA) and the USACE jointly issued guidance in interpreting the Carabell/Rapanos cases as they apply to the extent of federal jurisdiction covered by Section 404 of the Clean Water Act. The agencies revised this guidance memorandum on December 2, 2008. The key points of this guidance are that the EPA and the USACE: 1) will assert jurisdiction over traditional navigable waters, wetlands adjacent to traditional navigable waters, relatively permanent non-navigable tributaries of traditional navigable waters where the tributaries typically flow year-round or have continuous flow at least seasonally (e.g., typically three months), and wetlands that directly abut such tributaries; 2) will decide jurisdiction over relatively impermanent non-navigable tributaries of navigable waters, wetlands adjacent to such tributaries, and wetlands adjacent to but not directly abutting a relatively permanent non-navigable tributary, based on a fact-specific analysis to determine whether they have a "significant nexus" with a traditional navigable water; and 3) generally will not assert jurisdiction over swales or erosional features (e.g., gullies, small washes characterized by low volume, infrequent, or short duration flow) or ditches excavated wholly in and draining only uplands and that do not carry a relatively permanent flow of water. In applying the "significant nexus" standard, the EPA and USACE will "assess the flow characteristics and functions of the tributary itself and the functions performed by all wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical and biological integrity of downstream traditional navigable waters." "Significant nexus" includes consideration of hydrologic and ecologic factors.

1.2.3 Headwaters, Inc. vs. Talent Irrigation District

In 2001, the Ninth Circuit Court of Appeals ruled that irrigation canals are "navigable waters" because they exchange water with streams and other natural bodies of water. The

court determined that irrigation canals were tributaries because they are “streams which contribute their flow to a larger stream or other body of water”. The court also determined that irrigation canals are “intermittent streams” because they exchange water with natural streams. Intermittent streams qualify as waters of the U.S..

2.0 METHODS

On May 22, 2018, LOA wetland/plant ecologist Wendy Fisher and staff ecologist Anna Godinho conducted surveys within the study area for waters of the United States. The field investigators walked the site using aerial photography to guide the survey efforts. The boundaries of aquatic features that would potentially be considered jurisdictional waters were delineated using a combination of aerial photography and data collected on a Trimble Geo XT GPS unit. LOA prepared the map depicting possible jurisdictional waters using information collected in the field overlaid on a recent aerial photograph flown on February 26, 2018 by Google Earth.

The surveys were consistent with guidelines found in the *Corps of Engineers Wetland Delineation Manual* (Environmental Laboratory 1987), *Minimum Standards for Acceptance of Preliminary Wetland Delineations* (USACE 2001), and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (USACE 2008). These surveys have been described in more detail below.

2.1 SURVEY METHODS FOR AREAS WITH POTENTIAL TO MEET THE TECHNICAL CRITERIA OF JURISDICTIONAL WETLANDS

The USACE defines "wetlands" as "those areas that are inundated or saturated by surface or ground water at a frequency and duration to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs and similar areas" 33 U.S.C. § 328.3(b). The diagnostic environmental characteristics of wetlands include hydrophytic vegetation, hydric soils and a hydrology characterized by an aquic or peraquic moisture regime. Accordingly, LOA surveyed the site for wetland indicator plants, positive indicators of hydric soils, and wetland hydrology.

Two representative sampling locations were selected within the study area to assess and collect vegetation, hydrology and soils information. This information was entered onto standard data sheets patterned after those used by the USACE for the Arid West Region.

The data sheet for each numbered sampling location can be found in Appendix A. The numbered sampling locations have been identified on Figure 3. Color photographs, presented in Appendix B, were taken at sampling locations of the study area.

Plants observed within a 5-10 foot radius of each sampling location were identified to species using *The Jepson Manual: Vascular Higher Plants of California, Second Edition* (Baldwin et al, 2012). The wetland indicator status of each species was obtained from the *1987 Wetland Plant List, California* (Reed 1988). A complete list of vascular plants identified on the study area during the field surveys can be found in Appendix C.

Wetland indicator species are so designated according to their frequency of occurrence in wetlands.

OBLIGATE (OBL)	Probability to occur in wetland is >99%
FACULTATIVE WETLAND (FACW)	Probability to occur in wetland is between 67-99%
FACULTATIVE (FAC)	Probability to occur in wetland is between 33 to 67%
FACULTATIVE UPLAND (FACU)	Probability to occur in wetland is between 1 to <33%.
UPLAND (UPL)	Probability to occur in wetland is <1%

Hydrophytic vegetation is considered present when more than 50% of the dominant species at a given location are composed of obligate, facultative wetland, and facultative plant species. However, the Arid West Supplemental Guidelines also incorporate an alternate prevalence index to be calculated in determining the presence of wetland vegetation if the dominance test is not met.

