B.F. Sisk Dam Safety of Dam Modification Project Environmental Impact Statement / Environmental Impact Report

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B.F. SISK SAFETY OF DAMS MODIFICATION PROJECT

Biological Survey Report

Prepared for
U.S. Bureau of Reclamation
California Department of Water Resources

October 2018

ESA

Draft

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CHAPTER 1
Introduction

1.1 Background and Purpose

B.F. Sisk Dam is part of the San Luis Joint-Use Complex, which was designed and constructed by the federal government and is operated and maintained by the California Department of Water Resources (DWR). The complex was constructed to provide supplemental irrigation water storage for the federal Central Valley Project (CVP) and storage of municipal and industrial water for the California State Water Project (SWP).

The dam impounds San Luis Reservoir, which, with a total water storage capacity of more than 2 million acre-feet, is one of the largest off-channel storage facilities in the country and a key component of the water supply system in California. Water is lifted into the reservoir for storage by the Gianelli Pumping–Generating Plant from the California Aqueduct and is diverted from the Delta-Mendota Canal via O'Neill Forebay.

The dam and reservoir are located in an area of high potential for severe earthquake loading from active faults. A recent series of studies and analyses, including a probabilistic seismic analysis completed in 2006, determined that corrective actions were justified at B.F. Sisk Dam to reduce risk to the downstream public. The U.S. Bureau of Reclamation (Reclamation) and DWR seek to mitigate potential safety concerns identified in previous and ongoing studies by modifying water retention structures at B.F. Sisk Dam in order to reduce the seismic, static, and hydrologic risk.

The project will involve two main components: stability berms (buttresses) and a dam raise. Project construction will require a large amount (on the order of between 2 million and 20 million cubic yards) of earth material, all of which would be obtained from a number of borrow sites within the project boundary.

This report presents the findings of focused vegetation and wildlife surveys performed in September 2018 to identify the potential presence and distribution of special-status plant and wildlife species, and natural communities in the project footprint for the B.F. Sisk Safety of Dams Modification Project (project). The intent and scope of this document is to characterize sensitive biological resources in the area where the proposed project will be implemented, and those resources that may be affected by the project.

1.2 Study Area Location

The study area for the B.F. Sisk Safety of Dams Modification Project is located on the west side of California's Central Valley, near the community of Santa Nella, approximately 12 miles west of Los Banos. It is located in the San Luis Dam, California 7.5-minute U.S. Geological Survey quadrangle. The 3,905-acre "study area" described in this report includes the immediate footprint of proposed facilities, access routes, construction staging areas, borrow areas, and other lands that may be accessed to complete the project (see Figure 1-1).[1]

1.3 Summary of Biological Survey Findings

Biological surveys performed by ESA biologists for the B.F. Sisk Safety of Dams Modification Project included a combination of walking surveys to identify and characterize vernal pool branchiopod habitat, elderberry shrubs, and small mammal burrows; day and nighttime aquatic surveys to document amphibian use; fixed point surveys to characterize site use by songbirds and raptors, including tricolored blackbird, Swainson's hawk, and burrowing owl; day and nighttime driving surveys to identify use by reptiles, raptors, and mammals; and the use of baited camera stations to study large carnivores, including American badger and San Joaquin kit fox. In addition, a single emergence and acoustic bat survey was performed. The findings of these surveys are summarized below.

Vernal Pool Branchiopods. Three pool areas comprising a total of eight pools were identified that may support the federally listed vernal pool fairy shrimp or vernal pool tadpole shrimp. One area includes an alkali pool located on grasslands near the dam face and the other areas occur north of the DWR maintenance yard. One of these features was mapped as a seasonal wetland in the 2018 wetland delineation and the other features are non-wetland areas that may support listed branchiopods. No vernal pool branchiopod habitat was identified outside of the areas immediately below B.F. Sisk Dam or near the DWR maintenance yard.

Valley Elderberry Longhorn Beetle. Forty (40) elderberry shrubs were identified in the study area with stems greater than 1-inch diameter, principally located near Basalt Quarry. No evidence of valley elderberry longhorn beetle presence, such as larval exit holes or adult beetles, was observed on any of the generally poor-to-fair health shrubs. Shrubs occurred in 5 general stands. The largest elderberry/buffaloberry stand northwest of Basalt Quarry numbered greater than 25 shrubs. Four smaller stands were found in the Basalt Quarry area comprising at least 10 shrubs. Aside from these occurrences, elderberries were not identified elsewhere in the study area. However, two elderberry shrubs occur several feet outside the study area, at the sewage holding ponds located 0.5-mile northeast of Basalt Campground.

California Tiger Salamander. Two potential aquatic breeding sites for California tiger salamander were identified in the study area and three such features were identified within 1.2 miles; generally west, south and southeast of Basalt Quarry. The California tiger salamander may be encountered in select upland and aquatic areas south of the reservoir. Aquatic habitat that may support breeding California tiger salamander does not occur west of B.F. Sisk Dam or in the Medeiros Use Area.

California Red-legged Frog. The California red-legged frog was previously not known or expected in the study area. For the current assessment, focused daytime surveys were performed at all perennial aquatic sites in the study area to assess habitat conditions, and nighttime surveys

[1] Note that figures are provided at the end of each chapter.

were performed at Willow Spring and Domengine Spring. A California red-legged frog breeding population was identified at Willow Spring, on the edge of the study area and can likely be avoided by the project. California red-legged frogs may be encountered in select areas south of the reservoir and precautions are warranted to avoid impacts to this species. Potential breeding habitat for this species was also identified at four ephemeral and perennial ponds located between 0.3 and 1.2 miles from Basalt Quarry. This species is not expected near Basalt Campground, below B.F. Sisk Dam, or at the Medeiros Use Area.

Burrowing Owl and Swainson's Hawk. Despite extensive surveys, no burrowing owls, active owl burrows, or burrowing owl sign were identified in the study area. Annual grasslands in the Medeiros Use Area and throughout the study area provide high quality foraging and breeding habitat for this species

Swainson's hawks were not identified during the survey, possibly due to the late season timing of the field review. Potential Swainson's hawk nesting habitat occurs in the Medeiros Use Area eucalyptus grove, and near Basalt Campground (both documented in the California Natural Diversity Database), and in trees below B.F. Sisk Dam. Grasslands throughout the study area provide potential foraging habitat.

American Badger and San Joaquin Kit Fox. Spotlighting surveys and camera scent stations were used to identify American badger and San Joaquin kit fox in the study area. The San Joaquin kit fox was not detected during surveys. However, kit foxes are expected to use grassland portions of the study area on an intermittent and irregular basis.

State Park rangers anecdotally report American badgers south of the reservoir, north of Basalt Quarry. The CNDDB also reports badgers in the Medeiros Use Area. During surveys, a badger was observed near the intersection of Basalt Road and Gonzaga Road and a badger skull was found in a cattail marsh area below B.F. Sisk Dam. This species is expected in annual grasslands throughout the study area.

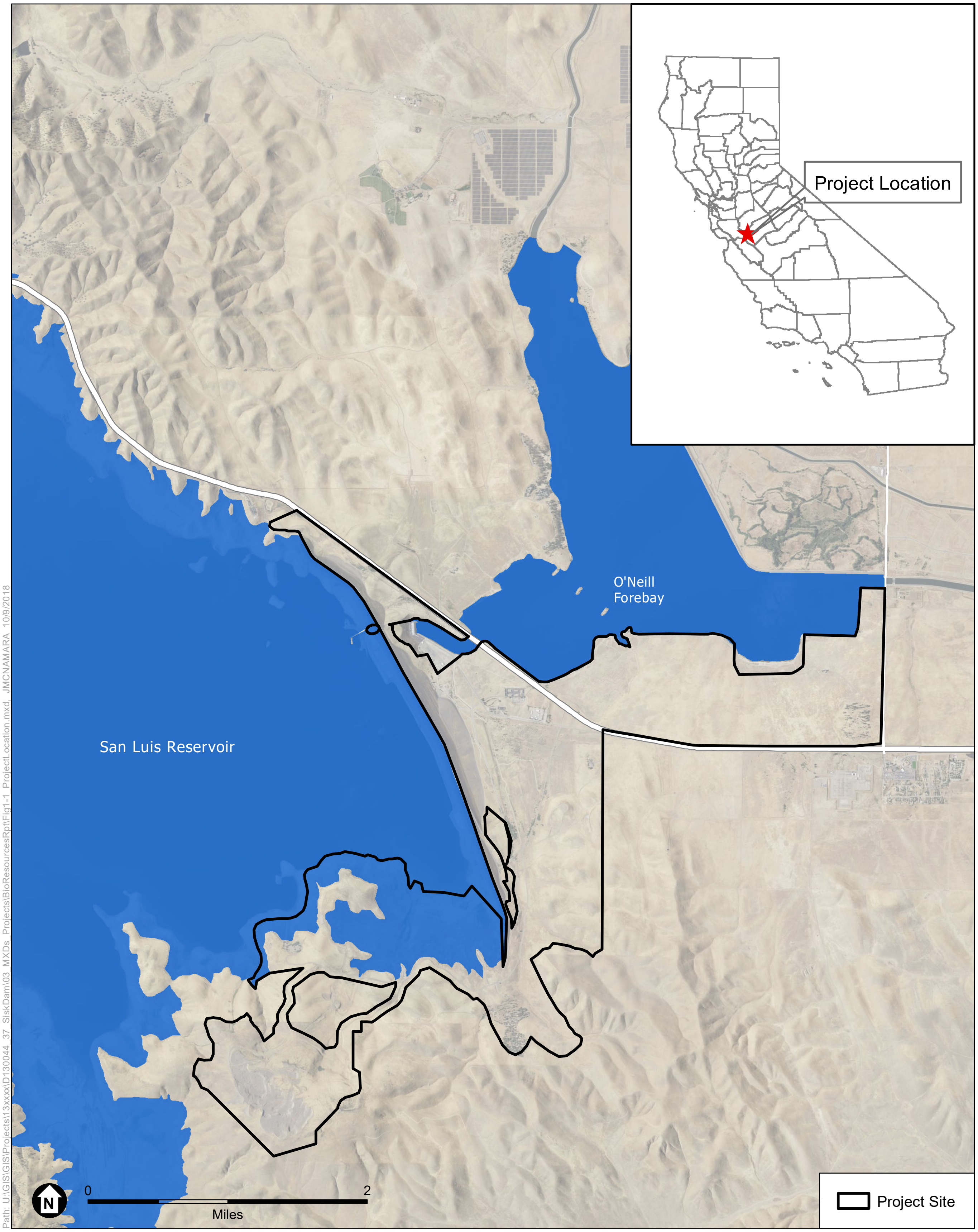
Bat Species. A bat habitat assessment was performed throughout the study area and nighttime emergence surveys were done at a concrete tunnel structure located near the Basalt Quarry. Acoustic surveys verified the presence of three bat species. Yuma myotis and Mexican free-tailed bat roosting was verified in the concrete tunnel. A second concrete structure near Basalt Quarry also provides roosting habitat for these species. In addition, the western red bat was detected during surveys and may roost in foliage at day use areas throughout the study area.

Special-Status Plants. Several areas were identified where future in-season botanical surveys are warranted to search for rare plants. These include alkali grasslands near the dam face and grasslands located north of the DWR maintenance yard (same areas described for vernal pool branchiopods). The construction area for B.F. Sisk Dam was reviewed using aerial photographs from the mid-1960s, and areas that were not subject to earth disturbance or borrow activities during construction may provide potential for the occurrence of rare plant species.

Species Not Identified. No high quality aquatic habitat was identified in the study area that would support western pond turtle. The pond at Willow Spring provides low to moderate quality habitat, but turtles were not observed at this location during repeated surveys. This species is unlikely to be encountered.

No San Joaquin coachwhip were identified during surveys. However, habitat for this species is present throughout grasslands in the study area.

No tricolored blackbirds were identified during the survey, possibly due to the late season timing of the field review. Habitat for tricolored blackbird is present in cattail stands below the dam and at Willow Spring, though use of these areas is not known.



SOURCE: USDA, 2016; CDFW, 2018; USFS, 2017; CDM, 2018; ESA, 2018

B.F. Sisk Dam Safety of Dams Modification Project

Figure 1-1
Location of Project and Project Study Area

ESA

CHAPTER 2
Vernal Pool Branchiopods

2.1 Summary of Findings

This chapter presents the results of a focused site assessment that was performed for listed branchiopod[2] species that occur in the regional vicinity of the study area. These species include the federally-listed threatened vernal pool fairy shrimp (*Branchinecta lynchi*) and federally-listed endangered vernal pool tadpole shrimp (*Lepidurus packardi*). An occurrence of longhorn fairy shrimp (*Branchinecta longiantenna*) is generally mapped in a 4-quadrangle, 13-mile by 17-mile area that includes the entirety of the Gustine, Stevinson, Ingomar, and San Luis Ranch USGS quadrangles. The species occurrence is in association with alkali habitat at the San Luis National Wildlife Refuge (San Luis NWR), greater than 10 miles northeast of the study area (CDFW, 2018). Similarly, the Conservancy fairy shrimp (*Branchinecta conservatio*) is documented greater than 10 miles from the study area. Neither longhorn fairy shrimp nor Conservancy fairy shrimp are expected in the study area due to their limited distribution and restricted habitat requirements (USFWS, 2007). The site assessment finds that potential aquatic habitat for the vernal pool fairy shrimp and vernal pool tadpole shrimp occurs in several areas within the project study area. These findings are summarized in **Table 2-1**.

TABLE 2-1
SUMMARY OF LISTED BRANCHIOPOD HABITAT

Area	Habitat Suitability [a]
Six Pools North of DWR Maintenance Yard (Fig. 2-2)	High quality habitat for VPFS and VPTS occurs in six seasonal alkali pools. Ostracod shells and algal mats are present, with *Eryngium* sp. and *Atriplex*. and American pillwort (*Pilularia americana*).
One Pool West of DWR Maintenance Yard (Fig. 2-2)	Single, moderate quality pool with evidence of algal mats and *Eryngium* sp.
One Pool in Grasslands Below B.F. Sisk Dam (Fig. 2-3)	Single, moderate quality pool with evidence of algal mats and saltgrass (*Distichlis spicata*).

[a] VPFS = vernal pool fairy shrimp; VPTS = vernal pool tadpole shrimp

Source: ESA

[2] The term "branchiopod" describes the taxonomic group of crustaceans that includes both fairy shrimp and tadpole shrimp.

2.2 Species Accounts

Vernal Pool Fairy Shrimp

The vernal pool fairy shrimp is endemic to the grasslands of the central valley, the Central Coast Mountain range, and South Coast Mountains, occurring in a variety of habitats. This species is described from high quality clear-water sandstone depressions and grassy swales, but also occurs in abundance in unvegetated roadside depressions and tire ruts.

The nearest vernal pool fairy shrimp record is a 1993 observation from San Luis NWR, approximately 13 miles northeast of the study area (CDFW, 2018). This species is well described from alkali sink and alkali grassland habitats, as found in the San Luis NWR. The study area is not within designated critical habitat for this species.

Typical habitat for vernal pool fairy shrimp includes vernal pools and seasonal wetlands within relatively undisturbed annual grasslands, seasonal wetlands, or wet depressions. The vernal pool fairy shrimp persists in some of the shortest-lived pools of any listed fairy shrimp species. In the warmer spring months this species can reproduce in pools that persist for as few as three to four weeks (USFWS, 1994; 2003; 2005a; 2005b; 2006).

Vernal Pool Tadpole Shrimp

The vernal pool tadpole shrimp is endemic to grasslands in the central valley, occurring at scattered localities in the San Joaquin Valley from San Joaquin County to Madera County (CDFW, 2018). No vernal pool tadpole shrimp occurrences are known or reported within 10 miles of the study area. The majority of populations occur in the Sacramento Valley, though an isolated population also occurs in the east San Francisco Bay Area near the City of Fremont. The nearest record is a 2003 observation 10.7 miles east of the study area (CDFW, 2018).

The vernal pool tadpole shrimp has been documented from a variety of seasonally ponding habitats, including vernal pools, alkali pools, roadside ditches, and tire ruts (Belk and Eriksen, 1999). This species tolerates a range of habitat conditions, from barren pools to well-vegetated sites. Pools range in size from small puddles measuring a few square meters to seasonal lakes that cover several acres. This species tolerates turbidity conditions ranging from relatively clear water to highly turbid pools USFWS, 1994; 2003; 2005a; 2005b; 2006)

2.3 Survey Methods

ESA senior wildlife biologist and fairy shrimp specialist Brian Pittman, CWB, was the lead biologist for large branchiopod site assessment. Mr. Pittman has held a USFWS 10a(1)(A) recovery permit for listed branchiopods since 2000 (Recovery Permit #TE-027422-5). Focused surveys of the study area were performed by B. Pittman and Kelly Bayne from September 10 to 14, 2018.

Because branchiopod habitat can vary widely between seasons and years, and it is easily overlooked during the dry season, the USFWS has not issued formal guidance in identifying potential habitat for listed branchiopods during the dry season. In the absence of formal guidance, this assessment presents the best judgment of ESA's large branchiopod specialists B. Pittman and K. Bayne in describing the potential distribution of listed brachiopods within the study area. In addition, the USFWS generally considers that listed branchiopods within 250 feet of a proposed action may be subject to direct or indirect effects; hence, this assessment considered, the potential occurrence of habitat within 250 feet from the study area boundaries.

As part of this evaluation, the following actions were performed to identify potential habitat for listed branchiopods on or near the B.F. Sisk Safety of Dams Modification Project:

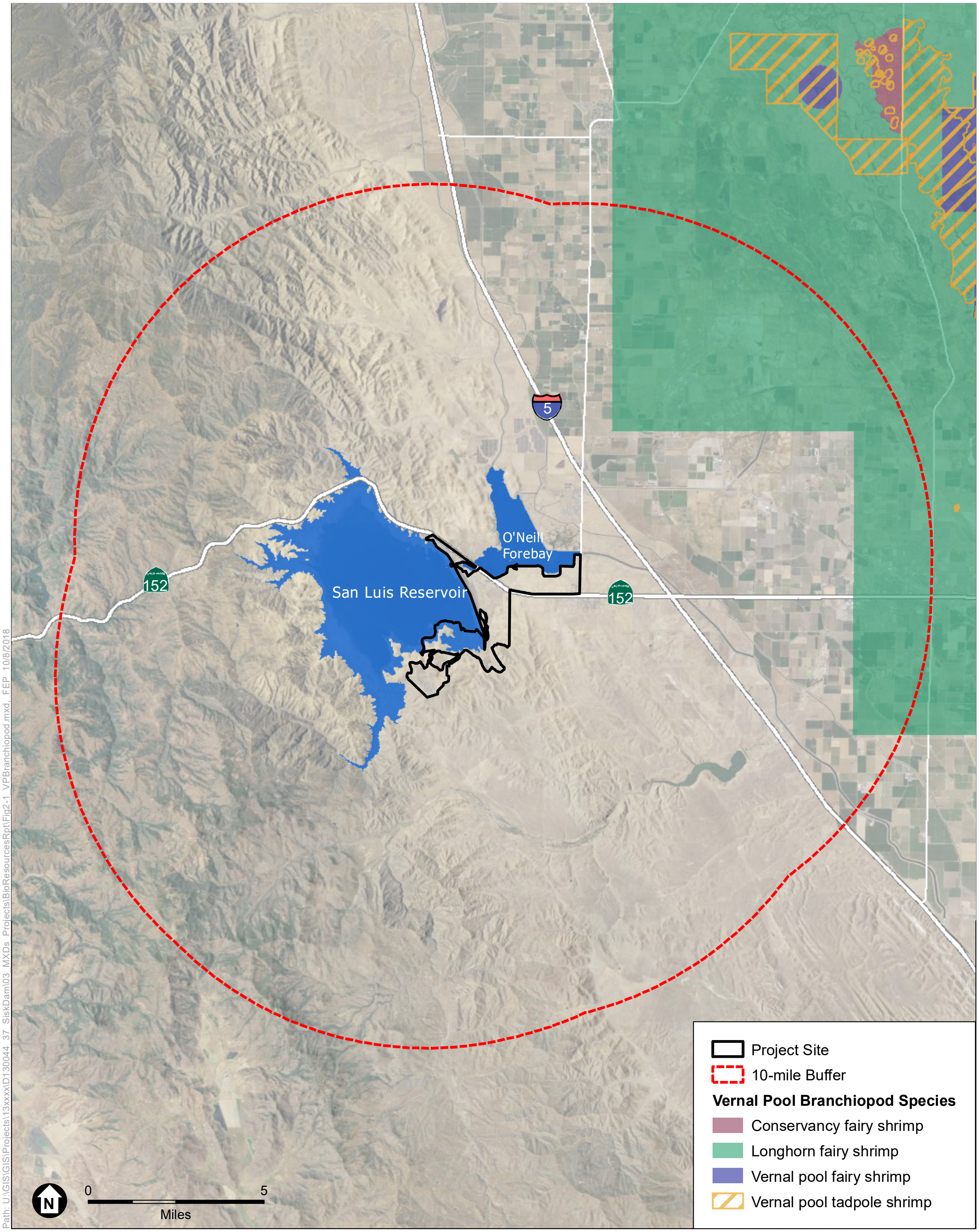
- A review of aerial photographs on Google Earth from August 1998 through March 2018 showing the extent of potential habitat, grading and site uses.
- A review of historical and recent large branchiopod distribution records from the California Natural Diversity Database (CNDDB) (CDFW, 2018) and scientific literature to create a list of special status fairy shrimp species that may occur at the site (**Figure 2-1**).
- A focused habitat assessment survey that included direct review of upland and aquatic habitat on the study site. Walking transects were performed in areas of interest to characterize aquatic features.

The focused site assessment survey included identification and mapping of appropriate seasonal pools in the study area.

2.4 Survey Results

Potential listed branchiopod habitat was identified in two general areas comprised of seven small pools north of the California Department of Water Resources (DWR) maintenance yard, and one area below B.F. Sisk Dam (see **Figures 2-2** and **2-3**). Each of these features is considered to provide potential habitat based on observed hydrologic indicators and ponding depth, the absence of flow-through water, alkali conditions, algal matting, the presence of aquatic invertebrates. Based on these indicators, each of the four observed features that were characterized as potential habitat during this dry season assessment are estimated to pond greater than 3 to 6 weeks out of the year, which is sufficient to support the life cycle of vernal pool fairy shrimp and vernal pool tadpole shrimp.

Neither vernal pool fairy shrimp nor vernal pool tadpole shrimp are reported within 10 miles of the study area and no other listed branchiopods occur within 10 miles of the study area. However, based on the presence of potentially suitable habitat, there is a moderate likelihood that these species occur within one or more of the aquatic depression features that were identified occur on-site. The largest of these features located north of the DWR office measures approximately 75 feet by 150 feet and may pool to an average depth of 6- to 8-inches, with a maximum depth estimated at between 14 and 16 inches (**Figure 2-4**). Ostracod shells and algal mats, both indicators of long-standing ponded water during winter, were evident in this and other observed pools (**Figure 2-5**). These indicators show adequate ponding capacity to support vernal pool fairy shrimp maturation.



SOURCE: USDA, 2016; CDFW, 2018; CDM, 2018; ESA, 2018

B.F. Sisk Dam Safety of Dams Modification Project

Figure 2-1
Occurrences of Listed Vernal Pool Branchiopods
within 10 miles of the B.F. Sisk Dam Project Study Area

ESA

SOURCE: USDA, 2016; CDFW, 2018; CDM, 2018; ESA, 2018

B.F. Sisk Dam Safety of Dams Modification Project

Figure 2-2

Location of Potential Vernal Pool Branchiopod Habitat

ESA

SOURCE: USDA, 2016; CDFW, 2018; CDM, 2018; ESA, 2018

B.F. Sisk Dam Safety of Dams Modification Project

Figure 2-3

Location of Potential Vernal Pool Branchiopod Habitat

ESA

B.F. Sisk Safety of Dams Modification Project. 130314.04

Source: ESA

Figure 2-4
Seasonal Pools North of the DWR Maintenance Yard may Support Large Branchiopods; Algae Mats, Soil Cracking and Ostracod Shells are Present
Photo date: September 12, 2018

Source: ESA

Figure 2-5

Detail of Pools North of the DWR Maintenance Yard, showing Algae Growth (Top); and Two Pools in the Vicinity (Bottom)

Photo date: September 12, 2018

CHAPTER 3
Valley Elderberry Longhorn Beetle

3.1 Summary of Findings

This chapter summarizes the findings of a focused site assessment that was performed by Environmental Science Associates biologists for the valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*) (VELB) within the study area. The purpose for the 2018 VELB survey was to identify potential VELB habitat that may be affected by proposed future actions in the study area.

The site assessment found 40 elderberry shrubs in the study area with stems greater than 1-inch diameter, principally located near the Basalt Quarry area. However, no evidence of VELB presence such as larval exit holes or adult beetles were observed on any of the generally poor-to-fair health elderberry shrubs. The VELB is considered to have a low potential to occur on inspected plants and a low to moderate potential to occur on approximately 5 to 10 inaccessible elderberry shrubs. These findings are summarized in **Table 3-1**, below.

TABLE 3-1
SUMMARY OF ELDERBERRY SHRUB FINDINGS

Stem Size	Total Number of Stems
1 to 3 inches Diameter	42
3 to 5 inches Diameter	63
> 5 inches Diameter	16
Total Stems with VELB Exit Holes	0
Shrubs Not Reviewed for Exit Holes	4 shrubs, numerous stems
Total Stems within Riparian Habitat	0

SOURCE: ESA

3.2 Species Account

Valley elderberry longhorn beetles are unique insects that spend most of their lives within the stems of elderberry (*Sambucus* spp.) trees and shrubs. Females lay their eggs within the bark, where larvae hatch and bore into the stems. Larvae remain within the stems for one to two years. In March, when the elderberries begin to flower, they pupate and emerge as adults. Mating usually occurs in June. Often, the only indicators of their presence are the distinctive small oval-shaped openings that are left after larvae pupate and emerge (U.C. Berkeley, 2005; USFWS, 2018).

Valley elderberry longhorn beetles utilize elderberry shrubs with a minimum stem diameter of at least 1 inch (at ground level) (USFWS, 2005). In the Central Valley, elderberry shrubs are fairly common in riparian forests and adjacent uplands (U.C. Berkeley, 2005). Elderberry shrubs are typically found growing in association with other riparian species, but they also occur as isolated shrubs in upland areas.

Western Merced County is within the described potential range of the VELB (USFWS, 1999), with one reported occurrence in the western portion of the county (CDFW, 2018). Critical habitat for VELB is designated along the American River in Sacramento County, more than 50 miles from the study area (USFWS, 2002). The nearest documented VELB occurrence to the study area is a 1987 collection of two adult beetles from North Fork Los Banos Creek, about 5.3 miles southeast of the Basalt Campground (CDFW, 2018). No other occurrences are reported within 20 miles of the study area.

3.3 Survey Methods

VELB habitat surveys were conducted from September 10 to 13, 2018 by ESA biologists Even Holmboe, Julie McNamara, K. Bayne, and B. Pittman. The survey focused on identifying elderberry shrubs within borrow and construction areas within the project study area shown in Figure 1-1. ESA biologists identified and inspected all elderberry shrubs and recorded the number of stems measuring at least a 1-inch in diameter at the base. Data collected for each shrub included the number of stems, diameter class, whether or not they had exit holes. No identified shrubs were located within riparian habitat, therefore, such information was not collected.

3.4 Survey Results

The survey focused on elderberry shrubs within the study area shown in Figure 1-1 and areas within 250 feet. The Basalt Quarry area contained the largest concentration of elderberry shrubs. A large mixed elderberry stand was identified northwest of Basalt Quarry, numbering greater than 25 shrubs. Shrub locations are shown in **Figures 3-1 and 3-2**. Data on stem size and the presence of valley elderberry longhorn beetle (VELB) activity (i.e., presence of exit holes) is shown in **Table 3-2**. No VELB activity was noted; however, due to the extremely dense structure within the largest identified mixed elderberry stand, perhaps five to ten shrubs could not be closely inspected to ascertain potential VELB activity.

In addition, a smaller elderberry stand was noted comprising nine shrubs (Figure 3-1a). Aside from these occurrences, elderberries are not present elsewhere in the study area. A single elderberry shrub was found several feet outside the study area, at the sewage holding ponds located 0.5-mile northeast of the Basalt Campground. The characteristics of identified shrubs are presented in Table 3-2.

TABLE 3-2
ELDERBERRY SHRUB CHARACTERISTICS

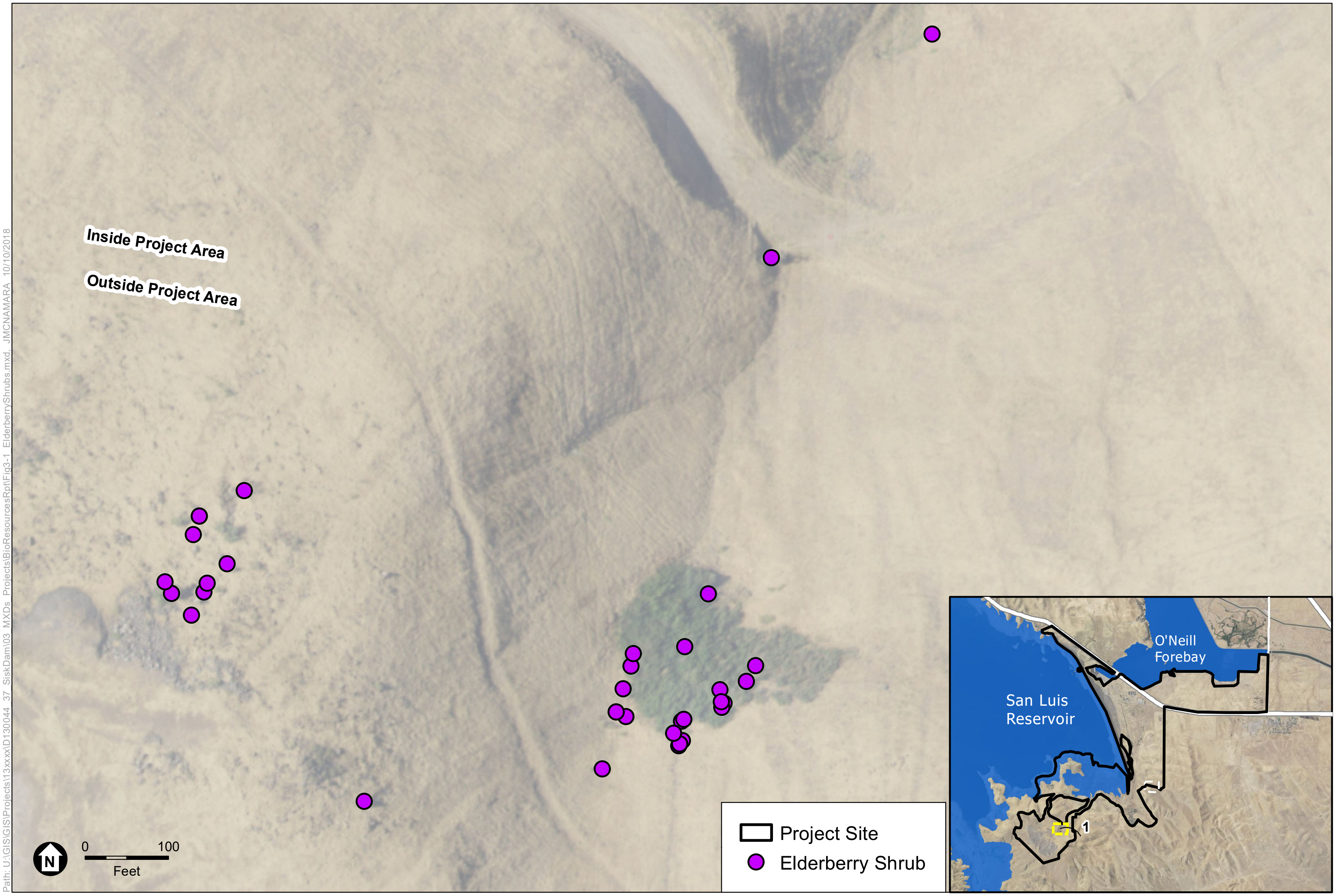
Shrub Number	Number of Stems by Size Class			Canopy Diameter in Feet	General Health	Presence of Exit Holes or other VELB Evidence
	1”-3”	3” to 5”	>5”			
1		4	2	15	Fair	None
2		2		8	Fair	None
3			3	14	Poor	None
4				12	Poor	None
5	1			4	Poor	None
6		9		14	Poor	None
7	4			10	Poor	None
8		1		5	Fair	None
9		2	2	12	Poor	None
10	4			8	Poor	None
11	5			8	Poor	None
12		2		8	Poor	None
13		1	2	10	Fair	None
14	1	1	1	10	Fair	None
15	1			6	Fair	None
16	1			6	Fair	None
17	2			6	Fair	None
18		3		5	Fair	None
19			1	5	Inaccessible	N/A
20		12 (estimated)	2	45	Inaccessible	N/A
21		10 (estimated)		20	Inaccessible	N/A
22			1	10	Inaccessible	N/A
23			1	10	Fair	N/A
24	2			8	Fair	None
25		2		8	Fair	None
26		1		5	Fair	None
27		2		6	Fair	None
28	3			7	Fair	None
29	2			10	Fair	None

TABLE 3-2
ELDERBERRY SHRUB CHARACTERISTICS (CONTINUED)

Shrub Number	Number of Stems by Size Class			Canopy Diameter in Feet	General Health	Presence of Exit Holes or other VELB Evidence
	1”-3”	3” to 5”	>5”			
30	5	3		10	Fair	None
31	5	1		9	Fair	None
32	1			3	Poor	None
33	2			5	Poor	None
34	1	1		10	Fair	None
35		2		8	Fair	None
36	1			2	Poor	None
37			1	17	Poor	None
38			6	6	Poor	None
39	1		1	1	Poor	None

SOURCE: ESA

A single VELB occurrence is reported within 20 miles of the study area: a 1987 species collection from North Fork Los Banos Creek, about 5.3 miles southeast of the Basalt Campground (CDFW, 2018). Each of the elderberry shrubs observed during the assessment are growing on dry slopes and were considered to be in generally poor health conditions. Upon reviewing 39 elderberry plants, no VELB exit holes were observed on any of the inspected plants. An additional four shrubs were identified but could not be inspected due to access limitations. These shrubs could potentially support VELB. If VELB were present within identified elderberry shrub thickets, evidence of their presence would have been evident on the inspected plants. This species is considered to have a low potential to occur on inspected plants and a low to moderate potential to occur on inaccessible elderberry shrubs.



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SOURCE: USDA, 2016; CDFW, 2018; CDM, 2018; ESA, 2018

B.F. Sisk Dam Safety of Dams Modification Project

Figure 3-1
Location of Elderberry Shrubs
in the B.F. Sisk Dam Project Study Area

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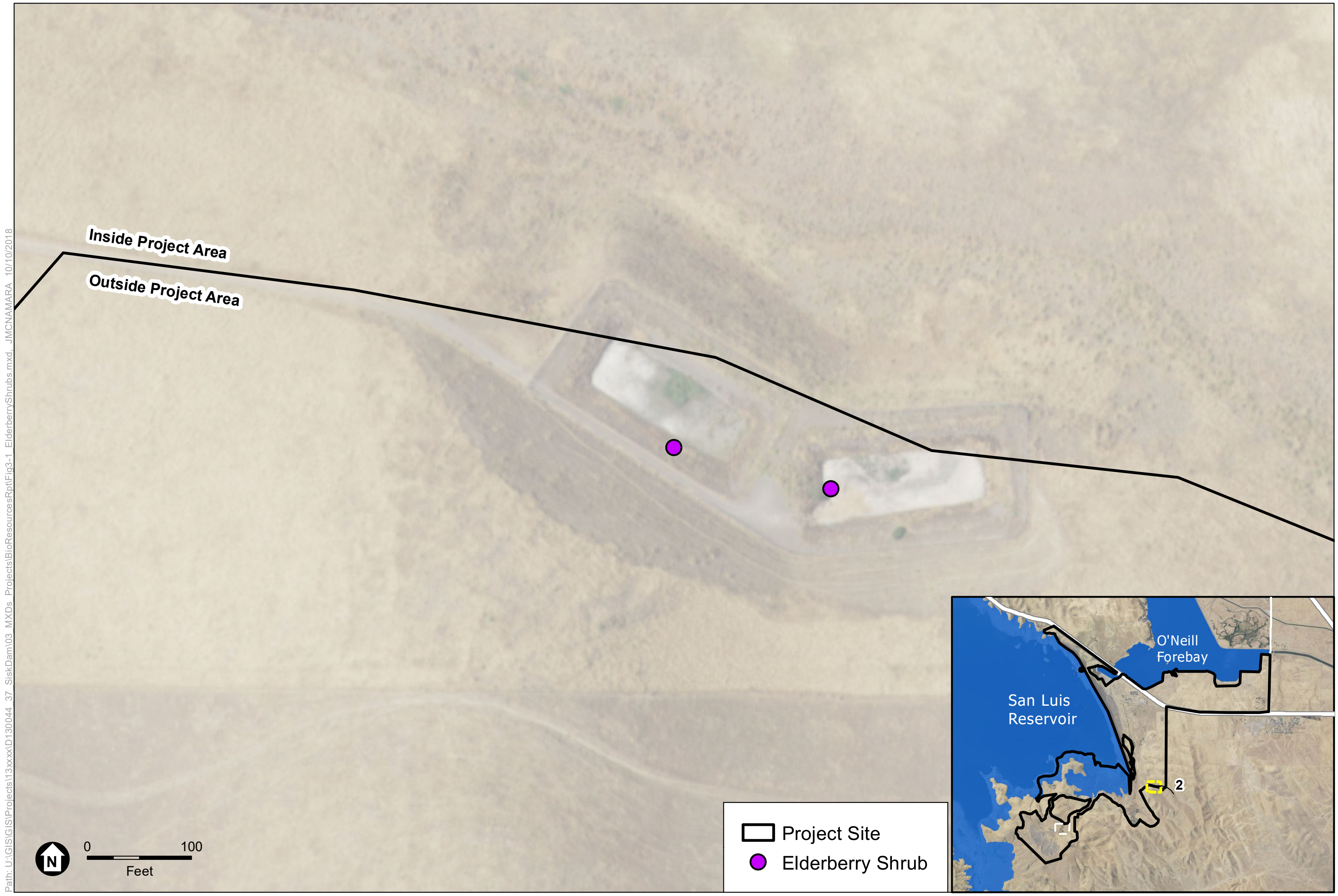


SOURCE: USDA, 2016; CDFW, 2018; CDM, 2018; ESA, 2018

B.F. Sisk Dam Safety of Dams Modification Project

Figure 3-2
Location of Elderberry Shrubs
in the B.F. Sisk Dam Project Study Area

ESA

Source: ESA

Figure 3-3

Individual and Clumped Elderberry Shrubs were Identified in Poor to Moderate Health near the Basalt Quarry Area

Photo date: September 13, 2018

B.F. Sisk Safety of Dams Modification Project. 130314.04

Source: ESA

Figure 3-4

Two Views of the Mixed Elderberry Thicket near the Basalt Quarry

Photo date: September 13, 2018

CHAPTER 4
California Tiger Salamander

4.1 Summary of Findings

A focused review was performed by ESA biologists within the study area to examine potential breeding habitat for the California tiger salamander (*Ambystoma californiense*). This review considered the sites described in a North State Resources, Inc. (NSR) (2010a) California tiger salamander site assessment, and additionally considered two off-site stock ponds in the regional vicinity. Potential California tiger salamander breeding habitat was identified in two locations in the study area, both near Basalt Quarry, and at two sites located to the south. The potential on-site breeding areas include Willow Spring stock pond located north of Basalt Quarry and a seasonal pool in the same general vicinity. Potential off-site aquatic breeding habitat was identified at three locations: a spring-fed stock pond located 0.8-mile southeast of Basalt Quarry (Off-site Pond #1); a seasonal impoundment approximately 0.6-mile south of Basalt Campground (Off-site Pond #2); and stock ponds located 0.3-mile and 1.2-miles west of Basalt Quarry (Off-site Ponds #3, and #4, respectively). The Willow Spring stock pond provides high quality breeding habitat for the California tiger salamander and is a possible source of adult tiger salamanders that have been anecdotally reported in the Basalt Use Area (U.S. Bureau of Reclamation and California Department of Parks and Recreation, 2005).

A full species account for the California tiger salamander was provided in NSR (2010a) and is not repeated in this report.

4.2 Survey Methods

California tiger salamander specialist B. Pittman, CWB, was the lead surveyor for the assessment, with assistance from species experts K. Bayne and E. Holmboe. Mr. Pittman holds a USFWS 10a(1)(A) recovery permit for California tiger salamander. Aquatic features in the study area were reviewed on by the above personnel on September 10 to 13, 2018, with assistance from wildlife biologist J. McNamara.

In advance of the survey, ESA biologists performed the following tasks:

- Review of aerial photographs on Google Earth from August 1998 through March 2018 to examine the ponding characteristics of aquatic sites and locations of perennial water.
- Examine the NSR (2010a) California tiger salamander site assessment report to locate prior survey areas, pond locations, and ascertain ponding conditions.

- A review of historical and recent California tiger salamander distribution records from the California Natural Diversity Database (CNDDB) (CDFW, 2018) and scientific literature (**Figure 4-1**).

Following this desktop review, a daytime field review was performed of select aquatic sites to examine their size, ponding characteristics, and seasonal hydrology. The day survey included direct review of aquatic sites using the methodology described in the 2003 *Interim Guidance on Site Assessment and Field Surveys for Determining Presence or A Negative Finding of the California Tiger Salamander*, jointly issued by the USFWS and CDFW (USFWS, 2003). The habitat assessment prepared by NSR was relied upon for the descriptions of all habitat features in the study area; excepting two that that provide potential breeding habitat.

4.3 Survey Results

Two potential aquatic breeding sites for California tiger salamander were identified in the study area (**Figures 4-2 and 4-3**), and two such features were identified outside of the study area, southeast of the Basalt Quarry and Basalt Campground area (**Figure 4-4**; also see **Figure 5-4**). The first two sites are within B.F. Sisk Safety of Dams Modification Project area and the other two are within the typical movement range of the California tiger salamander. Three of the features directly reviewed, and the fourth off-site area is considered to provide potential breeding habitat based on a review of aerial photographs and review using binoculars from approximately 0.25-mile. These sites are further described in **Table 4-1**.

The California tiger salamander has not been verified within the Study Area; however, has been anecdotally described from the Basalt Use Area (U.S. Bureau of Reclamation and California Department of Parks and Recreation, 2005).

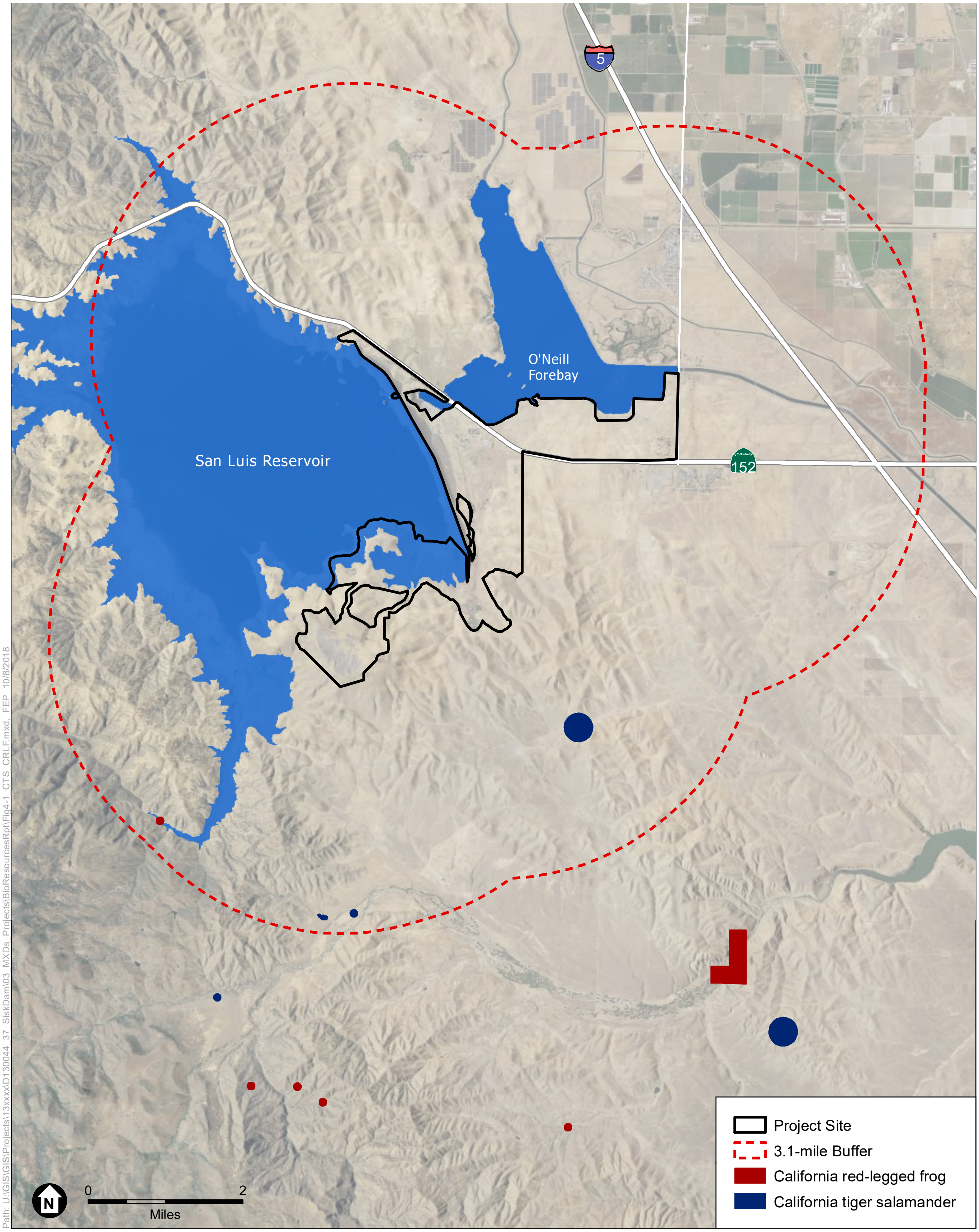
The California tiger salamander should be presumed to use Willow Spring pond, which additionally supports California red-legged frog breeding. In areas where the range of the California tiger salamander and California red-legged frog overlap, numerous accounts of sympatry are often reported from perennial and ephemeral ponds (Alvarez et al., 2013). California tiger salamanders should also be presumed to breed in each of the other three sites noted in this assessment, unless separate field surveys verify the absence of appropriate ponding conditions during a normal rainfall year. Based on resource agency guidance, this species has bene described in upland habitat up to 2 km (1.24 miles) from aquatic breeding sites under optimal movement conditions. Aside from the steep topography of the area, there are no barriers to California tiger salamander movement into or within the study area.

TABLE 4-1

POTENTIAL CALIFORNIA TIGER SALAMANDER BREEDING SITES

Pond Identification	Size	Habitat Conditions	Hydrology
Willow Spring Pond	0.17 acre	Spring-fed stock pond with dense cattails in the center surrounded by a broad ring of aquatic habitat. Duckweed seasonally provides cover within ponded areas. An extensive California ground squirrel colony is present upslope from the pond, providing hundreds of potential refuge burrows. California red-legged frog present at this site.	Perennial water; greater than 1.5 feet in numerous locations
Basalt Quarry Pond	0.04 acre	Seasonal impoundment perched on the hillside. Numerous small mammal burrows on the surrounding hillside. No emergent vegetation.	Seasonal pond that appears to have borderline hydrology to support the CTS aquatic life cycle. The upslope area is seasonally wet from natural seepage and may sustain suitable aquatic breeding conditions.
Off-site Pond #1; 0.8-mile Southeast of Basalt Quarry	0.15 acre	Seasonal impoundment perched on the hillside. Numerous ground squirrel burrows on the surrounding hillside. Feature is fed by an upslope spring that lengthens the duration of ponding. No emergent vegetation Subject to cattle grazing. Also considered potential for California red-legged frog.	Seasonal pond that retains water into summer months. An upslope seep provides shallow year-round pooled water in cattle hoof depressions.
Off-site Pond #2; 0.6-mile south of Basalt Campground	0.18 acre	Seasonal impoundment that could not be reached for surveys, but appears to provide appropriate conditions of breeding. No emergent vegetation; grazed.	Seasonal pond that retains water into summer months.
Off-site Pond #3; 0.3-mile west of Basalt Quarry	0.08 acre	Seasonal impoundment that could not be reached for surveys, but appears to provide appropriate conditions of breeding. No emergent vegetation; grazed.	Seasonal pond that retains water into summer months.
Off-site Pond #4; 1.2-miles west of Basalt Quarry	0.50 acre	Perennial impoundment that could not be reached for surveys, but appears to provide appropriate conditions of breeding. Extensive cattail growth; grazed.	Perennial water

Source: ESA



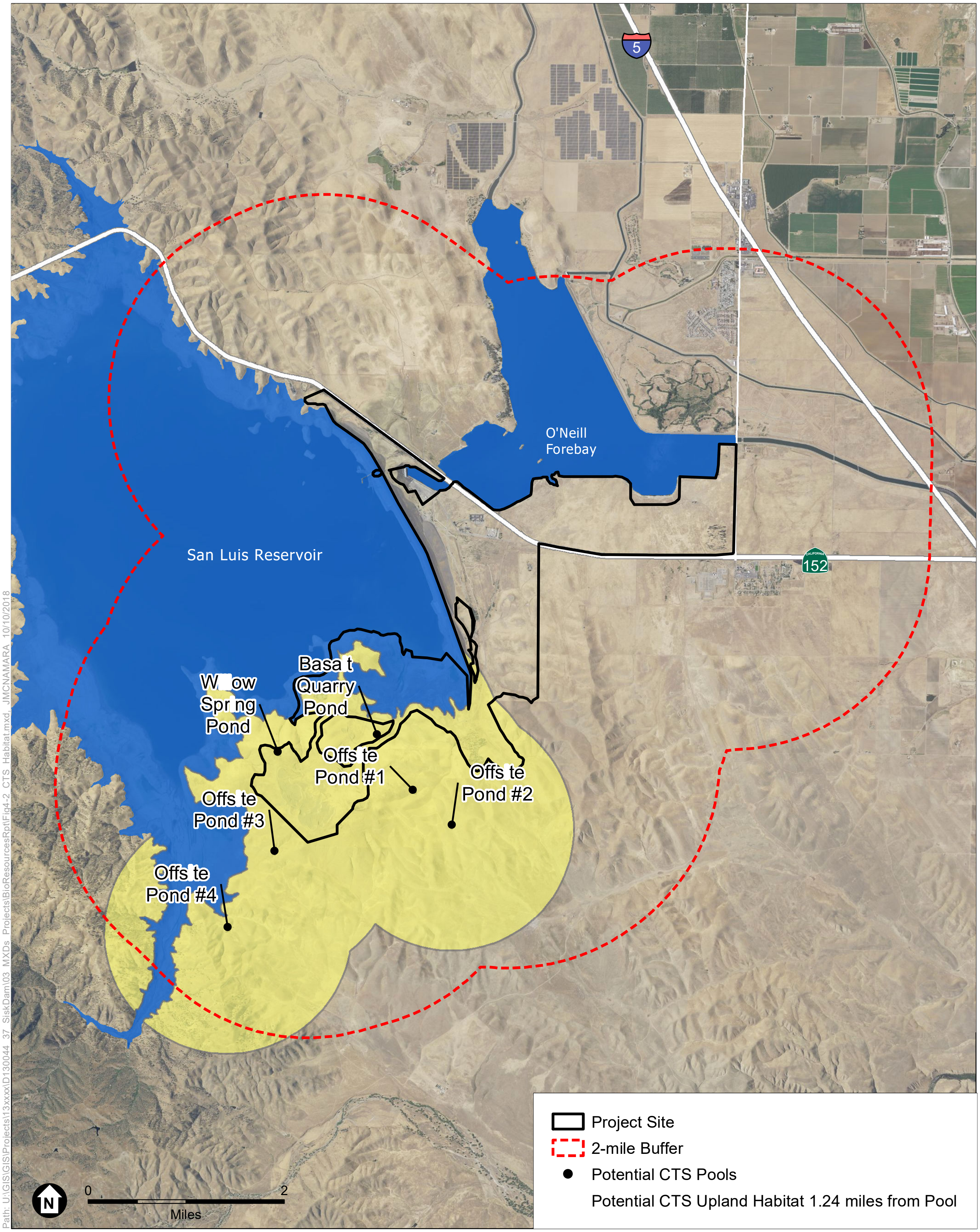
Path: U:\GIS\GIS\Projects\13xxxx\D130044 37 SiskDam\03 MXDs Projects\BioResourcesRpt\Fig4-1 CTS CRLF.mxd, FEP 10/8/2018

SOURCE: USDA, 2016; CDFW, 2018; CDM, 2018; ESA, 2018

B.F. Sisk Dam Safety of Dams Modification Project

Figure 4-1
Occurrences of California Tiger Salamander and California Red-legged Frog within 3.1 miles (5 km) of the B.F. Sisk Dam Project Area

ESA



SOURCE: USDA, 2016; CDFW, 2018; USFS, 2017; CDM, 2018; ESA, 2018

B.F. Sisk Dam Safety of Dams Modification Project

Figure 4-2
Location of Potential California Tiger Salamander Habitat within 2 miles of the B.F. Sisk Dam Study Area

ESA

Source: ESA

Figure 4-3

Potential California Tiger Salamander Breeding Habitat at Willow Spring Pond (top)
and "Basalt Quarry Pond" (bottom)
Photo date: September 13, 2018

Source: ESA

Figure 4-4

Potential California Tiger Salamander Breeding Pools at Off-site Pond #1, 0.8-mile Southeast of Basalt Quarry (top) and Off-site Pond #2, 0.6-mile South of Basalt Campground (bottom). Photo date: September 13, 2018

CHAPTER 5
California Red-legged Frog

5.1 Summary of Findings

A focused review was performed by ESA biologists within the study area to examine perennial aquatic sites as potential California red-legged frog (*Rana draytonii*) habitat. This review considered the sites described in a North State Resources, Inc. (NSR) (2010b) California red-legged frog habitat assessment, and additionally considered one off-site stock pond in the regional vicinity. During non-protocol day and night spotlighting surveys, a California red-legged frog population was detected in the study area at the Willow Spring pond located north of Basalt Quarry. Potential high quality aquatic breeding habitat was also identified in a spring-fed stock pond, Off-site Pond #1 located 0.63-mile northeast of the Basalt Hill summit, and Off-site Pond #3 located 0.3-mile west of Basalt Quarry. The survey confirmed NSR (2010b) findings that California red-legged frogs are unlikely to be encountered in other aquatic habitat within the study area such as below the dam or at the Medeiros Use Area. Aquatic habitat associated with Domengine Spring, near Basalt Campground, was also surveyed and is considered unlikely to support this species. A full species account for the California red-legged frog was provided in NSR (2010b) and is not repeated in this report.

5.2 Survey Methods

California red-legged frog specialists K. Bayne and B. Pittman, CWB, were the lead surveyors for the assessment. Ms. Bayne and Mr. Pittman each hold USFWS 10a(1)(A) recovery permits for California red-legged frog. Focused day and nighttime surveys of aquatic features in the study area were performed by B. Pittman, K. Bayne, J. McNamara, and E. Holmboe from September 10 to 13, 2018.

In advance of the survey, ESA biologists performed the following tasks:

- Review of aerial photographs on Google Earth from August 1998 through March 2018 to examine the ponding characteristics of aquatic sites and locations of perennial water.

- Examine the 2010 NSR habitat assessment report to locate prior survey areas, pond locations, and ascertain ponding conditions.

- A review of historical and recent California red-legged frog distribution records from the California Natural Diversity Database (CNDDB) (CDFW, 2018) and scientific literature.

Following this desktop review, day and nighttime field surveys were performed at select aquatic sites. The day survey included direct review of upland and aquatic habitat at perennial aquatic sites to verify on-site aquatic habitat and survey for amphibian populations. Surveyors used the visual-encounter survey method, as described in the USFWS (2005) survey protocol. This method entails walking the survey area while repeatedly scanning and listening for amphibians.

Day surveys were conducted on September 10-13, 2018 between 9 am and 5 pm. Night surveys were conducted at two locations on September 13, 2018 between 2040 hours to 2200 hours. Surveys were performed under optimal visibility and weather conditions, under dry, calm and relatively warm conditions. Wind speed was generally under 2 to 3 mph and the air temperature ranged from 70 to 75 degrees Fahrenheit. All encountered amphibians were identified with 100 percent certainty. During night surveys, each surveyor used a 230-lumen Nite Lite Wizard II LED headlamp (a 6-volt, a Service-approved light for California red-legged frog surveys) and 10x42 binoculars.

5.3 Survey Results

The CNDDB reports the nearest California red-legged frog as approximately 6 miles to the east and 5 miles to the south of the study area. In addition, the NSR (2010b) habitat assessment concluded no potential for species occurrence in the study area. Perennial water seepage drains below B.F. Sisk Dam were reviewed for their potential to provide California red-legged frog habitat. Aquatic habitat is present in some features, as noted in the NSR (2010b) report; however, these perennial aquatic sites are either small, provide no cover for frogs, or are isolated and not considered accessible to red-legged frogs.

Based on the desktop review and daytime review of field sites, nighttime surveys were performed at two high quality perennial aquatic sites: Willow Spring and Domengine Spring. A California red-legged frog breeding population was identified during surveys at the Willow Spring stock pond (37.02791N, -121.10020W) (**Figures 5-1, 5-2, and 5-3**). One adult and eight subadult California red-legged frogs were identified in the pond during the night survey. Details for this occurrence are provided in the CNDDB reporting form in **Appendix A**.

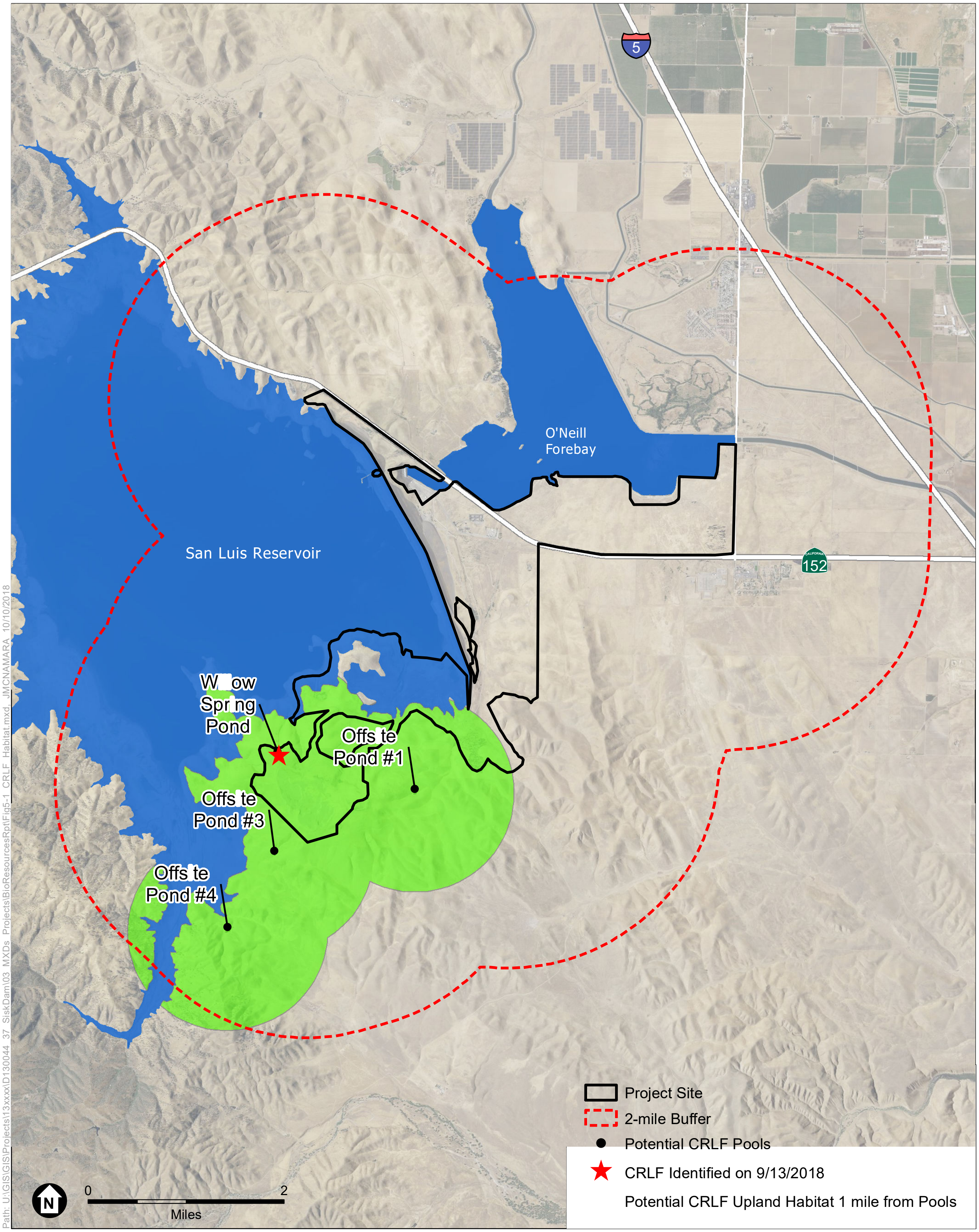
In addition, potential habitat for this species was identified during daytime surveys in a spring-fed stock pond located approximately 0.63-mile northwest of the Basalt Hill summit (see Figures 5-1 and 5-3). This seasonal pond is fed by a perennial spring. It is believed that the pond may serve as a suitable California red-legged frog breeding site, drying by mid-summer. The adjacent spring provides year-round non-breeding aquatic habitat that, in combination with the pond and regionally-occurring California red-legged frog populations, could support a breeding population. This pond is located outside of the B.F. Sisk Safety of Dams Modification Project area, on grazing land owned by Reclamation.

TABLE 5-1
POTENTIAL CALIFORNIA RED-LEGGED FROG BREEDING SITES

Pond Identification	Size	Habitat Conditions	Hydrology
Willow Spring Pond	0.17 acre	Spring-fed stock pond with dense cattails in the center surrounded by a broad ring of aquatic habitat. California red-legged frog present at this site.	Perennial water; greater than 1.5 feet in numerous locations
Off-site Pond #1; 0.8-mile Southeast of Basalt Quarry	0.15 acre	Seasonal impoundment perched on the hillside. Numerous ground squirrel burrows on the surrounding hillside. Feature is fed by an upslope spring that lengthens the duration of ponding. No emergent vegetation Subject to cattle grazing. Also considered potential for California tiger salamander.	Seasonal pond that retains water into summer months. An upslope seep provides shallow year-round pooled water in cattle hoof depressions.
Off-site Pond #3; 0.3-mile west of Basalt Quarry	0.08 acre	Seasonal impoundment that could not be reached for surveys, but appears to provide appropriate conditions for breeding. No emergent vegetation; grazed.	Seasonal pond that retains water into summer months.
Off-site Pond #4; 1.2-miles west of Basalt Quarry	0.50 acre	Perennial impoundment that could not be reached for surveys, but appears to provide appropriate conditions of breeding. Extensive cattail growth; grazed. High likelihood of species' presence.	Perennial water; depth unknown

Source: ESA

Based on survey findings, the California red-legged frog may be encountered in select aquatic sites and surrounding upland habitat near Basalt Quarry, south of the reservoir. This species could potentially enter active work areas both from the Willow Spring pond to the north of the work area, or from Off-site Pond #1 or Pond #3 to the south and west of the study area (if present at these locations). Hence, precautions are warranted to avoid impacts to this species.



SOURCE: USDA, 2016; CDFW, 2018; USFS, 2017; CDM, 2018; ESA, 2018

B.F. Sisk Dam Safety of Dams Modification Project

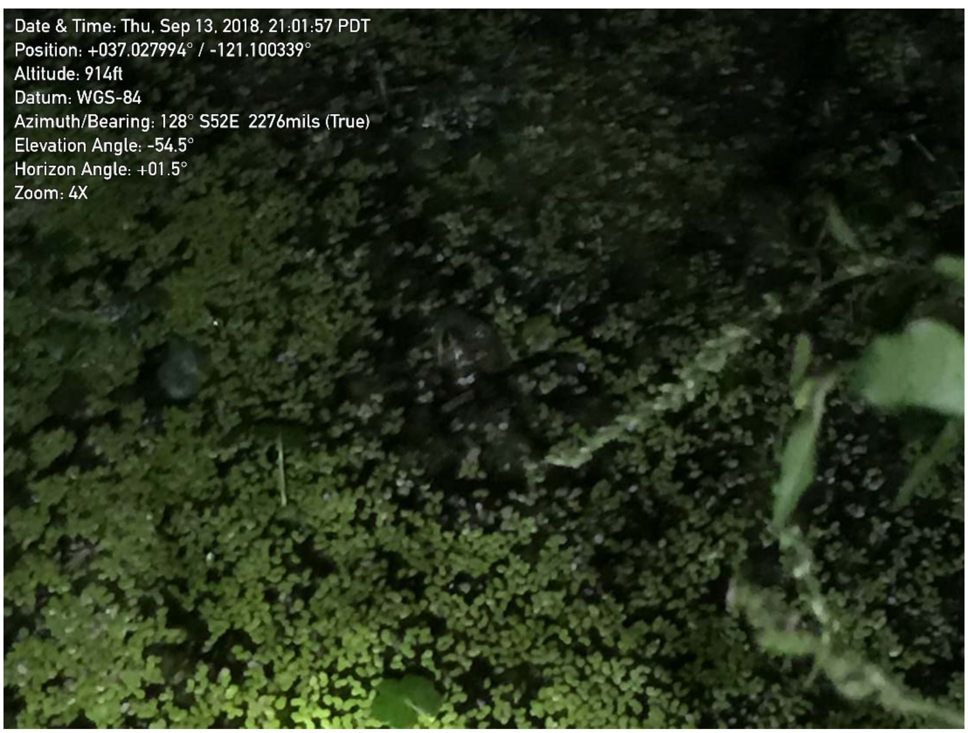
Figure 5-1
Location of Known and Potential California Red-legged Frog Habitat within 2 miles of the B.F. Sisk Dam Study Area

ESA

Source: ESA

Figure 5-2

Surveyed Habitat in the Study Area included Two Spring-fed Drainages: Domengine Spring near Basalt Campground (top) and Willow Spring Pond (bottom). Photo date: September 12, 2018



Source: ESA

Figure 5-3

A Breeding Population of California Red-legged Frogs was Detected at the Willow Spring Pond. Photos show an Adult Frog (top) and Subadult Frog (bottom).
Photo date: September 13, 2018

Source: ESA

Figure 5-4

Two Views of Potential CRLF Habitat in a Spring-fed Off-site Pond #1, 0.63-mile Northwest of the Basalt Hill Summit. Top Photo Shows Perennial Standing Water. Photo date: September 13, 2018

CHAPTER 6
Burrowing Owl and Swainson's Hawk

6.1 Summary of Findings

This chapter presents the results of a habitat assessment for burrowing owl (*Athene cunicularia*) and Swainson's hawk (*Buteo swainsoni*) within the study area defined in Chapter 1. The purpose of the habitat assessment is to identify active and potential burrowing owl and Swainson's hawk foraging and nesting habitat.

To summarize survey findings, no burrowing owls, active burrows, or burrowing owl sign was identified in the study area. In addition, State Parks employees do not report any recent burrowing owl sightings in the study area. Low annual grassland habitat with extensive ground squirrel burrows occurs throughout the area below the dam and provides high quality nesting and foraging habitat for this species. Annual grasslands near the Medeiros Use Area and throughout the study area provide intermittent, high quality habitat for this species.

No Swainson's hawks were observed during surveys, possibly due to the late, post-migration survey timing. The CNDDB reports recent nesting in two trees stands in the Medeiros Use Area grassland area and trees near Basalt Campground. Individual tree and tree stands in the Medeiros Use Area and similar habitat west of SR 152 provide suitable foraging habitat for Swainson's hawk.

6.2 Species Accounts

Burrowing Owl

Western burrowing owls are relatively small, semicolonial owls, and are mostly residents of open dry grasslands and desert areas. These owls use burrows excavated by ground squirrels and other small mammals during the breeding and non-breeding season. In areas where the number and availability of natural burrows is limited, owls may occupy human-made burrows such as drainage culverts, cavities under piles of rubble, discarded pipe, and other tunnel-like structures (Zeiner et al., 1990a). Burrowing owls hunt from perches and are opportunistic feeders. They consume arthropods, small mammals (e.g., meadow voles), birds, amphibians, and reptiles. Insects are often taken during the day, while small mammals are taken at night (Zeiner et al., 1990a).

The CNDDB (2018) confirms a local burrowing owl record from 2003, with two wintering owls observed about one mile southeast of the California Department of Forestry and Fire Protection (CAL FIRE) station, near the intersection of Basalt Road and Gonzaga Road. Twelve additional occurrences are reported by the CNDDB within 10 miles of the study area (**Figure 6-1**). Burrowing owl nesting has not been observed or reported in the study area.

Swainson's Hawk

This large migratory hawk nests throughout North America and winters in southern South America. Swainson's hawks begin arriving in California in late February and depart for their wintering grounds in early September (Woodbridge, 1998). Nests are typically constructed in sturdy trees within or near agricultural lands, riparian corridors, and roadside trees. Nests are composed of a platform of sticks, bark, and fresh leaves. Swainson's hawks reside in the Central Valley from March through October, with eggs typically laid in April and early May (peaking in late April).

The Swainson's hawk nesting range is restricted to portions of the Central Valley and Great Basin regions, where suitable habitat is still present. The highest density currently is in the Central Valley, between Sacramento and Modesto, and in the northern San Joaquin Valley (Woodbridge, 2004).

The CNDDB reports Swainson's hawk nesting in the study area, with three active nest sites reported in 2006 including two in Medeiros Use Area grasslands and one at Basalt Campground. Additionally, numerous Swainson's hawk nesting attempts are reported at the O'Neill Forebay Wildlife Area managed by CDFW from 2001 top 2015 (CDFW, 2018).

6.3 Survey Methods

The burrowing owl survey and habitat assessment was performed from September 10 to 13, 2018 by ESA biologists E. Holmboe, K. Bayne, and B. Pittman, with assistance from J. McNamara. The lead surveyors each have more than a 15 years of focused burrowing owl and Swainson's hawk survey experience.

In advance of the survey, ESA biologists performed the following tasks:

- A review of aerial photographs on Google Earth from August 1998 through March 2018 to examine nesting areas and review off-site nesting areas.
- An inventory of historical and recent burrowing owl and Swainson's hawk occurrence records from the California Natural Diversity Database (CNDDB) (CDFW, 2018) and scientific literature (**Figure 6-1**).

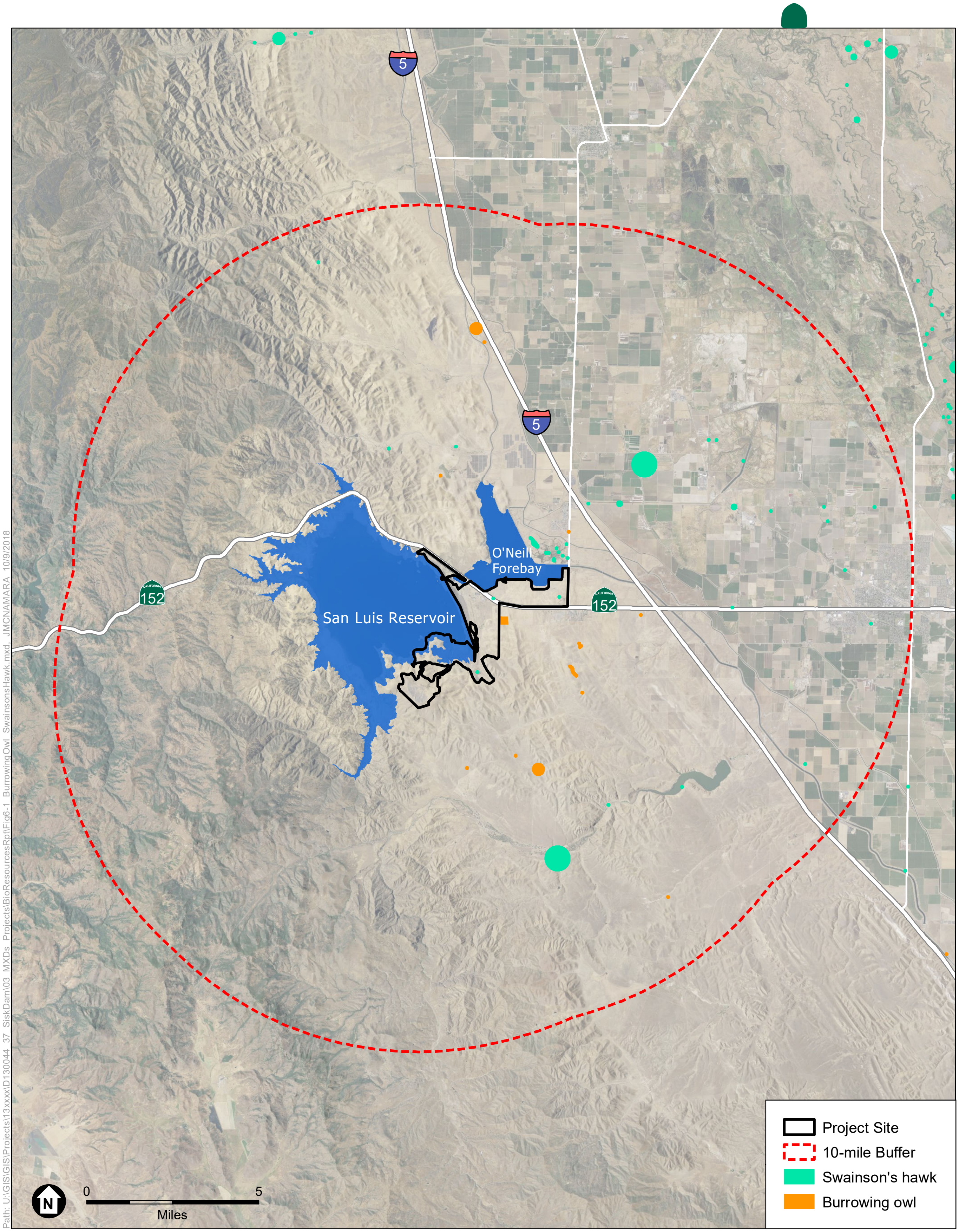
The burrowing owl assessment followed the survey guidelines described in the California Department of Fish and Wildlife (CDFW) Staff Report on Burrowing Owl Mitigation (herein referred to CDFW Staff Report) (CDFW, 2012). The description of habitat conditions in the study area includes an assessment of the presence and extent of potential burrowing owl nesting habitat (burrows) and foraging habitat (annual grasslands). The work completed and described in this report fulfills the Habitat Assessment and Reporting criteria as described in the CDFW Staff Report (CDFW, 2012).

The Swainson's hawk habitat assessment was performed outside of CDFW's recommended survey period for this species, which generally runs from April 1 through July 15 (CDFW, 2010). Birds were likely Hence, a survey for individual birds could not be performed. Surveyors reviewed individual trees and tree groves for evidence of nesting and recorded evidence of nesting great homed owls, red-tailed hawks, red-shouldered hawks and other potentially competitive species.

6.4 Survey Results

Potential burrowing owl nesting and foraging habitat was identified in grasslands throughout the study area; however, no evidence of burrowing owl presence was noted during transect surveys within the highest quality habitat areas. Based on the field review, the distribution of potential burrowing owl nesting habitat is shown in **Figure 6-2**.

While Swainson's hawk nesting was not observed in the study area, eucalyptus, cottonwoods and other trees provide potential nesting habitat. Grasslands throughout the study area provide potential foraging habitat. The distribution of potential Swainson's hawk nesting and foraging habitat is also shown in Figure 6-2.

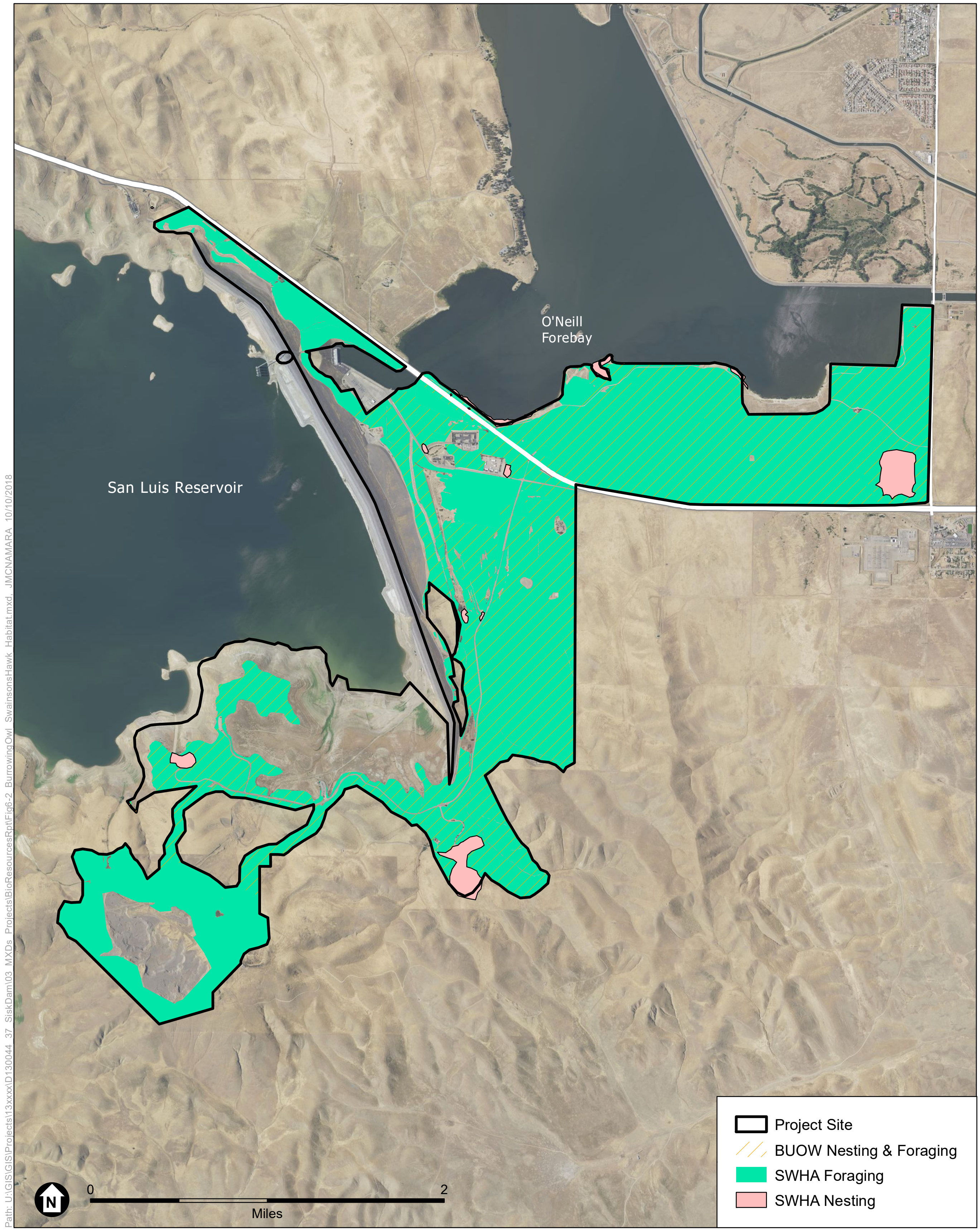


SOURCE: USDA, 2016; CDFW, 2018; CDM, 2018; ESA, 2018

B.F. Sisk Dam Safety of Dams Modification Project

Figure 6-1
Occurrences of Burrowing owl and Swainson's Hawk
within 10 miles of the B.F. Sisk Dam Project Study Area

ESA



SOURCE: USDA, 2016; CDFW, 2018; CDM, 2018; ESA, 2018

B.F. Sisk Dam Safety of Dams Modification Project

Figure 6-2
Location of Potential Burrowing Owl and Swainson's Hawk Habitat in the B.F. Sisk Dam Project Study Area

ESA

Source: ESA

Figure 6-3

Much of the Study Area Supports Annual Grasslands that are Suitable for Burrowing Owl Nesting; seen from atop B.F. Sisk Dam looking toward O'Neill Forebay (top) and in Greater Detail (bottom). Photo date: September 12, 2018

Source: ESA

Figure 6-4

Grasslands in the Medeiros Use Area are Suitable for Burrowing Owl Nesting. The CNDDB Reports Recent Swainson's Hawk Nesting in the Eucalyptus Grove in this Area. Photo date: September 12, 2018

CHAPTER 7
American Badger and San Joaquin Kit Fox

7.1 Summary of Findings

Spotlighting surveys were conducted on four consecutive nights in September 2018, totaling 10 survey hours within the study area (2.5 hours each). Surveys resulted in the identification of 94 animals in the study area comprising 10 identified species, and one unidentified canid that was observed at a great distance. San Joaquin kit were not observed during the spotlighting survey. An American badger was detected during spotlighting surveys near the intersection of Basalt Road and Gonzaga Road.

Neither American badger nor San Joaquin kit fox were identified at 12 camera scent stations that were established throughout the study area.

7.2 Species Accounts

American Badger

American badgers are rather large, robust, short-legged mammals with broad bodies. They have a short bushy tail, small eyes and ears, shaggy grayish fur, and distinct white and black markings on the face. Badger front feet are large, with claws measuring about 1-inch long that are used for digging. Badgers prey primarily on gophers, ground squirrels, marmots, and kangaroo rats, but will also eat a variety of other animals, including mice, woodrats, reptiles, birds and their eggs, bees and other insects. In California, American badgers occupy a diversity of habitats. Grasslands, savannas, and mountain meadows near the timberline are preferred, though they can be found in deserts as well. The principal requirements seem to be sufficient food, friable soils, and relatively open, uncultivated ground.

In California, badgers range throughout the state, except for the humid coastal forests of northwestern California in Del Norte County and the northwestern portion of Humboldt County (Williams, 1986).

This species is expected to occur in moderate densities in grassland habitats throughout the study area, with individuals observed during the survey below the dam, and anecdotally reported by State Parks staff in the Basalt Day Use area, north of Basalt Quarry.

San Joaquin Kit Fox

The San Joaquin kit fox is a permanent resident of arid grasslands and open scrubland, where friable soils are present. Dens are required year-round for reproduction, shelter, temperature regulation, and protection from predators (USFWS, 1998). Historically their habitat included native alkali marsh and saltbush scrub of the valley floor, but the availability of such habitats has diminished markedly due to agricultural conversion. Grasslands with friable soils are considered the principal habitat for denning, foraging, and dispersal, while open woodland areas and agricultural lands provide foraging and dispersal habitat. Kit foxes will use habitats that have been extensively modified by humans, including grasslands and scrublands with active oil fields, wind turbine fields, and agricultural matrices (USFWS, 1998).

San Joaquin kit fox diet characteristics vary subtly in the northern portion of their range from other portions of their range. In the Altamont region, the kit fox diet varies seasonally and by locality based on local prey availability. While kangaroo rats (*Dipodomys* spp.) are an important component of the kit fox diet in their southern range, kit foxes in the Altamont region preferentially prey upon California ground squirrel, insects, cottontails (*Sylvilagus auduboni*), black-tail jackrabbits (*Lepus californicus*), and small rodents such as voles, rats and mice (Hall, 1983; Orloff et al., 1986). Other prey that may be taken opportunistically includes ground-nesting birds, reptiles, and insects (Laughlin, 1970).

San Joaquin kit foxes occur only in and around the Central Valley, inhabiting open habitat in the San Joaquin Valley and surrounding foothills. Kit fox population densities are greatest in the southern portion of their range. Kit fox populations in the northern portion of their range are highly fragmented and sparsely distributed, where foxes occupy foothill grasslands because much of their former habitat on the valley floor has been eliminated.

At least 24 San Joaquin kit fox sightings area reported within 10 miles of the study area (CDFW, 2018), including multi-year observations of numerous individuals. Within 0.75 to 5.5 miles to the south of the study area, a single CNDDB occurrence includes sightings of 185 individuals between 1984 to 2005 (**Figure 7-1**). The next nearest sighting to the south describes 291 individuals observed from 1972 to 2003 (CDFW, 2018). Most of the recently documented kit fox sightings are pre-2005, and occur south and southeast of the study area, with scattered occurrences to the northeast (Figure 7-1).

7.3 Survey Methods

A detailed San Joaquin Kit Fox Evaluation report prepared by North State Resources (2010c) characterized the quality and distribution of potential habitat for his species in the study area, and the location of spotlighting activities in the regional area. The habitat characterization describes present-day conditions within the study area and surrounding region. The present non-protocol survey and site assessment was performed to identify the potential presence of large carnivores, including San Joaquin kit fox and American badger, through spotlighting surveys and the placement of camera scent stations.

Spotlighting Surveys. Spotlighting surveys were conducted each night between Monday, September 10 and Thursday, September 13 following the following the CDFW Region 4 Approved Survey Methodologies for Sensitive Species (1990). Surveys began each night between 1930 hours and 2000 hours and continued for 2 to 3 hours. Weather conditions during the surveys were optimal, with wind speed generally under 2 to 3 mph and air temperature ranging from 70 to

75 degrees Fahrenheit. The moon phase was new moon on September 10, and waxing crescent for other survey days.

One team of two to four biologists conducted the surveys. Survey personnel are identified in Table 7-1. Surveys were performed from paved and dirt roads within the study area, with the vehicle survey routes shown in **Figure 7-2**. A high-clearance vehicle was used to ensure unobstructed views of the surrounding areas. Surveyors used two high-output (1,000,000-candlepower) spotlight per vehicle. Survey routes were driven at speeds under 10 miles per hour.

TABLE 7-1

SPOTLIGHTING PERSONNEL

Survey Date	Lead Biologists	Assistant
September 10, 2018	Brian Pittman	Julie McNamara
September 11, 2018	Brian Pittman	Julie McNamara
September 12, 2018	Brian Pittman Even Holmboe Kelly Bayne	Julie McNamara
September 13, 2018	Brian Pittman Even Holmboe Kelly Bayne	Julie McNamara

Wildlife species that were identified during surveys were identified using 10x42 power binoculars, and their locations were generally recorded on data sheets. All wildlife observations were confirmed by multiple observers.

Camera Stations. Camera stations were established at twelve locations situated throughout the study area (Figure 7-2). The 1999 USFWS survey protocol recommends using a minimum density of 8 cameras per 640 acres. Due to the large size of the study area, cameras could not be placed at the recommended number. Hence, the survey was intended to be informational in nature and not intended as a presence-absence survey. Cameras were operated for four nights, with four cameras relocated during the survey to coincide with small mammal activity identified during spotlighting surveys.

Each camera station consisted of four Cabela's Outfitter 14MP infrared trail cameras and four Wildgame Innovations 14MP infrared trail cameras. Each camera was mounted to a wooden stake and baited with cat foot. Cameras were set up to high resolution and moderate sensitivity, with a series of three photos taken for each trigger event. The camera delay was set to 1 minute between successive trigger events. The date and time of each photograph was digitally stamped on the photograph.

7.3 Survey Results

Spotlighting Surveys. Spotlighting surveys were conducted on four consecutive nights in September 2018, totaling 10 survey hours within the study area (2.5 hours each). Surveys resulted in the identification of 94 animals in the study area comprising 10 identified species, and one unidentified canid that was observed at a great distance (**Table 7-2**). San Joaquin kit were not observed during the spotlighting survey. An American badger was detected during spotlighting surveys near the intersection of Basalt Road and Gonzaga Road. Details for this occurrence are provided in the CNDDB reporting form in **Appendix A**.

No other special-status wildlife species were observed during spotlighting surveys.

Tule elk (*Cervus canadensis nannodes*) were the most abundant mammal observed during surveys, followed by black-tailed jack rabbit (*Lepus californicus*) and Audubon's cottontail (*Sylvilagus audubonii*). Adult and juvenile coyote (*Canis latrans*) were noted during surveys south and west of SR 152; though this species was not identified in Medeiros Use Area grasslands.

One small canid was observed in the western portion of the Medeiros Use Area grasslands, but was observed from a distance (greater than 0.25-miles) and could not be confirmed to species. Due to the animal's distance from the observation point, only the eye shine and faint outline were observed. But its small size and gait were suggestive of a fox species and not a coyote.

Camera Stations. A total of 32 camera station nights were deployed during the survey effort comprised of eight cameras over the course of 4 nights. All eight cameras were set up on September 10, 2018 and operated for three days. Following the identification of an unidentified canid species during spotlighting surveys in the Medeiros Use Area, four cameras were subsequently moved to areas where small mammal activity was noted.

Cameras were set up on September 10 and taken down on September 14, 2018. During this period, camera stations detected common raven, raccoon, black-tailed jackrabbit, California ground squirrel, domestic cat, striped skunk, black-tailed deer, and small birds, as shown in **Table 7-3** and **Figures 7-3, 7-4, 7-5, and 7-6**. Neither San Joaquin kit fox nor American badger were observed during camera surveys.

TABLE 7-2
WILDLIFE OBSERVATIONS DURING SPOTLIGHTING SURVEYS

Species Name	Sept. 10	Sept. 11	Sept. 12	Sept. 13	Total # Observations
American badger *Taxidea taxus*	0	0	0	1	1
Tule elk *Cervus canadensis nannodes*	10+	10+	10+	10+	40+
Black-tailed jack rabbit *Lepus californicus*	10+	10+	1	10+	30+
Barn owl *Tyto alba*	1	1	1	1	4
Great horned owl *Bubo virginianus*	2	0	0	0	2
Coyote *Canis latrans*	4	1	0	1	6
Audubon’s cottontail *Sylvilagus audubonii*	10+	0	1	1	12+
Black-tailed deer *Odocoileus hemionus*	0	2	0	4	6
Raccoon *Procyon lotor*	1	0	0	0	1
Domestic cat *Felis catus*	0	0	1	0	1
Unknown canid[a]	0	0	1	0	1

[a] The unidentified canid was observed in western portion of the Medeiros Use Area on September 12, 2018. Two trail cameras were subsequently deployed to this area, but species identification could not be confirmed.

Source: ESA

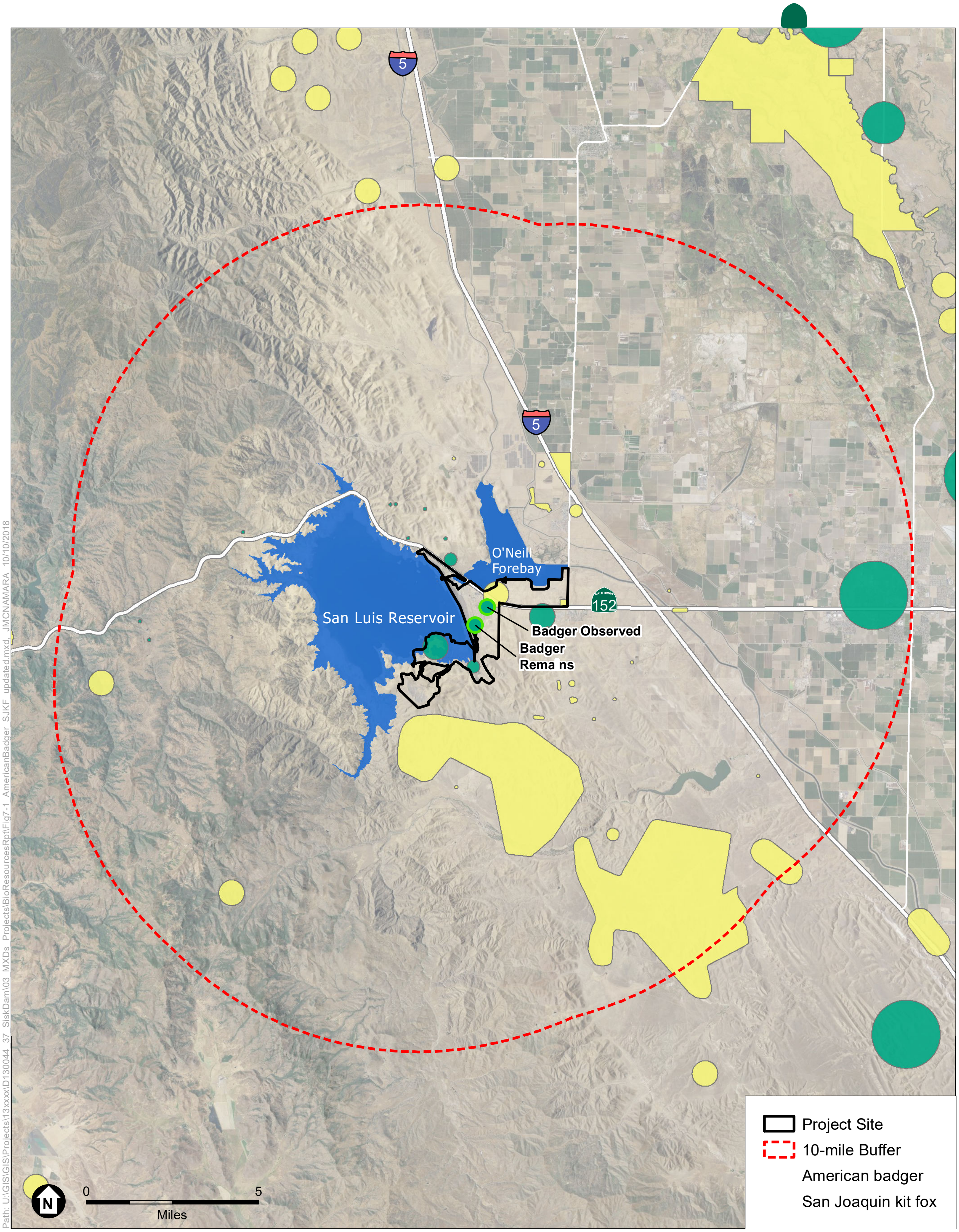
TABLE 7-3

SUMMARY OF WILDLIFE OBSERVATIONS DURING SPOTLIGHTING SURVEYS

Camera Station	Survey Dates	Number of Survey Days	Results
1	Sept. 10-14	4	Common raven, raccoon
2	Sept. 10-13	3	Black-tailed jackrabbit, red-tailed hawk, common raven, California ground squirrel, western meadowlark, small rodents
3	Sept. 10-14	4	Raccoon, striped skunk, domestic cat, coyote
4	Sept. 10-14	3	Black-tailed deer, meadowlark, violet-green swallow, loggerhead shrike
5	Sept. 10-13	3	No observations
6	Sept. 10-13	3	No observations
7	Sept. 10-14	4	No observations
8	Sept. 10-14	4	No observations
9	Sept. 13-14	1	No observations
10	Sept. 13-14	1	No observations
11	Sept. 13-14	1	No observations
12	Sept. 13-14	1	No observations

[a] The unidentified canid was observed in western portion of the O'Neill Forebay grasslands

Source: ESA



Path: U:\GIS\GIS\Projects\13xxx\D130044 37 SiskDam\03 MXDs Projects\BioResourcesRpt\Fig7-1 AmericanBadger SJKF updated.mxd, JMCNAMARA 10/10/2018

SOURCE: USDA, 2016; CDFW, 2018; CDM, 2018; ESA, 2018

B.F. Sisk Dam Safety of Dams Modification Project

Figure 7-1
Occurrences of American Badger and San Joaquin Kit Fox within 10 miles of the B.F. Sisk Dam Project Study Area

ESA

SOURCE: USDA, 2016; CDFW, 2018; CDM, 2018; ESA, 2018

B.F. Sisk Dam Safety of Dams Modification Project

Figure 7-2
Location of Camera Stations and Spotlighting Survey Routes

Source: ESA

Figure 7-3

One Station Examined Wildlife Movement across the B.F. Sisk Dam (top); as Noted in the NSR (2010c) Report, Potential Kit Fox Dens occur Throughout the Study Area.
Photo date: September 10, 2018

Source: ESA

Figure 7-4

Camera Station Photos Showing a Black-tailed Jackrabbit at Station 2 and Coyote at Station 3. Photo dates: September 11 and 14, 2018

Source: ESA

Figure 7-5

Camera Station Photos Showing a Striped Skunk and Domestic Cat at Station 3

Photo dates: September 12 and 13, 2018

Source: ESA

Figure 7-6

Camera Station Photos Showing a Raccoon at Station 3 and Black-tailed Deer at Station 4. Photo dates: September 12, 2018

CHAPTER 8
Special-Status Bats

8.1 Summary of Findings

This chapter details the findings of a special-status bat habitat assessment that was performed in the study area from September 10 to 14, 2018, and nighttime emergence surveys and acoustic monitoring that were performed at a concrete tunnel structure located near the Basalt Quarry on September 11, 2018. The assessment found potential tree roosting habitat for the western red bat (*Lasiurus blossevillii*) in day use areas and other locations in the study area. Yuma myotis (*Myotis yumanensis*) and Mexican free-tailed bat (*Tadarida brasiliensis*) roosting was verified in a cavernous concrete structure near the Basalt Quarry, though the structure itself will not be subject to direct project impacts. Potential bat roosting was identified in a second, similar concrete structure within the study area near the quarry.

8.2 Survey Methods

Daytime roost assessment surveys were performed on September 10-13, 2018 by E. Holmboe, with assistance from B. Pittman, K. Bayne, and J. McNamara. Structures within the study area were examined, including all crevices, cavities, and entrances, and other potential roost features to identify evidence of past or present bat activity, including staining, characteristic odor, fecal pellets, and live bats. In addition, eucalyptus, cottonwood, Chinese pistache, and other trees were examined within the Basalt Day Use Area and Basalt Campground, and in the Medeiros Use Area to identify suitable bat roost habitat in the form of cavities, crevices and exfoliating bark.

Bat emergence surveys and nighttime acoustic monitoring were performed on September 12, 2018, at a single man-made cave located north of Basalt Quarry (**Figures 8-1 and 8-2**). E. Holmboe was lead biologist for the nighttime bat emergence survey, with assistance from B. Pittman and J. McNamara. This site was selected for emergence surveys because bat sign was noted and bats were observed in crevices during daytime surveys using a 230-lumen Nite Lite Wizard II LED headlamp and 10x42 binoculars.

Bat emergence survey was performed between 1930 hours and 2030 hours on September 12, 2018. Surveys were performed under optimal visibility and weather conditions, under dry, calm and relatively warm conditions. Wind speed was generally under 2 to 3 mph with an air temperature of 85 degrees Fahrenheit.

Acoustic surveys were concurrently performed using a Wildlife Acoustics EM3+ bat detector. Acoustic data was post-processed using Sonobat version 3.2.1 to identify calls to species.

8.3 Survey Results

The Wildlife Acoustics EM3+ bat detector survey was performed at a single man-made cave for a single night survey. The meter identified a total of 951 bat call files and identified three species with 99% to 100% likelihood of presence.

The assessment found potential tree roosting habitat for the western red bat (*Lasiurus blossevillii*) in day use areas and other locations in the study area, as shown in Figure 8-1. Yuma myotis (*Myotis yumanensis*) and Mexican free-tailed bat (*Tadarida brasiliensis*) roosting was verified in a cavernous concrete structure near the Basalt Quarry, though the structure itself will not be subject to direct project impacts. Potential roosting by Yuma myotis and Mexican free-tailed bat are suspected at a second, similar concrete structure within the study area near the quarry. This location of all features discussed in this chapter is shown in Figure 8-1.

SOURCE: USDA, 2016; CDFW, 2018; CDM, 2018; ESA, 2018

B.F. Sisk Dam Safety of Dams Modification Project

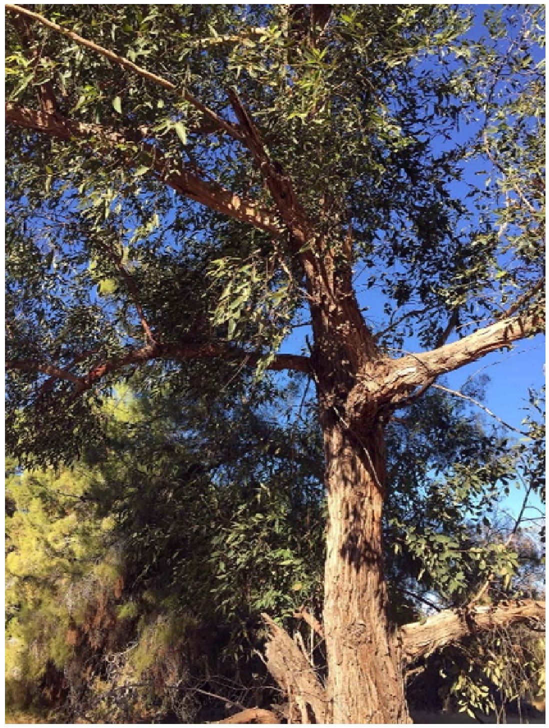
Figure 8-1
Location of Special-status Bat Habitat in the Study Area

ESA

Source: ESA

Figure 8-2

Two Cavernous Features in the Basalt Quarry Area Support Bat Roosts. Monitoring at the Tunnel (top) Confirmed Yuma Myotis and Mexican Free-tailed Bat Roosting. Photo date: September 12, 2018



Source: ESA

Figure 8-3

Individual Trees and Tree Stands at the Medeiros Use Area, Basalt Day Use Area, Basalt Campground, and Below B.F. Sisk Dam Provide Bat Roosting Habitat

Photo date: September 12, 2018

CHAPTER 9

Vegetation Communities and Special-Status Plants

9.1 Natural Communities

This chapter provides the environmental baseline for natural communities and special-status plant species in the study area. During the survey, natural communities and habitat types were identified within the study area, including sensitive plant communities. These communities and habitat types include lacustrine, freshwater emergent wetland, seasonal wetland, blue elderberry stands, coyote brush scrub, purple needlegrass grasslands, annual grasslands, ornamental, valley foothill riparian, and developed/disturbed habitat.

The natural community classification presented herein is based on direct field observations, prior habitat mapping for the San Luis Low Point Improvement Project and the B.F. Sisk Safety of Dams Modification Project, and the state's standard for alliance-level vegetation classification, A Manual of California Vegetation (Sawyer, Keeler-Wolf, and Evens, 2009). The distribution of vegetation communities in the Study Area is presented in **Figure 9-1** and the extent of each natural community or habitat type (for non-vegetated areas) is presented in **Table 9-1**.

TABLE 9-1

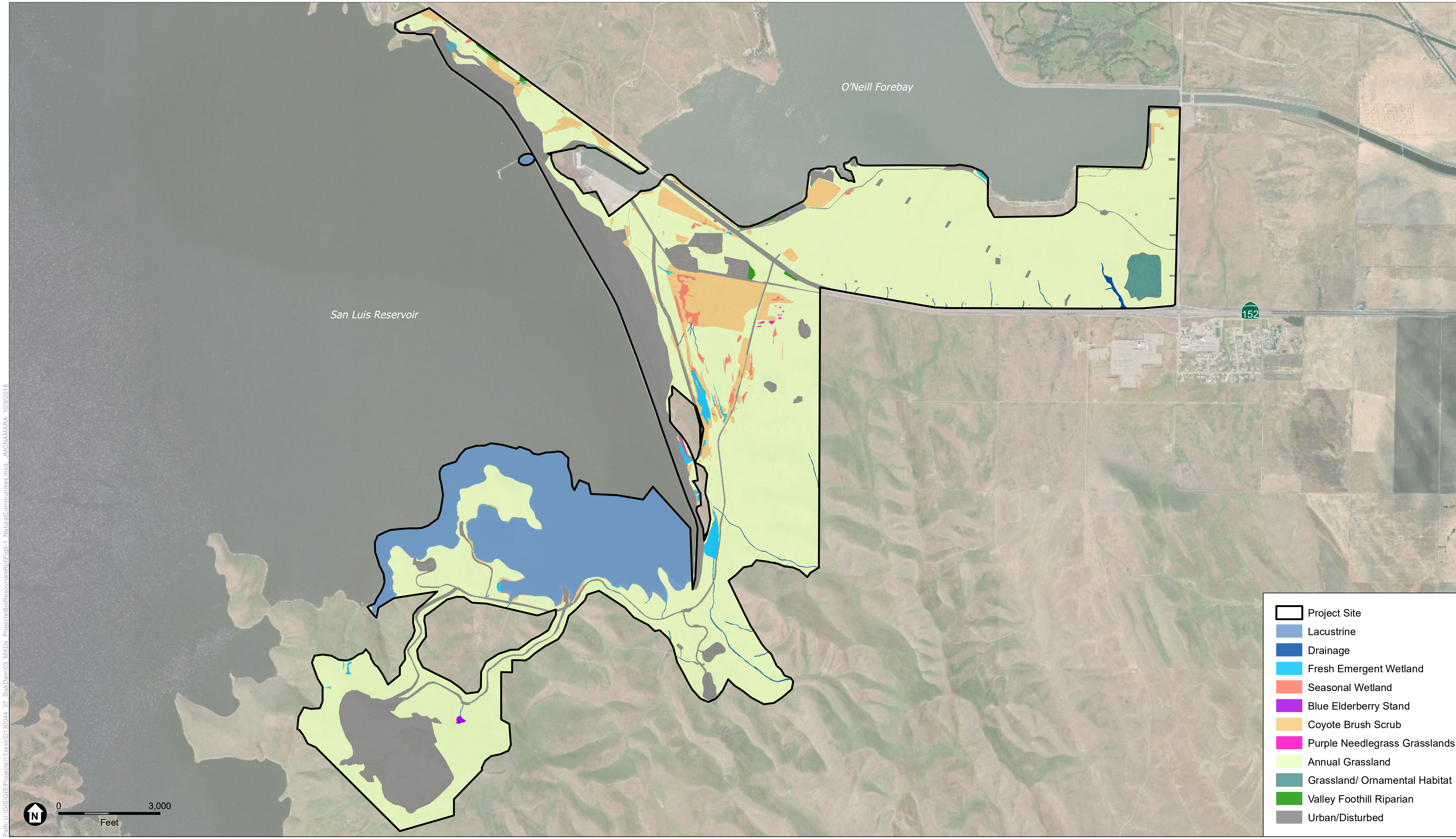
NATURAL COMMUNITY ACREAGE IN THE STUDY AREA

NATURAL COMMUNITY		AREA (ACRES)
Lacustrine		523.0
Drainage		4.6
Freshwater Emergent Wetland		24.1
Seasonal Wetland		16.8
Blue Elderberry		0.89
Coyote Brush Scrub		189.3
Purple Needlegrass Grassland		1.54
Annual Grassland		2552.9
Grassland/Ornamental Tree		28.3
Valley Foothill Riparian		3.2
Urban/Disturbed		605.4
	Total Area	**3,952.3**

SOURCE: ESA

9.2 Special-status Plants

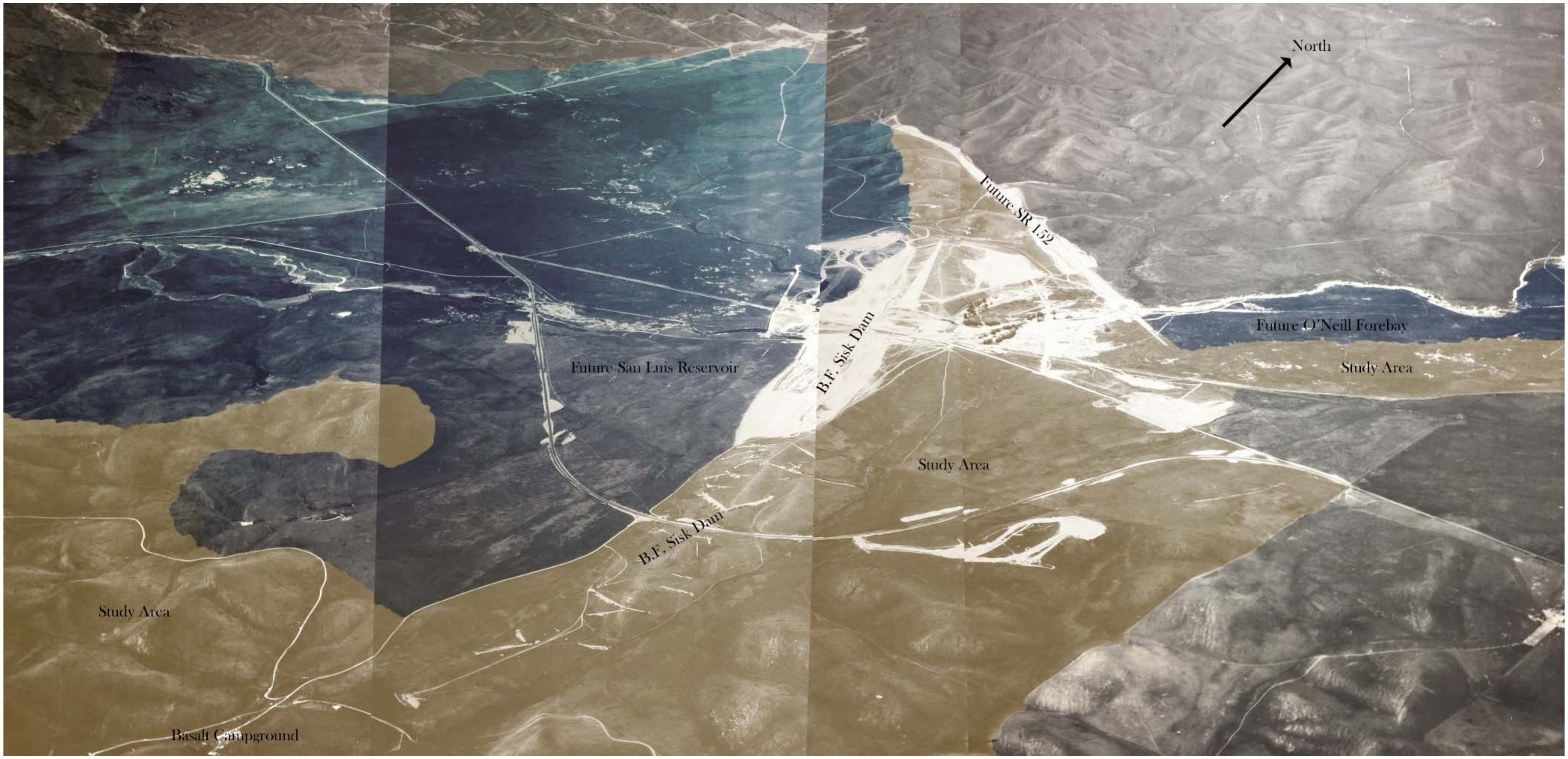
Due to the late timing of ecological surveys performed in September 2018, focused in-season surveys for special-status plants could not be performed. A key objective of the survey was the identification of areas may support special-status plants. As shown in **Figure 9-2**, much of the study area was not disturbed during the 1963 to 1968 construction of B.F. Sisk Dam. Surveyors observed small pockets of unique habitats in scattered locations throughout the study area where native grasses and forbs persist, and where special-status plants may be encountered. Plant species identified during surveys are presented in **Appendix B**. Such habitats include purple needlegrass grasslands, annual grasslands, seasonal wetlands, some of which are slightly alkaline. Based on the September 2018 field review, areas that should be evaluated during appropriately-timed botanical surveys are shown in **Figure 9-3**. Focused botanical surveys should include purple needlegrass grasslands, annual grasslands, and seasonal wetlands.



SOURCE: USDA, 2016; CDM, 2018; ESA, 2018

B.F. Sisk Dam Safety of Dams Modification Project

Figure 9-1
Distribution of Natural Communities
In the Study Area



Source: ESA

Figure 9-2
Aerial Photo Composite of B.F. Sisk Dam Under Construction, ca. 1965.
Presently Inundated Areas Are Approximately Shown in Blue. Undisturbed Portions of the Study Area, Shaded in Sepia, Informed the Assessment of Potential Rare Plant Distribution Shown in Figure 9-3

SOURCE: USDA, 2016; CDFW, 2018; CDM, 2018; ESA, 2018

B.F. Sisk Dam Safety of Dams Modification Project

Figure 9-3
Location of Potential Special-status
Plant Habitat in the Study Area

ESA

CHAPTER 10
Other Considered Wildlife Species

10.1 Introduction

During field surveys, specific attention was given to the identification of habitat for western pond turtle (*Actinemys marmorata*), San Joaquin coachwhip (*Masticophis flagellum ruddocki*), tricolored blackbird (*Agelaius tricolor*). These species were not detected during surveys; however, potential habitat for each was identified within the study area, as described below.

10.2 Western Pond Turtle

Western pond turtles are moderate-sized aquatic turtles that feed on plants, insects, worms, amphibians, crustaceans, and carrion. Mating usually occurs in late April or early May, but may occur year-round. Hatchling turtles are thought to emerge from the nest and move to aquatic sites in the spring (Jennings and Hayes, 1994; Stebbins, 2003; Zeiner et al., 1988).

Western pond turtles are commonly found in ponds, lakes, marshes, rivers, streams, and irrigation ditches with rocky or muddy substrates surrounded by aquatic vegetation. These watercourses usually are within woodlands, grasslands, and open forests, between sea level and 6,000 feet in elevation. Turtles bask on logs or other objects when water temperatures are lower than air temperatures. Nests are located at upland sites, often up to 0.25-mile from an aquatic site (Jennings and Hayes, 1994; Stebbins, 2003; Zeiner et al., 1988).

Pond turtles are not reported within San Luis Reservoir and are not expected to regularly occur in this waterbody. Pond turtles are reported within at Los Banos Reservoir, 5.8 miles south of the study area, and in stock ponds located west of San Luis Reservoir, about 5 miles west of the study area (CDFW, 2018). Within the study area, no aquatic features or drainages are known to support western pond turtle. The perennial seep-fed pond at Willow Spring provides moderate quality habitat for this species. Pond turtles were not observed at this location during two surveys of this area, and basking habitat is limited in this pond due to extensive cattail growth. This species has a low to moderate potential to occur at the Willow Spring pond.

10.3. San Joaquin Coachwhip

San Joaquin coachwhips are energetic diurnal foragers. They become active later in the spring than other snakes, and are mostly active during warm periods of the day. They forage primarily on lizards, bird eggs and young, and small mammals, occasionally foraging on carrion. Mating is thought to occur in May, and oviposition in June or early July. Life history information on this subspecies is poorly known and much information has been taken from similar subspecies (Jennings and Hayes, 1994).

The San Joaquin coachwhip uses open, dry areas with little or no tree cover. In the western San Joaquin Valley, they occur in valley grassland and saltbush scrub associations and are known to climb shrubs and bushes to view prey and potential predators. They use small mammal burrows for refuge and probably for egg-laying sites as well (Jennings and Hayes, 1994).

San Joaquin coachwhips range from the eastern edge of the San Joaquin Valley from Colusa County southward to Kern County and into the inner South Coast Ranges, with an isolated population in the Sutter Buttes. Western Merced County is within the documented range of the San Joaquin coachwhip, with eleven reported sightings in the western portion of the county. Seven records were reported in 1985 and 1988 near Los Banos Reservoir and Los Banos Creek, about 4 to 7 miles south of the study area. The study area and surrounding grasslands provides suitable open grassland habitat for San Joaquin coachwhips and this species can be expected at low densities in grassland habitat throughout the study area.

10.4 Tricolored Blackbird

The tricolored blackbird is a state-listed threatened species. This species is common throughout the Central Valley and coastal areas south of Sonoma County. They may occur during the breeding and nonbreeding season, sometimes within groups of red-winged blackbird (*Agelaius phoeniceus*).

Tricolored blackbirds are a colonial nesting species that construct their nests in dense vegetation in and near freshwater wetlands. When nesting, tricolored blackbirds generally require freshwater wetland areas large enough to support colonies of 50 pairs or more. They prefer freshwater emergent wetlands with tall, dense cattails or tules for nesting, but also breed in thickets of willow, blackberry, wild rose, or tall herbs. During the nonbreeding season, flocks are highly mobile and forage in grasslands, croplands, and wetlands (Zeiner et al., 1990a).

Tricolored blackbirds are often a sporadic resident species that may breed in different locations in successive years. The CNDDB describes four tricolored blackbird occurrences within the study area, with 25 nesting pairs documented in 2005 near Domengine Spring; 150 non-nesting adults reported in 1998 near the reservoir edge north of Basalt Quarry; more than 500 birds observed in 2006 and 2007 on the south shore of O'Neill Forebay; and consistent nesting reported in cattail marsh areas below B.F. Sisk Dam, consisting of 100 to 5,000 adults per year from 1998 to 2012.

Though not observed during surveys, seasonal wetlands and other aquatic habitat in the study area provide suitable nesting habitat for this species during both the breeding and nonbreeding season.

CHAPTER 11
References and Report Preparation

11.1 References

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5.2 Document Preparation

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Eryn Pimentel, GIS Specialist

APPENDIX A

CNDDB Reporting Forms

California Native Species Field Survey Form

Mail to:
Natural Diversity Database
California Department of Fish and Game
1807 13th Street, Suite 202
Sacramento, CA 95814

For Office Use Only	
*Source Code*_______________	*Quad Code*_____________
Elm Code_______________	Occ. No.___________
EO Index No.___________	Map Index No.________

Date of Field Work: ***09-13-2018***
month (mm) - date (dd) - year (yyyy)

Scientific Name: Rana draytonii

Common Name: California red-legged frog

Species Found? ☒ **Yes** ☐ **No** ______________ If not, why?

Total No. of Individuals:)

Subsequent visit? ☐ **Yes** ☒ **No**

Existing NDDB occurrence:_____________ ☒ **No** ☐ **Unk.**
If yes, Occ. #

Collection? ☐ **Yes** ☒ **No** If yes, # and location:

Reporter: Brian Pittman
Address: Environmental Science Associates
1425 N. McDowell Blvd., Ste. 200
Petaluma, CA 94954
Email address: bpittman@esassoc.com
Phone: 707-795-0915

Plant Information

Phenology: ________ % vegetative ________ % flowering ________ % fruiting

Animal Information

Age Structure: 1 # adults 8 # juveniles ______ # unknown

☒ breeding ☐ wintering ☐ burrow site ☐ rookery ☐ nesting ☐ other

Location (please also attach or draw map)	
County: Merced	*Landowner / manager*: State Parks
Quad Name: San Luis Dam, CA	*Elevation*: 959 ft
T 2 S R 3 E NE ¼ of NW ¼ of Section	T R ¼ of ¼ of Section
UTM: Zone 10	*Point Accuracy*: 3 Meters
Source: Garmin ETrex/Google Earth	*Datum*: NAD 83
Site Coordinates: UTM: 4099656N, 668984E	

Habitat Description (plant communities, dominants, associates, substrates/soils, aspects/slope)
Habitat includes a perennial, spring-fed cattle stock pond measuring 90' by 140' within the San Luis State Recreation Area. The water source for the impoundment is formally named "Willow Spring" on the USGS San Luis Dam 7.5-minute quadrangle. The center of the pond has dense cattails surrounded by a broad, 8' to 10' wide ring of aquatic habitat. Duckweed seasonally provides cover within ponded areas. Pond water levels were at full capacity and spilling when observed in September 2018, with water depth of approximately 1.5' in numerous locations.
Other rare species?

Site Information Overall site quality: ☒ Excellent ☐ Good ☐ Fair ☐ Poor
Current / surrounding land use: Grazing land. Upslope rock quarry site to the south.
Visible Disturbances / possible threats: Construction activities from the proposed B.F. Sisk Dam Safety Project may pose a short-term hazard to moving adults and juveniles; though the spring and pond will likely be unaffected.
Comments: One adult California red-legged frog and eight subadults were identified in the pond on September 13, 2018. No other amphibians were observed during the survey.

Determination: (check one or more, and fill in blanks)
- ☐ **Keyed (cite reference):**
- ☐ **Compared with specimen housed at:**
- ☐ **Compared with photo / drawing in:**
- ☐ **By another person:**
- ☐ **Other: Verified by B. Pittman and Kelly Bayne**

Photographs: (check one or more)

	Slide	Print
Plant / animal	☐	☒
Habitat	☐	☒
Diagnostic feature	☐	☐

May we obtain duplicates at our expense?
☒ **yes** ☐ **no**

Attachments: Survey Report Figures 5-1, 5-2, and 5-3

California Native Species Field Survey Form

Mail to:
Natural Diversity Database
California Department of Fish and Game
1807 13th Street, Suite 202
Sacramento, CA 95814

For Office Use Only	
Source Code_______________ Quad Code_____________	
Elm Code_______________	Occ. No.___________
EO Index No.___________	Map Index No.________

Date of Field Work: ***09-12-2018***
month (mm) - date (dd) - year (yyyy)

Scientific Name: Taxidea taxus

Common Name: American badger

Species Found? ☒ **Yes** ☐ **No** ______________ If not, why?

Total No. of Individuals:)

Subsequent visit? ☐ **Yes** ☒ **No**

Existing NDDB occurrence:_____________ ☒ **No** ☐ **Unk.**
If yes, Occ. #

Collection? ☐ **Yes** ☒ **No** If yes, # and location:

Reporter: Brian Pittman
Address: Environmental Science Associates
1425 N. McDowell Blvd., Ste. 200
Petaluma, CA 94954
Email address: bpittman@esassoc.com
Phone: 707-795-0915

Plant Information

Phenology: ________ % vegetative ________ % flowering ________ % fruiting

Animal Information

Age Structure: 1 # adults ________ # juveniles ________ # unknown

☐ breeding ☐ wintering ☐ burrow site ☐ rookery ☐ nesting ☐ other

Location (please also attach or draw map)	
County: Merced	*Landowner / manager*: State Parks
Quad Name: San Luis Dam, CA	*Elevation*: 297 ft
T 2 S R 3 E NE ¼ of NW ¼ of Section	T R ¼ of ¼ of Section
UTM: Zone 10	*Point Accuracy*: 50 Meters
Source: Garmin ETrex/Google Earth	*Datum*: NAD 83
Site Coordinates: UTM: 4102943N, 673181E	

Habitat Description (plant communities, dominants, associates, substrates/soils, aspects/slope)
Annual grassland comprises the majority of terrestrial habitat below B.F. Sisk Dam. Grasslands below the dam are well grazed by tule elk and consist of short non-native annual grasses interspersed with coyote brush and forbs. Extensive small mammal activity is evident within the grassland, with California ground squirrel as a major species. Dominant vegetation species are wild oat (*Avena fatua*) and soft chess (*Bromus hordeaceus*).
Other rare species?

Site Information Overall site quality: ☒ Excellent ☐ Good ☐ Fair ☐ Poor
Current / surrounding land use: State Parks SRA grazed by tule elk. The badger was observed 0.8 miles east of B.F. Sisk Dam.
Visible Disturbances / possible threats: Construction activities from the proposed B.F. Sisk Dam Safety Project may pose a short-term hazard to moving badgers.
Comments: One adult badger was observed while spotlighting from Basalt Road, 50 feet east of the road and approximately 200 feet south of the intersection with Gonzaga Road. No photographs were taken of the individual.

Determination: (check one or more, and fill in blanks)
☐ **Keyed (cite reference):**
☐ **Compared with specimen housed at:**
☐ **Compared with photo / drawing in:**
☐ **By another person:**
☐ **Other: Verified by B. Pittman, Kelly Bayne, and Even Holmboe**

Photographs: (check one or more)

	Slide	Print
Plant / animal	☐	☐
Habitat	☐	☒
Diagnostic feature	☐	☐

May we obtain duplicates at our expense?
☒ **yes** ☐ **no**

Attachments: Survey Report Figure 7-1

APPENDIX B

Plant and Wildlife Species Observed During Surveys

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TABLE B-1
WILDLIFE SPECIES OBSERVED IN THE STUDY AREA, SEPTEMBER 10-14, 2018

COMMON NAME	SCIENTIFIC NAME
AMPHIBIANS	
California toad	*Anaxyrus boreas* ssp. *halophilus*
Sierran treefrog	*Pseudacris sierra*
California red-legged frog	*Rana draytonii*
REPTILES	
gopher snake	*Pituophis catenifer*
western fence lizard	*Sceloporus occidentalis*
BIRDS	
red-shouldered hawk	*Accipiter striatus*
spotted sandpiper	*Actitis macularius*
western grebe	*Aechmophorus occidentalis*
red-winged blackbird	*Agelaius phoeniceus*
mallard	*Anas platyrhynchos*
western scrub-jay	*Aphelocoma californica*
great blue heron	*Ardea herodias*
great horned owl	*Bubo virginianus*
cattle egret	*Bubulcus ibis*

TABLE B-1 (CONTINUED)

WILDLIFE SPECIES OBSERVED IN THE STUDY AREA; SEPTEMBER 10-14, 2018

COMMON NAME	SCIENTIFIC NAME
red-tailed hawk	*Buteo jamaicensis*
least sandpiper	*Calidris minutilla*
Anna’s hummingbird	*Calypte anna*
turkey vulture	*Cathartes aura*
killdeer	*Charadrius vociferus*
northern harrier	*Circus hudsonius*
American crow	*Corvus brachyrhynchos*
Common raven	*Corvus corax*
snowy egret	*Egretta thula*
Horned lark	*Eremophila alpestris*
Brewer's blackbird	*Euphagus cyanocephalus*
prairie falcon	*Falco mexicanus*
American kestrel	*Falco sparverius*
American coot	*Fulica americana*
greater roadrunner	*Geococcyx californianus*
bald eagle	*Haliaeetus leucocephalus*
loggerhead shrike	*Lanius ludovicianus*
western gull	*Larus occidentalis*
gull sp.	*Larus sp.*

TABLE B-1 (CONTINUED)

WILDLIFE SPECIES OBSERVED IN THE STUDY AREA; SEPTEMBER 10-14, 2018

COMMON NAME	SCIENTIFIC NAME
belted kingfisher	*Megaceryle alcyon*
common merganser	*Mergus merganser*
northern mockingbird	*Mimus polyglottos*
brown-headed cowbird	*Molothrus ater*
ruddy duck	*Oxyura jamaicensis*
osprey	*Pandion haliaetus*
English sparrow	*Passer domesticus*
American white pelican	*Pelecanus erythrorhynchos*
double-crested cormorant	*Phalacrocorax auritus*
yellow-billed magpie	*Pica nuttalli*
pied-billed grebe	*Podilymbus podiceps*
black phoebe	*Sayornis nigricans*
yellow warbler	*Setophaga petechia*
Forster's tern	*Sterna forsteri*
Eurasian collared dove	*Streptopelia decaocto*
western meadowlark	*Sturnella neglecta*
tree swallow	*Tachycineta bicolor*
violet green swallow	*Tachycineta thalassina*
greater yellowlegs	*Tringa melanoleuca*

TABLE B-1 (CONTINUED)

WILDLIFE SPECIES OBSERVED IN THE STUDY AREA; SEPTEMBER 10-14, 2018

COMMON NAME	SCIENTIFIC NAME
barn owl	*Tyto alba*
mourning dove	*Zenaida macroura*
MAMMALS	
Coyote	*Canus latrans*
Tule elk	*Cervus canadensis nannodes*
black-tailed jackrabbit	*Lepus californicus*
western red bat	*Lasirurs blossevillii*
Yuma myotis bat	*Myotis yumanensis*
California ground squirrel	*Otospermophilus beecheyi*
black-tailed deer	*Odocoileus hemionus*
Audubon’s cottontail	*Sylvilagus audubonii*
Mexican free-tailed bat	*Tadarida brasiliensis*
American badger	*Taxidea taxus*
Botta’s pocket gopher	*Thomomys bottae*

TABLE B-2

PLANT SPECIES OBSERVED IN THE STUDY AREA, SEPTEMBER 10-14, 2018

PLANT FAMILY	COMMON NAME	*SCIENTIFIC NAME*
Adoxaceae	blue elderberry	*Sambucus nigra* ssp. *caerulea*
Amaranthaceae	prickly Russian thistle	*Salsola tragus*
Apiaceae	fennel	*Foeniculum vulgare*
Apocynaceae	narrowleaf milkweed	*Asclepias fascicularis*
Asteraceae	coyote brush	*Baccharis pilularis*
	mule fat	*Baccharis salicifolia*
	glandular big tarweed	*Blepharizonia laxa*
	Italian thistle	*Carduus pycnocephalus*
	yellow star-thistle	*Centaurea solstitialis*
	Fitch's spikeweed	*Centromadia fitchii*
	stinkwort	*Ditrichia gravendens*
	western goldenrod	*Euthamia occidentalis*
	gumplant	*Grindelia* sp.
	bristly oxtongue	*Helminthotheca ichioides*
	telegraphweed	*Heterotheca grandiflora*
	yellow tarweed	*Holocarpha virgata*
	prickly lettuce	*Lactuca serriola*
	Mediterranean milk thistle	*Silybum marianum*
	wirelettuce	*Stephanomeria* sp.

TABLE B-2 (CONTINUED)

PLANT SPECIES OBSERVED IN THE STUDY AREA, SEPTEMBER 10-14, 2018

PLANT FAMILY	COMMON NAME	*SCIENTIFIC NAME*
Asteraceae	rough cocklebur	*Xanthium strumarium*
Boraginaceae	salt heliotrope	*heliotropium curassavicum*
Brassicaceae	field mustard	*Brassica rapa*
	mustard	*Hirschfeldia* sp.
	Perennial pepperweed	*Lepidium latifolium*
	wild radish	*Raphanus sativus*
Calitrichaceae	twoheaded water-starwort	*Callitriche heterophylla*
Casuarinaceae	Australian pine	*Casuaria sp.*
Convolvulaceae	field bindweed	*Convolvulus arvensis*
Cyperaceae	purua grass	*Bolboschoenus maritimus*
	sedge	*Cyperus* sp.
Elaeagnaceae	buffaloberry	*Shepherdia argentea*
Euphorbiaceae	doveweed	*Croton setigerus*
Fabaceae	honey mesquite	*Prosopis glandulosa*
Fagaceae	coast live oak	*Quercus agrifolia*
	blue oak	*Quercus douglasii*
	valley oak	*Quercus lobata*
	interior live oak	*Quercus wislizeni*
Frankeniaceae	alkali heath	*Frankenia grandiflora*

TABLE B-2 (CONTINUED)
PLANT SPECIES OBSERVED IN THE STUDY AREA, SEPTEMBER 10-14, 2018

PLANT FAMILY	COMMON NAME	*SCIENTIFIC NAME*
Geraniaceae	broadleaf filaree	*Erodium botrys*
	dove's-foot crane's bill	*Geranium molle*
Lamiaceae	black sage	*Salvia melifera*
	vinegarweed	*Trichostemma lanceolata*
Marsileaceae	American pillwort	*Pilularia americana*
Myrtaceae	blue gum eucalyptus	*Eucalyptus globulus*
	eucalyptus	*Eucalyptus* sp.
Phytolaccaceae	pokeweed	*Phytolacca decandra*
Pinaceae	stone pine	*Pinus pinea*
Plantaginaceae	buck's-horn plantain	*Plantago coronopus*
Poaceae	common wild oat	*Avena fatua*
	stiff brome	*Brachypodium distachyon*
	ripgut brome	*Bromus diandrus*
	soft brome	*Bromus hordeaceus*
	foxtail brome	*Bromus Madritensis*
	Bermuda grass	*Cynodon dactylon*
	salt grass	*Distichlis spicata*
	Italian ryegrass	*Festuca perennis*
	hare barley	*Hordeum murinum*

TABLE B-2 (CONTINUED)

PLANT SPECIES OBSERVED IN THE STUDY AREA, SEPTEMBER 10-14, 2018

PLANT FAMILY	**COMMON NAME**	***SCIENTIFIC NAME***
Poaceae	sprangletop	*Leptochloa* sp.
	purple needlegrass	*Nassalla pulchra*
	dallis grass	*Paspalum dilatatum*
	bulbous bluegrass	*Poa bulbosa*
	annual beard grass	*Polypogon monspeliensis*
Polygonaceae	curly dock	*Rumex crispus*
Roseaceae	*Holly-leaved cherry*	*Prunus ilicifolia*
Salicaceae	Fremont cottonwood	*Populus fremontii*
	narrowleaf willow	*Salix exigua*
Salicaceae	willow	*Salix* sp.
Scrophulariaceae	mullein	*Verbascum* sp.
Solanaceae	sacred datura	*Datura wrighti*
	tobacco tree	*Nicotiana glauca*
Typhaceae	narrowleaf cattail	*Typha angustifolia*
	Broadleaf cattail	*Typha latifolia*

Source: ESA

1425 N. McDowell Boulevard
Suite 200
Petaluma, CA 94954
707.795.0900 phone
707.795.0902 fax
www.esassoc.com

memorandum

date	March 30, 2018
to	B.F. Sisk Safety of Dams Project File D130314.04
from	Brian Pittman and Rebecca Acosta
subject	B.F. Sisk Dam SRA Vegetation Survey

Environmental Science Associates' (ESA) surveyed the B.F. Sisk Dam and surrounding San Luis State Recreation Area (referred to as the "project site") to identify vegetation types in the vicinity of the Sisk Dam and reservoir. Wildlife and special status species observed during the survey were also noted.

ESA wildlife biologists Julie Remp and Rebecca Acosta surveyed the project site on June 13 and 14, 2016, to characterize vegetation types and ground-truth vegetation mapping based on analysis of aerial photographs. The biologists surveyed all vegetation cover in places which were visible from publicly accessible paths or roadways. The vegetation types identified were:

- California sagebrush (*Artemisia californica*) scrub
- Blue oak (*Quercus douglasii*) woodland
- Cottonwood (*Populus fremontii*) stand
- California buckeye (*Aesculus californica*) grove
- Coyote brush (*Baccharis pilularis*)- silver lupine (*Lupinus albifrons*) scrub
- Non-native grassland

Wildlife species observed included endemic tule elk (*Cervus canadensis nannodes*), western burrowing owl (*Athene cunicularia*), a California species of special concern, and Swainson's hawk (*Buteo swainsoni*), a California Threatened species. The full list of wildlife observed is below.

- California ground squirrel (*Otospermophilus beecheyi*)
- Tule elk (*Cervus canadensis nannodes*): 12-15 individuals on east side of dam on slope
- American Crow (*Corvus brachyrhynchos*): crow nests visible in power towers
- Common raven (*Corvus corax*)
- Turkey vulture (*Cathartes aura*)
- Red-tailed hawk (*Buteo jamaicensis*): juvenile
- Western burrowing owl (*Athene cunicularia hypugaea*): perched in grassland south of reservoir
- Loggerhead shrike (*Lanius ludovicianus*)
- Brewer's blackbird (*Euphagus cyanocephalus*)
- Western kingbird (*Tyrannus verticalis*)
- Mourning dove (*Zenaida macroura*)

- Western meadowlark (*Sturnella neglecta*)
- California horned lark (*Eremophila alpestris actia*)
- Yellow-billed magpie (*Pica nuttalli*)
- Oriole sp. (*Icterus* sp.)
- Black phoebe (*Sayornis nigricans*)
- Swainson's hawk (*Buteo swainsoni*)
- Cottontail rabbit (*Sylvilagus sp.*)
- California quail (*Callipepla californica*)
- Great blue heron (*Ardea Herodias*)
- Great egret (*Ardea alba*)
- Snowy egret (*Egretta thula*)
- Killdeer (*Charadrius vociferous*)
- Mallard (*Anas platyrhynchos*)
- Scrub jay (*Aphelocoma californica*)
- Bald eagle (*Haliaeetus leucocephalus*): west of reservoir
- White pelican (*Pelecanus erythrorhynchos*)
- House finch (*Haemorhous mexicanus*)
- Monarch butterfly (*Danaus plexippus*)

DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DISTRICT, SACRAMENTO
CORPS OF ENGINEERS
1325 J STREET
SACRAMENTO CA 95814-2922

REPLY TO
ATTENTION OF

June 23, 2010

Regulatory Division SPK-2010-00683

Patti Clinton
Bureau of Reclamation
1243 N Street
Fresno, California 93721-1813

Dear Ms. Clinton:

We are responding to your May 21, 2010 request for a preliminary jurisdictional determination (JD), in accordance with our Regulatory Guidance Letter (RGL) 08-02, for the Sisk Dam Corrective Action site. The approximately 2,578.80-acre site is located on San Luis Creek at San Luis Reservoir, in Sections 13, 26, 27, 28, 33, and 34, Township 10 S, Range 9 E, and an unsectioned portion of the San Luis Dam USGS 7.5 minute quadrangle, near Latitude 37.04872°, Longitude -121.07453°, Merced County, California.

Based on available information, **we concur with the estimate of potential waters of the United States, as depicted on the January 5, 2010, Figures 4a-e, entitled *Preliminary Boundaries of Waters of the United States, Including Wetlands*, prepared by North State Resources, Inc**. The approximately 28.728 acres of wetlands and 893.085 acres of other water bodies present within the survey area may be jurisdictional waters of the United States. These waters may be regulated under Section 404 of the Clean Water Act.

A copy of our RGL 08-02 Preliminary Jurisdictional Determination Form for this site is enclosed. Please sign and return a copy of the completed form to this office. Once we receive a copy of the form with your signature we can accept and process a Pre-Construction Notification or permit application for your proposed project.

You should not start any work in potentially jurisdictional waters of the United States unless you have Department of the Army permit authorization. You may request an approved JD for this site at any time prior to starting work within waters. In certain circumstances, as described in RGL 08-02, an approved JD may later be necessary.

You should provide a copy of this letter and notice to all other affected parties, including any individual who has an identifiable and substantial legal interest in the property.

This preliminary determination has been conducted to identify the potential limits of wetlands and other water bodies which may be subject to Corps of Engineers' jurisdiction for the particular site identified in this request. A Notification of Appeal Process and Request for

Appeal (RFA) form is enclosed to notify you of your options with this determination. This determination may not be valid for the wetland conservation provisions of the Food Security Act of 1985. If you or your tenant are USDA program participants, or anticipate participation in USDA programs, you should request a certified wetland determination from the local office of the Natural Resources Conservation Service, prior to starting work.

We appreciate your feedback. At your earliest convenience, please tell us how we are doing by completing the customer survey on our website under *Customer Service Survey*.

Please refer to identification number SPK-2010-00683 in any correspondence concerning this project. If you have any questions, please contact Zachary Simmons at our California South Branch, 1325 J Street, Room 1480, Sacramento, California 95814-2922, email *Zachary.M.Simmons@usace.army.mil*, or telephone 916-557-6746. For more information regarding our program, please visit our website at *www.spk.usace.army.mil/regulatory.html*.

Sincerely,

ORIGINAL SIGNED

Paul Maniccia
Chief, California South Branch

Enclosure(s)

Copy furnished without enclosure(s):

Scott Goebl, North State Resources, Inc., 11321 20th Street, Sacramento, California 95814-4233
Dale Harvey, Central Valley Regional Water Quality Control Board, 1685 E Street, Fresno, California 93706-2007
Jason Brush, U.S. Environmental Protection Agency, Region IX, Wetlands Regulatory Office (WTR-8), 75 Hawthorne Street, San Francisco, California 94105-3901

B.F. Sisk Dam Corrective Action Project

Delineation of Waters of the United States

B.F. Sisk Dam
Central Valley Project, California

Draft
March 2010

U.S. Department of the Interior
Bureau of Reclamation

State of California
Department of Water Resources

Mission of the Bureau of Reclamation

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.

Department of Water Resources Mission Statement

To manage the water resources of California in cooperation with other agencies, to benefit the State's people, and to protect, restore, and enhance the natural and human environments.

B.F. Sisk Dam Corrective Action Project

Delineation of Waters of the United States

B.F. Sisk Dam
Central Valley Project, California

Prepared by:

North State Resources, Inc.

North State Resources, Inc.
5000 Bechelli Lane, Suite 203
Redding, CA 96002

Contents

Tables

Figures

Appendices

Chapter 1 Summary

On behalf of the U.S. Bureau of Reclamation (Reclamation), North State Resources, Inc. (NSR) conducted a delineation of waters of the United States occurring within the 2,578.80-acre B.F. Sisk Dam Corrective Action Project site (study area). The study area is located on lands surrounding the B.F. Sisk Dam, San Luis Reservoir, and O'Neill Forebay, approximately 12 miles west of the city of Los Banos, Merced County, California.

The field delineation was conducted by NSR between August 31 and September 18, 2009. A total of 921.813 acres of waters of the United States were mapped within the study area. Waters of the United States occur as lacustrine (891.000 acres), ephemeral and intermittent streams (0.335 acre, 6,401.77 linear feet), ditches (1.656 acres, 15,149.17 linear feet), fresh emergent wetlands (16.559 acres), and seasonal wetlands (12.169 acres).

This delineation of waters of the United States is subject to verification by the U.S. Army Corps of Engineers (Corps). NSR advises all parties to treat the information contained herein as preliminary until the Corps provides written verification of the boundaries of its jurisdiction.

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Chapter 2 Project Location

The study area is located approximately 12 miles west of the city of Los Banos, California on State Route (SR) 152 (Figure 1). It is in the *San Luis Dam, California* 7.5-minute U.S. Geological Survey (USGS) quadrangle, Township 10S, Range 8E, Sections 13, 27, 28, 33, and 34 Mount Diablo Base and Meridian, and portions of the Gonzaga land grant (Figure 2). The center of the study area is located at approximately UTM 10 S 672239m E, 4101640m N (NAD 83 datum).

2.1 Acreage

The study area encompasses 2,578.80 acres.

2.2 Proximity to Major Highways and Streets

The study area corresponds to the area surrounding the B.F. Sisk Dam, which is a large dam visible from miles to the east. To reach the site, exit Interstate Highway 5 at SR 152 and head west. Travel on SR 152 for approximately 2.5 miles to the SR 33/Gonzaga Road intersection. From the SR 152 exit ramp, turn left, then right at the stop sign and follow Gonzaga Road west. Pass through the intersection with Basalt Hill Road and proceed forward to the security booth. Authorization to proceed on site is required. Contacts include: Mandeep Bling [(209) 827-5110; Department of Water Resources], Lee Sencenbaugh [(209) 826-1197; Department of Parks and Recreation], and Patti Clinton [(559) 487-5127, Reclamation].

2.3 USGS Hydrologic Unit

The study area is located within the *Panoche-San Luis Reservoir* USGS Hydrologic Map Unit (Cataloging Unit Number 18040014).

Source: NSR, Inc.; USGS 7.5-Minute Topographic Quadrangle, San Luis Dam, CA   Landgrant: San Luis Conzaga
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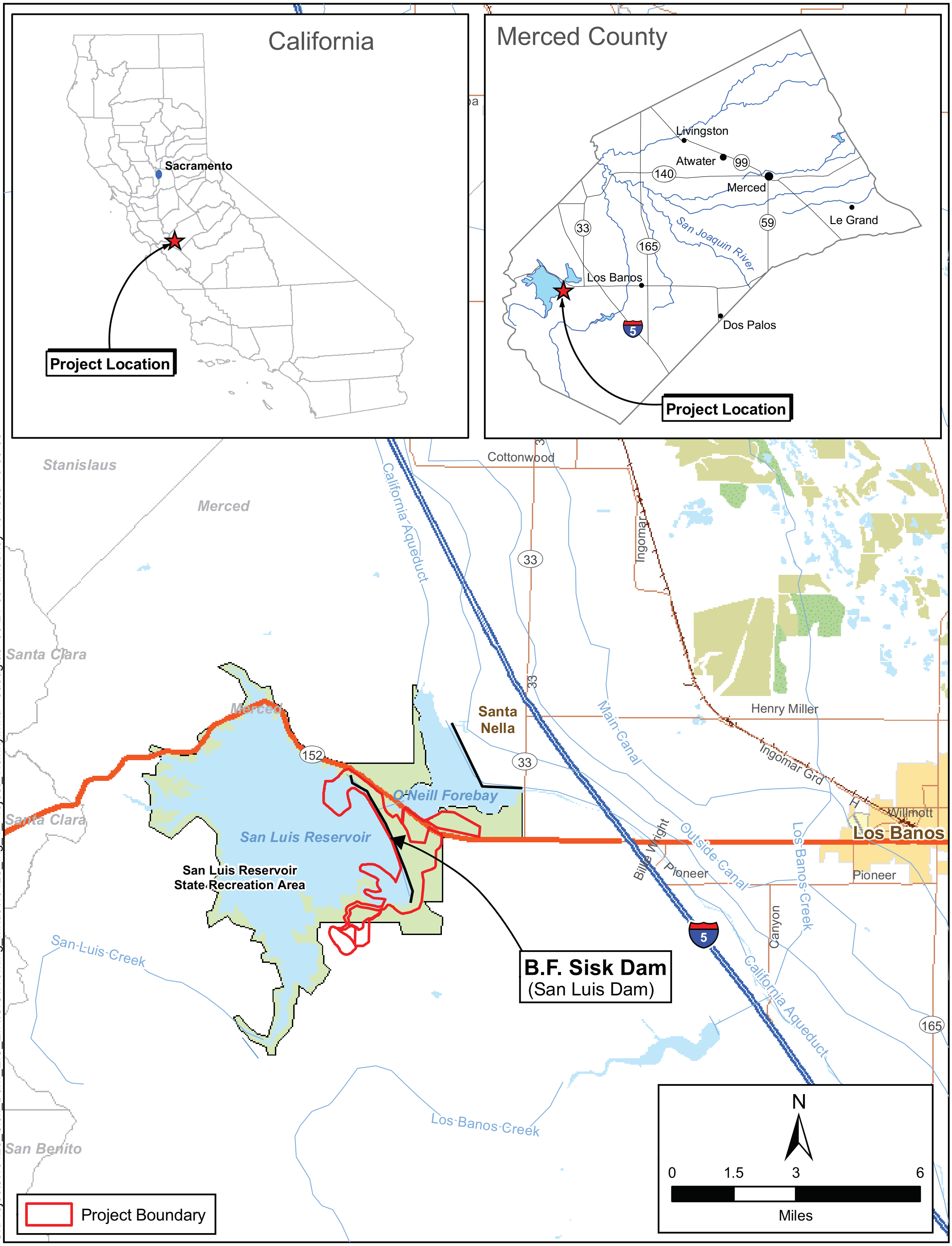

North State Resources, Inc.

B.F. Sisk Dam Corrective Action Project

Figure 1
Project Vicinity

Source: NSR, Inc.; USGS 7.5-Minute Topographic Quadrangle, San Luis Dam, CA Landgrant: San Luis Conzaga

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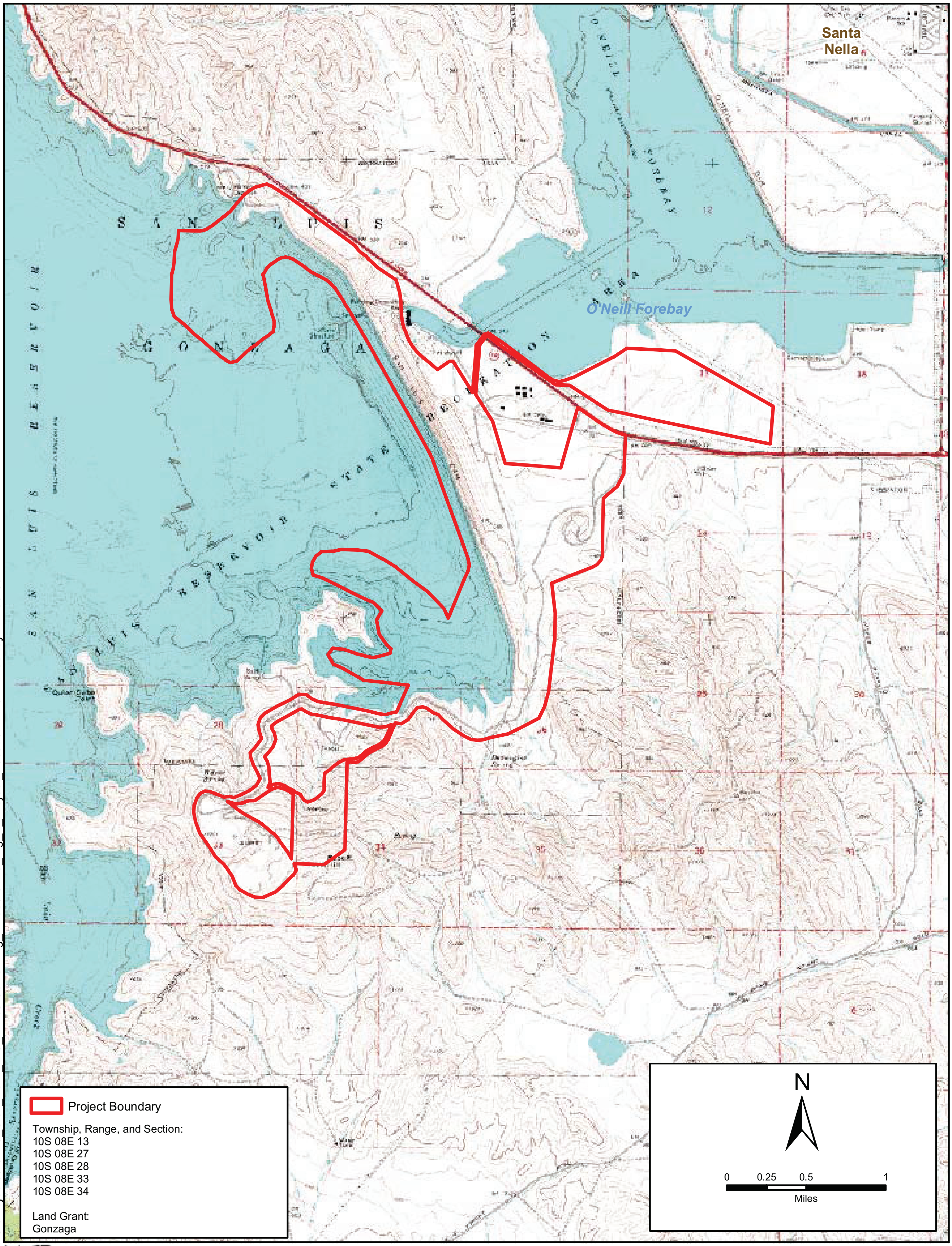

North State Resources, Inc.

B.F. Sisk Dam Corrective Action Project

Figure 2
Project Location

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Chapter 3 Environmental Setting

3.1 Current/Recent Land Use

The San Luis Reservoir functions as an out-of-channel water storage/hydropower generation facility. Waters are pumped into the reservoir from the California Aqueduct for agricultural or power generation uses when needed. Aquatic recreation, such as windsurfing, fishing, and motor boating, occurs on the reservoir. Camping, hunting, picnicking, and other land-based uses occur as allowable within the state and federally owned and managed lands surrounding the reservoir. Sisk Dam is part of the San Luis Joint-Use Complex, which is owned by Reclamation and is operated and maintained by the California Department of Water Resources (DWR).

3.2 Site Topography and Elevation

The topography of the site varies significantly from relatively flat or gently rolling in the northeast sections of the study area, to steep and mountainous in the southwest. The elevation of the study area ranges between 230 feet above mean sea level (msl) near O'Neill Forebay to almost 1,600 feet above msl in the quarry near Basalt Hill.

3.3 Climate

Climate within the study area is as follows:

Type. The study area is characterized by a climate with cool, moist winters and hot or warm, dry summers.

Precipitation. Precipitation in the study area primarily falls as rain. Average annual rainfall is approximately 9.5 inches (Western Regional Climate Center 2009). For the period between August 31, 2008 and August 31, 2009, 7.89 inches of precipitation (rain) was recorded, which is 83 percent of normal; 2009 was the third year of an on-going statewide drought.

Air Temperature. Air temperatures in the study area range between an average January high of 55 degrees Fahrenheit (ºF), and an average July high of 96 ºF. The year-round average high is approximately 76 ºF (Western Regional Climate Center 2009).

Growing Season. The growing season (i.e., 70 percent probability of an air temperature of 28 ºF or higher) in the study area is between 200 and 280 days and occurs from February through October. The soil temperature regime is thermic (USDA Soil Conservation Service 1990).

3.4 Hydrology/Hydrologic Features

The study area lies within the San Luis Creek watershed, which historically drained to the San Francisco Bay via the San Joaquin River. Today, however, the hydrology of the watershed has been significantly altered by the development of the B.F. Sisk Dam and O'Neill Forebay. Since completion of San Luis Dam, runoff from San Luis Creek has been captured in San Luis Reservoir and diverted for State Water Project and Central Valley Project purposes.

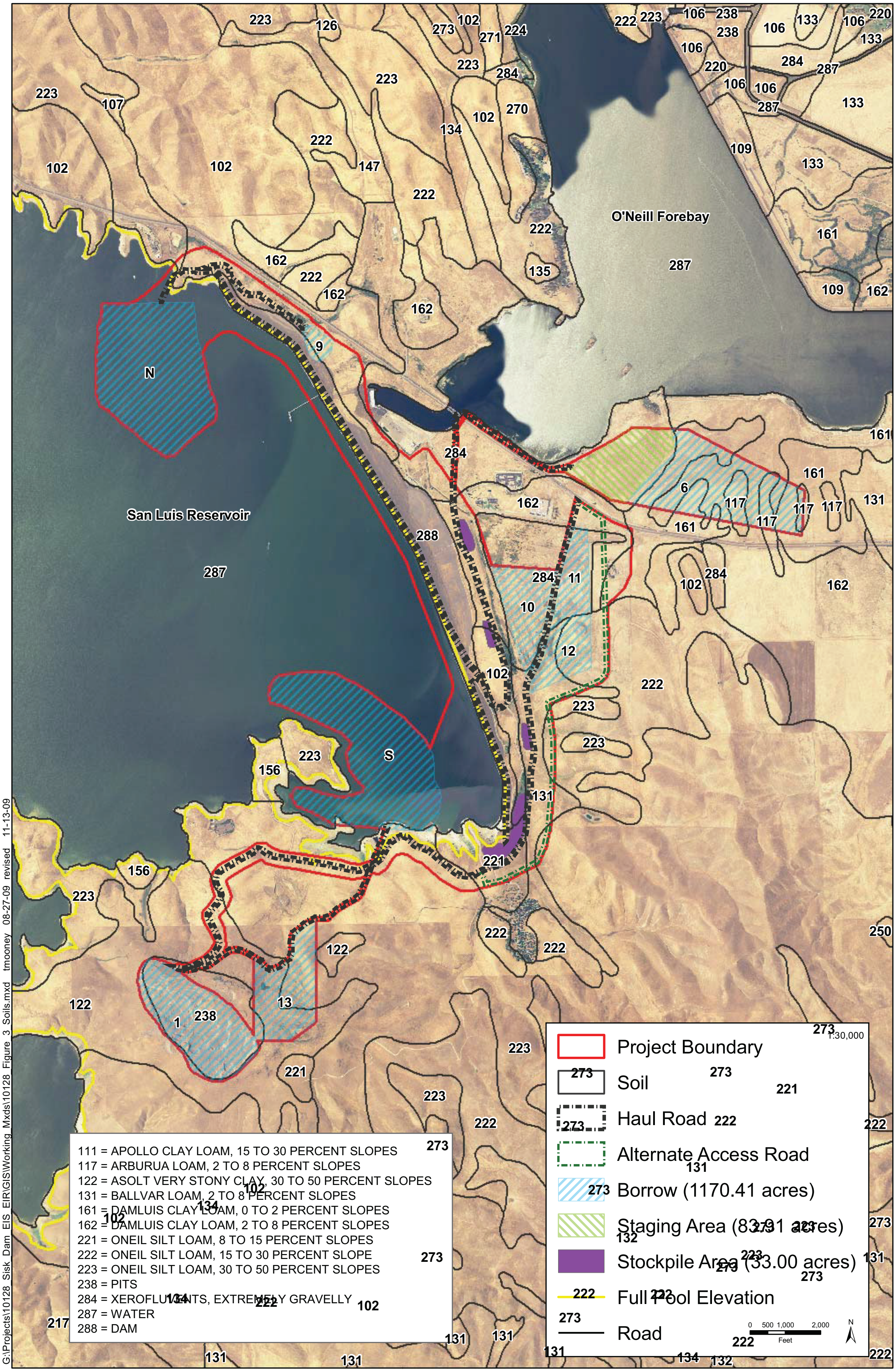
The hydrology in the study area is provided by precipitation events and by leakage of the B.F. Sisk Dam. Through the use of piezometers and comparison of the piezometer data to the level of the San Luis Reservoir, the DWR has established a direct correlation between reservoir level and the ground water level in the riparian and fresh emergent wetland areas just east of the dam (Pam Borba pers. comm.). Dam seepage is the main source of hydrology for the wetland areas within close proximity of the dam.

Although the correlation between reservoir level and ground water level is not as strong in the grassland areas east and west of Basalt Hill Road, dam seepage may influence ground water levels as far as the California Department of Forestry and Fire Protection (CalFire) station east of Basalt Hill Road (Pam Borba pers. comm.). The depressions found in this portion of the study area generally exhibit hydrophytic vegetation and other wetland indicators, suggesting that they pond or at a minimum maintain greater moisture than the surrounding higher terrain. The depressions generally lack stream channels leading to or from them. Data indicating whether the moisture supporting the potential wetland conditions is from precipitation events or high ground water was inconclusive during the field visit.

3.5 Soil Map Units

The soil map units within the study area and vicinity are described in the *Soil Survey of Merced County, California, Western Part* (USDA Soil Conservation Service 1990) and are shown in Figure 3. One of the soil map units (Xerofluvents, extremely gravelly) is identified as a hydric soil (USDA Natural Resources Conservation Service 2007). Descriptive information about each soil map unit follows.

Insert Figure 3



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North State Resources, Inc.

B.F. Sisk Dam Corrective Action Project

Figure 3
Soils

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111 – Apollo clay loam, 15 to 30 percent slopes. Apollo clay loam, 15 to 30 percent slopes is a deep, well drained soil on low foothills. It was derived from, and is still underlain by, soft, calcareous shale and sandstone; depth to the soft shale and limestone is 40 to 60 inches. Permeability is moderately slow. Available water capacity (the ability of the soil to hold moisture) is high to very high. Effective rooting depth is limited by soft shale or sandstone. The soil is considered non-hydric (USDA Natural Resources Conservation Service 2007). The sub-group taxonomy of the Apollo soil series is *thermic Calcic Haploxerolls*. Apollo clay loam, 15 to 30 percent slope occurs southeast and directly north of the dam (Figure 3).

117 – Arburua loam, 2 to 8 percent slopes. Arburua loam, 2 to 8 percent slopes is a moderately deep, well drained soil on foothills. It is derived from, and is underlain by, calcareous shale and sandstone at a depth of 20 to 40 inches. Permeability is moderate. Available water capacity is low to moderate. The soil is considered non-hydric (USDA Natural Resources Conservation Service 2007).

Effective rooting depth is limited by the shale or sandstone layer at 20 to 40 inches. The sub-group taxonomy of the Arburua soil series is *thermic Typic Xerorthents*. This soil map unit occurs in small polygons in the northeast section of the study area.

122 – Asolt very stony clay, 30 to 50 percent slopes. Asolt very stony clay, 30 to 50 percent slopes is a deep, well drained soil on mountains. It is derived from basic volcanic rock. Permeability is slow. Available water capacity is low to moderate. Effective rooting depth is limited by basic volcanic rock at a depth of 40 to 60 inches. The soil surface is 15 to 35 percent stone covered, and the surface layer is a stony clay about 30 inches deep. The depth to the basic volcanic rock is about 40 to 60 inches. The soil is considered non-hydric (USDA Natural Resources Conservation Service 2007). The sub-group taxonomy of the Asolt soil series is *thermic Typic Chromoxererts*. This soil map unit occurs in the southwestern section of the study area near Basalt Hill.

131 – Ballvar loam, 2 to 8 percent slopes. Ballvar loam, 2 to 8 percent slopes is a very deep, well drained soil on alluvial fans. Permeability is moderately slow. Available water capacity is high. Effective rooting depth is 60 inches or more. It formed in mixed alluvium derived from sedimentary rock. The texture of the upper layer varies from sandy clay loam to clay loam, silty clay loam, very fine sandy loam, or sandy loam. The soil is considered non-hydric (USDA Natural Resources Conservation Service 2007). The sub-group taxonomy of the Ballvar soil series is *thermic Typic Haploxerolls*. This soil map unit occurs east of the southern half of the dam.

161 – Damluis clay loam, 0 to 2 percent slope; **162 – Damluis clay loam, 2 to 8 percent slopes**. Damluis clay loam soils are very deep, well drained soils on low terraces. They formed in alluvium derived from various kinds of rock.

Permeability is slow. Available water capacity is high. Effective rooting depth is 60 inches or more. The surface layer is a clay loam to about 22 inches, then, to a depth of 60 inches or more is a gravelly sandy loam. Both map units are considered non-hydric (USDA Natural Resources Conservation Service 2007). The subgroup taxonomy of the Damluis soil series is *thermic Calcic Pachic Argixerolls*. These soil map units occur in the portion of the study area that is east of the dam and south of O'Neill Forebay.

221 – Oneil silt loam, 8 to 15 percent slopes; **222 – Oneil silt loam, 15 to 30 percent slopes**; **223 – Oneil silt loam, 30 to 50 percent slopes**. Oneil silt loam soils are moderately deep, well drained soils found on foothills. The three Oneil silt loam soils that occur within the study area differ primarily by the slope of the hills they occur in. They are all formed in material derived dominantly from calcareous shale and sandstone. The permeability is low to moderate. Effective rooting depth is limited by sandstone or shale at a depth of 20 to 40 inches. The soil texture is a silt loam to the sandstone and shale at depths of 20 to 40 inches. All three map units are considered non-hydric (USDA Natural Resources Conservation Service 2007). The subgroup taxonomy of the Oneil soil series is *thermic Calcic Haploxerolls*. These soil map units occur in the portion of the study area that is south and east of the south end of the dam.

238 – Pits. This map unit consists of a basalt rock quarry that provided source material for the Sisk Dam and now contains soil material and rock. The quarry is located on top of Basalt Hill. Large quantities of rock parent material, dumped piles of mined rock debris, and young fine textured wind-blown alluvium are present within the quarry area. Pits are non-hydric (USDA Natural Resources Conservation Service 2007). Pit soils occur in the portion of the study area that is south of the reservoir on the top of Basalt Hill.

284 – Xerofluvents, extremely gravelly. Xerofluvents, extremely gravelly soils are a diverse group of very deep, poorly drained to well drained soils in channels, and on old plains in and adjacent to streams on mountains and foothills. They formed from gravelly alluvium derived from various kinds of rock. Permeability is slow to moderately rapid. Available water capacity is very low to low. Effective rooting depth is 60 inches or more. The water table is at a depth of 40 to 72 inches from December through March. This soil is subject to long periods of flooding from January through March, and it is considered a hydric soil for that reason (USDA Natural Resources Conservation Service 2007). It is used as a source for gravel. Xerofluvents are their own subgroup. This soil map unit occurs in two polygons east of the center of the dam.

287 – Water. The water soil map unit refers to the inundated soils under the San Luis Reservoir and O'Neill Forebay.

288 – Dam. The dam soil map unit refers to the area of the constructed Sisk dam, which primarily consists of rock from the nearby quarry on Basalt Hill.

3.6 Vegetation Communities

The study area includes five vegetative alliances as defined in *Manual of California Vegetation* (Sawyer and Keeler-Wolf 1995) and two habitat types per *A Guide to Wildlife Habitats of California* (WHR) (Mayer and Laudenslayer Jr. 1988). California annual grassland is the dominant alliance in the study area. Four alliances are closely associated with the seepage areas and ditches along the toe of Sisk Dam, and portions of the full-bank reservoir shorelines: Big Saltbush Shrubland, Coyote Bush Shrubland, Mixed Willow Woodland, and Cattail. All of these alliances are surrounded at least partially by annual grassland alliances. WHR types were used to map barren areas, and a single stand of chaparral-like shrub dominated by a plant uncommon to the region.

3.6.1 California Annual Grassland

California annual grassland is the largest vegetative alliance occurring in the study area and is dominated by non-native annual grasses and forbs. This alliance occurs on all the soil map units and land types present on the site with minor differences in species composition based on location. The dominant non-native grasses include wild oats (Avena barbata – UPL[1]), ripgut brome (Bromus diandrus – UPL), and soft chess (Bromus hordeaceus – FACU). The dominant non-native forbs include black mustard (Brassica nigra – UPL) and broad-leaved pepperweed (Lepidium latifolium – FACW). These dominants are representative of nearly all of the areas mapped as California annual grassland, except for areas adjacent to and within the seepage wetlands and associated ditches along the toe of Sisk Dam. On the steep hillsides to the south of the reservoir, the native forb, hayfield tarweed (Hemizonia congesta – UPL), is also relatively abundant.

The annual grassland along the toe of Sisk Dam has the greatest diversity of native plants, and also the greatest concentration of broad-leaved pepperweed. Non-natives present in these more mesic areas include Mediterranean barley (Hordeum murinum – FAC), curly dock (Rumex crispus – FACW), horehound (Marrubium vulgare - FAC), and cocklebur (Xanthium strumarium – FAC). Native grasses and forbs were a very minor component within the annual grassland as a whole, but were most abundant within the more mesic areas mentioned above. These natives include, vinegar weed (Trichostema lanceolatum – UPL), salt heliotrope (Heliotropium curassavicum – OBL), purple needle grass (Nassella pulchra – UPL), and gum plant (Grindelia camporum – FACU).

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[1] Wetland indicator status for plant species is based on *National List of Plant Species That Occur in Wetlands: California (Region 0)* (Reed 1988) and includes the following categories:
Obligate Wetland (OBL) – Plants that occur almost always in wetlands
Facultative Wetland (FACW) – Plants that usually occur in wetlands, but also occur in non-wetlands (i.e., uplands)
Facultative (FAC) – Plants with a similar likelihood of occurring in both wetlands and uplands
Facultative Upland (FACU) – Plants that usually occur in uplands, but also occur in wetlands
Obligate Upland (UPL) – Plants that occur almost always in uplands

Coyote Bush Shrubland

Coyote Bush Shrubland is distinguished by dense stands of coyote bush (Baccharis pilularis - UPL) in upland positions adjacent to the intermittent drainages or the reservoir shorelines (bank full). Big saltbush (Atriplex lentiformis – FAC) is a minor component of this alliance and occurs at the upper and drier edges of the stands. Herbaceous vegetation is largely absent under the shrub canopy, and in some of the stands, broad-leaved pepperweed occurs within canopy gaps and along edges.

Big Saltbush Shrubland

Big Saltbush Shrubland occurs as scattered clusters and as moderately dense linear stands along the intermittent drainages and portions of the reservoir shorelines. In its overall range, big saltbush is associated with riparian zones and the margins of wetlands, but is uncommon as a riparian associate in the Central Valley (Meyer 2005). The largest and densest stand adjacent to the study area is along the southern shoreline (bank full) of San Luis Reservoir. This stand includes hundreds of individuals of big saltbush that are concentrated at the base of a drainage and extend along the reservoir shoreline for approximately a quarter mile. The large stand of big saltbush near the toe of Sisk Dam is associated with adjacent stands of coyote bush and a lone honey mesquite (Prosopis glandulosa ssp. torreyana - UPL). Grasslands adjacent to the Big Saltbush Shrubland stands have higher concentrations of salt heliotrope than the grasslands at large within the study area. Big saltbush, along with salt heliotrope and honey mesquite, are all classified as halophytes.

Mixed Willow Woodland

Mixed Willow Woodland alliance is dominated by native trees associated with riparian woodlands: Fremont cottonwood (Populus fremontii spp. fremontii – FACW), red willow (Salix laevigata - FACW), and black willow (Salix gooddingii – OBL). The dominant shrub in this habitat type is mule fat (Baccharis salicifolia – FACW), which forms dense stands surrounding the cottonwoods and willows.

Cattail Alliance

Cattail Herbaceous Vegetation occurs in seasonal wetlands as inclusions or adjacent to Mixed Willow Woodland. Narrowleaf cattail (Typha angustifolia – OBL) is the dominant species in the Cattail stands, dusky willow (Salix melanopsis – FACW) is subdominant in one of the stands. Dominant non-natives associated with this alliance are broad-leaved pepperweed and poison hemlock (Conium maculatum – FACW).

Mixed Chaparral

Mixed chaparral habitat is comprised of a single stand of dense shrubs on a steep slope northwest of Borrow Area 1. The dominant shrub in this stand is silver buffaloberry (Shepherdia argentea – UPL). Subdominant shrubs in this stand are blue elderberry (Sambucus mexicana – FAC) and wild rose (Rosa sp.).

Barren

Barren habitat is comprised of the disturbed areas that have less than 2 percent total vegetative cover. A representative Barren site is located on the hilltop quarry located southwest of the dam.

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Chapter 4
Methods

4.1 Field Delineation

The routine delineation of wetlands and "other waters" within the study area was based on field observations of positive indicators for wetland vegetation, hydrology, and soils; and indicators of "other waters." This methodology is consistent with the approach outlined in *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987) and *Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (U. S. Army Corps of Engineers 2006). Taxonomic nomenclature for plant species is in accordance with *The Jepson Manual* (Hickman 1993). Wetland indicator status for plant species was confirmed using Reed (1988), and the "50/20 Rule" was applied to determine plant dominance (U. S. Army Corps of Engineers 2006). The presence of primary and/or secondary wetland hydrology indicators was documented for each wetland feature.

A soil pit was dug in each representative wetland feature. Soil pits were dug to a depth sufficient to document the presence or confirm the absence of hydric soil indicators. Soils were examined in order to assess field indicators of hydric soils. Positive indicators of hydric soils were observed in the field in accordance with the criteria outlined in *Field Indicators of Hydric Soils in the United States* (Hurt, and Vasilas 2006). Soil colors were determined using a Munsell® soil color chart. The hydric status of each soil map unit was reviewed using *Hydric Soils list for Merced County, California Western Part* (USDA Natural Resources Conservation Service 2007). At least one set of paired data points was selected to best represent the wetland feature type and the adjacent uplands. Data points were also placed in suspect areas to confirm wetland or upland status.

Delineation of "other waters" was based on presence of an ordinary high water mark (OHWM) as defined in Corps regulations (33 CFR 328.3 and 33 CFR 328.4). Physical characteristics of an OHWM include a natural line impressed on the bank, shelving, changes in the character of the soil, destruction of terrestrial vegetation, presence of litter and debris, leaf litter disturbed or washed away, scour, deposition, presence of bed and bank, and water staining. At least one set of paired data points was then selected to best represent the "other waters" and adjacent upland conditions for each "other waters" type.

Forty-nine data points representing each feature type and the associated upland were characterized and documented throughout the study area. Field observations were conducted between August 31 and September 18, 2009. Routine wetland determination data forms are presented in Appendix A. Representative photographs of features delineated are presented in Appendix B.

The boundaries of delineated features and all 3-parameter data point locations were mapped using a Trimble Pathfinder Geo XH Global Positioning System (GPS) capable of sub-foot accuracy. Where the use of the GPS was not practicable, the features were delineated by hand onto ortho-rectified color aerial photographs. After the field delineation, the GPS data were overlain on the ortho-rectified color aerial photograph of the study area to generate a delineation map.

4.2 Evaluation of Federal Jurisdiction

Isolated, non-navigable, intrastate waters are not subject to federal jurisdiction based on guidance issued in response to the U.S. Supreme Court's decision in *Solid Waste Agency of Northern Cook County v. U.S. Army Corps of Engineers* ("SWANCC decision") (Guzy and Anderson 2001). Additionally, the memorandum providing guidance to implement the U.S. Supreme Court's decision in *Rapanos v. United States* and *Carabell v. United States*, referred to as "Rapanos" (Grumbles and Woodley 2008), was considered in determining federal jurisdiction. Under this guidance, wetland features that are not adjacent to (i.e., bordering, contiguous, or neighboring) a traditional navigable water (TNW) or abutting a relatively permanent water (RPW) are subject to a significant nexus evaluation. In these circumstances, the significant nexus evaluation is used by the Corps (and Environmental Protection Agency) to determine whether a particular wetland or "other water" has a "significant nexus" to a TNW; and is, therefore, subject to regulation under the federal Clean Water Act, (i.e., "waters of the United States").

Approved Jurisdictional Determinations and Preliminary Jurisdictional Determinations are tools used by the Corps to help implement Section 404 of the Clean Water Act. In order to obtain an Approved Jurisdictional Determination, as required to determine a feature as non-jurisdictional, the Corps must conduct a significant nexus evaluation to assess the characteristics and functions of the aquatic features to determine if they significantly affect the chemical, physical, or biological integrity of downstream navigable waters. Alternatively, an applicant can request a Preliminary Jurisdictional Determination in which case the Corps will treat all features as waters of the United States for permitting purposes (Riley 2008).

For the purposes of this wetland delineation, the jurisdictional status of the wetlands and other waters observed in the study area were all considered jurisdictional, and the applicant is requesting a Preliminary Jurisdictional Determination.

4.3 Problematic Vegetation, Soils, and Hydrology

Problematic vegetation, soils, and hydrology were observed at various locations in the study area. In each case, the procedure followed to determine the feature's wetland status was based on the discussion and guidance for problematic vegetation, soils, and hydrology provided in the Manual and/or Manual Supplement. The problematic determinations stem from: (1) the manipulation of the natural flow regime and topography from the construction and operation of the Sisk Dam (starting in 1962); (2) the dry season site visit coupled with the current drought conditions on the site; and (3) sparse vegetative cover, or colonization of some wetland features by upland annual plant species.