Each sampling location was also examined for positive indicators of wetland hydrology and hydric soils. Evidence of wetland hydrology may consist of primary indicators such as surface water, watermarks, drift lines, sediment deposits, etc. Secondary indicators of wetland hydrology include drainage patterns in wetlands, watermarks (Riverine), drift lines (Riverine), sediment deposits (Riverine), etc. In accordance with USACE guidelines, a soil pit 10” to 12” in depth was dug at the two sampling locations. The soils

500' 0 250' 500 feet

approximate scale
1" = 200'

LEGEND

Potential Jurisdictional Waters

Friant Kern Canal
(1,873 L.F., 68,758 S.F. / 1.58 Ac.)

Other Features

Approximate Project A.P.E.
(25.9 Ac.)

SP2 Sample Points

Source:
Aerial Photograph Courtesy of Google Earth 2/28/2018
Universal Transverse Mercator Coordinate System Zone 10, NAD83 / NAVD 1988

Live Oak Associates, Inc.

North Basin, Porterville
Potential Jurisdictional Waters

Date	Project #	Figure #
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excavated from each pit were also examined for low chromas, gleying, mottling, concretions, sulfidic odors, etc.

2.2 SURVEY METHODS FOR TRIBUTARY WATERS

In the absence of adjacent wetlands, the limit of jurisdiction in navigable rivers and their tributaries, whether inter- or intrastate, extends to "ordinary high water" (OHW). OHW refers to "that line on the shore established by the fluctuation of water and indicated by physical characteristics such as a clear natural line impressed on the bank, shelving, changes in the character of the soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas" 33 CFR § 328.3(e).

The term "channel" as used in this report refers to a drainage feature with a bed and defined bank. Where drainage channels are present on a given site, the length and width are generally measured by recording a polygon using a Trimble Geo XT GPS unit. Width measurements represent the canal width between OHW marks on opposing banks.

The field investigators visually inspected the site for physical characteristics of OHW in order to determine the extent of possible jurisdiction. The limits of likely federal jurisdiction (OHW) were delineated using aerial photography.