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Chapter 5
Results

The boundaries and acreages of waters of the United States within the study area are illustrated in the series of figures representing the boundaries of waters of the United States, including wetlands (Figure 4 series – attached in the pocket). Waters of the United States within the study area occupy a total of 921.813 acres and include lacustrine, ephemeral and intermittent streams, ditches, fresh emergent wetland, and seasonal wetland. An acreage summary of the waters of the United States delineated within the study area is presented in Table 1. A detailed tabulation of the acreage (and linear footage – as appropriate) is also presented in the tables on Figures 4b through 4e, Appendix C.

Table 1. Acreage Summary of Jurisdictional Waters of the United States Within the B.F. Sisk Dam Corrective Action Project Study Area, Merced County, California

Waters of the United States	Total Acreage	Total Linear Feet
Wetlands		
Fresh Emergent Wetland	16.559	N/A
Seasonal Wetland	12.169	N/A
Total Wetlands	**28.728**	**N/A**
Other Waters		
Lacustrine	891.000	N/A
Ephemeral Drainage	0.298	5,586.77
Intermittent Stream	0.037	815.00
Ditch	1.656	15,149.17
Settling Pond	0.094	N/A
Total Other Waters	**893.085**	21,550.94
Total Jurisdictional Waters of the United States	**921.813**	21,550.91

5.1 Characterization of Delineated Features

The following description of the waters of the United States, including wetlands provides details about specific wetland features observed and documented in the study area. In some cases, there were many features of one type (e.g., seasonal wetland), so details typical of the feature type are described. As presented in Table 1, there are two types of wetlands and five types of “other waters”.

In some cases, several wetland types combine to create a complex feature. So that this characterization of the delineated features provides a comprehensive description, the feature types associated with specific functions are lumped together. For example, most of the fresh emergent wetlands are associated with dam seepage, but the seepage is then conveyed out of the study area via ditches. As a result, the discussion lumps the features associated with this function as the Seep Wetland Complex.

Each heading in the following discussion identifies the feature type or function, and is followed by representative feature labels from Figures 4b – 4e. References are also made to corresponding data sheets (Appendix A) and to representative photographs (Appendix B).

5.1.1 Lacustrine (LAC 1, LAC2, and LAC3)

The Lacustrine features correspond to the San Luis Reservoir below the full pool elevation, and combined they are the largest (891.000 acres) feature type delineated. The full pool elevation is the elevation at which the DWR considers the reservoir to be full. There is no spillway, but water is pumped into or out of the reservoir via a large pumping system. The marks on the ground corresponding to the full pool elevation include eroded shoreline, shelving, changes in the character of the soil, destruction of terrestrial vegetation, and the presence of fluvial litter and debris. Data point 46 (Figure 4d) documents the lacustrine conditions found in a small inlet of the San Luis Reservoir. During the field visit, the San Luis Reservoir was at historic low levels, but despite the dry conditions, the field indicators of the high water mark in the vicinity of data point 46 and at other locations around the reservoir were obvious.

The reservoir functions as out-of-channel water storage to serve the State Water Project and the Central Valley Project. The natural San Luis Creek drainage is insufficient to fill the reservoir, so water is either pumped into or out of the reservoir from the State Water Project or Central Valley Project canals depending on water need and availability. In addition to supporting agricultural and municipal water needs, the reservoir supports recreation such as boating and fishing.

5.1.2 Seep Wetland Complex (from south to north – ED6, FEW10, FEW7, FEW6, D9, FEW3, FEW8, D7, FEW9, D2, SW4, D3, D6, D5, and D8)

This complex of fresh emergent wetlands, seasonal wetlands, and drainage ditches are formed from, or convey, waters that seep through the dam from the reservoir. A correlation that ties the hydration of the wetland features and ditches to the level of the reservoir has been documented by the DWR (Pam Borba, Pers. Comm.). The hydration of these wetland and ditch features may undergo long- or short- periods of inundation depending on the duration (or lack thereof) of full capacity reservoir height. In addition, if the reservoir has been low for several years, the next time it is full, the dam leaks more at first then slows down over time as the air spaces between soil particles in the dam are replaced with water. Some hydration of the features also results from precipitation events.

Seep wetland complex features (e.g., FEW9; Photographs 4, 5, and 6) occur in areas with long-duration saturation or inundation creating an anaerobic environment suitable for hydrophytic plants. The features occur in the deeper depressions close to the toe of Sisk Dam where seepage creates long-duration ponding or soil saturation. The length of inundation is dependent on the reservoir level behind the dam; the features are inundated for long-duration when the reservoir is full for a long period of time, or the features may remain dry during years (such as in 2009) when the reservoir level is very low for the whole year. Herbaceous plant species dominate the seep wetland features, although portions of the features are also vegetated by hydrophytic trees and shrubs. Dominant species include: narrowleaf cattail, broad-leaved pepperweed, poison hemlock, Fremont cottonwood, red willow, black willow, and mule fat.

Wetland hydrology criteria are met through the observation of sediment deposits, surface soil cracks, oxidized rhizospheres, and the FAC-neutral test. Soils were mottled with redox features and fit the Redox Depressions (F8) hydric soil indicator description. Seep wetland complex features occur with the most frequency in depressions close to the dam. Data points 5, 6, 9, 12, 14, and 15 are among those documenting the habitats.

The wetlands documented in the seep wetland complex occur on gentle slopes (e.g., FEW10), in depressions (e.g., FEW9), and on flat surfaces (e.g., SW4). The ditches were created to bisect and connect the various wetland features, and the main "drain" of the whole complex is the large, deep ditch (D8; Photograph 10) north of the complex. The primary function of the seep wetland complex is to collect and transport the seepage water. The secondary functions of the complex are: sediment and toxicant retention, flood-flow attenuation, production export, aquatic diversity and abundance, and wildlife diversity and abundance (Schneider, and Sprecher 2000). See Photographs 3–10 (Appendix B) for images of the seep wetland complex.

Other seep wetlands (e.g., FEW15; Photograph 11) occur north of the dam. Although the features exhibit many of the characteristics and serve similar functions as the seep wetland complex described above, they do not drain through the D8 ditch. These wetland and ditch features (e.g., D10; Photograph 12) flow off-site and are presumed to reach O'Neill Forebay.

5.1.3 Seasonal wetlands (SW30, SW31, FEW1, FEW2, SW27, SW5, SW32, SW1, SW2, SW3, SW28, SW26, SW29, SW21, SW22, SW6, SW20, SW45, SW24, SW7, SW25, SW8, SW10, SW11, SW23, SW15, SW14, SW9, SW 19)

The vast majority of the seasonal wetland features mapped within the study area occur east of the seep wetland complex, in the vicinity of Basalt Hill Road. The closer these features are to the dam, the greater likelihood that their hydration is related to water seepage through the dam during high reservoir periods. However, the correlation between seepage and seasonal wetland hydration gets weaker with distance east of the dam. Because each seasonal wetland occurs in a depression (some very slight, some deep and well pronounced), precipitation is thought to play an important role in the hydration of the features, whether or not they receive seepage from the reservoir.

Most of the features (e.g., SW19, SW24, SW7, SW19) are extensions of the grassland habitats they occur in. The dominant species are marginally hydrophytic (FAC) grasses or herbaceous plant species, and in most cases, the depressions are slight, and the boundaries of the features are gradual. The most reliable boundary indicator observed was the change from upland to wetland vegetation. In these cases, the hydric soil indicators [Redox Depression (Photograph 16)] continue across the wetland – upland boundary due to capillary pull. The most common hydrology indicators are surface soil cracks, sediment deposits, and oxidized rhizospheres.

The weak hydrophytic vegetation parameter (and in some cases the weak wetland hydrology parameter) make it difficult to determine how frequently these features become saturated. Some may only be saturated for long duration during wetter than normal precipitation years, or in years of high precipitation coupled with high reservoir levels (producing contributing soil saturation from seepage and precipitation).

Contrast the shallow depression seasonal wetlands with the deeper depressions (e.g., SW27, SW5, FEW1, FEW2) and the dominant plants become much more hydrophytic, and the indicators of hydric soils and wetland hydrology get much more pronounced. These deeper depression seasonal wetlands occur closer to the dam. The ground water level may be higher in years of high reservoir levels, and the deeper depressions may be closer to that groundwater level. Closer proximity to the groundwater level coupled with normal or above normal precipitation rates likely result in long duration inundation of these features, which produce the stronger wetland indicators.

For the most part, no surface channel was evident that connects these seasonal wetlands to the seep wetland complex ditches. As such, the functions of the features are not related to drainage, but are purely related to more “natural” functions such as: sediment and toxicant retention, flood-flow attenuation, production export, aquatic diversity and abundance, and wildlife diversity and abundance (Schneider, and Sprecher 2000).

Data points 4, 10, 19, 21, 23, 24, 31, 32, 35, 37, 39, and 41 (also see Photographs 13–18) document seasonal wetland features. The dominant plant species found within them consist of hydrophytic grasses such as Mediterranean barley and squirreltail fescue (*Vulpia bromoides* – FACW), and herbaceous species such as broad-leaved pepperweed, salt heliotrope, curly dock, and horehound. In some instances, typically closer to the dam where seepage appears to play a greater role in the hydration of the features, tree (e.g., Fremont cottonwood) and shrub species (e.g., mule fat) are also present.

The wetland hydrology indicators observed in the seasonal wetland features include water marks, sediment deposits, surface soil cracks, and oxidized rhizospheres. Hydric soil criteria are met through the observation of redox features described under the Redox Depressions hydric soil indicator. Because of the prolonged drought, it is highly possible that these features have not been hydrated for a number of years. But because they lie within depressional microtopography, are dominated by hydrophytes, and have hydric soil indicators, they could not be excluded from the wetland classification.

5.1.4 Ephemeral Drainage (ED13, ED3, ED4, ED9, ED6, ED5)

Ephemeral drainages are features that flow during precipitation events and for short periods following the precipitation (less than 14 days). There is no ground water component adding to the duration of flow after a precipitation event. Most of the natural stream channels found within the study area are considered ephemeral drainages due to the well drained soils on the slopes they are found upon, the low annual precipitation rates, and the lack of wetland conditions at the source of the stream. [Wetlands at the source of a stream might slowly release waters after a storm event and contribute to a longer flow regime within the drainage – an intermittent stream flow regime (see below)].

Data points 43 (Photographs 19 and 20) and 47 (Photograph 21) document representative 2- and 1-foot-wide (respectively) ephemeral drainages. In each case, there is a defined bed and bank, evidence of scour and deposition, the features occur at the bottom of small drainage basins, and they are visible on aerial images. The features are not wetlands because the vegetation parameter is not met; the soils may or may not be met due to their recent deposition or frequent scour. The ephemeral drainages are considered “other waters of the United States.” They function largely to concentrate and convey accumulated waters (from precipitation events) from the hills surrounding the study area. There is no influence of seepage waters from the reservoir.

5.1.5 Intermittent Stream (IS1)

Intermittent streams are features that flow seasonally, but exhibit a groundwater component in addition to the collection and conveyance of precipitation and sheet flow from adjacent slopes. The intermittent streams often have a wetland feature at the source that absorbs and then slowly releases waters, or they are influenced by high ground water. Intermittent streams are characterized as bed and bank features that exhibit evidence of scour and deposition. One intermittent stream (IS1) was mapped within the study area. Although conditions were dry during the site visit, feature IS1 provides drainage for a moderately large seasonal wetland (SW22; 0.668 acres) and wetlands (e.g., SW32, SW21) that are not directly connected (Figure 4c). Feature SW22 and the other upslope seasonal wetlands may be wet during periods of high water in the reservoir, which would likely add a ground water component to the flow within IS1.

Chapter 6
Conclusion

A total of 921.813 acres of waters of the United States, including wetlands were delineated within the study area. To support a “preliminary verification,” all features identified herein and shown on the Figure 4 series are assumed to be federally jurisdictional. Waters of the United States identified in this report are subject to verification by the Corps. NSR advises all interested parties to treat the information contained herein as preliminary pending written verification of jurisdictional boundaries by the Corps.

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Chapter 7
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7.1 Personal Communication

Pam Borba. Hydrologist. San Luis Field Division. California Department of Water Resources. Comments during a site orientation meeting. August 31, 2009.

Appendix A

Data Forms

North State Resources

Wetland Determination Data Form - Arid West Region

Habitat Type: SEEP WETLAND COMPLEX
Wetland Type: SEASONAL WTLD

Project/Site: Sisk Dam Corrective Action Project City/County: Merced County Sampling Date: 8/31/09
Applicant/Owner: U.S. Bureau of Reclamation State: CA Sampling Point: 1
Investigator(s): J. Colescott
Landform (hillslope, terrace, etc.) DITCH Local relief (concave, convex, none) CONCAVE Slope % 0-2
Subregion (LRR) LRR-C Soil Map Unit Name: DAMLUIS CLAY LOAM 2-8%
Are climatic/hydrologic conditions on the site typical for this time of year? YES (If no, explain in remarks.)
Are vegetation NO, soil N, or hydrology N significantly disturbed? Are normal circumstances present? YES
Are vegetation N, soil N, or hydrology N 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? YES Hydric soil? YES Wetland hydrology? YES Is sampled area a wetland? YES Other waters? YES

USACE Jurisdiction
Adjacent to Waters X Tributary to Waters X Isolated (with interstate commerce) ____ Isolated (non jurisdictional) ____
Explain: DITCH + ADJACENT WETLANDS

Evaluation of features designated "Other Waters of the United States"
Indicators: Defined bed and bank X Scour X Ordinary High Water Mark Mapped X
Feature Designation: Perennial ____ Intermittent X Ephemeral ____ Blue-line on USGS Quad ____
Natural Drainage ____ Artificial Drainage X Navigable Water ____

DAM SEEPAGE COLLECTION DITCH + WETLANDS. DITCH ~ 2-5' WIDE

Remarks
DITCH CAPTURES DAM SEEPAGE WHEN DAM IS FULL. DP. DOCUMENTS THAT WETLAND CONDITIONS OCCUR ADJACENT TO THE DITCH. LABELLED AS SEASONAL WETLAND.

Baccharis viminea = B. salicifolia

Vegetation

Tree Stratum (use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
50%= ____ 20%= ____ Total Cover:			

Sapling/Shrub Stratum (use scientific names)	% Cover	Species?	Status
1. Baccharis viminea	25	YES	FACW
2. Atriplex lentiformis	20	YES	FAC
3.			
4.			
50%= 22.5 20%= 9 Total Cover:	45		

Herb Stratum (use scientific names)	% Cover	Species?	Status
1. Lepidium latifolium	60	YES	FACW
2. Bromus diandrus	15	NO	UPL
3. Bromus hordeaceous	15	NO	FACU
4.			
5.			
6.			
7.			
50%= 45 20%= 18 Total Cover:	90		

Woody/Vine Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
50%= ____ 20%= ____ Total Cover:			

% Bare Ground in Herb Stratum 10 % Cover of Biotic Crust —

Dominance Test Worksheet
Number of dominant species that are OBL, FACW, or FAC: 3 (A)
Total number of dominant species across all strata: 3 (B)
Percent of dominant species that are OBL, FACW, or FAC: 100 (AB)

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)

Prevalance Index = B/A = ____

Hydrophytic Vegetation Indicators
X Dominance Text 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.*

Hydrophytic Vegetation? YES

Sampling Point 1

Soils

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-6	2.5YR 4/3	90	2.5YR 5/4	10	RM	M	SANDY LOAM	
6-12	2.5YR 4/3	60	2.5YR 5/4	40	RM	M	SANDY LOAM	

[1]Types: C = Concentration D = Depletion RM = Reduced Matrix [2]Location: PL = Pore Lining RC = Root Channel 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 (AG) (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 Vetric (F18)
- ___ Red Parent Materials (TF2)
- X Vegetated Sand/Gravel Bars
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: — Depth (Inches) — Hydric Soil? YES

Remarks COLORS + LACK OF REDOX FEATURES FAIL TO INDICATE HYDRIC SOILS. HOWEVER, THERE IS AMPLE EVIDENCE OF FLOW; SOILS ARE COARSE + DATA POINT IS WITHIN THE NORMAL CHANNEL. THIS MEETS THE VEGETATED SAND/GRAVEL BAR INDICATOR.

Hydrology

Wetland Indicators

Primary Indicators (Any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (Nonriverine)
- ___ Sediment Deposits (B2) (Nonriverine)
- X 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)
- X Oxidized Rhizospheres (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (Riverine)
- X Sediment Deposits (B2) (Riverine)
- X Drift Deposits (B3) (Riverine)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Thin Muck Surface (C7)
- ___ Crayfish Burrows (C8)
- ___ ~~Saturation Visible on~~ Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Netural Test (D5)

Field Observations

Surface Water Present? Yes ___ No X Depth (inches) ___

Water Table Present? Yes ___ No X Depth (inches) ___

Saturation Present? Yes ___ No X Depth (inches) ___ *(includes capillary fringe)*

Wetland Hydrology? Yes X No ___

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

DWR GROUND WATER WELLS + PERS. COMM.

Remarks SUFFICIENT INDICATORS OF WETLAND HYDROLOGY.

North State Resources

Wetland Determination Data Form - Arid West Region

Habitat Type ANNUAL GRASSLAND
Wetland Type UPLAND

Project/Site: Sisk Dam Corrective Action Project City/County: Merced County Sampling Date: 8/31/09

Applicant/Owner: U.S. Bureau of Reclamation State: CA Sampling Point: 2

Investigator(s): J. Colescott

Landform (hillslope, terrace, etc.) ____ Local relief (concave, convex, none) CONCAVE Slope % 5 %

Subregion (LRR) LRR-C Soil Map Unit Name: DAM LUIS CLAY LOAM 2-8%

Are climatic/hydrologic conditions on the site typical for this time of year? YES *(If no, explain in remarks.)*

Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? YES

Are vegetation N, soil N, or hydrology N 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? N Hydric soil? N Wetland hydrology? N Is sampled area a wetland? NO Other waters? N

USACE Jurisdiction
Adjacent to Waters ____ Tributary to Waters ____ Isolated (with interstate commerce) ____ Isolated (non jurisdictional) ____

Explain:

Evaluation of features designated "Other Waters of the United States"
Indicators: Defined bed and bank ____ Scour ____ Ordinary High Water Mark Mapped ____

Feature Designation: Perennial ____ Intermittent ____ Ephemeral ____ Blue-line on USGS Quad ____
Natural Drainage ____ Artificial Drainage ____ Navigable Water ____

Remarks
UPLAND PAIR TO DP 1

Vegetation

Tree Stratum (use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
50%= ____ 20%= ____ Total Cover:			

Sapling/Shrub Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
3.			
4.			
50%= ____ 20%= ____ Total Cover:			

Herb Stratum (use scientific names)	% Cover	Species?	Status
1. Bromus diandros	20	YES	UPL
2. Brassica negra	10	NO	UPL
3. Centaurea solstitialis	2	NO	UPL
4.			
5.			
6.			
7.			
50%= 16 20%= 6.4 Total Cover:	32		

Woody/Vine Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
50%= ____ 20%= ____ Total Cover:			

% Bare Ground in Herb Stratum 68 **% Cover of Biotic Crust** ____

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 (AB)

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)

Prevalance Index = B/A = ____

Hydrophytic Vegetation Indicators

- ____ Dominance Text 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.*

Hydrophytic Vegetation? NO

Sampling Point 2

Soils

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 4/4	100	—	—	—	—	GRAVELLY LOAM	

[1]Types: C = Concentration D = Depletion RM = Reduced Matrix [2]Location: PL = Pore Lining RC = Root Channel 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 (AG) (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 Vetric (F18)
____ Red Parent Materials (TF2)
____ Vegetated Sand/Gravel Bars
____ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: — Depth (Inches) — Hydric Soil? N

Remarks NONE HYDRIC SOILS.

Hydrology

Wetland Indicators

Primary Indicators (Any one indicator is sufficient)

____ Surface Water (A1)
____ High Water Table (A2)
____ Saturation (A3)
____ Water Marks (B1) (Nonriverine)
____ Sediment Deposits (B2) (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 (C3)
____ Presence of Reduced Iron (C4)
____ Recent Iron Reduction in Plowed Soils (C6)
____ 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)
____ Thin Muck Surface (C7)
____ Crayfish Burrows (C8)
____ Saturation Visible on Aerial Imagery (C9)
____ Shallow Aquitard (D3)
____ FAC-Netural Test (D5)

Field Observations

Surface Water Present? Yes ____ No — Depth (inches) —
Water Table Present? Yes ____ No — Depth (inches) —
Saturation Present? Yes ____ No — Depth (inches) — *(includes capillary fringe)*

Wetland Hydrology? Yes ____ No X

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

Remarks NO WETLAND HYDROLOGY INDICATORS.

North State Resources

Wetland Determination Data Form - Arid West Region

Habitat Type GRASSLAND
Wetland Type UPLAND

Project/Site: Sisk Dam Corrective Action Project City/County: Merced County Sampling Date: 8/31/07

Applicant/Owner: U.S. Bureau of Reclamation State: CA Sampling Point: 3

Investigator(s): J. Colescott

Landform (hillslope, terrace, etc.) PLAIN Local relief (concave, convex, none) NONE Slope % 0-2%

Subregion (LRR) LRR-C Soil Map Unit Name: XEROFLUVENTS, EXTREMELY GRAVELLY

Are climatic/hydrologic conditions on the site typical for this time of year? YES *(If no, explain in remarks.)*

Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? YES

Are vegetation N, soil N, or hydrology N 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? YES Hydric soil? NO Wetland hydrology? NO Is sampled area a wetland? NO Other waters? NO

USACE Jurisdiction

Adjacent to Waters ____ Tributary to Waters ____ Isolated (with interstate commerce) ____ Isolated (non jurisdictional) ____
Explain:

Evaluation of features designated "Other Waters of the United States"

Indicators: Defined bed and bank ____ Scour ____ Ordinary High Water Mark Mapped ____
Feature Designation: Perennial ____ Intermittent ____ Ephemeral ____ Blue-line on USGS Quad ____
Natural Drainage ____ Artificial Drainage ____ Navigable Water ____

Remarks DATA POINT DOCUMENTS UPLAND CONDITIONS PRESENT W/I A SUSPECT WETLAND AREA. UPLAND PAIR TO DP 4.

Vegetation

Tree Stratum (use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
50%= 20%= Total Cover:			

Sapling/Shrub Stratum (use scientific names)	% Cover	Species?	Status
1. Atriplex lentiformis	5	YES	FAC
2. Baccharis pilularis	5	YES	UPL
3.			
4.			
50%= 20%= Total Cover:	10		

Herb Stratum (use scientific names)	% Cover	Species?	Status
1. Lepidium latifolium	70	YES	FACW
2. Bromus diandrus	10	NO	UPL
3. Bromus hordeaceus	10	NO	FACU
4. Bromus inermus	10	NO	UPL
5.			
6.			
7.			
50%= 50 20%= 20 Total Cover:	100		

Woody/Vine Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
50%= 20%= Total Cover:			

% Bare Ground in Herb Stratum 0 **% Cover of Biotic Crust** /

Dominance Test Worksheet

Number of dominant species that are OBL, FACW, or FAC: 2 (A)

Total number of dominant species across all strata: 3 (B)

Percent of dominant species that are OBL, FACW, or FAC: 66 (AB)

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)

Prevalance Index = B/A = ______

Hydrophytic Vegetation Indicators

X Dominance Text 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.

Hydrophytic Vegetation? YES

Sampling Point 3

Soils

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 4/3	100	—	—	—	—	GRAVELLY LOAM	

[1]Types: C = Concentration D = Depletion RM = Reduced Matrix [2]Location: PL = Pore Lining RC = Root Channel 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 (AG) (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 Vetric (F18)
- ____ Red Parent Materials (TF2)
- ____ Vegetated Sand/Gravel Bars
- ____ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: — Depth (Inches) — Hydric Soil? NO

Remarks NON HYDRIC SOILS.

Hydrology

Wetland Indicators

Primary Indicators (Any one indicator is sufficient)

- ____ Surface Water (A1)
- ____ High Water Table (A2)
- ____ Saturation (A3)
- ____ Water Marks (B1) (Nonriverine)
- ____ Sediment Deposits (B2) (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 (C3)
- ____ Presence of Reduced Iron (C4)
- ____ Recent Iron Reduction in Plowed Soils (C6)
- ____ 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)
- ____ Thin Muck Surface (C7)
- ____ Crayfish Burrows (C8)
- ____ Saturation Visible on Aerial Imagery (C9)
- ____ Shallow Aquitard (D3)
- ____ FAC-Netural Test (D5)

Field Observations

Surface Water Present? Yes ____ No X Depth (inches) ____

Water Table Present? Yes ____ No X Depth (inches) ____

Saturation Present? Yes ____ No X Depth (inches) ____ *(includes capillary fringe)*

Wetland Hydrology? Yes ____ No X

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

Remarks NO INDICATORS OF WETLANDS HYDROLOGY

North State Resources

Wetland Determination Data Form - Arid West Region

Habitat Type GRASSLAND
Wetland Type SEASONAL WETLAND

Project/Site: Sisk Dam Corrective Action Project City/County: Merced County Sampling Date: 8/31/09

Applicant/Owner: U.S. Bureau of Reclamation State: CA Sampling Point: 4

Investigator(s): J. Colescott

Landform (hillslope, terrace, etc.) FLAT Local relief (concave, convex, none) NONE Slope % 0-2%

Subregion (LRR) LRR-C Soil Map Unit Name: Xerofluvents, EXTREMELY GRAVELLY

Are climatic/hydrologic conditions on the site typical for this time of year? YES *(If no, explain in remarks.)*

Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? YES

Are vegetation N, soil N, or hydrology N 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? YES Hydric soil? YES Wetland hydrology? YES Is sampled area a wetland? YES Other waters? NO

USACE Jurisdiction

Adjacent to Waters X Tributary to Waters ____ Isolated (with interstate commerce) ____ Isolated (non jurisdictional) ____
Explain:

Evaluation of features designated "Other Waters of the United States"

Indicators: Defined bed and bank ____ Scour ____ Ordinary High Water Mark Mapped ____
Feature Designation: Perennial ____ Intermittent ____ Ephemeral ____ Blue-line on USGS Quad ____
Natural Drainage ____ Artificial Drainage ____ Navigable Water ____

Remarks

SEEP AREA VISIBLE ON AERIAL. WETLAND INDICATORS OBSERVED.

Vegetation

Tree Stratum (use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix laevigata	5	YES	FACW
2.			
3.			
50%= 2.5 20%= 1 Total Cover:	5		
Sapling/Shrub Stratum (use scientific names)	**% Cover**	**Species?**	**Status**
1. Baccharis pilularis	15	YES	UPL
2.			
3.			
4.			
50%= 20%= Total Cover:	15		
Herb Stratum (use scientific names)	**% Cover**	**Species?**	**Status**
1. Typha latifolia	40	YES	OBL
2. Lepidium latifolium	20	YES	FACW
3. Gratiola ebracteata	10	N	OBL
4. Bromus diandrus	15	N	UPL
5. B. hordeaceus	15	N	FACU
6.			
7.			
50%= 50 20%= 20 Total Cover:	100		
Woody/Vine Stratum (use scientific names)	**% Cover**	**Species?**	**Status**
1.			
2.			
50%= 20%= Total Cover:			

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

Dominance Test Worksheet

Number of dominant species that are OBL, FACW, or FAC: 3 (A)

Total number of dominant species across all strata: 4 (B)

Percent of dominant species that are OBL, FACW, or FAC: 100 (AB)

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)

Prevalance Index = B/A =

Hydrophytic Vegetation Indicators

X Dominance Text 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.*

Hydrophytic Vegetation? YES

Sampling Point 4

Soils

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 3/2	95	10YR 2/1	5	D	PL	GRAVELLY LOAM	

[1]Types: C = Concentration D = Depletion RM = Reduced Matrix [2]Location: PL = Pore Lining RC = Root Channel 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 (AG) (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)
- X 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 Vetric (F18)
- ____ Red Parent Materials (TF2)
- ____ Vegetated Sand/Gravel Bars
- ____ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: — Depth (Inches) — Hydric Soil? YES

Remarks FAINT REDOX FEATURES OBSERVED. = HYDRIC SOILS.

Hydrology

Wetland Indicators

Primary Indicators (Any one indicator is sufficient)

- ____ Surface Water (A1)
- ____ High Water Table (A2)
- ____ Saturation (A3)
- ____ Water Marks (B1) (Nonriverine)
- ____ Sediment Deposits (B2) (Nonriverine)
- ____ Surface Soil Cracks (B6)
- X Inundation Visible on Aerial Imagery (B7)
- ____ Water-Stained Leaves (B9)
- ____ Salt Crust (B11)
- ____ Biotic Crust (B12)
- ____ Aquatic Invertebrates (B13)
- ____ Hydrogen Sulfide Odor (C1)
- X Oxidized Rhizospheres (C3)
- ____ Presence of Reduced Iron (C4)
- ____ Recent Iron Reduction in Plowed Soils (C6)
- ____ 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)
- ____ Thin Muck Surface (C7)
- ____ Crayfish Burrows (C8)
- ____ Saturation Visible on Aerial Imagery (C9)
- ____ Shallow Aquitard (D3)
- ____ FAC-Netural Test (D5)

Field Observations

Surface Water Present? Yes ____ No X Depth (inches) ________

Water Table Present? Yes ____ No X Depth (inches) ________

Saturation Present? Yes ____ No X Depth (inches) ________ *(includes capillary fringe)*

Wetland Hydrology? Yes X No ____

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

SEEP AREA WHEN DAM IS FULL.

Remarks

North State Resources

Habitat Type DITCH
Wetland Type EMERGENT WETLAND

Wetland Determination Data Form - Arid West Region

Project/Site: Sisk Dam Corrective Action Project City/County: Merced County Sampling Date: 9/1/09

Applicant/Owner: U.S. Bureau of Reclamation State: CA Sampling Point: 5

Investigator(s): J. Colescott

Landform (hillslope, terrace, etc.) DITCH Local relief (concave, convex, none) CONCAVE Slope % 0-2%

Subregion (LRR) LRR-C Soil Map Unit Name: Ballvar Loam 2-8%

Are climatic/hydrologic conditions on the site typical for this time of year? YES (If no, explain in remarks.)

Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? YES

Are vegetation N, soil N, or hydrology N 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? YES Hydric soil? YES Wetland hydrology? YES Is sampled area a wetland? YES Other waters? NO

USACE Jurisdiction

Adjacent to Waters X Tributary to Waters X Isolated (with interstate commerce) ____ Isolated (non jurisdictional) ____

Explain:

Evaluation of features designated "Other Waters of the United States"

Indicators: Defined bed and bank ____ Scour ____ Ordinary High Water Mark Mapped ____

Feature Designation: Perennial ____ Intermittent ____ Ephemeral ____ Blue-line on USGS Quad ____

Natural Drainage ____ Artificial Drainage ____ Navigable Water ____

Remarks SEASONAL EMERGENT WETLAND ASSOCIATED WITH DITCH THAT CAPTURES SEEPAGE FROM DAM, IS RIPARIAN + EMERGENT IN PLANT COMPOSITION. BOUNDED TO WEST BY A STEEP BANK W/ ATRIPLEX.

Vegetation

Tree Stratum (use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix laevigata	40	YES	FACW
2.			
3.			
50%= 20 20%= 8 Total Cover:	40		

Sapling/Shrub Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
3.			
4.			
50%= ____ 20%= ____ Total Cover:			

Herb Stratum (use scientific names)	% Cover	Species?	Status
1. Typha latifolia	35	YES	OBL
2. Juncus tenuis	20	YES	FACW
3. Conyza canadensis	5	NO	FAC
4.			
5.			
6.			
7.			
50%= 30 20%= 12 Total Cover:	60		

Woody/Vine Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
50%= ____ 20%= ____ Total Cover:			

% Bare Ground in Herb Stratum 40 **% Cover of Biotic Crust** —

Dominance Test Worksheet

Number of dominant species that are OBL, FACW, or FAC: 3 (A)

Total number of dominant species across all strata: 3 (B)

Percent of dominant species that are OBL, FACW, or FAC: 100 (AB)

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)

Prevalance Index = B/A = ____

Hydrophytic Vegetation Indicators

X Dominance Text 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.

Hydrophytic Vegetation? YES

Sampling Point 5

Soils

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 3/2	85	7.5YR 4/4	15	C	M	CLAY LOAM	
6-12	10YR 3/2	60	2.5YR 5/4	30	D	M	SANDY LOAM	
			AND 7.5YR 5/6	10	C	M	" "	

[1]Types: C = Concentration D = Depletion RM = Reduced Matrix [2]Location: PL = Pore Lining RC = Root Channel 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 (AG) (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)
__X__ 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 Vetric (F18)
_____ Red Parent Materials (TF2)
_____ Vegetated Sand/Gravel Bars
_____ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: — Depth (Inches) — Hydric Soil? YES

Remarks HYDRIC SOILS.

Hydrology

Wetland Indicators

Primary Indicators (Any one indicator is sufficient)

_____ Surface Water (A1)
_____ High Water Table (A2)
_____ Saturation (A3)
_____ Water Marks (B1) (Nonriverine)
__X__ Sediment Deposits (B2) (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)
__X__ Oxidized Rhizospheres (C3)
_____ Presence of Reduced Iron (C4)
_____ Recent Iron Reduction in Plowed Soils (C6)
_____ 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)
_____ Thin Muck Surface (C7)
_____ Crayfish Burrows (C8)
_____ Saturation Visible on Aerial Imagery (C9)
_____ Shallow Aquitard (D3)
__X__ FAC-Netural Test (D5)

Field Observations

Surface Water Present? Yes _____ No X Depth (inches) —
Water Table Present? Yes _____ No X Depth (inches) —
Saturation Present? Yes _____ No X Depth (inches) — *(includes capillary fringe)*

Wetland Hydrology? Yes X No _____

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

Remarks SEEP DITCH + ADJACENT WETLANDS.

North State Resources

Wetland Determination Data Form - Arid West Region

Habitat Type DITCH
Wetland Type EMERGENT WL

Project/Site: Sisk Dam Corrective Action Project City/County: Merced County Sampling Date: 9/1/09
Applicant/Owner: U.S. Bureau of Reclamation State: CA Sampling Point: 6
Investigator(s): J. Colescott
Landform (hillslope, terrace, etc.) DITCH Local relief (concave, convex, none) CONCAVE Slope % 0-2%
Subregion (LRR) LRR-C Soil Map Unit Name: Ballvar Loam 2-8%
Are climatic/hydrologic conditions on the site typical for this time of year? YES (If no, explain in remarks.)
Are vegetation NO, soil NO, or hydrology NO significantly disturbed? Are normal circumstances present? YES
Are vegetation NO, soil NO or hydrology NO 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? YES Hydric soil? YES Wetland hydrology? YES Is sampled area a wetland? YES Other waters? NO

USACE Jurisdiction

Adjacent to Waters X Tributary to Waters X Isolated (with interstate commerce) ____ Isolated (non jurisdictional) ____
Explain:

Evaluation of features designated "Other Waters of the United States"

Indicators: Defined bed and bank ____ Scour ____ Ordinary High Water Mark Mapped ____
Feature Designation: Perennial ____ Intermittent ____ Ephemeral ____ Blue-line on USGS Quad ____
Natural Drainage ____ Artificial Drainage ____ Navigable Water ____

NO DEFINED BED & BANK IN THIS SECTION OF WETLAND.

Remarks

EAST BOUNDARY OF LARGE "SEEP DITCH" WETLAND.

Vegetation

Tree Stratum (use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1. Populus fremontii	10	Y	FACW
2. Salix laevigata	30	Y	FACW
3.			
50%= 20 20%= 8 Total Cover:	40		

Sapling/Shrub Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
3.			
4.			
50%= 20%= Total Cover:			

Herb Stratum (use scientific names)	% Cover	Species?	Status
1. Typha latifolia	40	YES	OBL
2. Hordeum leporinum	35	Y	FAC
3. Polypogon monspeliensis	15	N	FACW
4. Conyza canadensis	10	N	FAC
5.			
6.			
7.			
50%= 20%= Total Cover:	100		

Woody/Vine Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
50%= 20%= Total Cover:			

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

Dominance Test Worksheet

Number of dominant species that are OBL, FACW, or FAC: 4 (A)
Total number of dominant species across all strata: 4 (B)
Percent of dominant species that are OBL, FACW, or FAC: 100 (AB)

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)

Prevalance Index = B/A =

Hydrophytic Vegetation Indicators

X Dominance Text 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.*

Hydrophytic Vegetation? YES

Sampling Point 6

Soils

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 4/4	95	7.5YR 4/6	5	C	M	GRAVELLY CLAY LOAM	
4-10	10YR 4/4	70	7.5YR 4/6	25	C	M	"	" "
			GLEY 1 4/10GY	5	D	M	"	" "

[1]Types: C = Concentration D = Depletion RM = Reduced Matrix [2]Location: PL = Pore Lining RC = Root Channel 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 (AG) (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)
- X 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 Vetric (F18)
- ___ Red Parent Materials (TF2)
- ___ Vegetated Sand/Gravel Bars
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: — Depth (Inches) — Hydric Soil? YES

Remarks HYDRIC SOILS.

Hydrology

Wetland Indicators

Primary Indicators (Any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (Nonriverine)
- X Sediment Deposits (B2) (Nonriverine)
- X 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)
- X Oxidized Rhizospheres (C3)
- X Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ 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)
- ___ Thin Muck Surface (C7)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Netural Test (D5)

Field Observations

Surface Water Present? Yes ___ No X Depth (inches) —

Water Table Present? Yes ___ No X Depth (inches) —

Saturation Present? Yes ___ No X Depth (inches) — *(includes capillary fringe)*

Wetland Hydrology? Yes X No ___

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

Remarks WETLAND HYDROLOGY.

North State Resources

Wetland Determination Data Form - Arid West Region

Habitat Type GRASSLAND
Wetland Type UPLAND

Project/Site: Sisk Dam Corrective Action Project City/County: Merced County Sampling Date: 9/1/09
Applicant/Owner: U.S. Bureau of Reclamation State: CA Sampling Point: 7
Investigator(s): J. Colescott
Landform (hillslope, terrace, etc.) ______ Local relief (concave, convex, none) Slope % 0-2
Subregion (LRR) LRR-C Soil Map Unit Name: Ballvay Loam 2-8%
Are climatic/hydrologic conditions on the site typical for this time of year? YES *(If no, explain in remarks.)*
Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? YES
Are vegetation N, soil N, or hydrology N 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? NO Hydric soil? NO Wetland hydrology? NO Is sampled area a wetland? NO Other waters? NO

USACE Jurisdiction
Adjacent to Waters / ____ Tributary to Waters ____ Isolated (with interstate commerce) ____ Isolated (non jurisdictional) ____
Explain: /

Evaluation of features designated "Other Waters of the United States"
Indicators: / Defined bed and bank ____ Scour ____ Ordinary High Water Mark Mapped ____
Feature Designation: Perennial ____ Intermittent ____ Ephemeral ____ Blue-line on USGS Quad ____
Natural Drainage ____ Artificial Drainage ____ Navigable Water ____

Remarks UPLAND PAIR TO #6

Vegetation

Tree Stratum (use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1. /			
2.			
3.			
50%= / 20%=	Total Cover:		

Sapling/Shrub Stratum (use scientific names)	% Cover	Species?	Status
1. Acaicia sp	3	Y	UPL
2. Atriplex lentiformis	3	N	FAC
3.			
4.			
50%= 3 20%= 1.2	Total Cover: 6		

Herb Stratum (use scientific names)	% Cover	Species?	Status
1. Hordeum leporinum	35	Y	FAC
2. Bromus hordeacous	35	Y	FACU
3. Centaurea solstitialis	5	N	UPL
4. Grindelia camporum	15	N	FACU
5. Avena barbata	10	N	UPL
6.			
7.			
50%= 50 20%= 20	Total Cover: 100		

Woody/Vine Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
50%= 20%=	Total Cover:		

% Bare Ground in Herb Stratum 0 **% Cover of Biotic Crust** —

Dominance Test Worksheet
Number of dominant species that are OBL, FACW, or FAC: 2 (A)
Total number of dominant species across all strata: 4 (B)
Percent of dominant species that are OBL, FACW, or FAC: 50 (AB)

Prevalence Index Worksheet

Total % Cover of:		Multiply by
OBL Species	0	x1 = 0
FACW Species	0	x2 = 0
FAC Species	38	x3 = 114
FACU Species	50	x4 = 200
UPL Species	18	x5 = 90
Column Totals	106 (A)	404 (B)

Prevalance Index = B/A = 3.7

Hydrophytic Vegetation Indicators
____ Dominance Text 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.

Hydrophytic Vegetation? N

Sampling Point 7

Soils

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 4/3	100	—	-	-	-	GRAVELLY	LOAM

[1]Types: C = Concentration D = Depletion RM = Reduced Matrix [2]Location: PL = Pore Lining RC = Root Channel 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 (AG) (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 Vetric (F18)
____ Red Parent Materials (TF2)
____ Vegetated Sand/Gravel Bars
____ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: ? Depth (Inches) / Hydric Soil? NO

Remarks NON HYDRIC SOILS

Hydrology

Wetland Indicators

Primary Indicators (Any one indicator is sufficient)

____ Surface Water (A1)
____ High Water Table (A2)
____ Saturation (A3)
____ Water Marks (B1) (Nonriverine)
____ Sediment Deposits (B2) (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 (C3)
____ Presence of Reduced Iron (C4)
____ Recent Iron Reduction in Plowed Soils (C6)
____ 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)
____ Thin Muck Surface (C7)
____ Crayfish Burrows (C8)
____ Saturation Visible on Aerial Imagery (C9)
____ Shallow Aquitard (D3)
____ FAC-Netural Test (D5)

Field Observations

Surface Water Present? Yes ____ No ~ Depth (inches) —
Water Table Present? Yes ____ No — Depth (inches) —
Saturation Present? Yes ____ No — Depth (inches) — *(includes capillary fringe)*

Wetland Hydrology? Yes ____ No X

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

Remarks NO WETLAND HYDROLOGY INDICATORS.

North State Resources

Wetland Determination Data Form - Arid West Region

Habitat Type MEADOW
Wetland Type UPLAND

Project/Site: Sisk Dam Corrective Action Project City/County: Merced County Sampling Date: 9/1/09

Applicant/Owner: U.S. Bureau of Reclamation State: CA Sampling Point: 8

Investigator(s): J. Colescott

Landform (hillslope, terrace, etc.) PLAIN Local relief (concave, convex, none) CONVEX Slope % 2-5

Subregion (LRR) LRR-C Soil Map Unit Name: Xerofluvents, Extremly gravelly

Are climatic/hydrologic conditions on the site typical for this time of year? YES (If no, explain in remarks.)

Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? YES

Are vegetation N, soil N, or hydrology N 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? N Hydric soil? YES Wetland hydrology? NO Is sampled area a wetland? NO Other waters? NO

USACE Jurisdiction

Adjacent to Waters ____ Tributary to Waters ____ Isolated (with interstate commerce) ____ Isolated (non jurisdictional) ____

Explain:

Evaluation of features designated "Other Waters of the United States"

Indicators: Defined bed and bank ____ Scour ____ Ordinary High Water Mark Mapped ____

Feature Designation: Perennial ____ Intermittent ____ Ephemeral ____ Blue-line on USGS Quad ____

Natural Drainage ____ Artificial Drainage ____ Navigable Water ____

Remarks UPLAND PAIR TO DP. 9.

Vegetation

Tree Stratum (use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
50%= 20%= Total Cover:			

Sapling/Shrub Stratum (use scientific names)	% Cover	Species?	Status
1. Atroplex lentiformis	5	Y	FAC
2.			
3.			
4.			
50%= 2.5 20%= 1 Total Cover:	5		

Herb Stratum (use scientific names)	% Cover	Species?	Status
1. Hordeum leporinum	25	Y	FAC
2. Bromus hordeacous	20	Y	FACU
3. B. diandros	20	Y	UPL
4. Grindelia camporum	20	Y	FACU
DOVE WEED 5. Croton setigerus	15	N	UPL
6. Lepidium latifolium	10	N	FACW
7.			
50%= 50 20%= 20 Total Cover:	100		

Woody/Vine Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
50%= 20%= Total Cover:			

% Bare Ground in Herb Stratum — % Cover of Biotic Crust —

Dominance Test Worksheet

Number of dominant species that are OBL, FACW, or FAC: 2 (A)

Total number of dominant species across all strata: 5 (B)

Percent of dominant species that are OBL, FACW, or FAC: 40 (AB)

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)

Prevalance Index = B/A = ______

Hydrophytic Vegetation Indicators

____ Dominance Text 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.*

Hydrophytic Vegetation? NO

Sampling Point 8

Soils

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
0-8	10YR 4/4	85	10YR 3/2	10	C	M	GRAVELLY LOAM	
			10YR 5/2	5	D	M	"	"

[1]Types: C = Concentration D = Depletion RM = Reduced Matrix [2]Location: PL = Pore Lining RC = Root Channel 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 (AG) (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)
- X 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 Vetric (F18)
- ___ Red Parent Materials (TF2)
- ___ Vegetated Sand/Gravel Bars
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: — Depth (Inches) — Hydric Soil? YES

Remarks SOME HYDRIC SOIL INDICATORS PRESENT.

Hydrology

Wetland Indicators

Primary Indicators (Any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (Nonriverine)
- ___ Sediment Deposits (B2) (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 (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ 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)
- ___ Thin Muck Surface (C7)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Netural Test (D5)

Field Observations

Surface Water Present? Yes ___ No ___ Depth (inches) ___ Wetland Hydrology? Yes ___ No X

Water Table Present? Yes ___ No ___ Depth (inches) ___

Saturation Present? Yes ___ No ___ Depth (inches) ___ *(includes capillary fringe)*

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

Remarks NO WETLAND HYDROLOGY INDICATORS.

North State Resources

Wetland Determination Data Form - Arid West Region

Habitat Type GRASSLAND
Wetland Type EMERG. WETLAND

Project/Site: Sisk Dam Corrective Action Project City/County: Merced County Sampling Date: 9/1/09

Applicant/Owner: U.S. Bureau of Reclamation State: CA Sampling Point: 9

Investigator(s): J. Colescott

Landform (hillslope, terrace, etc.) ______ Local relief (concave, convex, none) CONCAVE Slope % 0-2

Subregion (LRR) LRR-C Soil Map Unit Name: Xerofluvents, EXTREMELY GRAVELLY

Are climatic/hydrologic conditions on the site typical for this time of year? YES *(If no, explain in remarks.)*

Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? YES

Are vegetation N, soil N, or hydrology N 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? Y Hydric soil? Y Wetland hydrology? Y Is sampled area a wetland? YES Other waters? NO

USACE Jurisdiction

Adjacent to Waters X Tributary to Waters X Isolated (with interstate commerce) ____ Isolated (non jurisdictional) ____
Explain:

Evaluation of features designated "Other Waters of the United States"

Indicators: Defined bed and bank ____ Scour ____ Ordinary High Water Mark Mapped ____
Feature Designation: Perennial ____ Intermittent ____ Ephemeral ____ Blue-line on USGS Quad ____
Natural Drainage ____ Artificial Drainage ____ Navigable Water ____

Remarks ANOTHER "SEEP WETLAND" THAT HYDRATES FROM DAM LEAKAGE WHEN RES. IS FULL.

Vegetation

Tree Stratum (use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1. Populus fremontii	5	Y	FACW
2. Salix laevigata	3	Y	FACW
3.			
50%= 4 20%= 1.6 Total Cover:	8		
Sapling/Shrub Stratum (use scientific names)	**% Cover**	**Species?**	**Status**
1.			
2.			
3.			
4.			
50%= 20%= Total Cover:			
Herb Stratum (use scientific names)	**% Cover**	**Species?**	**Status**
1. Typha latifolia	35	Y	OBL
2. Conyza canadensis	30	Y	FAC
3. Grindelia camporum	15	N	FACU
4. Lepidium latifolia	15	N	FACW
5.			
6.			
7.			
50%= 47.5 20%= 19 Total Cover:	95		
Woody/Vine Stratum (use scientific names)	**% Cover**	**Species?**	**Status**
1.			
2.			
50%= 20%= Total Cover:			

% Bare Ground in Herb Stratum 5-10% **% Cover of Biotic Crust** –

Dominance Test Worksheet

Number of dominant species that are OBL, FACW, or FAC: 4 (A)

Total number of dominant species across all strata: 4 (B)

Percent of dominant species that are OBL, FACW, or FAC: 100 (AB)

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)

Prevalance Index = B/A = ____

Hydrophytic Vegetation Indicators

X Dominance Text 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.

Hydrophytic Vegetation? YES

Sampling Point 9

Soils

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
0-10"	10YR 4/4	80	GLEY 1 5/10Y	5	D	M	GRAVELLY	LOAM
			7.5YR 4/6	15	C	M	"	"

[1]Types: C = Concentration D = Depletion RM = Reduced Matrix [2]Location: PL = Pore Lining RC = Root Channel 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 (AG) (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)
_X_ 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 Vetric (F18)
____ Red Parent Materials (TF2)
____ Vegetated Sand/Gravel Bars
____ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: — Depth (Inches) — Hydric Soil? YES

Remarks HYDRIC SOILS

Hydrology

Wetland Indicators

Primary Indicators (Any one indicator is sufficient)

____ Surface Water (A1)
____ High Water Table (A2)
____ Saturation (A3)
____ Water Marks (B1) (Nonriverine)
_X_ Sediment Deposits (B2) (Nonriverine)
_X_ 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)
_X_ Oxidized Rhizospheres (C3)
____ Presence of Reduced Iron (C4)
____ Recent Iron Reduction in Plowed Soils (C6)
____ 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)
____ Thin Muck Surface (C7)
____ Crayfish Burrows (C8)
____ Saturation Visible on Aerial Imagery (C9)
____ Shallow Aquitard (D3)
____ FAC-Netural Test (D5)

Field Observations

Surface Water Present? Yes ____ No _X_ Depth (inches) —
Water Table Present? Yes ____ No _X_ Depth (inches) —
Saturation Present? Yes ____ No _X_ Depth (inches) — *(includes capillary fringe)*

Wetland Hydrology? Yes _X_ No ____

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

Remarks WETLAND HYDROLOGY

North State Resources

Wetland Determination Data Form - Arid West Region

Habitat Type MEADOW
Wetland Type SEASONAL WL

Project/Site: Sisk Dam Corrective Action Project City/County: Merced County Sampling Date: 9/1/09
Applicant/Owner: U.S. Bureau of Reclamation State: CA Sampling Point: 10
Investigator(s): J. Colescott
Landform (hillslope, terrace, etc.) FLAT Local relief (concave, convex, none) Slope % 0-2%
Subregion (LRR) LRR-C Soil Map Unit Name: Xerofluvents, Extremely gravelly
Are climatic/hydrologic conditions on the site typical for this time of year? YES *(If no, explain in remarks.)*
Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? YES
Are vegetation YES soil N, or hydrology N 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? YES Hydric soil? YES Wetland hydrology? YES Is sampled area a wetland? YES Other waters? NO

USACE Jurisdiction
Adjacent to Waters X Tributary to Waters X Isolated (with interstate commerce) ____ Isolated (non jurisdictional) ____
Explain:

Evaluation of features designated "Other Waters of the United States"
Indicators: Defined bed and bank ____ Scour ____ Ordinary High Water Mark Mapped ____
Feature Designation: Perennial ____ Intermittent ____ Ephemeral ____ Blue-line on USGS Quad ____
Natural Drainage ____ Artificial Drainage ____ Navigable Water ____

Remarks HIGH PERCENTAGE OF BARE GROUND = PROBLEMATIC VEG. COLONIZATION BY ANNUAL UPLAND SPECIES. VEG PARAMETER NOT MET, HOWEVER SOILS AND HYDROLOGY SUPPORT WETLAND DETERMINATION.

Vegetation

Tree Stratum (use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
50%= 20%= Total Cover:			

Sapling/Shrub Stratum (use scientific names)	% Cover	Species?	Status
1. Atriplex lentiformis	2	YES	FAC
2.			
3.			
4.			
50%= 1 20%= .4 Total Cover:	2		

Herb Stratum (use scientific names)	% Cover	Species?	Status
1. Hordeum leporinum	50	YES	FAC
2. Grindelia camporum	10	N	UPL
3. Bromus hordeaceus	5	N	FACU
4. Avena fatua	2	N	UPL
5.			
6.			
7.			
50%= 33½ 20%= 13.4 Total Cover:	67		

Woody/Vine Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
50%= 20%= Total Cover:			

% Bare Ground in Herb Stratum 33 **% Cover of Biotic Crust** 60

Dominance Test Worksheet

Number of dominant species that are OBL, FACW, or FAC: 2 (A)
Total number of dominant species across all strata: 2 (B)
Percent of dominant species that are OBL, FACW, or FAC: 100 (AB)

Prevalence Index Worksheet

Total % Cover of:		Multiply by
OBL Species	0	x 1 =
FACW Species	0	x 2 =
FAC Species	50	x 3 = 150
FACU Species	5	x 4 = 20
UPL Species	14	x 5 = 70
Column Totals	69 (A)	240 (B)

Prevalance Index = B/A = 240/69 = 3.4

Hydrophytic Vegetation Indicators

X Dominance Text is >50%
____ Prevalence Index is ≤ 3.0[1]
____ Morphological Adaptations[1] (provide supporting data in Remarks or on a separate sheet)
X Problematic Hydrophytic Vegetation[1] (Explain)

[1]*Indicators of hydric soil and wetland hydrology must be present.*

Hydrophytic Vegetation? YES

Sampling Point 10

Soils

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-8"	10YR 4/4	90	10YR 3/1	5	D	M	GRAVELLY LOAM	
			7.5YR 5/8	5	C	M	"	"

[1]Types: C = Concentration D = Depletion RM = Reduced Matrix [2]Location: PL = Pore Lining RC = Root Channel 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 (AG) (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)
X 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 Vetric (F18)
____ Red Parent Materials (TF2)
____ Vegetated Sand/Gravel Bars
____ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: — Depth (Inches) — Hydric Soil? YES

Remarks STRONG HYDRIC SOILS INDICATORS

Hydrology

Wetland Indicators

Primary Indicators (Any one indicator is sufficient)

____ Surface Water (A1)
____ High Water Table (A2)
____ Saturation (A3)
____ Water Marks (B1) (Nonriverine)
X Sediment Deposits (B2) (Nonriverine)
X Surface Soil Cracks (B6)
____ Inundation Visible on Aerial Imagery (B7)
____ Water-Stained Leaves (B9)
____ Salt Crust (B11)
X Biotic Crust (B12)
____ Aquatic Invertebrates (B13)
____ Hydrogen Sulfide Odor (C1)
X Oxidized Rhizospheres (C3)
____ Presence of Reduced Iron (C4)
____ Recent Iron Reduction in Plowed Soils (C6)
____ 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)
____ Thin Muck Surface (C7)
____ Crayfish Burrows (C8)
____ Saturation Visible on Aerial Imagery (C9)
____ Shallow Aquitard (D3)
____ FAC-Netural Test (D5)

Field Observations

Surface Water Present? Yes ____ No X Depth (inches) —
Water Table Present? Yes ____ No X Depth (inches) —
Saturation Present? Yes ____ No X Depth (inches) — *(includes capillary fringe)*

Wetland Hydrology? Yes X No ____

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

Remarks STRONG WETLAND HYDROLOGY INDICATORS.

North State Resources

Wetland Determination Data Form - Arid West Region

Habitat Type MEADOW
Wetland Type UPLAND

Project/Site: Sisk Dam Corrective Action Project City/County: Merced County Sampling Date: 9/1/09

Applicant/Owner: U.S. Bureau of Reclamation State: CA Sampling Point: 11

Investigator(s): J. Colescott

Landform (hillslope, terrace, etc.) FLAT Local relief (concave, convex, none) NONE Slope % 0-2

Subregion (LRR) LRR-C Soil Map Unit Name: Xerofluvents, Extremely Gravelly

Are climatic/hydrologic conditions on the site typical for this time of year? YES *(If no, explain in remarks.)*

Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? YES

Are vegetation N, soil N, or hydrology N 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? NO Hydric soil? NO Wetland hydrology? NO Is sampled area a wetland? NO Other waters? NO

USACE Jurisdiction

Adjacent to Waters ____ Tributary to Waters ____ Isolated (with interstate commerce) ____ Isolated (non jurisdictional) ____

Explain:

Evaluation of features designated "Other Waters of the United States"

Indicators: Defined bed and bank ____ Scour ____ Ordinary High Water Mark Mapped ____

Feature Designation: Perennial ____ Intermittent ____ Ephemeral ____ Blue-line on USGS Quad ____ Natural Drainage ____ Artificial Drainage ____ Navigable Water ____

Remarks
UPLAND PAIR TO DP 10.

Vegetation

Tree Stratum (use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
50%= 20%= Total Cover:			

Sapling/Shrub Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
3.			
4.			
50%= 20%= Total Cover:			

Herb Stratum (use scientific names)	% Cover	Species?	Status
1. Bromus hordeaceus	60	Y	FACU
2. B. diandrus	15	Y	UPL
3. Grindelia camporum	20	Y	UPL
4. Croton setigerus	5	N	UPL
5.			
6.			
7.			
50%= 20%= Total Cover:	100		

Woody/Vine Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
50%= 20%= Total Cover:			

% Bare Ground in Herb Stratum ____ % Cover of Biotic Crust ____

Dominance Test Worksheet

Number of dominant species that are OBL, FACW, or FAC: 0 (A)

Total number of dominant species across all strata: 3 (B)

Percent of dominant species that are OBL, FACW, or FAC: 0 (AB)

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)

Prevalance Index = B/A = ____

Hydrophytic Vegetation Indicators

____ Dominance Text 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.*

Hydrophytic Vegetation? NO

Sampling Point 11

Soils

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 3/4	100	—	—	—	—	GRAVELLY LOAM	

[1]Types: C = Concentration D = Depletion RM = Reduced Matrix [2]Location: PL = Pore Lining RC = Root Channel 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 (AG) (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 Vetric (F18)
____ Red Parent Materials (TF2)
____ Vegetated Sand/Gravel Bars
____ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: — Depth (Inches) — Hydric Soil? NO

Remarks UPLAND SOILS

Hydrology

Wetland Indicators

Primary Indicators (Any one indicator is sufficient)

____ Surface Water (A1)
____ High Water Table (A2)
____ Saturation (A3)
____ Water Marks (B1) (Nonriverine)
____ Sediment Deposits (B2) (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 (C3)
____ Presence of Reduced Iron (C4)
____ Recent Iron Reduction in Plowed Soils (C6)
____ 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)
____ Thin Muck Surface (C7)
____ Crayfish Burrows (C8)
____ Saturation Visible on Aerial Imagery (C9)
____ Shallow Aquitard (D3)
____ FAC-Netural Test (D5)

Field Observations

Surface Water Present? Yes ____ No X Depth (inches) ____
Water Table Present? Yes ____ No X Depth (inches) ____
Saturation Present? Yes ____ No X Depth (inches) ____ *(includes capillary fringe)*

Wetland Hydrology? Yes ____ No X

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

Remarks UPLAND HYDROLOGY

North State Resources

Wetland Determination Data Form - Arid West Region

Habitat Type: DAMSIDE + ROADSIDE
Wetland Type: EMERGENT WL

Project/Site: Sisk Dam Corrective Action Project City/County: Merced County Sampling Date: 9/1/09

Applicant/Owner: U.S. Bureau of Reclamation State: CA Sampling Point: 12

Investigator(s): J. Colescott

Landform (hillslope, terrace, etc.) HILLSIDE Local relief (concave, convex, none) NONE Slope % 10%

Subregion (LRR) LRR-C Soil Map Unit Name: DAM

Are climatic/hydrologic conditions on the site typical for this time of year? YES *(If no, explain in remarks.)*

Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? YES

Are vegetation N, soil N, or hydrology N 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? YES Hydric soil? YES Wetland hydrology? YES Is sampled area a wetland? YES Other waters? NO

USACE Jurisdiction

Adjacent to Waters X Tributary to Waters X Isolated (with interstate commerce) ____ Isolated (non jurisdictional) ____

Explain:

Evaluation of features designated "Other Waters of the United States"

Indicators: Defined bed and bank ____ Scour ____ Ordinary High Water Mark Mapped ____

Feature Designation: Perennial ____ Intermittent ____ Ephemeral ____ Blue-line on USGS Quad ____

Natural Drainage ____ Artificial Drainage ____ Navigable Water ____

Remarks

SMALL "SEEP" WETLAND ON DAM SLOPE.

Vegetation

Tree Stratum (use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
50%= ____ 20%= ____ Total Cover:			

Sapling/Shrub Stratum (use scientific names)	% Cover	Species?	Status
1. Salix exigua	50	YES	OBL
2.			
3.			
4.			
50%= 25 20%= 10 Total Cover:	50		

Herb Stratum (use scientific names)	% Cover	Species?	Status
1. Typha latifolia	50	Y	OBL
2. Lepidium latifolium	20	Y	FACW
3.			
4.			
5.			
6.			
7.			
50%= 35 20%= 14 Total Cover:	70		

Woody/Vine Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
50%= ____ 20%= ____ Total Cover:			

% Bare Ground in Herb Stratum ____ % Cover of Biotic Crust ____

Dominance Test Worksheet

Number of dominant species that are OBL, FACW, or FAC: 3 (A)

Total number of dominant species across all strata: 3 (B)

Percent of dominant species that are OBL, FACW, or FAC: 100 (AB)

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)

Prevalance Index = B/A = ____

Hydrophytic Vegetation Indicators

- X Dominance Text 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.*

Hydrophytic Vegetation? YES

Sampling Point 12

Soils

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-8"	10YR 2/2	90	10YR 2/1	10	D	M	GRAVELLY	LOAM

[1]Types: C = Concentration D = Depletion RM = Reduced Matrix [2]Location: PL = Pore Lining RC = Root Channel 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 (AG) (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)
X 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 Vetric (F18)
___ Red Parent Materials (TF2)
___ Vegetated Sand/Gravel Bars
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: — Depth (Inches) — Hydric Soil? YES

Remarks HYDRIC SOILS

Hydrology

Wetland Indicators

Primary Indicators (Any one indicator is sufficient)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1) (Nonriverine)
___ Sediment Deposits (B2) (Nonriverine)
X 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)
X Oxidized Rhizospheres (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Plowed Soils (C6)
___ 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)
___ Thin Muck Surface (C7)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Shallow Aquitard (D3)
X FAC-Netural Test (D5)

Field Observations

Surface Water Present? Yes ___ No X Depth (inches) — Wetland Hydrology? Yes X No ___
Water Table Present? Yes ___ No X Depth (inches) —
Saturation Present? Yes ___ No X Depth (inches) — *(includes capillary fringe)*

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

Remarks WETLAND HYDROLOGY. DRAINS TO MAIN "SEEP" DITCH.

North State Resources

Wetland Determination Data Form - Arid West Region

Habitat Type DAM SIDE
Wetland Type UPLAND

Project/Site: Sisk Dam Corrective Action Project City/County: Merced County Sampling Date: 9/1/09

Applicant/Owner: U.S. Bureau of Reclamation State: CA Sampling Point: 13

Investigator(s): J. Colescott

Landform (hillslope, terrace, etc.) HILLSIDE Local relief (concave, convex, none) NONE Slope % 5%

Subregion (LRR) LRR-C Soil Map Unit Name: Apollo Clay Loam 15-30% SLOPES

Are climatic/hydrologic conditions on the site typical for this time of year? YES *(If no, explain in remarks.)*

Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? YES

Are vegetation N, soil N, or hydrology N 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? NO Hydric soil? NO Wetland hydrology? YES Is sampled area a wetland? NO Other waters? NO

USACE Jurisdiction

Adjacent to Waters ____ Tributary to Waters ____ Isolated (with interstate commerce) ____ Isolated (non jurisdictional) ____
Explain:

Evaluation of features designated "Other Waters of the United States"

Indicators: Defined bed and bank ____ Scour ____ Ordinary High Water Mark Mapped ____
Feature Designation: Perennial ____ Intermittent ____ Ephemeral ____ Blue-line on USGS Quad ____
Natural Drainage ____ Artificial Drainage ____ Navigable Water ____

Remarks UPLAND PAIR TO # 14.

Vegetation

Tree Stratum (use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
50%= 20%= Total Cover:			

Sapling/Shrub Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
3.			
4.			
50%= 20%= Total Cover:			

Herb Stratum (use scientific names)	% Cover	Species?	Status
1. Silybum marianum	40	Y	UPL
2. Brassica nigra	40	Y	UPL
3. Bromus madritensis	20	Y	UPL
4.			
5.			
6.			
7.			
50%= 20%= Total Cover:	100		

Woody/Vine Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
50%= 20%= Total Cover:			

% Bare Ground in Herb Stratum — % Cover of Biotic Crust —

Dominance Test Worksheet

Number of dominant species that are OBL, FACW, or FAC: 0 (A)

Total number of dominant species across all strata: 3 (B)

Percent of dominant species that are OBL, FACW, or FAC: 0 (AB)

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)

Prevalance Index = B/A = ____

Hydrophytic Vegetation Indicators

____ Dominance Text 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.

Hydrophytic Vegetation? NO

Sampling Point 13

Soils

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
0-6	10YR 3/3	75	10YR 4/4	25	RM	M	Loam	

[1]Types: C = Concentration D = Depletion RM = Reduced Matrix [2]Location: PL = Pore Lining RC = Root Channel 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 (AG) (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 Vetric (F18)
____ Red Parent Materials (TF2)
____ Vegetated Sand/Gravel Bars
____ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: — Depth (Inches) — Hydric Soil? NO

Remarks COLORS NOT DARK ENOUGH FOR F-6. ~~[illegible]~~ INSUFFICIENT REDOX FEATURES.

Hydrology

Wetland Indicators

Primary Indicators (Any one indicator is sufficient)

____ Surface Water (A1)
____ High Water Table (A2)
____ Saturation (A3)
____ Water Marks (B1) (Nonriverine)
____ Sediment Deposits (B2) (Nonriverine)
_X_ 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 (C3)
____ Presence of Reduced Iron (C4)
____ Recent Iron Reduction in Plowed Soils (C6)
____ 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)
____ Thin Muck Surface (C7)
____ Crayfish Burrows (C8)
____ ~~Saturation Visible on~~ Aerial Imagery (C9)
____ Shallow Aquitard (D3)
____ FAC-Netural Test (D5)

Field Observations

Surface Water Present? Yes ____ No _X_ Depth (inches) _—_
Water Table Present? Yes ____ No _X_ Depth (inches) _—_
Saturation Present? Yes ____ No _X_ Depth (inches) _—_ *(includes capillary fringe)*

Wetland Hydrology? Yes _X_ No ____

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

Remarks HYDROLOGY MET.

North State Resources

Habitat Type DAM SIDE
Wetland Type FRESH EMERGENT WTLD

Wetland Determination Data Form - Arid West Region

Project/Site: Sisk Dam Corrective Action Project City/County: Merced County Sampling Date: 9/1/09
Applicant/Owner: U.S. Bureau of Reclamation State: CA Sampling Point: 14
Investigator(s): J. Colescott
Landform (hillslope, terrace, etc.) HILLSIDE Local relief (concave, convex, none) NONE Slope % 5%
Subregion (LRR) LRR-C Soil Map Unit Name: Appolo Clay loam 15-30%
Are climatic/hydrologic conditions on the site typical for this time of year? YES *(If no, explain in remarks.)*
Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? YES
Are vegetation N, soil N, or hydrology N 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? YES Hydric soil? YES Wetland hydrology? YES Is sampled area a wetland? YES Other waters? NO

USACE Jurisdiction

Adjacent to Waters X Tributary to Waters X Isolated (with interstate commerce) ____ Isolated (non jurisdictional) ____
Explain:

Evaluation of features designated "Other Waters of the United States"

Indicators: Defined bed and bank ____ Scour ____ Ordinary High Water Mark Mapped ____
Feature Designation: Perennial ____ Intermittent ____ Ephemeral ____ Blue-line on USGS Quad ____
Natural Drainage ____ Artificial Drainage ____ Navigable Water ____

Remarks

DP DOCUMENTS WETLAND SIDE OF TRANSITIONAL HABITAT.

Vegetation

Tree Stratum (use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
50%= 20%= Total Cover:			

Sapling/Shrub Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
3.			
4.			
50%= 20%= Total Cover:			

Herb Stratum (use scientific names)	% Cover	Species?	Status
1. Lepidium latifolium	100	Y	FACW
2.			
3.			
4.			
5.			
6.			
7.			
50%= 20%= Total Cover:			

Woody/Vine Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
50%= 20%= Total Cover:			

% Bare Ground in Herb Stratum — **% Cover of Biotic Crust** —

Dominance Test Worksheet

Number of dominant species that are OBL, FACW, or FAC: 1 (A)
Total number of dominant species across all strata: 1 (B)
Percent of dominant species that are OBL, FACW, or FAC: 100 (AB)

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

X Dominance Text 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.

Hydrophytic Vegetation? YES

Sampling Point 14

Soils

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-8"	10YR 3/2	95	10YR 3/3	5	D	M	LOAM	

[1]Types: C = Concentration D = Depletion RM = Reduced Matrix [2]Location: PL = Pore Lining RC = Root Channel 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 (AG) (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)
- X 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 Vetric (F18)
- ___ Red Parent Materials (TF2)
- ___ Vegetated Sand/Gravel Bars
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: – Depth (Inches) – Hydric Soil? YES

Remarks SEEP. WATER ASSUMED TO COME FROM SUBSURFACE. WEAK INDICATORS OK DUE TO LOCATION AT UPSLOPE (START) OF WETLAND.

Hydrology

Wetland Indicators

Primary Indicators (Any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (Nonriverine)
- X Sediment Deposits (B2) (Nonriverine)
- X 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 (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ 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)
- ___ Thin Muck Surface (C7)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Netural Test (D5)

Field Observations

Surface Water Present? Yes ___ No X Depth (inches) –

Water Table Present? Yes ___ No X Depth (inches) –

Saturation Present? Yes ___ No X Depth (inches) – *(includes capillary fringe)*

Wetland Hydrology? Yes X No ___

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

WETLAND HYD.

Remarks

North State Resources

Wetland Determination Data Form - Arid West Region

Habitat Type DAM
Wetland Type EMERGENT WTLD

Project/Site: Sisk Dam Corrective Action Project City/County: Merced County Sampling Date: 9/1/09

Applicant/Owner: U.S. Bureau of Reclamation State: CA Sampling Point: 15

Investigator(s): J. Colescott

Landform (hillslope, terrace, etc.) HILLSLOPE Local relief (concave, convex, none) CONCAVE Slope % 5%

Subregion (LRR) LRR-C Soil Map Unit Name: Apollo Clay loam 15-30%

Are climatic/hydrologic conditions on the site typical for this time of year? YES *(If no, explain in remarks.)*

Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? YES

Are vegetation N, soil N, or hydrology N 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? YES Hydric soil? YES Wetland hydrology? YES Is sampled area a wetland? YES Other waters? NO

USACE Jurisdiction

Adjacent to Waters X Tributary to Waters ____ Isolated (with interstate commerce) ____ Isolated (non jurisdictional) ____

Explain:

Evaluation of features designated "Other Waters of the United States"

Indicators: Defined bed and bank ____ Scour ____ Ordinary High Water Mark Mapped ____

Feature Designation: Perennial ____ Intermittent ____ Ephemeral ____ Blue-line on USGS Quad ____

Natural Drainage ____ Artificial Drainage ____ Navigable Water ____

Remarks

SMALL SEEP WETLAND AT BASE OF DAM. WETLAND IS SORROUNDED BY ROAD + OTHER BANKS (OBVIOUS UPLANDS). NO PAIR POINT INSTALLED.

Vegetation

Tree Stratum (use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
50%= 20%= Total Cover:			

Sapling/Shrub Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
3.			
4.			
50%= 20%= Total Cover:			

Herb Stratum (use scientific names)	% Cover	Species?	Status
1. Typha latifolia	50	Y	OBL
2. Lepidium latifolium	30	Y	FACW
3. Conium maculatum	20	Y	OBL
4.			
5.			
6.			
7.			
50%= 20%= Total Cover:	100		

Woody/Vine Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
50%= 20%= Total Cover:			

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

Dominance Test Worksheet

Number of dominant species that are OBL, FACW, or FAC: 3 (A)

Total number of dominant species across all strata: 3 (B)

Percent of dominant species that are OBL, FACW, or FAC: ____ (AB)

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)

Prevalance Index = B/A = ____

Hydrophytic Vegetation Indicators

X Dominance Text 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.*

Hydrophytic Vegetation? YES

Sampling Point 15

Soils

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
0-8	10YR 3/2	95	7.5YR 4/6	5	C	M	GRAVELLY LOAM	

[1]Types: C = Concentration D = Depletion RM = Reduced Matrix [2]Location: PL = Pore Lining RC = Root Channel 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 (AG) (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)
- X 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 Vetric (F18)
- ____ Red Parent Materials (TF2)
- ____ Vegetated Sand/Gravel Bars
- ____ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: — Depth (Inches) — Hydric Soil? YES

Remarks HYDRIC SOILS

Hydrology

Wetland Indicators

Primary Indicators (Any one indicator is sufficient)

- ____ Surface Water (A1)
- ____ High Water Table (A2)
- ____ Saturation (A3)
- ____ Water Marks (B1) (Nonriverine)
- ____ Sediment Deposits (B2) (Nonriverine)
- X 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)
- X Oxidized Rhizospheres (C3)
- ____ Presence of Reduced Iron (C4)
- ____ Recent Iron Reduction in Plowed Soils (C6)
- ____ 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)
- ____ Thin Muck Surface (C7)
- ____ Crayfish Burrows (C8)
- ____ Saturation Visible on Aerial Imagery (C9)
- ____ Shallow Aquitard (D3)
- X FAC-Netural Test (D5)

Field Observations

Surface Water Present? Yes ____ No X Depth (inches) ____ Wetland Hydrology? Yes X No ____

Water Table Present? Yes ____ No X Depth (inches) ____

Saturation Present? Yes ____ No X Depth (inches) ____ *(includes capillary fringe)*

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

Remarks WETLAND HYDROLOGY

North State Resources

Wetland Determination Data Form - Arid West Region

Habitat Type DITCH
Wetland Type VEGETATED DITCH

Project/Site: Sisk Dam Corrective Action Project City/County: Merced County Sampling Date: 9/1/09

Applicant/Owner: U.S. Bureau of Reclamation State: CA Sampling Point: 16

Investigator(s): J. Colescott

Landform (hillslope, terrace, etc.) DITCH Local relief (concave, convex, none) CONCAVE Slope % 2%

Subregion (LRR) LRR-C Soil Map Unit Name: Apollo Clay Loam 15-30%

Are climatic/hydrologic conditions on the site typical for this time of year? YES (If no, explain in remarks.)

Are vegetation N, soil N, or hydrology P significantly disturbed? Are normal circumstances present? YES

Are vegetation N, soil N, or hydrology N 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? YES Hydric soil? YES Wetland hydrology? YES Is sampled area a wetland? YES Other waters? YES

USACE Jurisdiction

Adjacent to Waters X Tributary to Waters X Isolated (with interstate commerce) ____ Isolated (non jurisdictional) ____
Explain:

Evaluation of features designated "Other Waters of the United States"

Indicators: Defined bed and bank X Scour X Ordinary High Water Mark Mapped X
Feature Designation: Perennial ____ Intermittent X Ephemeral ____ Blue-line on USGS Quad ____
Natural Drainage ____ Artificial Drainage X Navigable Water ____

Remarks DITCH TO COLLECT DAM SEEPAGE. ONLY FLOWS WHEN RES. IS FULL.

Vegetation

Tree Stratum (use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1. /			
2.			
3.			
50%= 20%= Total Cover:			

Sapling/Shrub Stratum (use scientific names)	% Cover	Species?	Status
1. /			
2.			
3.			
4.			
50%= 20%= Total Cover:			

Herb Stratum (use scientific names)	% Cover	Species?	Status
1. Polypogon monspeliensis	70%	Y	FACW
2. Juncus xiphioides	10	N	OBL
3. Typha latifolia	10	N	OBL
4.			
5.			
6.			
7.			
50%= 45 20%= 18 Total Cover:	90		

Woody/Vine Stratum (use scientific names)	% Cover	Species?	Status
1. /			
2.			
50%= 20%= Total Cover:			

% Bare Ground in Herb Stratum 10 % Cover of ~~Biotic Crust~~ SALT 10

Dominance Test Worksheet

Number of dominant species that are OBL, FACW, or FAC: 1 (A)

Total number of dominant species across all strata: 1 (B)

Percent of dominant species that are OBL, FACW, or FAC: 100 (AB)

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)

Prevalance Index = B/A = ________

Hydrophytic Vegetation Indicators

X Dominance Text 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.*

Hydrophytic Vegetation? YES

Sampling Point 16

Soils

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 3/2	80	7.5YR 4/4	20	C	M	COBBLY LOAM	VERY HARD, COULD ONLY DIG 3".

[1]Types: C = Concentration D = Depletion RM = Reduced Matrix [2]Location: PL = Pore Lining RC = Root Channel 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 (AG) (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)
- X 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 Vetric (F18)
- ____ Red Parent Materials (TF2)
- ____ Vegetated Sand/Gravel Bars
- ____ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: COBBLE Depth (Inches) 3" Hydric Soil? YES

Remarks VERY HARD, CRACKED SOIL.

Hydrology

Wetland Indicators

Primary Indicators (Any one indicator is sufficient)

- ____ Surface Water (A1)
- ____ High Water Table (A2)
- ____ Saturation (A3)
- ____ Water Marks (B1) (Nonriverine)
- ____ Sediment Deposits (B2) (Nonriverine)
- X Surface Soil Cracks (B6)
- ____ Inundation Visible on Aerial Imagery (B7)
- ____ Water-Stained Leaves (B9)
- X Salt Crust (B11)
- ____ Biotic Crust (B12)
- X Aquatic Invertebrates (B13)
- ____ Hydrogen Sulfide Odor (C1)
- ____ Oxidized Rhizospheres (C3)
- ____ Presence of Reduced Iron (C4)
- ____ Recent Iron Reduction in Plowed Soils (C6)
- ____ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ____ Water Marks (B1) (Riverine)
- X Sediment Deposits (B2) (Riverine)
- ____ Drift Deposits (B3) (Riverine)
- ____ Drainage Patterns (B10)
- ____ Dry-Season Water Table (C2)
- ____ Thin Muck Surface (C7)
- ____ Crayfish Burrows (C8)
- ____ Saturation Visible on Aerial Imagery (C9)
- ____ Shallow Aquitard (D3)
- X FAC-Netural Test (D5)

Field Observations

Surface Water Present? Yes ____ No X Depth (inches) –

Water Table Present? Yes ____ No X Depth (inches) –

Saturation Present? Yes ____ No X Depth (inches) – (includes capillary fringe)

Wetland Hydrology? Yes X No ____

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

Remarks DITCH BOTTOM

North State Resources

Wetland Determination Data Form - Arid West Region

Habitat Type GRASSLAND
Wetland Type UPLAND

Project/Site: Sisk Dam Corrective Action Project City/County: Merced County Sampling Date: 9/2/09

Applicant/Owner: U.S. Bureau of Reclamation State: CA Sampling Point: 17

Investigator(s): J. Colescott

Landform (hillslope, terrace, etc.) PLAIN Local relief (concave, convex, none) CONCAVE Slope % 0-2

Subregion (LRR) LRR-C Soil Map Unit Name: Dosmelois Clay loam 2-8%

Are climatic/hydrologic conditions on the site typical for this time of year? YES *(If no, explain in remarks.)*

Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? YES

Are vegetation N, soil N, or hydrology N 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? N Hydric soil? N Wetland hydrology? N Is sampled area a wetland? NO Other waters? NO

USACE Jurisdiction

Adjacent to Waters ____ Tributary to Waters ____ Isolated (with interstate commerce) ____ Isolated (non jurisdictional) ____

Explain:

Evaluation of features designated "Other Waters of the United States"

Indicators: Defined bed and bank ____ Scour ____ Ordinary High Water Mark Mapped ____

Feature Designation: Perennial ____ Intermittent ____ Ephemeral ____ Blue-line on USGS Quad ____

Natural Drainage ____ Artificial Drainage ____ Navigable Water ____

Remarks SMALL SHALLOW DEPRESSION - SUSPECT WETLAND. FAILED TO MEET WETLAND PARAMETERS.

Vegetation

Tree Stratum (use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
50%= ____ 20%= ____ Total Cover:			

Sapling/Shrub Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
3.			
4.			
50%= ____ 20%= ____ Total Cover:			

Herb Stratum (use scientific names)	% Cover	Species?	Status
1. Marrobium vulgare	40	Y	FAC
2. Amsinkia menziesii	25	Y	UPL
3. Bromus hordeacous	20	Y	FACU
4. B. diandrus	10	N	UPL
5. Brassica negra	5	N	UPL
6.			
7.			
50%= ____ 20%= ____ Total Cover:	100		

Woody/Vine Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
50%= ____ 20%= ____ Total Cover:			

% Bare Ground in Herb Stratum — % Cover of Biotic Crust —

Dominance Test Worksheet

Number of dominant species that are OBL, FACW, or FAC: 1 (A)

Total number of dominant species across all strata: 3 (B)

Percent of dominant species that are OBL, FACW, or FAC: 33 (AB)

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)

Prevalance Index = B/A = ____

Hydrophytic Vegetation Indicators

____ Dominance Text 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.*

Hydrophytic Vegetation? NO

Sampling Point 17

Soils

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0~10	10YR 4/3	100	—	-	~	-	CLAY LOAM	

[1]Types: C = Concentration D = Depletion RM = Reduced Matrix [2]Location: PL = Pore Lining RC = Root Channel 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 (AG) (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 Vetric (F18)
____ Red Parent Materials (TF2)
____ Vegetated Sand/Gravel Bars
____ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: — Depth (Inches) — Hydric Soil? N

Remarks NON. HYDRIC SOILS

Hydrology

Wetland Indicators

Primary Indicators (Any one indicator is sufficient)

____ Surface Water (A1)
____ High Water Table (A2)
____ Saturation (A3)
____ Water Marks (B1) (Nonriverine)
____ Sediment Deposits (B2) (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 (C3)
____ Presence of Reduced Iron (C4)
____ Recent Iron Reduction in Plowed Soils (C6)
____ 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)
____ Thin Muck Surface (C7)
____ Crayfish Burrows (C8)
____ Saturation Visible on Aerial Imagery (C9)
____ Shallow Aquitard (D3)
____ FAC-Netural Test (D5)

Field Observations

Surface Water Present? Yes ____ No X Depth (inches) —
Water Table Present? Yes ____ No X Depth (inches) -
Saturation Present? Yes ____ No X Depth (inches) - *(includes capillary fringe)*

Wetland Hydrology? Yes ____ No X

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

Remarks NO WETLAND HYDROLOGY INDICATORS

North State Resources

Wetland Determination Data Form - Arid West Region

Habitat Type GRASSLAND
Wetland Type UPLAND

Project/Site: Sisk Dam Corrective Action Project City/County: Merced County Sampling Date: 2/4/09
Applicant/Owner: U.S. Bureau of Reclamation State: CA Sampling Point: 18
Investigator(s): J. Colescott
Landform (hillslope, terrace, etc.) TERRACE Local relief (concave, convex, none) CONCAVE Slope % 0 - 2
Subregion (LRR) LRR-C Soil Map Unit Name: DAMLUIS CLAY LOAM, 2-8%
Are climatic/hydrologic conditions on the site typical for this time of year? YES *(If no, explain in remarks.)*
Are vegetation N soil N, or hydrology N significantly disturbed? Are normal circumstances present? YES
Are vegetation N soil N, or hydrology N 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? NO Hydric soil? YES Wetland hydrology? YES Is sampled area a wetland? NO Other waters? NO

USACE Jurisdiction

Adjacent to Waters ____ Tributary to Waters ____ Isolated (with interstate commerce) ____ Isolated (non jurisdictional) ____
Explain:

Evaluation of features designated "Other Waters of the United States"

Indicators: Defined bed and bank ____ Scour ____ Ordinary High Water Mark Mapped ____
Feature Designation: Perennial ____ Intermittent ____ Ephemeral ____ Blue-line on USGS Quad ____
Natural Drainage ____ Artificial Drainage ____ Navigable Water ____

Remarks OBVIOUS DEPOSITION AREA FOR SEDIMENT FROM ROAD + DAM EROSION. FAILS TO MEET VEG PARAMETER AND IS NOT A WETLAND.

Vegetation

Tree Stratum (use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
50%= 20%= Total Cover:			

Sapling/Shrub Stratum (use scientific names)	% Cover	Species?	Status
1. Atriplex lentiformis	45	YES	FAC
2.			
3.			
4.			
50%= 22.5 20%= 9 Total Cover:	45		

Herb Stratum (use scientific names)	% Cover	Species?	Status
1. Bromus diandrus	20	YES	UPL
2. B. hordeacous	20	YES	FACU
3. Brassica nigra	10	N	UPL
4. Bromus madritensis	10	N	UPL
5. Centaurea solstitialis	5	N	UPL
6.			
7.			
50%= 32.5 20%= 13 Total Cover:	65		

Woody/Vine Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
50%= 20%= Total Cover:			

% Bare Ground in Herb Stratum ____ % Cover of Biotic Crust ____

Dominance Test Worksheet

Number of dominant species that are OBL, FACW, or FAC: 1 (A)

Total number of dominant species across all strata: 3 (B)

Percent of dominant species that are OBL, FACW, or FAC: 33 (AB)

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)

Prevalance Index = B/A = ____

Hydrophytic Vegetation Indicators

____ Dominance Text 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.*

Hydrophytic Vegetation? NO

Sampling Point 18

Soils

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 3/4	100	—	-	-	—	SANDY LOAM	

[1]Types: C = Concentration D = Depletion RM = Reduced Matrix [2]Location: PL = Pore Lining RC = Root Channel 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 (AG) (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 Vetric (F18)
____ Red Parent Materials (TF2)
____ Vegetated Sand/Gravel Bars
X Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: — Depth (Inches) — Hydric Soil? YES

Remarks STRIATED-SOIL W/ LAYERS OF FLUVIAL DEPOSITION

Hydrology

Wetland Indicators

Primary Indicators (Any one indicator is sufficient)

____ Surface Water (A1)
____ High Water Table (A2)
____ Saturation (A3)
____ Water Marks (B1) (Nonriverine)
X Sediment Deposits (B2) (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 (C3)
____ Presence of Reduced Iron (C4)
____ Recent Iron Reduction in Plowed Soils (C6)
____ 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)
____ Thin Muck Surface (C7)
____ Crayfish Burrows (C8)
____ Saturation Visible on Aerial Imagery (C9)
____ Shallow Aquitard (D3)
____ FAC-Netural Test (D5)

Field Observations

Surface Water Present? Yes ____ No X Depth (inches) —
Water Table Present? Yes ____ No X Depth (inches) —
Saturation Present? Yes ____ No X Depth (inches) — (includes capillary fringe)

Wetland Hydrology? Yes X No ____

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

Remarks DP IN A DEPOSITION ZONE FROM EROSION FROM ROADWAY.