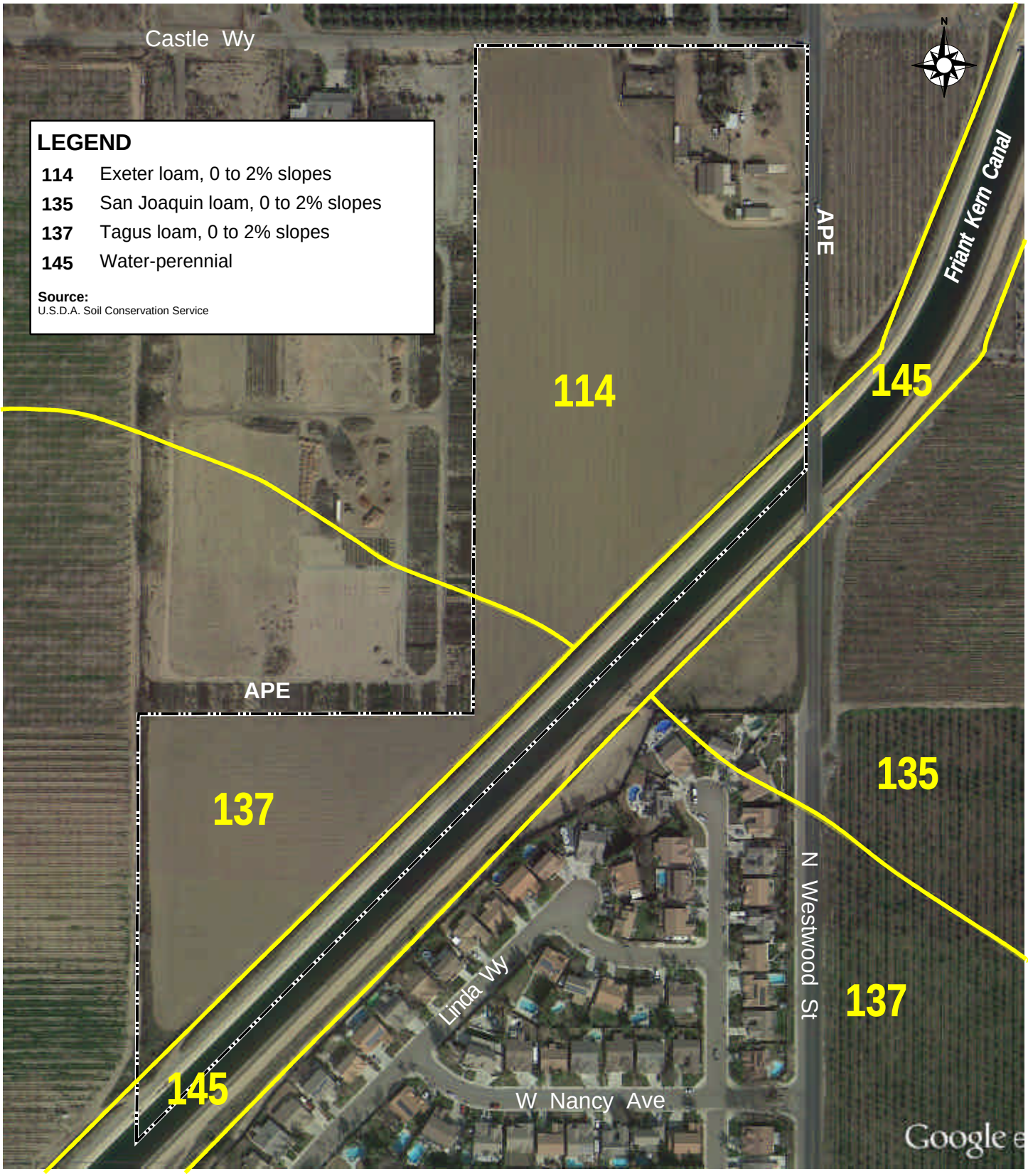
3.0 RESULTS

3.1 SETTING

Climatic and topographic features of the study area are typical of those found in California's San Joaquin Valley. The site is relatively level, with an average elevation of 400 feet National Geodetic Vertical Datum (NVGD). The study area, like most of California, has a Mediterranean climate with cool moist winters and hot dry summers. Precipitation falls in the form of rain between October and May, with the heaviest amounts in December, January, February, and March. Average annual precipitation is approximately 10-14 inches.

The study area consisted of an irrigated oat (*Avena fatua*) field, two residences and associated outbuildings, a portion of the Friant-Kern Canal, and disturbed lands bordering these uses. The study area is situated within a matrix of agricultural and residential uses. It is bordered to the north by an olive orchard and several rural residences, and to the east by an almond orchard. The Friant-Kern Canal makes up the southern boundary and, beyond that, a residential subdivision lies to the southeast. The site is bordered to the west by a pecan orchard and plant nursery.

The site contains three soil mapping units from two soil series: Exeter loam, 0 to 2 percent slopes, Tagus loam, 0 to 2 percent slopes, and water-perennial (Figure 4; Table 1). None of the site's soils are considered hydric, meaning that none tend to pond water consistently enough to support the growth of wetland vegetation. Moreover, the soils of the site have been significantly disturbed by years of agricultural and residential use and construction and maintenance of the Friant-Kern Canal.



500' 0 250' 500 feet
approximate scale

Aerial Photos courtesy of Google Earth 2/8/2018

Live Oak Associates, Inc.

North Basin, Porterville
Soils

Date	Project #	Figure #
5/22/2018	**2249-01**	**3**

TABLE 1. SOILS OF THE STUDY AREA.			
Soil Series	**Parent Material**	**Drainage Class**	**Hydric?**
Exeter loam, 0 to 2 percent slopes	Alluvium derived from Granite	Well Drained	No
Tagus loam, 0 to 2 percent slopes	Alluvium derived from Granite	Well Drained	No
Water-perennial	NA	NA	NA

Soil Survey Division, Natural Resources Conservation Service, United States Department of Agriculture. Official Soil Series Descriptions [Online WWW]. Available URL: "http://www.statlab.iastate.edu/soils/osd/" [Accessed May 2018], and Hydric Soil Lists, Fresno County, March 1992, USDA Soil Conservation Service, Davis, California

Detailed information pertaining to these soil series can be found in Appendix D.

3.2 POTENTIAL WATERS OF THE UNITED STATES

The only potential water of the United States within the study area is the concrete-lined Friant-Kern Canal, which flows along the southern boundary of the study area for a distance of approximately 0.35 mile (see Figure 3). The study area contains approximately 68,758 square feet (1.58 acres) of the FKC from its northeast bank to its approximate centerline. At the time of the field survey, the canal was inundated and devoid of vegetation. Sample point #1 depicts existing conditions within the canal during the site visit. No soil pit was dug due to inundation.