North State Resources

Wetland Determination Data Form - Arid West Region

Habitat Type GRASSLAND
Wetland Type SEASONAL WTLD

Project/Site: Sisk Dam Corrective Action Project City/County: Merced County Sampling Date: 9/2/09

Applicant/Owner: U.S. Bureau of Reclamation State: CA Sampling Point: 19

Investigator(s): J. Colescott

Landform (hillslope, terrace, etc.) LINEAR DEPRESSION Local relief (concave, convex, none) CONCAVE Slope % 0-2

Subregion (LRR) LRR-C Soil Map Unit Name: Xerofluvents, EXTREMELY GRAVELLY

Are climatic/hydrologic conditions on the site typical for this time of year? YES *(If no, explain in remarks.)*

Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? YES

Are vegetation N, soil N, or hydrology N 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? YES Hydric soil? YES Wetland hydrology? YES Is sampled area a wetland? YES Other waters? NO

USACE Jurisdiction

Adjacent to Waters X Tributary to Waters X Isolated (with interstate commerce) ____ Isolated (non jurisdictional) ____

Explain:

Evaluation of features designated "Other Waters of the United States"

Indicators: Defined bed and bank ____ Scour ____ Ordinary High Water Mark Mapped ____

Feature Designation: Perennial ____ Intermittent ____ Ephemeral ____ Blue-line on USGS Quad ____

Natural Drainage ____ Artificial Drainage ____ Navigable Water ____

Remarks DEPRESSIONAL AREA IN MIDDLE OF THE MEADOW. FED BY SEEPS TO SOUTH. DRAINS VIA EROSIONAL CHANNELS TO NORTH. (CHANNELS ARE BRAIDED, NARROW (≤1'), VEGETATED W/ UPL GRASS).

Vegetation

Tree Stratum (use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
50%= ____ 20%= ____ Total Cover:			

Sapling/Shrub Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
3.			
4.			
50%= ____ 20%= ____ Total Cover:			

Herb Stratum (use scientific names)	% Cover	Species?	Status
1. Hordeum leporinum	85	Y	FAC
2. Grindellia camporum	10	N	FACU
3. Croton setigerus	5	N	UPL
4.			
5.			
6.			
7.			
50%= ____ 20%= ____ Total Cover:	100		

Woody/Vine Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
50%= ____ 20%= ____ Total Cover:			

% Bare Ground in Herb Stratum — % Cover of Biotic Crust 15

Dominance Test Worksheet

Number of dominant species that are OBL, FACW, or FAC: 1 (A)

Total number of dominant species across all strata: 1 (B)

Percent of dominant species that are OBL, FACW, or FAC: 100 (AB)

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)

Prevalance Index = B/A = ____

Hydrophytic Vegetation Indicators

- X Dominance Text 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.*

Hydrophytic Vegetation? YES

Sampling Point 19

Soils

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	7.5YR 4/4	80	2.5Y 4/2	20	D	M	GRAVELY CLAY LOAM	

[1]Types: C = Concentration D = Depletion RM = Reduced Matrix [2]Location: PL = Pore Lining RC = Root Channel 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 (AG) (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)
- X 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 Vetric (F18)
- ___ Red Parent Materials (TF2)
- ___ Vegetated Sand/Gravel Bars
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: — Depth (Inches) — Hydric Soil? YES

Remarks REDOX FEATURE VERY PRONOUNCED.

Hydrology

Wetland Indicators

Primary Indicators (Any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (Nonriverine)
- ___ Sediment Deposits (B2) (Nonriverine)
- X Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- X Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- X Oxidized Rhizospheres (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ 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)
- ___ Thin Muck Surface (C7)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Netural Test (D5)

Field Observations

Surface Water Present? Yes ___ No X Depth (inches) —

Water Table Present? Yes ___ No X Depth (inches) —

Saturation Present? Yes ___ No X Depth (inches) — *(includes capillary fringe)*

Wetland Hydrology? Yes X No ___

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

Remarks WETLAND HYDROLOGY PRESENT.

North State Resources

Wetland Determination Data Form - Arid West Region

Habitat Type GRASSLAND
Wetland Type UPLAND

Project/Site: Sisk Dam Corrective Action Project City/County: Merced County Sampling Date: 9/2/09

Applicant/Owner: U.S. Bureau of Reclamation State: CA Sampling Point: 20

Investigator(s): J. Colescott

Landform (hillslope, terrace, etc.) LINEAR DEPRESSION Local relief (concave, convex, none) CONCAVE Slope % 0-2

Subregion (LRR) LRR-C Soil Map Unit Name: Xerofluvents, Ext. Gravelly

Are climatic/hydrologic conditions on the site typical for this time of year? YES (If no, explain in remarks.)

Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? YES

Are vegetation N, soil N, or hydrology N 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? NO Hydric soil? YES Wetland hydrology? NO Is sampled area a wetland? NO Other waters? NO

USACE Jurisdiction

Adjacent to Waters / Tributary to Waters ____ Isolated (with interstate commerce) ____ Isolated (non jurisdictional) ____

Explain:

Evaluation of features designated "Other Waters of the United States"

Indicators: Defined bed and bank ____ Scour ____ Ordinary High Water Mark Mapped ____

Feature Designation: Perennial ____ Intermittent ____ Ephemeral ____ Blue-line on USGS Quad ____

Natural Drainage ____ Artificial Drainage ____ Navigable Water ____

Remarks

UPLAND PAIR TO #19. LATERAL MOVEMENT OF WATER IN SOILS LIKELY SUPPORTS THE OBSERVED REDOX FEATURES IN THIS UPLAND SIDE OF THE TRANSITIONAL HABITAT. VEG + HYDRO NOT MET.

Vegetation

Tree Stratum (use scientific names)

	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
50%= 20%= Total Cover:			

Sapling/Shrub Stratum (use scientific names)

	% Cover	Species?	Status
1.			
2.			
3.			
4.			
50%= 20%= Total Cover:			

Herb Stratum (use scientific names)

	% Cover	Species?	Status
1. Hordeum leporinum	30	Y	FAC
2. Bromus diandrus	20	Y	UPL
3. B. Hordeacous	20	Y	FACU
4. Avena fatua	20	Y	UPL
5. Brassica negra	5	N	UPL
6. Croton setigerus	5	N	UPL
7.			
50%= 20%= Total Cover:	100		

Woody/Vine Stratum (use scientific names)

	% Cover	Species?	Status
1.			
2.			
50%= 20%= Total Cover:			

% Bare Ground in Herb Stratum — % Cover of Biotic Crust —

Dominance Test Worksheet

Number of dominant species that are OBL, FACW, or FAC: 1 (A)

Total number of dominant species across all strata: 4 (B)

Percent of dominant species that are OBL, FACW, or FAC: 25% (AB)

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)

Prevalance Index = B/A = ____

Hydrophytic Vegetation Indicators

____ Dominance Text 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.*

Hydrophytic Vegetation? NO

Sampling Point 20

Soils

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-12	7.5YR 4/4	80	2.5Y 4/2	20	D	M	GR. CLAY LOAM	

[1]Types: C = Concentration D = Depletion RM = Reduced Matrix [2]Location: PL = Pore Lining RC = Root Channel 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 (AG) (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)
X 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 Vetric (F18)
____ Red Parent Materials (TF2)
____ Vegetated Sand/Gravel Bars
____ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: – Depth (Inches) – Hydric Soil? YES

Remarks SAME SOILS AS DP 19 - HYDRIC

Hydrology

Wetland Indicators

Primary Indicators (Any one indicator is sufficient)

____ Surface Water (A1)
____ High Water Table (A2)
____ Saturation (A3)
____ Water Marks (B1) (Nonriverine)
____ Sediment Deposits (B2) (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 (C3)
____ Presence of Reduced Iron (C4)
____ Recent Iron Reduction in Plowed Soils (C6)
____ 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)
____ Thin Muck Surface (C7)
____ Crayfish Burrows (C8)
____ Saturation Visible on Aerial Imagery (C9)
____ Shallow Aquitard (D3)
____ FAC-Netural Test (D5)

Field Observations

Surface Water Present? Yes ____ No X Depth (inches) –
Water Table Present? Yes ____ No X Depth (inches) –
Saturation Present? Yes ____ No X Depth (inches) – *(includes capillary fringe)*

Wetland Hydrology? Yes ____ No X

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

Remarks NO WETLAND HYDROLOGY INDICATORS.

North State Resources

Wetland Determination Data Form - Arid West Region

Habitat Type MEADOW
Wetland Type SEASONAL WTLD

Project/Site: Sisk Dam Corrective Action Project City/County: Merced County Sampling Date: 9/2/09

Applicant/Owner: U.S. Bureau of Reclamation State: CA Sampling Point: 21

Investigator(s): J. Colescott

Landform (hillslope, terrace, etc.) BOTTOM Local relief (concave, convex, none) CONCAVE Slope % 0-2

Subregion (LRR) LRR-C Soil Map Unit Name: Xerofluvents, EXTREMELY GRAVELLY

Are climatic/hydrologic conditions on the site typical for this time of year? YES (If no, explain in remarks.)

Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? YES

Are vegetation N, soil N, or hydrology N 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? YES Hydric soil? YES Wetland hydrology? YES Is sampled area a wetland? YES Other waters? NO

USACE Jurisdiction

Adjacent to Waters X Tributary to Waters X Isolated (with interstate commerce) ____ Isolated (non jurisdictional) ____

Explain:

Evaluation of features designated "Other Waters of the United States"

Indicators: Defined bed and bank ____ Scour ____ Ordinary High Water Mark Mapped ____

Feature Designation: Perennial ____ Intermittent ____ Ephemeral ____ Blue-line on USGS Quad ____

Natural Drainage ____ Artificial Drainage ____ Navigable Water ____

Remarks

WETLAND SIDE OF BOUNDARY FROM UPLAND TO WTLD.

Vegetation

Tree Stratum (use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1. Populus fremontii	10	YES	FACW
2.			
3.			
50%= ____ 20%= ____ Total Cover:	10		

Sapling/Shrub Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
3.			
4.			
50%= ____ 20%= ____ Total Cover:			

Herb Stratum (use scientific names)	% Cover	Species?	Status
1. Lepidium latifolium	50	Y	FACW
2. Typha latifolia	25	Y	OBL
3. Hordium leporinum	20	Y	FAC
4. Grindelia camporum	5	N	FACU
5.			
6.			
7.			
50%= ____ 20%= ____ Total Cover:	100		

Woody/Vine Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
50%= ____ 20%= ____ Total Cover:			

% Bare Ground in Herb Stratum — % Cover of Biotic Crust —

Dominance Test Worksheet

Number of dominant species that are OBL, FACW, or FAC: 4 (A)

Total number of dominant species across all strata: 4 (B)

Percent of dominant species that are OBL, FACW, or FAC: 100 (AB)

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)

Prevalance Index = B/A = ____

Hydrophytic Vegetation Indicators

X Dominance Text 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.

Hydrophytic Vegetation? YES

Sampling Point 21

Soils

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
0-6	10YR 4/3	85	7.5YR 4/6	15	C	M	GRAVELLY LOAM	

[1]Types: C = Concentration D = Depletion RM = Reduced Matrix [2]Location: PL = Pore Lining RC = Root Channel 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 (AG) (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)
- X 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 Vetric (F18)
- ___ Red Parent Materials (TF2)
- ___ Vegetated Sand/Gravel Bars
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: — Depth (Inches) — Hydric Soil? X

Remarks HYDRIC SOILS

Hydrology

Wetland Indicators

Primary Indicators (Any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (Nonriverine)
- ___ Sediment Deposits (B2) (Nonriverine)
- X 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)
- X Oxidized Rhizospheres (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ 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)
- ___ Thin Muck Surface (C7)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- X FAC-Netural Test (D5)

Field Observations

Surface Water Present? Yes ___ No X Depth (inches) —

Water Table Present? Yes ___ No X Depth (inches) —

Saturation Present? Yes ___ No X Depth (inches) — (includes capillary fringe)

Wetland Hydrology? Yes X No ___

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

Remarks WETLAND HYDROLOGY

North State Resources

Wetland Determination Data Form - Arid West Region

Habitat Type GRASSLAND
Wetland Type UPLAND

Project/Site: Sisk Dam Corrective Action Project City/County: Merced County Sampling Date: 9/2/09

Applicant/Owner: U.S. Bureau of Reclamation State: CA Sampling Point: 22

Investigator(s): J. Colescott

Landform (hillslope, terrace, etc.) VALLEY BOTTOM Local relief (concave, convex, none) CONCAVE Slope % 0-2

Subregion (LRR) LRR-C Soil Map Unit Name: Xerofluvents, EXTR GRAVELLY

Are climatic/hydrologic conditions on the site typical for this time of year? YES *(If no, explain in remarks.)*

Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? YES

Are vegetation N, soil N, or hydrology N 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? NO Hydric soil? NO Wetland hydrology? NO Is sampled area a wetland? NO Other waters? NO

USACE Jurisdiction

Adjacent to Waters ___ Tributary to Waters ___ Isolated (with interstate commerce) ___ Isolated (non jurisdictional) ___

Explain:

Evaluation of features designated "Other Waters of the United States"

Indicators: Defined bed and bank ___ Scour ___ Ordinary High Water Mark Mapped ___

Feature Designation: Perennial ___ Intermittent ___ Ephemeral ___ Blue-line on USGS Quad ___

Natural Drainage ___ Artificial Drainage ___ Navigable Water ___

Remarks UPLAND PAIR TO 21.

Vegetation

Tree Stratum (use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
50%= 20%= Total Cover:			

Sapling/Shrub Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
3.			
4.			
50%= 20%= Total Cover:			

Herb Stratum (use scientific names)	% Cover	Species?	Status
1. Bromus diandrus	80	Y	UPL
2. Avena fatua	10	N	UPL
3. Brassica negra	7	N	UPL
4. Centaurea solstitialis	3	N	UPL
5.			
6.			
7.			
50%= 20%= Total Cover:	100		

Woody/Vine Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
50%= 20%= Total Cover:			

% Bare Ground in Herb Stratum ___ **% Cover of Biotic Crust** ___

Dominance Test Worksheet

Number of dominant species that are OBL, FACW, or FAC: 0 (A)

Total number of dominant species across all strata: 0 (B)

Percent of dominant species that are OBL, FACW, or FAC: 0 (AB)

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)

Prevalance Index = B/A =

Hydrophytic Vegetation Indicators

___ Dominance Text 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.*

Hydrophytic Vegetation? NO

Sampling Point 22

Soils

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 4/3	100	—	—	—	—	GRAVELLY LOAM	

[1]Types: C = Concentration D = Depletion RM = Reduced Matrix [2]Location: PL = Pore Lining RC = Root Channel 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 (AG) (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 Vetric (F18)
____ Red Parent Materials (TF2)
____ Vegetated Sand/Gravel Bars
____ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: — Depth (Inches) — Hydric Soil? NO

Remarks UPLAND SOILS

Hydrology

Wetland Indicators

Primary Indicators (Any one indicator is sufficient)

____ Surface Water (A1)
____ High Water Table (A2)
____ Saturation (A3)
____ Water Marks (B1) (Nonriverine)
____ Sediment Deposits (B2) (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 (C3)
____ Presence of Reduced Iron (C4)
____ Recent Iron Reduction in Plowed Soils (C6)
____ 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)
____ Thin Muck Surface (C7)
____ Crayfish Burrows (C8)
____ Saturation Visible on Aerial Imagery (C9)
____ Shallow Aquitard (D3)
____ FAC-Netural Test (D5)

Field Observations

Surface Water Present? Yes ____ No X Depth (inches) —
Water Table Present? Yes ____ No X Depth (inches) —
Saturation Present? Yes ____ No X Depth (inches) — *(includes capillary fringe)*

Wetland Hydrology? Yes ____ No X

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

Remarks

North State Resources

Habitat Type GRASSLAND
Wetland Type SEASONAL WTLD

Wetland Determination Data Form - Arid West Region

Project/Site: Sisk Dam Corrective Action Project City/County: Merced County Sampling Date: 9/2/09
Applicant/Owner: U.S. Bureau of Reclamation State: CA Sampling Point: 23
Investigator(s): J. Colescott
Landform (hillslope, terrace, etc.) TERRACE Local relief (concave, convex, none) CONCAVE Slope % 2-5
Subregion (LRR) LRR-C Soil Map Unit Name: Xerofluvents, EXTREMELY GRAVELLY
Are climatic/hydrologic conditions on the site typical for this time of year? YES (If no, explain in remarks.)
Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? YES
Are vegetation N, soil N, or hydrology N 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? YES Hydric soil? YES Wetland hydrology? YES Is sampled area a wetland? YES Other waters? NO

USACE Jurisdiction
Adjacent to Waters X Tributary to Waters X Isolated (with interstate commerce) ____ Isolated (non jurisdictional) ____
Explain:

Evaluation of features designated "Other Waters of the United States"
Indicators: Defined bed and bank ____ Scour ____ Ordinary High Water Mark Mapped ____
Feature Designation: Perennial ____ Intermittent ____ Ephemeral ____ Blue-line on USGS Quad ____
Natural Drainage ____ Artificial Drainage ____ Navigable Water ____

Remarks
NO UPLAND PAIR TAKEN. WETLAND ENDS W/ HYDROPHYTES (H. leporinum). SEE DP 20 FOR UPL. DATA.

Vegetation

Tree Stratum (use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
50%= 20%= Total Cover:			

Sapling/Shrub Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
3.			
4.			
50%= 20%= Total Cover:			

Herb Stratum (use scientific names)	% Cover	Species?	Status
1. Hordeum leporinum	85	Y	FAC
2. Grindelia camporum	5	N	UPL
3. Lepidium latifolium	10	N	FACW
4.			
5.			
6.			
7.			
50%= 20%= Total Cover:	100		

Woody/Vine Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
50%= 20%= Total Cover:			

% Bare Ground in Herb Stratum — % Cover of Biotic Crust —

Dominance Test Worksheet
Number of dominant species that are OBL, FACW, or FAC: 1 (A)
Total number of dominant species across all strata: 1 (B)
Percent of dominant species that are OBL, FACW, or FAC: 100 (AB)

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)

Prevalance Index = B/A = ____

Hydrophytic Vegetation Indicators
X Dominance Text 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.*

Hydrophytic Vegetation? YES

Sampling Point 23

Soils

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
0-10	10YR 6/2	65	10YR 5/8	35	C	M	GRAVELLY CLAY LOAM	

[1]Types: C = Concentration D = Depletion RM = Reduced Matrix [2]Location: PL = Pore Lining RC = Root Channel 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 (AG) (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)
X 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 Vetric (F18)
___ Red Parent Materials (TF2)
___ Vegetated Sand/Gravel Bars
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: — Depth (Inches) — Hydric Soil? YES

Remarks HYDRIC SOILS

Hydrology

Wetland Indicators

Primary Indicators (Any one indicator is sufficient)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1) (Nonriverine)
___ Sediment Deposits (B2) (Nonriverine)
X 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)
X Oxidized Rhizospheres (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Plowed Soils (C6)
___ 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)
___ Thin Muck Surface (C7)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Shallow Aquitard (D3)
___ FAC-Netural Test (D5)

Field Observations

Surface Water Present? Yes ___ No X Depth (inches) —
Water Table Present? Yes ___ No X Depth (inches) —
Saturation Present? Yes ___ No X Depth (inches) — *(includes capillary fringe)*

Wetland Hydrology? Yes X No ___

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

Remarks WETLAND HYDROLOGY

North State Resources

Wetland Determination Data Form - Arid West Region

Habitat Type GRASSLAND
Wetland Type SEASONAL WTLD

Project/Site: Sisk Dam Corrective Action Project City/County: Merced County Sampling Date: 9/2/09

Applicant/Owner: U.S. Bureau of Reclamation State: CA Sampling Point: 24

Investigator(s): J. Colescott

Landform (hillslope, terrace, etc.) TERRACE Local relief (concave, convex, none) CONCAVE Slope % 2-5%

Subregion (LRR) LRR-C Soil Map Unit Name: Xerofluvents, EXTREMELY GRAVELLY

Are climatic/hydrologic conditions on the site typical for this time of year? YES (If no, explain in remarks.)

Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? YES

Are vegetation N, soil N, or hydrology N 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? ____ Hydric soil? YES Wetland hydrology? YES Is sampled area a wetland? YES Other waters? NO

USACE Jurisdiction

Adjacent to Waters X Tributary to Waters X Isolated (with interstate commerce) ____ Isolated (non jurisdictional) ____

Explain: VIA DITCHES

Evaluation of features designated "Other Waters of the United States"

Indicators: Defined bed and bank ____ Scour ____ Ordinary High Water Mark Mapped ____

Feature Designation: Perennial ____ Intermittent ____ Ephemeral ____ Blue-line on USGS Quad ____

Natural Drainage ____ Artificial Drainage ____ Navigable Water ____

Remarks

SHALLOW DEPRESSION W/ SANDY SOILS, BORDERLINE WETLAND.

Vegetation

Tree Stratum (use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
50%= 20%= Total Cover:			

Sapling/Shrub Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
3.			
4.			
50%= 20%= Total Cover:			

Herb Stratum (use scientific names)	% Cover	Species?	Status
1. Vulpia bromoides	40	Y	FACW
2. Heliotropium curassavicum	20	Y	OBL
3. Bromus diandrus	20	Y	UPL
4. B. madritensis	10	N	UPL
5. Grindelia camporum	10	N	FACU
6.			
7.			
50%= 20%= Total Cover:	100		

Woody/Vine Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
50%= 20%= Total Cover:			

% Bare Ground in Herb Stratum — % Cover of Biotic Crust —

Dominance Test Worksheet

Number of dominant species that are OBL, FACW, or FAC: 2 (A)

Total number of dominant species across all strata: 3 (B)

Percent of dominant species that are OBL, FACW, or FAC: 66 (AB)

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)

Prevalance Index = B/A = ____

Hydrophytic Vegetation Indicators

X Dominance Text 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.*

Hydrophytic Vegetation? YES

Sampling Point 24

Soils

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
0-10	2.5Y 5/3	75	10YR 3/3	20	D	M	SANDY LOAM	
			7.5YR 4/4	5	C	M	"	"

[1]Types: C = Concentration D = Depletion RM = Reduced Matrix [2]Location: PL = Pore Lining RC = Root Channel 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 (AG) (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)
- X 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 Vetric (F18)
- ____ Red Parent Materials (TF2)
- ____ Vegetated Sand/Gravel Bars
- ____ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: — Depth (Inches) — Hydric Soil? YES

Remarks HYDRIC SOIL.

Hydrology

Wetland Indicators

Primary Indicators (Any one indicator is sufficient)

- ____ Surface Water (A1)
- ____ High Water Table (A2)
- ____ Saturation (A3)
- ____ Water Marks (B1) (Nonriverine)
- ____ Sediment Deposits (B2) (Nonriverine)
- X 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 (C3)
- ____ Presence of Reduced Iron (C4)
- ____ Recent Iron Reduction in Plowed Soils (C6)
- ____ 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)
- ____ Thin Muck Surface (C7)
- ____ Crayfish Burrows (C8)
- ____ Saturation Visible on Aerial Imagery (C9)
- ____ Shallow Aquitard (D3)
- ____ FAC-Netural Test (D5)

Field Observations

Surface Water Present? Yes ____ No X Depth (inches) —

Water Table Present? Yes ____ No X Depth (inches) —

Saturation Present? Yes ____ No X Depth (inches) — *(includes capillary fringe)*

Wetland Hydrology? Yes X No ____

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

Remarks WETLAND HYDROLOGY WEAK, BUT PRESENT.

North State Resources

Wetland Determination Data Form - Arid West Region

Habitat Type GRASSLAND
Wetland Type UPLAND

Project/Site: Sisk Dam Corrective Action Project City/County: Merced County Sampling Date: 9/2/09

Applicant/Owner: U.S. Bureau of Reclamation State: CA Sampling Point: 25

Investigator(s): J. Colescott

Landform (hillslope, terrace, etc.) TERRACE Local relief (concave, convex, none) CONVEX Slope % 0-5

Subregion (LRR) LRR-C Soil Map Unit Name: Xerofluvents, EXTREMELY GRAVELLY

Are climatic/hydrologic conditions on the site typical for this time of year? YES (If no, explain in remarks.)

Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? YES

Are vegetation N, soil N, or hydrology N 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? NO Hydric soil? NO Wetland hydrology? NO Is sampled area a wetland? NO Other waters? NO

USACE Jurisdiction

Adjacent to Waters ____ Tributary to Waters ____ Isolated (with interstate commerce) ____ Isolated (non jurisdictional) ____

Explain:

Evaluation of features designated "Other Waters of the United States"

Indicators: Defined bed and bank ____ Scour ____ Ordinary High Water Mark Mapped ____

Feature Designation: Perennial ____ Intermittent ____ Ephemeral ____ Blue-line on USGS Quad ____

Natural Drainage ____ Artificial Drainage ____ Navigable Water ____

Remarks

UPLAND PAIR TO DP24.

Vegetation

Tree Stratum (use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
50%= 20%= Total Cover:			

Sapling/Shrub Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
3.			
4.			
50%= 20%= Total Cover:			

Herb Stratum (use scientific names)	% Cover	Species?	Status
1. Bromus diandrus	30	Y	UPL
2. Bromus hordeacous	20	Y	FACU
3. Centaurea sp	20	Y	FACU
4. Brassica nigra	20	Y	UPL
5. Avena fatua	5	N	UPL
6. Bromus madritensis	5	N	UPL
7.			
50%= 20%= Total Cover:	100		

Woody/Vine Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
50%= 20%= Total Cover:			

% Bare Ground in Herb Stratum – **% Cover of Biotic Crust** –

Dominance Test Worksheet

Number of dominant species that are OBL, FACW, or FAC: 0 (A)

Total number of dominant species across all strata: 4 (B)

Percent of dominant species that are OBL, FACW, or FAC: 0 (AB)

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)

Prevalance Index = B/A = ____

Hydrophytic Vegetation Indicators

____ Dominance Text 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.*

Hydrophytic Vegetation? NO

Sampling Point 25

Soils

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 4/4	100	—	—	—	—	SANDY LOAM	

[1]Types: C = Concentration D = Depletion RM = Reduced Matrix [2]Location: PL = Pore Lining RC = Root Channel 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 (AG) (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 Vetric (F18)
_____ Red Parent Materials (TF2)
_____ Vegetated Sand/Gravel Bars
_____ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: — Depth (Inches) — Hydric Soil? NO

Remarks NON-HYDRIC SOILS

Hydrology

Wetland Indicators

Primary Indicators (Any one indicator is sufficient)

_____ Surface Water (A1)
_____ High Water Table (A2)
_____ Saturation (A3)
_____ Water Marks (B1) (Nonriverine)
_____ Sediment Deposits (B2) (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 (C3)
_____ Presence of Reduced Iron (C4)
_____ Recent Iron Reduction in Plowed Soils (C6)
_____ 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)
_____ Thin Muck Surface (C7)
_____ Crayfish Burrows (C8)
_____ Saturation Visible on Aerial Imagery (C9)
_____ Shallow Aquitard (D3)
_____ FAC-Netural Test (D5)

Field Observations

Surface Water Present? Yes _____ No X Depth (inches) —
Water Table Present? Yes _____ No X Depth (inches) —
Saturation Present? Yes _____ No X Depth (inches) — *(includes capillary fringe)*

Wetland Hydrology? Yes _____ No X

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

Remarks UPLAND HYDROLOGY

North State Resources

Wetland Determination Data Form - Arid West Region

Habitat Type GRASSLAND
Wetland Type UPLAND

Project/Site: Sisk Dam Corrective Action Project City/County: Merced County Sampling Date: 9/3/09

Applicant/Owner: U.S. Bureau of Reclamation State: CA Sampling Point: 26

Investigator(s): J. Colescott

Landform (hillslope, terrace, etc.) SWALE Local relief (concave, convex, none) CONCAVE Slope % 2-5

Subregion (LRR) LRR-C Soil Map Unit Name: Damluis Clay loam 2-8%

Are climatic/hydrologic conditions on the site typical for this time of year? YES *(If no, explain in remarks.)*

Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? YES

Are vegetation N, soil N, or hydrology N 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? NO Hydric soil? NO Wetland hydrology? NO Is sampled area a wetland? NO Other waters? NO

USACE Jurisdiction

Adjacent to Waters ____ Tributary to Waters ____ Isolated (with interstate commerce) ____ Isolated (non jurisdictional) ____
Explain:

Evaluation of features designated "Other Waters of the United States"

Indicators: Defined bed and bank ____ Scour ____ Ordinary High Water Mark Mapped ____
Feature Designation: Perennial ____ Intermittent ____ Ephemeral ____ Blue-line on USGS Quad ____
Natural Drainage ____ Artificial Drainage ____ Navigable Water ____

Remarks SMALL UPLAND SWALE - NON-WETLAND.

Vegetation

Tree Stratum (use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
50%= 20%= Total Cover:			

Sapling/Shrub Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
3.			
4.			
50%= 20%= Total Cover:			

Herb Stratum (use scientific names)	% Cover	Species?	Status
1. Bromus hordeacous	45	YES	FACU
2. B. diandros	45	Y	UPL
3. Brassica negra	10	N	UPL
4.			
5.			
6.			
7.			
50%= 20%= Total Cover:	100		

Woody/Vine Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
50%= 20%= Total Cover:			

% Bare Ground in Herb Stratum — % Cover of Biotic Crust —

Dominance Test Worksheet

Number of dominant species that are OBL, FACW, or FAC: 0 (A)

Total number of dominant species across all strata: 2 (B)

Percent of dominant species that are OBL, FACW, or FAC: 0 (AB)

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)

Prevalance Index = B/A = ____

Hydrophytic Vegetation Indicators

____ Dominance Text 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.*

Hydrophytic Vegetation? NO

Sampling Point 26

Soils

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 3/3	100	—	—	—	—	CLAY LOAM	

[1]Types: C = Concentration D = Depletion RM = Reduced Matrix [2]Location: PL = Pore Lining RC = Root Channel 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 (AG) (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 Vetric (F18)
___ Red Parent Materials (TF2)
___ Vegetated Sand/Gravel Bars
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: — Depth (Inches) — Hydric Soil? NO

Remarks NON - HYDRIC SOILS

Hydrology

Wetland Indicators

Primary Indicators (Any one indicator is sufficient)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1) (Nonriverine)
___ Sediment Deposits (B2) (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 (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Plowed Soils (C6)
___ 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)
___ Thin Muck Surface (C7)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Shallow Aquitard (D3)
___ FAC-Netural Test (D5)

Field Observations

Surface Water Present? Yes ___ No X Depth (inches) —
Water Table Present? Yes ___ No X Depth (inches) —
Saturation Present? Yes ___ No X Depth (inches) — *(includes capillary fringe)*

Wetland Hydrology? Yes ___ No X

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

Remarks NO WETLAND HYDROLOGY INDICATORS.

North State Resources

Wetland Determination Data Form - Arid West Region

Habitat Type GRASSLAND
Wetland Type UPLAND

Project/Site: Sisk Dam Corrective Action Project City/County: Merced County Sampling Date: 9/3/09

Applicant/Owner: U.S. Bureau of Reclamation State: CA Sampling Point: 27

Investigator(s): J. Colescott

Landform (hillslope, terrace, etc.) SWALE Local relief (concave, convex, none) CONCAVE Slope % 2-5

Subregion (LRR) LRR-C Soil Map Unit Name: Arburua Loam 2-8%

Are climatic/hydrologic conditions on the site typical for this time of year? YES *(If no, explain in remarks.)*

Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? YES

Are vegetation N, soil N, or hydrology N 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? NO Hydric soil? YES Wetland hydrology? YES Is sampled area a wetland? NO Other waters? NO

USACE Jurisdiction

Adjacent to Waters ____ Tributary to Waters ____ Isolated (with interstate commerce) ____ Isolated (non jurisdictional) ____

Explain:

Evaluation of features designated "Other Waters of the United States"

NO DEFINED BED + BANK OR SCOUR + DEPOSITION OBSERVED.

Indicators: Defined bed and bank ____ Scour ____ Ordinary High Water Mark Mapped ____

Feature Designation: Perennial ____ Intermittent ____ Ephemeral ____ Blue-line on USGS Quad ____ Natural Drainage ____ Artificial Drainage ____ Navigable Water ____

Remarks

SUSPECT SWALE = NON-WETLAND. AND NOT AN "OTHER WATERS".

Vegetation

Tree Stratum (use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
50%= 20%= Total Cover:			

Sapling/Shrub Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
3.			
4.			
50%= 20%= Total Cover:			

Herb Stratum (use scientific names)	% Cover	Species?	Status
1. Avena fatua	50	Y	UPL
2. Bromus hordeacous	20	Y	FACU
3. Bromus diandrus	15	N	UPL
4. Brassica nigra	10	N	UPL
5. Rumex crispus	5	N	FACW
6.			
7.			
50%= 20%= Total Cover:	100		

Woody/Vine Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
50%= 20%= Total Cover:			

% Bare Ground in Herb Stratum — % Cover of Biotic Crust —

Dominance Test Worksheet

Number of dominant species that are OBL, FACW, or FAC: 0 (A)

Total number of dominant species across all strata: 2 (B)

Percent of dominant species that are OBL, FACW, or FAC: 0 (AB)

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)

Prevalance Index = B/A = ____

Hydrophytic Vegetation Indicators

____ Dominance Text 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.*

Hydrophytic Vegetation? NO

Sampling Point 27

Soils

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 4/4	100	—	—	—	—	LOAM	
4-12	10YR 4/4	60	10YR 3/3	40	SEE NOTES		LOAM	

[1]Types: C = Concentration D = Depletion RM = Reduced Matrix [2]Location: PL = Pore Lining RC = Root Channel 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 (AG) (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 Vetric (F18)
- ___ Red Parent Materials (TF2)
- ___ Vegetated Sand/Gravel Bars
- X Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: — Depth (Inches) — Hydric Soil? YES

Remarks NO REDOX FEATURES APPARENT, HOWEVER SOIL PROFILE SHOWS SEDIMENT LAYERS SUGGESTING FLUVIAL DEPOSITION. CONSIDERED THEM HYDRIC.

Hydrology

Wetland Indicators

Primary Indicators (Any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (Nonriverine)
- ___ Sediment Deposits (B2) (Nonriverine)
- X 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 (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ 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)
- ___ Thin Muck Surface (C7)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Netural Test (D5)

Field Observations

Surface Water Present? Yes ___ No X Depth (inches) —

Water Table Present? Yes ___ No X Depth (inches) —

Saturation Present? Yes ___ No X Depth (inches) — *(includes capillary fringe)*

Wetland Hydrology? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, and previous inspections), if available:
NONE

Remarks A FEW SOIL CRACKS PRESENT. = SUFFICIENT WETLAND HYDRO INDICATORS.

North State Resources

Wetland Determination Data Form - Arid West Region

Habitat Type GRASSLAND
Wetland Type UPLAND

Project/Site: Sisk Dam Corrective Action Project City/County: Merced County Sampling Date: 9/3/09
Applicant/Owner: U.S. Bureau of Reclamation State: CA Sampling Point: 28
Investigator(s): J. Colescott
Landform (hillslope, terrace, etc.) MINOR SWALE Local relief (concave, convex, none) CONCAVE Slope % 0-2
Subregion (LRR) LRR-C Soil Map Unit Name: Damluis Clay Loam 2-8%
Are climatic/hydrologic conditions on the site typical for this time of year? YES *(If no, explain in remarks.)*
Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? YES
Are vegetation N, soil N, or hydrology N 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? NO Hydric soil? NO Wetland hydrology? NO Is sampled area a wetland? NO Other waters? NO

USACE Jurisdiction

Adjacent to Waters ____ Tributary to Waters ____ Isolated (with interstate commerce) ____ Isolated (non jurisdictional) ____
Explain:

Evaluation of features designated "Other Waters of the United States"

Indicators: Defined bed and bank ____ Scour ____ Ordinary High Water Mark Mapped ____
Feature Designation: Perennial ____ Intermittent ____ Ephemeral ____ Blue-line on USGS Quad ____
Natural Drainage ____ Artificial Drainage ____ Navigable Water ____

Remarks

UPLAND SWALE.

Vegetation

Tree Stratum (use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
50%= 20%= Total Cover:			

Sapling/Shrub Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
3.			
4.			
50%= 20%= Total Cover:			

Herb Stratum (use scientific names)	% Cover	Species?	Status
1. Bromus hordeaceous	50	YES	FACU
2. Avena fatua	30	Y	UPL
3. Hordeum leporinum	15	N	FAC
4. Amsinkia menziesii	5	N	UPL
5.			
6.			
7.			
50%= 20%= Total Cover:			

Woody/Vine Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
50%= 20%= Total Cover:			

% Bare Ground in Herb Stratum — **% Cover of Biotic Crust** —

Dominance Test Worksheet

Number of dominant species that are OBL, FACW, or FAC: 0 (A)
Total number of dominant species across all strata: 2 (B)
Percent of dominant species that are OBL, FACW, or FAC: 0 (AB)

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)

Prevalance Index = B/A = ____

Hydrophytic Vegetation Indicators

____ Dominance Text 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.*

Hydrophytic Vegetation? NO

Sampling Point 28

Soils

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 4/3	100	–	–	–	–	GRAVELLY LOAM	

[1]Types: C = Concentration D = Depletion RM = Reduced Matrix [2]Location: PL = Pore Lining RC = Root Channel 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 (AG) (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 Vetric (F18)
____ Red Parent Materials (TF2)
____ Vegetated Sand/Gravel Bars
____ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: — Depth (Inches) — Hydric Soil? NO

Remarks UPLAND SOILS

Hydrology

Wetland Indicators

Primary Indicators (Any one indicator is sufficient)

____ Surface Water (A1)
____ High Water Table (A2)
____ Saturation (A3)
____ Water Marks (B1) (Nonriverine)
____ Sediment Deposits (B2) (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 (C3)
____ Presence of Reduced Iron (C4)
____ Recent Iron Reduction in Plowed Soils (C6)
____ 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)
____ Thin Muck Surface (C7)
____ Crayfish Burrows (C8)
____ Saturation Visible on Aerial Imagery (C9)
____ Shallow Aquitard (D3)
____ FAC-Netural Test (D5)

Field Observations

Surface Water Present? Yes ____ No X Depth (inches) —
Water Table Present? Yes ____ No X Depth (inches) —
Saturation Present? Yes ____ No X Depth (inches) — *(includes capillary fringe)*

Wetland Hydrology? Yes ____ No X

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

Remarks NO WETLAND HYDROLOGY INDICATORS.

North State Resources

Wetland Determination Data Form - Arid West Region

Habitat Type GRASSLAND
Wetland Type DITCH

Project/Site: Sisk Dam Corrective Action Project City/County: Merced County Sampling Date: 9/3/09

Applicant/Owner: U.S. Bureau of Reclamation State: CA Sampling Point: 29

Investigator(s): J. Colescott

Landform (hillslope, terrace, etc.) DITCH Local relief (concave, convex, none) CONCAVE Slope % 0-2

Subregion (LRR) LRR-C Soil Map Unit Name: Xerofluvents, Extremely gravelly

Are climatic/hydrologic conditions on the site typical for this time of year? YES (If no, explain in remarks.)

Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? YES

Are vegetation N, soil N, or hydrology N 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? NO Hydric soil? YES Wetland hydrology? YES Is sampled area a wetland? NO Other waters? NO

USACE Jurisdiction

Adjacent to Waters ____ Tributary to Waters ____ Isolated (with interstate commerce) ____ Isolated (non jurisdictional) ____
Explain:

Evaluation of features designated "Other Waters of the United States"

Indicators: Defined bed and bank ____ Scour ____ Ordinary High Water Mark Mapped ____
Feature Designation: Perennial ____ Intermittent ____ Ephemeral ____ Blue-line on USGS Quad ____
Natural Drainage ____ Artificial Drainage ____ Navigable Water ____

Remarks DITCH HABITAT. SOILS + HYDROLOGY INDICATORS PRESENT, BUT PRESUME LACK OF VEG SUGGEST INUNDATION OR SATURATION IS FOR INSUFFICIENT DURATION TO SUPPORT DOMINANT HYDROPHYTIC VEG.

Vegetation

Tree Stratum (use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
50%= 20%= Total Cover:			

Sapling/Shrub Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
3.			
4.			
50%= 20%= Total Cover:			

Herb Stratum (use scientific names)	% Cover	Species?	Status
1. Hordeum leporinum	70	Y	FAC
2. Bromus hordeaceus	20	Y	FACU
3. Bromus madritensis	10	N	UPL
4.			
5.			
6.			
7.			
50%= 20%= Total Cover:	100		

Woody/Vine Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
50%= 20%= Total Cover:			

% Bare Ground in Herb Stratum — % Cover of Biotic Crust —

Dominance Test Worksheet

Number of dominant species that are OBL, FACW, or FAC: 1 (A)

Total number of dominant species across all strata: 2 (B)

Percent of dominant species that are OBL, FACW, or FAC: 50 (AB)

Prevalence Index Worksheet

Total % Cover of:		Multiply by
OBL Species	—	x 1 =
FACW Species	—	x 2 =
FAC Species	70	x 3 = 210
FACU Species	20	x 4 = 80
UPL Species	10	x 5 = 50
Column Totals	100 (A)	340 (B)

Prevalance Index = B/A = 3.4

Hydrophytic Vegetation Indicators

____ Dominance Text 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.*

Hydrophytic Vegetation? NO

Sampling Point 29

Soils

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
0-8	2.5Y 5/3	70	2.5Y 3/2	25	D	RC	SANDY LOAM	
			7.5YR 4/6	5	C	M	"	"

[1]Types: C = Concentration D = Depletion RM = Reduced Matrix [2]Location: PL = Pore Lining RC = Root Channel 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 (AG) (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)
X 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 Vetric (F18)
___ Red Parent Materials (TF2)
___ Vegetated Sand/Gravel Bars
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: — Depth (Inches) — Hydric Soil? YES

Remarks HYDRIC SOILS

Hydrology

Wetland Indicators

Primary Indicators (Any one indicator is sufficient)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1) (Nonriverine)
___ Sediment Deposits (B2) (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)
X Oxidized Rhizospheres (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Plowed Soils (C6)
___ 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)
___ Thin Muck Surface (C7)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Shallow Aquitard (D3)
___ FAC-Netural Test (D5)

Field Observations

Surface Water Present? Yes ___ No X Depth (inches) —
Water Table Present? Yes ___ No X Depth (inches) —
Saturation Present? Yes ___ No X Depth (inches) — (includes capillary fringe)

Wetland Hydrology? Yes X No ___

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

Remarks WETLAND HYDROLOGY

North State Resources

Wetland Determination Data Form - Arid West Region

Habitat Type GRASSLAND
Wetland Type UPLAND

Project/Site: Sisk Dam Corrective Action Project City/County: Merced County Sampling Date: 9/3/09

Applicant/Owner: U.S. Bureau of Reclamation State: CA Sampling Point: 30

Investigator(s): J. Colescott

Landform (hillslope, terrace, etc.) PLAIN Local relief (concave, convex, none) MINOR DEPRESSION Slope % 0-2%

Subregion (LRR) LRR-C Soil Map Unit Name: Xerofluvents, Extremely Gravelly

Are climatic/hydrologic conditions on the site typical for this time of year? YES (If no, explain in remarks.)

Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? YES

Are vegetation N, soil N, or hydrology N 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? NO Hydric soil? YES Wetland hydrology? YES Is sampled area a wetland? NO Other waters? NO

USACE Jurisdiction

Adjacent to Waters ____ Tributary to Waters ____ Isolated (with interstate commerce) ____ Isolated (non jurisdictional) ____

Explain:

Evaluation of features designated "Other Waters of the United States"

Indicators: Defined bed and bank ____ Scour ____ Ordinary High Water Mark Mapped ____

Feature Designation: Perennial ____ Intermittent ____ Ephemeral ____ Blue-line on USGS Quad ____

Natural Drainage ____ Artificial Drainage ____ Navigable Water ____

Remarks SEE NOTE ON FORM 29. SATURATION MUST BE FOR INSUFFICIENT DURATION, OR SUFFICIENTLY INFREQUENT TO SUPPORT DOMINANT HYDROPHYTIC VEG. NON-WETLAND.

Vegetation

Tree Stratum (use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
50%= 20%= Total Cover:			

Sapling/Shrub Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
3.			
4.			
50%= 20%= Total Cover:			

Herb Stratum (use scientific names)	% Cover	Species?	Status
1. Hordeum leporinum	50	Y	FAC
2. Bromus hordeaceus	20	Y	FACU
3. Avena fatua	20	Y	UPL
4. Erodium botrys	10	N	UPL
5.			
6.			
7.			
50%= 20%= Total Cover:			

Woody/Vine Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
50%= 20%= Total Cover:			

% Bare Ground In Herb Stratum 0 % Cover of Biotic Crust —

Dominance Test Worksheet

Number of dominant species that are OBL, FACW, or FAC: 1 (A)

Total number of dominant species across all strata: 3 (B)

Percent of dominant species that are OBL, FACW, or FAC: 33% (AB)

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)

Prevalance Index = B/A = ____

Hydrophytic Vegetation Indicators

____ Dominance Text 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.

Hydrophytic Vegetation? NO

Sampling Point 30

Soils

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-12	2.5Y 6/2	70	10YR 5/6	25	C	M	CLAY LOAM	
			GLEY1 6/10Y	5	D	M	"	"

[1]Types: C = Concentration D = Depletion RM = Reduced Matrix [2]Location: PL = Pore Lining RC = Root Channel 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 (AG) (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)
X 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 Vetric (F18)
___ Red Parent Materials (TF2)
___ Vegetated Sand/Gravel Bars
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: — Depth (Inches) — Hydric Soil? X

Remarks CLEAR REDOX FEATURES PRESENT = HYDRIC SOILS.

Hydrology

Wetland Indicators

Primary Indicators (Any one indicator is sufficient)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1) (Nonriverine)
___ Sediment Deposits (B2) (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)
X Oxidized Rhizospheres (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Plowed Soils (C6)
___ 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)
___ Thin Muck Surface (C7)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Shallow Aquitard (D3)
___ FAC-Netural Test (D5)

Field Observations

Surface Water Present? Yes ___ No X Depth (inches) —
Water Table Present? Yes ___ No X Depth (inches) —
Saturation Present? Yes ___ No X Depth (inches) — *(includes capillary fringe)*

Wetland Hydrology? Yes X No ___

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

Remarks WEAK WETLAND HYDROLOGY INDICATORS.

North State Resources

Wetland Determination Data Form - Arid West Region

Habitat Type GRASSLAND
Wetland Type SEASONAL WTLD

Project/Site: Sisk Dam Corrective Action Project City/County: Merced County Sampling Date: 9/3/09
Applicant/Owner: U.S. Bureau of Reclamation State: CA Sampling Point: 31
Investigator(s): J. Colescott
Landform (hillslope, terrace, etc.) MINOR DEPRESSION Local relief (concave, convex, none) CONCAVE Slope % 0-2
Subregion (LRR) LRR-C Soil Map Unit Name: Xerofluvents, Ext. Gravelly
Are climatic/hydrologic conditions on the site typical for this time of year? YES *(If no, explain in remarks.)*
Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? YES
Are vegetation N, soil N, or hydrology N 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? YES Hydric soil? YES Wetland hydrology? YES Is sampled area a wetland? YES Other waters? NO

USACE Jurisdiction
Adjacent to Waters X Tributary to Waters X Isolated (with interstate commerce) ____ Isolated (non jurisdictional) ____
Explain:

Evaluation of features designated "Other Waters of the United States"
Indicators: Defined bed and bank ____ Scour ____ Ordinary High Water Mark Mapped ____
Feature Designation: Perennial ____ Intermittent ____ Ephemeral ____ Blue-line on USGS Quad ____
Natural Drainage ____ Artificial Drainage ____ Navigable Water ____

Remarks SMALL POLYGON WHERE ALL THE UPLAND GRASSES FELL OUT + THE HORDEUM IS CLEARLY DOMINANT. WETLAND. USE DP 30 AS UPLAND PAIR.

Vegetation

Tree Stratum (use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
50%= 20%= Total Cover:			

Sapling/Shrub Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
3.			
4.			
50%= 20%= Total Cover:			

Herb Stratum (use scientific names)	% Cover	Species?	Status
1. Hordeum leporinum	100	YES	FAC
2.			
3.			
4.			
5.			
6.			
7.			
50%= 20%= Total Cover:			

Woody/Vine Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
50%= 20%= Total Cover:			

% Bare Ground in Herb Stratum – % Cover of Biotic Crust –

Dominance Test Worksheet
Number of dominant species that are OBL, FACW, or FAC: 1 (A)
Total number of dominant species across all strata: 1 (B)
Percent of dominant species that are OBL, FACW, or FAC: 100 (AB)

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)

Prevalance Index = B/A = ____

Hydrophytic Vegetation Indicators
X Dominance Text 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.*

Hydrophytic Vegetation? YES

Sampling Point 31

Soils

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
0-6	2.5Y 6/2	50	10YR 5/6	50	C	M	GRAVELLY LOAM	(EXTREMELY HARD)

[1]Types: C = Concentration D = Depletion RM = Reduced Matrix [2]Location: PL = Pore Lining RC = Root Channel 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 (AG) (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)
- X 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 Vetric (F18)
- ____ Red Parent Materials (TF2)
- ____ Vegetated Sand/Gravel Bars
- ____ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: NO Depth (Inches) — Hydric Soil? YES

Remarks HYDRIC SOILS

Hydrology

Wetland Indicators

Primary Indicators (Any one indicator is sufficient)

- ____ Surface Water (A1)
- ____ High Water Table (A2)
- ____ Saturation (A3)
- ____ Water Marks (B1) (Nonriverine)
- ____ Sediment Deposits (B2) (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)
- X Oxidized Rhizospheres (C3)
- ____ Presence of Reduced Iron (C4)
- ____ Recent Iron Reduction in Plowed Soils (C6)
- ____ 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)
- ____ Thin Muck Surface (C7)
- ____ Crayfish Burrows (C8)
- ____ Saturation Visible on Aerial Imagery (C9)
- ____ Shallow Aquitard (D3)
- ____ FAC-Netural Test (D5)

Field Observations

Surface Water Present? Yes ____ No X Depth (inches) —

Water Table Present? Yes ____ No X Depth (inches) —

Saturation Present? Yes ____ No X Depth (inches) — *(includes capillary fringe)*

Wetland Hydrology? Yes X No ____

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

Remarks WETLAND HYDROLOGY

North State Resources

Wetland Determination Data Form - Arid West Region

Habitat Type GRASSLAND
Wetland Type SEASONAL WTLD

Project/Site: Sisk Dam Corrective Action Project City/County: Merced County Sampling Date: 9/3/09

Applicant/Owner: U.S. Bureau of Reclamation State: CA Sampling Point: 32

Investigator(s): J. Colescott

Landform (hillslope, terrace, etc.) MINOR DEPRESSION Local relief (concave, convex, none) CONVEX Slope % 2%

Subregion (LRR) LRR-C Soil Map Unit Name: Xerofluvents Very Gravelly

Are climatic/hydrologic conditions on the site typical for this time of year? YES *(If no, explain in remarks.)*

Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? YES

Are vegetation N, soil N, or hydrology N 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? YES Hydric soil? YES Wetland hydrology? YES Is sampled area a wetland? YES Other waters? NO

USACE Jurisdiction

Adjacent to Waters X Tributary to Waters X Isolated (with interstate commerce) ____ Isolated (non jurisdictional) ____
Explain:

Evaluation of features designated "Other Waters of the United States"

Indicators: Defined bed and bank ____ Scour ____ Ordinary High Water Mark Mapped ____
Feature Designation: Perennial ____ Intermittent ____ Ephemeral ____ Blue-line on USGS Quad ____
Natural Drainage ____ Artificial Drainage ____ Navigable Water ____

Remarks

SMALL DEPRESSION. MEETS THE 3 WETLAND PARAMETERS.

Vegetation

Tree Stratum (use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
50%= 20%= Total Cover:			

Sapling/Shrub Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
3.			
4.			
50%= 20%= Total Cover:			

Herb Stratum (use scientific names)	% Cover	Species?	Status
1. Lepidium latifolium	35	Y	FACW
2. Bromus hordeaceus	25	Y	FACU
3. Heliotropium curassavicum	25	Y	OBL
4. Rumex crispus	10	N	FACW
5. Hordeum leporinum	5	N	FAC
6.			
7.			
50%= 20%= Total Cover:			

Woody/Vine Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
50%= 20%= Total Cover:			

% Bare Ground in Herb Stratum – % Cover of Biotic Crust –

Dominance Test Worksheet

Number of dominant species that are OBL, FACW, or FAC: 2 (A)

Total number of dominant species across all strata: 3 (B)

Percent of dominant species that are OBL, FACW, or FAC: 66 (AB)

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)

Prevalance Index = B/A = ____

Hydrophytic Vegetation Indicators

X Dominance Text 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.

Hydrophytic Vegetation? YES

Sampling Point 32

Soils

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR4/3	90	7.5YR 5/6	10	C	M	GRAVELLY LOAM	
4-10	10YR 3/2	80	10YR 4/4	20	D	M	"	"

[1]Types: C = Concentration D = Depletion RM = Reduced Matrix [2]Location: PL = Pore Lining RC = Root Channel 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 (AG) (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)
X 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 Vetric (F18)
___ Red Parent Materials (TF2)
___ Vegetated Sand/Gravel Bars
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: — Depth (Inches) — Hydric Soil? YES

Remarks HYDRIC SOILS.

Hydrology

Wetland Indicators

Primary Indicators (Any one indicator is sufficient)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1) (Nonriverine)
___ Sediment Deposits (B2) (Nonriverine)
X 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)
X Oxidized Rhizospheres (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Plowed Soils (C6)
___ 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)
___ Thin Muck Surface (C7)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Shallow Aquitard (D3)
___ FAC-Netural Test (D5)

Field Observations

Surface Water Present? Yes ___ No X Depth (inches) -

Water Table Present? Yes ___ No X Depth (inches) -

Saturation Present? Yes ___ No X Depth (inches) - *(includes capillary fringe)*

Wetland Hydrology? Yes X No ___

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

Remarks WETLAND HYDROLOGY

North State Resources

Wetland Determination Data Form - Arid West Region

Habitat Type GRASSLAND
Wetland Type UPLAND

Project/Site: Sisk Dam Corrective Action Project City/County: Merced County Sampling Date: 9/3/09

Applicant/Owner: U.S. Bureau of Reclamation State: CA Sampling Point: 33

Investigator(s): J. Colescott

Landform (hillslope, terrace, etc.) PLAIN Local relief (concave, convex, none) NONE Slope % 0-2

Subregion (LRR) LRR-C Soil Map Unit Name: Xerofluvents, Ext. Gravelly

Are climatic/hydrologic conditions on the site typical for this time of year? YES *(If no, explain in remarks.)*

Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? YES

Are vegetation N, soil N, or hydrology N 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? NO Hydric soil? NO Wetland hydrology? NO Is sampled area a wetland? NO Other waters? NO

USACE Jurisdiction

Adjacent to Waters ____ Tributary to Waters ____ Isolated (with interstate commerce) ____ Isolated (non jurisdictional) ____
Explain:

Evaluation of features designated "Other Waters of the United States"

Indicators: Defined bed and bank ____ Scour ____ Ordinary High Water Mark Mapped ____
Feature Designation: Perennial ____ Intermittent ____ Ephemeral ____ Blue-line on USGS Quad ____
Natural Drainage ____ Artificial Drainage ____ Navigable Water ____

Remarks

UPLAND PAIR TO DP 32.

Vegetation

Tree Stratum (use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
50%= 20%= Total Cover:			

Sapling/Shrub Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
3.			
4.			
50%= 20%= Total Cover:			

Herb Stratum (use scientific names)	% Cover	Species?	Status
1. Bromus hordeaceus	60	Y	FACU
2. Grindelia camporum	25	Y	FACU
3. Bromus diandrus	10	N	UPL
4. Lepidium latifolium	5	N	FACW
5.			
6.			
7.			
50%= 20%= Total Cover:			

Woody/Vine Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
50%= 20%= Total Cover:			

% Bare Ground in Herb Stratum — % Cover of Biotic Crust —

Dominance Test Worksheet

Number of dominant species that are OBL, FACW, or FAC: 0 (A)

Total number of dominant species across all strata: 2 (B)

Percent of dominant species that are OBL, FACW, or FAC: 0 (AB)

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)

Prevalance Index = B/A = ____

Hydrophytic Vegetation Indicators

____ Dominance Text 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.*

Hydrophytic Vegetation? NO

Sampling Point 33

Soils

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
0-6	10YR 5/4	100	–	–	–	–	GRAVELLY LOAM	

[1]Types: C = Concentration D = Depletion RM = Reduced Matrix [2]Location: PL = Pore Lining RC = Root Channel 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 (AG) (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 Vetric (F18)
___ Red Parent Materials (TF2)
___ Vegetated Sand/Gravel Bars
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: — Depth (Inches) — Hydric Soil? NO

Remarks NON HYDRIC SOILS

Hydrology

Wetland Indicators

Primary Indicators (Any one indicator is sufficient)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1) (Nonriverine)
___ Sediment Deposits (B2) (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 (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Plowed Soils (C6)
___ 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)
___ Thin Muck Surface (C7)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Shallow Aquitard (D3)
___ FAC-Netural Test (D5)

Field Observations

Surface Water Present? Yes ___ No X Depth (inches) —
Water Table Present? Yes ___ No X Depth (inches) —
Saturation Present? Yes ___ No X Depth (inches) — *(includes capillary fringe)*

Wetland Hydrology? Yes ___ No X

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

Remarks UPLAND HYDROLOGY.

North State Resources

Wetland Determination Data Form - Arid West Region

Habitat Type GRASSLAND
Wetland Type UPLAND

Project/Site: Sisk Dam Corrective Action Project City/County: Merced County Sampling Date: 9/14/09

Applicant/Owner: U.S. Bureau of Reclamation State: CA Sampling Point: 34

Investigator(s): J. Colescott

Landform (hillslope, terrace, etc.) PLAIN Local relief (concave, convex, none) CONCAVE Slope % 2-5%

Subregion (LRR) LRR-C Soil Map Unit Name: Xerofluvents, extremely gravelly

Are climatic/hydrologic conditions on the site typical for this time of year? YES (If no, explain in remarks.)

Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? YES

Are vegetation N, soil N, or hydrology N 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? NO Hydric soil? NO Wetland hydrology? NO Is sampled area a wetland? NO Other waters? NO

USACE Jurisdiction

Adjacent to Waters ____ Tributary to Waters ____ Isolated (with interstate commerce) ____ Isolated (non jurisdictional) ____

Explain:

Evaluation of features designated "Other Waters of the United States"

Indicators: Defined bed and bank ____ Scour ____ Ordinary High Water Mark Mapped ____

Feature Designation: Perennial ____ Intermittent ____ Ephemeral ____ Blue-line on USGS Quad ____

Natural Drainage ____ Artificial Drainage ____ Navigable Water ____

Remarks UPLAND SWALE - MAY CONVEY WATER DURING STORM EVENTS, BUT CURRENTLY THERE ARE NO WETLAND PARAMETERS MET OR INDICATORS OF FLOW.

Vegetation

Tree Stratum (use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
50%= 20%= Total Cover:			

Sapling/Shrub Stratum (use scientific names)	% Cover	Species?	Status
1. Baccharis pilularis	4	YES	UPL
2.			
3.			
4.			
50%= 2 20%= 0.8% Total Cover:	4		

Herb Stratum (use scientific names)	% Cover	Species?	Status
1. Bromus hordeacous	25	Y	FACU
2. Hordeum leporinum	25	Y	FAC
3. Bromus madritensis	25	Y	UPL
4. Bromus diandrus	10	N	UPL
5. Erodium botrys	5	N	UPL
6.			
7.			
50%= 45 20%= 18 Total Cover:	90		

Woody/Vine Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
50%= 20%= Total Cover:			

% Bare Ground in Herb Stratum 10 % Cover of Biotic Crust —

Dominance Test Worksheet

Number of dominant species that are OBL, FACW, or FAC: 1 (A)

Total number of dominant species across all strata: 4 (B)

Percent of dominant species that are OBL, FACW, or FAC: 25 (AB)

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)

Prevalance Index = B/A = ____

Hydrophytic Vegetation Indicators

____ Dominance Text 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.*

Hydrophytic Vegetation? NO

Sampling Point 34

Soils

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 4/3	100	–	–	–	–	GRAVELLY LOAM	
3-8	10YR 5/4	100	–	–	–	–	"	"

[1]Types: C = Concentration D = Depletion RM = Reduced Matrix [2]Location: PL = Pore Lining RC = Root Channel 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 (AG) (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 Vetric (F18)
____ Red Parent Materials (TF2)
____ Vegetated Sand/Gravel Bars
____ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: — Depth (Inches) — Hydric Soil? NO

Remarks NON-HYDRIC SOILS

Hydrology

Wetland Indicators

Primary Indicators (Any one indicator is sufficient)

____ Surface Water (A1)
____ High Water Table (A2)
____ Saturation (A3)
____ Water Marks (B1) (Nonriverine)
____ Sediment Deposits (B2) (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 (C3)
____ Presence of Reduced Iron (C4)
____ Recent Iron Reduction in Plowed Soils (C6)
____ 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)
____ Thin Muck Surface (C7)
____ Crayfish Burrows (C8)
____ Saturation Visible on Aerial Imagery (C9)
____ Shallow Aquitard (D3)
____ FAC-Netural Test (D5)

Field Observations

Surface Water Present? Yes ____ No X Depth (inches) —
Water Table Present? Yes ____ No X Depth (inches) –
Saturation Present? Yes ____ No X Depth (inches) – *(includes capillary fringe)*

Wetland Hydrology? Yes ____ No X

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

Remarks UPLAND HYDROLOGY

North State Resources

Wetland Determination Data Form - Arid West Region

Habitat Type GRASSLAND
Wetland Type SEASONAL WTLD

Project/Site: Sisk Dam Corrective Action Project City/County: Merced County Sampling Date: 9/14/09
Applicant/Owner: U.S. Bureau of Reclamation State: CA Sampling Point: 35
Investigator(s): J. Colescott
Landform (hillslope, terrace, etc.) ______ Local relief (concave, convex, none) CONCAVE Slope % 2-4%
Subregion (LRR) LRR-C Soil Map Unit Name: Xerofluvents, Extremely Gravelly
Are climatic/hydrologic conditions on the site typical for this time of year? YES (If no, explain in remarks.)
Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? YES
Are vegetation N, soil N, or hydrology N 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? YES Hydric soil? YES Wetland hydrology? YES Is sampled area a wetland? YES Other waters? NO

USACE Jurisdiction

Adjacent to Waters X Tributary to Waters X Isolated (with interstate commerce) ____ Isolated (non jurisdictional) ____
Explain:

Evaluation of features designated "Other Waters of the United States"

Indicators: Defined bed and bank ____ Scour ____ Ordinary High Water Mark Mapped ____
Feature Designation: Perennial ____ Intermittent ____ Ephemeral ____ Blue-line on USGS Quad ____
Natural Drainage ____ Artificial Drainage ____ Navigable Water ____

Remarks

DEPRESSIONAL LANDFORM MEETS THE 3-PARAMETER WETLAND TEST.

Vegetation

Tree Stratum (use scientific names)

	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
50%= ____ 20%= ____ Total Cover:			

Sapling/Shrub Stratum (use scientific names)

	% Cover	Species?	Status
1. Atroplex lentiformis	5	Y	FAC
2.			
3.			
4.			
50%= 2.5 20%= 1 Total Cover:	5		

Herb Stratum (use scientific names)

	% Cover	Species?	Status
1. Hordeum leporinum	40	YES	FAC
2. Bromus hordeacous	20	Y	FACU
3. Heliotropium curassavicum	20	Y	OBL
4. Grindelia camporum	10	NO	FACU
5. Lepidium latifolium	5	N	FACW
6. Erodium botrys	5	N	UPL
7.			
50%= 50 20%= 20 Total Cover:	100		

Woody/Vine Stratum (use scientific names)

	% Cover	Species?	Status
1.			
2.			
50%= ____ 20%= ____ Total Cover:			

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 15

Dominance Test Worksheet

Number of dominant species that are OBL, FACW, or FAC: 3 (A)
Total number of dominant species across all strata: 4 (B)
Percent of dominant species that are OBL, FACW, or FAC: 75 (AB)

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)

Prevalance Index = B/A = ____

Hydrophytic Vegetation Indicators

- X Dominance Text 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.*

Hydrophytic Vegetation? YES

Sampling Point 35

Soils

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 4/3	95	7.5YR 4/6	5	C	M	GRAVELLY LOAM	
3-8	10YR 5/4	97	7.5YR 5/6	3	C	M	"	"

[1]Types: C = Concentration D = Depletion RM = Reduced Matrix [2]Location: PL = Pore Lining RC = Root Channel 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 (AG) (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)
- X 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 Vetric (F18)
- ___ Red Parent Materials (TF2)
- ___ Vegetated Sand/Gravel Bars
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: — Depth (Inches): — Hydric Soil? YES

Remarks WEAK, BUT SUFFICIENT INDICATORS OF HYDRIC SOILS.

Hydrology

Wetland Indicators

Primary Indicators (Any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (Nonriverine)
- ___ Sediment Deposits (B2) (Nonriverine)
- X Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- X Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- X Oxidized Rhizospheres (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ 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)
- ___ Thin Muck Surface (C7)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Netural Test (D5)

Field Observations

Surface Water Present? Yes ___ No X Depth (inches): —

Water Table Present? Yes ___ No X Depth (inches): —

Saturation Present? Yes ___ No X Depth (inches): — (includes capillary fringe)

Wetland Hydrology? Yes X No ___

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

Remarks SUFFICIENT INDICATORS OF WETLAND HYDROLOGY.

North State Resources

Wetland Determination Data Form - Arid West Region

Habitat Type Grassland
Wetland Type UPLAND

Project/Site: Sisk Dam Corrective Action Project City/County: Merced County Sampling Date: 9/14/09
Applicant/Owner: U.S. Bureau of Reclamation State: CA Sampling Point: 36
Investigator(s): J. Colescott
Landform (hillslope, terrace, etc.) SWALE Local relief (concave, convex, none) CONCAVE Slope % 3-5%
Subregion (LRR) LRR-C Soil Map Unit Name: Xerofluvents, Extremely Gravelly
Are climatic/hydrologic conditions on the site typical for this time of year? YES (If no, explain in remarks.)
Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? YES
Are vegetation N, soil N, or hydrology N 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? NO Hydric soil? YES Wetland hydrology? NO Is sampled area a wetland? NO Other waters? NO

USACE Jurisdiction

Adjacent to Waters ____ Tributary to Waters ____ Isolated (with interstate commerce) ____ Isolated (non jurisdictional) ____
Explain:

Evaluation of features designated "Other Waters of the United States"

Indicators: Defined bed and bank ____ Scour ____ Ordinary High Water Mark Mapped ____
Feature Designation: Perennial ____ Intermittent ____ Ephemeral ____ Blue-line on USGS Quad ____
Natural Drainage ____ Artificial Drainage ____ Navigable Water ____

Remarks DOWNSTREAM END OF WET SWALE. WATER MOST EITHER SOAK IN OR SPREAD OUT BECAUSE HYDROPHYTIC VEG. DISAPPEARS.

Vegetation

Tree Stratum (use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
50%= 20%= Total Cover:			

Sapling/Shrub Stratum (use scientific names)	% Cover	Species?	Status
1. Atriplex lentiformis	1	YES	FAC
2.			
3.			
4.			
50%= .5 20%= .2 Total Cover:	1		

Herb Stratum (use scientific names)	% Cover	Species?	Status
1. Bromus diandrus	20	Y	UPL
2. B. hordeaceus	20	Y	FACU
3. B. madritensis	15	N	UPL
4. Hordeum leporinum	15	N	FAC
5. Brassica nigra	15	N	UPL
6. Croton setigerus	5	N	UPL
7. Erodium botrys	10	N	UPL
50%= 20%= Total Cover:			

Woody/Vine Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
50%= 20%= Total Cover:			

% Bare Ground In Herb Stratum — % Cover of Biotic Crust —

Dominance Test Worksheet

Number of dominant species that are OBL, FACW, or FAC: 1 (A)
Total number of dominant species across all strata: 3 (B)
Percent of dominant species that are OBL, FACW, or FAC: 33 (AB)

Prevalence Index Worksheet

Total % Cover of:		Multiply by
OBL Species	x1 =	
FACW Species	x2 =	
FAC Species	x3 =	
FACU Species	x4 =	
UPL Species	x5 =	
Column Totals	(A)	(B)

Prevalance Index = B/A =

Hydrophytic Vegetation Indicators

____ Dominance Text 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.

Hydrophytic Vegetation? NO

Sampling Point 36

Soils

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR 4/4	85	7.5YR 5/6	10	D	PL	GRAVELLY LOAM	
			7.5YR 6/1	5	D	PL		

[1]Types: C = Concentration D = Depletion RM = Reduced Matrix [2]Location: PL = Pore Lining RC = Root Channel 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 (AG) (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)
X 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 Vetric (F18)
____ Red Parent Materials (TF2)
____ Vegetated Sand/Gravel Bars
____ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: — Depth (Inches) — Hydric Soil? YES

Remarks

Hydrology

Wetland Indicators

Primary Indicators (Any one indicator is sufficient)

____ Surface Water (A1)
____ High Water Table (A2)
____ Saturation (A3)
____ Water Marks (B1) (Nonriverine)
____ Sediment Deposits (B2) (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 (C3)
____ Presence of Reduced Iron (C4)
____ Recent Iron Reduction in Plowed Soils (C6)
____ 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)
____ Thin Muck Surface (C7)
____ Crayfish Burrows (C8)
____ Saturation Visible on Aerial Imagery (C9)
____ Shallow Aquitard (D3)
____ FAC-Netural Test (D5)

Field Observations

Surface Water Present? Yes ____ No ____ Depth (inches) ________ Wetland Hydrology? Yes ____ No X
Water Table Present? Yes ____ No ____ Depth (inches) ________
Saturation Present? Yes ____ No ____ Depth (inches) ________ *(includes capillary fringe)*

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

— DOWNSTREAM END OF SWALE - NO WETLAND HYDRO INDICATORS

Remarks

North State Resources

Wetland Determination Data Form - Arid West Region

Habitat Type GRASSLAND
Wetland Type SEASONAL WTLD

Project/Site: Sisk Dam Corrective Action Project City/County: Merced County Sampling Date: 9/14/09

Applicant/Owner: U.S. Bureau of Reclamation State: CA Sampling Point: 37

Investigator(s): J. Colescott

Landform (hillslope, terrace, etc.) SWALE Local relief (concave, convex, none) CONCAVE Slope % 2-4

Subregion (LRR) LRR-C Soil Map Unit Name:

Are climatic/hydrologic conditions on the site typical for this time of year? YES *(If no, explain in remarks.)*

Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? YES

Are vegetation N, soil N, or hydrology N 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? YES Hydric soil? YES Wetland hydrology? YES Is sampled area a wetland? YES Other waters? NO

USACE Jurisdiction

Adjacent to Waters ____ Tributary to Waters X Isolated (with interstate commerce) ____ Isolated (non jurisdictional) ____

Explain: CONNECTED VIA UPLAND SWALES AND DITCHES

Evaluation of features designated "Other Waters of the United States"

Indicators: Defined bed and bank ____ Scour ____ Ordinary High Water Mark Mapped ____

Feature Designation: Perennial ____ Intermittent ____ Ephemeral ____ Blue-line on USGS Quad ____

Natural Drainage ____ Artificial Drainage ____ Navigable Water ____

Remarks SMALL SWALE WITH WETLAND PARAMETERS. DOES NOT APPEAR TO CONTINUE DOWNSLOPE TO ANY OTHER FEATURE.

Vegetation

Tree Stratum (use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
50%= 20%= Total Cover:			

Sapling/Shrub Stratum (use scientific names)	% Cover	Species?	Status
1. Atriplex lentiformis	5	YES	FAC
2. Baccharis pilularis	5	YES	UPL
3.			
4.			
50%= 5 20%= 2 Total Cover:	10		

Herb Stratum (use scientific names)	% Cover	Species?	Status
1. Vulpia bromoides	25	YES	FACW
2. Hordeum leporinum	25	YES	FAC
3. Bromus diandrus	25	YES	UPL
4. B. hordeacous	15	N	FACU
5. Brassica negra	10	N	UPL
6.			
7.			
50%= 20%= Total Cover:	100		

Woody/Vine Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
50%= 20%= Total Cover:			

% Bare Ground in Herb Stratum — **% Cover of Biotic Crust** —

Dominance Test Worksheet

Number of dominant species that are OBL, FACW, or FAC: 3 (A)

Total number of dominant species across all strata: 5 (B)

Percent of dominant species that are OBL, FACW, or FAC: 60 (AB)

Prevalence Index Worksheet

Total % Cover of:		Multiply by	
OBL Species		x1 =	
FACW Species		x2 =	
FAC Species		x3 =	
FACU Species		x4 =	
UPL Species		x5 =	
Column Totals	(A)		(B)

Prevalance Index = B/A =

Hydrophytic Vegetation Indicators

X Dominance Text 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.*

Hydrophytic Vegetation? YES

Sampling Point 37

Soils

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
0-10	10YR 4/4	85	7.5YR 5/6	10	D	PL	GRAVELLY LOAM	
			7.5YR 4/1	5	D	PL	"	"

[1]Types: C = Concentration D = Depletion RM = Reduced Matrix [2]Location: PL = Pore Lining RC = Root Channel 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)
- X 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 Materials (TF2)
- ___ Vegetated Sand/Gravel Bars
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: — Depth (Inches): — Hydric Soil? YES

Remarks HYDRIC SOILS

Hydrology

Wetland Indicators

Primary Indicators (Any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (Nonriverine)
- ___ Sediment Deposits (B2) (Nonriverine)
- X Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- X Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- X Oxidized Rhizospheres (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ 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)
- ___ Thin Muck Surface (C7)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Netural Test (D5)

Field Observations

Surface Water Present? Yes ___ No X Depth (inches): —

Water Table Present? Yes ___ No X Depth (inches): —

Saturation Present? Yes ___ No X Depth (inches): — *(includes capillary fringe)*

Wetland Hydrology? Yes X No ___

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

Remarks WETLAND HYDROLOGY INDICATORS.

North State Resources

Wetland Determination Data Form - Arid West Region

Habitat Type GRASSLAND
Wetland Type UPLAND

Project/Site: Sisk Dam Corrective Action Project City/County: Merced County Sampling Date: 9/14/09

Applicant/Owner: U.S. Bureau of Reclamation State: CA Sampling Point: 38

Investigator(s): J. Colescott

Landform (hillslope, terrace, etc.) SWALE Local relief (concave, convex, none) CONCAVE Slope % 0-3

Subregion (LRR) LRR-C Soil Map Unit Name: Xerofluvents, Ext. Gravelly

Are climatic/hydrologic conditions on the site typical for this time of year? YES (If no, explain in remarks.)

Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? YES

Are vegetation N, soil N, or hydrology N 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? NO Hydric soil? YES Wetland hydrology? NO Is sampled area a wetland? NO Other waters? NO

USACE Jurisdiction

Adjacent to Waters ____ Tributary to Waters ____ Isolated (with interstate commerce) ____ Isolated (non jurisdictional) ____

Explain:

Evaluation of features designated "Other Waters of the United States"

Indicators: Defined bed and bank ____ Scour ____ Ordinary High Water Mark Mapped ____

Feature Designation: Perennial ____ Intermittent ____ Ephemeral ____ Blue-line on USGS Quad ____

Natural Drainage ____ Artificial Drainage ____ Navigable Water ____

Remarks

DOWNSLOPE END OF A DEPRESSIONAL AREA. DP DOCUMENTS NON-WETLAND CONDITIONS.

Vegetation

Tree Stratum (use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
50%= 20%= Total Cover:			

Sapling/Shrub Stratum (use scientific names)	% Cover	Species?	Status
1. Atroplex lentiformis	5	YES	FAC
2.			
3.			
4.			
50%= 2.5 20%= 1 Total Cover:	5		

Herb Stratum (use scientific names)	% Cover	Species?	Status
1. Vulpia bromoides	25	Y	FACW
2. Bromus hordeacous	20	Y	FACU
3. B. madritensis	20	Y	UPL
4. Erodium botrys	20	Y	UPL
5. Brassica negra	15	N	UPL
6.			
7.			
50%= 20%= Total Cover:			

Woody/Vine Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
50%= 20%= Total Cover:			

% Bare Ground in Herb Stratum — % Cover of Biotic Crust —

Dominance Test Worksheet

Number of dominant species that are OBL, FACW, or FAC: 2 (A)

Total number of dominant species across all strata: 5 (B)

Percent of dominant species that are OBL, FACW, or FAC: 40 (AB)

Prevalence Index Worksheet

Total % Cover of:		Multiply by
OBL Species	x1 =	
FACW Species	x2 =	
FAC Species	x3 =	
FACU Species	x4 =	
UPL Species	x5 =	
Column Totals	(A)	(B)

Prevalance Index = B/A = ____

Hydrophytic Vegetation Indicators

____ Dominance Text 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.

Hydrophytic Vegetation? NO

Sampling Point 38

Soils

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 4/4	95	10YR 3/2	5	RM	M	SANDY LOAM	

[1]Types: C = Concentration D = Depletion RM = Reduced Matrix [2]Location: PL = Pore Lining RC = Root Channel 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 (AG) (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)
- _X_ 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 Vetric (F18)
- ____ Red Parent Materials (TF2)
- ____ Vegetated Sand/Gravel Bars
- ____ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: — Depth (Inches) — Hydric Soil? NO

Remarks HYDRIC SOILS

Hydrology

Wetland Indicators

Primary Indicators (Any one indicator is sufficient)

- ____ Surface Water (A1)
- ____ High Water Table (A2)
- ____ Saturation (A3)
- ____ Water Marks (B1) (Nonriverine)
- ____ Sediment Deposits (B2) (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 (C3)
- ____ Presence of Reduced Iron (C4)
- ____ Recent Iron Reduction in Plowed Soils (C6)
- ____ 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)
- ____ Thin Muck Surface (C7)
- ____ Crayfish Burrows (C8)
- ____ Saturation Visible on Aerial Imagery (C9)
- ____ Shallow Aquitard (D3)
- ____ FAC-Netural Test (D5)

Field Observations

Surface Water Present? Yes ____ No X Depth (inches) —

Water Table Present? Yes ____ No X Depth (inches) —

Saturation Present? Yes ____ No X Depth (inches) — *(includes capillary fringe)*

Wetland Hydrology? Yes ____ No X

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

Remarks

North State Resources

Wetland Determination Data Form - Arid West Region

Habitat Type GRASSLAND
Wetland Type SEASONAL WTLD

Project/Site: Sisk Dam Corrective Action Project City/County: Merced County Sampling Date: 9/14/09
Applicant/Owner: U.S. Bureau of Reclamation State: CA Sampling Point: 39
Investigator(s): J. Colescott
Landform (hillslope, terrace, etc.) SWALE Local relief (concave, convex, none) CONCAVE Slope % 0-2
Subregion (LRR) LRR-C Soil Map Unit Name: Xerofluvents, Ext. GRAVELLY
Are climatic/hydrologic conditions on the site typical for this time of year? YES (If no, explain in remarks.)
Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? YES
Are vegetation N, soil N, or hydrology N 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? YES Hydric soil? YES Wetland hydrology? YES Is sampled area a wetland? YES Other waters? NO

USACE Jurisdiction

Adjacent to Waters ____ Tributary to Waters X Isolated (with interstate commerce) ____ Isolated (non jurisdictional) ____
Explain: CONNECTED VIA UPLAND SWALES.

Evaluation of features designated "Other Waters of the United States"

Indicators: Defined bed and bank ____ Scour ____ Ordinary High Water Mark Mapped ____
Feature Designation: Perennial ____ Intermittent ____ Ephemeral ____ Blue-line on USGS Quad ____
Natural Drainage ____ Artificial Drainage ____ Navigable Water ____

Remarks

SMALL DEPRESSIONAL WETLAND.

Vegetation

Tree Stratum (use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
50%= ____ 20%= ____ Total Cover:			

Sapling/Shrub Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
3.			
4.			
50%= ____ 20%= ____ Total Cover:			

Herb Stratum (use scientific names)	% Cover	Species?	Status
1. Vulpia bromoides	40	Y	FACW
2. Heliotropium curassavicum	20	Y	OBL
3. Bromus hordeaceus	10	N	FACU
4. Erodium botrys	15	N	UPL
5. Lepidium latifolium	5	N	FACW
6. Brassica negra	5	N	UPL
7.			
50%= 47.5 20%= 19 Total Cover:	95		

Woody/Vine Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
50%= ____ 20%= ____ Total Cover:			

% Bare Ground in Herb Stratum 5 % Cover of Biotic Crust 20

Dominance Test Worksheet

Number of dominant species that are OBL, FACW, or FAC: 2 (A)
Total number of dominant species across all strata: 2 (B)
Percent of dominant species that are OBL, FACW, or FAC: 100 (AB)

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)

Prevalance Index = B/A = ____

Hydrophytic Vegetation Indicators

____ Dominance Text 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.

Hydrophytic Vegetation? YES

Sampling Point 39

Soils

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 4/6	85	10YR 4/2	10	D	M	SANDY LOAM	
			7.5YR 4/6	5	C	RC	"	"

[1]Types: C = Concentration D = Depletion RM = Reduced Matrix [2]Location: PL = Pore Lining RC = Root Channel 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 (AG) (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)
- X 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 Vetric (F18)
- ____ Red Parent Materials (TF2)
- ____ Vegetated Sand/Gravel Bars
- ____ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: — Depth (Inches) — Hydric Soil? YES

Remarks HYDRIC SOILS.

Hydrology

Wetland Indicators

Primary Indicators (Any one indicator is sufficient)

- ____ Surface Water (A1)
- ____ High Water Table (A2)
- ____ Saturation (A3)
- ____ Water Marks (B1) (Nonriverine)
- ____ Sediment Deposits (B2) (Nonriverine)
- ____ Surface Soil Cracks (B6)
- ____ Inundation Visible on Aerial Imagery (B7)
- ____ Water-Stained Leaves (B9)
- ____ Salt Crust (B11)
- X Biotic Crust (B12)
- ____ Aquatic Invertebrates (B13)
- ____ Hydrogen Sulfide Odor (C1)
- X Oxidized Rhizospheres (C3)
- ____ Presence of Reduced Iron (C4)
- ____ Recent Iron Reduction in Plowed Soils (C6)
- ____ 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)
- ____ Thin Muck Surface (C7)
- ____ Crayfish Burrows (C8)
- ____ Saturation Visible on Aerial Imagery (C9)
- ____ Shallow Aquitard (D3)
- ____ FAC-Netural Test (D5)

Field Observations

Surface Water Present? Yes ____ No X Depth (inches) — Wetland Hydrology? Yes X No ____

Water Table Present? Yes ____ No X Depth (inches) —

Saturation Present? Yes ____ No X Depth (inches) — *(includes capillary fringe)*

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

Remarks WETLAND HYDROLOGY

North State Resources

Habitat Type GRASSLAND
Wetland Type UPLAND

Wetland Determination Data Form - Arid West Region

Project/Site: Sisk Dam Corrective Action Project City/County: Merced County Sampling Date: 9/14/09
Applicant/Owner: U.S. Bureau of Reclamation State: CA Sampling Point: 40
Investigator(s): J. Colescott
Landform (hillslope, terrace, etc.) SWALE Local relief (concave, convex, none) CONCAVE Slope % ~5
Subregion (LRR) LRR-C Soil Map Unit Name: BALLVAR LOAM, 2-8% SLOPES
Are climatic/hydrologic conditions on the site typical for this time of year? YES (If no, explain in remarks.)
Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? YES
Are vegetation N, soil N, or hydrology N 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? NO Hydric soil? NO Wetland hydrology? NO Is sampled area a wetland? NO Other waters? NO

USACE Jurisdiction

Adjacent to Waters ____ Tributary to Waters ____ Isolated (with interstate commerce) ____ Isolated (non jurisdictional) ____
Explain:

Evaluation of features designated "Other Waters of the United States"

Indicators: Defined bed and bank ____ Scour ____ Ordinary High Water Mark Mapped ____
Feature Designation: Perennial ____ Intermittent ____ Ephemeral ____ Blue-line on USGS Quad ____
Natural Drainage ____ Artificial Drainage ____ Navigable Water ____

Remarks

DOWNSTREAM END OF SMALL WETLAND. (UPLAND PAIR TO DP 41.)

Vegetation

Tree Stratum (use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
50%= 20%= Total Cover:			

Sapling/Shrub Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
3.			
4.			
50%= 20%= Total Cover:			

Herb Stratum (use scientific names)	% Cover	Species?	Status
1. Marrubium vulgare	30	Y	FAC
2. Bromus diandrus	40	Y	UPL
3. Bromus madritensis	20	Y	UPL
4. Brassica nigra	10	N	UPL
5. Silybum marianum	10	N	UPL
6.			
7.			
50%= 20%= Total Cover:			

Woody/Vine Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
50%= 20%= Total Cover:			

% Bare Ground in Herb Stratum — % Cover of Biotic Crust —

Dominance Test Worksheet

Number of dominant species that are OBL, FACW, or FAC: 1 (A)
Total number of dominant species across all strata: 3 (B)
Percent of dominant species that are OBL, FACW, or FAC: 33 (AB)

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)

Prevalance Index = B/A =

Hydrophytic Vegetation Indicators

____ Dominance Text 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.

Hydrophytic Vegetation? NO

Sampling Point 40

Soils

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 3/2	100	—	—	—	—	LOAM	—

[1]Types: C = Concentration D = Depletion RM = Reduced Matrix [2]Location: PL = Pore Lining RC = Root Channel 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 (AG) (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 Vetric (F18)
____ Red Parent Materials (TF2)
____ Vegetated Sand/Gravel Bars
____ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: — Depth (Inches) — Hydric Soil? NO

Remarks NON-HYDRIC SOILS

Hydrology

Wetland Indicators

Primary Indicators (Any one indicator is sufficient)

____ Surface Water (A1)
____ High Water Table (A2)
____ Saturation (A3)
____ Water Marks (B1) (Nonriverine)
____ Sediment Deposits (B2) (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 (C3)
____ Presence of Reduced Iron (C4)
____ Recent Iron Reduction in Plowed Soils (C6)
____ 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)
____ Thin Muck Surface (C7)
____ Crayfish Burrows (C8)
____ Saturation Visible on Aerial Imagery (C9)
____ Shallow Aquitard (D3)
____ FAC-Netural Test (D5)

Field Observations

Surface Water Present? Yes ____ No X Depth (inches) —
Water Table Present? Yes ____ No X Depth (inches) —
Saturation Present? Yes ____ No X Depth (inches) — *(includes capillary fringe)*

Wetland Hydrology? Yes ____ No X

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

Remarks

North State Resources

Wetland Determination Data Form - Arid West Region

Habitat Type GRASSLAND
Wetland Type SEASONAL WTLD

Project/Site: Sisk Dam Corrective Action Project City/County: Merced County Sampling Date: 9/14/09
Applicant/Owner: U.S. Bureau of Reclamation State: CA Sampling Point: 41
Investigator(s): J. Colescott
Landform (hillslope, terrace, etc.) DEPRESSION Local relief (concave, convex, none) CONCAVE Slope % ~2
Subregion (LRR) LRR-C Soil Map Unit Name: BALVAR LOAM 2-8%
Are climatic/hydrologic conditions on the site typical for this time of year? YES (If no, explain in remarks.)
Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? YES
Are vegetation N, soil N, or hydrology N 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? YES Hydric soil? YES Wetland hydrology? YES Is sampled area a wetland? YES Other waters? NO

USACE Jurisdiction

Adjacent to Waters ____ Tributary to Waters X Isolated (with interstate commerce) ____ Isolated (non jurisdictional) ____
Explain:

Evaluation of features designated "Other Waters of the United States"

Indicators: Defined bed and bank ____ Scour ____ Ordinary High Water Mark Mapped ____
Feature Designation: Perennial ____ Intermittent ____ Ephemeral ____ Blue-line on USGS Quad ____
Natural Drainage ____ Artificial Drainage ____ Navigable Water ____

Remarks SMALL WETLAND POLYGON FORMED WHERE VALLEY AREA IS CONSTRICTED B/W ROAD PRISM + HELI PAD HILL.

Vegetation

Tree Stratum (use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
50%= 20%= Total Cover:			

Sapling/Shrub Stratum (use scientific names)	% Cover	Species?	Status
1. Baccharis salicifolia	10	YES	FACW
2.			
3.			
4.			
50%= 5 20%= 2 Total Cover:	10		

Herb Stratum (use scientific names)	% Cover	Species?	Status
1. Lepidium latifolium	60	YES	FACW
2. Marrubium vulgare	20	YES	FAC
3. Bromus madritensis	5	N	UPL
4. Conium maculatum	5	N	OBL
5.			
6.			
7.			
50%= 45 20%= 18 Total Cover:	90		

Woody/Vine Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
50%= 20%= Total Cover:			

% Bare Ground in Herb Stratum 20 % Cover of Biotic Crust —

Dominance Test Worksheet

Number of dominant species that are OBL, FACW, or FAC: 3 (A)
Total number of dominant species across all strata: 3 (B)
Percent of dominant species that are OBL, FACW, or FAC: 100 (AB)

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)

Prevalance Index = B/A = ____

Hydrophytic Vegetation Indicators

X Dominance Text 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.*

Hydrophytic Vegetation? YES

Sampling Point 41

Soils

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 3/2	95	10YR 3/6	5	RM	M	LOAM	
			7.5YR 5/8	2	C	PL		

[1]Types: C = Concentration D = Depletion RM = Reduced Matrix [2]Location: PL = Pore Lining RC = Root Channel 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 (AG) (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)
X 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 Vetric (F18)
____ Red Parent Materials (TF2)
____ Vegetated Sand/Gravel Bars
____ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: NONE Depth (Inches) — Hydric Soil? YES

Remarks HYDRIC SOILS

Hydrology

Wetland Indicators

Primary Indicators (Any one indicator is sufficient)

____ Surface Water (A1)
____ High Water Table (A2)
____ Saturation (A3)
____ Water Marks (B1) (Nonriverine)
____ Sediment Deposits (B2) (Nonriverine)
X 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)
X Oxidized Rhizospheres (C3)
____ Presence of Reduced Iron (C4)
____ Recent Iron Reduction in Plowed Soils (C6)
____ 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)
____ Thin Muck Surface (C7)
____ Crayfish Burrows (C8)
____ Saturation Visible on Aerial Imagery (C9)
____ Shallow Aquitard (D3)
X FAC-Netural Test (D5)

Field Observations

Surface Water Present? Yes ____ No X Depth (inches) -
Water Table Present? Yes ____ No X Depth (inches) -
Saturation Present? Yes ____ No X Depth (inches) - (includes capillary fringe)

Wetland Hydrology? Yes X No ____

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

Remarks WETLAND HYDROLOGY

North State Resources

Wetland Determination Data Form - Arid West Region

Habitat Type GRASSLAND
Wetland Type UPLAND

Project/Site: Sisk Dam Corrective Action Project City/County: Merced County Sampling Date: 9/14/09
Applicant/Owner: U.S. Bureau of Reclamation State: CA Sampling Point: 42
Investigator(s): J. Colescott
Landform (hillslope, terrace, etc.) RAVINE Local relief (concave, convex, none) CONCAVE Slope % 5
Subregion (LRR) LRR-C Soil Map Unit Name: BALLIVAR LOAM 2-8%
Are climatic/hydrologic conditions on the site typical for this time of year? YES (If no, explain in remarks.)
Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? YES
Are vegetation N, soil N, or hydrology N 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? NO Hydric soil? NO Wetland hydrology? NO Is sampled area a wetland? NO Other waters? NO

USACE Jurisdiction

Adjacent to Waters ____ Tributary to Waters ____ Isolated (with interstate commerce) ____ Isolated (non jurisdictional) ____
Explain:

Evaluation of features designated "Other Waters of the United States"

Indicators: Defined bed and bank ____ Scour ____ Ordinary High Water Mark Mapped ____
Feature Designation: Perennial ____ Intermittent ____ Ephemeral ____ Blue-line on USGS Quad ____
Natural Drainage ____ Artificial Drainage ____ Navigable Water ____

Remarks SMALL SWALE IN THE LANDSCAPE DOES NOT SATISFY WETLAND PERAMETERS OR SHOW INDICATIONS OF FLOW (E.G., SCOUR + DEPOSITION). - NON WETLAND.

Vegetation

Tree Stratum (use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
50%= 20%= Total Cover:			

Sapling/Shrub Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
3.			
4.			
50%= 20%= Total Cover:			

Herb Stratum (use scientific names)	% Cover	Species?	Status
1. Bromus hordeacous	20	Y	FACU
2. Bromus diandrus	20	Y	UPL
3. Bromus madritensis	10	N	UPL
4. Croton setigerum	5	N	UPL
5. Erodium botrys	10	N	UPL
6.			
7.			
50%= 33 20%= 13 Total Cover:	65		

Woody/Vine Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
50%= 20%= Total Cover:			

% Bare Ground in Herb Stratum 35 % Cover of Biotic Crust —

Dominance Test Worksheet

Number of dominant species that are OBL, FACW, or FAC: 0 (A)
Total number of dominant species across all strata: 2 (B)
Percent of dominant species that are OBL, FACW, or FAC: 0 (AB)

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)

Prevalance Index = B/A =

Hydrophytic Vegetation Indicators

____ Dominance Text 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.*

Hydrophytic Vegetation? NO

Sampling Point 42

Soils

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-8	7.5YR 4/6	100	—	—	—	—	GRAVELLY LOAM	

[1]Types: C = Concentration D = Depletion RM = Reduced Matrix [2]Location: PL = Pore Lining RC = Root Channel 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 (AG) (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 Vetric (F18)
- ____ Red Parent Materials (TF2)
- ____ Vegetated Sand/Gravel Bars
- ____ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: — Depth (Inches) — Hydric Soil? NO

Remarks NON-HYDRIC SOILS

Hydrology

Wetland Indicators

Primary Indicators (Any one indicator is sufficient)

- ____ Surface Water (A1)
- ____ High Water Table (A2)
- ____ Saturation (A3)
- ____ Water Marks (B1) (Nonriverine)
- ____ Sediment Deposits (B2) (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 (C3)
- ____ Presence of Reduced Iron (C4)
- ____ Recent Iron Reduction in Plowed Soils (C6)
- ____ 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)
- ____ Thin Muck Surface (C7)
- ____ Crayfish Burrows (C8)
- ____ Saturation Visible on Aerial Imagery (C9)
- ____ Shallow Aquitard (D3)
- ____ FAC-Netural Test (D5)

Field Observations

Surface Water Present? Yes ____ No X Depth (inches) —

Water Table Present? Yes ____ No X Depth (inches) —

Saturation Present? Yes ____ No X Depth (inches) — *(includes capillary fringe)*

Wetland Hydrology? Yes ____ No X

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

Remarks NO INDICATORS OF WETLAND HYDROLOGY

North State Resources

Wetland Determination Data Form - Arid West Region

Habitat Type GRASSLAND
Wetland Type EPHEMERAL DRAINAGE

Project/Site: Sisk Dam Corrective Action Project City/County: Merced County Sampling Date: 9/14/09
Applicant/Owner: U.S. Bureau of Reclamation State: CA Sampling Point: 43
Investigator(s): J. Colescott
Landform (hillslope, terrace, etc.) DRAINAGE Local relief (concave, convex, none) CONCAVE Slope % 5-8
Subregion (LRR) LRR-C Soil Map Unit Name: BALLVAR LOAM 2-8% SLOPE
Are climatic/hydrologic conditions on the site typical for this time of year? YES *(If no, explain in remarks.)*
Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? YES
Are vegetation N, soil N, or hydrology N 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? NO Hydric soil? NO Wetland hydrology? YES Is sampled area a wetland? NO Other waters? YES

USACE Jurisdiction
Adjacent to Waters ____ Tributary to Waters X Isolated (with interstate commerce) ____ Isolated (non jurisdictional) ____
Explain:

Evaluation of features designated "Other Waters of the United States"
~2' WIDE

Indicators: Defined bed and bank X Scour X Ordinary High Water Mark Mapped X
Feature Designation: Perennial ____ Intermittent ____ Ephemeral X Blue-line on USGS Quad ____
Natural Drainage X Artificial Drainage ____ Navigable Water ____

Remarks
SMALL 2' EPHEMERAL DRAINAGE. VEGETATED W/ ANNUAL GRASSES MAKING OHWM DIFFICULT TO DISCERN, BUT A WELL DEFINED BED + BANK BISECTS THIS SECTION OF THE STUDY AREA. - SEE PHOTO.

Vegetation

Tree Stratum (use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
50%= ____ 20%= ____ Total Cover:			

Sapling/Shrub Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
3.			
4.			
50%= ____ 20%= ____ Total Cover:			

Herb Stratum (use scientific names)	% Cover	Species?	Status
1. Bromus diandrus	40	Y	UPL
2. Bromus inermos	40	Y	UPL
3. Brassica negra	20	Y	UPL
4.			
5.			
6.			
7.			
50%= ____ 20%= ____ Total Cover:	100		

Woody/Vine Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
50%= ____ 20%= ____ Total Cover:			

% Bare Ground in Herb Stratum ____ % Cover of Biotic Crust ____

Dominance Test Worksheet
Number of dominant species that are OBL, FACW, or FAC: 0 (A)
Total number of dominant species across all strata: 3 (B)
Percent of dominant species that are OBL, FACW, or FAC: 0/3 (AB)

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)

Prevalance Index = B/A = ____

Hydrophytic Vegetation Indicators
____ Dominance Text 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.

Hydrophytic Vegetation? NO

Sampling Point 43

Soils

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-6"	10YR 4/3	100	—	—	—	—	SANDY LOAM	

[1]Types: C = Concentration D = Depletion RM = Reduced Matrix [2]Location: PL = Pore Lining RC = Root Channel 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 (AG) (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 Vetric (F18)
_____ Red Parent Materials (TF2)
_____ Vegetated Sand/Gravel Bars
_____ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: — Depth (Inches) — Hydric Soil? NO

Remarks SANDY LOAM, WITH NO OBSERVABLE REDOX FEATURES. LIKELY WELL DRAINED + PERIODICALLY SCOURED.

Hydrology

Wetland Indicators

Primary Indicators (Any one indicator is sufficient)

_____ Surface Water (A1)
_____ High Water Table (A2)
_____ Saturation (A3)
_____ Water Marks (B1) (Nonriverine)
X Sediment Deposits (B2) (Nonriverine)
X 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 (C3)
_____ Presence of Reduced Iron (C4)
_____ Recent Iron Reduction in Plowed Soils (C6)
_____ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

_____ Water Marks (B1) (Riverine)
X Sediment Deposits (B2) (Riverine)
X Drift Deposits (B3) (Riverine)
_____ Drainage Patterns (B10)
_____ Dry-Season Water Table (C2)
_____ Thin Muck Surface (C7)
_____ Crayfish Burrows (C8)
_____ Saturation Visible on Aerial Imagery (C9)
_____ Shallow Aquitard (D3)
_____ FAC-Netural Test (D5)

Field Observations

Surface Water Present? Yes _____ No X Depth (inches) —
Water Table Present? Yes _____ No X Depth (inches) —
Saturation Present? Yes _____ No X Depth (inches) — *(includes capillary fringe)*

Wetland Hydrology? Yes X No _____

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

SMALL (2') EPHEMERAL DRAINAGE.

Remarks

North State Resources

Wetland Determination Data Form - Arid West Region

Habitat Type GRASSLAND
Wetland Type UPLAND

Project/Site: Sisk Dam Corrective Action Project City/County: Merced County Sampling Date: 9/18/09

Applicant/Owner: U.S. Bureau of Reclamation State: CA Sampling Point: 44

Investigator(s): J. Colescott

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

Subregion (LRR) LRR-C Soil Map Unit Name: Xerofluvents, Ext. gravelly

Are climatic/hydrologic conditions on the site typical for this time of year? YES *(If no, explain in remarks.)*

Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? YES

Are vegetation N, soil N, or hydrology N 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? YES Hydric soil? NO Wetland hydrology? NO Is sampled area a wetland? NO Other waters? NO

USACE Jurisdiction

Adjacent to Waters ____ Tributary to Waters ____ Isolated (with interstate commerce) ____ Isolated (non jurisdictional) ____

Explain:

Evaluation of features designated "Other Waters of the United States"

Indicators: Defined bed and bank ____ Scour ____ Ordinary High Water Mark Mapped ____

Feature Designation: Perennial ____ Intermittent ____ Ephemeral ____ Blue-line on USGS Quad ____

Natural Drainage ____ Artificial Drainage ____ Navigable Water ____

Remarks

MINOR DEPRESSIONS ALONG NARROW HAUL ROAD PORTION OF STUDY AREA. SOILS ARE VERY HARD, PACKED GRAVELLY LOAM BUT HAVE NO INDICATORS OF LONG DURATION SATURATION.

Vegetation

Tree Stratum (use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
50%= 20%= Total Cover:			

Sapling/Shrub Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
3.			
4.			
50%= 20%= Total Cover:			

Herb Stratum (use scientific names)	% Cover	Species?	Status
1. Lepidium latifolium	25	YES	FACW
2. Vulpia bromoides	25	Y	FACW
3. Bromus diandros	20	Y	UPL
4. Hordeum leporinum	10	N	FAC
5. Bromus hordeaceus	10	N	FACU
6.			
7.			
50%= 45 20%= 18 Total Cover:	90		

Woody/Vine Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
50%= 20%= Total Cover:			

% Bare Ground in Herb Stratum 10 % Cover of Biotic Crust —

Dominance Test Worksheet

Number of dominant species that are OBL, FACW, or FAC: 2 (A)

Total number of dominant species across all strata: 3 (B)

Percent of dominant species that are OBL, FACW, or FAC: 66 (AB)

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)

Prevalance Index = B/A =

Hydrophytic Vegetation Indicators

X Dominance Text 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.

Hydrophytic Vegetation? X

Sampling Point 44

Soils

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 3/3	100	—	—	—	—	GRAVELLY LOAM	

[1]Types: C = Concentration D = Depletion RM = Reduced Matrix [2]Location: PL = Pore Lining RC = Root Channel 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 (AG) (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 Vetric (F18)
_____ Red Parent Materials (TF2)
_____ Vegetated Sand/Gravel Bars
_____ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: ? Depth (Inches) ? Hydric Soil? NO

Remarks VERY HARD SOIL, COULD ONLY DIG TO 4". IN THAT 4", THERE IS NO INDICATION OF LONG DURATION SATURATION.

Hydrology

Wetland Indicators

Primary Indicators (Any one indicator is sufficient)

_____ Surface Water (A1)
_____ High Water Table (A2)
_____ Saturation (A3)
_____ Water Marks (B1) (Nonriverine)
_____ Sediment Deposits (B2) (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 (C3)
_____ Presence of Reduced Iron (C4)
_____ Recent Iron Reduction in Plowed Soils (C6)
_____ 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)
_____ Thin Muck Surface (C7)
_____ Crayfish Burrows (C8)
_____ Saturation Visible on Aerial Imagery (C9)
_____ Shallow Aquitard (D3)
_____ FAC-Netural Test (D5)

Field Observations

Surface Water Present? Yes _____ No X Depth (inches) -

Water Table Present? Yes _____ No X Depth (inches) -

Saturation Present? Yes _____ No X Depth (inches) - (includes capillary fringe)

Wetland Hydrology? Yes _____ No X

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

Remarks NO INDICATORS OF WETLAND HYDROLOGY.

North State Resources

Wetland Determination Data Form - Arid West Region

Habitat Type DAM SERVICE AREA
Wetland Type UPLAND

Project/Site: Sisk Dam Corrective Action Project City/County: Merced County Sampling Date: 9/18/09

Applicant/Owner: U.S. Bureau of Reclamation State: CA Sampling Point: 45

Investigator(s): J. Colescott

Landform (hillslope, terrace, etc.) DEPRESSION Local relief (concave, convex, none) CONCAVE Slope % 0-2

Subregion (LRR) LRR-C Soil Map Unit Name: Xerofluvents, Ext. Gravelly

Are climatic/hydrologic conditions on the site typical for this time of year? YES (If no, explain in remarks.)

Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? YES

Are vegetation N, soil N, or hydrology N 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? NO Hydric soil? NO Wetland hydrology? NO Is sampled area a wetland? NO Other waters? NO

USACE Jurisdiction

Adjacent to Waters ____ Tributary to Waters ____ Isolated (with interstate commerce) ____ Isolated (non jurisdictional) ____

Explain:

Evaluation of features designated "Other Waters of the United States"

Indicators: Defined bed and bank ____ Scour ____ Ordinary High Water Mark Mapped ____

Feature Designation: Perennial ____ Intermittent ____ Ephemeral ____ Blue-line on USGS Quad ____

Natural Drainage ____ Artificial Drainage ____ Navigable Water ____

Remarks SMALL SHALLOW DEPRESSION W/SOME HYDROPHYTIC VEG. FAILS TO MEET SOILS OR HYDROLOGY PARAMETERS.

Vegetation

Tree Stratum (use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
50%= ____ 20%= ____ Total Cover:			
Sapling/Shrub Stratum (use scientific names)	**% Cover**	**Species?**	**Status**
1. Baccharis pilularis	40	YES	UPL
2.			
3.			
4.			
50%= 20 20%= 8 Total Cover:	40		
Herb Stratum (use scientific names)	**% Cover**	**Species?**	**Status**
1. Lepidium latifolium	40	YES	FACW
2.			
3.			
4.			
5.			
6.			
7.			
50%= 20 20%= 8 Total Cover:	40		
Woody/Vine Stratum (use scientific names)	**% Cover**	**Species?**	**Status**
1.			
2.			
50%= ____ 20%= ____ Total Cover:			

% Bare Ground in Herb Stratum 60 % Cover of Biotic Crust —

Dominance Test Worksheet

Number of dominant species that are OBL, FACW, or FAC: 1 (A)

Total number of dominant species across all strata: 2 (B)

Percent of dominant species that are OBL, FACW, or FAC: 50 (AB)

Prevalence Index Worksheet

Total % Cover of:		Multiply by
OBL Species		x 1 =
FACW Species	40	x 2 = 80
FAC Species		x 3 =
FACU Species		x 4 =
UPL Species	40	x 5 = 200
Column Totals	80 (A)	280 (B)

Prevalance Index = B/A = 3.5

3.5
80/280
240
40

Hydrophytic Vegetation Indicators

____ Dominance Text 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.

Hydrophytic Vegetation? NO

Sampling Point 45

Soils

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
0-4	10YR 4/3	100	—	—	—	—	GRAVELLY LOAM	

[1]Types: C = Concentration D = Depletion RM = Reduced Matrix [2]Location: PL = Pore Lining RC = Root Channel 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 (AG) (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 Vetric (F18)
_____ Red Parent Materials (TF2)
_____ Vegetated Sand/Gravel Bars
_____ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: / Depth (Inches) / Hydric Soil? NO

Remarks HARD SOIL, BUT NO INDICATORS OF HYDRIC CONDITIONS.

Hydrology

Wetland Indicators

Primary Indicators (Any one indicator is sufficient)

_____ Surface Water (A1)
_____ High Water Table (A2)
_____ Saturation (A3)
_____ Water Marks (B1) (Nonriverine)
_____ Sediment Deposits (B2) (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 (C3)
_____ Presence of Reduced Iron (C4)
_____ Recent Iron Reduction in Plowed Soils (C6)
_____ 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)
_____ Thin Muck Surface (C7)
_____ Crayfish Burrows (C8)
_____ Saturation Visible on Aerial Imagery (C9)
_____ Shallow Aquitard (D3)
X FAC-Netural Test (D5)

Field Observations

Surface Water Present? Yes _____ No X Depth (inches) —
Water Table Present? Yes _____ No X Depth (inches) —
Saturation Present? Yes _____ No X Depth (inches) — *(includes capillary fringe)*

Wetland Hydrology? Yes _____ No NO

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

INSUFFICIENT INDICATORS OF WETLAND HYDROLOGY

Remarks /

SAN LUIS

North State Resources

Habitat Type RESEVOUIR

Wetland Type DEEP WATER

Wetland Determination Data Form - Arid West Region

Project/Site: Sisk Dam Corrective Action Project City/County: Merced County Sampling Date: 9/18/09

Applicant/Owner: U.S. Bureau of Reclamation State: CA Sampling Point: 46

Investigator(s): J. Colescott

Landform (hillslope, terrace, etc.) RESERVOUIR Local relief (concave, convex, none) CONCAVE Slope % 2-5

Subregion (LRR) LRR-C Soil Map Unit Name: WATER

Are climatic/hydrologic conditions on the site typical for this time of year? YES (*If no, explain in remarks.*)

Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? YES

Are vegetation N, soil N, or hydrology N 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? YES Hydric soil? YES Wetland hydrology? YES Is sampled area a wetland? NO Other waters? YES

USACE Jurisdiction

Adjacent to Waters ____ Tributary to Waters X Isolated (with interstate commerce) ____ Isolated (non jurisdictional) ____

Explain: SAN LUIS RES.

Evaluation of features designated "Other Waters of the United States"

Indicators: Defined bed and bank X Scour ____ Ordinary High Water Mark Mapped X

Feature Designation: Perennial ____ Intermittent X Ephemeral ____ Blue-line on USGS Quad X

Natural Drainage ____ Artificial Drainage X Navigable Water ____

Remarks DP DOCUMENTS THAT MODEL DERIVED OHWM IS ACCURATE. DP LOCATED AT UPPER LIMITS OF HIGH WATER IN A BEACH (WAVE BREAKING) AREA.

Vegetation

Tree Stratum (use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix laevigata	5	Y	FACW
2. Populus fremontii	5	Y	FACW
3.			
50%= 5 20%= 2 Total Cover:	10		
Sapling/Shrub Stratum (use scientific names)	**% Cover**	**Species?**	**Status**
1. Baccharis viminae	10	Y	FACW
2.			
3.			
4.			
50%= 5 20%= 2 Total Cover:	10		
Herb Stratum (use scientific names)	**% Cover**	**Species?**	**Status**
1. Brassica negra	25	Y	UPL
2. Helitropium carassavicum	10	Y	OBL
3.			
4.			
5.			
6.			
7.			
50%= 17.5 20%= 7 Total Cover:	35		
Woody/Vine Stratum (use scientific names)	**% Cover**	**Species?**	**Status**
1.			
2.			
50%= ____ 20%= ____ Total Cover:			

% Bare Ground in Herb Stratum 75% % Cover of Biotic Crust —

Dominance Test Worksheet

Number of dominant species that are OBL, FACW, or FAC: 4 (A)

Total number of dominant species across all strata: 5 (B)

Percent of dominant species that are OBL, FACW, or FAC: 80 (AB)

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)

Prevalance Index = B/A = ____

Hydrophytic Vegetation Indicators

X Dominance Text 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.*

Hydrophytic Vegetation? YES

Sampling Point 46

Soils

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-6	2.5Y 4/2	100	–	–	–	–	COMPACTED GRAVELY SAND	

[1]Types: C = Concentration D = Depletion RM = Reduced Matrix [2]Location: PL = Pore Lining RC = Root Channel 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 (AG) (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 Vetric (F18)
- ____ Red Parent Materials (TF2)
- ____ Vegetated Sand/Gravel Bars
- X Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: – Depth (Inches) – Hydric Soil? YES

Remarks CLEAR LAYERS OF FLUVIAL SEDIMENTATION.

Hydrology

Wetland Indicators

Primary Indicators (Any one indicator is sufficient)

- ____ Surface Water (A1)
- ____ High Water Table (A2)
- ____ Saturation (A3)
- X Water Marks (B1) (Nonriverine)
- X Sediment Deposits (B2) (Nonriverine)
- ____ Surface Soil Cracks (B6)
- X 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 (C3)
- ____ Presence of Reduced Iron (C4)
- ____ Recent Iron Reduction in Plowed Soils (C6)
- X 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)
- ____ Thin Muck Surface (C7)
- ____ Crayfish Burrows (C8)
- ____ Saturation Visible on Aerial Imagery (C9)
- ____ Shallow Aquitard (D3)
- ____ FAC-Netural Test (D5)

Field Observations

Surface Water Present? Yes ____ No X Depth (inches) –

Water Table Present? Yes ____ No X Depth (inches) –

Saturation Present? Yes ____ No X Depth (inches) – *(includes capillary fringe)*

Wetland Hydrology? Yes X No ____

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

"BATH TUB" RING CLEARLY VISIBLE

Remarks

North State Resources

Wetland Determination Data Form - Arid West Region

Habitat Type GRASSLAND
Wetland Type Eph. Stream

Project/Site: Sisk Dam Corrective Action Project City/County: Merced County Sampling Date: 9/18/09

Applicant/Owner: U.S. Bureau of Reclamation State: CA Sampling Point: 47

Investigator(s): J. Colescott

Landform (hillslope, terrace, etc.) DRAINAGE Local relief (concave, convex, none) CONCAVE Slope % ~10%

Subregion (LRR) LRR-C Soil Map Unit Name: ONEIL SILT LOAM, 30-50%

Are climatic/hydrologic conditions on the site typical for this time of year? YES (If no, explain in remarks.)

Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? YES

Are vegetation N, soil N, or hydrology N 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? NO Hydric soil? YES Wetland hydrology? YES Is sampled area a wetland? NO Other waters? YES

USACE Jurisdiction

Adjacent to Waters ____ Tributary to Waters X Isolated (with interstate commerce) ____ Isolated (non jurisdictional) ____

Explain: TRIB TO SAN LUIS RES.

Evaluation of features designated "Other Waters of the United States"

Indicators: Defined bed and bank Y Scour Y Ordinary High Water Mark Mapped X — 1' WIDE

Feature Designation: Perennial ____ Intermittent ____ Ephemeral X Blue-line on USGS Quad ____

Natural Drainage X Artificial Drainage ____ Navigable Water ____

Remarks SMALL (1-FOOT WIDE) BED + BANK DRAINAGE. LIKELY EPHEMERAL FLOW PATTERNS. NO UPLAND PAIR TAKEN

Vegetation

Tree Stratum (use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
50%= 20%= Total Cover:			

Sapling/Shrub Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
3.			
4.			
50%= 20%= Total Cover:			

Herb Stratum (use scientific names)	% Cover	Species?	Status
1. Avena fatua	30	Y	UPL
2. Bromus hordeaceus	30	Y	FACU
3. Bromus madritensis	20	Y	UPL
4. Erodium botrys	10	N	UPL
5. Brassica negra	10	N	UPL
6.			
7.			
50%= 20%= Total Cover:			

Woody/Vine Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
50%= 20%= Total Cover:			

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

Dominance Test Worksheet

Number of dominant species that are OBL, FACW, or FAC: 0 (A)

Total number of dominant species across all strata: 3 (B)

Percent of dominant species that are OBL, FACW, or FAC: 0 (AB)

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)

Prevalance Index = B/A = ____

Hydrophytic Vegetation Indicators

____ Dominance Text 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.*

Hydrophytic Vegetation? NO

Sampling Point 47

Soils

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 3/3	60	10YR 3/2	40	—	—	SANDY LOAM	

[1]Types: C = Concentration D = Depletion RM = Reduced Matrix [2]Location: PL = Pore Lining RC = Root Channel 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 (AG) (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 Vetric (F18)
- ____ Red Parent Materials (TF2)
- ____ Vegetated Sand/Gravel Bars
- X Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: — Depth (Inches) — Hydric Soil? YES

Remarks SEDIMENTARY STRIATIONS FROM FLUVIAL DEPOSITION

Hydrology

Wetland Indicators

Primary Indicators (Any one indicator is sufficient)

- ____ Surface Water (A1)
- ____ High Water Table (A2)
- ____ Saturation (A3)
- ____ Water Marks (B1) (Nonriverine)
- X Sediment Deposits (B2) (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 (C3)
- ____ Presence of Reduced Iron (C4)
- ____ Recent Iron Reduction in Plowed Soils (C6)
- ____ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ____ Water Marks (B1) (Riverine)
- X Sediment Deposits (B2) (Riverine)
- X Drift Deposits (B3) (Riverine)
- ____ Drainage Patterns (B10)
- ____ Dry-Season Water Table (C2)
- ____ Thin Muck Surface (C7)
- ____ Crayfish Burrows (C8)
- ____ ~~Saturation Visible on~~ Aerial Imagery (C9)
- ____ Shallow Aquitard (D3)
- ____ FAC-Netural Test (D5)

Field Observations

Surface Water Present? Yes ____ No X Depth (inches) —

Water Table Present? Yes ____ No X Depth (inches) —

Saturation Present? Yes ____ No X Depth (inches) — (includes capillary fringe)

Wetland Hydrology? Yes X No ____

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

SCOUR + DEPOSITION OBSERVABLE THRU DENSE ANNUAL VEG.

Remarks

North State Resources

Habitat Type SCRUB ~~SHROB~~ ISLAND

Wetland Type UPLAND

Wetland Determination Data Form - Arid West Region

Project/Site: Sisk Dam Corrective Action Project City/County: Merced County Sampling Date: 9/18/09

Applicant/Owner: U.S. Bureau of Reclamation State: CA Sampling Point: 48

Investigator(s): J. Colescott

Landform (hillslope, terrace, etc.) HILLSIDE Local relief (concave, convex, none) NONE Slope % 40

Subregion (LRR) LRR-C Soil Map Unit Name: Asolt very stony clay 30-50%

Are climatic/hydrologic conditions on the site typical for this time of year? YES (If no, explain in remarks.)

Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? YES

Are vegetation N, soil N, or hydrology N 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? NO Hydric soil? NO Wetland hydrology? NO Is sampled area a wetland? NO Other waters? NO

USACE Jurisdiction

Adjacent to Waters ____ Tributary to Waters ____ Isolated (with interstate commerce) ____ Isolated (non jurisdictional) ____

Explain:

Evaluation of features designated "Other Waters of the United States"

Indicators: Defined bed and bank ____ Scour ____ Ordinary High Water Mark Mapped ____

Feature Designation: Perennial ____ Intermittent ____ Ephemeral ____ Blue-line on USGS Quad ____

Natural Drainage ____ Artificial Drainage ____ Navigable Water ____

Remarks

SMALL SHROB ISLAND W/I DRAINAGE WAS A SUSPECT SEEP. NO WETLAND INDICATORS MET.

Vegetation

Tree Stratum (use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
50%= ____ 20%= ____ Total Cover:			

Sapling/Shrub Stratum (use scientific names)	% Cover	Species?	Status
1. Shepherdia argentae (SILVER BUFFALO BERRY)	80	Y	UPL
2. Sambucus mexicana	20	Y	FAC
3.			
4.			
50%= ____ 20%= ____ Total Cover:	100		

Herb Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
50%= ____ 20%= ____ Total Cover:			

Woody/Vine Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
50%= ____ 20%= ____ Total Cover:			

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

Dominance Test Worksheet

Number of dominant species that are OBL, FACW, or FAC: 1 (A)

Total number of dominant species across all strata: 2 (B)

Percent of dominant species that are OBL, FACW, or FAC: 80 (AB)

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)

Prevalance Index = B/A = ____

Hydrophytic Vegetation Indicators

____ Dominance Text 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.

Hydrophytic Vegetation? NO

Sampling Point 48

Soils

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 2/2	100	—	—	—	—	STONY CLAY	

[1]Types: C = Concentration D = Depletion RM = Reduced Matrix [2]Location: PL = Pore Lining RC = Root Channel 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 (AG) (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 Vetric (F18)
_____ Red Parent Materials (TF2)
_____ Vegetated Sand/Gravel Bars
_____ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: — Depth (Inches) — Hydric Soil? NO

Remarks NON HYDRIC SOILS

Hydrology

Wetland Indicators

Primary Indicators (Any one indicator is sufficient)

_____ Surface Water (A1)
_____ High Water Table (A2)
_____ Saturation (A3)
_____ Water Marks (B1) (Nonriverine)
_____ Sediment Deposits (B2) (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 (C3)
_____ Presence of Reduced Iron (C4)
_____ Recent Iron Reduction in Plowed Soils (C6)
_____ 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)
_____ Thin Muck Surface (C7)
_____ Crayfish Burrows (C8)
_____ Saturation Visible on Aerial Imagery (C9)
_____ Shallow Aquitard (D3)
_____ FAC-Netural Test (D5)

Field Observations

Surface Water Present? Yes _____ No X Depth (inches) — Wetland Hydrology? Yes _____ No X
Water Table Present? Yes _____ No X Depth (inches) —
Saturation Present? Yes _____ No X Depth (inches) — (includes capillary fringe)

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

Remarks NO WETLAND HYDROLOGY INDICATORS

North State Resources

Wetland Determination Data Form - Arid West Region

Habitat Type QUARRY
Wetland Type UPLAND

Project/Site: Sisk Dam Corrective Action Project City/County: Merced County Sampling Date: 9/18/09
Applicant/Owner: U.S. Bureau of Reclamation State: CA Sampling Point: 49
Investigator(s): J. Colescott
Landform (hillslope, terrace, etc.) QUARRY Local relief (concave, convex, none) PIT Slope % 0-100%
Subregion (LRR) LRR-C Soil Map Unit Name: PITS
Are climatic/hydrologic conditions on the site typical for this time of year? YES (If no, explain in remarks.)
Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? YES
Are vegetation N, soil N, or hydrology N 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? NO Hydric soil? NO Wetland hydrology? YES Is sampled area a wetland? NO Other waters? NO

USACE Jurisdiction
Adjacent to Waters ___ Tributary to Waters ___ Isolated (with interstate commerce) ___ Isolated (non jurisdictional) ___
Explain:

Evaluation of features designated "Other Waters of the United States"
Indicators: Defined bed and bank ___ Scour ___ Ordinary High Water Mark Mapped ___
Feature Designation: Perennial ___ Intermittent ___ Ephemeral ___ Blue-line on USGS Quad ___
Natural Drainage ___ Artificial Drainage ___ Navigable Water ___

Remarks CONSIDERED A "PUDDLE". FLAT QUARRY AREA PUDDLES IN SEVERAL MINOR DEPRESSIONS. NOT CONSIDERED A WETLAND DUE TO A LACK OF DOMINANT HYDROPHYTES AND NO DEVELOPED HYDRIC SOILS.

Vegetation

Tree Stratum (use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
50%= 20%= Total Cover:			

Sapling/Shrub Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
3.			
4.			
50%= 20%= Total Cover:			

Herb Stratum (use scientific names)	% Cover	Species?	Status
1. Trichostema lanceolata	5	Y	UPL
2. Bromus hordeaceus	5	Y	FACU
3. Hemizonia fungens	5	Y	FAC
4. Vulpia bromoides	5	Y	FACW
5.			
6.			
7.			
50%= 10 20%= 4 Total Cover:	20		

Woody/Vine Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
50%= 20%= Total Cover:			

% Bare Ground in Herb Stratum 80 % Cover of Biotic Crust 30

Dominance Test Worksheet

Number of dominant species that are OBL, FACW, or FAC: 2 (A)
Total number of dominant species across all strata: 4 (B)
Percent of dominant species that are OBL, FACW, or FAC: 50 (AB)

Prevalence Index Worksheet

Total % Cover of:		Multiply by	
OBL Species	—	x 1 =	
FACW Species	5	x 2 =	10
FAC Species	5	x 3 =	15
FACU Species	5	x 4 =	20
UPL Species	5	x 5 =	25
Column Totals	20 (A)		70 (B)

Prevalance Index = B/A = 3.5

20 ⟌ 70 = 3.5

Hydrophytic Vegetation Indicators

___ Dominance Text 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.*

Hydrophytic Vegetation? NO

Sampling Point 49

Soils

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 3/3	100	—	—	—	—	GRAVELLY LOAM	

[1]Types: C = Concentration D = Depletion RM = Reduced Matrix [2]Location: PL = Pore Lining RC = Root Channel 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 (AG) (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 Vetric (F18)
_____ Red Parent Materials (TF2)
_____ Vegetated Sand/Gravel Bars
_____ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: ROCK Depth (Inches) 2" Hydric Soil? NO

Remarks ROCKY GRAVEL TO SURFACE W/ VERY THIN LAYER OF SOIL ON TOP. NO HYDRIC SOIL INDICATORS OBSERVED.

Hydrology

Wetland Indicators

Primary Indicators (Any one indicator is sufficient)

_____ Surface Water (A1)
_____ High Water Table (A2)
_____ Saturation (A3)
_____ Water Marks (B1) (Nonriverine)
X Sediment Deposits (B2) (Nonriverine)
X Surface Soil Cracks (B6)
X 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 (C3)
_____ Presence of Reduced Iron (C4)
_____ Recent Iron Reduction in Plowed Soils (C6)
_____ 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)
_____ Thin Muck Surface (C7)
_____ Crayfish Burrows (C8)
_____ Saturation Visible on Aerial Imagery (C9)
_____ Shallow Aquitard (D3)
_____ FAC-Netural Test (D5)

Field Observations

Surface Water Present? Yes _____ No X Depth (inches) —
Water Table Present? Yes _____ No X Depth (inches) —
Saturation Present? Yes _____ No X Depth (inches) — *(includes capillary fringe)*

Wetland Hydrology? Yes X No _____

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

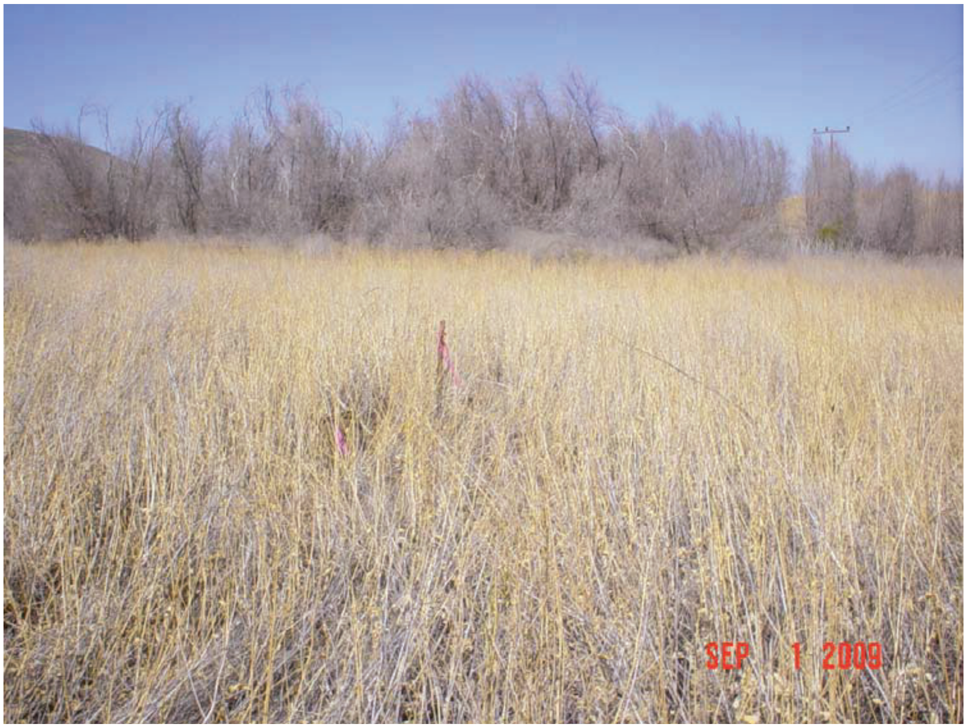
Remarks CLEAR EVIDENCE OF PONDING

Appendix B

Representative Photographs
August 31 to September 18, 2009

Photograph 1. Cover photograph. Looking southwest from the eastern edge of the study area, south of State Route 152 and Gonzaga Road. Visible in the photograph is the dam, the seep wetlands at the base of the dam, and Basalt Hill Road.

Photograph 2. To provide a sense of scale, this view is from the top of the dam looking northeast. The seep wetlands described in the photographs that follow can be seen as the narrow string of trees and darker vegetation just beyond the straight gravel road in the sunny portion of the photograph.



Photograph 3. Seepage wetlands occur in the lands east of the foot of the dam. Starting at the south end of the dam, data point 14 (shovel) documents the first of a series of wetland features (FEW10) created from dam seepage. These wetland features are connected via a series of ditches that help to convey the waters to O'Neill Forebay. The next several photographs depict several of the wetland features and ditches that convey these waters.

Photograph 4. Looking southeast at the north end of FEW9, another seep wetland in the complex mentioned in Photograph 3. The photograph is taken from a low bench near the eastern foot of the dam.

Photograph 5. Data point 5 located on the western edge of FEW9. The data point is located at the base of a small rise at the abrupt upland boundary to the wetland feature. Note the dense cattail understory and red willow overstory.

Photograph 6. Looking west at FEW9, data points 6 (shovel in background) and 7 (backpack) document the eastern edge of the FEW9 feature. The data points are located south of the point Photograph 4 was taken from (see Figure 4c).

Photograph 7. Looking northeast from approximately 0.1 mile north of the point Photograph 4 was taken from. The darker vegetation between the toe of the slope and the pickup truck is the wetland feature (SW4) associated with the conveyance of dam seepage. Data points 1 and 2 are located just out of the photograph to the right.

Photograph 8. Data points 1 (shovel) and 2 (backpack) document the seasonal wetland (SW4) and adjacent upland, respectively.

Photograph 9. Data points 21 and 22 document the seasonal wetland (SW6) and adjacent upland, respectively, that occurs at the northern boundary of the central portion of the study area (see Figure 4c). The feature extends beyond the boundaries of the study area and functions as a collection area for runoff of precipitation and dam seepage that occurs east of the dam. SW4, SW6, and SW20 are part of the same large seasonal wetland.

Photograph 10. Looking northwest at D8. This ditch is the main outflow conveyance feature of the seepage collected in the wetlands and ditch features pictured above. This ditch flows north to O'Neill Forebay. The channel width at this point is estimated at 8 feet, based on weak indicators of an ordinary high water mark.

Photograph 11. Data point 15 (shovel) documents a small fresh emergent wetland (FEW4) located on the north side of the dam in the north western portion of the study area. This feature is also a seep wetland and a number of ditches (e.g., D12) help to convey these waters to the O'Neal Forebay.

Photograph 12. Data point 16 documents a ditch (D10) that conveys seepage waters toward O'Neill Forebay on the north side of the dam.

Photograph 13. A number of seasonal wetlands occur east of the dam. This photograph of SW32 shows the feature's close proximity to FEW9. Data point 11 (backpack) documents the feature, and data point 10 (shovel) documents the adjacent uplands.

Photograph 14. Data points 19 (shovel) and 20 (GPS unit) document the boundaries of SW22. As is evident in the photograph, the boundary is very subtle. In this case, hydric soil indicators were observed at both points, but the vegetation and hydrology indicators were missing from the upland point.

Photograph 15. Data point 23 documents another small seasonal wetland (SW24). Each of the seasonal wetland features that occur east of the dam are depressional, and the three wetland parameters are evident, but it is not certain whether dam seepage plays a role in their hydration. As depressional features, they may only be hydrated during winter precipitation events.

Photograph 16. The soils at data point 23 show the prominent redox features.

Photograph 17. Data point 28 (shovel) documents upland conditions in a suspect wetland located north of State Route 152. The aerial photograph of the study area shows a drainage-like feature here. This data point was installed at the low point of the feature, but no wetland parameters were met.

Photograph 18. Data point 31 documents the seasonal wetland (SW19) that occurs in a very shallow depression in the portion of the study area north of State Route 152. The indicators are weak, but sufficient for the feature to be considered a wetland.

Photograph 19. Several ephemeral drainages exit the hills surrounding the study area. Here, DP 43 documents this 2-foot wide ephemeral drainage (ED5). Although annual upland vegetation has colonized the feature, and the soils are not hydric, the bed and bank feature with evidence of scour and deposition qualifies as an “other waters” of the United States.

Photograph 20. The incised channel of ED5 is more pronounced on the west side of Basalt Hill Road.

Photograph 21. Data point 47 documents another small ephemeral drainage (ED3). Similar to ED5, upland vegetation has colonized this drainage, but strong evidence of scour and deposition, and a pronounced bed and bank qualify this feature as an “other waters”.

Photograph 22. Data point 46 documents the San Luis Reservoir below the full pool elevation. The dam can be seen in the background, and a temporary road in the foreground. Scattered debris has been trapped within the stems of the shrub (seep willow) growing along the upper water mark and other indicators help to define the “bathtub ring” at full pool elevation.

Photograph 23. Another view of the lake bottom documented by data point 46 (shovel in background).

Photograph 24. This photograph shows the single “mixed chaparral” stand of silver buffaloberry. The species is not a wetland indicator, but there is a small ephemeral drainage leading from it. Data point 48 documents that the three wetland parameters were met within the stand. Also visible in the photograph is the “mud slide area” depicted on Figure 4e. Although small rivulets are visible within the mud slide, they are a remnant of the slide and are not considered waters.

Photograph 25. Data point 49 documents that the small “puddles” that have formed within the quarry on top of Basalt Hill are not wetlands. The features are almost devoid of vegetation, the soil layer is very thin on top of rock, with no hydric soil indicators. Only the wetland hydrology parameter is met (see data sheet 49).

APPENDIX C

Figures 4a – 4e
Preliminary Boundaries of Waters of the United States, Including Wetlands

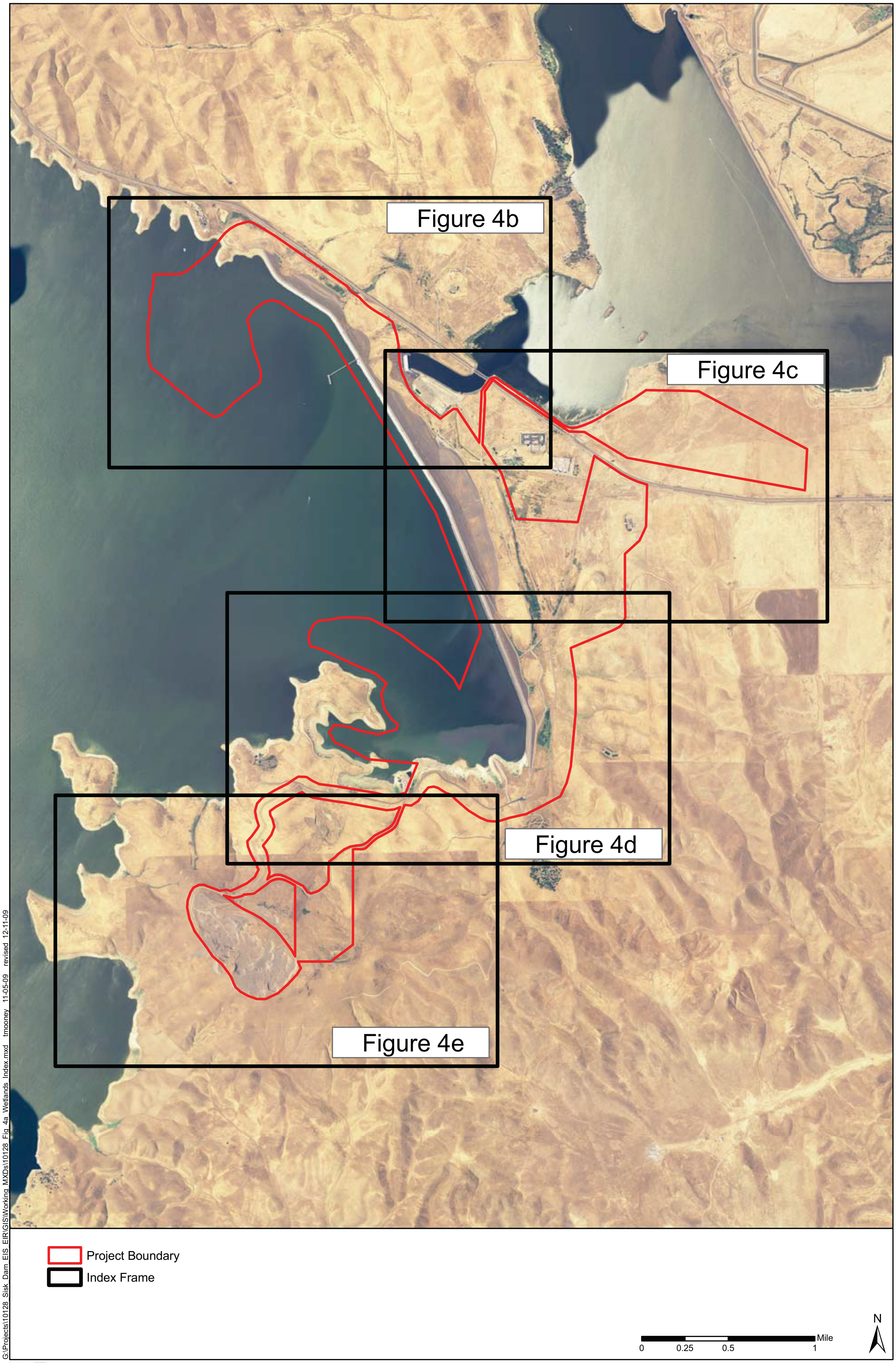


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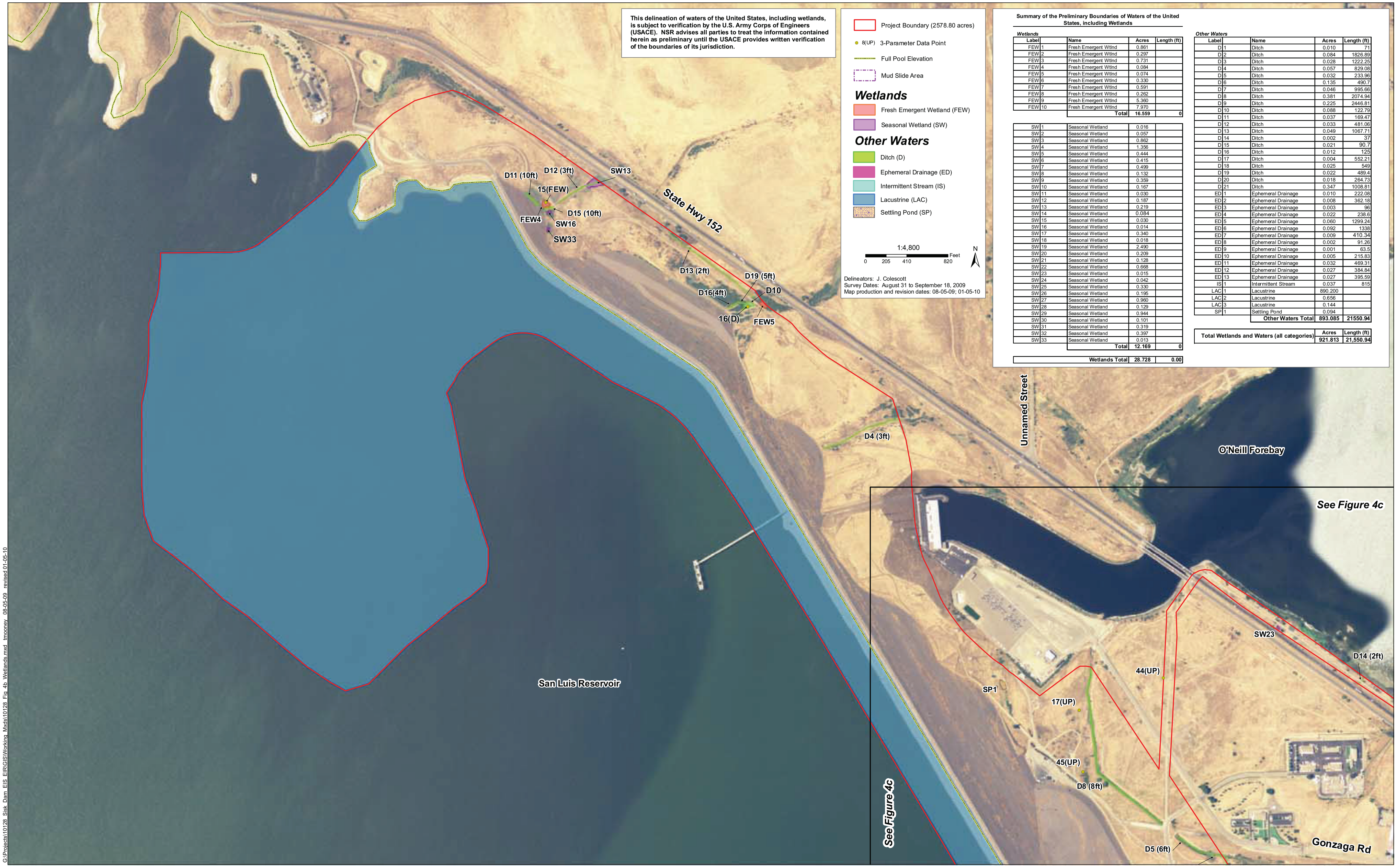
Figure 4a
Preliminary Boundaries of Waters of the United States, Including Wetlands
Sheet Index



Summary of the Preliminary Boundaries of Waters of the United States, including Wetlands

Wetlands

Label		Name	Acres	Length (ft)
FEW	1	Fresh Emergent Wtlnd	0.861	
FEW	2	Fresh Emergent Wtlnd	0.297	
FEW	3	Fresh Emergent Wtlnd	0.731	
FEW	4	Fresh Emergent Wtlnd	0.084	
FEW	5	Fresh Emergent Wtlnd	0.074	
FEW	6	Fresh Emergent Wtlnd	0.330	
FEW	7	Fresh Emergent Wtlnd	0.591	
FEW	8	Fresh Emergent Wtlnd	0.262	
FEW	9	Fresh Emergent Wtlnd	5.360	
FEW	10	Fresh Emergent Wtlnd	7.970	
		Total	**16.559**	**0**
SW	1	Seasonal Wetland	0.016	
SW	2	Seasonal Wetland	0.057	
SW	3	Seasonal Wetland	0.862	
SW	4	Seasonal Wetland	1.356	
SW	5	Seasonal Wetland	0.444	
SW	6	Seasonal Wetland	0.415	
SW	7	Seasonal Wetland	0.499	
SW	8	Seasonal Wetland	0.132	
SW	9	Seasonal Wetland	0.359	
SW	10	Seasonal Wetland	0.167	
SW	11	Seasonal Wetland	0.030	
SW	12	Seasonal Wetland	0.187	
SW	13	Seasonal Wetland	0.219	
SW	14	Seasonal Wetland	0.084	
SW	15	Seasonal Wetland	0.030	
SW	16	Seasonal Wetland	0.014	
SW	17	Seasonal Wetland	0.340	
SW	18	Seasonal Wetland	0.018	
SW	19	Seasonal Wetland	2.490	
SW	20	Seasonal Wetland	0.209	
SW	21	Seasonal Wetland	0.128	
SW	22	Seasonal Wetland	0.668	
SW	23	Seasonal Wetland	0.015	
SW	24	Seasonal Wetland	0.042	
SW	25	Seasonal Wetland	0.330	
SW	26	Seasonal Wetland	0.195	
SW	27	Seasonal Wetland	0.960	
SW	28	Seasonal Wetland	0.129	
SW	29	Seasonal Wetland	0.944	
SW	30	Seasonal Wetland	0.101	
SW	31	Seasonal Wetland	0.319	
SW	32	Seasonal Wetland	0.397	
SW	33	Seasonal Wetland	0.013	
		Total	**12.169**	**0**
		Wetlands Total	**28.728**	**0.00**

Other Waters

Label		Name	Acres	Length (ft)
D	1	Ditch	0.010	71
D	2	Ditch	0.084	1826.89
D	3	Ditch	0.028	1222.25
D	4	Ditch	0.057	829.08
D	5	Ditch	0.032	233.96
D	6	Ditch	0.135	490.7
D	7	Ditch	0.046	995.66
D	8	Ditch	0.381	2074.94
D	9	Ditch	0.225	2446.81
D	10	Ditch	0.088	122.79
D	11	Ditch	0.037	169.47
D	12	Ditch	0.033	481.06
D	13	Ditch	0.049	1067.71
D	14	Ditch	0.002	37
D	15	Ditch	0.021	90.7
D	16	Ditch	0.012	125
D	17	Ditch	0.004	552.21
D	18	Ditch	0.025	549
D	19	Ditch	0.022	489.4
D	20	Ditch	0.018	264.73
D	21	Ditch	0.347	1008.81
ED	1	Ephemeral Drainage	0.010	222.08
ED	2	Ephemeral Drainage	0.008	362.18
ED	3	Ephemeral Drainage	0.003	96
ED	4	Ephemeral Drainage	0.022	238.6
ED	5	Ephemeral Drainage	0.060	1299.24
ED	6	Ephemeral Drainage	0.092	1338
ED	7	Ephemeral Drainage	0.009	410.34
ED	8	Ephemeral Drainage	0.002	91.26
ED	9	Ephemeral Drainage	0.001	63.5
ED	10	Ephemeral Drainage	0.005	215.83
ED	11	Ephemeral Drainage	0.032	469.31
ED	12	Ephemeral Drainage	0.027	384.84
ED	13	Ephemeral Drainage	0.027	395.59
IS	1	Intermittent Stream	0.037	815
LAC	1	Lacustrine	890.200	
LAC	2	Lacustrine	0.656	
LAC	3	Lacustrine	0.144	
SP	1	Settling Pond	0.094	
		Other Waters Total	**893.085**	**21550.94**

	Acres	Length (ft)
Total Wetlands and Waters (all categories)	**921.813**	**21,550.94**

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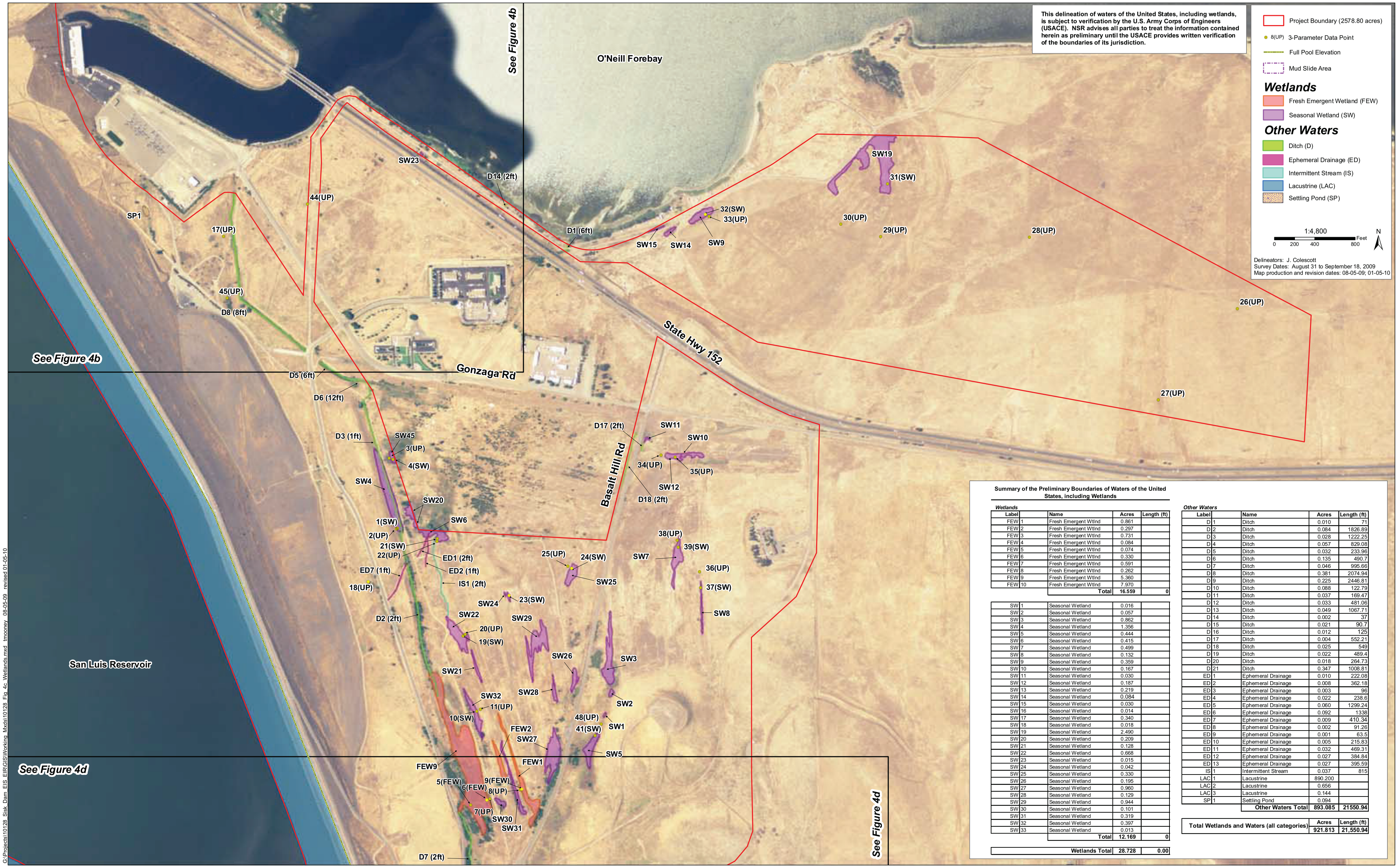
Figure 4b
Preliminary Boundaries of Waters of the United States, including Wetlands



Summary of the Preliminary Boundaries of Waters of the United States, including Wetlands

Wetlands

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FEW	4	Fresh Emergent Wtlnd	0.084	
FEW	5	Fresh Emergent Wtlnd	0.074	
FEW	6	Fresh Emergent Wtlnd	0.330	
FEW	7	Fresh Emergent Wtlnd	0.591	
FEW	8	Fresh Emergent Wtlnd	0.262	
FEW	9	Fresh Emergent Wtlnd	5.360	
FEW	10	Fresh Emergent Wtlnd	7.970	
		Total	**16.559**	**0**
SW	1	Seasonal Wetland	0.016	
SW	2	Seasonal Wetland	0.057	
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SW	30	Seasonal Wetland	0.101	
SW	31	Seasonal Wetland	0.319	
SW	32	Seasonal Wetland	0.397	
SW	33	Seasonal Wetland	0.013	
		Total	**12.169**	**0**
		Wetlands Total	**28.728**	**0.00**

Other Waters

Label		Name	Acres	Length (ft)
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D	2	Ditch	0.084	1826.89
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D	9	Ditch	0.225	2446.81
D	10	Ditch	0.088	122.79
D	11	Ditch	0.037	169.47
D	12	Ditch	0.033	481.06
D	13	Ditch	0.049	1067.71
D	14	Ditch	0.002	37
D	15	Ditch	0.021	90.7
D	16	Ditch	0.012	125
D	17	Ditch	0.004	552.21
D	18	Ditch	0.025	549
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LAC	3	Lacustrine	0.144	
SP	1	Settling Pond	0.094	
		Other Waters Total	**893.085**	**21550.94**

	Acres	Length (ft)
Total Wetlands and Waters (all categories)	**921.813**	**21,550.94**

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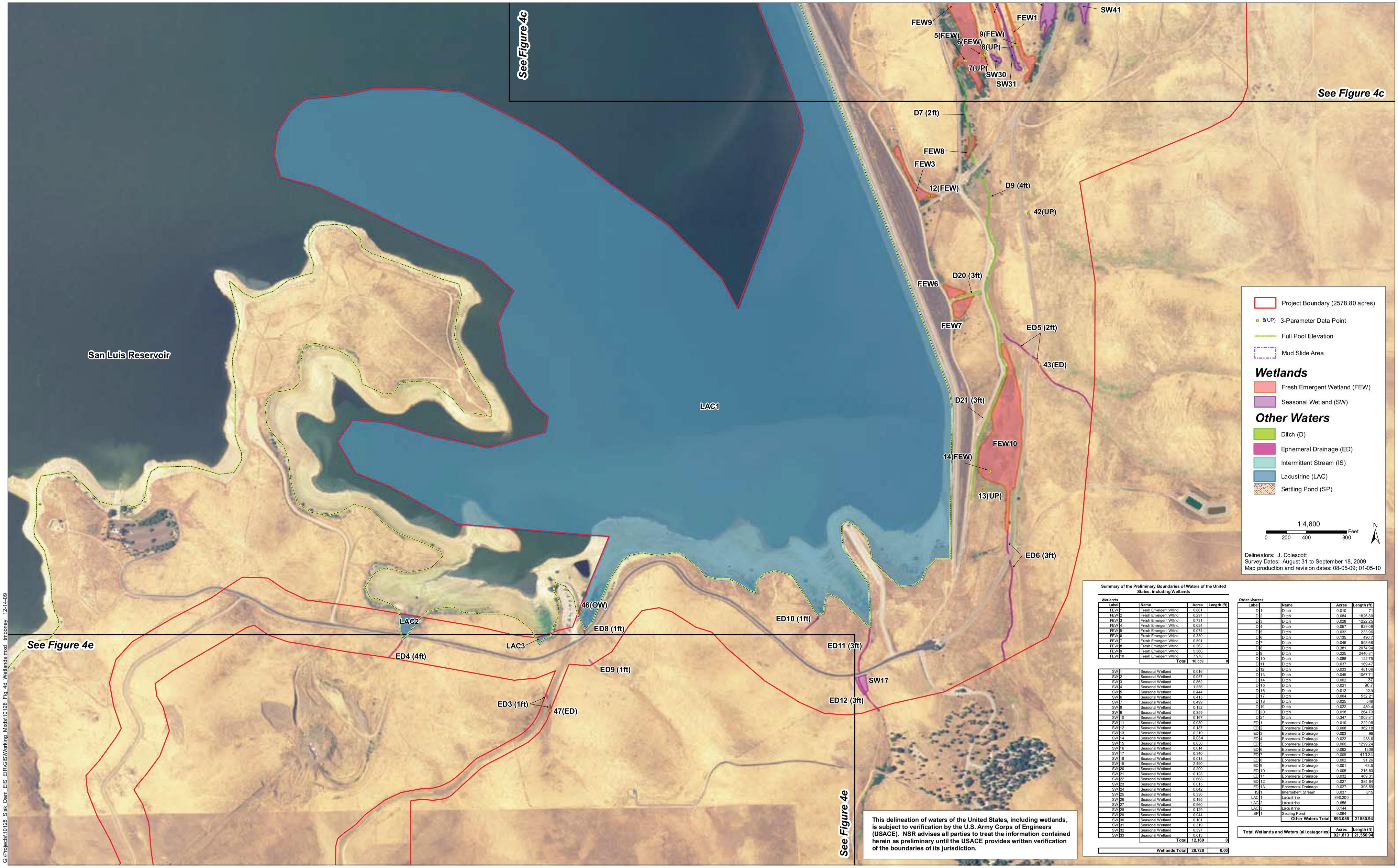
Figure 4c
Preliminary Boundaries of Waters of the United States, including Wetlands



Summary of the Preliminary Boundaries of Waters of the United States, including Wetlands

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FEW	6	Fresh Emergent Wtlnd	0.330	
FEW	7	Fresh Emergent Wtlnd	0.591	
FEW	8	Fresh Emergent Wtlnd	0.262	
FEW	9	Fresh Emergent Wtlnd	5.360	
FEW	10	Fresh Emergent Wtlnd	7.970	
		Total	**16.559**	**0**

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SW	30	Seasonal Wetland	0.101	
SW	31	Seasonal Wetland	0.319	
SW	32	Seasonal Wetland	0.397	
SW	33	Seasonal Wetland	0.013	
		Total	**12.169**	**0**
		Wetlands Total	**28.728**	**0.00**

Other Waters

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D	2	Ditch	0.084	1826.89
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LAC	1	Lacustrine	890.200	
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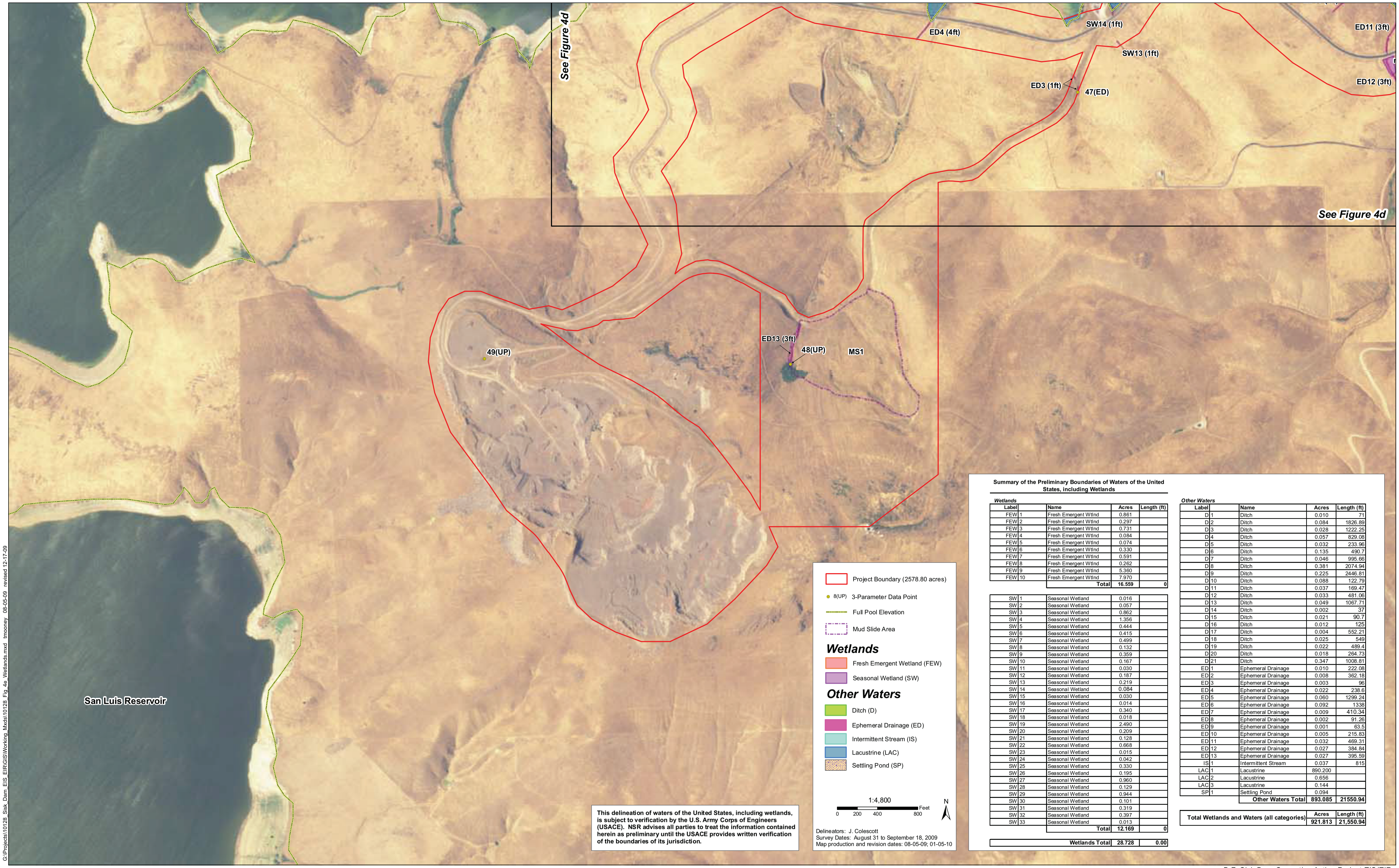
LAC	3	Lacustrine	0.144	
SP	1	Settling Pond	0.094	
		Other Waters Total	**893.085**	**21550.94**

	Acres	Length (ft)
Total Wetlands and Waters (all categories)	**921.813**	**21,550.94**

North State Resources, Inc.

B.F. Sisk Dam Corrective Action Project EIS/EIR

Figure 4d
Preliminary Boundaries of Waters of the United States, including Wetlands



This delineation of waters of the United States, including wetlands, is subject to verification by the U.S. Army Corps of Engineers (USACE). NSR advises all parties to treat the information contained herein as preliminary until the USACE provides written verification of the boundaries of its jurisdiction.

Delineators: J. Colescott
Survey Dates: August 31 to September 18, 2009
Map production and revision dates: 08-05-09; 01-05-10

Summary of the Preliminary Boundaries of Waters of the United States, including Wetlands

Wetlands

Label		Name	Acres	Length (ft)
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FEW	7	Fresh Emergent Wtlnd	0.591	
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SW	32	Seasonal Wetland	0.397	
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D	5	Ditch	0.032	233.96
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North State Resources, Inc.

B.F. Sisk Dam Corrective Action Project EIS/EIR

Figure 4e
Preliminary Boundaries of Waters of the United States, including Wetlands

B.F. Sisk Dam Corrective Action Project

San Joaquin Kit Fox Early Evaluation Report

B.F. Sisk Dam
Central Valley Project, California

March 2010

U.S. Department of the Interior
Bureau of Reclamation

State of California
Department of Water Resources

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B.F. Sisk Dam Corrective Action Project

San Joaquin Kit Fox Evaluation Report

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Central Valley Project, California

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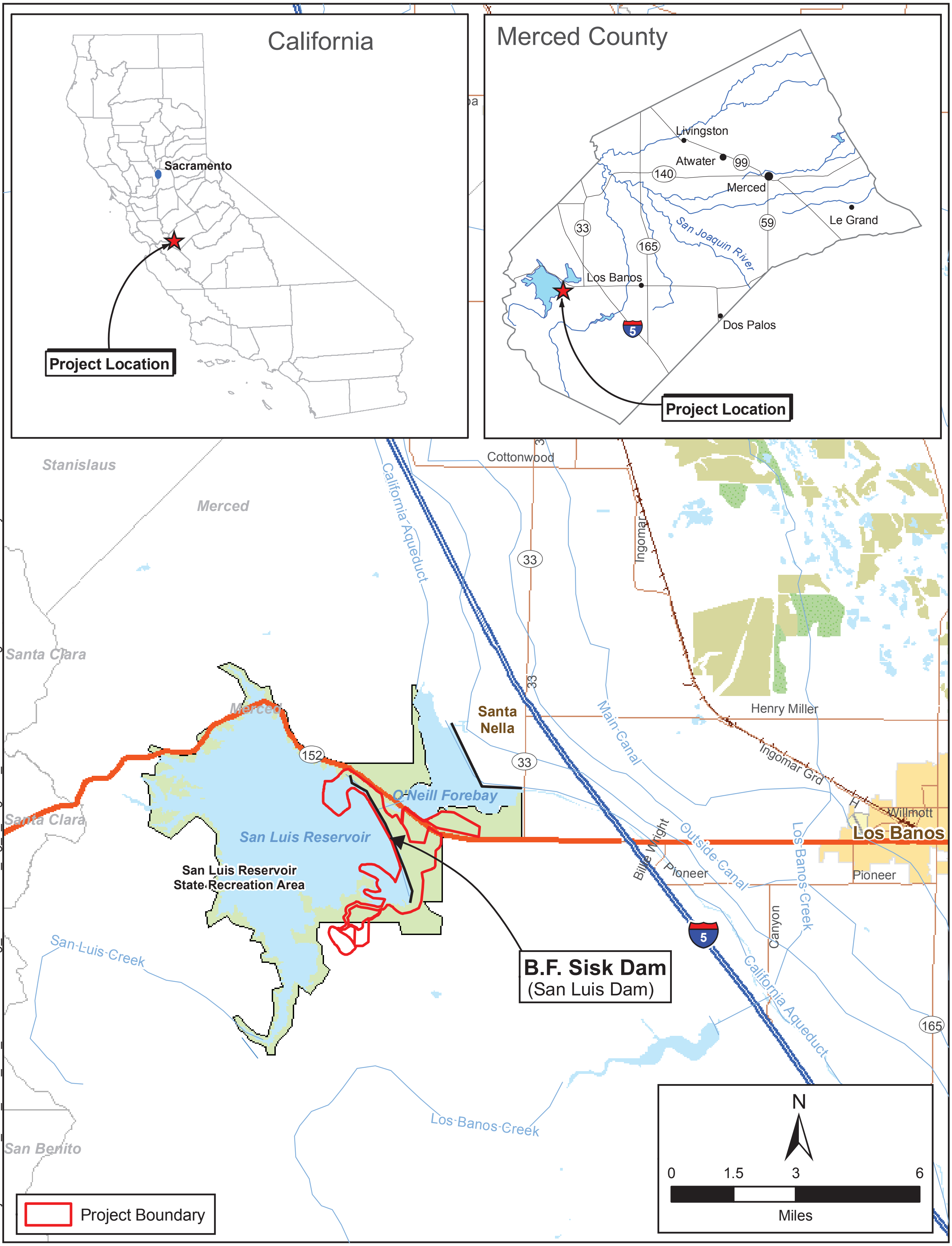
Chapter 1
Introduction

This report presents the findings of an Early Evaluation for San Joaquin kit fox (*Vulpes macrotis mutica*) conducted for the B.F. Sisk Dam Corrective Action Project (project). This report is intended to provide background information to the U.S. Fish and Wildlife Service (Service) to facilitate its evaluation of the project's potential impacts on the San Joaquin kit fox. This Early Evaluation was developed in accordance with the guidelines provided in *U.S. Fish and Wildlife Service San Joaquin Kit Fox Survey Protocol for the Northern Range* (U.S. Fish and Wildlife Service 1999).

The project site (Figure 1) is located on the west side of California's Central Valley, near the community of Santa Nella, approximately 12 miles west of Los Banos. It is located in the *San Luis Dam, California* 7.5-minute U.S. Geological Survey quadrangle.



Source: NSR, Inc.; USGS 7.5-Minute Topographic Quadrangle, San Luis Dam, CA Landgrant: San Luis Conzaga

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Figure 1
Project Location

Chapter 2
Project Description

Sisk Dam is part of the San Luis Joint-Use Complex, which was designed and constructed by the federal government and is operated and maintained by the California Department of Water Resources (DWR). The complex was constructed to provide supplemental irrigation water storage for the federal Central Valley Project (CVP) and storage of municipal and industrial water for the California State Water Project (SWP).

The dam impounds San Luis Reservoir, which, with a total water storage capacity of more than 2 million acre-feet, is one of the largest off-channel storage facilities in the country and a key component of the water supply system in California. Water is lifted into the reservoir for storage by the Gianelli Pumping–Generating Plant from the California Aqueduct and is diverted from the Delta-Mendota Canal via O'Neill Forebay.

The dam and reservoir are located in an area of high potential for severe earthquake loading from active faults. A recent series of studies and analyses, including a probabilistic seismic analysis completed in 2006, determined that corrective actions were justified at Sisk Dam to reduce risk to the downstream public. The Bureau of Reclamation (Reclamation) and DWR seek to mitigate potential safety concerns identified in previous and ongoing studies by modifying water retention structures at Sisk Dam in order to reduce the seismic, static, and hydrologic risk.

The project will involve two main components: stability berms (buttresses) and a dam raise. Project construction will require a large amount (on the order of between 2 million and 20 million cubic yards) of earth material, all of which would be obtained from a number of borrow sites within the project boundary (Figure 2).

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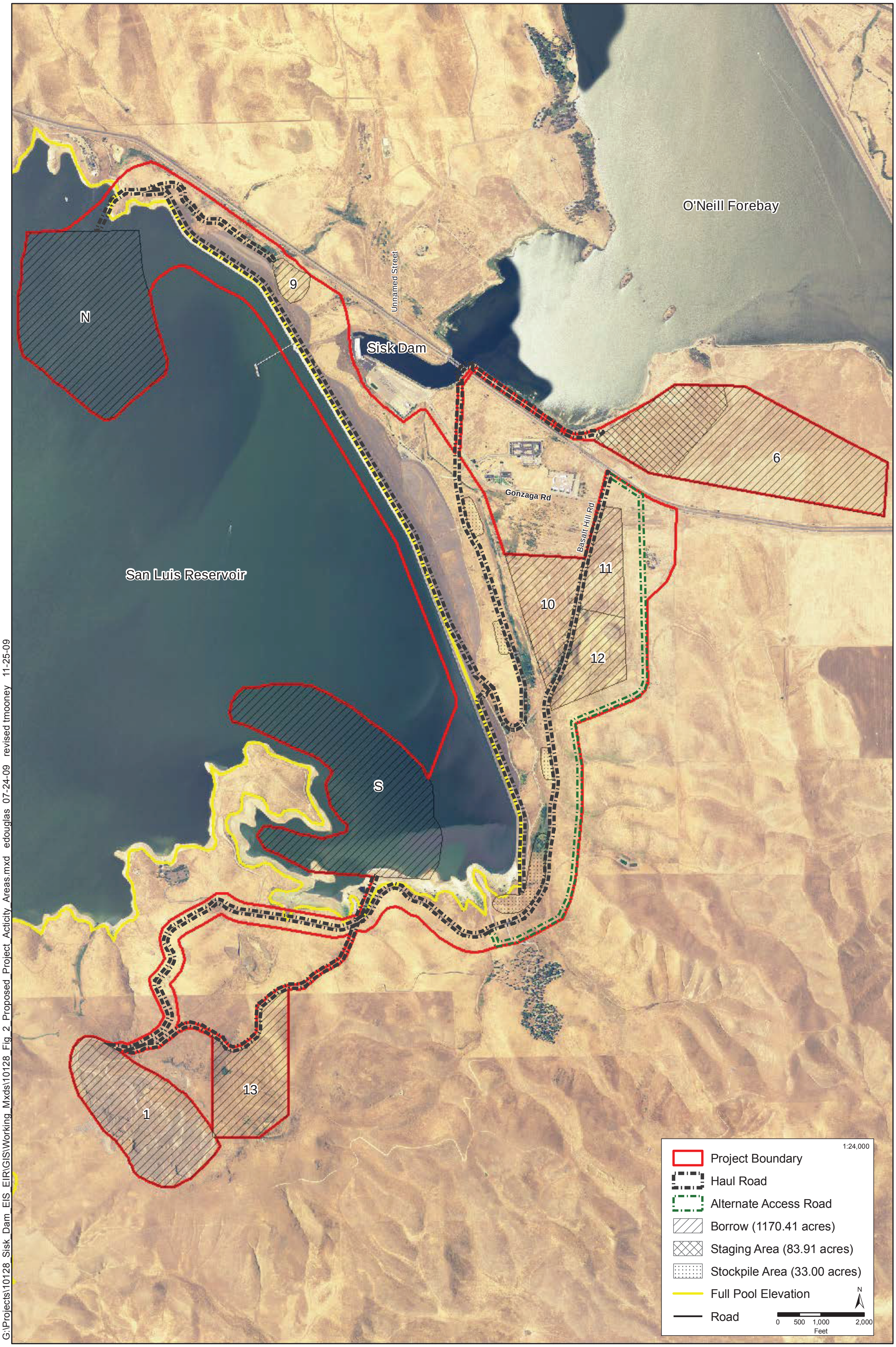

G:\Projects\10128 Sisk Dam EIS EIR\GIS\Working Mxds\10128 Fig 2 Proposed Project Acticity Areas.mxd edouglas 07-24-09 revised tmooney 11-25-09

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Figure 2
Proposed Project Activity Areas

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Chapter 3 San Joaquin Kit Fox Sighting Records in the Project Region

The presence of kit foxes in western Merced County is well documented (e.g., Archon 1992; U.S. Fish and Wildlife Service 1998; California Department of Fish and Game 2009). However, the actual population status of kit foxes in the region is less well understood. The results of a study focused on the conservation of kit foxes in western Merced County (Constable et al. 2009) indicate that kit foxes are not homogeneously distributed throughout western Merced County; rather, there appears to be a pronounced ecological continuum, with kit foxes being consistently present in the south and intermittently present in the north. The authors concluded that the consistent detections in the south suggest that a resident population may be present whereas the infrequent detections in the north suggest that foxes in this area may be transients. The boundary between these two situations appears to coincide roughly with State Route 152. The results of this study are consistent with findings from previous studies and survey efforts (Archon 1992; Smith et al. 2006).

As shown in Figure 3, the California Natural Diversity Database (CNDDB) contains numerous records of kit fox within 10 miles of the project site. These occurrences primarily occur to the east of the project site, with a few occurrences to the northeast (California Department of Fish and Game 2009). One occurrence is located within the project boundary. This occurrence (CNDDB Occurrence #875) was documented in 1975. All CNDDB documented occurrences in the project region are listed in Table 1.