3.3 NON-JURISDICTIONAL FEATURES

The remainder of the study area consisted of an oat field, ruderal areas, and two residences. No portion of these areas met the technical criteria of jurisdictional wetlands. Ruderal areas were dominated by non-native grasses and forbs common in the San Joaquin Valley including mallow (*Malva nicaeensis*) (UPL), barnyard barley (*Hordeum murinum* ssp. *leporinum*) (FACU), and puncturevine (*Tribulus terrestris*) (UPL). Vegetation in the oat field was generally limited to the planted crop with similar species as described for ruderal areas at the margins. Both residences included landscaped areas containing ornamental trees, shrubs, and herbaceous species.

Sample Point #2 was taken in ruderal area along the northwest levee road shoulder of the FKC. The Munsell soil color notation at this location was 10YR 3/4. No redoximorphic features, such as mottles or oxidized root channels, were observed in the soil at this sample location. Evidence of wetland hydrology, such as water-stained leaves, saturated or inundated soils, and a drainage pattern in wetlands, was lacking in upland areas of the site.

4.0 DISCUSSION

The Friant-Kern Canal flows through the southern portion of the study area. It originates at Millerton Dam on the San Joaquin River and terminates at the Kern River. It transports irrigation water for crops. Because the canal originates at a jurisdictional water and terminates at a jurisdictional water, it is considered a jurisdictional water subject to the regulatory authority of the USACE. The USACE has set a precedent of asserting jurisdiction over the FKC for other projects. As such, a total of approximately 68,758 square feet (1.58 acres) of potential waters of the U.S. has been identified within the study area.

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APPENDIX A: WETLAND DATA SHEETS

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: North ~~Water~~ Basin, Porterville City/County: Tulare Sampling Date: 5/22/18

Applicant/Owner: City of Porterville State: CA Sampling Point: 1

Investigator(s): Wendy Fisher, Anna Godinho Section, Township, Range: NE 1/4 Section 20; T21S; R27E

Landform (hillslope, terrace, etc.): Canal Local relief (concave, convex, none): concave Slope (%): 0

Subregion (LRR): C Lat: Long: Datum:

Soil Map Unit Name: Water - perennial NWI classification: Riverine

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No ____ (If no, explain in Remarks.)

Are Vegetation ✓, Soil ✓, or Hydrology ✓ significantly disturbed? Are "Normal Circumstances" present? Yes ____ No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No ✓	**Is the Sampled Area within a Wetland?** Yes ____ No ✓
Hydric Soil Present?	Yes ____	No ✓	
Wetland Hydrology Present?	Yes ✓	No ____	

Remarks:

Friant Kern Canal - A Known Jurisdictional Water

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
	____ = Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	____ = Total Cover		
Herb Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	____ = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	____ = Total Cover		

% Bare Ground in Herb Stratum 100 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: ____ (A)

Total Number of Dominant Species Across All Strata: ____ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: ____ (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species ____	x 1 =	____
FACW species ____	x 2 =	____
FAC species ____	x 3 =	____
FACU species ____	x 4 =	____
UPL species ____	x 5 =	____
Column Totals: ____ (A)		____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

__ Dominance Test is >50%

__ Prevalence Index is ≤3.0[1]

__ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

__ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No ✓

Remarks:

No Vegetation in Canal

SOIL

Sampling Point: 1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

no soil pit dug - Canal

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ✓ Surface Soil Cracks (B6)
- ✓ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ✓ No _____ Depth (inches): _____

Water Table Present? Yes ✓ No _____ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ✓ No _____ Depth (inches): _____

Wetland Hydrology Present? Yes ✓ No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: North ~~Exeter~~ Basin, Porterville City/County: Tulare Sampling Date: 5/22/18

Applicant/Owner: City of Porterville State: CA Sampling Point: 2

Investigator(s): Wendy Fisher, Anna Godinho Section, Township, Range: NE 1/4 section 20; T21S; R27E

Landform (hillslope, terrace, etc.): Top of bank Local relief (concave, convex, none): convex Slope (%): 0

Subregion (LRR): C Lat: _____ Long: _____ Datum: _____

Soil Map Unit Name: Water NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No _____ (If no, explain in Remarks.)