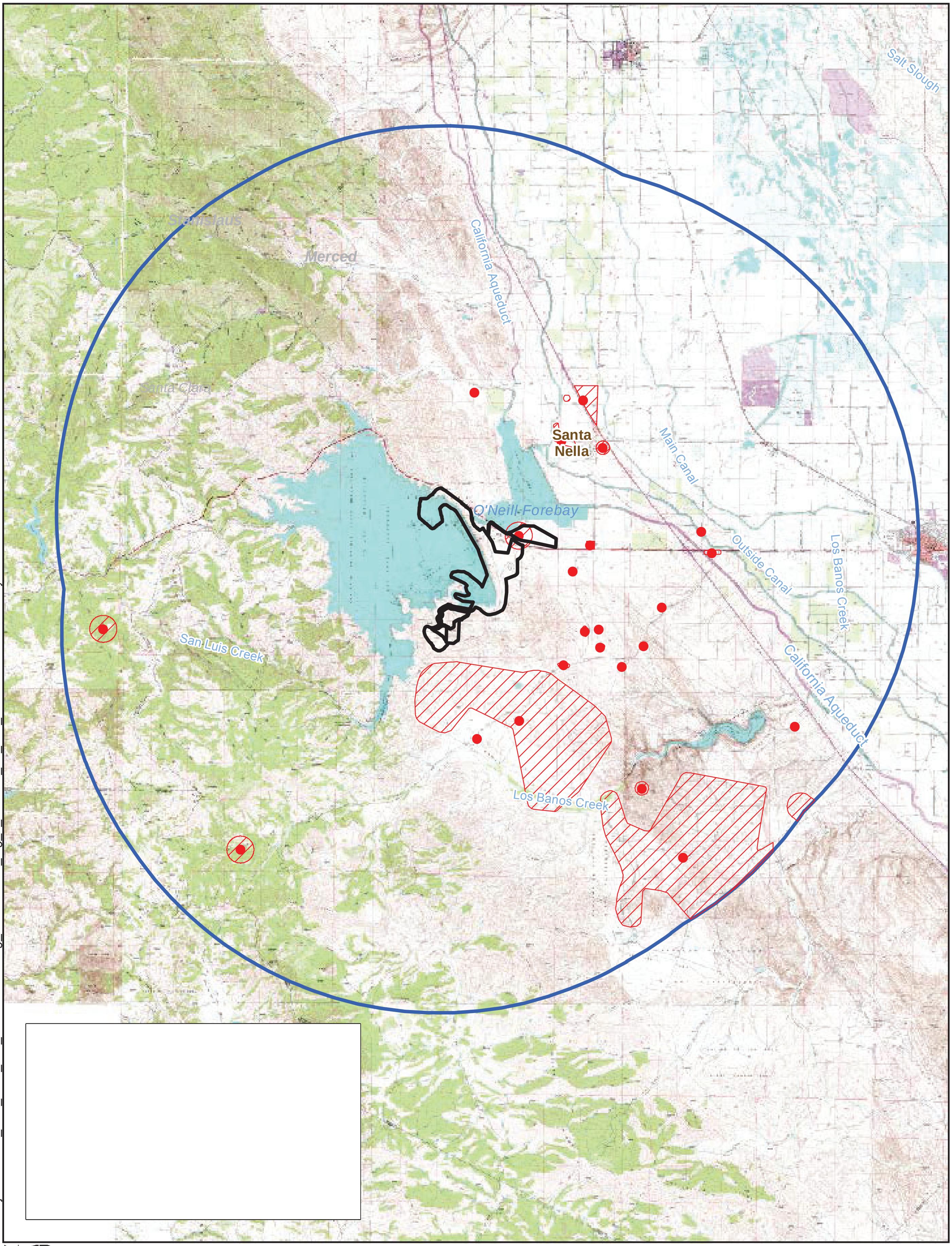
Table 1. Documented CNDDB San Joaquin Kit Fox Occurrences in the Project Region

CNDDB Occurrence Number	Distance from Project Site (miles)	Direction from Project Site	Year Observed
27	3.36	east	2001
46	3.65	east	2001
120	0.81	east	1994
121	2.80	north	1994
122	3.74	north	1994
123	2.33	east	1994
124	3.64	east	1994
125	2.87	south	2005
126	2.87	east	1994

CNDDB Occurrence Number	Distance from Project Site (miles)	Direction from Project Site	Year Observed
127	2.26	east	2005
129	2.56	east	1994
145	8.45	southeast	2003
183	4.30	east	1997
184	4.00	east	1998
211	2.63	south	2005
550	0.94	east	1989
551	2.82	northeast	1989
587	8.25	southeast	198?
603	2.47	north	1986
609	6.24	southeast	1987
874	7.71	southwest	1971
875	within project boundary	n/a	1975
1028	8.85	west	1975

Constable et al. (2009) assessed kit fox presence and abundance in the project region using digital camera stations, track stations, spotlight surveys, and opportunistic observations (see Figures 4 and 5 for the locations of these camera stations, track stations, and spotlight surveys).

Camera stations were established at 61 sites, and 9,286 camera-nights were logged between April 2005 and August 2007. No kit fox observations were recorded on lands near the proposed project. Track stations were established at 76 locations and maintained for 1,041 nights. Kit foxes were detected at track stations in all areas, including three in the areas south of State Route 152. Twelve spotlight surveys were conducted between July 5, 2005, and March 3, 2007. Kit foxes were observed on five occasions within 10 miles of the proposed project site (see Figure 6).



Source: NSR, Inc.; USGS 7.5-Minute Topographic Quadrangle, San Luis Dam, CA Landgrant: San Luis Conzaga

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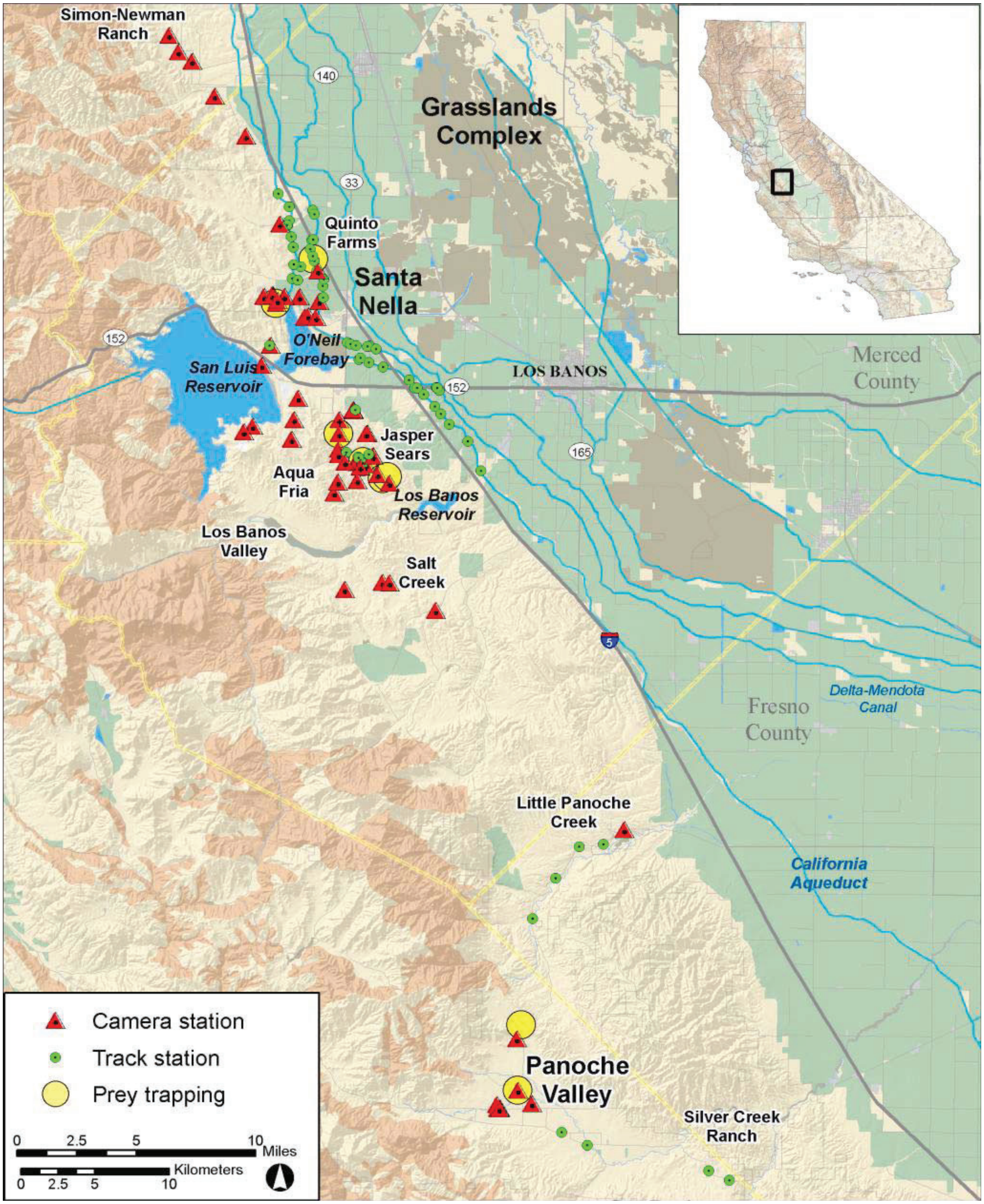
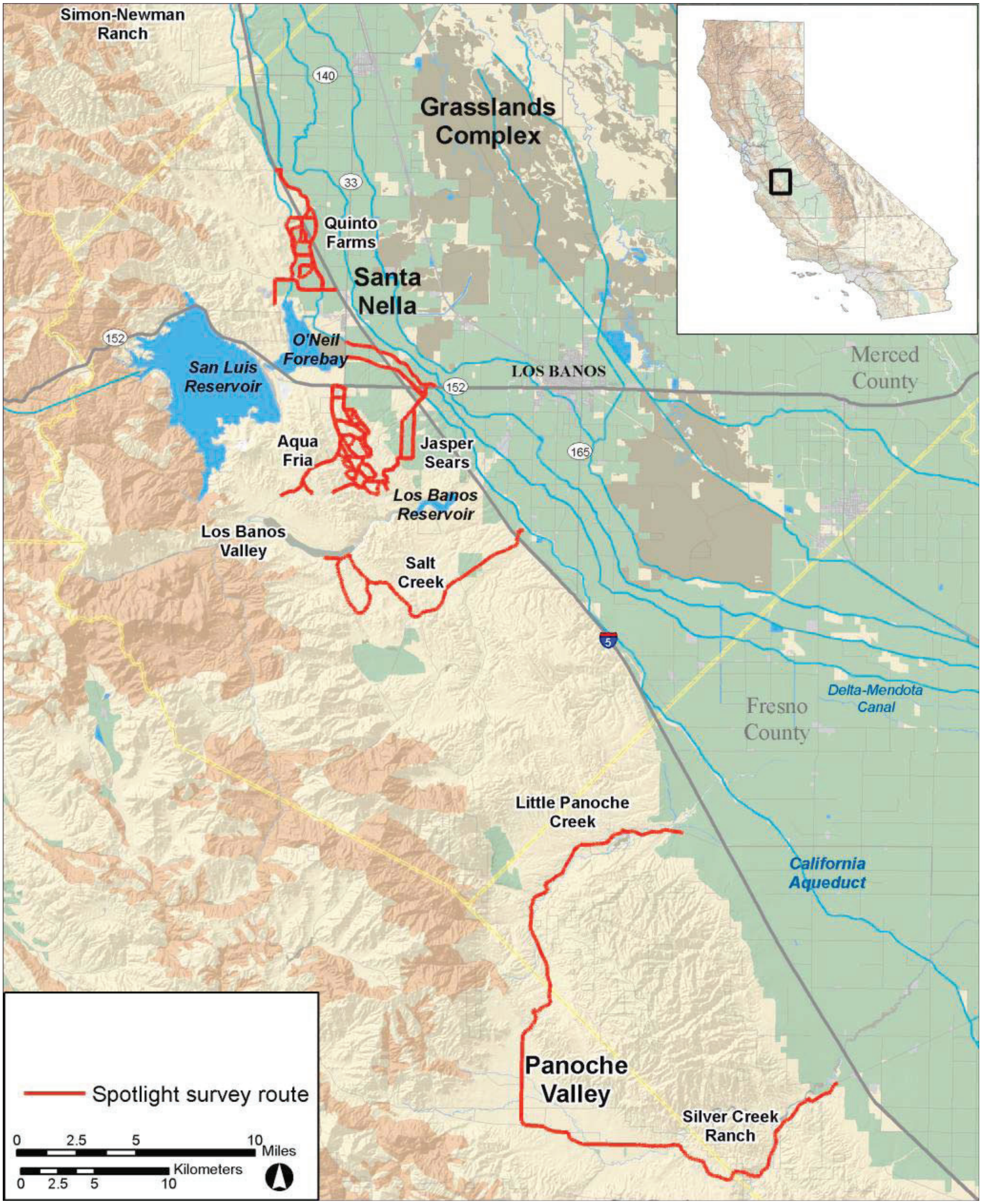
Figure 3
CNDDB Kit Fox Records



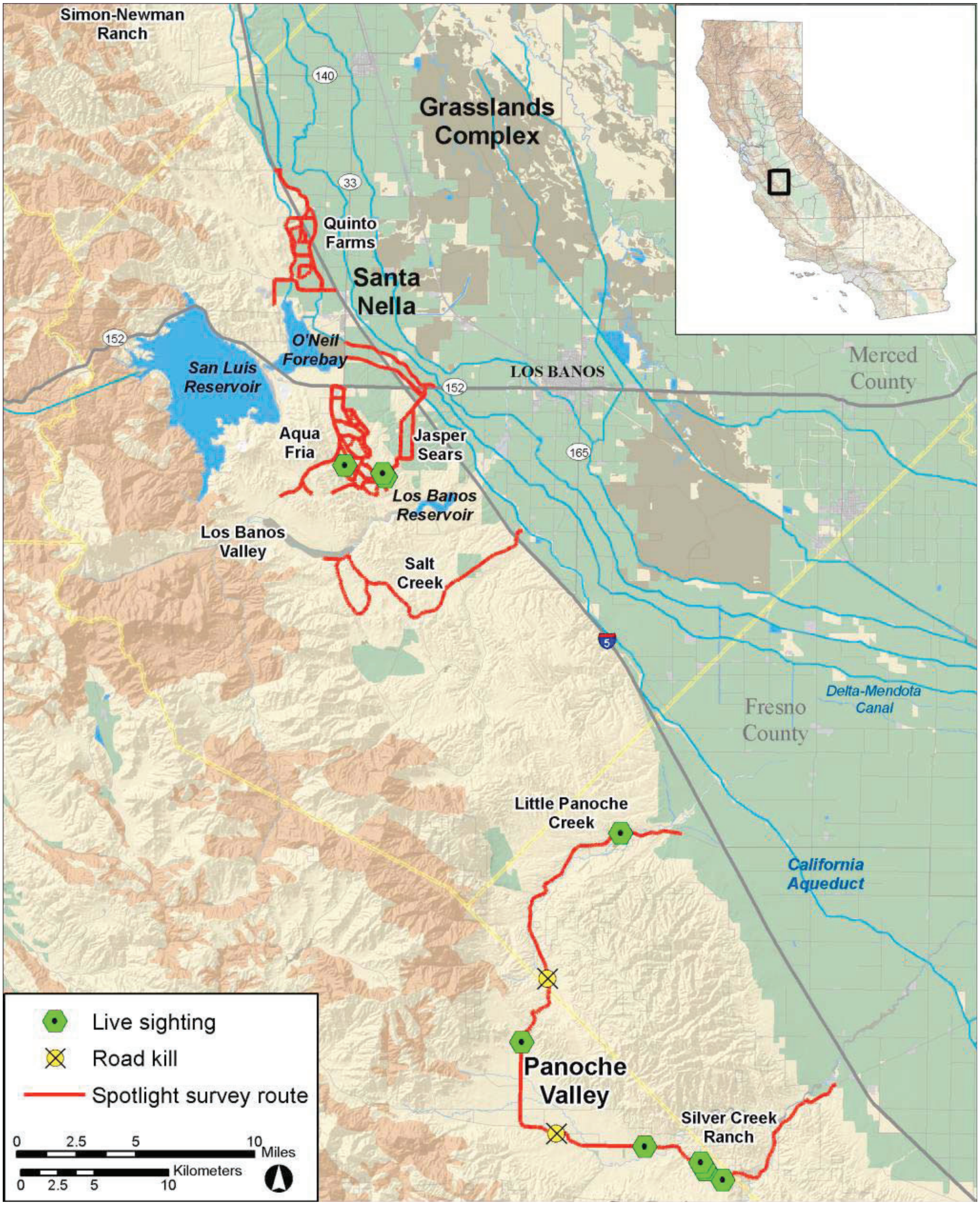
Source: Constable 2009

Figure 4 Locations of Previous Camera Stations, Track Stations, and Prey Trapping in the Santa Nella Area, California



Source: Constable 2009

Figure 5 Routes for Previous Spotlighting Surveys in the Santa Nella Area, California



Source: Constable 2009

Figure 6 Locations of Kit Foxes Observed During Previous Surveys in the Santa Nella Area, April 2005–August 2007

Chapter 4
Biological Characteristics of the Project Site

The topography of the site varies from relatively flat or gently rolling in the northeast section of the study area to steep and mountainous in the southwest. Elevation ranges between 230 feet above mean sea level (msl) near O'Neal Forebay to almost 1,600 feet above msl in the quarry near Basalt Hill. Fossorial mammals, including the American badger (*Taxidea taxus*) and California ground squirrel (*Spermophilus beecheyi*), were observed within the project boundary and burrows are present throughout the project site.

Many areas of the project site are open and undeveloped. However, there are several developed areas in and adjacent to the project boundaries to support water and recreation operations. The operations and maintenance facilities for DWR and the Four Rivers Sector of the Central Valley District of the California Department of Parks and Recreation are at Gonzaga Road, off State Route (SR) 152 at the base of Sisk Dam. This area is developed with the Gianelli Pumping-Generating Plant (operated by DWR) administrative offices, maintenance garages, and work areas. Other developed areas include the Basalt Use Area to the south of the Gonzaga Road entrance, which contains camp sites, a picnic area, boat ramp, and parking. Nearby is the boat launching area for San Luis Reservoir. A quarry, used for gravel extraction during the construction of the dam, is located at the southeast corner of San Luis Reservoir. The quarry is used by DWR for any facilities repairs on DWR's systems (e.g., dam and canal). The California Department of Forestry and Fire Protection operates a fire protection station east of the State Recreation Area Administrative Offices, south of Gonzaga Road.

Habitats within the project boundary were characterized based on descriptions provided in *A Guide to Wildlife Habitats of California* (Mayer and Laudenslayer Jr. 1988). Annual grassland is the most dominant habitat type within the project site; however, there is a wide diversity between stands in this broad category. In addition to annual grassland, the following six habitat types were mapped within the site: alkali desert scrub, barren, coastal scrub, fresh emergent wetland, mixed chaparral, and valley foothill riparian. The characteristics of these habitats are discussed below and their locations are depicted in Figure 7.

4.1 Annual Grassland

Annual grassland habitat is the dominant terrestrial habitat occurring within the project boundary and is dominated by non-native annual grasses and forbs. This habitat occurs on all the soil map units and the land types present on the site, with minor differences in species composition based on location. The dominant non-native grasses include wild oats (*Avena barbata*), ripgut brome (*Bromus diandrus*), and soft chess (*Bromus hordeaceus*). The dominant non-native forbs include black mustard (*Brassica nigra*) and broad-leaved pepperweed (*Lepidium latifolium*). These dominants are representative of nearly all of the areas mapped as annual grassland, except for areas adjacent to and within the intermittent drainages along the toe of Sisk Dam, including much of Borrow Area 10. On the steep hillsides to the south of the reservoir, the native forb hayfield tarweed (*Hemizonia congesta*) is also relatively abundant.

The annual grassland within the intermittent drainages along the toe of Sisk Dam has the greatest diversity of native plants and the greatest concentration of broad-leaved pepperweed. Non-natives present in these more mesic areas include Mediterranean barley (*Hordeum marinum* ssp. *gussoneanum*), curly dock (*Rumex crispus*), horehound (*Marrubium vulgare*), and cocklebur (*Xanthium strumarium*). Native grasses and forbs are a minor component in the annual grassland as a whole, but are most abundant in the more mesic areas. Natives include vinegar weed (*Trichostema lanceolatum*), salt heliotrope (*Heliotropium curassavicum*), purple needle grass (*Nassella pulchra*), and gum plant (*Grindelia camporum*).

4.2 Alkali Desert Scrub

Alkali desert scrub habitat occurs as scattered clusters and moderately dense linear stands along intermittent drainages and portions of the reservoir shorelines. This habitat is distinguished by near monotypic stands of big saltbush (*Atriplex lentiformis*). The largest and densest stand adjacent to the project area occurs along the southern shoreline (bank full) of the San Luis Reservoir. This stand includes hundreds of individuals of big saltbush that are concentrated at the base of a drainage and extend along the reservoir shoreline for approximately a quarter mile. The large stand of big saltbush near the toe of Sisk Dam is associated with adjacent stands of coyote bush and a lone honey mesquite (*Prosopis glandulosa* ssp. *torreyana*). Grasslands adjacent to alkali desert scrub stands have higher concentrations of salt heliotrope than the grasslands at large within the project site. Big saltbush, salt heliotrope, and honey mesquite are associated with the halophytic phase of the alkali scrub plant assemblage.

4.3 Barren

Barren habitat is comprised of the disturbed areas that have less than 2 percent total vegetative cover. Borrow Area 1 constitutes the largest barren habitat within the project site. A smaller barren area occurs where a hilltop has been removed and partially paved within Borrow Area 12.

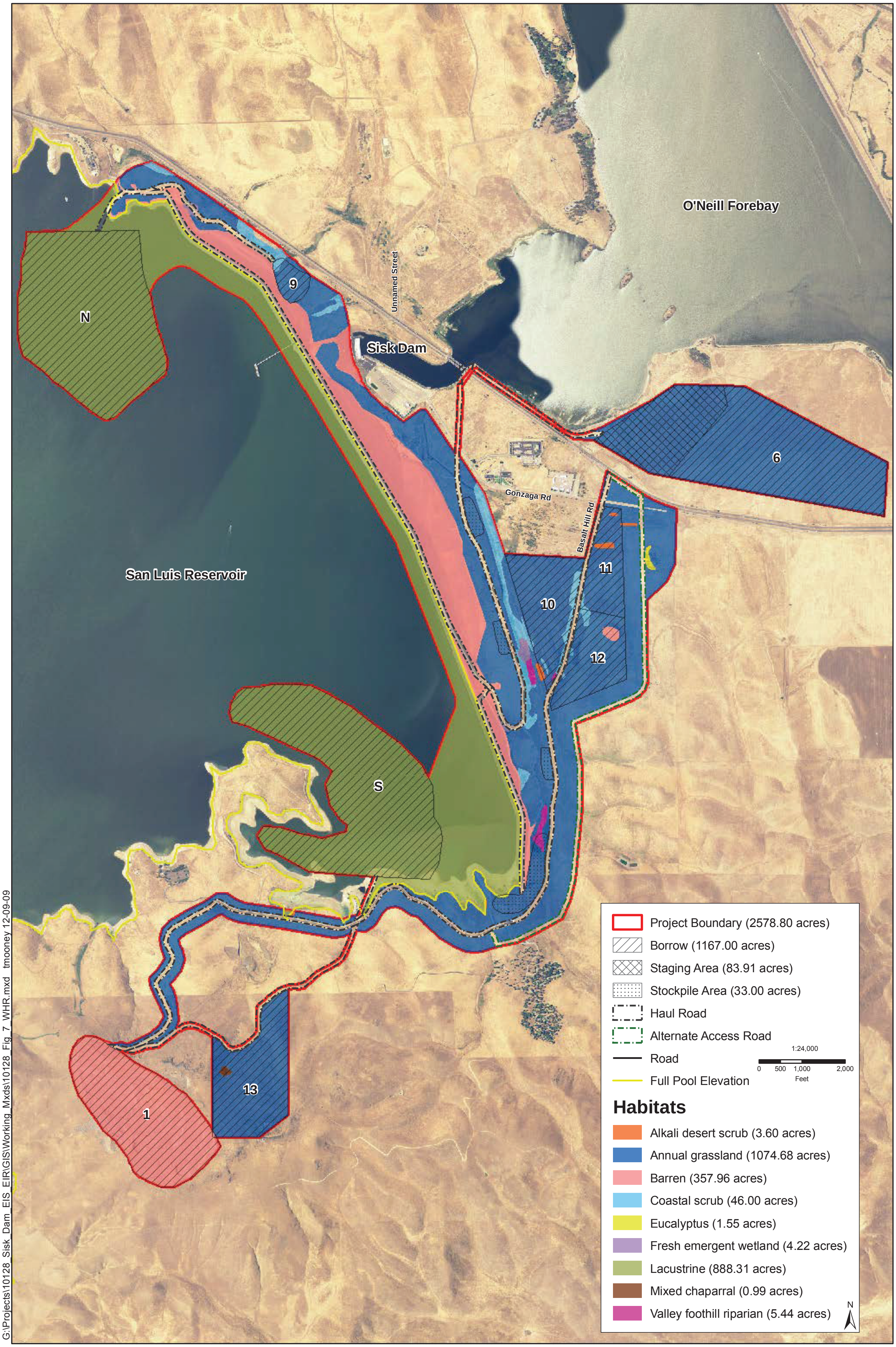


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Figure 7
Habitats

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4.4 Coastal Scrub

Coastal scrub habitat is distinguished by dense stands of coyote bush (*Baccharis pilularis*). Big saltbush is a minor component of the coastal scrub habitat and occurs at the upper and drier edges of the coastal scrub habitat.

4.5 Valley Foothill Riparian

The valley foothill riparian habitat type is dominated by native trees, including Fremont cottonwood (*Populus fremontii* spp. *fremontii*), red willow (*Salix laevigata*), and black willow (*Salix gooddingii*). The dominant shrub in this habitat type is mule fat (*Baccharis salicifolia*), which forms dense stands surrounding the cottonwoods and willows.

4.6 Fresh Emergent Wetland

Fresh emergent wetland habitat occurs as inclusions in and adjacent to the wettest portions of the valley foothill riparian habitat. Fresh emergent wetland habitat is distinguished by dense stands of narrow leaved cattail (*Typha angustifolia*), and includes red willow and dusky willow (*Salix melanopsis*). Dominant non-natives associated with this habitat type are broad-leaved pepperweed and poison hemlock (*Conium maculatum*).

4.7 Mixed Chaparral

Mixed chaparral habitat consists of a single stand of dense shrubs on a steep slope northwest of Borrow Area 1. The dominant shrub in this stand is silver buffaloberry (*Shepherdia argentea*). Subdominant shrubs in this stand are blue elderberry (*Sambucus mexicana*) and wild rose (*Rosa* sp.).

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Chapter 5 Continuity of the Project Site with the Surrounding 10-Mile Area

The project area is surrounded by a variety of land uses. Residential and commercial uses exist in nearby Santa Nella to the northeast of O'Neill Forebay. Lands to the southeast of the project area between San Luis Reservoir and Los Banos Reservoir include large, privately owned ranchlands, agricultural lands, an electrical substation, and scattered nonresidential uses. A national cemetery is located to the northeast of O'Neill Forebay, and immediately west of San Luis Reservoir is Pacheco State Park, owned by the California Department of Parks and Recreation. California Department of Fish and Game properties are located north of the San Luis Reservoir and east and west of O'Neill Forebay. As shown in Figure 8, the area surrounding the project site is characterized by sparse development and large expanses of undeveloped land. Similar to the project site, the surrounding area is characterized by rolling hills with annual grassland vegetation and abundant burrows.

The project site has a high level of continuity with surrounding habitats, given the limited extent of development and the large expanses of surrounding grasslands. Wildlife can currently move throughout the project site and without restriction to surrounding grassland habitats to the south and west. Interstate 5 (I-5), Highway 152, the California Aqueduct, and the Delta-Mendota Canal likely pose some hindrance to wildlife movement to the north and east.

Constable et al. (2009) used modeling to identify and evaluate three potential kit fox movement corridors through the Santa Nella area, two of which cross through a portion of the proposed project site. The study identified a number of significant impediments to kit fox movements in this area and found that all three corridors primarily traversed habitat of low suitability. The study concluded that the identified corridors might be suboptimal at best. Further, the authors stated that the viability and even the presence of kit fox populations north of Santa Nella appears questionable and that the possibility that this region may function as a population sink for kit foxes warrants consideration. The authors also reasoned that if the area is a sink, then corridors might adversely affect source populations by facilitating emigration from those populations.

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Figure 8
Surrounding Area

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Chapter 6
Habitat Suitability of the Project Site

6.1 Methodology

Mike Bumgardner, Principal Biologist of Bumgardner Biological Consulting, served as the senior biologist for the San Joaquin kit fox early evaluation survey described herein. Mr. Bumgardner was assisted by North State Resources biologists Brandon Amrhein, Terra Perkins, and Julian Colescott. The primary objective of the survey, conducted in September 2009, was to evaluate the suitability of the project site for the San Joaquin kit fox. Transects were walked to achieve 100 percent visual coverage of the project site (Figure 9), exclusive of areas determined to be unsuitable (see below). Surveyors focused on evaluating denning potential and searching for San Joaquin kit fox sign (e.g., scat, tracks).

Portions of the project site that met any of the following three conditions were eliminated from consideration as potential San Joaquin kit fox: (1) area was within the lake inundation scar; (2) area consisted of steep, rocky slopes; or (3) area was covered by dense shrub or forb habitat typically associated with inundated or saturated soils (see Figure 9).

Representative photographs of project site habitats, a figure depicting photograph location points, and additional details regarding suitability of habitats for the San Joaquin kit fox are presented in Appendix A.

6.2 Results

One San Joaquin kit fox den was observed within the project boundary (Figure 10). Kit fox use of the den was concluded based on the presence of a track positively identified as San Joaquin kit fox by senior biologist Mike Bumgardner. Within the project boundary, 194 potential dens were observed. Potential dens include all subterranean holes that had entrances of appropriate dimensions (i.e., approximately 5–8 inches in diameter) and for which available evidence was insufficient to conclude that it was being used or had been used by a kit fox. Approximately 40 percent of the potential dens identified during the survey appeared to have been created by American badgers.

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Figure 9
Kit Fox Survey Transects

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Figure 10
Potential Den Sites

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Chapter 7 Potential Project-Related Adverse Effects on the San Joaquin Kit Fox

The proposed project would provide for the continued, safe operation of the San Luis Reservoir, but is not expected to result in a permanent increase in the extent of human activity on the project site or in surrounding areas.

A recovery action specified by the Service that is particularly applicable to the project site is to "protect existing kit fox habitat in the northern, northeastern segments of their geographic range and existing connections between habitat in those areas and habitat farther south." The Santa Nella area, including portions of the project site, have been considered crucial to the continued existence of the San Joaquin kit fox because it was believed that the area provides a narrow corridor connecting the northern and southern kit fox populations (Kit Fox Planning and Conservation Team 2002).

Proposed project activities, including grading, mining, stockpiling, etc., could result in the temporary disruption of this travel corridor. However, the significance of the disruption on the health of the kit fox population is difficult to quantify as the importance of travel corridors in this area is unclear (see discussion under Continuity of the Project Site with the Surrounding 10-Mile Area above).

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Chapter 8 Recommended Mitigation

The following measures will be implemented to avoid the loss or harassment of San Joaquin kit fox during project implementation:

- An employee education program shall be conducted to address the potential presence of kit fox and other rare species potentially occurring on the project site.

- Project-related vehicles shall observe a 20-mph speed limit in the project area, except on county roads and State and Federal highways; this is particularly important at night when kit foxes are most active.

- To the extent practicable, nighttime construction shall be minimized.

- Off-road traffic outside of designated project areas shall be prohibited.

- To prevent inadvertent entrapment of kit foxes or other animals during the construction phases of the projects, all excavated, steep-walled holes or trenches more than 2 feet deep shall be covered at the close of each working day by plywood or similar materials or equipped with one or more escape ramps constructed of earth fill or wooden planks. Before such holes or trenches are filled, they shall be thoroughly inspected for trapped animals.

- All construction pipes, culverts, or similar structures with a diameter of 4 inches or more that are stored at a construction site for one or more overnight periods shall be thoroughly inspected for kit foxes before the pipe is subsequently buried, capped, or otherwise used or moved in anyway. If a kit fox is discovered inside a pipe, that section of pipe shall not be moved until the Service has been consulted. If necessary, and under the direct supervision of a qualified biologist, the pipe may be moved once to remove it from the path of construction activity.

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

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Chapter 9
Cumulative Effects

9.1 Context

Merced County is located in the central San Joaquin Valley. While the County's population is distributed in rural and urban areas throughout the County, the majority of people reside along or near the Highway 99 corridor. The total population estimate for Merced County in 2008 was 246,117 (U.S. Census Bureau 2009), with more than 80,000 residents living in unincorporated rural areas. Merced County, as well as the rest of the San Joaquin Valley, is expected to grow substantially over the next 50 years because of an increased demand for affordable housing. California Department of Finance (DOF) projections show that the population of Merced County is expected to increase to 652,355 by the year 2050 (State of California 2007). This represents a 170 percent increase in the County's population from the year 2003. Each of the development projects discussed below would contribute to the projected growth of the County (particularly western Merced County). The Merced County General Plan (Merced County 1990) provides policies and implementation measures to address future growth and focus growth within Specific Urban Development Plan (SUDP) boundaries in order to reduce adverse effects on the natural environment (including the San Joaquin kit fox). Each project would be required to demonstrate compliance with the General Plan prior to project approval. It should be noted that this cumulative context is appropriate for California Environmental Quality Act (CEQA) analysis. The cumulative context is also assumed to be appropriate for federal Endangered Species Act (ESA) compliance (i.e., Section 7 consultation) as none of the identified projects are known to have a nexus for independent Section 7 consultation at this time (i.e., future federal actions requiring separate consultation (unrelated to the proposed action) are not considered part of the cumulative effects).

9.2 Related Projects Contributing to Cumulative Impacts

9.2.1 Villages of Laguna San Luis Community Plan

The Villages of Laguna San Luis Community Plan (Villages of San Luis SUDP) consists of new urban development on approximately 6,214 acres and involves adoption of a Community Plan for the proposed SUDP area and amendment of the Merced County zoning designations to match the land use designations of the Community Plan. This project would result in the development of up to 3,722 acres associated with 15,895 residential units on 3,011 acres; 204.5 acres of commercial-employment uses involving retail, vehicle park, hotel, medical center and business park uses; 180 acres for schools; 41 acres for quasi-public uses (i.e., water and wastewater treatment); 109.6 acres of public uses; 172.5 acres of parkland; and approximately 1,200 acres of open space for San Joaquin kit fox habitat and movement corridors. The Community Plan consists of eight conceptual development components that describe proposed land uses, onsite circulation, housing mixtures and densities, open space areas, community design standards, flood control and drainage facilities, infrastructure, and public facilities and services. Proposed land uses within the Community Plan are intended to meet housing demands associated with employment-generating land uses and provide local and regional employment opportunities.

9.2.2 Santa Nella Community Specific Plan

The Santa Nella Community Specific Plan (Santa Nella SUDP) consists of new urban development on approximately 2,224 acres and involves amending the Merced County General Plan land use designations and Merced County zoning designations to allow development of 6,133 new residential units (in addition to 350 existing residences on the project site). The Santa Nella SUDP straddles SR 33 between the California Aqueduct at its southern edge, Fahey Road at its northern edge, Delta-Mendota Canal at its western edge, and Hilldale Road at its eastern edge. Development of residential land uses would occur on approximately 1,334 acres, commercial and business park uses would be developed on approximately 482 acres, schools on 99 acres, an existing golf course would be expanded on 120 acres, and institutional land uses would be developed on approximately 190 acres. The Santa Nella SUDP was approved by the County in 2001 and the project site is currently being developed.

9.2.3 Agua Fria Village Community Plan Study Area

The Agua Fria Village Community Plan study area (Agua Fria) consists of a 3,220-acre area located within and south of the Villages of Laguna San Luis Community Plan. A portion of Agua Fria (1,328 acres) encompasses the southwestern-most area of the Villages of Laguna San Luis project site, which is identified in the Villages of Laguna San Luis Community Plan as open space and urban reserve. For the entire project, approximately 933 acres would be developed with residential land uses (i.e., low-density, medium-density, high-density), 9 acres would be developed with commercial land uses (i.e., village center), 17 acres would be developed for institutional land uses (e.g., school, fire station, community center), and 61 acres would be developed as parks. The remaining areas (approximately 2,200 acres) would be used for water retention ponds and detention areas and open space areas (e.g., habitat mitigation acreage and conservation bank). The Agua Fria project is currently being reviewed by Merced County through its planning process.

9.2.4 Solid Waste Disposal/Transfer Options for Western Merced County

The Merced County Department of Public Works Solid Waste Division (SWD) operates the 172-acre Billy Wright Landfill, of which about 39 acres is the permitted area for waste disposal (the landfill footprint). The Billy Wright Landfill primarily serves the cities of Dos Palos, Gustine, and Los Banos, the community of Santa Nella, and the unincorporated areas of western Merced County. Billy Wright Landfill is located south of SR 152 and west of I-5 approximately 6 miles west of Los Banos along Billy Wright Road. The SWD identified six alternative waste disposal or waste transfer options that would accommodate projected disposal requirements for western Merced County. The options involve either the expansion of the existing Billy Wright Landfill or closure of the landfill and construction of a transfer station in the Los Banos area. The transfer station options would be implemented in conjunction with disposal at the Highway 59 Landfill or another disposal facility in the region. Each of the project options is designed to meet the projected waste disposal needs of western Merced County to at least the year 2023. The landfill expansion options would extend the Billy Wright Landfill site life considerably beyond that year. The first landfill expansion option would increase the permitted disposal area inside the existing boundaries by approximately 62 acres and would provide a refuse capacity of 5.3 million tons. The second landfill expansion option would involve acquiring approximately 53 additional acres along the current northern boundary of the existing landfill, which would increase the permitted disposal area by approximately 131 acres and would provide a refuse capacity of 11.1 million tons. Merced County has not currently selected or begun implementing any of the waste disposal or waste transfer options. If either landfill option is selected, but cannot be completed by the time the existing landfill reaches capacity, a down-sized transfer facility would be constructed to accommodate waste on an interim basis. When the landfill expansion becomes operational, the down-sized transfer facility would be used as a recycling/waste processing center.

9.3 Cumulative Impact Analysis

The projects described above would result in the loss of 9,359 acres of habitat in western Merced County (i.e., west of I-5) that is potentially suitable for San Joaquin kit fox foraging, movement, and denning. Implementation of the proposed Sisk Dam Corrective Action Project would result in an additional permanent loss of approximately 200 acres of potentially suitable San Joaquin kit fox habitat and a temporary loss of approximately 750 acres (as a result of borrow site excavation, staging areas, and storage areas). Other cumulative impacts to San Joaquin kit fox from project implementation may include habitat fragmentation, effects on dispersal corridor connectivity, and road mortality. However, given the questionable status of San Joaquin kit fox populations north of Santa Nella, the uncertainty regarding the ability of northern areas to support viable San Joaquin kit fox populations, and the uncertainty regarding corridor attributes for San Joaquin kit fox (Constable et al. 2009), consideration should be given to whether these impacts are not cumulatively considerable (CEQA) or insignificant or discountable (ESA).

Chapter 10
References

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APPENDIX A

Representative Photographs of the Project Site

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North State Resources, Inc. — *B.F. Sisk Dam Corrective Action Project EIS/EIR*

Figure A-1
Photo Point Map

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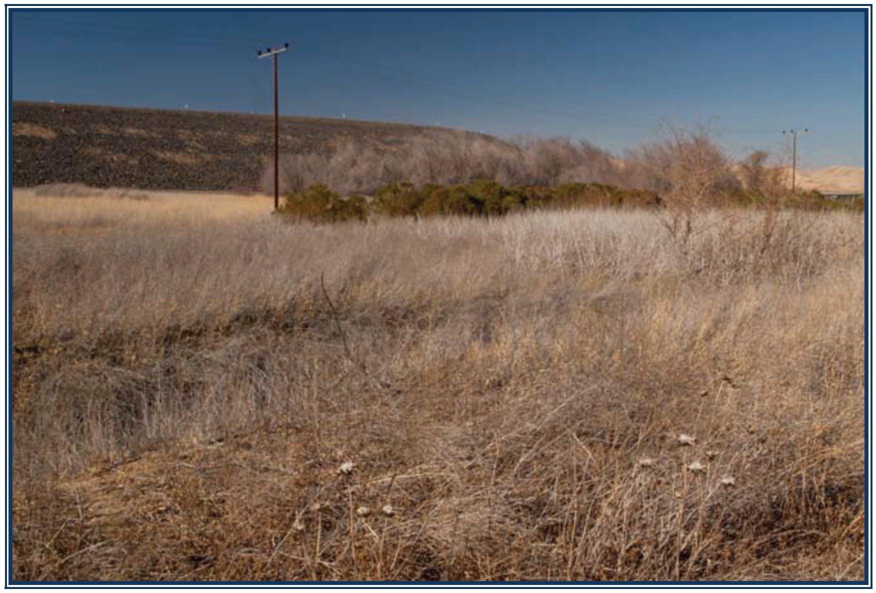
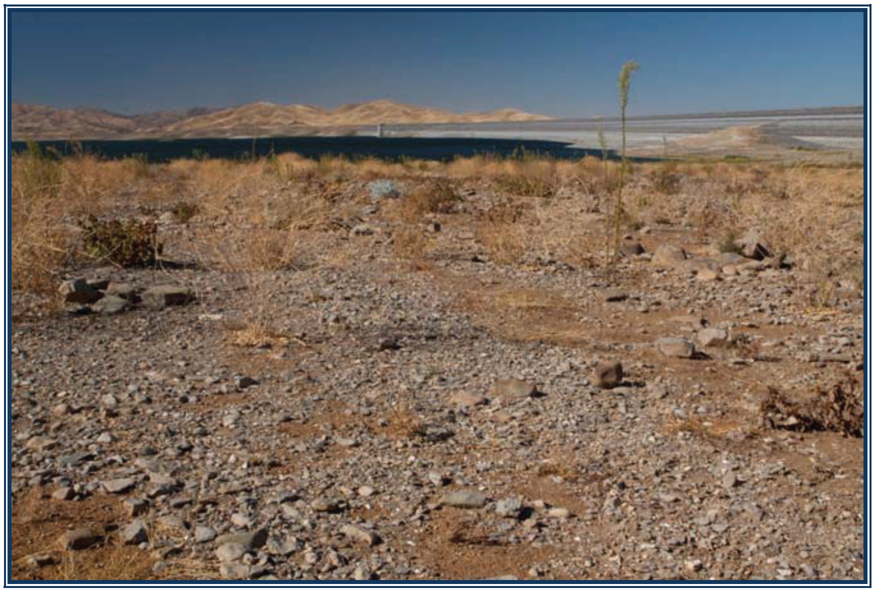


Photograph No. 1 – This photo shows a stand of dense, ruderal vegetation that is unsuitable for San Joaquin kit fox. The vegetation is dominated by thistles and wild mustard and occurs in an area that is supported by surface runoff from and leakage through the dam. Several stands of this habitat type occur close to and downslope from the dam. This habitat type also often occurs in conjunction with stands of *Baccharis* spp. and/or riparian woodland.

Photograph No. 2 – The photo shows consolidated rock and gravel substrates located within the lake inundation scar. Though now exposed and dry, these substrates, which are unsuitable for San Joaquin kit fox dens, also exhibit no evidence of use by small rodents (e.g., burrows). Substrates of this type are well distributed within the lake inundation scar. This photo is oriented uphill towards the parking lot at the southeastern corner of the lake.

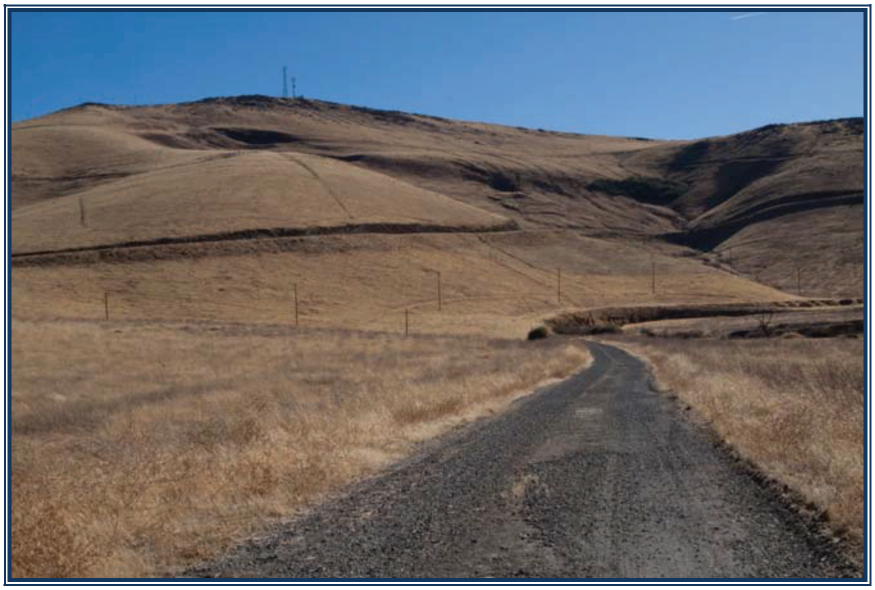


Photograph No. 3 – The photo shows dried sand and gravel substrates located within the lake inundation scar. These substrates are unsuitable for San Joaquin kit fox dens. Though well distributed within the lake inundation scar, they show no evidence of use by small rodents (e.g., burrows). Note that the vegetative cover within these areas is relatively sparse (i.e., low canopy cover).

Photograph No. 4 – The photo shows dried silt and mud substrates located within the lake inundation scar. These substrates are unsuitable for San Joaquin kit fox dens. They also show no evidence of use by small rodents (e.g., burrows). Substrates of this type are also well distributed within the lake inundation scar. Similar to the other substrates within the lake inundation scar, these substrates do not support a well-developed canopy of grassland and/or ruderal species.

Photograph No. 5 – The photo shows the poorly developed vegetation on muds and silts within the lake inundation scar. Though dry for at least two years, almost all vegetation on the dry lakebed is low in height and density. Furthermore, there has been no colonization by small rodents based on the lack of burrows.

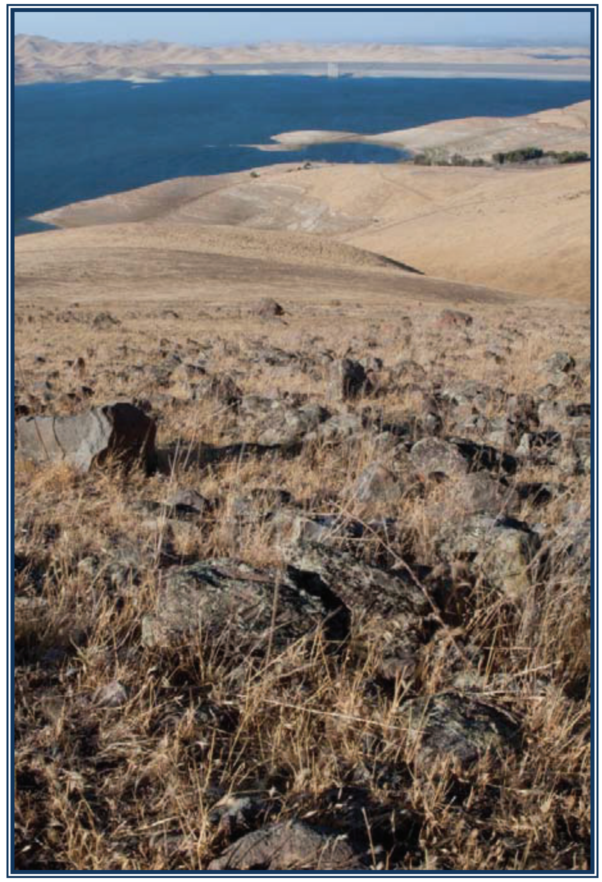
Photograph No. 6 – The photo shows the extent of habitat left exposed by the receding lake. However, as discussed in the captions of the previous photos, there is no prey base or underground refugia for San Joaquin kit fox in these areas. Note that the grassy knoll in the left background view is upland habitat that previously bordered the lake. All habitat in the foreground and middle ground views of the photo is in the lake inundation scar (i.e., was previously covered by water).



Photograph No. 7 – The photo shows the dense, annual grassland that is located in the low rolling hills north of the existing rock quarry. This latter habitat is suitable for San Joaquin kit fox. However, the height and density of the grassland reduces the habitat value for kit fox, which prefer more open habitats. The photo also shows the steep, rocky slopes below the rock quarry. These slopes do not provide suitable habitat for kit fox (mostly due to the presence of extremely rocky soils that preclude burrowing).

Photograph No. 8 – The photo shows the steep, rocky slopes immediately downslope from the existing rock quarry. The photo is oriented towards the northwest corner of the quarry. The access road that enters the quarry can be seen near the top of slope. The annual grassland on these slopes has been moderately grazed, making the rocky substrate more visible. This habitat is considered unsuitable for San Joaquin kit fox (primarily due to the rocky substrate which is difficult to excavate).

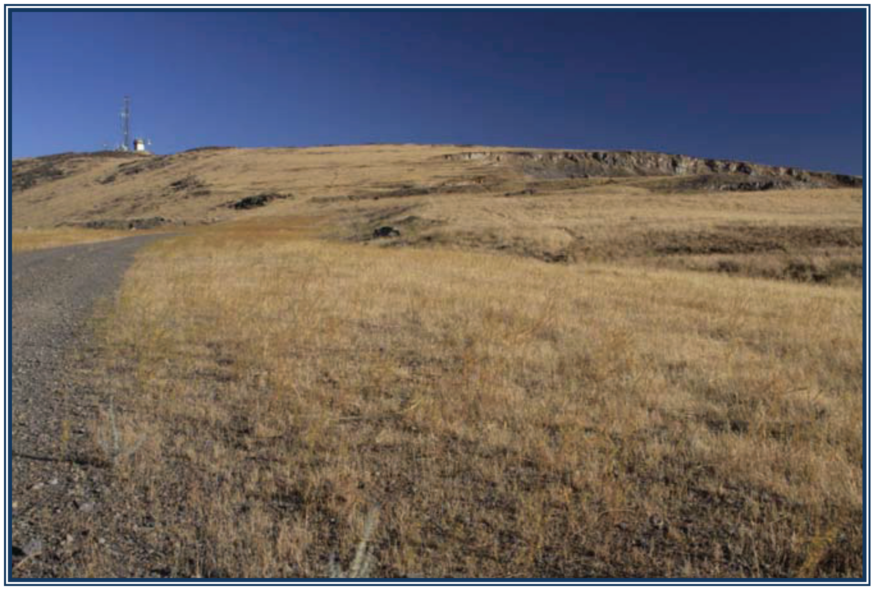
Photograph No. 9 – The photo shows the rocky substrate associated with the slopes located immediately downslope of the existing rock quarry. Such material is difficult for burrowing mammals (including American badger) to excavate. Thus, it was not surprising to find no potential dens in this habitat during the potential den surveys. Annual grasslands that occur on such slopes are not considered to be suitable habitat for San Joaquin kit fox.



Photograph No. 10 – The photo shows the steep, rocky slopes immediately below the existing rock quarry, but also shows annual grassland that is suitable for San Joaquin kit fox further downslope. The transition from unsuitable to suitable habitat for kit fox is difficult to discern from the photo, but occurs where the rocky substrate ends and deeper, well-developed soils begin. The photo also shows the existing lake inundation scar in the background view.

Photograph No. 11 – The photo shows the existing rock quarry from the access road into the site. The quarry consists primarily of flat benches with extremely rocky substrates (similar to desert pavement), scattered rock piles, and mined, rocky slopes. Very few areas with deeper, well developed soils occur within the quarry. Surveys were conducted throughout the entire quarry site and found only one potential den (a marginal burrow beneath a large rock). Areas with similar rocky soils were subsequently considered to be unsuitable for the San Joaquin kit fox without completing 100 percent surface coverage surveys for potential kit fox dens.

Photograph No. 12 – The photo further shows that the habitat is unsuitable for San Joaquin kit fox. The rocky substrates preclude burrowing activity by mammalian species (including small rodents). Therefore, the habitat does not provide a suitable prey base or escape refugia for the San Joaquin kit fox.



Photograph No. 13 – The photo shows the only area associated with the existing quarry where soils may be suitable for burrowing. However, no potential dens and very few small rodent burrows were found in this habitat. Furthermore, the soils in this area appear to be gypsiferous, as large gypsum crystals occur throughout the substrate and the soils are extremely friable (i.e., crumbly). Thus, the physical characteristics of these soils may not be suitable for burrowing (i.e., burrows may easily collapse in these soils).

Photograph No. 14 – The photo shows the extensive annual grassland located in the flats and rolling hills east of Basalt Road. This habitat is suitable for San Joaquin kit fox. However, as discussed previously, the height and density of the grassland diminishes the habitat value for kit fox. San Joaquin kit fox prefer more open habitats that provide better line-of-site views of potential predators and where potential dens are more easily seen in the landscape.

Photograph No. 15 – The photo shows the most suitable habitat for San Joaquin kit fox within the project site. This area, located east of SR 152, supports a low, sparse cover of annual grassland. Furthermore, the area supports some of the highest California ground squirrel densities observed in the study area. This latter species creates most of the burrows that are later modified as dens for kit fox. The photo is oriented to the west towards SR 152 and the dam.

Photograph No. 16 – The photo further illustrates the low height and density of the annual grassland located east of SR 152. It also shows how easily potential escape refugia can be seen in the shorter grass landscape. Each of these factors is important to kit fox since they facilitate avoidance of and escape from potential predators (e.g., coyote).

Photograph No. 17 – The photo shows annual grassland near the base of the dam that is suitable habitat for San Joaquin kit fox. The photo also shows the rock fill face of the dam, which is not suitable habitat for kit fox.

Photograph No. 18 – The photo shows a closer view of the rock fill associated with the dam. At a distance the face appears to be covered in sparse annual grassland. However, in this closer view it can be seen that the vegetative cover is sparse and patchy. Furthermore, there are no opportunities for escape refugia (i.e., potential dens) for kit fox due to the rocky substrates.

Photograph No. 19 – The photo further illustrates the rocky conditions that are found on the face of the dam. This substrate precludes any development of potential dens for kit fox.

Photograph No. 20 – The photo shows annual grassland on the higher portions of the slope above the dual-purpose pumping-generating plant at O`Neill Forebay that is suitable habitat for San Joaquin kit fox (i.e., flatter terrain with deeper friable soils). However, the steeper slopes in the center and right middle ground views are associated with an extremely rocky substrate. Though animal trails were observed crossing this steep slope, no evidence of potential dens was found on the slope, while potential dens were found in the annual grassland above the steep slope. Again, similar to other portions of the study area, rocky substrates preclude the creation of potential dens for kit fox.

Photograph No. 21 – The photo shows a closer view of the steep, rocky slope above the dual-purpose pumping-generating plant at O`Neill Forebay. Note that no soils excavation (associated with burrowing activity) is apparent on the slope even though the vegetation is sparse and relatively low.

Photograph No. 22 – The photo further shows the rocky substrate above the dual-purpose pumping-generating plant at O`Neill Forebay. In addition, the photo shows the suitable habitat on the upper slopes below the rock fill face of the dam (in the right background view).

Photograph No. 23 – The photo shows a narrow corridor of suitable habitat for San Joaquin kit fox that is sandwiched between unsuitable habitat for the taxon (i.e., the rock filled face of the dam and steep, rocky slope above the dual-purpose pumping-generating plant at O`Neill Forebay).

Photograph No. 24 – The photo shows a stand of dense vegetation that includes tall weedy species, *Baccharis* sp., and riparian woodland. This habitat is unsuitable for kit fox due to its height, density, presence of spiny vegetation, and seasonal presence of surface water. As identified in a previous photo, this vegetation is supported by surface runoff from and leakage through the dam. Several stands of this habitat type occur close to and downslope from the dam.

Photograph No. 25 – The photo shows overgrown pavement associated with a short reach of the old highway south of Gonzaga Road. The habitat does not provide suitable conditions for kit fox denning, but may be used as foraging habitat. The dam can be seen in the distance in the background view.

Photograph No. 26 – The photo shows the extensive annual grassland east of Basalt Road in the study area (in the vicinity of Helicopter Hill). As previously noted, this habitat is suitable for kit fox, but has diminished value due to the height and density of the annual grasses. Though potential dens (mostly American badger dens) were found in small numbers throughout this habitat, the locations of these dens are not apparent in the dense, grassland landscape. Thus, potential escape refugia for kit fox would be difficult to find in this landscape.

Photograph No. 27 – The photo further shows the dense, annual grassland located east of Basalt Road in the study area.

Photograph No. 28 – The photo shows a closer view of the annual grassland east of Basalt Road. Grass canopy density of this type typically occurs where fire and grazing has been precluded. The density of this grassland diminishes the value to kit fox for a variety of reasons (e.g., increased difficulties associated with movement, detection of prey species, and finding escape refugia).

Appendix B

Resume for Senior Biologist

MICHAEL BUMGARDNER
Principal, Bumgardner Biological Consulting

Mr. Bumgardner has over 20 years of experience with the terrestrial vertebrates, invertebrates, and flora of North, Central, and South America; Asia; Africa; and western Europe. He also has over 18 years of experience in the management and preparation of environmental documents that comply with the National Environmental Policy Act (NEPA), California Environmental Quality Act (CEQA), Tahoe Regional Planning Agency (TRPA) Rules of Procedure, Federal Endangered Species Act (FESA), and California Endangered Species Act (CESA). He has extensive experience in the coordination and preparation of biological resource assessments, impact assessments, management plans, mitigation programs, and habitat conservation planning and permitting associated with special-status species.

TECHNICAL CAPABILITIES

- Experienced with the statutory requirements and guidelines for federal Endangered Species Act Section 7 Consultations, Section 10(a)(1)(B) incidental take permits, Section 10(a)(1)(A) safe harbor agreements, and California Fish and Game Code Section 2081 management agreements and Section 2080.1 consistency determinations.
- Experienced in the preparation of biological assessments and conservation strategies for state and federal threatened and endangered species and other special-status species.
- Managed and conducted surveys for species including, but not limited to: *valley elderberry longhorn beetle, California tiger salamander, arroyo toad, western spadefoot, mountain yellow-legged frog, California red-legged frog, desert tortoise, western pond turtle, blunt-nosed leopard lizard, giant garter snake, San Joaquin kit fox, California clapper rail, spotted owl, northern goshawk, burrowing owl, Swainson's hawk, least Bell's vireo, southwestern willow flycatcher, California gnatcatcher.*
- Experienced in the management and preparation of environmental documents that comply with CEQA, NEPA, and the TRPA Rules of Procedure.
- Experienced with impact analyses involving sensitive habitats and special-status species, designing feasible mitigation measures to reduce significant impacts on biological resources, and resolving project conflicts with biological resources.
- Serves on the Science Subteam of the US Fish and Wildlife Service's Recovery Team for the Santa Barbara County DPS of *California tiger salamander*.
- Served as guest lecturer for course on Ecological Methods (Sierra Community College) and Conservation Biology (California State University - Sacramento).

EDUCATION AND AFFILIATIONS

B.S., Zoology, June 1980, University of California at Davis, California

Registrations

Federal Scientific Take Permit No. TE-785564-6 for California Gnatcatcher (*Polioptila californica californica*), Southwestern Willow Flycatcher (*Empidonax trailii extimus*), California Clapper Rail (*Rallus longirostris obsoletus*), and California Tiger Salamander (*Ambystoma californiense*)

California Department of Fish and Game Scientific Collector's Permit #801214-01 and Letter of Agreement for Yellow-billed Cuckoo (*Coccyzus americanus*), Willow Flycatcher (*Empidonax trailii*), California Gnatcatcher (*Polioptila californica californica*), California Black Rail (*Laterallus jamaicensis coturniculus*), and California Clapper Rail (*Rallus longirostris obsoletus*)

PROJECT EXPERIENCE

State and Federal Endangered Species Act Compliance

Cape Horn Tunnel Rehabilitation Project *California Tiger Salamander* Drift Fence Study and Monitoring, CH2M HILL and Oakdale Irrigation District

Avian Baseline Surveys and Mitigation Strategy for Aero Energy's Tehachapi Wind Energy Project, McCormick Biological and Aero Energy LLC

Sespe Oil Field Endangered Species Act/Permitting Assistance in Regards to *California Condor*, Seneca Resources

Kettleman Hills North Dome Oil Field *Blunt-Nosed Leopard Lizard* Surveys, McCormick Biological and Chevron

California Red-legged Frog Monitoring, Salvage, and Relocation for the Marsh Creek Bridge Repairs, Sycamore Environmental Consultants and Contra Costa County Planning Department

San Joaquin Kit Fox Potential Den Surveys and Clearance for the Vernalis-Thoming 3 & 4 Aggregate Mining Sites, Teichert Materials

Least Bell's Vireo and *Southwestern Willow Flycatcher* Surveys within Recreation Residence Tracts of the Angeles National Forest, Angeles National Forest

San Joaquin Kit Fox Potential Den Surveys on 2,700+ Acres within The Villages at Laguna San Luis SUDP, Berryman Ecological LLC

Review of Coachella Valley Multi-Species Habitat Conservation Plan and EIR/EIS (particularly for *Peninsular Bighorn Sheep*), Pacific Municipal Consults and City of Palm Springs

Review and Comment on Proposed Critical Habitat for *Southwestern Willow Flycatcher*, Southern California Edison

Soledad Canyon Sand and Gravel Mine Expert Witness Services, Jeffer, Mangels, Butler, and Marmaro LLP

Northwest Casmalia Enhanced Oil Recovery Project *California Tiger Salamander* and *California Red-legged Frog* Habitat Assessment and Endangered Species Act Compliance, Santa Maria Pacific, LLC

Kettleman Hills Waste Management Facility Class 1 Landfill Expansion *Blunt-nosed Leopard Lizard* Surveys and Endangered Species Act Compliance, TRC Solutions

Zeneca Richmond Facility Saltmarsh Remediation Project *California Clapper Rail* Focused Survey and Habitat Evaluation/Impact Assessment, LFR Levine Fricke

Los Flores Ranch Remediation Project *California Tiger Salamander* Habitat Evaluation, Impact Assessment, and Alternative Land Use Development Strategy, Chevron

White Paper on the Known Historic and Current Distribution of the *San Joaquin Kit Fox* in Eastern Merced and Stanislaus Counties and Western Madera County, Merced County

UC Merced/University Community Federally Listed *Vernal Pool Crustacean*, *California Tiger Salamander*, *Special-Status Plant*, and *San Joaquin Kit Fox/Fresno Kangaroo Rat* Survey Programs and Biological Assessment, University of California and Merced County

Stewart Tract Section 2081 Habitat Management Plan for *Swainson's Hawk*, Califia Development

Milpitas Recycled Water Pipeline Project Passive Relocation Program for *Burrowing Owl*, Santa Clara Valley Water District

Natural Resource Management Projects

California Tiger Salamander Distribution Study in Southern San Luis Obispo County, U.S. Fish and Wildlife Service

Tulare Basin Wildlife Management Area Planning Assistance, U.S. Fish and Wildlife Service

Hansen Creek (Nevada) Biological Monitoring Program, Getchell Gold Mine

Lawrence Berkeley National Laboratory Biological Baseline Database, U.S. Department of Energy

Environmental Baseline Study for a 10-year comprehensive plan that addresses 280+ petroleum-related projects in eastern Venezuela, Petroleos de Venezuela, S.A.

Utility and Infrastructure Projects

Biological Assessments and Monitoring for Various Projects on the U.S. Bureau of Reclamation's Delta-Mendota Canal, San Luis & Delta-Mendota Water Authority

Avenal Energy Project Application for Certification and Endangered Species Act Compliance, TRC Solutions

Elk Grove Routine Stormwater Channel Maintenance Program Biological Assessment for *Giant Garter Snake* and *Valley Elderberry Longhorn Beetle*, City of Elk Grove

Habitat Assessments for *Southwestern Willow Flycatcher* at Southern California Edison Facilities in the Santa Ana River Watershed, Southern California Edison

Alba Phase 3 LNG Plant Preliminary Impact Analysis, Alternatives Analysis, and Environmental Impact Assessment (EIA) (Equatorial Guinea), Marathon Oil Company

Mill Creek 2/3 Hydroelectric Project FERC Relicensing *Southwestern Willow Flycatcher* Expert Witness Services, Downy, Brand, Seymour, and Rohwer

Santa Rosa Subregional Long-Term Wastewater Project EIR and Biological Assessment, City of Santa Rosa

Southern Nevada Water Authority Treatment and Transmission Facility EIS and Biological Assessment, Southern Nevada Water Authority (Nevada)

Biological Evaluations for Several Wastewater Infrastructure Projects on National Forest lands in the Lake Tahoe Basin, South Tahoe Public Utility District

Echo Lake Dam Stabilization Environmental Assessment, PG&E

Mining Projects

California Red-legged Frog Survey and Endangered Species Act Compliance Strategy for the Gardner Ranch Mining and Processing Facility, Granite Construction Company

California Red-legged Frog Survey for the Bee Rock Quarry and Adjacent Drainages, Granite Construction Company

Day Creek-Inland Rock Mine Expansion *San Bernardino Kangaroo Rat* Trapping Study, West Coast Environmental & Engineering and Hanson Aggregates

Los Alamos Sand Mine *California Tiger Salamander* and *California Red-legged Frog* Surveys, Biological Assessment, and Safe Harbor Agreement, Los Alamos Sand Company

Williams Quarry Expansion Project Biological Resources Report, Resource Design Technology, Inc.

Madera Ranch Quarry *California Tiger Salamander* Biological Assessment and Draft Biological Opinion, Pacific Municipal Consultants

Ozena Valley Ranch Surface Mining Site Biological Resources Report, West Coast Environmental & Engineering

Santa Maria River Surface Mining Site Biological Resources Report, West Coast Environmental & Engineering

Diamond Rock Surface Mining Site Biological Resources Report and *Blunt-nosed Leopard Lizard* Impact Avoidance Program, West Coast Environmental & Engineering

Transportation Projects

Analysis of Impacts to *Willow Flycatcher* Habitat from Emergency Washout Repairs on the Caliente Line along Meadow Valley Wash (Nevada), Union Pacific Railroad

Analysis of Impacts to *Willow Flycatcher* Habitat from Emergency Washout Repairs on the Clifton Branch of the Lordsburg Line along the Gila River (Arizona), Union Pacific Railroad

Biological Evaluations for 18 Union Pacific Railroad Bridge Replacement Projects in California, Olsson Consulting

Hill Slough Bridge Replacement Project *California Clapper Rail* Surveys, Sycamore Environmental Consultants

Union Pacific Railroad Yolo Bypass North Track Project Biological Assessment, Parsons Corporation

Kowloon-Canton Railway Corporation Lok Ma Chau Spurline (Hong Kong) Expert Witness Services, Denton Wilde Sapte (Legal Counsel, London)

Kowloon-Canton Railway Corporation Lok Ma Chau Spurline Environmental Impact Assessment Defensibility Review and Response to Comments, California Environmental Consulting Associates

US Highway 101 Auxiliary Lanes Project Wetlands Delineation, Natural Environment Study, and Biological Assessment, San Mateo County Department of Transportation

TRPA Projects

Heavenly Ski Resort Master Plan EIR/EIS, Biological Resources Surveys, Biological Evaluation, and Annual Monitoring Programs, Heavenly Ski Resort and Tahoe Regional Planning Agency

Golden Bear Park Master Plan EIR/EIS, Tahoe Regional Planning Agency and El Dorado County

Harootunian Trust Land Transfer Biological Evaluation, Lake Tahoe Basin Management Unit, USDA Forest Service

Department of Defense Projects

California Gnatcatcher Surveys for the Santa Margarita River Conjunctive Use Project within MCB Camp Pendleton, Fallbrook Naval Weapons Station, and City of Fallbrook, North State Resources, Inc.

Brooks Air Force Base (Texas) Inventory of Avian Species, U.S. Air Force Center for Environmental Excellence (AFCEE)

Hohenfels Combat Maneuver Training Center (Germany) Integrated Natural Resources Management Plan-Fish and Wildlife and Threatened and Endangered Species Management Programs, U.S. Army Europe (USAEUR)

Andrews Air Force Base and Davidsonville and Brandywine Communication Sites (Maryland) Biological Inventory and Integrated Natural Resources Management Plan, AFCEE

Fort Leonard Wood (Missouri) BRAC US Army Chemical School and Military Police School Relocation Mitigation Monitoring Framework and Adaptive Management Strategy, U.S. Army

U.S. Fish and Wildlife Service World-listed, and Portuguese Government Listed Species Surveys and Integrated Natural Resources Management Plan (Azores), AFCEE and U.S. Air Force Air Combat Command (ACC)

Dyess Air Force Base (Texas) Threatened and Endangered Species, Fish and Wildlife, and Outdoor Recreation Component Plans of the Integrated Natural Resources Management Plan, ACC

Vandenberg Air Force Base (California) Fiber Optic Cable Route Biological Assessment, U.S. Air Force Space Missile Command

Camp Pendleton Relocation of Baseline Road and Case Springs Access Road Habitat Suitability and Assessment for the *Stephen's Kangaroo Rat*, *California Gnatcatcher*, *and Least Bell's Vireo,* U.S. Marine Corps

B.F. Sisk Dam Corrective Action Project

California Red-Legged Frog Site Assessment

B.F. Sisk Dam
Central Valley Project, California

January 2010

U.S. Department of the Interior
Bureau of Reclamation

State of California
Department of Water Resources

Mission of the Bureau of Reclamation

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.

Department of Water Resources Mission Statement

To manage the water resources of California in cooperation with other agencies, to benefit the State's people, and to protect, restore, and enhance the natural and human environments.

B.F. Sisk Dam Corrective Action Project

California Red-Legged Frog Site Assessment

B.F. Sisk Dam
Central Valley Project, California

Prepared by:

North State Resources, Inc.

North State Resources, Inc.
5000 Bechelli Lane, Suite 203
Redding, CA 96002

Contents

Figures

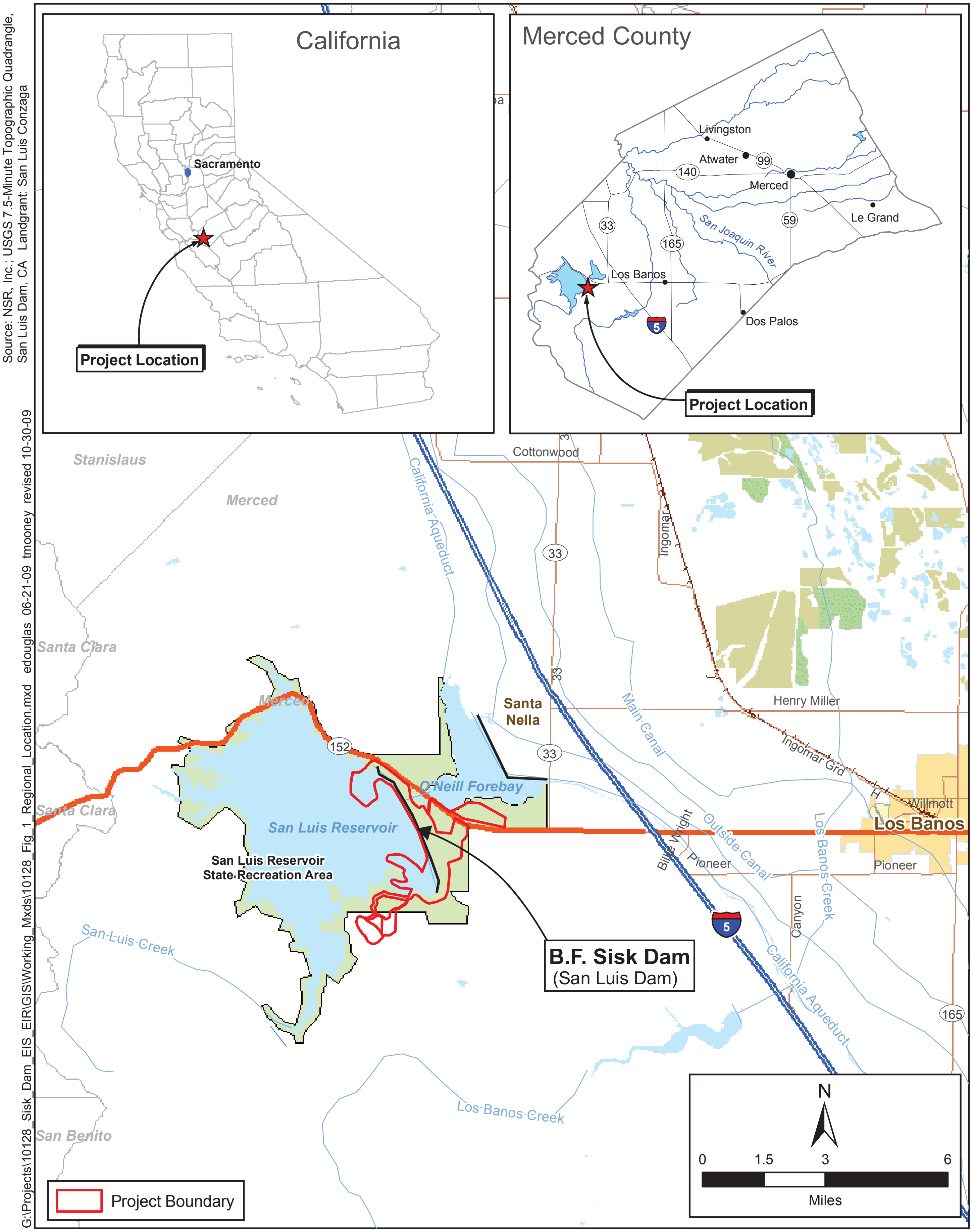
Appendices

Chapter 1
Introduction

On behalf of the U.S. Bureau of Reclamation (Reclamation), North State Resources, Inc. (NSR) conducted a California red-legged frog site assessment for the 2,578.80-acre B.F. Sisk Dam Corrective Action Project (project). The project is located on the west side of California's Central Valley, approximately 12 miles west of Los Banos, in Merced County, California, and includes portions of the San Luis Reservoir and O'Neill Forebay (Figure 1). The project site is located within the San Luis Dam, California 7.5-minute U.S. Geological Survey (USGS) quadrangle, Township 10 South, Range 8 East, Sections 13, 27, 28, 33, and 34 Mount Diablo Base and Meridian as well as portions of the Gonzaga land grant.

Sisk Dam is part of the San Luis Joint-Use Complex, which was designed and constructed by the federal government and is operated and maintained by the California Department of Water Resources (DWR). The project area is surrounded by a variety of land uses. Residential and commercial uses exist in nearby Santa Nella to the northeast of O'Neill Forebay. Lands to the southeast of the project area between San Luis Reservoir and Los Banos Reservoir include large, privately owned ranchlands, agricultural lands, an electrical substation, and scattered nonresidential uses. A national cemetery is located to the northeast of O'Neill Forebay, and immediately west of San Luis Reservoir is Pacheco State Park, owned by the California Department of Parks and Recreation. California Department of Fish and Game (CDFG) properties are located north of the San Luis Reservoir, and east and west of O'Neill Forebay.

This California red-legged frog site assessment was conducted by NSR biologists between September 28 and October 22, 2009. Fifty aquatic features were documented, mapped, and analyzed.



North State Resources, Inc.

Figure 1
Regional Location

Chapter 2
Project Description

The dam and reservoir are located in an area of high potential for severe earthquake loading from active faults. A recent series of studies and analyses, including a probabilistic seismic analysis completed in 2006, determined that corrective actions were justified at Sisk Dam to reduce risk to the downstream public. Reclamation and DWR seek to mitigate potential safety concerns identified in previous and ongoing studies by modifying water retention structures at Sisk Dam in order to reduce the seismic, static, and hydrologic risk.

The project will involve two main components: stability berms (buttresses) and a dam raise. Project construction will require a large amount (on the order of between 2 million and 20 million cubic yards) of earth material, all of which would be obtained from a number of borrow sites within the project boundary.

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Chapter 3
Environmental Setting

The elevation in the project area ranges from approximately 230 feet near the waterline of the O'Neil Forebay to a height of approximately 1,650 feet near the top of the Basalt Hill quarry. Habitats within the project boundary were characterized based on descriptions provided in *A Guide to Wildlife Habitats of California* (Mayer and Laudenslayer Jr. 1988). Annual grassland is the most dominant habitat type within the project area; however, there is a wide diversity between stands in this broad category. In addition to annual grassland, the following habitat types were mapped: alkali desert scrub, barren, coastal scrub, eucalyptus, fresh emergent wetland, lacustrine, mixed chaparral, and valley foothill riparian.

The study area is characterized by cool, moist winters and hot or warm, dry summers. Precipitation primarily falls as rain. Average annual rainfall is approximately 9.5 inches (Western Regional Climate Center 2009). Air temperatures in the project area range between an average January high of 55 degrees Fahrenheit (ºF), and an average July high of 96 ºF. The year-round average high is approximately 76 ºF (Western Regional Climate Center 2009).

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Chapter 4
California Red-Legged Frog Biology

4.1 Range of the California Red-legged Frog

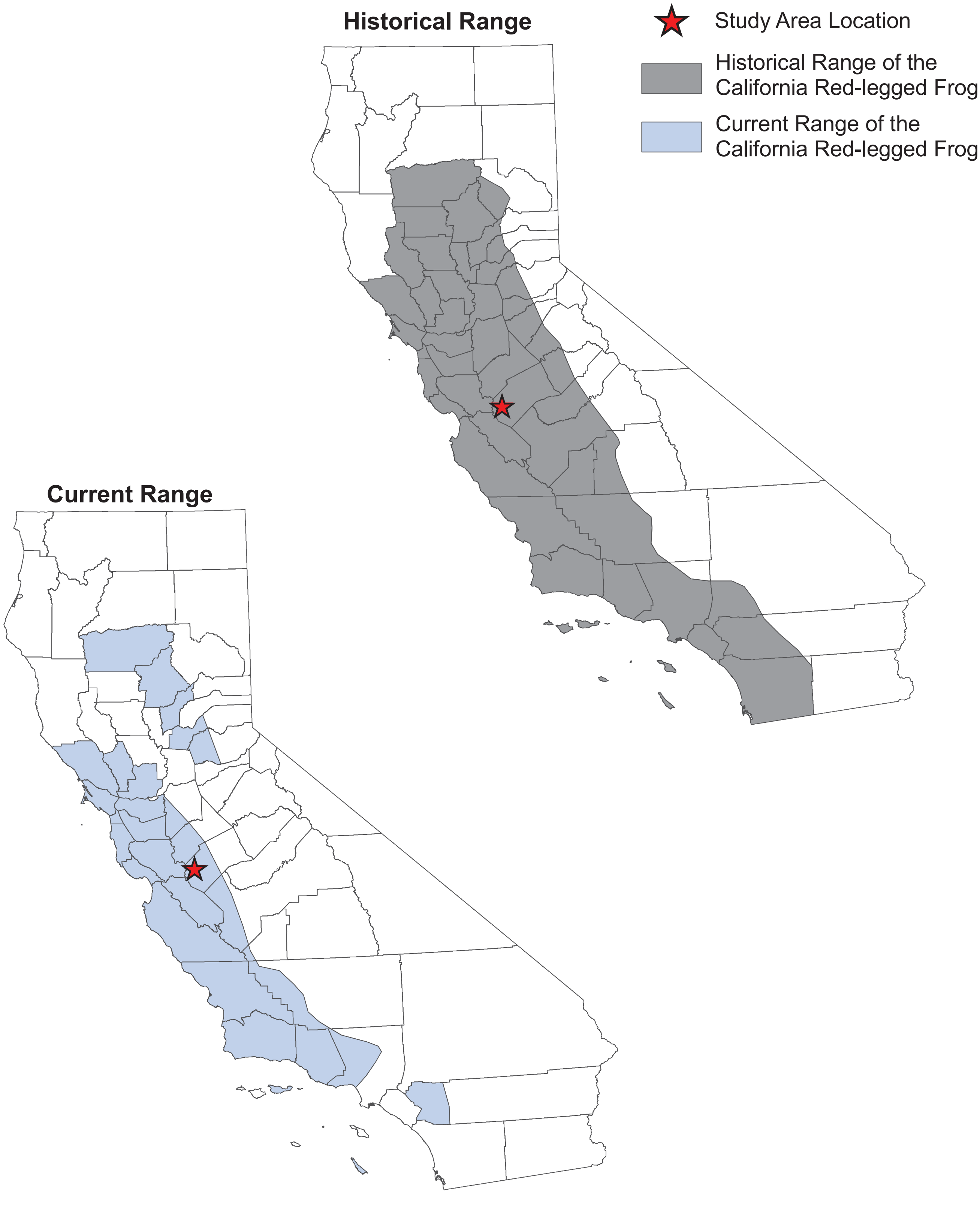
Historically, the California red-legged frog ranged from Point Reyes National Seashore in Marin County inland to the Central Valley and the Redding vicinity and south to northwestern Baja California, Mexico. It occurred in 46 counties in California. Today, that range has been reduced to 31 counties (U.S. Fish and Wildlife Service 2007). Populations outside of the San Francisco Bay area and central coast areas are isolated, and the species is predominantly extirpated from the southern Transverse and Peninsular ranges in California, although some populations persist. A map of the historical and current range of the California red-legged frog is presented as Figure 2. The study area is located within the current known range of the California red-legged frog (U.S. Fish and Wildlife Service 2002).

4.2 Life History

The California red-legged frog is a member of the family Ranidae within the order Anura, and is one of two subspecies of the red-legged frog (*Rana aurora*) (U.S. Fish and Wildlife Service 2002). The red-legged frog is the largest native frog in the western United States (Wright and Wright 1949), with adults obtaining a length of 3.4 to 5.4 inches from the tip of the snout to the rear of the vent (Jennings and Hayes 1994). Adult red-legged frogs have prominent dorsolateral folds, a bright red dorsum, and a well-defined stripe running along the upper lip. Juvenile frogs are 1.5 to 3.4 inches from the tip of the snout to the rear of the vent and have the same coloration as adults except that the dorsolateral folds are normally yellow or orange colored, especially in very young individuals (Stebbins 2003). Larval frogs range from 0.6 to 3.1 inches in length.

Adult California red-legged frogs have been observed to breed from late November through early May after the onset of warm rains (Storer 1925; Jennings and Hayes 1994). Females attach an egg mass of 2,000 to 6,000 moderate-sized (0.08 to 0.11 inch diameter) eggs to an emergent vegetation brace such as tule stalks (*Scirpus* spp.), annual grasses (Poaceae), or willow (*Salix* spp.) roots just below the water surface (Livezey and Wright 1947; Storer 1925).

Embryos of California red-legged frogs hatch 6 to 14 days after fertilization and the resulting larvae require 3.5 to 7 months to attain metamorphosis at a total



Source: U.S. Fish and Wildlife Service. 2002. Recovery plan for the California red-legged frog (Rana aurora draytonii). Portland: U.S. Fish and Wildlife Service

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Figure 2
Historical and Current Range of the California Red-legged Frog

length of 2.6 to 3.4 inches (Storer 1925). Larvae are thought to graze on algae, but they are rarely observed because they are often concealed in submergent vegetation or detritus (Jennings and Hayes 1994). Most larvae metamorphose into juvenile frogs between July and September. Post-metamorphic frogs grow rapidly by feeding on a wide variety of invertebrates. Adult frogs apparently eat a variety of animal prey including invertebrates, small fishes, frogs, and small mammals (Hayes and Tennant 1985; Arnold and Halliday 1986).

California red-legged frogs have been observed in a number of aquatic habitats throughout their historic range. The key to their occurrence in these habitats is the presence of perennial, or near perennial, water and the general lack of introduced aquatic predators such as crayfish (*Pacifastacus leniusculus* and *Procambarus clarkii*), bullfrogs (*Rana catesbeiana*), bluegill (*Lepomis macrochirus*), and other centrarchid fishes such as largemouth bass (*Micropterus salmoides*) (Jennings and Hayes 1994). Adults need dense, shrubby or emergent riparian vegetation closely associated with deep (greater than 2.3-foot deep) still or slow-moving water (U.S. Fish and Wildlife Service 2007). In addition to aquatic habitats, juvenile and adult California red-legged frogs use areas of riparian vegetation within a few yards of water. The species also uses small mammal burrows in or under vegetation, willow root wads, and the undersides of old boards and other debris within the riparian zone (Jennings and Hayes 1994).

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Chapter 5 Methodology

This California red-legged frog site assessment was conducted in accordance with the U.S. Fish and Wildlife Service (USFWS) *Revised Guidance on Site Assessment and Field Surveys for California Red-legged Frogs* (U.S. Fish and Wildlife Service 2005). Information for the assessment was gathered through a combination of literature review, database searches, review of topographic mapping and aerial photographs, and field visits to the site. The literature review identified the historic and current range of the California red-legged frog and provided information on specific habitat preferences of the species. California Natural Diversity Data Base (CNDDB) records (California Department of Fish and Game 2009) and the USFWS *Recovery Plan for the California Red-legged Frog* (U.S. Fish and Wildlife Service 2002), provided information regarding the known existing and historic populations of California red-legged frogs in the region.

A review of topographic mapping, aerial photographs, and a preliminary wetland delineation report, provided information regarding vegetation communities and land uses occurring in the vicinity. NSR biologists Brandon Amrhein and Terra Perkins conducted the field assessment. The project area and publicly accessible areas of the surrounding vicinity (areas within 1 mile of the project area) were characterized and evaluated for the presence of potentially suitable habitat for the California red-legged frog. Aquatic habitats were mapped and characterized (e.g., ponds vs. creeks, pool vs. riffle, ephemeral vs. permanent, vegetation type and characteristics, water depth, substrate, and description of bank), and the presence of bullfrogs and other aquatic predators documented (see Appendices A and B). Upland habitats were also characterized (e.g., vegetation communities, land uses, and potential barriers to California red-legged frog movements).

5.1 California Red-Legged Frog Identification

Identification of all amphibians was done visually *in situ*. Positive diagnostic marks used to identify adult California red-legged frogs include prominent dorsolateral folds, bright red dorsum, and a well-defined stripe running along the upper lip. Positive diagnostic marks used to identify California red-legged frog tadpoles include eyes set well in from the outline of the head [contrasts with chorus frogs (*Pseudacris* spp.)] and generally mottled body and tail with few or no distinct black spots on tail fins (contrasts with bullfrogs).

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Chapter 6
Results

6.1 Regional Assessment

The project area is not located within a designated critical habitat area for the California red-legged frog. The nearest critical habitat unit (Unit MER 1A and 1B) occurs approximately 3 miles west of the project area. There are four CNDDB recorded occurrences of California red-legged frogs within 5 miles of the project area (California Department of Fish and Game 2009) (Figure 3). The most recent sighting occurred in 2008 at a location within designated critical habitat approximately 4.87 miles northwest of the project area. The nearest recorded occurrence is from 1999 at a location approximately 2.95 miles southwest of the project, just past the southern arm of San Luis Reservoir along San Luis Creek.

6.2 Project Area and Local Area Assessment

The project area and local area (the area within a 1-mile radius of the project boundary) assessments included any area that appeared to retain even a minor amount of water. Fifty locations were assessed (Figures 4a and 4b). Each of the assessment locations are discussed in more detail below. Site Assessment Data Sheets are provided in Appendix B and photographs of each site are provided in Appendix C.

6.2.1 Project Area

Ephemeral Drainage (Locations 6 and 11).

The features assessed at Locations 6 and 11 are part of a network of drainages that are designed to channel lake seepage water to O'Neil Forebay. These features are regularly maintained and kept clear of vegetation and were dry at the time of the assessment. Lake levels are currently too low to allow for dam seepage to occur and have been deficient for several years. Until lake levels increase substantially these features will remain dry and, therefore, will not function as red-legged frog breeding habitat.

Ephemeral Drainage (Location 26, 27, 28, 29, and 30)

The feature assessed at Locations 26, 27, 28, 29, and 30 is a drainage fed by a network of smaller drainages. Its primary function is to hold and transport lake seepage water to O'Neil Forebay. This feature varies in width between 3 and 15 feet. Portions are channelized with steep narrow banks, while other portions are wider and flatter. Large trees and shrubs are mostly absent from its banks;

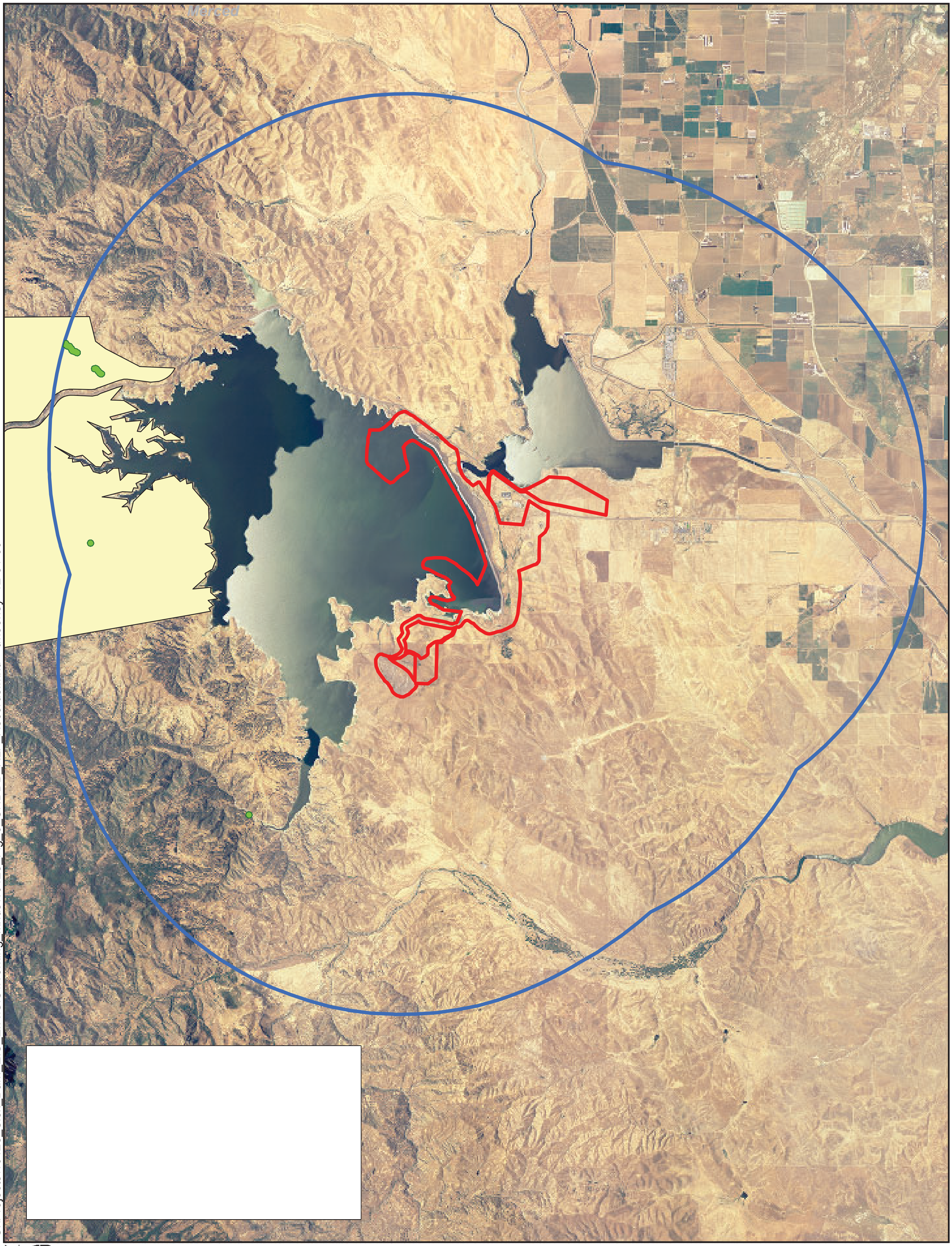

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Figure 3
CNDDB California Red-legged Frog Records

however, a few overhanging willows and cottonwoods are present. During the time of the assessment, the entirety of this feature lacked surface water. According to DWR representatives, the lake has been especially low for 3 to 4 years. Until lake levels increase dramatically, lake seepage will be minimal and this feature will remain predominately dry. The current lack of water in this feature makes it unsuitable as California red-legged frog breeding habitat.

Seasonal Wetland (Location 31)

The feature assessed at Location 31 is a wetland comprised of two main depressions that contain remnant emergent vegetation, such as cattails (*Typha* sp.) and mule fat (*Baccharis salicifolia*). Overhanging vegetation is present and includes cottonwoods and willows with coyote bush (*Baccharis pilularis*) in the upland areas. One depression is approximately 15 feet x 30 feet in size and the other is larger, at approximately 150 feet x 25 feet. This wetland derives its water from dam seepage. It was dry at the time of the assessment and appears to have been dry for some time. This feature has a maximum depth of approximately 1 foot, significantly less than the 2.3 feet required for breeding by California red-legged frogs (U.S. Fish and Wildlife Service 2007). Thus, this wetland does not provide suitable breeding habitat for the California red-legged frog.

Ephemeral Wetlands (Locations 32 and 34)

The features assessed at Locations 32 and 34 are wetlands that occur on the toe of the slope at the southern end of the dam. They are areas that become saturated with dam seepage, facilitating the growth of wetland vegetation. The features do not appear to retain any surface water, instead excess water drains down slope via drainage ditches to a larger drainage network. Thus, they do not provide suitable breeding habitat for the California red-legged frog.

Quarry Depression (Location 35)

The feature assessed at Location 35 has been excavated and is within the boundary of proposed Borrow Site 1. The depression has a rock aggregate substrate similar to the surrounding quarry substrate. Upland grasses and forbs grow in and out of the feature (e.g., vinegar weed (*Trichostema lanceolatum*), tarweed (*Hemizonia congesta*), and wild oats (*Avena barbata*)). The pool is approximately 10 feet x 4 feet in size with a 3 foot depth. No water was present at the time of the assessment. Based on the presence of upland vegetation in the feature, the rock aggregate soil drains very effectively and no water is retained in the pool for any significant length of time. Thus, this feature does not provide suitable breeding habitat for the California red-legged frog.

San Luis Reservoir (Location 45)

San Luis Reservoir has a water storage capacity of more than 2 million acre-feet and depths up to 300 feet. Habitat types and substrates vary along the lake's perimeter. This assessment location was selected based on the low gradient shoreline and the presence of significant amounts of emergent vegetation in the form of young willows and cocklebur (*Xanthium* sp.). The substrate at this location is primarily sand. No large overhanging vegetation occurs around the lake edge because water levels are significantly lower than in previous years. Currently, there are several hundred feet of barren shoreline. Further, the reservoir contains many predatory fish (e.g., striped bass (*Morone saxatilis*), channel catfish (*Ictalurus punctatus*), largemouth bass, crappie (*Pomoxis* sp.), and bluegill), which significantly reduce the quality of the lake as habitat for the California red-legged frog. Thus, California red-legged frogs are not expected to occur in this feature.

6.2.2 Local Area

Ephemeral Drainage (Location 1)

The feature assessed at Location 1 is an approximately 75-foot long drainage that captures runoff from hill slopes north of Hwy 152. It has formed between the base of a dirt road and the highway and transports rainwater to a concrete lined ditch that runs parallel to the highway (southeast). This drainage has a natural substrate and contains grassland vegetation. It was dry at the time of the assessment and does not appear to retain water for a significant length of time. This ditch is no more than 2 feet wide and has a maximum depth of 1.5 feet. Thus, this feature does not provide suitable breeding habitat for the California red-legged frog.

Ephemeral Drainage (Location 3)

The feature assessed at Location 3 is a large drainage channel that runs parallel to Hwy 152. The channel and banks are heavily vegetated with coyote bush. There was no water in the channel when the assessment was conducted. This feature is part of a network of drainages that collect lake seepage from the reservoir as it percolates through the dam wall; however, this only occurs when lake levels are high. For the last several years lake levels have been too low to allow for any seepage to reach this feature. Thus, under current conditions, this feature does not provide suitable breeding habitat for the California red-legged frog.

Ephemeral Drainage (Location 7)

The feature assessed at Location 7 is a large ditch located north of Hwy 152. It receives water from a network of drainages on the other side of the freeway via a culvert. The ditch contains upland grasses and lacks any sign of emergent vegetation. The function of this feature is to transport dam seepage water to a larger drainage feature (Location 10) that drains to O’Neil Forebay. For the last three to four years, lake levels have been too low to allow any dam seepage to occur, causing this feature to remain dry. Currently, due to the general lack of water, this feature does not provide suitable breeding habitat for the California red-legged frog.

Ephemeral Drainage (Location 13)

The feature assessed at Location 13 is a drainage that exits the pond at Location 12. The drainage appears to remain dry unless the pond reaches capacity, at which point water flows through a culvert and drains into this feature. It appears that the drainage is steep enough to drain effectively and most likely rarely retains any substantial levels of water. The lack of emergent vegetation within the feature supports this conclusion. Thus, this feature does not provide suitable breeding habitat for the California red-legged frog.

Ephemeral Drainage (Location 17)

The feature assessed at Location 17 is a natural drainage that transports rainwater. Small pockets of remnant wetland vegetation, such as cattails and curly dock, are present; however, the feature was dry at the time of the assessment and does not appear to retain more than 6 inches of water at any given time. Thus, this feature does not provide suitable breeding habitat for the California red-legged frog.

Ephemeral Drainage (Location 22)

The feature assessed at Location 22 is a small drainage that travels under an access road via a culvert. The drainage flows northeast approximately 100 feet ending in a wetland at the edge of O'Neil Forebay. The channel substrate is natural soil with abundant leaf litter, which is derived from an abundance of overhanging trees, including willows and sycamores. There is little undergrowth along the feature except for a few patches of facultative grass species within the shallow channel. Maximum water depth in this feature is less than 1 foot. Thus, this feature does not provide suitable breeding habitat for the California red-legged frog.

Ephemeral Drainage (Locations 40, 41, and 43)

The feature assessed at Locations 40, 41, and 43 is a natural drainage that has been diverted through culverts to accommodate a dirt road. It appears to hold some water as is evidenced by patches of remnant cattails. However, the predominant vegetation in and around this feature is upland grasses and forbs, including wild oats and thistles. The source of water for this feature appears to be storm water runoff. The drainage has low points where up to 18 inches of water could collect; however, this is probably a rare occurrence. Thus, this feature does not provide suitable breeding habitat for the California red-legged frog.

Ephemeral Drainage (Locations 49 and 50)

The feature assessed at Location 49 and 50 is a natural drainage that passes just east of Basalt Campground. It appears to drain water effectively, which explains the lack of emergent vegetation within the channel. The grade varies between 3 and 10 percent and the drainage is fully vegetated with upland grasses. This feature was dry at the time of the assessment but appears to have a maximum depth of less than 1 foot. Thus, because of its shallow depth and lack of emergent vegetation, this feature does not provide suitable breeding habitat for the California red-legged frog.

Ephemeral Pond (Location 2)

The pond at Location 2 is a man-made feature created within a natural drainage that has been artificially damned with a soil berm. Rainwater is the primary hydrologic input. Remnant facultative vegetation (plants preferring wet conditions) within the feature were observed during the assessment (i.e., smartweed (*Polygonum* sp.) and cocklebur); however, the feature was dry at the time of the assessment and all of the facultative vegetation was long dead, signifying an extended period of relative dryness. This approximately 50 foot x 50 foot feature likely holds shallow water for a portion of the year, but the evidence suggests that it is not retained long enough to support California red-legged frog breeding. Additionally, if the feature does retain water during the breeding season, it appears that water depths (1-2 foot maximum) would not be sufficient for California red-legged tadpole survival.

Water Treatment Ponds (Locations 4 and 5)

Two wastewater treatment ponds are associated with the San Luis Reservoir Visitors Center. At the time of the assessment, the northernmost pond had vegetation growing within its basin; however, no surface water was visible. The second pond was completely dry and had no live vegetation within it. This pond does not appear to be in use. Both ponds are enclosed in a chain-link fence topped with barbed wire and have exposed (probably maintained) upland banks. There is no overhanging vegetation on or adjacent to the ponds banks. The ponds have a maximum depth of approximately 14 feet. If sufficient water depths are maintained in these ponds during the breeding season, they may provide suitable California red-legged frog breeding habitat.

Ephemeral Wetland Drainage (Location 8 and 9)

The feature assessed at Locations 8 and 9 is one of the main collection points for a series of drainage ditches. Water seepage escaping the dam, which occurs when lake levels are high, primarily drains to this location because it is the lowest point in the area. Additionally, water appears to back up at this point because the pathway for the water to pass to the other side of Hwy152 is a relatively small culvert that is slightly elevated from the lowest point in the drainage. This ponding allows enough water to collect to provide proper conditions for emergent plant growth. Cattail, rabbits-foot grass, and several species of sedges were observed growing in the bed of this drainage. Further indication of past ponding was evidenced by the presence of deep cracks in the clay-like soil. The water source for this feature is primary dam seepage and secondarily rainwater runoff. Because the lake levels have been very low for several years, this drainage feature contained no standing water at the time of the assessment. Thus, currently, this feature does not provide suitable California red-legged frog breeding habitat.

Seasonal Wetland (Location 10)

The feature assessed at Location 10 is the main drainage system low point (before the forebay) for the areas north of the highway and west of the forebay. It also receives all dam seepage and rainwater runoff collected from the south side of the highway north of the dam spillway via a series of drainages (specifically the features at Locations 7, 8, and 9). This roughly 2.5-acre seasonal wetland drains directly to the neck of the O'Neil Forebay when it reaches capacity. It contains patches of emergent vegetation, such as cattail and rush, in low pockets and a group of large riparian trees (e.g., willows and cottonwoods) overhangs a large portion of the feature. No water was observed in this wetland at the time of the assessment. Because current lake levels are low and dam seepage is at a minimum, this wetland does not currently provide suitable breeding habitat for the California red-legged frog. Additionally, the wetland depth appears to be less than 1 foot when functioning, below that required for suitable California red-legged frog breeding habitat.

Perennial Pond (Location 12)

The feature assessed at Location 12 is a man-made pond within a natural drainage area. The pond was formed when a berm was created across the natural drainage pathway. A culvert is installed near the top of the berm to allow excess water to drain downstream after the pond reaches capacity. The banks of the pond are steep and mostly bare. Sporadic emergent vegetation is present in a few locations along the waters edge, but density is minimal. The pond appears to be at least 4 feet deep at its center and provides drinking water for deer and cattle during at least a portion of the year, as is evidenced by prints and scat. This feature may provide a perennial water source with sufficient water depth for red-legged frog breeding habitat; however, the amount of emergent vegetation present for egg attachment is minimal.

Water Treatment Ponds (Locations 14 and 15)

The features assessed at Locations 14 and 15 are two water treatment ponds. Both ponds are approximately 160 feet x 100 feet. The banks are gravel-lined and devoid of vegetation, and both are enclosed by a chain-link fence topped with barbed wire. The basin of the southernmost pond is densely vegetated with cattails but no standing water was observed at the time of the assessment. The northernmost pond was also dry and no emergent vegetation was present. The maximum depth of these pools is approximately 4 feet; however, the typical operating depth appears to be approximately 18 inches, based on water lines and staining. Thus, under the current conditions, it appears that these ponds would be unable to support red-legged frog breeding due to their ephemeral nature and shallow water depths.

Emergent Wetland (Location 18)

The feature assessed at Location 18 is a large wetland that borders O'Neil Forebay. The wetland is hydrologically connected to the forebay and only receives water when the forebay water level rises to the point at which water is able to spill over a slight berm into the wetland. At the time of the assessment, O'Neil Forebay was approximately 3 feet too shallow for this connection to occur. The wetland is large, approximately 2.25 acres in size, and contains abundant emergent vegetation (primarily cattail) with overhanging willows along one side. Portions of the wetland appear to be up to 4 feet deep. During the assessment, several green herons (*Butorides virescens*) were observed foraging in the wetland and crayfish were observed in shallow areas. Although favorable habitat components are present at this site (permanent water deeper than 2.3 feet deep with abundant emergent vegetation), it is unlikely that red-legged frogs utilize it as a breeding area. The large number of predatory birds, the presence of crayfish in high density, and the likelihood of predatory fish migrating from the forebay to the wetland significantly reduces its quality as California red-legged frog habitat.

O'Neil Forebay (Location 19)

O'Neil Forebay is approximately 18 acres in size with a maximum depth of approximately 57 feet. Large portions of the forebay have dense wetlands along the edges, and riparian areas containing large cottonwoods and willows border the forebay at several locations. The forebay connects to a large pump house at the base of San Luis Reservoir where water is transferred to and from the lake to produce energy. Several predators of the California red-legged frog were observed foraging within the forebay, including great blue herons (*Ardea herodias*), great egrets (*Ardea alba*), mergansers (*Mergus* sp.), and several species of fish. In addition, according to fishing records striped bass, channel catfish, largemouth bass, crappie, and bluegill are regularly caught in the forebay. The large number of predators occurring in the forebay significantly reduces its quality as California red-legged frog habitat.

Ephemeral Pond (Location 20)

The feature assessed at Location 20 is an excavated cattle pond. It is devoid of vegetation and cracked mud is visible in its basin. Upland grasses surround the feature. Water for this feature appears to be artificially fed from a nearby electrical facility. This feature was dry at the time of the assessment. When full, its maximum depth is less than 6 inches. Due to its shallow depth, the feature would not provide suitable California red-legged frog breeding habitat.

Ephemeral Pond (Location 21)

The feature assessed at Location 21is a large pond at the base of a hill. Some manipulation of the earth in this area to help retain water for cattle use is apparent. The source of water for this pond is a water tower located directly south of the feature. Water was released from the water tower between field visits to the site. When the initial assessment was conducted, there was no water at this location. When full, the pond is approximately 160 feet x 75 feet in size. No evidence of emergent vegetation was observed in the feature. The maximum depth of the pond is approximately 1 foot. This feature lacks emergent vegetation, water of sufficient depth, and likely water of sufficient duration, to support California red-legged frog breeding.

Treatment Ponds (Locations 23, 24, and 25)

Locations 23, 24, and 25 represent three treatment ponds associated with a pump-house facility. Because of restricted access, these features were assessed from the top of Sisk Dam. The two westernmost ponds are located in the corner of a large crushed aggregate pad associated with the power lines and pump-house electrical facility. The westernmost pond is approximately 30 feet x 50 feet. This pond seems to be the only pond in use, based on the green vegetation and the presence of a 10 foot x 10 foot shallow pool present within its basin. The pond to the east is larger, approximately 30 feet x 100 feet in size, and does not appear to be in use, based on the lack of standing water. The slopes and surrounding upland areas adjacent to these ponds are devoid of vegetation. The third pond, east of the two previously described, is a small depression in a naturalized area just beyond the aggregate pad at the base of the dam slope. This feature is approximately 20 feet x 15 feet in size and was dry at the time of the assessment. This pond has upland grasses growing within and up its banks. The max depth of the two pools on the aggregate pad is approximately 4 feet and the maximum depth of the third pool is estimated to be less than 2 feet deep. It is unlikely that these pools retain water at sufficient depth and for a sufficient duration to provide suitable California red-legged frog breeding habitat.

Ephemeral Pond (Location 33)

The feature assessed at Location 33 is an excavated hole that may retain marginal rainwater runoff for a short time. Currently, the feature appears to be associated with a nearby OHV recreational track and to be used as an obstacle/jump. Within the basin of the feature, there is little vegetation and several rodent burrows were evident. The feature is approximately 8 feet deep but it is highly unlikely that water levels would ever reach this capacity due to a general lack of water sources in the area. Additionally, the feature is suspected to drain efficiently, heightened by the numerous ground squirrel burrows in the depression. Lack of emergent vegetation and the apparent ephemeral nature of the feature make this site an unlikely candidate for California red-legged frog breeding.

Quarry Depressions (Location 36)

Location 36 represents three depressions in close proximity to each other. All of the features have been excavated and are within the boundary of Borrow Site 1. All three depressions have a rock aggregate substrate similar to the surrounding quarry substrate; upland grasses and forbs grow in and out of these features (e.g., vinegar weed, tar weed, wild oats). The pools are 15 feet x 3 feet, 12 feet x 4 feet, and 100 feet x 30 feet, and each is 2-3 feet deep. No water was present in any of the depressions at the time of the assessment. Based on the vegetation present, the rock aggregate soils drain very effectively and no water is retained within these pools for any significant length of time. Thus, these features would not provide the long-term water source needed for successful California red-legged frog breeding.

Perennial Wetland (Location 37)

The feature assessed at Location 37 is a wetland adjacent to a dirt road. An upslope spring provides water to this linear feature (70 feet x 4 feet), which has a maximum depth of 4 inches. The wetland contains emergent vegetation such as bulrush (*Scirpus* sp.), nutsedge (*Cyperus* sp.), cocklebur, duckweed (Lemnaceae), rabbits-foot grass (*Polypogon* sp.), and cattails. However, the feature does not have sufficient depth to provide suitable California red-legged frog breeding habitat.

Perennial Pond (Location 38)

The pond at Location 38 was assessed from aerial photographs because the site is located on private property and access was not available. Based on inspection of several historic aerial images, the pond is estimated to be approximately 5,000 square feet in size. The feature appears to be manmade, probably for cattle, and no bank vegetation was visible on the aerials. The substrate and maximum depth of the pond could not be determined. Based on this information, it is possible that this pond could be used as California red-legged frog breeding habitat; however, emergent and bank vegetation for egg attachment and cover appears to be limited and water depth may be insufficient for successful tadpole survival during metamorphosis.

Perennial Pond (Location 39)

The pond at Location 39 was assessed from aerial photographs because the site is located on private property and access was not available. Based on inspection of several historic aerial images, the pond is estimated to be approximately 5,200 square feet in size. The feature exists at the base of surrounding hill slopes in a natural path for rainwater drainage, and appears to have been created by damming of this natural drainage. The pond has a main pool with a long “finger” channel on its western end. No emergent or overhanging vegetation was visible on the aerials. The substrate and maximum depth of the pond could not be determined. Based on this information, it is possible that this pond could be used as California red-legged frog breeding habitat; however, emergent and bank vegetation for egg attachment and cover appears to be limited and water depth may be insufficient for successful tadpole survival during metamorphosis.

Water Treatment Pond (Location 42)

The feature assessed at Location 42 appears to be a treatment pond associated with the Basalt Campground facility. It is a concrete lined pool approximately 25 feet x 8 feet in size, and is permanently inundated to a depth of approximately 2.5 feet. Large boards cover 90 percent of the water surface; only small gaps and cracks remain accessible between the boards and 5-inch wire mesh fence encloses the feature. The water appears stagnant and no emergent vegetation is present. Primarily upland grasses grow around the feature with a few sedges growing near the pool edge. This feature lacks the emergent vegetation needed for California red-legged frog breeding habitat. Further, the water may be contaminated.

Treatment Ponds (Locations 16 and 44)

The features assessed at Locations 16 and 44 are treatment ponds. Each pond is 100 feet x 30 feet in size and has a substrate of rock and gravel. No vegetation grows in or around these ponds and a chain-link fence surrounds them. There was no water in these features at the time of the assessment. The ponds are estimated to have a maximum depth of 5 feet. The source of water for these features is unclear; however, the Basalt Campground, which is several hundred feet down slope of these ponds, has the nearest facilities. These features have insufficient perennial water levels and emergent vegetation to support California red-legged frog breeding habitat.

Ephemeral Pond (Location 46)

The pond at Location 46 was assessed from aerial photographs because the site is located on private property and access was not available. Based on inspection of several historic aerial images, the pond is estimated to be approximately 2,500 square feet in size. The pond appears to have been created by damming of the natural drainage. It is probably used by cattle, and no bank vegetation was visible on the aerials. The substrate and maximum depth of the pond could not be determined. Based on this information, it is possible that this pond could be used as California red-legged frog breeding habitat; however, emergent and bank vegetation for egg attachment and cover appears to be limited and water depth may be insufficient for successful tadpole survival during metamorphosis.

Perennial Pond (Location 47)

The pond at Location 47 was assessed from the top of basalt hill with binoculars because access to the feature was limited and would interrupt a local herd of tule elk (*Cervus elaphus nannodes*) that were foraging there. The feature is a large depression along the reservoir bottom that remained filled after the reservoir receded. It also receives some water input from rain events and spring runoff. The feature is estimated to be at least 150 feet x 50 feet in size and is surrounded by an approximate 40-foot buffer of herbaceous vegetation that touches the waters edge on all sides. Substrate and maximum depth could not be determined. This feature could be utilized as California red-legged frog breeding habitat; however, the feature may be absorbed by the reservoir if water levels return to historic elevations (levels have remained at current elevations for approximately 3 to 4 years). In addition, there is a high likelihood that predatory fish were stranded in the feature when lake levels dropped, which reduces the quality of the habitat for California red-legged frogs.

Perennial Pond (Location 48)

Because of restricted access, the pond at Location 48 was assessed from the top of basalt hill. Based on the inspection of several historic aerial images, the pond is estimated to be approximately 2,500 square feet in size when full; however, at the time of the assessment the feature was only about 300 square feet in size. The pond appears to have been created by damming of the natural drainage, probably for use by cattle. No emergent vegetation was visible; however, the water was very green and contained dense algae. No overhanging vegetation exists and the banks are mostly bare with patches of upland grasses. The substrate appears to be soil and the depth at the time of the assessment was estimated at less than 12 inches. The maximum depth of the pond appears to be no more than 3.5 feet, based on water lines. Based on current conditions, the pond appears to lack the emergent or overhanging vegetation necessary to be suitable as California red-legged frog breeding habitat.

Chapter 7
Summary

NSR conducted a California red-legged frog site assessment for the 2,578.80-acre B.F. Sisk Dam Corrective Action Project in Merced County, California. The site assessment was conducted in accordance with the USFWS *Guidance on Site Assessment and Field Surveys for California Red-legged Frogs* (2005).

The project area is located within the currently known range of the California red-legged frog. The nearest designated critical habitat occurs approximately 3 miles west of the project area. A review of the CNDDB revealed four reported occurrences of the species within 5 miles of the project site (California Department of Fish and Game 2009).

Survey results indicate that no suitable California red-legged frog breeding habitat [i.e., dense, shrubby, or emergent riparian vegetation closely associated with deep (greater than 2.3-feet deep) still or slow-moving water] is present within the project area.

Further, survey results indicate that the majority of the sites in the local assessment area (the area within 1 mile of the project boundary) are unsuitable as California red-legged frog breeding habitat, primarily due to water of insufficient depth and/or duration. Those features retaining enough water to support the frog often had other problematic characteristics that would eliminate, in most cases, the possibility of red-legged frogs utilizing the site as breeding habitat.

If reservoir levels rise significantly and dam seepage increases substantially, some of the features that currently do not hold water of sufficient depth or for a sufficient duration may begin to retain enough water to warrant reconsideration as potential habitat for the California red-legged frog. However, based on current trends and recent lake data over the last 5 years, it is doubtful that San Luis Reservoir water levels will return to historic highs any time in the near future

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Chapter 8
References

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APPENDIX A

Resume for Lead Assessment Biologist

BRANDON AMRHEIN
Biologist/Environmental Analyst

EDUCATION: BA in Environmental Studies with a minor in Biological Sciences
California State University Sacramento.

ADDITIONAL TRAINING:

- Biology and Management of the California Red-legged frog workshop - 2008
- Certified Wetland Delineator: 2003 (Wetland Training Institute)
- Studied and worked under the supervision of an ISA Certified Arborist for approximately 3 years.

SYNOPSIS:

Mr. Amrhein has over 4 years of experience as a professional biologist, conducting environmental/biological services for development projects and municipal planning projects, including research, preparation of environmental documentation, and fieldwork such as biological assessments, tree surveys, wetland delineations, special-status species investigations, valley elderberry longhorn beetle surveys, nest surveys, environmental monitoring of construction sites, and monitoring for mitigation requirements. In 2008, Mr. Amrhein attended a California red-legged frog training workshop which included instruction on the proper handling and identification of adult and larval stages of red-legged frogs, bull frogs, and western toads; day and nighttime survey protocols and participation; and a review of various frog calls.

RELEVANT EXPERIENCE:

Soda Bay Road Bridge Replacement Project — Lake County, CA. Wildlife Biologist. Conducted protocol-level California red-legged frog surveys for the project. Completed 2 daytime and 4 nighttime surveys. Fieldwork was conducted under the supervision of an NSR biologist authorized under a U.S. Fish and Wildlife Service Recovery Permit for the California red-legged frog.

Sly Park Road Bridge Replacement Project — El Dorado County, California. Wildlife Biologist. Conducted a California red-legged frog site assessment and completed protocol-level field surveys. Twelve aquatic sites were identified within 1-mile of the project site and evaluated for habitat suitability.

Business Park Drive/Durock Road Intersection Improvement Project — El Dorado County, California. Wildlife Biologist. Conducted a red-legged frog site assessment in which three aquatic sites were evaluated for habitat suitability. The specific focus of these sites was to determine if introduced aquatic predators such as bullfrogs and bass were present at these locations.

Kamps Ranch Biological Resource Assessment — Madera County, California. Wildlife Biologist. Working with a California tiger salamander (CTS) permit holder, Mr. Amrhein discovered a small population of larval stage CTS in several cattle ponds. Habitat characteristics, GPS coordinates, and photographs were submitted to the state for entry into the CNDDB database.

Lewis Stein Bridge Project – Elk Grove, California. Monitoring Biologist. Monitored all construction activities at the project site while construction was in progress. Project activities were conducted in a sensitive giant garter snake (GGS) mitigation area. Mr. Amrhein provided worker training for the identification of sensitive wildlife species and the proper procedures to follow when sensitive species were detected within the project boundaries. Mr. Amrhein worked with Mr. Eric Hanson (Recovery Permit holder for GGS) to identify GGS and report potential GGS sightings.

Biological Investigations for Environmental Impact Reports of various projects in California. Mr. Amrhein performs site reconnaissance level surveys, and writes biological evaluations to be included as part of Environmental Impact Reports for various projects throughout California. To complete these tasks he conducts research using the California Natural Diversity Database and California Wildlife Habitat Relationship System database, as well as consulting with the U.S. Fish and Wildlife Service, U.S. Army Corps of Engineers, California Department of Fish and Game, California Native Plant Society, local government officials, and local environmental agencies to address site-specific natural resources.

Wetland Delineation for various projects in California. Mr. Amrhein conducts wetland delineations, following the U.S. Army Corps of Engineers guidelines. He considers hydrology, vegetation, and soil to determine if habitat meets the requirements to be considered an official wetland per the U.S. Army Corps requirements.

Special Status Species investigations and consultations for various projects in California. Mr. Amrhein confirms the presence/absence of special status plant and animal species and potential habitat for these species (e.g., Swainson’s hawk, burrowing owl, and giant garter snake) at various project locations in California. He consults with the U.S. Fish and Wildlife Service, California Department of Fish and Game, and U.S. Army Corps of Engineers (when appropriate) regarding appropriate survey/reporting protocols for specific species.

APPENDIX B

Habitat Assessment Data Sheets

Appendix D.
California Red-legged Frog Habitat Site Assessment Data Sheet

Site Assessment reviewed by ______ ______ ______
(FWS Field Office) (date) (biologist)

Date of Site Assessment: 11/22/2009
(mm/dd/yyyy)

Site Assessment Biologists: Amrhein Brandon Perkins Terra
(Last name) (first name) (Last name) (first name)

______ ______
(Last name) (first name) (Last name) (first name)

Site Location: Merced Co. in an unsectioned portion of San Luis Gonzaga Land Grant
(County, General location name, UTM Coordinates or Lat./Long. or T-R-S).

****ATTACH A MAP** (include habitat types, important features, and species locations)******

Proposed project name: B.F. Sisk Dam Corrective Action Project
Brief description of proposed action:

1) Is this site within the current or historic range of the CRF (circle one)? YES NO

2) Are there known records of CRF within 1.6 km (1 mi) of the site (circle one)? YES NO
If yes, attach a list of all known CRF records with a map showing all locations.

GENERAL AQUATIC HABITAT CHARACTERIZATION

(if multiple ponds or streams are within the proposed action area, fill out one data sheet for each)

Location 1

POND:

Size: ______ Maximum depth: ______

Vegetation: emergent, overhanging, dominant species: ______

Substrate: ______

Perennial or Ephemeral *(circle one).* If ephemeral, date it goes dry: ______

STREAM:

Bank full width: 2ft.

Depth at bank full: 1.5 ft.

Stream gradient: 7%

Are there pools (circle one)? YES NO

If yes,

Size of stream pools: ____________

Maximum depth of stream pools: ____________

Characterize non-pool habitat: run, riffle, glide, other: ____________

Vegetation: emergent, overhanging, dominant species: upland grasses (no emergent)

Substrate: soil (natural) + concrete segment

Bank description: open canopy. gradual slope.

Perennial or Ephemeral *(circle one)*. If ephemeral, date it goes dry: ____________

Other aquatic habitat characteristics, species observations, drawings, or comments:

- Feature appears to be a Hwy drainage/runoff ditch. Feature is natural b/w DFG? fence + Hwy. Connects to concrete lined ditch (3ft wide)

water: - Natural source (runoff)

- Upland grasses, no veg.

- Dry @ time of assessment

Necessary Attachments: Photo #7260-7263

1. All field notes and other supporting documents
2. Site photographs

Maps with important habitat features and species location

Appendix D.

California Red-legged Frog Habitat Site Assessment Data Sheet

Site Assessment reviewed by			
	(FWS Field Office)	(date)	(biologist)

Date of Site Assessment: 10/22/2009
(mm/dd/yyyy)

Site Assessment Biologists: Amchein Brandon / Perkins Terra

(Last name)	(first name)	(Last name)	(first name)
Amchein	Brandon	Perkins	Terra

Site Location: Merced Co. in an unsectioned portion of San Luis Gonzaga Land Grant
(County, General location name, UTM Coordinates or Lat./Long. or T-R-S).

ATTACH A MAP (include habitat types, important features, and species locations)**

Proposed project name: B.F. Sisk Dam Corrective Action Project
Brief description of proposed action:

1) Is this site within the current or historic range of the CRF (circle one)? YES NO

2) Are there known records of CRF within 1.6 km (1 mi) of the site (circle one)? YES NO
If yes, attach a list of all known CRF records with a map showing all locations.

GENERAL AQUATIC HABITAT CHARACTERIZATION

(if multiple ponds or streams are within the proposed action area, fill out one data sheet for each)

Location 2

POND:

Size: 50ft x 50ft Maximum depth: 1-2 ft.

Vegetation: emergent, overhanging, dominant species:
smartweed, cocklebur, doc, thistle (milk ?)
bottle brush (? - refer to photo) fennel.

Substrate: Soil

Perennial or Ephemeral *(circle one)*. If ephemeral, date it goes dry: ?

Appendix D.
California Red-legged Frog Habitat Site Assessment Data Sheet

STREAM:

Bank full width: ________________

Depth at bank full: ______________

Stream gradient: ________________

Are there pools (circle one)? YES NO

If yes,

Size of stream pools: ________________________

Maximum depth of stream pools: ______________

Characterize non-pool habitat: run, riffle, glide, other: ___________________________

Vegetation: emergent, overhanging, dominant species: ___________________________

Substrate: ___________________________

Bank description: ___________________________

Perennial or Ephemeral *(circle one)*. If ephemeral, date it goes dry: ____________________

Other aquatic habitat characteristics, species observations, drawings, or comments:

- Feature is a damned natural drainage. (Impounded) Broad, flat gradual slope near dam
- No water present @ time of assessment Feature appears to have been dry for several years.
- Not CRLF breeding habitat.
- No culvert present for water drainage through dam (impounded side collection feature only.

Necessary Attachments: Photo #s: 7264-68

1. All field notes and other supporting documents
2. Site photographs

Maps with important habitat features and species location

Appendix D.

California Red-legged Frog Habitat Site Assessment Data Sheet

Site Assessment reviewed by ______ (FWS Field Office) (date) (biologist)

Date of Site Assessment: 10/21/09
(mm/dd/yyyy)

Site Assessment Biologists: Amrhein Brandon (Last name) (first name) Perkins Terra (Last name) (first name)

______ (Last name) (first name) ______ (Last name) (first name)

Site Location: Merced Co. in an unsectioned portion of San Luis Gonzaga Land Grant
(County, General location name, UTM Coordinates or Lat./Long. or T-R-S).

****ATTACH A MAP** (include habitat types, important features, and species locations)**

Proposed project name: B.F. Sisk Dam Corrective Action Project
Brief description of proposed action:

1) Is this site within the current or historic range of the CRF (circle one)? YES NO

2) Are there known records of CRF within 1.6 km (1 mi) of the site (circle one)? YES NO
If yes, attach a list of all known CRF records with a map showing all locations.

GENERAL AQUATIC HABITAT CHARACTERIZATION

(if multiple ponds or streams are within the proposed action area, fill out one data sheet for each)

Location 3

POND:

Size: ______ Maximum depth: ______

Vegetation: emergent, overhanging, dominant species: ______

Substrate: ______

Perennial or Ephemeral *(circle one)*. If ephemeral, date it goes dry: ______

Appendix D.

California Red-legged Frog Habitat Site Assessment Data Sheet

STREAM:

Bank full width: 15'

Depth at bank full: 2'

Stream gradient: 3%

Are there pools (circle one)? YES NO

If yes,

Size of stream pools: ______

Maximum depth of stream pools: ______

Characterize non-pool habitat: run, riffle, glide, other: ______

Vegetation: emergent, overhanging, dominant species: Dominant: coyote bush some upland grasses/weeds

Substrate: soil

Bank description: densely covered w/vegetation

Perennial or Ephemeral *(circle one)*. If ephemeral, date it goes dry: dependent on lake levels.

Other aquatic habitat characteristics, species observations, drawings, or comments:

- Feature runs parallel to 152. No water present. Does not appear to hold water for a long time period: therefore unlikely to support CRLF habitat.

- Dense canopy cover of coyote bush.

Necessary Attachments:

1. All field notes and other supporting documents
2. Site photographs

Maps with important habitat features and species location

Appendix D.
California Red-legged Frog Habitat Site Assessment Data Sheet

Site Assessment reviewed by ______ (FWS Field Office) ______ (date) ______ (biologist)

Date of Site Assessment: 09/30/2009 **(mm/dd/yyyy)**

Site Assessment Biologists: Amrhein Brandon Perkins Terra
(Last name) (first name) (Last name) (first name)

(Last name) (first name) (Last name) (first name)

Site Location: Merced Co. in an unsectioned portion of San Luis Gonzaga Land Grant
(County, General location name, UTM Coordinates or Lat./Long. or T-R-S).

****ATTACH A MAP** (include habitat types, important features, and species locations)**

Proposed project name: B.F. Sisk Dam Corrective Action Project
Brief description of proposed action:

1) Is this site within the current or historic range of the CRF (circle one)? YES NO

2) Are there known records of CRF within 1.6 km (1 mi) of the site (circle one)? YES NO
If yes, attach a list of all known CRF records with a map showing all locations.

GENERAL AQUATIC HABITAT CHARACTERIZATION

(if multiple ponds or streams are within the proposed action area, fill out one data sheet for each)

Location 6 & 11

POND:

Size: ______ Maximum depth: ______

Vegetation: emergent, overhanging, dominant species: ______

Substrate: ______

Perennial or Ephemeral *(circle one).* If ephemeral, date it goes dry: ______

Appendix D.
California Red-legged Frog Habitat Site Assessment Data Sheet

STREAM:

Bank full width: 3 ft.

Depth at bank full: 18 in.

Stream gradient: 5%

Are there pools (circle one)? YES NO

If yes,

Size of stream pools: ______

Maximum depth of stream pools: ______

Characterize non-pool habitat: run, riffle, glide, other: glide

Vegetation: emergent, overhanging, dominant species: mowed remnants of emergent veg. (rush sp.)

Substrate: dirt / soil

Bank description: exposed, steep banks

Perennial or Ephemeral *(circle one)*. If ephemeral, date it goes dry: seep is wet when lake levels are high.

[Photo #'s 6966, 6989, 6990, 7007] see also: 6691-6692

Other aquatic habitat characteristics, species observations, drawings, or comments:

- Ditch is maintaing + kept clear of vegetation. Some upland grasses along upper bank.
- This seep has been dry approximately 3yrs. (per DWR) due to low lake levels.
- Water source = lake.
- During time of assessment, water feature appears to have been dry for 6+ months. Not suitable for CRLF habitat (due to lack of water).

Necessary Attachments:

1. All field notes and other supporting documents
2. Site photographs

Maps with important habitat features and species location

Appendix D.

California Red-legged Frog Habitat Site Assessment Data Sheet

Site Assessment reviewed by ______ (FWS Field Office) ______ (date) ______ (biologist)

Date of Site Assessment: 09/30/09 (mm/dd/yyyy)

Site Assessment Biologists: Amrhein (Last name) Brandon (first name) Perkins (Last name) Terra (first name)

______ (Last name) ______ (first name) ______ (Last name) ______ (first name)

Site Location: Merced Co. in an unsectioned portion of San Luis Gonzaga Land Grant
(County, General location name, UTM Coordinates or Lat./Long. or T-R-S).

****ATTACH A MAP** (include habitat types, important features, and species locations)**

Proposed project name: B.F. Sisk Dam Corrective Action Project
Brief description of proposed action:

1) Is this site within the current or historic range of the CRF (circle one)? YES NO

2) Are there known records of CRF within 1.6 km (1 mi) of the site (circle one)? YES NO
If yes, attach a list of all known CRF records with a map showing all locations.

Location 4&5

GENERAL AQUATIC HABITAT CHARACTERIZATION
(if multiple ponds or streams are within the proposed action area, fill out one data sheet for each)

POND: A - 30yd. circle.
Size: B - 4yds x 25 yds. Maximum depth: ______

Vegetation: emergent, overhanging, dominant species:
A - unidentified grasses. (green)
B - unidentified grasses/weeds (dry/dead).

Substrate: soil/gravel/fine sand.

Perennial or Ephemeral (*circle one*). If ephemeral, date it goes dry: dependend on treatment use.

Appendix D.
California Red-legged Frog Habitat Site Assessment Data Sheet

STREAM:

Bank full width: ________________

Depth at bank full: ______________

Stream gradient: ________________

Are there pools (circle one)? YES NO

If yes,

Size of stream pools: ________________________

Maximum depth of stream pools: ______________

Characterize non-pool habitat: run, riffle, glide, other: ___________________________

Vegetation: emergent, overhanging, dominant species: ___________________________

Substrate: ___________________________

Bank description: ___________________________

Perennial or Ephemeral *(circle one)*. If ephemeral, date it goes dry: ______________________

Other aquatic habitat characteristics, species observations, drawings, or comments:

- Feature appears to serve as water treatment ponds for visitor center
2 ponds connected by culvert. 1st pond drains to second.
Pond 1 has no visible surface water. Emergent veg (weeds, grasses) is green. Water meter in center of pond (max depth of meter is 14ft)
Pond 2 is dry; has no green vegetation. Doesn't appear to be in use.
- Both features have exposed upland banks, enclosed by barbed wire fence.
- Photo#'s: 7008 - 7010

Necessary Attachments:

1. All field notes and other supporting documents
2. Site photographs

Maps with important habitat features and species location

Appendix D.
California Red-legged Frog Habitat Site Assessment Data Sheet

Site Assessment reviewed by ______________________________
(FWS Field Office) (date) (biologist)

Date of Site Assessment: 10/21/2009
(mm/dd/yyyy)

Site Assessment Biologists: Amrhein Brandon Perkins Terra
(Last name) (first name) (Last name) (first name)

______________________ ______________________
(Last name) (first name) (Last name) (first name)

Site Location: Merced Co. in an unsectioned portion of San Luis Gonzaga Land Gran
(County, General location name, UTM Coordinates or Lat./Long. or T-R-S).

****ATTACH A MAP** (include habitat types, important features, and species locations)******

Proposed project name: B. F. Sisk Dam Corrective Action Project
Brief description of proposed action:

1) Is this site within the current or historic range of the CRF (circle one)? YES NO

2) Are there known records of CRF within 1.6 km (1 mi) of the site (circle one)? YES NO
If yes, attach a list of all known CRF records with a map showing all locations.

GENERAL AQUATIC HABITAT CHARACTERIZATION
(if multiple ponds or streams are within the proposed action area, fill out one data sheet for each)

Location 1

POND:

Size: ______________ Maximum depth: ______________

Vegetation: emergent, overhanging, dominant species: ______________

Substrate: ______________

Perennial or Ephemeral *(circle one)*. If ephemeral, date it goes dry: ______________

Appendix D.
California Red-legged Frog Habitat Site Assessment Data Sheet

STREAM:

Bank full width: 1-2ft.
Depth at bank full: 5-6 ft.
Stream gradient: 3%

Are there pools (circle one)? YES NO

If yes,

Size of stream pools: ______
Maximum depth of stream pools: ______

Characterize non-pool habitat: run, riffle, glide, other: ______

Vegetation: emergent, overhanging, dominant species: minimal emergent

Substrate: Soil.

Bank description: upland grasses along banks; dominant upland veg = coyote bush
disturbed / altered erosion is minimal (open + exposed)

Perennial or Ephemeral *(circle one)*. If ephemeral, date it goes dry: depend on lake levels.

Other aquatic habitat characteristics, species observations, drawings, or comments:

Feature is part of seepage system. Water source is derived from lake seepage when lake water level is high.

Drains eventually to feature 10.

Feature dry @ time of survey. Feature does not appear to retain water (evident by lack of emergent veg.)

Parallels Hwy / barbed wire fence extends through feature (Disturbed)

Doesn't appear to support CRLF breeding hab.

-water turbid (murkey)

Necessary Attachments:

Photo # : 7240 - 46

1. All field notes and other supporting documents
2. Site photographs

Maps with important habitat features and species location

* Roadside drainage ditch appears to tie into this feature

Appendix D.
California Red-legged Frog Habitat Site Assessment Data Sheet

Site Assessment reviewed by ______ (FWS Field Office) ______ (date) ______ (biologist)

Date of Site Assessment: 09/30/2009 (mm/dd/yyyy)

Site Assessment Biologists: Amrhein Brandon (Last name) (first name) Perkins Terra (Last name) (first name)

(Last name) (first name) (Last name) (first name)

Site Location: Merced Co. in an unsectioned portion of San Luis Gonzaga Land Grant
(County, General location name, UTM Coordinates or Lat./Long. or T-R-S).

****ATTACH A MAP** (include habitat types, important features, and species locations)******

Proposed project name: B.F. Sisk Dam Corrective Action Project
Brief description of proposed action:

1) Is this site within the current or historic range of the CRF (circle one)? YES NO

2) Are there known records of CRF within 1.6 km (1 mi) of the site (circle one)? YES NO
If yes, attach a list of all known CRF records with a map showing all locations.

GENERAL AQUATIC HABITAT CHARACTERIZATION

(if multiple ponds or streams are within the proposed action area, fill out one data sheet for each)

Location 8&9

POND: A 40ft x 25ft.
Size: B 60ft x 50ft. Maximum depth: 3ft.

Vegetation: emergent, overhanging, dominant species: EMERGENT: Cattail, Rabbit's Foot Grass, Sedge (Juncus sp?) → see wetland delineation report. OVERHANG: Coyote bush

Substrate: Soil / very dry w/ large, deep cracks.

Perennial or Ephemeral *(circle one)*. If ephemeral, date it goes dry: dependent on lake levels.

STREAM:

Bank full width: ________________
Depth at bank full: ______________
Stream gradient: ________________

Are there pools (circle one)? YES NO
If yes,
Size of stream pools: ________________________
Maximum depth of stream pools: ______________

Characterize non-pool habitat: run, riffle, glide, other: ____________________________

Vegetation: emergent, overhanging, dominant species: ____________________________

Substrate: ____________________________

Bank description: ____________________________

Perennial or Ephemeral *(circle one)*. If ephemeral, date it goes dry: ______________________

Other aquatic habitat characteristics, species observations, drawings, or comments:

- Feature is comprised of multiple ditches draining to a depression containing cattails + other wetland. This feature passes under freeway + dirt road via culvert.
- Feature has been dry for several years per DWR. Dam seepage @ higher lake levels may act as a water source for this feature. However, lake levels are too low for enough water to support CRLF breeding habitat.
- Maint. road bordering one edge of feature (free of vegetation.)

Necessary Attachments:

1. All field notes and other supporting documents
2. Site photographs

Maps with important habitat features and species location

[Photo #'s: 6993 - 7004]

Appendix D.

California Red-legged Frog Habitat Site Assessment Data Sheet

Site Assessment reviewed by ______ ______ ______
(FWS Field Office) (date) (biologist)

Date of Site Assessment: 09/28/2009
(mm/dd/yyyy)

Site Assessment Biologists: Andrews Brandon Perkins Terra
(Last name) (first name) (Last name) (first name)

(Last name) (first name) (Last name) (first name)

Site Location: Merced Co. In an unsectioned portion of the San Luis Gonzaga land Gran
(County, General location name, UTM Coordinates or Lat./Long. or T-R-S).

ATTACH A MAP (include habitat types, important features, and species locations)**

Proposed project name: B.F. Sisk Dam Corrective Action Project
Brief description of proposed action:

1) Is this site within the current or historic range of the CRF (circle one)? YES NO

2) Are there known records of CRF within 1.6 km (1 mi) of the site (circle one)? YES NO
If yes, attach a list of all known CRF records with a map showing all locations.

GENERAL AQUATIC HABITAT CHARACTERIZATION

(if multiple ponds or streams are within the proposed action area, fill out one data sheet for each)

Location 10

POND: within drainage. — Dry on assessment date
Size: ~ 2.5 Acres when full Maximum depth: 1'

Vegetation: emergent, overhanging, dominant species: EMERGENT: Cattail, rush.
OVERHANG: Willow, Cottonwood

Substrate: soil

Perennial or Ephemeral *(circle one)*. If ephemeral, date it goes dry: August

Appendix D.

California Red-legged Frog Habitat Site Assessment Data Sheet

STREAM:

Bank full width: ________________
Depth at bank full: ______________
Stream gradient: ________________

Are there pools (circle one)? YES NO
If yes,
Size of stream pools: ________________________
Maximum depth of stream pools: _______________

Characterize non-pool habitat: run, riffle, glide, other: ___________________________

Vegetation: emergent, overhanging, dominant species: ___________________________

Substrate: ___________________________

Bank description: ___________________________

Perennial or Ephemeral *(circle one)*. If ephemeral, date it goes dry: ____________________

Other aquatic habitat characteristics, species observations, drawings, or comments: road boarders

- Feature sits in a low drainage depression. Dense overhanging veg (mostly willow) → Not artifically impounded (feature gradually [illegible]
- Water source: ground appears to be moist @ time of assessment. Natural runoff.
- Deer, jack rabbit, morning dove.
- Upland habitat: grassland.

Photo#: 6922-6927

Necessary Attachments:

1. All field notes and other supporting documents
2. Site photographs

Maps with important habitat features and species location

Appendix D.
California Red-legged Frog Habitat Site Assessment Data Sheet

Site Assessment reviewed by ______ (FWS Field Office) ______ (date) ______ (biologist)

Date of Site Assessment: 10/22/2009
(mm/dd/yyyy)

Site Assessment Biologists: Amrhein Brandon Perkins Terra
(Last name) (first name) (Last name) (first name)

(Last name) (first name) (Last name) (first name)

Site Location: Merced Co. In an unsectioned portion of San Luis Gonzaga Land Grant
(County, General location name, UTM Coordinates or Lat./Long. or T-R-S).

****ATTACH A MAP** (include habitat types, important features, and species locations)****

Proposed project name: B.F. Sisk Dam Corrective Action Project
Brief description of proposed action:

1) Is this site within the current or historic range of the CRF (circle one)? YES NO

2) Are there known records of CRF within 1.6 km (1 mi) of the site (circle one)? YES NO
If yes, attach a list of all known CRF records with a map showing all locations.

GENERAL AQUATIC HABITAT CHARACTERIZATION

(if multiple ponds or streams are within the proposed action area, fill out one data sheet for each)

Location 12

POND: (tear-drop shaped)

Size: 35ft long x 35 wide   Maximum depth: 4ft.

Vegetation: emergent, overhanging, dominant species: Emergent: nut sedge, smartweed, rabbit's foot grass; wooley marble, doc, underwater vegetation.

Substrate: soil. (rock + silt)

Perennial or Ephemeral *(circle one)*. If ephemeral, date it goes dry: ______

Appendix D.
California Red-legged Frog Habitat Site Assessment Data Sheet

STREAM:

Bank full width: ________________

Depth at bank full: ______________

Stream gradient: ________________

Are there pools (circle one)? YES NO

If yes,

Size of stream pools: ________________________

Maximum depth of stream pools: ______________

Characterize non-pool habitat: run, riffle, glide, other: ________________________

Vegetation: emergent, overhanging, dominant species: ________________________

Substrate: ________________________

Bank description: ________________________

Perennial or Ephemeral *(circle one)*. If ephemeral, date it goes dry: ________________

Other aquatic habitat characteristics, species observations, drawings, or comments:

- Feature exists in a hill recess: Excavated + impounded culvert connected to and draining into ditch (Feature #13) @ time of survey, culvert is 1ft above water surface + 60-80% clogged w/ silt.
- Macroinvert present: water striders. (No other animals observed) Deer + wildlife trails present
- Water source: likely natural.
- Open canopy. Steep bank mostly bare. Some sparse emergent vegetation exists along feature edges.
- Photo #'s: 7250-54 - CRLF potential hab?

Necessary Attachments:

1. All field notes and other supporting documents
2. Site photographs

Maps with important habitat features and species location

Appendix D.
California Red-legged Frog Habitat Site Assessment Data Sheet

Site Assessment reviewed by _________ (FWS Field Office) _________ (date) _________ (biologist)

Date of Site Assessment: 10/22/2009
(mm/dd/yyyy)

Site Assessment Biologists: Amhein Brandon Perkins Tefra
(Last name) (first name) (Last name) (first name)

(Last name) (first name) (Last name) (first name)

Site Location: Merced Co. in an unsectioned portion of San Luis Gonzaga Land Grant
(County, General location name, UTM Coordinates or Lat./Long. or T-R-S).

****ATTACH A MAP** (include habitat types, important features, and species locations)**

Proposed project name: B.F. Sisk Dam Corrective Action Project Brief description of proposed action:

1) Is this site within the current or historic range of the CRF (circle one)? YES NO

2) Are there known records of CRF within 1.6 km (1 mi) of the site (circle one)? YES NO
If yes, attach a list of all known CRF records with a map showing all locations.

GENERAL AQUATIC HABITAT CHARACTERIZATION

(if multiple ponds or streams are within the proposed action area, fill out one data sheet for each)

Location 13

POND:

Size: ______ Maximum depth: ______

Vegetation: emergent, overhanging, dominant species: ______

Substrate: ______

Perennial or Ephemeral *(circle one)*. If ephemeral, date it goes dry: ______

Appendix D.
California Red-legged Frog Habitat Site Assessment Data Sheet

STREAM:

Bank full width: 6 ft.
Depth at bank full: 1 ft.-3 ft.
Stream gradient: 5%

Are there pools (circle one)? YES NO
If yes,
Size of stream pools: ______
Maximum depth of stream pools: ______

Characterize non-pool habitat: run, riffle, glide, other: ______

Vegetation: emergent, overhanging, dominant species: upland grasses: oats lolium (sp?)

Substrate: soil.

Bank description: open canopy, covered in upland grasses. Gradual slope.

Perennial or Ephemeral *(circle one)*. If ephemeral, date it goes dry: dry @ time of assessment

Other aquatic habitat characteristics, species observations, drawings, or comments:

- Feature's water source is #12 DFCs and when the feature reaches culvert level. (in addition to natural source)
- Feature follows a natural topography + is joined by other similar topographic drainages.
- Dry @ time of assessment. Little to no emergent veg.
- wildlife trails present.

Photo #: 7255→7059

Necessary Attachments:

1. All field notes and other supporting documents
2. Site photographs

Maps with important habitat features and species location

Appendix D.
California Red-legged Frog Habitat Site Assessment Data Sheet

Site Assessment reviewed by ______ (FWS Field Office) ______ (date) ______ (biologist)

Date of Site Assessment: 09/28/2009
(mm/dd/yyyy)

Site Assessment Biologists: Amrhein Brandon (Last name) (first name) Perkins Terra (Last name) (first name)

______ (Last name) (first name) ______ (Last name) (first name)

Site Location: Merced Co. in an unsectioned portion of San Luis Gonzaga Land Grant
(County, General location name, UTM Coordinates or Lat./Long. or T-R-S).

****ATTACH A MAP** (include habitat types, important features, and species locations)**

Proposed project name: B.F. Sisk Dam Corrective Action Project
Brief description of proposed action:

1) Is this site within the current or historic range of the CRF (circle one)? YES NO

2) Are there known records of CRF within 1.6 km (1 mi) of the site (circle one)? YES NO
If yes, attach a list of all known CRF records with a map showing all locations.

GENERAL AQUATIC HABITAT CHARACTERIZATION

(if multiple ponds or streams are within the proposed action area, fill out one data sheet for each)

Location 14 & 15

POND: Pool 1 160 x 100 ft
Size: Pool 2 160 x 100 ft Maximum depth: 4 ft (typical depth < 18 in.)

Vegetation: emergent, overhanging, dominant species: EMERGENT: Cattails
unknown low growing weed; tumble weed.

Substrate: Gravel w/ layer of sediment

Perennial or Ephemeral *(circle one)*. If ephemeral, date it goes dry: Varies based on use

Appendix D.
California Red-legged Frog Habitat Site Assessment Data Sheet

STREAM:

Bank full width: ________________

Depth at bank full: ______________

Stream gradient: ________________

Are there pools (circle one)? YES NO

If yes,

Size of stream pools: ________________________

Maximum depth of stream pools: ______________

Characterize non-pool habitat: run, riffle, glide, other: ______________________________

Vegetation: emergent, overhanging, dominant species: ______________________________

Substrate: ______________________________

Bank description: ______________________________

Perennial or Ephemeral *(circle one)*. If ephemeral, date it goes dry: ____________________

Other aquatic habitat characteristics, species observations, drawings, or comments:

- Feature is two water treatment ponds. Pond 2 appears to overflow into pond 1. Ponds are excavated and surrounded by barbed wire fencing. Steep, gravel lined banks.

- Pond 1 -Southmost has cattails, densely vegetated. Pond 2 -North-most appears to receive less water. Vegetated w/tumble weeds.

Photo #: 6916 + 6917

Necessary Attachments:

1. All field notes and other supporting documents
2. Site photographs

Maps with important habitat features and species location

Appendix D.

California Red-legged Frog Habitat Site Assessment Data Sheet

Site Assessment reviewed by ______ (FWS Field Office) ______ (date) ______ (biologist)

Date of Site Assessment: 09/28/2009
(mm/dd/yyyy)

Site Assessment Biologists: Amrhein Brandon Perkins Terra
(Last name) (first name) (Last name) (first name)

______ ______ ______ ______
(Last name) (first name) (Last name) (first name)

Site Location: Merced Co. in an unsectioned portion of San Luis Gonzaga Land Grant
(County, General location name, UTM Coordinates or Lat./Long. or T-R-S).

****ATTACH A MAP** (include habitat types, important features, and species locations)**

Proposed project name: B.F. Sisk Dam Corrective Action Project
Brief description of proposed action:

1) Is this site within the current or historic range of the CRF (circle one)? YES NO

2) Are there known records of CRF within 1.6 km (1 mi) of the site (circle one)? YES NO
If yes, attach a list of all known CRF records with a map showing all locations.

GENERAL AQUATIC HABITAT CHARACTERIZATION

(if multiple ponds or streams are within the proposed action area, fill out one data sheet for each)

Location 17

POND:

Size: ______ Maximum depth: ______

Vegetation: emergent, overhanging, dominant species: ______

Substrate: ______

Perennial or Ephemeral *(circle one)*. If ephemeral, date it goes dry: ______

Appendix D.

California Red-legged Frog Habitat Site Assessment Data Sheet

STREAM: /Drainage

Bank full width: 3ft.

Depth at bank full: 6 in.

Stream gradient: 3%

Are there pools (circle one)? YES NO

If yes,

Size of stream pools: ____

Maximum depth of stream pools: ____

Characterize non-pool habitat: run, riffle, glide, other: glide

Vegetation: emergent, overhanging, dominant species: pockets of wetland vegetation along feature. Ex: Dock, cattails.

Substrate: soil

Bank description: upland grasses. low area along natural drainage

Perennial or Ephemeral *(circle one)*. If ephemeral, date it goes dry: May (very dry @ time of assessment)

Other aquatic habitat characteristics, species observations, drawings, or comments:

- Deer observed. Evidence of prior burn in area.
- Area may be barrow site for treatment pond. Possibly excavated.
- Unlikely to support water levels needed for CRLF breeding habitat.

Photo #: 6918 connects to 6919-6921

Necessary Attachments:

1. All field notes and other supporting documents
2. Site photographs

Maps with important habitat features and species location

Appendix D.
California Red-legged Frog Habitat Site Assessment Data Sheet

Site Assessment reviewed by	(FWS Field Office)	(date)	(biologist)

Date of Site Assessment: 09/28/2009
(mm/dd/yyyy)

Site Assessment Biologists:

(Last name)	(first name)	(Last name)	(first name)
Amrhein	Brandon	Perkins	Terra

Site Location: Merced Co. T10S R08E Sec. 13
(County, General location name, UTM Coordinates or Lat./Long. or T-R-S).

****ATTACH A MAP** (include habitat types, important features, and species locations)****

Proposed project name: B.F. Sisk Dam Corrective Action Project
Brief description of proposed action:
Due to seismic concerns the Bureau of Reclemation and DWR are making corrective improvements to the dam structure to allevirate risks to the downstream public.

1) Is this site within the current or historic range of the CRF (circle one)? YES NO

2) Are there known records of CRF within 1.6 km (1 mi) of the site (circle one)? YES NO
If yes, attach a list of all known CRF records with a map showing all locations.

GENERAL AQUATIC HABITAT CHARACTERIZATION

(if multiple ponds or streams are within the proposed action area, fill out one data sheet for each)

Location 18

POND:

Size: ~2.25 Acres Maximum depth: 4'

Vegetation: emergent, overhanging, dominant species: EMERGENT: Cattails, Willows, Rush, Curly Dock, Crab Grass, Cocklebur
OVERHANGING: Willow sp.

Substrate: Soil with algae matting.

Perennial or Ephemeral *(circle one)*. If ephemeral, date it goes dry:

Appendix D.
California Red-legged Frog Habitat Site Assessment Data Sheet

STREAM:

Bank full width: ________________

Depth at bank full: ______________

Stream gradient: ________________

Are there pools (circle one)? YES NO

If yes,

Size of stream pools: ________________________

Maximum depth of stream pools: ______________

Characterize non-pool habitat: run, riffle, glide, other: ________________________

Vegetation: emergent, overhanging, dominant species: ________________________

Substrate: ________________________

Bank description: ________________________

Perennial or Ephemeral *(circle one)*. If ephemeral, date it goes dry: ____________________

Other aquatic habitat characteristics, species observations, drawings, or comments:

- Wildlife: Green heron nest; rookery. Crayfish, Killdeer.

- Feature separated from forebay @ time of assessment. Viable fish habitat not likely in wetland feature when forebay water level is low. CRLF predators = shore birds + crayfish + possibly fish

- one Pacific chorus frog call heard during assessment.
- Water source: forebay overflow + natural drainage.

Photo #: 6886 - 6896

Necessary Attachments:

1. All field notes and other supporting documents
2. Site photographs

Maps with important habitat features and species location

Appendix D.
California Red-legged Frog Habitat Site Assessment Data Sheet

Site Assessment reviewed by ______ (FWS Field Office) ______ (date) ______ (biologist)

Date of Site Assessment: 09/28/2009
(mm/dd/yyyy)

Site Assessment Biologists: Amrhein Brandon — Perkins Terra
(Last name) (first name) — **(Last name) (first name)**

______ **(Last name) (first name)** — ______ **(Last name) (first name)**

Site Location: Merced Co. T10S R09E Sec. 18
(County, General location name, UTM Coordinates or Lat./Long. or T-R-S).

****ATTACH A MAP** (include habitat types, important features, and species locations)**

Proposed project name: B.F. Sisk Dam Corrective Action Project
Brief description of proposed action:

1) Is this site within the current or historic range of the CRF (circle one)? YES NO

2) Are there known records of CRF within 1.6 km (1 mi) of the site (circle one)? YES NO
If yes, attach a list of all known CRF records with a map showing all locations.

Location 19

GENERAL AQUATIC HABITAT CHARACTERIZATION

(if multiple ponds or streams are within the proposed action area, fill out one data sheet for each)

POND:

Size: ~18 Acres Maximum depth: 57'

Vegetation: emergent, overhanging, dominant species: EMERGENT: hydrophytic grass. OVERHANGING: Willows (Salix sp.) Bullrush, Cattail, Curly Dock along portions of shoreline.

Substrate: Sand / gravel
Algae mats on bank

Perennial or Ephemeral *(circle one)*. If ephemeral, date it goes dry: ______

Appendix D.
California Red-legged Frog Habitat Site Assessment Data Sheet

STREAM:

Bank full width: ________________

Depth at bank full: ______________

Stream gradient: ________________

Are there pools (circle one)? YES NO

If yes,

Size of stream pools: ________________________

Maximum depth of stream pools: ______________

Characterize non-pool habitat: run, riffle, glide, other: ________________________

Vegetation: emergent, overhanging, dominant species: ________________________

Substrate: ________________________

Bank description: ________________________

Perennial or Ephemeral *(circle one)*. If ephemeral, date it goes dry: ______________________

Other aquatic habitat characteristics, species observations, drawings, or comments:

- wildlife: Merganser, Gulls, Ravens, Fish (stripped bass, sunfish), Osprey, Coots, Aq. snails, FW clams, Egrets, Cormerants, Blackbirds (Brewers, Red wing), Mallards.
- Fishermen present, recreational use (camping)
- excavated + impounded: man-made forebay to San Luis Reservoir
- Surrounding-upland habitat: grassland / riparian zone (willows, Sycamore, oak, cotton wood, black walnut

Photo #: 6879 – 6881; 6884-6885;

Necessary Attachments:

1. All field notes and other supporting documents
2. Site photographs

Maps with important habitat features and species location

Appendix D.
California Red-legged Frog Habitat Site Assessment Data Sheet

Site Assessment reviewed by ______ ______ ______
(FWS Field Office) (date) (biologist)

Date of Site Assessment: 09/28/2009
(mm/dd/yyyy)

Site Assessment Biologists: Amchein Brandon Perkins Terra
(Last name) (first name) (Last name) (first name)

(Last name) (first name) (Last name) (first name)

Site Location: Merced Co. T 10S R09E Sec. 19
(County, General location name, UTM Coordinates or Lat./Long. or T-R-S).

****ATTACH A MAP** (include habitat types, important features, and species locations)****

Proposed project name: B. F. Sisk Dam Corrective Action Project
Brief description of proposed action:

1) Is this site within the current or historic range of the CRF (circle one)? YES NO

2) Are there known records of CRF within 1.6 km (1 mi) of the site (circle one)? YES NO
If yes, attach a list of all known CRF records with a map showing all locations.

Location 20

GENERAL AQUATIC HABITAT CHARACTERIZATION

(if multiple ponds or streams are within the proposed action area, fill out one data sheet for each)

POND:

Size: 20ft x 20ft. Maximum depth: 6in.

Vegetation: emergent, overhanging, dominant species: no veg. upland grasses around feature.

Substrate: soil/cracked mud

Perennial or Ephemeral *(circle one)*. If ephemeral, date it goes dry: June

Appendix D.
California Red-legged Frog Habitat Site Assessment Data Sheet

STREAM:

Bank full width: ________________

Depth at bank full: ______________

Stream gradient: ________________

Are there pools (circle one)? YES NO

If yes,

Size of stream pools: ________________________

Maximum depth of stream pools: _______________

Characterize non-pool habitat: run, riffle, glide, other: ______________________

____

____

Vegetation: emergent, overhanging, dominant species: __________________

____

____

Substrate: ______________________________________

____

Bank description: _______________________________

____

____

Perennial or Ephemeral *(circle one)*. If ephemeral, date it goes dry: ______________

Other aquatic habitat characteristics, species observations, drawings, or comments:

- Devoid of vegetation. Feature appears to be artificially fed for cattle.
- Excavated / man-made.
- Feature is unlikely to hold enough water for CRLF breeding habitat.
- Ground squirrels observed in nearby upland area.

Photo #s: 6902-6905

Necessary Attachments:

1. All field notes and other supporting documents
2. Site photographs

Maps with important habitat features and species location

Appendix D.
California Red-legged Frog Habitat Site Assessment Data Sheet

Site Assessment reviewed by ______ (FWS Field Office) ______ (date) ______ (biologist)

Date of Site Assessment: 09/28/2009
(mm/dd/yyyy)

Site Assessment Biologists: Amrhein Brandon Perkins Terra
(Last name) (first name) (Last name) (first name)

(Last name) (first name) (Last name) (first name)

Site Location: Merced Co. T10S R08E Section 24
(County, General location name, UTM Coordinates or Lat./Long. or T-R-S).

****ATTACH A MAP** (include habitat types, important features, and species locations)******

Proposed project name: B.F. Sisk Dam Corrective Action Project Brief description of proposed action:

1) Is this site within the current or historic range of the CRF (circle one)? YES NO

2) Are there known records of CRF within 1.6 km (1 mi) of the site (circle one)? YES NO
If yes, attach a list of all known CRF records with a map showing all locations.

Location 21

GENERAL AQUATIC HABITAT CHARACTERIZATION

(if multiple ponds or streams are within the proposed action area, fill out one data sheet for each)

POND:

Size: 80 yds x 25 yds. Maximum depth: ≈ 1ft.

Vegetation: emergent, overhanging, dominant species: Bare surrounded by upland grasses.

Substrate: soil

Perennial or Ephemeral *(circle one)*. If ephemeral, date it goes dry: Artificially fed → feature filled 2 weeks prior to assessment. (speculate water will evapo[rate] 1 month from filling.

Appendix D.
California Red-legged Frog Habitat Site Assessment Data Sheet

STREAM:

Bank full width: ______________

Depth at bank full: ______________

Stream gradient: ______________

Are there pools (circle one)? YES NO

If yes,

Size of stream pools: ______________

Maximum depth of stream pools: ______________

Characterize non-pool habitat: run, riffle, glide, other: ______________

Vegetation: emergent, overhanging, dominant species: ______________

Substrate: ______________

Bank description: ______________

Perennial or Ephemeral *(circle one)*. If ephemeral, date it goes dry: ______________

Other aquatic habitat characteristics, species observations, drawings, or comments:

- Feature is an active cattle pond. Likely fed from water tank uphill. 10-12 cows.

- Feature occurs in a natural depression. Drainage to feature has been manipulated to retain more water (impounded)

Photo #'s: 6906-6910; 6591, 6593, 6594

Necessary Attachments:

1. All field notes and other supporting documents
2. Site photographs

Maps with important habitat features and species location

Appendix D.
California Red-legged Frog Habitat Site Assessment Data Sheet

Site Assessment reviewed by ______________________________
(FWS Field Office) (date) (biologist)

Date of Site Assessment: 09/28/2008
(mm/dd/yyyy)

Site Assessment Biologists:

Amrhein	Brandon	Perkins	Terra
(Last name)	**(first name)**	**(Last name)**	**(first name)**
(Last name)	**(first name)**	**(Last name)**	**(first name)**

Site Location: Merced Co. in an unsectioned portion of the San Luis Gonzaga Land Gra.
(County, General location name, UTM Coordinates or Lat./Long. or T-R-S).

ATTACH A MAP (include habitat types, important features, and species locations)**

Proposed project name: B. F Sisk Dam Corrective Action Project
Brief description of proposed action:

1) Is this site within the current or historic range of the CRF (circle one)? YES NO

2) Are there known records of CRF within 1.6 km (1 mi) of the site (circle one)? YES NO
If yes, attach a list of all known CRF records with a map showing all locations.

GENERAL AQUATIC HABITAT CHARACTERIZATION

(if multiple ponds or streams are within the proposed action area, fill out one data sheet for each)

Location 22

POND:

Size: ____________ Maximum depth: ____________

Vegetation: emergent, overhanging, dominant species: ____________

Substrate: ____________

Perennial or Ephemeral *(circle one)*. If ephemeral, date it goes dry: ____________

Appendix D.
California Red-legged Frog Habitat Site Assessment Data Sheet

STREAM:

Bank full width: 3 ft.

Depth at bank full: 6-18 in.

Stream gradient: 3%

Are there pools (circle one)? YES NO

If yes,

Size of stream pools: 3 ft x 6 ft.

Maximum depth of stream pools: 18 in.

Characterize non-pool habitat: run, riffle, glide, other: glide

Vegetation: emergent, overhanging, dominant species: DOMINANT/OVERHANGING: Willow sp. Sycamore. Little to no undergrowth / emergent grasses.

Substrate: soil

Bank description: bare soil w/ leaf litter on upland areas.

Perennial or Ephemeral *(circle one)*. If ephemeral, date it goes dry: July

Other aquatic habitat characteristics, species observations, drawings, or comments:

- Primary water source from San Luis reservoir seepage. Seepage minimal for the past four years (per DWR) due to low water levels.
- Channel does not appear to have sufficent water levels to support viable breeding habitat of CRLFs.
- Feature drains to emergent wetland area of forebay.

Photo #s: 6897-6900

Necessary Attachments:

1. All field notes and other supporting documents
2. Site photographs

Maps with important habitat features and species location

Appendix D.
California Red-legged Frog Habitat Site Assessment Data Sheet

Site Assessment reviewed by ______________________________
(FWS Field Office) (date) (biologist)

Date of Site Assessment: 10/1/2009
(mm/dd/yyyy)

Site Assessment Biologists: Amrhein Brandon Perkins Terra
(Last name) (first name) (Last name) (first name)

(Last name) (first name) (Last name) (first name)

Site Location: Merced Co. in an unsectioned portion of San Luis Gonzaga Land Grant
(County, General location name, UTM Coordinates or Lat./Long. or T-R-S).

****ATTACH A MAP** (include habitat types, important features, and species locations)****

Proposed project name: B.F. Sisk Dam Corrective Action Project
Brief description of proposed action:

1) Is this site within the current or historic range of the CRF (circle one)? YES NO

2) Are there known records of CRF within 1.6 km (1 mi) of the site (circle one)? YES NO
If yes, attach a list of all known CRF records with a map showing all locations.

GENERAL AQUATIC HABITAT CHARACTERIZATION

(if multiple ponds or streams are within the proposed action area, fill out one data sheet for each)

Location 23, 24, 25

POND:
Size: (1) 30' x 50' (2) 30' x 100' (3) 20' x 15'
Maximum depth: (1) (2) 4ft. (3) ~2ft.

Vegetation: emergent, overhanging, dominant species: (1)+(2) lacking emergent, misc. green veg in small patches where enough sediment has collected.
(3)

Substrate: (1)+(2): rock aggragate (w/ some sediment)
(3): soil + aggragate (grasses in + around feature

Perennial or Ephemeral *(circle one)*. If ephemeral, date it goes dry: ______________

Appendix D.
California Red-legged Frog Habitat Site Assessment Data Sheet

STREAM:

Bank full width: ________________

Depth at bank full: ______________

Stream gradient: ________________

Are there pools (circle one)? YES NO

If yes,

Size of stream pools: ________________________

Maximum depth of stream pools: ______________

Characterize non-pool habitat: run, riffle, glide, other: ____________________________

Vegetation: emergent, overhanging, dominant species: ____________________________

Substrate: ____________________________

Bank description: ____________________________

Perennial or Ephemeral *(circle one)*. If ephemeral, date it goes dry: ____________________

– no wildlife observed.

Other aquatic habitat characteristics, species observations, drawings, or comments:

①+②: Feature consists of two pools within the power facility @ base of dam. ① has small pool of water @ time of assessment (4" water 10ft x 10ft). ② is dry with some green veg in bottom. Bank slopes are bare aggregate rock w/small patches of upland grasses. open + exposed banks. water source = forebay pump facility.

enclosed by chain link barbed fence.

③: Feature does not appear to be in current use as treatment pond. Lacks emergent veg. upland grass growing within feature bottom, + along slopes. Sits between dam and storage yard. Pipe extending to feature. May serve as entrapment point for wash station.

Necessary Attachments:

Photo #: 7095 - 7097

1. All field notes and other supporting documents
2. Site photographs

Maps with important habitat features and species location

Appendix D.
California Red-legged Frog Habitat Site Assessment Data Sheet

Site Assessment reviewed by ____
(FWS Field Office) (date) (biologist)

Date of Site Assessment: 10/01/2009
(mm/dd/yyyy)

Site Assessment Biologists: Amrhein Brandon Perkins Terra
(Last name) (first name) (Last name) (first name)

________________________ ________________________
(Last name) (first name) (Last name) (first name)

Site Location: Merced Co. in an unsectioned portion of San Luis Gonzaga Land Grant
(County, General location name, UTM Coordinates or Lat./Long. or T-R-S).

****ATTACH A MAP** (include habitat types, important features, and species locations)**

Proposed project name: B. F. Sisk Dam Corrective Action Project
Brief description of proposed action:

1) Is this site within the current or historic range of the CRF (circle one)? YES NO

2) Are there known records of CRF within 1.6 km (1 mi) of the site (circle one)? YES NO
If yes, attach a list of all known CRF records with a map showing all locations.

Location 26,27,28,29,30

GENERAL AQUATIC HABITAT CHARACTERIZATION

(if multiple ponds or streams are within the proposed action area, fill out one data sheet for each)

POND:

Size: ____________ Maximum depth: ____________

Vegetation: emergent, overhanging, dominant species: ____________

Substrate: ____________

Perennial or Ephemeral *(circle one)*. If ephemeral, date it goes dry: ____________

Appendix D.
California Red-legged Frog Habitat Site Assessment Data Sheet

STREAM:

Bank full width: 3 ft to 15 ft.
Depth at bank full: varies
Stream gradient: 4-5%

Are there pools (circle one)? YES NO → empty into wetland.
If yes,
Size of stream pools: ~~________~~
Maximum depth of stream pools: ~~________~~

Characterize non-pool habitat: run, riffle, glide, other: portions are channelized with steep narrow banks. Others are flat wide and create emergent/wetland habitat.

Vegetation: emergent, overhanging, dominant species: Ditch has patches of overhanging: willow, cottonwood. Flat/wetland portions has smartweed, cattails, willows

Substrate: soil

Bank description: steep narrow + "maintained" possibly excavated exposed. Other locations appear to be naturalized, more flat.

Perennial or Ephemeral *(circle one)*. If ephemeral, date it goes dry: conditional on lake levels.

Other aquatic habitat characteristics, species observations, drawings, or comments:

- Feature spans most of dam base in which a network of side ditches/seeps flow into it. Ditch eventually drains near the western end of forebay. Fairly sophisticated netw[ork] of culverts + ditches. consult wetland rep[ort]
- Man made-excavated/impounded @ points.
- Feature dry @ time of assessment, but may retain more water when lake levels are higher.
wetland areas are densely vegetated, ditch near forebay is open + exposed.
- upland habitat consists of grasses w/coyote bush.

Photo#'s: 7098-7100, 7105-7111

Necessary Attachments:

1. All field notes and other supporting documents
2. Site photographs

Maps with important habitat features and species location

Appendix D.
California Red-legged Frog Habitat Site Assessment Data Sheet

Site Assessment reviewed by ______
(FWS Field Office) (date) (biologist)

Date of Site Assessment: 10/1/2009
(mm/dd/yyyy)

Site Assessment Biologists: Amrhein Brandon Perkins Terra
(Last name) (first name) (Last name) (first name)

(Last name) (first name) (Last name) (first name)

Site Location: Merced Co. in an unsectioned portion of San Luis Gonzaga Land Grant
(County, General location name, UTM Coordinates or Lat./Long. or T-R-S).

****ATTACH A MAP** (include habitat types, important features, and species locations)******

Proposed project name: B.F. Sisk Dam Corrective Action Project
Brief description of proposed action:

1) Is this site within the current or historic range of the CRF (circle one)? YES NO

2) Are there known records of CRF within 1.6 km (1 mi) of the site (circle one)? YES NO
If yes, attach a list of all known CRF records with a map showing all locations.

Location 31

GENERAL AQUATIC HABITAT CHARACTERIZATION
(if multiple ponds or streams are within the proposed action area, fill out one data sheet for each)

POND:
Size: ① 30' x 15' ② 150' x 25' Maximum depth: < 1 ft.

Vegetation: emergent, overhanging, dominant species: EMERGENT: cattails, false willow (look-up) Overhanging: cottonwood + willow @ S edge of ②
UPLAND = grasses + coyote bush

Substrate: soil

Perennial or Ephemeral *(circle one)*. If ephemeral, date it goes dry: unknown ?

Appendix D.
California Red-legged Frog Habitat Site Assessment Data Sheet

STREAM:

Bank full width: ________________

Depth at bank full: ______________

Stream gradient: ________________

Are there pools (circle one)? YES NO

If yes,

Size of stream pools: ________________________

Maximum depth of stream pools: ______________

Characterize non-pool habitat: run, riffle, glide, other: ______________________

Vegetation: emergent, overhanging, dominant species: ______________________

Substrate: ______________________

Bank description: ______________________

Perennial or Ephemeral *(circle one)*. If ephemeral, date it goes dry: ______________

Other aquatic habitat characteristics, species observations, drawings, or comments:

- Features have clay soils (deep hoof marks) dry. Patches of cattail were still green indicating recent moisture. Zero surface water present.
- Unlikely to hold sufficient water levels for CRLF breeding habitat.
- Watersource (ditches from unknown source; no visible culverts.) (maybe nat. runoff from roads

Photo: 7120+21 1 7122 – 7125 2

Necessary Attachments:

1. All field notes and other supporting documents
2. Site photographs

Maps with important habitat features and species location

Appendix D.

California Red-legged Frog Habitat Site Assessment Data Sheet

Site Assessment reviewed by ______________ (FWS Field Office) ______ (date) ______________ (biologist)

Date of Site Assessment: 10/01/2009 (mm/dd/yyyy)

Site Assessment Biologists:

(Last name)	(first name)	(Last name)	(first name)
Amrhein	Brandon	Perkins	Terra

Site Location: Merced Co. in an unsectioned portion of San Luis Gonzaga Land Grant
(County, General location name, UTM Coordinates or Lat./Long. or T-R-S).

****ATTACH A MAP** (include habitat types, important features, and species locations)**

Proposed project name: B.F. Sisk Dam Corrective Action Project
Brief description of proposed action:

1) Is this site within the current or historic range of the CRF (circle one)? YES NO

2) Are there known records of CRF within 1.6 km (1 mi) of the site (circle one)? YES NO
If yes, attach a list of all known CRF records with a map showing all locations.

Location 32 & 34

GENERAL AQUATIC HABITAT CHARACTERIZATION

(if multiple ponds or streams are within the proposed action area, fill out one data sheet for each)

POND: associated
Size: ditch is 100' ft long x 3 ft wide, Maximum depth: n/a

Vegetation: emergent, overhanging, dominant species: See wetland delineation info.

Substrate: soil

Perennial or Ephemeral *(circle one)*. If ephemeral, date it goes dry: ______________

Appendix D.

California Red-legged Frog Habitat Site Assessment Data Sheet

conditional on lake levels.

STREAM:

Bank full width: ________________

Depth at bank full: ______________

Stream gradient: ________________

Are there pools (circle one)? YES NO

If yes,

Size of stream pools: ________________________

Maximum depth of stream pools: ______________

Characterize non-pool habitat: run, riffle, glide, other: ____________________________

Vegetation: emergent, overhanging, dominant species: ____________________________

Substrate: ____________________________

Bank description: ____________________________

Perennial or Ephemeral *(circle one)*. If ephemeral, date it goes dry: ____________________

Other aquatic habitat characteristics, species observations, drawings, or comments:

- Features are dam seepage locations where water collects b/f passing to culvert leading to large drainage ditch.
- these features have been dry (likely for 3-4 yrs due to low lake levels - per PWR.)
- As of assessment date, insufficient water to support CRLF breeding habitat.

Photo#'s 17101 - 7104

-No wildlife observed.

Necessary Attachments:

1. All field notes and other supporting documents
2. Site photographs

Maps with important habitat features and species location

Appendix D.
California Red-legged Frog Habitat Site Assessment Data Sheet

Site Assessment reviewed by ____________ ____________ ____________
(FWS Field Office) (date) (biologist)

Date of Site Assessment: 01/28/2009
(mm/dd/yyyy)

Site Assessment Biologists: Amrhein Brandon Perkins Terra
(Last name) (first name) (Last name) (first name)

____________ ____________ ____________ ____________
(Last name) (first name) (Last name) (first name)

Site Location: Merced Co. T10S R09E Sec. 19
(County, General location name, UTM Coordinates or Lat./Long. or T-R-S).

****ATTACH A MAP** (include habitat types, important features, and species locations)**

Proposed project name: B.F. Sisk Dam Corrective Action Project
Brief description of proposed action:

1) Is this site within the current or historic range of the CRF (circle one)? YES NO

2) Are there known records of CRF within 1.6 km (1 mi) of the site (circle one)? YES NO
If yes, attach a list of all known CRF records with a map showing all locations.

Location 33

GENERAL AQUATIC HABITAT CHARACTERIZATION

(if multiple ponds or streams are within the proposed action area, fill out one data sheet for each)

POND:

Size: ____________ Maximum depth: ____________

Vegetation: emergent, overhanging, dominant species: ____________

Substrate: ____________

Perennial or Ephemeral *(circle one)*. If ephemeral, date it goes dry: ____________

Appendix D.
California Red-legged Frog Habitat Site Assessment Data Sheet

STREAM:

Bank full width: ______________

Depth at bank full: ______________

Stream gradient: ______________

Are there pools (circle one)? YES NO

If yes,

Size of stream pools: ______________

Maximum depth of stream pools: ______________

Characterize non-pool habitat: run, riffle, glide, other: ______________

____

Vegetation: emergent, overhanging, dominant species: ______________

____

Substrate: ______________

Bank description: ______________

____

Perennial or Ephemeral *(circle one)*. If ephemeral, date it goes dry: ______________

Other aquatic habitat characteristics, species observations, drawings, or comments:

- Excavated hole. May retain marginal rainwater/runoff.
- Recreational use. OHV park just north of feature. Tire tracks passing through feature. Appears to be used as a jump.
- Feature contains several ground squirrel burrows. Significant upland grasses. Unlikely to hold water for more than a few days.