Are Vegetation ✓, Soil ✓, or Hydrology ✓ significantly disturbed? Are "Normal Circumstances" present? Yes _____ No ✓

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✓	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks:

Road shoulder above Friant Kern Canal

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Bromus diandrus	45	yes	UPL
2. Avena fatua	5	yes	UPL
3.			
4.			
5.			
6.			
7.			
8.			
	_____ = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 50 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species	x 3 =	
FACU species	x 4 =	
UPL species 50	x 5 =	250
Column Totals: 50 (A)		250 (B)

Prevalence Index = B/A = 250/50 = 5.0

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks:

SOIL

Sampling Point: 2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 3/4		none				sandy	silt

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

No indicators present

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): _____

Water Table Present? Yes _____ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

APPENDIX B: SELECTED PHOTOGRAPHS OF THE STUDY AREA

Photo #1 (above): The Friant-Kern Canal forms the southern boundary of the study area. Sample Point #2 was taken along the levee road shoulder. No evidence of hydrophytic vegetation, hydric soils, or wetland hydrology was evident. **Photo #2 (below):** Sample Point #1 was taken within the Friant-Kern Canal. Although no evidence of hydrophytic vegetation or hydric soils was collected at this location, surface water, inundation visible on aerial imagery, and drainage patterns provided evidence of wetland hydrology.

Photo #3 (above): Oat field in the foreground and residence and outbuildings in the background. **Photo #4 (below):** Ruderal areas adjacent to the residences containing ornamental landscaping.

APPENDIX C: VASCULAR PLANTS OF THE NORTH BASIN RECHARGE PROJECT STUDY AREA

APPENDIX C: VASCULAR PLANTS OF THE STUDY AREA

The vascular plant species listed below were observed within the study area during a site survey conducted by Live Oak Associates, Inc. on the site proposed for the North Basin on April 17, 2018. The U.S. Fish and Wildlife Service wetland indicator status of each plant has been shown following its common name.

OBL - Obligate
FACW - Facultative Wetland
FAC - Facultative
FACU - Facultative Upland
UPL - Upland
NR - No review
NA - No agreement
NI - No investigation

APOCYNACEAE – Dogbane Family		
Nerium oleander	Oleander	UPL
ARALIACEAE – Spikenard Family		
Hedera helix	English Ivy	UPL
ASTERACEAE – Sunflower Family		
Lactuca serriola	Prickly Lettuce	FACU
Helianthus annuus	Common Sunflower	FACU
BERBERIDACEAE – Heavenly Bamboo Family		
Nandina domestica	Heavenly Bamboo	UPL
BRASSICACEAE – Mustard Family		
Brassica nigra	Black Mustard	UPL
Sinapis arvense	Charlock Mustard	UPL
BUXACEAE – Boxwood Family		
Buxus sempervirens	Common Box	UPL
CARYOPHYLLACEAE – Carnation Family		
Spergularia rubra	Red Sandspurry	FAC
CHENOPODIACEAE – Goosefoot Family		
Chenopodium album	Common Lambsquarters	FACU
CUPRESSACEAE – Cypress Family		
Cedrus deodara	Deodar Cedar	UPL
Sequoia sempervirens	Coast Redwood	UPL
CYPERACEAE –Umbrella Sedge Family		
Cyperus eragrostis	Umbrella Sedge	FACW
EBENACEAE –		
Diosporus kaki	Japanese Persimmon	UPL
FABACEAE – Legume Family		
Medicago polymorpha	Toothed Medic	FACU
Robinia pseudoacacia	Black Locust	UPL
GERANIACEAE – Geranium Family		

Erodium botrys	Broad Leaf Filaree	FACU
Erodium cicutarium	Redstem Filaree	UPL
IRIDACEAE – Iris Family		
Iris sp.	Cultivated Iris	UPL
LAMIACEAE – Mint Family		
Salvia sp.	Cultivated Sage	UPL
MALVACEAE – Mallow Family		
Malva nicaaensis	Bull Mallow	-
MORACEAE – Mulberry Family		
Morus alba	Mulberry	UPL
OLEACEAE – Olive Family		
Syringa vulgaris	Lilac	UPL
POACEAE – Grass Family		
Avena fatua	Wild Oats	UPL
Bromus diandrus	Ripgut Brome	UPL
Cynodon dactylon	Bermuda Grass	FAC
Hordeum murinum ssp. *leporinum*	Barnyard Barley	FACU
Hordeum vulgare	Cultivated Barley	UPL
Lolium perenne	Perennial Ryegrass	FAC
Poa annua	Annual Bluegrass	FAC
Vulpia bromoides	Six-weeks Brome Grass	FACU
POLYGONACEAE – Smartweed Family		
Polygonum aviculare	Prostrate Knotweed	FACW
ROSACEAE - Rose Family		
Prunus sp.	Fruit Tree	-
Rosa sp.	Cultivated Rose	UPL
ULMACEAE – Elm Family		
Ulmus sp.	American Elm	UPL
VIOLACEAE – Violet Family		
Viola tricolor	Pansy	UPL
ZYGOPHYLLACEAE – Puncture Vine Family		
Tribulus terrestris	Puncture Vine	UPL

APPENDIX D: SOILS INFORMATION

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Tulare County, Western Part, California

May 29, 2018

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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Contents

How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Map Scale: 1:3,960 if printed on A portrait (8.5" x 11") sheet.

N

Meters
0 50 100 200 300

Feet
0 150 300 600 900

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 11N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Tulare County, Western Part, California
Survey Area Data: Version 11, Sep 8, 2017

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Aug 27, 2010—May 10, 2015

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
114	Exeter loam, 0 to 2 percent slopes	15.5	56.2%
137	Tagus loam, 0 to 2 percent slopes	6.7	24.2%
145	Water-perennial	5.4	19.6%
Totals for Area of Interest		**27.5**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The

delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Tulare County, Western Part, California

114—Exeter loam, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: hp4j
Elevation: 250 to 570 feet
Mean annual precipitation: 8 to 12 inches
Mean annual air temperature: 63 to 64 degrees F
Frost-free period: 250 to 300 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Exeter, 0-2% slopes, and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Exeter, 0-2% Slopes

Setting

Landform: Fan remnants
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from granitic rock sources

Typical profile

Ap - 0 to 9 inches: loam
Bt1 - 9 to 26 inches: sandy clay loam
Bt2 - 26 to 28 inches: clay loam
Btqm - 28 to 46 inches: indurated
2Bt - 46 to 72 inches: stratified very gravelly loamy coarse sand to gravelly loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: 20 to 40 inches to duripan
Natural drainage class: Moderately well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Low to moderately low (0.01 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: Very rare
Frequency of ponding: None
Calcium carbonate, maximum in profile: 5 percent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water storage in profile: Low (about 4.4 inches)

Interpretive groups

Land capability classification (irrigated): 3s
Land capability classification (nonirrigated): 4s
Hydrologic Soil Group: C
Hydric soil rating: No

Minor Components

Hanford
Percent of map unit: 4 percent
Landform: Flood plains, alluvial fans
Hydric soil rating: No

Colpien
Percent of map unit: 3 percent
Landform: Fan remnants
Hydric soil rating: No

San joaquin
Percent of map unit: 3 percent
Landform: Fan remnants
Hydric soil rating: No

Quonal
Percent of map unit: 2 percent
Landform: Fan remnants
Hydric soil rating: No

Calgro
Percent of map unit: 2 percent
Landform: Fan remnants
Hydric soil rating: No

Unnamed, ponded
Percent of map unit: 1 percent
Landform: Depressions
Hydric soil rating: Yes

137—Tagus loam, 0 to 2 percent slopes

Map Unit Setting
National map unit symbol: hp58
Elevation: 230 to 400 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 63 to 64 degrees F
Frost-free period: 250 to 300 days
Farmland classification: Prime farmland if irrigated and either protected from flooding or not frequently flooded during the growing season

Map Unit Composition
Tagus and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Tagus

Setting

Landform: Fan remnants
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from granitic rock sources

Typical profile

Ap - 0 to 17 inches: loam
Bk1 - 17 to 40 inches: loam
Bk2 - 40 to 63 inches: loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: Very rare
Frequency of ponding: None
Calcium carbonate, maximum in profile: 10 percent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 12.0
Available water storage in profile: Moderate (about 8.4 inches)

Interpretive groups

Land capability classification (irrigated): 1
Land capability classification (nonirrigated): 4c
Hydrologic Soil Group: B
Hydric soil rating: No

Minor Components

Tujunga

Percent of map unit: 5 percent
Landform: Flood plains
Hydric soil rating: No

Hanford

Percent of map unit: 5 percent
Landform: Flood plains, alluvial fans
Hydric soil rating: No

Grangeville

Percent of map unit: 3 percent
Landform: Flood plains, alluvial fans
Hydric soil rating: No

Colpien

Percent of map unit: 2 percent
Landform: Fan remnants

Hydric soil rating: No

145—Water-perennial

Map Unit Composition

Water: 100 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

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