Photo #'s: 6590

Necessary Attachments:

1. All field notes and other supporting documents
2. Site photographs

Maps with important habitat features and species location

Appendix D.
California Red-legged Frog Habitat Site Assessment Data Sheet

Site Assessment reviewed by ______ ______ ______
(FWS Field Office) (date) (biologist)

Date of Site Assessment: 10/01/2009
(mm/dd/yyyy)

Site Assessment Biologists: Amrhein Brandon Perkins Terra
(Last name) (first name) (Last name) (first name)

______ ______ ______ ______
(Last name) (first name) (Last name) (first name)

Site Location: Merced Co. T10S R08E Sec. 33
(County, General location name, UTM Coordinates or Lat./Long. or T-R-S).

****ATTACH A MAP** (include habitat types, important features, and species locations)**

Proposed project name: B.F. Sisk Dam Corrective Action Project
Brief description of proposed action:

1) Is this site within the current or historic range of the CRF (circle one)? YES NO

2) Are there known records of CRF within 1.6 km (1 mi) of the site (circle one)? YES NO
If yes, attach a list of all known CRF records with a map showing all locations.

Location 35 & 36

GENERAL AQUATIC HABITAT CHARACTERIZATION

(if multiple ponds or streams are within the proposed action area, fill out one data sheet for each)

POND:
Size: 1 - 10ft x 4ft
2 - 16ft x 3ft
3 - 12ft x 4ft
4 - 100ft x 30ft.

Maximum depth: n/a

Vegetation: emergent, overhanging, dominant species: no emergent veg in depressions. Dominant comprised of upland grasses growing in features (vinegar weed, tar weed, oat, thistles)

Substrate: rock aggregate (3-8 inches) with rock sediment

Perennial or Ephemeral *(circle one)*. If ephemeral, date it goes dry: ______

Appendix D.
California Red-legged Frog Habitat Site Assessment Data Sheet

STREAM:

Bank full width: ________________

Depth at bank full: ______________

Stream gradient: ________________

Are there pools (circle one)? YES NO

If yes,

Size of stream pools: ________________________

Maximum depth of stream pools: _______________

Characterize non-pool habitat: run, riffle, glide, other: ____________________________

Vegetation: emergent, overhanging, dominant species: ___________________________

Substrate: ____

Bank description: ____

Perennial or Ephemeral *(circle one)*. If ephemeral, date it goes dry: ______________________

Other aquatic habitat characteristics, species observations, drawings, or comments:

- Features occur within quary. Man-made depressions (excavated/trailings.)
- substrate appears to drain water quickly. Features not expected to retain water for more than a few days. (ie) no restrictive layer.
- watersource: rainwater/natural
- No wildlife observed. No hydrophytic veg occuring in or around features

Photo's: 7094, 7024, 7025, 6974-76, 6983

Necessary Attachments:

1. All field notes and other supporting documents
2. Site photographs

Maps with important habitat features and species location

Appendix D.
California Red-legged Frog Habitat Site Assessment Data Sheet

Site Assessment reviewed by ______ (FWS Field Office) ______ (date) ______ (biologist)

Date of Site Assessment: 10/1/09
(mm/dd/yyyy)

Site Assessment Biologists: Amrhein Brandon (Last name) (first name) Perkins Terra (Last name) (first name)

______ (Last name) (first name) ______ (Last name) (first name)

Site Location: Merced Co. T10S R08E Sec. 27
(County, General location name, UTM Coordinates or Lat./Long. or T-R-S).

****ATTACH A MAP** (include habitat types, important features, and species locations)**

Proposed project name: B.F. Sisk Dam Corrective Action Project
Brief description of proposed action:

1) Is this site within the current or historic range of the CRF (circle one)? YES NO

2) Are there known records of CRF within 1.6 km (1 mi) of the site (circle one)? YES NO
If yes, attach a list of all known CRF records with a map showing all locations.

GENERAL AQUATIC HABITAT CHARACTERIZATION

(if multiple ponds or streams are within the proposed action area, fill out one data sheet for each)

Location 37

POND:

Size: 70ft x 4ft Maximum depth: 4in.

Vegetation: emergent, overhanging, dominant species: EMER: Bullrush, Nutsedge, Cocklebu Duckweed, Rabbit's Foot grass, Cattails, OVERHANG: Willow. UPLAND: grasses, sedge.

Substrate: soil w/ clay

Perennial or **Ephemeral** *(circle one)*. If ephemeral, date it goes dry: ______

Appendix D.
California Red-legged Frog Habitat Site Assessment Data Sheet

STREAM:

Bank full width: ______________

Depth at bank full: ______________

Stream gradient: ______________

Are there pools (circle one)? YES NO

If yes,

Size of stream pools: ______________

Maximum depth of stream pools: ______________

Characterize non-pool habitat: run, riffle, glide, other: ______________

Vegetation: emergent, overhanging, dominant species: ______________

Substrate: ______________

Bank description: ______________

Perennial or Ephemeral *(circle one)*. If ephemeral, date it goes dry: ______________

Other aquatic habitat characteristics, species observations, drawings, or comments:

- Feature exists in a man-made road cut below natural grade. Feature is enclosed @ west by dirt road + hill slope @ the east. Feature is open + exposed; some overhanging veg. @ N (willow). Dense emergent veg within feature.
- water source is natural runoff/rain. (Spring/seep is upslope from featu
- wildlife: sparrows evidence of deer/elk (prints + scat). No amphibs heard or observed.
- upland Hab: feature associated with quary tunnel/mine entrance. Banks contain upland grasses w/ bare soil. Steep slopes may provide some shad
- As feature fills it drains down slope towards lake.

$\boxed{\text{Photo \#'s: 7035-7040}}$

Necessary Attachments:

1. All field notes and other supporting documents
2. Site photographs

Maps with important habitat features and species location

Appendix D.
California Red-legged Frog Habitat Site Assessment Data Sheet

Site Assessment reviewed by ______ (FWS Field Office) ______ (date) ______ (biologist)

Date of Site Assessment: 10-22-09
(mm/dd/yyyy)

Site Assessment Biologists: Amchein Brandon (Last name) (first name) Perkins Terra (Last name) (first name)

______ (Last name) (first name) ______ (Last name) (first name)

Site Location: Merced Co. T10S R08E Sec. 35
(County, General location name, UTM Coordinates or Lat./Long. or T-R-S).

****ATTACH A MAP** (include habitat types, important features, and species locations)**

Proposed project name: B.F. Sisk Dam Corrective Action Project
Brief description of proposed action:

1) Is this site within the current or historic range of the CRF (circle one)? YES NO

2) Are there known records of CRF within 1.6 km (1 mi) of the site (circle one)? YES NO
If yes, attach a list of all known CRF records with a map showing all locations.

Location 38

GENERAL AQUATIC HABITAT CHARACTERIZATION

(if multiple ponds or streams are within the proposed action area, fill out one data sheet for each)

POND:

Size: 5,000 sq. ft. (Based on aerials) Maximum depth: assumed 4 ft.

Vegetation: emergent, overhanging, dominant species: None visible on aerial imagery

Substrate: assumed soil

Perennial or Ephemeral *(circle one)*. If ephemeral, date it goes dry: ______

Appendix D.
California Red-legged Frog Habitat Site Assessment Data Sheet

STREAM:

Bank full width: ________________

Depth at bank full: ______________

Stream gradient: ________________

Are there pools (circle one)? YES NO

If yes,

Size of stream pools: ________________________

Maximum depth of stream pools: _______________

Characterize non-pool habitat: run, riffle, glide, other: ______________________

____

____

Vegetation: emergent, overhanging, dominant species: ______________________

____

____

Substrate: ____

____

Bank description: ____

____

____

Perennial or Ephemeral *(circle one)*. If ephemeral, date it goes dry: ________________

Other aquatic habitat characteristics, species observations, drawings, or comments:

Feature was assessed from aerial imagery because it was located on private property.

Feature may be man-made and appears to be maintained for cattle.

No visible vegetation in or around the feature

Necessary Attachments:

1. All field notes and other supporting documents
2. Site photographs

Maps with important habitat features and species location

Appendix D.
California Red-legged Frog Habitat Site Assessment Data Sheet

Site Assessment reviewed by ________ (FWS Field Office) ________ (date) ________ (biologist)

Date of Site Assessment: 10-22-09
(mm/dd/yyyy)

Site Assessment Biologists: Amrhein Brandon Perkins Terra
(Last name) (first name) (Last name) (first name)

________ ________ ________ ________
(Last name) (first name) (Last name) (first name)

Site Location: Merced Co. T10S R08E Sec. 34
(County, General location name, UTM Coordinates or Lat./Long. or T-R-S).

****ATTACH A MAP** (include habitat types, important features, and species locations)******

Proposed project name: B.F. Sisk Dam Corrective Action Project
Brief description of proposed action:

1) Is this site within the current or historic range of the CRF (circle one)? YES NO

2) Are there known records of CRF within 1.6 km (1 mi) of the site (circle one)? YES NO
If yes, attach a list of all known CRF records with a map showing all locations.

Location 39

GENERAL AQUATIC HABITAT CHARACTERIZATION

(if multiple ponds or streams are within the proposed action area, fill out one data sheet for each)

POND:

Size: 5,200 sq.ft. (Bweded on aerials) Maximum depth: assumed 4 ft

Vegetation: emergent, overhanging, dominant species: Based on aerial imagery there is little to no vegetation present within the pond. No over hangin vegetation visible

Substrate: assumed soil

Perennial or **Ephemeral** *(circle one).* If ephemeral, date it goes dry: ________

Appendix D.
California Red-legged Frog Habitat Site Assessment Data Sheet

STREAM:

Bank full width: ________________

Depth at bank full: ______________

Stream gradient: ________________

Are there pools (circle one)? YES NO

If yes,

Size of stream pools: ________________________

Maximum depth of stream pools: _______________

Characterize non-pool habitat: run, riffle, glide, other: ______________________

Vegetation: emergent, overhanging, dominant species: ______________________

Substrate: ______________________

Bank description: ______________________

Perennial or Ephemeral *(circle one)*. If ephemeral, date it goes dry: ______________________

Other aquatic habitat characteristics, species observations, drawings, or comments:

Feature exists at base of surrounding hill slopes where rainwater would naturally collect.

Feature was assessed from aerial imagery because feature is located on private property.

Feature may be man-made and appears to be maintained for cattle.

Feature has a main pond and a long "finger" channel that is approximately 220 feet long and up to 10 feet wide on its western side.

Necessary Attachments:

1. All field notes and other supporting documents
2. Site photographs

Maps with important habitat features and species location

Appendix D.
California Red-legged Frog Habitat Site Assessment Data Sheet

Site Assessment reviewed by ______ ______ ______
(FWS Field Office) (date) (biologist)

Date of Site Assessment: 10/1/09
(mm/dd/yyyy)

Site Assessment Biologists: Amhein Brandon Perkins Terra
(Last name) (first name) (Last name) (first name)

______ ______ ______ ______
(Last name) (first name) (Last name) (first name)

Site Location: Merced Co. T10S R08E Sec. 26 and 35
(County, General location name, UTM Coordinates or Lat./Long. or T-R-S).

****ATTACH A MAP** (include habitat types, important features, and species locations)**

Proposed project name: B.F. Sisk Dam Corrective Action Project
Brief description of proposed action:

1) Is this site within the current or historic range of the CRF (circle one)? YES NO

2) Are there known records of CRF within 1.6 km (1 mi) of the site (circle one)? YES NO
If yes, attach a list of all known CRF records with a map showing all locations.

Location 40,41,43

GENERAL AQUATIC HABITAT CHARACTERIZATION

(if multiple ponds or streams are within the proposed action area, fill out one data sheet for each)

POND:

Size: ______ Maximum depth: ______

Vegetation: emergent, overhanging, dominant species: ______

Substrate: ______

Perennial or Ephemeral *(circle one).* If ephemeral, date it goes dry: ______

Appendix D.
California Red-legged Frog Habitat Site Assessment Data Sheet

STREAM:

Bank full width: 3ft.

Depth at bank full: 18in.

Stream gradient: 7%

Are there pools (circle one)? YES NO

If yes,

Size of stream pools: ______

Maximum depth of stream pools: ______

Characterize non-pool habitat: run, riffle, glide, other: other

Vegetation: emergent, overhanging, dominant species: OVERHANG: Fig
EMERG: cattail
UPLAND: grasses (oat, thistle)

Substrate: soil

Bank description: steep w/ upland grasses; open + exposed w/ low grass cover

Perennial or Ephemeral *(circle one)*. If ephemeral, date it goes dry: ______

Other aquatic habitat characteristics, species observations, drawings, or comments:

- Feature occurs in a natural drainage. Dead cattails indicate that moisture levels were greater in past. Feature is lacking live emergent veg @ time of assessment. Feature runs 10ft. from #69.
- Flatted depression near fig tree may retain some water
- watersource: natural runoff.
- Upland habitat; dirt road boarders drainage. (30ft. to the west)
- Feature more deeply insized upsteam from fig tree.

Photo #'s: 7064, 7066, 7067

Necessary Attachments:

1. All field notes and other supporting documents
2. Site photographs

Maps with important habitat features and species location

Appendix D.
California Red-legged Frog Habitat Site Assessment Data Sheet

Site Assessment reviewed by ______ (FWS Field Office) ______ (date) ______ (biologist)

Date of Site Assessment: 10-22-09
(mm/dd/yyyy)

Site Assessment Biologists: Amrhein Brandon (Last name) (first name) Perkins Terra (Last name) (first name)

______ (Last name) (first name) ______ (Last name) (first name)

Site Location: Merced Co. T10S R08E Sec. 26
(County, General location name, UTM Coordinates or Lat./Long. or T-R-S).

****ATTACH A MAP** (include habitat types, important features, and species locations)****

Proposed project name: B.F. Sisk Dam Corrective Action Project
Brief description of proposed action:

1) Is this site within the current or historic range of the CRF (circle one)? YES NO

2) Are there known records of CRF within 1.6 km (1 mi) of the site (circle one)? YES NO
If yes, attach a list of all known CRF records with a map showing all locations.

GENERAL AQUATIC HABITAT CHARACTERIZATION

(if multiple ponds or streams are within the proposed action area, fill out one data sheet for each)

Location #2

POND:

Size: 25ft x 8ft. Maximum depth: 2.5ft.

Vegetation: emergent, overhanging, dominant species: none
upland: grasses / sedge around enclosed/boarded area.

Substrate: concrete lined

Perennial or Ephemeral *(circle one)*. If ephemeral, date it goes dry: ______

Appendix D.
California Red-legged Frog Habitat Site Assessment Data Sheet

STREAM:

Bank full width: ______________

Depth at bank full: ______________

Stream gradient: ______________

Are there pools (circle one)? YES NO

If yes,

Size of stream pools: ______________

Maximum depth of stream pools: ______________

Characterize non-pool habitat: run, riffle, glide, other: ______________

Vegetation: emergent, overhanging, dominant species: ______________

Substrate: ______________

Bank description: ______________

Perennial or Ephemeral *(circle one)*. If ephemeral, date it goes dry: ______________

Other aquatic habitat characteristics, species observations, drawings, or comments:

- Feature is a treatment pond, Water of feature is covered by wooden boards / deck. Area is inclosed by fencing (5in x 5in) man-made.
- water appears stagnant + is likely toxic for amphibians
- wildlife: several dead animals observed w/in feature (cottontail, ground sq.

Photo's #: 6595 - 6599

Necessary Attachments:

1. All field notes and other supporting documents
2. Site photographs

Maps with important habitat features and species location

Appendix D.
California Red-legged Frog Habitat Site Assessment Data Sheet

Site Assessment reviewed by ______ (FWS Field Office) ______ (date) ______ (biologist)

Date of Site Assessment: 10/01/2009
(mm/dd/yyyy)

Site Assessment Biologists: Amrhein Brandon (Last name) (first name) Perkins Terra (Last name) (first name)

______ (Last name) (first name) ______ (Last name) (first name)

Site Location: Merced Co. in an unsectioned portion of San Luis Gonzaga Land Gran
(County, General location name, UTM Coordinates or Lat./Long. or T-R-S).

****ATTACH A MAP** (include habitat types, important features, and species locations)**

Proposed project name: B.F. Sisk Dam Corrective Action Project
Brief description of proposed action:

1) Is this site within the current or historic range of the CRF (circle one)? YES NO

2) Are there known records of CRF within 1.6 km (1 mi) of the site (circle one)? YES NO
If yes, attach a list of all known CRF records with a map showing all locations.

Location 16444

GENERAL AQUATIC HABITAT CHARACTERIZATION

(if multiple ponds or streams are within the proposed action area, fill out one data sheet for each)

POND: ① 100' x 30'
Size: ② 100' x 30' Maximum depth: 5ft.

Vegetation: emergent, overhanging, dominant species: no veg.

Substrate: asphalt, rock/gravel

Perennial or Ephemeral *(circle one)*. If ephemeral, date it goes dry: as used

Appendix D.
California Red-legged Frog Habitat Site Assessment Data Sheet

STREAM:

Bank full width: ______________

Depth at bank full: ______________

Stream gradient: ______________

Are there pools (circle one)? YES NO

If yes,

Size of stream pools: ______________

Maximum depth of stream pools: ______________

Characterize non-pool habitat: run, riffle, glide, other: ______________

Vegetation: emergent, overhanging, dominant species: ______________

Substrate: ______________

Bank description: ______________

Perennial or Ephemeral *(circle one)*. If ephemeral, date it goes dry: ______________

Other aquatic habitat characteristics, species observations, drawings, or comments:

- Feature is man-made (excavated + impound). Consists of two pools. No water or vegetation in pools @ time of assessment.
- Banks + upland habitat consists of asphalt + rock surrounded by chain linked fence w/ barbed wire @ top. Open + exposed.
- Watersource piped in. Not suitable CRLF habitat.
- Wildlife: red tail + crows

Photo: 7117 - 7118

Necessary Attachments:

1. All field notes and other supporting documents
2. Site photographs

Maps with important habitat features and species location

Appendix D.
California Red-legged Frog Habitat Site Assessment Data Sheet

Site Assessment reviewed by ______ (FWS Field Office) ______ (date) ______ (biologist)

Date of Site Assessment: 10/1/09
(mm/dd/yyyy)

Site Assessment Biologists: Amchein Brandon Perkins Terra
(Last name) (first name) (Last name) (first name)

______ ______ ______ ______
(Last name) (first name) (Last name) (first name)

Site Location: Merced Co. in an unsectioned portion of San Luis Gonzaga Land Grant
(County, General location name, UTM Coordinates or Lat./Long. or T-R-S).

****ATTACH A MAP** (include habitat types, important features, and species locations)******

Proposed project name: B. F. Sisk Dam Corrective Action Project
Brief description of proposed action:

1) Is this site within the current or historic range of the CRF (circle one)? YES NO

2) Are there known records of CRF within 1.6 km (1 mi) of the site (circle one)? YES NO
If yes, attach a list of all known CRF records with a map showing all locations.

GENERAL AQUATIC HABITAT CHARACTERIZATION

(if multiple ponds or streams are within the proposed action area, fill out one data sheet for each)

Location 45

POND:

Size: ~ 12,250 Acres Maximum depth: 270'-300'

Vegetation: emergent, overhanging, dominant species: EMERGENT: Willow, cocklebur, Smartweed, sparse grasses.

Substrate: sand / rocks

Perennial or Ephemeral *(circle one)*. If ephemeral, date it goes dry: ______

Appendix D.
California Red-legged Frog Habitat Site Assessment Data Sheet

STREAM:

Bank full width: ______________

Depth at bank full: ______________

Stream gradient: ______________

Are there pools (circle one)? YES NO

If yes,

Size of stream pools: ______________

Maximum depth of stream pools: ______________

Characterize non-pool habitat: run, riffle, glide, other: ______________

Vegetation: emergent, overhanging, dominant species: ______________

Substrate: ______________

Bank description: ______________

Perennial or Ephemeral *(circle one)*. If ephemeral, date it goes dry: ______________

Other aquatic habitat characteristics, species observations, drawings, or comments:

- Reservior has sparse vegetation w/ willow, cocklebur + smartweed where water permeates sandy/rocky banks. (Banks open + exposed.) Little to no overhanging veg.
- Feature is entrapped @ NE edge by dam.
- Dried algae mats on bank. Presence of bivalves
- Watersource: water levels have been low for past 3-4 yrs per DWR. Source is canal/forebay in addition to natural runoff.
- Wildlife: fish (rec. use), deer, racoon, coyote, various brewers black birds, gulls.
- No frogs observed/heard

Photo's: 7078 – 7094

Upland hab - grassy hills, dirt roads surrounding lake.

Necessary Attachments:

1. All field notes and other supporting documents
2. Site photographs

Maps with important habitat features and species location

Appendix D.
California Red-legged Frog Habitat Site Assessment Data Sheet

Site Assessment reviewed by ______ (FWS Field Office) ______ (date) ______ (biologist)

Date of Site Assessment: 10-22-09
(mm/dd/yyyy)

Site Assessment Biologists: Amrhein Brandon (Last name) (first name) Perkins Terra (Last name) (first name)

______ (Last name) (first name) ______ (Last name) (first name)

Site Location: Merced Co. T10S R08E Sec. 25
(County, General location name, UTM Coordinates or Lat./Long. or T-R-S).

****ATTACH A MAP** (include habitat types, important features, and species locations)******

Proposed project name: B.F. Sisk Dam Corrective Action Project
Brief description of proposed action:

1) Is this site within the current or historic range of the CRF (circle one)? YES NO

2) Are there known records of CRF within 1.6 km (1 mi) of the site (circle one)? YES NO
If yes, attach a list of all known CRF records with a map showing all locations.

Location 46

GENERAL AQUATIC HABITAT CHARACTERIZATION
(if multiple ponds or streams are within the proposed action area, fill out one data sheet for each)

POND:

Size: ~ 2,500 sq. ft. (Based on aerials) Maximum depth: assumed 3 ft.

Vegetation: emergent, overhanging, dominant species: None visible on aerial imagery

Substrate: assumed soil

Perennial or Ephemeral *(circle one)*. If ephemeral, date it goes dry: Assumed March based on historic aerial imagery

STREAM:

Bank full width: ____________________

Depth at bank full: __________________

Stream gradient: ____________________

Are there pools (circle one)? YES NO

If yes,

Size of stream pools: ______________________________

Maximum depth of stream pools: ________________

Characterize non-pool habitat: run, riffle, glide, other: ________________________________

Vegetation: emergent, overhanging, dominant species: ________________________________

Substrate: ________________________________

Bank description: ________________________________

Perennial or Ephemeral *(circle one)*. If ephemeral, date it goes dry: ____________________

Other aquatic habitat characteristics, species observations, drawings, or comments:

Feature was assessed from aerial imagery because it was located on private property.

Feature appears to be man-made. Evidence of artificial daming on aerials.

No visible vegetation in or around the feature.

Probably used by cattle.

Necessary Attachments:

1. All field notes and other supporting documents
2. Site photographs

Maps with important habitat features and species location

Appendix D.
California Red-legged Frog Habitat Site Assessment Data Sheet

Site Assessment reviewed by ______ (FWS Field Office) ______ (date) ______ (biologist)

Date of Site Assessment: 10/1/09
(mm/dd/yyyy)

Site Assessment Biologists:

(Last name)	(first name)	(Last name)	(first name)
Amchein	Brandon	Perkins	Terra

Site Location: Merced Co. T10S R08E Sec. 32
(County, General location name, UTM Coordinates or Lat./Long. or T-R-S).

ATTACH A MAP (include habitat types, important features, and species locations)**

Proposed project name: B.F. Sisk Dam Corrective Action Project
Brief description of proposed action:

1) Is this site within the current or historic range of the CRF (circle one)? YES NO

2) Are there known records of CRF within 1.6 km (1 mi) of the site (circle one)? YES NO
If yes, attach a list of all known CRF records with a map showing all locations.

GENERAL AQUATIC HABITAT CHARACTERIZATION

(if multiple ponds or streams are within the proposed action area, fill out one data sheet for each)

Location 47

POND:

Size: 150ft x 50ft Maximum depth: 6ft.

Vegetation: emergent, overhanging, dominant species: Unidentified grasses. assessed from a distance.

Substrate: soil/silt.

Perennial or **Ephemeral** *(circle one)*. If ephemeral, date it goes dry: ______

Appendix D.
California Red-legged Frog Habitat Site Assessment Data Sheet

STREAM:

Bank full width: ________________

Depth at bank full: ________________

Stream gradient: ________________

Are there pools (circle one)? YES NO

If yes,

Size of stream pools: ________________________

Maximum depth of stream pools: ______________

Characterize non-pool habitat: run, riffle, glide, other: ____________________________

Vegetation: emergent, overhanging, dominant species: ____________________________

Substrate: ____________________________

Bank description: ____________________________

Perennial or Ephemeral *(circle one)*. If ephemeral, date it goes dry: ____________________

Other aquatic habitat characteristics, species observations, drawings, or comments:

- Feature assessed from quary (from 1,500 ft elevation). Feature occurs in a natural depression, typically covered by water when lake is fuller.
- Watersource: natural rain water/water left from receeding lake levels.
- Green vegetation, mostly grasses, growing in a 40 ft buffer around pool → all the way to the feature edge.
- Wildlife: tule elk observed foraging + drinking in feature 30+ individuals. several animal trails visible (from all directions) going to the pond
- Lake edge appears to be 3/4 mile from feature @ time of assessment.

[Photo's: 7016 - 7023]

Necessary Attachments:

1. All field notes and other supporting documents
2. Site photographs

Maps with important habitat features and species location

Appendix D.
California Red-legged Frog Habitat Site Assessment Data Sheet

Site Assessment reviewed by ______ ______ ______
(FWS Field Office) (date) (biologist)

Date of Site Assessment: 10/1/2009
(mm/dd/yyyy)

Site Assessment Biologists: Amrhein Brandon — Perkins Terra
(Last name) (first name) (Last name) (first name)

______ ______ ______ ______
(Last name) (first name) (Last name) (first name)

Site Location: Merced Co. T11S R08E Sec. 4
(County, General location name, UTM Coordinates or Lat./Long. or T-R-S).

****ATTACH A MAP** (include habitat types, important features, and species locations)****

Proposed project name: B.F. Sisk Dam Corrective Action Project
Brief description of proposed action:

1) Is this site within the current or historic range of the CRF (circle one)? YES NO

2) Are there known records of CRF within 1.6 km (1 mi) of the site (circle one)? YES NO
If yes, attach a list of all known CRF records with a map showing all locations.

GENERAL AQUATIC HABITAT CHARACTERIZATION

(if multiple ponds or streams are within the proposed action area, fill out one data sheet for each)

Location 48

POND:

Size: 20' x 15' Maximum depth: 3.5 ft

Vegetation: emergent, overhanging, dominant species: no vegetation steep slopes w/ animal trails entering from the sides

Substrate: soil

Perennial or **Ephemeral** *(circle one)*. If ephemeral, date it goes dry: ______

Appendix D.
California Red-legged Frog Habitat Site Assessment Data Sheet

STREAM:

Bank full width: ______________

Depth at bank full: ______________

Stream gradient: ______________

Are there pools (circle one)? YES NO

If yes,

Size of stream pools: ______________

Maximum depth of stream pools: ______________

Characterize non-pool habitat: run, riffle, glide, other: ______________

Vegetation: emergent, overhanging, dominant species: ______________

Substrate: ______________

Bank description: ______________

Perennial or Ephemeral *(circle one)*. If ephemeral, date it goes dry: ______________

Other aquatic habitat characteristics, species observations, drawings, or comments:

- Feature assessed from quary

- Man-made feature. Standing water in feature @ time of assessment. Appears to be no more than 12" deep. entraped @ west edge.

- Watersource: runoff/natural. During wet conditions, feature appears to reach 3-4ft max depth.

Water appears stagnant and contains dense algae.

- Coyote seen leaving feature.

Photo's: 6978-6979

- upland habitat: bank slopes mostly bare w/ patches of upland grasses

Dirt road on burm. Steep slopes @ bank w/ animal tracks entering from the sides

Necessary Attachments:

1. All field notes and other supporting documents
2. Site photographs

Maps with important habitat features and species location

Appendix D.

California Red-legged Frog Habitat Site Assessment Data Sheet

Site Assessment reviewed by ______________________________
(FWS Field Office) (date) (biologist)

Date of Site Assessment: 10/1/09
(mm/dd/yyyy)

Site Assessment Biologists:

Amhein	Brandon	Perkins	Terra
(Last name)	(first name)	(Last name)	(first name)
(Last name)	(first name)	(Last name)	(first name)

Site Location: Merced Co. T10S R08E Sec. 26 and 35
(County, General location name, UTM Coordinates or Lat./Long. or T-R-S).

****ATTACH A MAP** (include habitat types, important features, and species locations)**

Proposed project name: B.F. Sisk Dam Corrective Action Project
Brief description of proposed action:

1) Is this site within the current or historic range of the CRF (circle one)? YES NO

2) Are there known records of CRF within 1.6 km (1 mi) of the site (circle one)? YES NO
If yes, attach a list of all known CRF records with a map showing all locations.

location 49 & 50

GENERAL AQUATIC HABITAT CHARACTERIZATION

(if multiple ponds or streams are within the proposed action area, fill out one data sheet for each)

POND:

Size: ____________ Maximum depth: ____________

Vegetation: emergent, overhanging, dominant species: ____________

Substrate: ____________

Perennial or Ephemeral *(circle one).* If ephemeral, date it goes dry: ____________

Appendix D.
California Red-legged Frog Habitat Site Assessment Data Sheet

STREAM:

Bank full width: 3 ft.
Depth at bank full: <1ft.
Stream gradient: 10% - 3%

Are there pools (circle one)? YES NO

If yes,

Size of stream pools: ____

Maximum depth of stream pools: ____

Characterize non-pool habitat: run, riffle, glide, other: other (dry n/a)

Vegetation: emergent, overhanging, dominant species: No emergent veg in channel. UPLAND- grasses

Substrate: dirt/soil

Bank description: steep w/upland grasses + exposed soil contains some burrows. Banks prone to erosion (erode easily) Open + exposed

Perennial or Ephemeral *(circle one)*. If ephemeral, date it goes dry: n/a

Other aquatic habitat characteristics, species observations, drawings, or comments:

- Natural drainage feature of upland hills, soils appear to drain water quickly ∴ lacks emergent/hydrophytic vegetation
- Watersource: natural/runoff.
- No wildlife observed. Several small mammal burrows on banks
- Feature does not appear to retain water long enough to support viable breeding habitat.

Photo: 7068-7071

Necessary Attachments:

1. All field notes and other supporting documents
2. Site photographs

Maps with important habitat features and species location

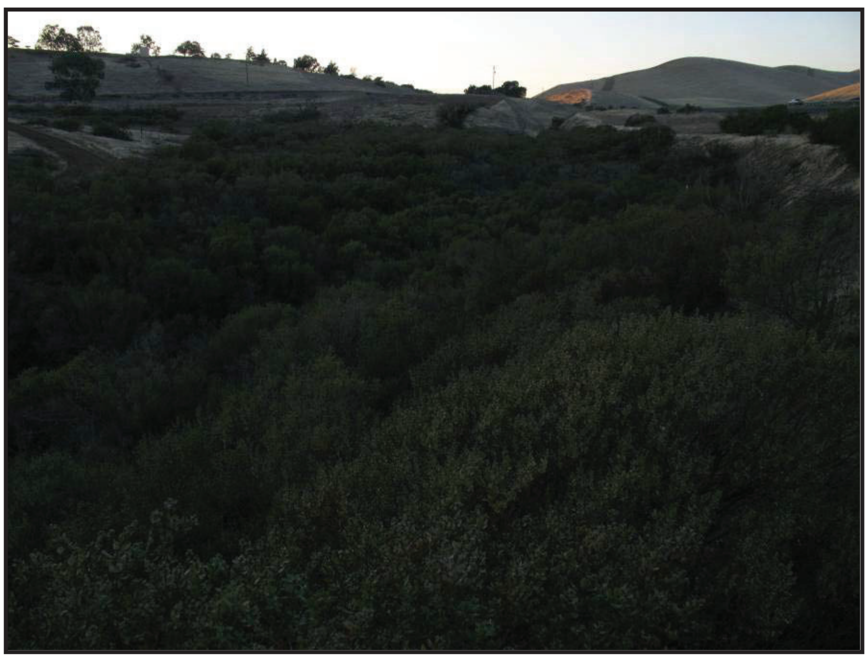
APPENDIX C

Assessment Site Photographs

Location 1a. Looking north. CDFG road is visible beyond the feature..

Location 1b. Looking southeast. Highway toe of slope on right. Concrete drainage visible in background.

Location 2. Looking north. Constructed berm on right side of image.



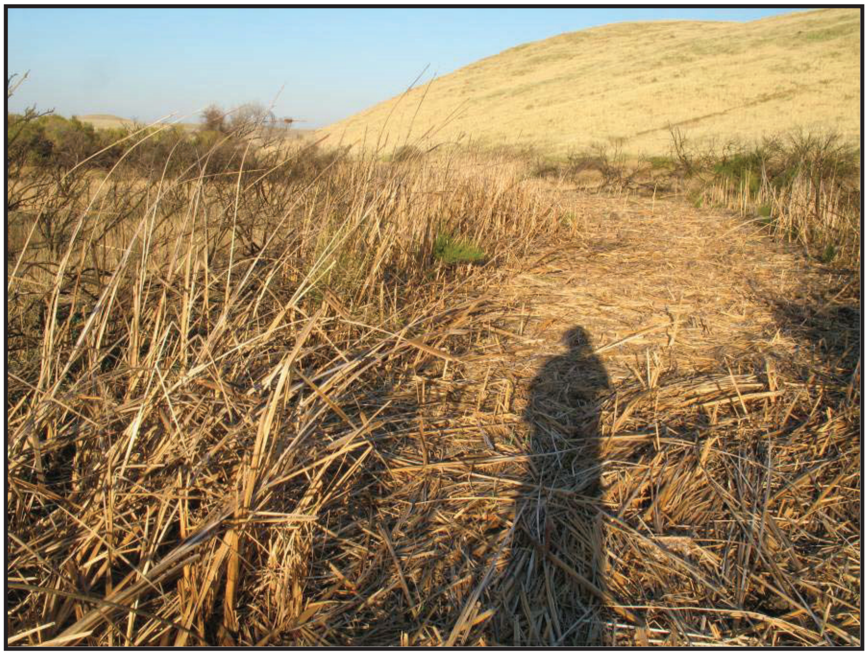
Location 3. Looking northwest. Highway visible on right.

Locations 4 and 5. Looking north.

Location 6. Looking east.

Location 7. Looking northeast from highway shoulder.

Location 8. Looking west. Base of dam is in background.



Location. 9. Looking northeast.

Location 10. Looking east.

Location 10. Looking north.

Location 11. Looking northeast. Highway 152 in background.

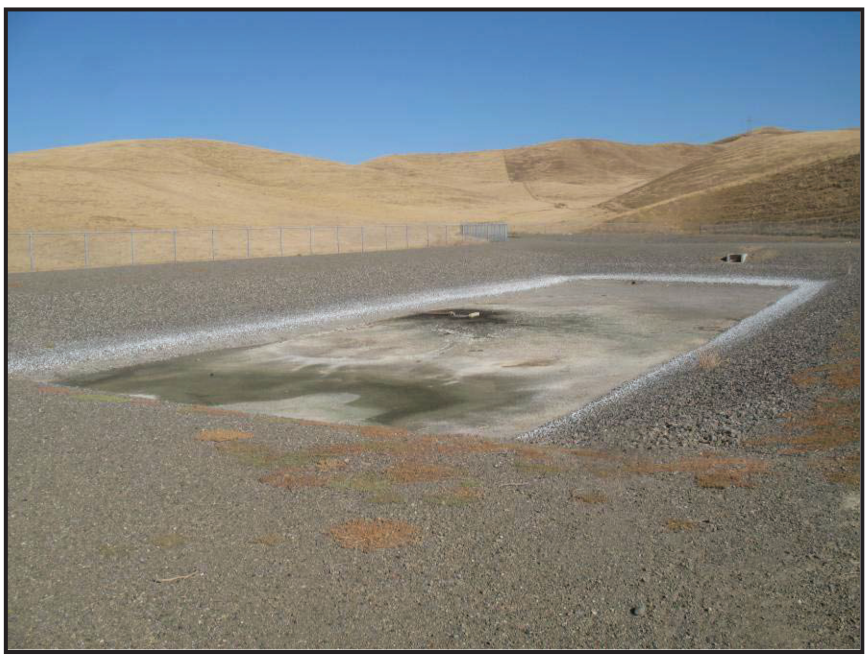
Location 12. Looking southwest

Location 12. Looking west

Location 13. Looking northeast. Culvert exiting pond (Location 12) in foreground.

Location 14. Looking west.

Location 15. Looking northwest.



Location 16. Looking east.

Photograph Location 17. — Looking north.

Location 18. — Looking north.

Location 1b. — Looking north. This image shows the inlet depression that connects O'Neil Forebay to the emergent wetland.

Location 19. — Looking north.

Location 20. Looking south.

Location 21. Looking southeast.

Location 22. — Looking southwest.

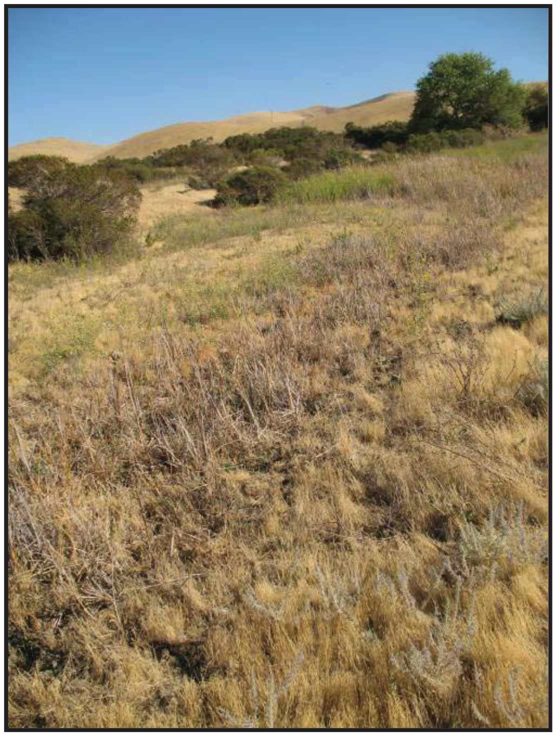
Locations 23 and 24. Looking northeast.

Location 25. Looking northeast.

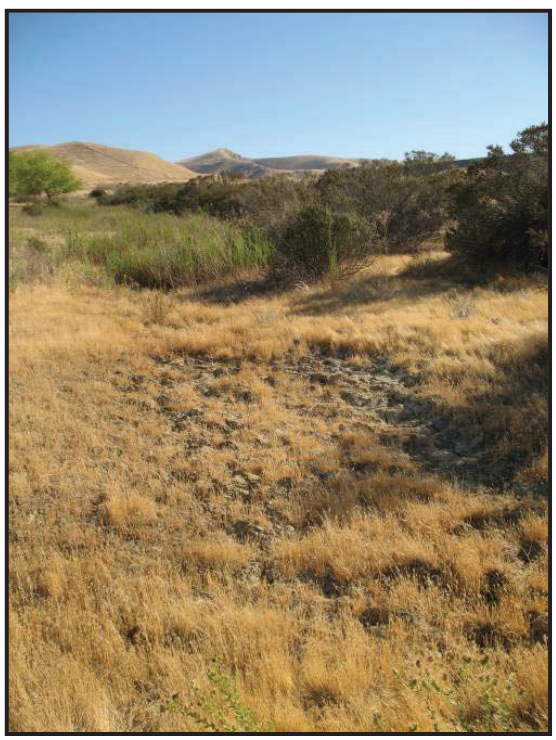
Locations 26 and 27. Looking northeast.

Location 28. Looking north.

Locations 29 and 30. Looking west.



Location 31. Looking north at larger feature.



Location 31. Looking north at smaller feature.

Location 32. Looking west.

Location 34. Looking west.

Location 33. No photo.

Location 35. Looking west.

Location 36. Pool 2 on data sheet.

Location 36. Looking north. Pool 3 in foreground and pool 4 in background.

Location 37. Looking south.

Location 38. No photo.

Location 39. No photo.

Location 40. Looking southwest.

Location 41. Looking north.

Location 42. Looking east.

Location 43. Looking south.

Location 44. Looking northeast.

Location 45. Looking west.

Location 46. Aerial image.

Location 47. Looking west.

Location 48. Looking southwest.

Location 49. Looking northwest.

Location 50. Looking southeast.

B.F. Sisk Dam Corrective Action Project

California Tiger Salamander Site Assessment

B.F. Sisk Dam
Central Valley Project, California

March 2010

U.S. Department of the Interior
Bureau of Reclamation

State of California
Department of Water Resources

Mission of the Bureau of Reclamation

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.

Department of Water Resources Mission Statement

To manage the water resources of California in cooperation with other agencies, to benefit the State's people, and to protect, restore, and enhance the natural and human environments.

B.F. Sisk Dam Corrective Action Project

California Tiger Salamander Site Assessment

B. F. Sisk Dam
Central Valley Project, California

Prepared by:

North State Resources, Inc.

North State Resources, Inc.
5000 Bechelli Lane, Suite 203
Redding, CA 96002

Contents

Figures

Appendices

B. F. Sisk Dam Corrective Action Project

California Tiger Salamander Site Assessment

1. Introduction

North State Resources, Inc. (NSR) conducted a site assessment of the B.F. Sisk Dam Corrective Action Project (project) to determine if the site could be utilized by the California tiger salamander (*Ambystoma californiense*). As required by the *Interim Guidance on Site Assessment and Field Surveys for Determining Presence or a Negative Finding of the California Tiger Salamander* (U.S. Fish and Wildlife Service 2003), the field survey and other information compiled address three elements relevant to the potential occurrence of the California tiger salamander on the site. These elements are (1) is the project site within the range of the California tiger salamander, (2) what are the known localities of CTS within the project site and within 3.1 miles of the project boundaries, and (3) what are the habitats within the project site and within 1.24 miles of the project boundaries.

This Site Assessment Report is organized into the following sections:

I. Introduction

II. General Project Description

III. Methodology

IV. Overview of California Tiger Salamander Biology

V. Results of Site Assessment

VI. Conclusions

VII. References

2. General Project Description

The project site (Figure 1) is located on the west side of California's Central Valley, near the community of Santa Nella, approximately 12 miles west of Los Banos, California. It is located in the *San Luis Dam, California* 7.5-minute U.S. Geological Survey quadrangle.

Sisk Dam is part of the San Luis Joint-Use Complex, which was designed and constructed by the federal government and is operated and maintained by the California Department of Water Resources (DWR). The complex was constructed to provide supplemental irrigation water storage for the federal Central Valley Project (CVP) and storage of municipal and industrial water for the California State Water Project (SWP).

Figure 1. Project Location

The dam impounds San Luis Reservoir, which, with a total water storage capacity of more than 2 million acre-feet, is one of the largest off-channel storage facilities in the country and a key component of the water supply system in California. Water is lifted into the reservoir for storage by the Gianelli Pumping-Generating Plant from the California Aqueduct and is diverted from the Delta-Mendota Canal via O'Neill Forebay.

The dam and reservoir are located in an area of high potential for severe earthquake loading from active faults. A recent series of studies and analyses, including a probabilistic seismic analysis completed in 2006, determined that corrective actions were justified at Sisk Dam to reduce risk to the downstream public. The Bureau of Reclamation (Reclamation) and DWR seek to mitigate potential safety concerns identified in previous and ongoing studies by modifying water retention structures at Sisk Dam in order to reduce the seismic, static, and hydrologic risk.

The project will involve two main components: stability berms (buttresses) and a dam raise. Project construction will require a large amount (on the order of between 2 million and 20 million cubic yards) of earth material, all of which would be obtained from a number of borrow sites within the project boundary (Figure 2).

3. Methodology

Database Search and Literature Review

The California Natural Diversity Database (CNDDB) (California Department of Fish and Game 2009) was reviewed for the project area. The intent of the database review was to determine the closest documented occurrences of California tiger salamander to the project site. Additionally, NSR biologists reviewed the best available data pertaining to California tiger salamander local occurrences, life requirements, and cause of decline, as well as the *Designation of Critical Habitat for the California Tiger Salamander, Central Population, Final Rule* (70 FR 49379), including current range maps and designated critical habitat units.

Field Surveys

Mike Bumgardner, Principal Biologist of Bumgardner Biological Consulting and North State Resources biologists Brandon Amrhein, Terra Perkins, and Julian Colescott conducted a field survey in September 2009. The objective of the survey was to determine if suitable California tiger salamander upland and/or breeding habitat is present on the project site. Transects were walked to achieve 100 percent visual coverage of the project site and burrow locations were mapped. Representative photographs were taken of all upland and aquatic habitats on the site (Appendix A).

Figure 2. Proposed Project Activity Areas

4. Overview of California Tiger Salamander Biology

The California tiger salamander is a large (adult males are about 8 inches long, females a little less than 7 inches (Barry and Shaffer 1994)), stocky, terrestrial salamander with a broad, rounded snout. It is an endemic member of the California grassland community, inhabiting the Central Valley and surrounding foothills and valleys, from Sonoma County to Santa Barbara County (Trenham et al. 2000). Historically, California tiger salamanders probably relied exclusively on shallow vernal pools for breeding habitat, but they now make extensive use of ponds constructed for cattle, particularly in foothill habitat (Shaffer and Trenham 2005). Ponds that contain populations of exotic fishes and bullfrogs (*Rana catesbeiana*) appear unsuitable as breeding habitat (Shaffer et al. 1993; Fisher and Shaffer 1996; Shaffer and Trenham 2005).

Ecologically, this species has an obligate biphasic life cycle. Although larvae develop in the pools and ponds in which they were born, they are otherwise terrestrial salamanders that spend most of their postmetamorphic lives in widely dispersed, underground retreats (Trenham 2001). Adult California tiger salamanders are rarely encountered, even where they are known to be abundant, spending most of the year in or near upland refugia (Storer 1925; Barry and Shaffer 1994; Shaffer and Trenham 2005). Seasonal migration of adults to pools and ponds occurs only for the purposes of breeding.

California tiger salamanders aestivate during the dry months of summer and autumn. They are poor burrowers, using burrows excavated by ground squirrels (*Spermophilus beecheyi*) and other burrowing mammals. California tiger salamanders emerge from aestivation only after autumn rains commence. Adults then engage in nocturnal migrations, congregating at breeding sites. Eggs are deposited singly or in small groups of 2–4, submerged in relatively shallow water (Storer 1925; Twitty 1941). Following breeding, adults move away from breeding ponds to upland refugia. Eggs hatch 2–4 weeks after deposition (Storer 1925; Twitty 1941). Larvae feed on algae and aquatic invertebrates, grow rapidly, and metamorphose as the pond water level recedes in late spring or summer (Storer 1925). A minimum of approximately 10 weeks is required to complete development through metamorphosis (Anderson 1968 and Feaver 1971, as cited in Jennings and Hayes 1994). Following metamorphosis, juveniles emigrate at night from the drying breeding site to upland refugia. Juveniles and adults emerge from refugia on cool, moist, or foggy nights to feed on a wide variety of invertebrate and small vertebrate prey (Shaffer et al. 1993).

5. Results of California Tiger Salamander Assessment

Element 1. Is the project site within the range of the California tiger salamander?

The project site is located within the range of the Central Population of California tiger salamander (federally listed as threatened) but is not located within a designated critical habitat unit (70 FR 49379).

Element 2. What are the known localities of California tiger salamander within the project site and within 3.1 miles of the project boundaries?

Protocol-level surveys for California tiger salamander have not been conducted on the project site and the CNDDB has no records within the project boundaries. As shown in Figure 3, the CNDDB contains one record of California tiger salamander within 3.1 miles of the project site (approximately 2 miles south of the project boundary). In addition, there are undocumented reports of adult salamanders from the Basalt Use Area approximately 0.5 mile south of the project boundary (Bureau of Reclamation and California Department of Parks and Recreation 2005).

Element 3. What are the habitats within the project site and within 1.24 miles of the project boundaries?

Project Site Biological Characteristics

The topography of the 2,480-acre project site varies from relatively flat or gently rolling in the northeast, to steep and mountainous in the southwest. Elevation ranges between 230 feet above mean sea level (msl) near O'Neal Forebay to almost 1,600 feet above msl in the quarry near Basalt Hill. Fossorial mammals, including the American badger (*Taxidea taxus*) and California ground squirrel were observed within the project boundaries and burrows are present throughout the project site.

Many areas of the project site are open and undeveloped. However, there are several developed areas in and adjacent to project boundaries to support water and recreation operations. The operations and maintenance facilities for DWR and the Four Rivers Sector within the Central Valley District of the California Department of Parks and Recreation are at Gonzaga Road, off State Route (SR) 152 at the base of San Luis Reservoir dam. This area is developed with the Gianelli Pumping Plant (operated by DWR) administrative offices, maintenance garages, and work areas. Other developed areas include the Basalt Use Area to the south of the Gonzaga

Figure 3. California Tiger Salamander Occurrences in the Region

Road entrance, which contains camping, a picnic area, boat ramp, and parking. Nearby is the boat launching area for San Luis Reservoir. A quarry, used for gravel extraction during the construction of the dam, is located at the southeast corner of San Luis Reservoir. The quarry is used by DWR for any facilities (e.g., dam and canal) repairs on DWR's systems. The California Departemnt of Forestry and Fire Protection operates a fire protection station east of the State Recreation Area Administrative Offices, south of Gonzaga Road.

Terrestrial Habitats

Terrestrial habitats were characterized based upon descriptions provided in *A Guide to Wildlife Habitats of California* (Mayer and Laudenslayer Jr. 1988). Annual grassland is the dominant upland habitat. In addition to annual grassland, the following upland habitat types were mapped within the project site: alkali desert scrub, barren, coastal scrub, mixed chaparral, and valley foothill riparian.

Annual Grassland

Annual grassland habitat is the dominant terrestrial habitat occurring within the project boundaries (1,074.68 acres) and is dominated by non-native annual grasses and forbs. This habitat occurs on all the soil map units and the land types present on the site with minor differences in species composition based on location. The dominant non-native grasses include wild oats (*Avena barbata*), ripgut brome (*Bromus diandrus*), and soft chess (*Bromus hordeaceus*). The dominant non-native forbs include black mustard (*Brassica nigra*) and broad-leaved pepperweed (*Lepidium latifolium*). These dominants are representative of nearly all of the areas mapped as annual grassland, except for areas adjacent to and within the intermittent drainages along the toe of Sisk Dam. On the steep hillsides to the south of the reservoir, the native forb, hayfield tarweed (*Hemizonia congesta*), is also relatively abundant.

The annual grassland within the intermittent drainages along the toe of Sisk Dam has the greatest diversity of native plants and the greatest concentration of broad-leaved pepperweed. Non-natives present in these more mesic areas include Mediterranean barley (*Hordeum marinum* ssp. *gussoneanum*), curly dock (*Rumex crispus*), horehound (*Marrubium vulgare*), and cocklebur (*Xanthium strumarium*). Native grasses and forbs are a minor component in the annual grassland as a whole, but are most abundant in the more mesic areas. Natives include vinegar weed (*Trichostema lanceolatum*), salt heliotrope (*Heliotropium curassavicum*), purple needle grass (*Nassella pulchra*), and gum plant (*Grindelia camporum*).

Alkali Desert Scrub

Alkali desert scrub habitat occurs as scattered clusters and moderately dense linear stands along intermittent drainages and portions of the reservoir shorelines (3.60 acres). This habitat is distinguished by near monotypic stands of big saltbush (*Atriplex lentiformis*). The largest and densest stand adjacent to the project area occurs along the southern shoreline (bank full) of the San Luis Reservoir. This stand includes hundreds of individuals of big saltbush that are concentrated at the base of a drainage and extend along the reservoir shoreline for approximately a quarter mile. The large stand of big saltbush near the toe of Sisk Dam is associated with adjacent stands of coyote bush and the lone honey mesquite (*Prosopis glandulosa* ssp.

torreyana). Grasslands adjacent to alkali desert scrub stands have higher concentrations of salt heliotrope than the grasslands at large within the project site. Big saltbush, salt heliotrope, and honey mesquite are associated with the halophytic phase of the alkali scrub plant assemblage.

Coastal Scrub

Coastal scrub habitat (46.00 acres) is distinguished by dense stands of coyote bush (*Baccharis pilularis*). Big saltbush is a minor component of the coastal scrub habitat and occurs at the upper and drier edges of the coastal scrub habitat.

Valley Foothill Riparian

The valley foothill riparian habitat type (5.44 acres) is dominated by native trees, including Fremont cottonwood (*Populus fremontii* spp. *fremontii*), red willow (*Salix laevigata*), and black willow (*Salix gooddingii*). The dominant shrub in this habitat type is mule fat (*Baccharis salicifolia*), which forms dense stands surrounding the cottonwoods and willows.

Mixed Chaparral

Mixed chaparral habitat (0.99 acres) is comprised of a single stand of dense shrubs on a steep slope northwest of Borrow Area 1. The dominant shrub in this stand is silver buffaloberry (*Shepherdia argentea*). Subdominant shrubs in this stand are blue elderberry (*Sambucus mexicana*) and wild rose (*Rosa* sp.).

Barren

Barren habitat (357.96 acres) is comprised of the disturbed areas that have less than 2 percent total vegetative cover.

<u>Aquatic Habitats</u>

The hydrology and floodplain of the watershed have been significantly altered by the development of the reservoir. The project area lies in the Panoche-San Luis Reservoir watershed, part of the San Joaquin River Basin, which drains into San Luis Creek. Historically, San Luis Creek flowed into the San Joaquin River, which then emptied into San Francisco Bay. Since completion of San Luis Dam, runoff from San Luis Creek has been captured in San Luis Reservoir and diverted for SWP and CVP purposes.

Aquatic habitats within the project boundaries include ephemeral drainages, seasonal wetlands, ephemeral wetlands, and the San Luis Reservoir. These features are described below.

Ephemeral Drainages

Three ephemeral drainages occur within the project boundaries. These drainages are part of a network that was designed to channel lake seepage water to O'Neil Forebay. The drainages are regularly maintained and kept clear of vegetation, although a few overhanging willows and cottonwoods are present along the largest of the three drainages. All three features were dry at the time of the assessment. According to DWR representatives, the lake has been especially low for 3 to 4 years. Until lake levels increase dramatically, lake seepage will be minimal and this feature will remain predominately dry. Because of the ephemeral nature of these features, they are unlikely to provide suitable California tiger salamander breeding habitat.

Seasonal Wetland

One seasonal wetland is present within the project boundaries. It is comprised of two main depressions that contain remnant emergent vegetation, such as cattails (*Typha* sp.) and mule fat (*Baccharis salicifolia*). Overhanging vegetation is present and includes cottonwoods and willows with coyote bush (*Baccharis pilularis*) in the upland areas. One depression is approximately 15 feet x 30 feet in size and the other is larger, at approximately 150 feet x 25 feet. This wetland derives its water from dam seepage and has a maximum depth of approximately 1 foot. It was dry at the time of the assessment and appears to have been dry for some time. Until lake levels increase dramatically, lake seepage will be minimal and this feature will remain predominately dry and unsuitable as California tiger salamander breeding habitat.

Ephemeral Wetlands

Two ephemeral wetlands are present within the project boundaries. The features occur on the toe of the slope at the southern end of the dam. They are areas that become saturated with dam seepage, facilitating the growth of wetland vegetation. The features do not appear to retain any surface water, instead excess water drains down slope via drainage ditches to a larger drainage network. Thus, the ephemeral wetlands within the project boundaries do not provide suitable California tiger salamander breeding habitat.

Quarry Depression

A depression has been excavated within the boundary of proposed Borrow Site 1. It has a rock aggregate substrate similar to the surrounding quarry substrate. Upland grasses and forbs grow in and out of the feature (e.g., vinegar weed (*Trichostema lanceolatum*), tarweed (*Hemizonia congesta*), and wild oats (*Avena barbata*)). The pool is approximately 10 feet x 4 feet in size with a 3 foot depth. No water was present at the time of the assessment. Based on the presence of upland vegetation in the feature, the rock aggregate soil drains very effectively and no water is retained in the pool for any significant length of time. Thus, this feature does not provide suitable California tiger salamander breeding habitat.

San Luis Reservoir

San Luis Reservoir has a water storage capacity of more than 2 million acre-feet and depths up to 300 feet. Habitat types and substrates vary along the lake's perimeter. This assessment location was selected based on the low gradient shoreline and the presence of significant amounts of emergent vegetation in the form of young willows and cocklebur (*Xanthium* sp.). The substrate at this location is primarily sand. No large overhanging vegetation occurs around the lake edge because water levels are significantly lower than in previous years. Currently, there are several hundred feet of barren shoreline. The reservoir contains many predatory fish (e.g., striped bass (*Morone saxatilis*), channel catfish (*Ictalurus punctatus*), largemouth bass, crappie (*Pomoxis* sp.), and bluegill) and is not suitable breeding habitat for the California tiger salamander.

Biological Characteristics of the Surrounding Area

The project area is surrounded by a variety of land uses. Residential and commercial uses exist in nearby Santa Nella to the northeast of O'Neill Forebay. Lands to the southeast of the project area between San Luis Reservoir and Los Banos Reservoir include large, privately owned ranchlands, agricultural lands, an electrical substation, and scattered nonresidential uses. A national cemetery exists to the northeast of O'Neill Forebay, and immediately west of San Luis Reservoir is Pacheco State Park, owned by the California Department of Parks and Recreation. California Department of Fish and Game properties are located north of the San Luis Reservoir and east and west of the O'Neill Forebay.

The area surrounding the project site is characterized by sparse development and large expanses of undeveloped land. Similar to the project site, the surrounding area is characterized by rolling hills vegetated with annual grasses and abundant burrows. Given the presence of burrows on the project site, it is expected that burrows occur in the surrounding grasslands. Based on aerial photography, four stock ponds appear to be present within 1 mile of the project site. Given the use of the surrounding grasslands for cattle grazing, it is expected that additional stock ponds are present in the project vicinity.

The project site has a high-level of continuity with surrounding habitats given the limited extent of development and the large expanses of surrounding grasslands. Wildlife can currently move throughout the project site and without restriction to surrounding grassland habitats to the south and west. Interstate 5 (I-5), Highway 152, the California Aqueduct, and the Delta-Mendota Canal likely pose some hindrance to wildlife movement to the north and east.

6. Conclusions

The project site is within the range of the California tiger salamander and the nearest documented occurrence (CNDDB) of the species is approximately 2 miles to the south of the project site. However, there are undocumented reports of adult California tiger salamanders from the Basalt Use Area approximately 0.5 mile south of the project boundary (Bureau of Reclamation and California Department of Parks and Recreation 2005). The only permanent aquatic feature within the project boundary is San Luis Reservoir. Ephemeral and seasonal wetlands are present but do not currently appear to provide suitable California tiger salamander breeding habitat. The grasslands on the project site contain abundant mammal burrows suitable for California tiger salamander aestivation. In addition, grassland habitat that is expected to contain stock ponds and small mammal burrows surrounds the project area and provides dispersal opportunities for California tiger salamanders to or from the project site.

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APPENDIX A

Representative Photographs of the Project Site

Photograph 1 – The photograph shows Sisk Dam and O'Neill Forebay in the background, San Luis Reservoir in the middle ground, and annual grasslands in the foreground.

Photograph 2 – The photograph shows the dense, annual grassland that is located in the low rolling hills north of the existing rock quarry. The photo also shows the steep, rocky slopes below the rock quarry.

Photograph 3. Looking southwest from the eastern edge of the project area, south of State Route 152 and Gonzaga Road. Visible in the photograph is the dam, the seep wetlands at the base of the dam, and Basalt Hill Road

Photograph 4. Seepage wetlands occur in the lands east of the foot of the dam. These wetland features are connected via a series of ditches that help to convey the waters to O'Neill Forebay.

Photograph 5. A number of seasonal wetlands, such as the one in this photograph, occur east of the dam.

Photograph 6. Several ephemeral drainages exit the hills surrounding the project area, including this 2-foot wide ephemeral drainage.

Photograph 7. This photograph shows the single “mixed chaparral” stand of silver buffaloberry.

Photograph 8. This photograph shows the San Luis Reservoir below the full pool elevation. The dam can be seen in the background, and a temporary road in the foreground.

Appendix B

Biological Survey Forms and Project Area Vegetation

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Biological Survey Forms

The following forms are from reconnaissance-level field surveys by EDAW in September 2002 and June 2003.

San Luis Reservoir State Recreation Area

Survey Form

Date: September 12, 2002 **Surveyors:** Leo Edson, Linda Leeman

Park: ☐ Pacheco SP ☐ SLR ☒ LBC ☐ other:

Survey location: Los Banos Reservoir

Weather
Time: 1020
Air Temp: 80º
Wind Speed: Ø
Cloud Cover: Ø

Water feature type: ☐ stockpond ☐ intermittent drainage ☐ perennial stream
☐ lacustrine ☒ other: Artifical wetland (overflow/leakage from dam)

Map ID #: LB-1 **Photo #:** Ø

Vegetation Adjacent to Water Feature

☒ grassland ☐ oak woodland ☒ riparian woodland (circle dominant trees: willow, cottonwood, sycamore, mixed)
☐ freshwater marsh ☐ vernal pool ☐ other:
Notes: mulefat

Site Quality

Degradation ? ☐ Yes ☒ No **Evidence of cattle?** ☐ Yes ☒ No **Evidence of pigs?** ☐ Yes ☒ No
Grazing? ☐ Severe ☐ Moderate ☒ None **Weed infestation?** ☐ Yes ☒ No **Species:**
Notes:

Special-status Amphibians/Reptiles

Foothill Yellow-legged Frog
Observed during survey? ☐ Yes ☒ No If yes, number of individuals: Size class observed:
Suitable habitat present? ☐ Yes ☒ No *Cobble?* ☐ Yes ☒ No *Shallow, flowing water?* ☐ Yes ☒ No

California Red-legged Frog
Observed during survey? ☐ Yes ☒ No If yes, number of individuals: Size class observed:
Suitable habitat present? ☒ Yes ☐ No *Slow water?* ☒ Yes ☐ No *Permanent water in area?* ☒ Yes ☐ No
Riparian veg ☒ Yes ☐ No *Submergent or emergent veg?* ☒ Yes ☐ No

California Tiger Salamander
Suitable habitat present? ☐ Yes ☒ No *Temp. pools?* ☐ Yes ☒ No *Fish present?* ☒ Yes ☐ No

Western Spadefoot
Suitable habitat present? ☐ Yes ☒ No *Temp. pools?* ☐ Yes ☒ No *Fish present?* ☒ Yes ☐ No

Western Pond Turtle
Observed during survey? ☐ Yes ☒ No If yes, number of individuals: Size class observed:
Suitable habitat present? ☒ Yes ☐ No *Slow water?* ☒ Yes ☐ No *Basking sites?* ☒ Yes ☐ No

Other wildlife observations/comments: Bass observed in pond.

San Luis Reservoir SRA B-1
Resource Management Plan/Preliminary General Plan

San Luis Reservoir State Recreation Area
Survey Form

Date: 8 June 2003 **Surveyors:** Edson

Park: ☐ Pacheco SP ☒ SLR ☐ LBC ☐ other:

Survey location: Medeiros use area located on the south shore of the O'Neill Forebay

Water feature type: ☐ stockpond ☐ intermittent drainage ☐ perennial stream ☐ lacustrine ☐ other: N/A

Map ID #: SL-1 **Photo #:**

Weather
Time:
Air Temp:
Wind Speed:
Cloud Cover:

Vegetation Adjacent to Water Feature

☒ grassland ☐ oak woodland ☐ riparian woodland (circle dominant trees: willow, cottonwood, sycamore, mixed)
☐ freshwater marsh ☐ vernal pool ☐ other:

Notes: An adult Swainson's hawk was observed perched on a fence post approximately ¼-mile south of the forebay shoreline.

Site Quality

Degradation ? ☒ Yes ☐ No **Evidence of cattle?** ☒ Yes ☐ No **Evidence of pigs?** ☐ Yes ☒ No
Grazing? ☐ Severe ☒ Moderate ☐ None **Weed infestation?** ☐ Yes ☒ No **Species:**
Notes: Grazing activity limited to the area south of the Mediros use area.

Special-status Amphibians/Reptiles

Foothill Yellow-legged Frog
Observed during survey? ☐ Yes ☐ No If yes, number of individuals: Size class observed:
Suitable habitat present? ☐ Yes ☐ No *Cobble?* ☐ Yes ☐ No *Shallow, flowing water?* ☐ Yes ☐ No

California Red-legged Frog
Observed during survey? ☐ Yes ☐ No If yes, number of individuals: Size class observed:
Suitable habitat present? ☐ Yes ☐ No *Slow water?* ☐ Yes ☐ No *Permanent water in area?* ☐ Yes ☐ No
Riparian veg ☐ Yes ☐ No *Submergent or emergent veg?* ☐ Yes ☐ No

California Tiger Salamander
Suitable habitat present? ☐ Yes ☐ No *Temp. pools?* ☐ Yes ☐ No *Fish present?* ☐ Yes ☐ No

Western Spadefoot
Suitable habitat present? ☐ Yes ☐ No *Temp. pools?* ☐ Yes ☐ No *Fish present?* ☐ Yes ☐ No

Western Pond Turtle
Observed during survey? ☐ Yes ☐ No If yes, number of individuals: Size class observed:
Suitable habitat present? ☐ Yes ☐ No *Slow water?* ☐ Yes ☐ No *Basking sites?* ☐ Yes ☐ No

Other wildlife observations/comments: This was the only Swainson's hawk observed at Medeiros. At least one Swainson's hawk was also observed at O'Neill Forebay, where they have been documented as nesting in previous years.

San Luis Reservoir State Recreation Area
Survey Form

Date: 8 June 2003 **Surveyors:** Edson

Park: ☐ Pacheco SP ☒ SLR ☐ LBC ☐ other:

Survey location: Medeiros use area located on the south shore of the O'Neill Forebay

Weather	
Time:	
Air Temp:	
Wind Speed:	
Cloud Cover:	

Water feature type: ☐ stockpond ☐ intermittent drainage ☐ perennial stream ☒ lacustrine ☐ other:

Map ID #: SL-2 **Photo #:**

Vegetation Adjacent to Water Feature

☐ grassland ☐ oak woodland ☒ riparian woodland (circle dominant trees: willow, cottonwood, sycamore, mixed)
☒ freshwater marsh ☐ vernal pool ☐ other:

Notes: The shoreline has a nearly contiguous, narrow band of willows. Patches of emergent vegetation (dominated by cattails and tules) are present at several locations. The only large area of emergent vegetation at Medeiros is found in a large depression, possibly artificial, that is located adjacent to the forebay and just east of the overhead transmission lines.

Site Quality

Degradation ? ☒ Yes ☐ No **Evidence of cattle?** ☐ Yes ☒ No **Evidence of pigs?** ☐ Yes ☒ No
Grazing? ☐ Severe ☐ Moderate ☒ None **Weed infestation?** ☐ Yes ☒ No **Species:**
Notes: Degradation limited to roads and vegetation management activities.

Special-status Amphibians/Reptiles

Foothill Yellow-legged Frog
Observed during survey? ☐ Yes ☐ No If yes, number of individuals:_____ Size class observed:_____
Suitable habitat present? ☐ Yes ☐ No *Cobble?* ☐ Yes ☐ No *Shallow, flowing water?* ☐ Yes ☐ No

California Red-legged Frog
Observed during survey? ☐ Yes ☐ No If yes, number of individuals:_____ Size class observed:_____
Suitable habitat present? ☐ Yes ☐ No *Slow water?* ☐ Yes ☐ No *Permanent water in area?* ☐ Yes ☐ No
Riparian veg ☐ Yes ☐ No *Submergent or emergent veg?* ☐ Yes ☐ No

California Tiger Salamander
Suitable habitat present? ☐ Yes ☐ No *Temp. pools?* ☐ Yes ☐ No *Fish present?* ☐ Yes ☐ No

Western Spadefoot
Suitable habitat present? ☐ Yes ☐ No *Temp. pools?* ☐ Yes ☐ No *Fish present?* ☐ Yes ☐ No

Western Pond Turtle
Observed during survey? ☐ Yes ☐ No If yes, number of individuals:_____ Size class observed:_____
Suitable habitat present? ☐ Yes ☐ No *Slow water?* ☐ Yes ☐ No *Basking sites?* ☐ Yes ☐ No

Other wildlife observations/comments:

Approximately 1,000 tricolored blackbirds observed during this one-day survey. Most were found in groups of 50+ forging along the shoreline or perched in the cottonwoods and willows. Approximately 200 were found nesting in the depression described above. Many fledging were observed in the willows surrounding the depression. Adults retuning with food to the emergent marsh indicated that some of the nestling had not yet fledged their nests.

San Luis Reservoir SRA
Resource Management Plan/Preliminary General Plan B-3

Project Area Vegetation

The following describes the vegetation of San Luis Reservoir State Recreation Area and the DFG-managed wildlife areas. These areas include land around San Luis Reservoir, the O'Neill Forebay, Los Banos Reservoir and the San Luis and O'Neill Forebay Wildlife Areas. The vegetation of these areas consists of riparian woodland, blue oak woodland and savanna, coast live oak woodland, ornamental trees, California sagebrush scrub, grasslands, mesic herbaceous (wetland), iodine bush scrub (alkali sink scrub), and ruderal (non-native and weedy) plant communities, The grassland is the dominant vegetation of the park with the only woodland observed outside park boundaries on distant hills. The riparian woodland and mesic herbaceous types occur at the edge of the reservoirs and along watercourses, The iodine bush scrub occurs at Salt Spring, a tributary to Los Banos Reservoir. Where appropriate, the naming system used in *A Manual of California Vegetation* (Sawyer and Keeler-Wolf 1995), was incorporated into the name of the vegetation types in this report.

Black Willow Riparian Woodland
Black willow riparian woodland occurs at the edges of San Luis Reservoir, Los Banos Reservoir, and O'Neill Forebay; along watercourses but below the level of high water at San Luis Reservoir; and along Los Banos Creek as it flows into Los Banos Reservoir. It also occurs at O'Neill Forebay Wildlife Area. The black willow riparian woodland is particularly well developed along Los Banos Creek immediately upstream from Los Banos Reservoir. It consists of black willow trees *(Salix gooding11)* trees, which are 8 to 12 inches in diameter at breastheight (4.5 feet, dbh) and up to 40 feet tall. The trees grow from 6 to 10 feet apart with a canopy cover that varies from 60 to 100 percent.

The shrub understory consists of mulefat *(Baccharis sp.)* and a few salt cedar plants *(Tamarisksp.).* Herbaceous species in the understory are dominated by crabgrass *(Cynodon dactylon)*, cocklebur *(Xantium strumarium),* and Italian thistle *(Carduus pycnocephalus)*, Below the high water mark of San Luis Reservoir, black willow riparian scrub occurs in watercourses. The willow trees are able to survive inundation during years of normal rainfall and years of drought. These willows are able to persist from upstream runoff flowing in the watercourses for at least part of the spring and summer. The trees are typically 3 to 6 inches in diameter and 20 feet tall. During wet winters, the reservoir remains full for a long duration and the willow trees die because they cannot survive such prolonged inundation. This vegetation is generally thick, with 100 percent cover, but is narrow in width.

The riparian vegetation at the edge of the shore of the reservoirs includes a mixture of black willow, Fremont cottonwood *(Populus Fremont 11)*, western sycamore *(Platanus racemosa)*, sandbar willow *(Salix exigua),* and mulefat. These species grow mostly sparsely along the edge of the shore of the reservoirs, but occasionally they will grow in clumps. The understory of these areas consists of mesic herbaceous vegetation. In some areas, broad-leaf pepper-grass *(Lepidtum latifoltum)* occurs beneath or at the edge of the canopy ofthe riparian trees.

California Sycamore Riparian Woodland
The California sycamore riparian woodland occurs in a limited area along one of the watercourses at San Luis Wildlife Area This woodland consists of mature western sycamore trees growing in a sparse array along the watercourse. Canopy cover approximates 70 percent. The sycamores grow to 40 feet tall and at least 24 inches in diameter at breastheight (4.5 feet, dbh). The understory consists of coyote brush *(Bacharis pilularis)* and poison oak *(Toxicodendron diversilobum).*

Blue Oak Woodland and Savanna
The blue oak woodland and savanna occurs in San Luis W ildlife Area. Blue oak *(Quercus douglas11)* is the dominant tree of this woodland. An occasional coast live oak *(Quercus agnfo/ia)* also occurs in the blue oak woodland. The blue oak woodland occurs on the tops and sides of the ridges in small clumps. This cover of the blue oak woodland ranges from 80 to approximately 20 percent. Nevertheless, the blue oak woodland also grades into the blue oak and savanna vegetation type, which consists of a sparse cover of trees growing within grassland.

The understory of the blue oak woodland mostly consists of various species of non-native grasses and occasional native species of forbs (non-grassy plants). The non-native species of grass include wild oats *(Avena fatua)* and ripgut brome *(Bromus diandrus).* Blue dicks *(Dichelostemma capitatum)* and clarkia *(Clarkia* sp.) also occur in the understory. Understory shrubs include California sagebrush *(Artemesia californica)*, redberry *(Rhamnus crocea)*, and eriophyllum *(Enophyllum confertiflorum).*

Coast Live Oak Woodland
The coast live oak woodland occurs in San Luis Wildlife Area. It consists of both blue and coast live oak tree s with California bay *(Umbellularia californica)*, valley oak *(Quercus lobata)* , and California buckeye *(Aesculus californica).* Stands of this woodland type are generally not very large and occur in the canyon bottoms and on the shadier slopes. This oak woodland is very similar to the blue oak woodland except that the blue oaks are much fewer.

The understory of the coast live oak woodland tends to support shrubs and forbs as opposed to grass. Species present in the understory include woodland sanicle *(Sanicula crassicaule)*, blue wildrye *(Elymus g/aucus)*, miner's lettuce *(Claytonia perfoliata),* fiesta flower *(Pholistoma auritum),* chickweed *(Stellaria media),* sweet pea *(Lathyrus* sp.), and bedstraw *(Ga/ium apairne).* Shrubs that occur in the understory are poison oak, toyon *(Heteromeles arbutifolia),* and redberry.

Ornamental Trees
Ornamental trees have been planted at the Basalt Campground, on the Madeiros site, and the picnic areas of the San Luis Creek site. These trees include red ironbark gum *(Eucalyptus sidiroxylon)*, allepo pine *(Pinus halpensis),* false pine *(Casurina* sp.), Chinese pistache *(Pistachia chlnensls)*, eucalyptus *(Eucalyptus* spp.), and others. The trees at Madieros are planted in a rectangular array, while those in the other areas conform to picnic tables or campsites.

Iodine Bush Scrub
Iodine bush scrub occurs at Salt Spring, a tributary to Los Banos Reservoir. This area is very distinctive because of the presence of water and the pronounced salt deposits along the banks of the watercourse. The vegetation occurs within the banks of the watercourse at Salt Spring. This vegetation is dominated by iodine bush *(Allenrolfea occidentalis)*, quail bush *(Atriplex lentiforms)*, alkali heath *(Frankenia salina),* and salt grass *(Distichlis spicata).* Other species present include bassia *(Bassia hyssopifolia)*, Fitch's spikeweed *(Hemizonia fitch11)* , and various species of saltbushes *(Atriplex* spp.).

California Sagebrush Scrub
California sagebrush scrub occurs on the shallow soils of hillsides above Los Banos Reservoir and Los banos Creek in dry areas. It is dominated by California sagebrush *(Artemisia californica)* and California buckwheat *(Enogonum fasciculatum).* The cover of the California sagebrush scrub

varies between 25 and 50 percent and the height of the vegetation is generally less than 3 feet. The understory of the California sagebrush scrub mainly consists of grassland growing between the shrubs. The area beneath the shrubs is bare.

Mesic Herbaceous

Mesic herbaceous vegetation occurs in seeps, within watercourses, and at the edges of the reservoirs. It consists of species adapted to seasonally, as well as permanently, wet conditions. This mesic herbaceous vegetation consists of tall vegetation such as cattails and tules to short vegetation such as crabgrass and knotgrass *(Paspalum distichum).* The cattails *(Typha latifolia* and unidentified species) and tules *(Scirpus acutus* spp. *occidentalis)* grow in extensive patches along the edges of the reservoirs within standing water. These stands can be small patches 10 by 20 feet in size to several hundred feet long and 30 feet wide. Often water parsley *(Oenanthe sarmentosa)* and water smartweed *(Polygonum pundatum)* occur with the cattails and tules.

Mexican rush *Juncus mexicanus)* commonly occurs at the edges of the reservoirs above the reservoir's edge. The iris-leaved rush *(Juncus xiphioides)* also occurs in watercourses, and seeps. The rushes often grow as dense mats of single species stands. Meadow barley *(Hordeum brachyantherum)* and creeping wildrye *(Leymus triticoides)* are adapted to drier conditions than the iris-leaved rush and grow at the edge of seeps and other wet areas.

Cocklebur often grows in dense aggregations at the areas where watercourses flow into stock ponds, and spiny clot-bur *(Xantium spinosum)* occurs in low-density aggregations within drawdown and disturbed areas.

Seeps and watercourses often support water cress *(Rorippa nasturtium-aquaticum)* growing in areas of ponded water. Rabbit's foot grass *(Polypogon monspeliense)* and curly dock *(Rumex crispus)* also grow in wet areas onsite.

Grassland

The grassland vegetation type occurs extensively throughout the areas surrounding San Luis and Los Banos reservoirs and O'Neill Forebay. This grassland varies in height from a few inches and 25 to 50 percent cover in sites with shallow soils, to 1.5 feet and I00 percent cover in the sites with deeper soils.

Different species dominate the grassland in different areas. The occurrence of a particular species as a dominant may be the result of particular edaphic, climatic, and moisture conditions. Most of the dominants are non-native species but purple needlegrass *(Nasella pulehra),* a native species, occurs throughout the park in various densities. It occasionally grows as a dominant on the slopes of San Luis and Los Banos reservoirs. The other dominants include ripgut brome, hare barley *(Hordeum murinum* ssp. *leporinum),* wild oats *(Avena* sp.), and Italian ryegrass *(Loltum multif!orum)*, Various species of tarweeds also occur in various densities ranging from low to high in the grassland. They also occur as dominant or subdominant species of small areas. The species of tarweeds are Fitch's spikeweed, common spikeweed *(Hemizonia pungens)*, and San Joaquin tarweed *(Holoearpha obeoniea).* Big tarweed *(Blepharizonia plumosa* ssp, *viscida)* occasionally occurs in the grassland and vinegar weed *(Trichostemma lanceo/atum)* often occurs as a subdominant in the grassland.

Some portions of the grassland are dominated by native species of grass. Often these native areas are correlated with sloping areas and shallow soil. Natives such as pine bluegrass often grow beside the California sagebrush scrub on the slopes of Los Banos Reservoir. Creeping wildrye, a native species, can dominate moist areas.

Ruderal
Ruderal vegetation consists of non-native species of plants. It is commonly associated with herbaceous species but the non-native salt cedar will also be discussed here. The ruderal vegetation occurs in disturbed areas such as campground and picnic areas, It also occurs at the edge of the reservoirs.

Herbaceous Species. The most common ruderal species are broad-leaved pepper-grass, cocklebur, spiny clot-bur, yellow star-thistle *(Centaurea solstitialis)*, Italian thistle *(Carduus pycnoeephalus)*, bristly ox-tongue *(Picris echiodes)*, and short-pod mustard *(Hirsehfeldia incana).* The broad- leaved pepper-grass, cocklebur, spiny clot-bur, and bristly ox-tongue occur within or at the edge of wet lands, often at the edge of the reservoirs. Yellow star-thistle, Italian thistle, and short-pod mustard occur in drier areas.

Woody Species. Salt cedar grows abundantly at Los Banos Reservoir often in dense thickets at the edge of the reservoir and often adjacent to the riparian vegetation. It also occurs as an occasional plant in the black willow riparian woodland along Los Banos Creek Two individual salt cedar plants were observed along the shore of O'Neill Forebay.

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Summary Table Report

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad IS (Pacheco Pass (3712112) OR Pacheco Peak (3712113) OR Three Sisters (3612183) OR San Luis Dam (3712111) OR Mariposa Peak (3612182) OR Los Banos Valley (3612181) OR Crevison Peak (3712122) OR Mustang Peak (3712123) OR Howard Ranch (3712121))

Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks A	B	C	D	X	U	Population Status Historic > 20 yr	Recent <= 20 yr	Presence Extant	Poss. Extirp.	Extirp.
Agelaius tricolor tricolored blackbird	G2G3 S1S2	None Candidate Endangered	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_EN-Endangered NABCI_RWL-Red Watch List USFWS_BCC-Birds of Conservation Concern	155 600	951 S:12	4	2	0	0	1	5	3	9	11	1	0
Ambystoma californiense California tiger salamander	G2G3 S2S3	Threatened Threatened	CDFW_WL-Watch List IUCN_VU-Vulnerable	600 1,360	1156 S:6	0	0	0	0	0	6	5	1	6	0	0
Antrozous pallidus pallid bat	G5 S3	None None	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern USFS_S-Sensitive WBWG_H-High Priority	360 360	409 S:1	0	0	0	0	0	1	1	0	1	0	0
Athene cunicularia burrowing owl	G4 S3	None None	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern USFWS_BCC-Birds of Conservation Concern	170 870	1942 S:10	2	4	2	0	0	2	3	7	10	0	0
Buteo regalis ferruginous hawk	G4 S3S4	None None	CDFW_WL-Watch List IUCN_LC-Least Concern USFWS_BCC-Birds of Conservation Concern	480 1,140	107 S:18	0	0	0	0	0	18	16	2	18	0	0
Buteo swainsoni Swainson's hawk	G5 S3	None Threatened	BLM_S-Sensitive IUCN_LC-Least Concern USFWS_BCC-Birds of Conservation Concern	145 1,274	2431 S:11	0	3	1	0	0	7	1	10	11	0	0

Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks A	B	C	D	X	U	Population Status Historic > 20 yr	Recent <= 20 yr	Extant	Presence Poss. Extirp.	Extirp.
California macrophylla round-leaved filaree	G3? S3?	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive SB_RSABG-Rancho Santa Ana Botanic Garden SB_SBBG-Santa Barbara Botanic Garden	250 250	204 S:2	0	0	0	0	0	2	1	1	2	0	0
Campanula exigua chaparral harebell	G2 S2	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive SB_RSABG-Rancho Santa Ana Botanic Garden	3,800 3,800	32 S:1	0	0	0	0	0	1	1	0	1	0	0
Caulanthus lemmonii Lemmon's jewelflower	G3 S3	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive SB_SBBG-Santa Barbara Botanic Garden USFS_S-Sensitive	400 400	86 S:1	0	0	0	0	0	1	1	0	1	0	0
Circus cyaneus northern harrier	G5 S3	None None	CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern	80 1,400	52 S:3	2	1	0	0	0	0	0	3	3	0	0
Delphinium californicum ssp. interius Hospital Canyon larkspur	G3T3 S3	None None	Rare Plant Rank - 1B.2	750 750	28 S:1	0	1	0	0	0	0	1	0	1	0	0
Desmocerus californicus dimorphus valley elderberry longhorn beetle	G3T2 S2	Threatened None		420 420	271 S:1	0	0	0	0	0	1	1	0	1	0	0
Emys marmorata western pond turtle	G3G4 S3	None None	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_VU-Vulnerable USFS_S-Sensitive	400 1,600	1249 S:16	0	10	4	0	0	2	2	14	16	0	0
Eremophila alpestris actia California horned lark	G5T4Q S4	None None	CDFW_WL-Watch List IUCN_LC-Least Concern	165 440	93 S:5	0	2	0	0	0	3	2	3	5	0	0
Eryngium spinosepalum spiny-sepaled button-celery	G2 S2	None None	Rare Plant Rank - 1B.2	545 545	90 S:1	0	0	0	0	0	1	0	1	1	0	0
Eumops perotis californicus western mastiff bat	G5T4 S3S4	None None	BLM_S-Sensitive CDFW_SSC-Species of Special Concern WBWG_H-High Priority	415 415	294 S:1	0	0	0	0	0	1	1	0	1	0	0

Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks A	B	C	D	X	U	Population Status Historic > 20 yr	Recent <= 20 yr	Presence Extant	Poss. Extirp.	Extirp.
Falco mexicanus prairie falcon	G5 S4	None None	CDFW_WL-Watch List IUCN_LC-Least Concern USFWS_BCC-Birds of Conservation Concern	400 3,300	458 S:12	1	0	0	0	0	11	11	1	12	0	0
Gambelia sila blunt-nosed leopard lizard	G1 S1	Endangered Endangered	CDFW_FP-Fully Protected IUCN_EN-Endangered	300 610	317 S:2	0	0	0	0	0	2	2	0	2	0	0
Great Valley Cottonwood Riparian Forest Great Valley Cottonwood Riparian Forest	G2 S2.1	None None			56 S:1	0	0	0	0	0	1	1	0	1	0	0
Haliaeetus leucocephalus bald eagle	G5 S3	Delisted Endangered	BLM_S-Sensitive CDF_S-Sensitive CDFW_FP-Fully Protected IUCN_LC-Least Concern USFS_S-Sensitive USFWS_BCC-Birds of Conservation Concern	1,098 1,098	327 S:1	0	0	0	0	0	1	0	1	1	0	0
Malacothamnus hallii Hall's bush-mallow	G2 S2	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive	280 1,300	36 S:8	0	0	0	0	0	8	6	2	8	0	0
Masticophis flagellum ruddocki San Joaquin coachwhip	G5T2T3 S2?	None None	CDFW_SSC-Species of Special Concern	425 725	93 S:2	0	0	0	0	0	2	2	0	2	0	0
Myotis yumanensis Yuma myotis	G5 S4	None None	BLM_S-Sensitive IUCN_LC-Least Concern WBWG_LM-Low-Medium Priority	800 800	263 S:1	0	1	0	0	0	0	0	1	1	0	0
Navarretia gowenii Lime Ridge navarretia	G1 S1	None None	Rare Plant Rank - 1B.1	950 950	3 S:1	0	0	0	0	0	1	1	0	1	0	0
Navarretia nigelliformis ssp. radians shining navarretia	G4T2 S2	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive	760 860	72 S:3	0	0	0	0	0	3	3	0	3	0	0
North Central Coast Drainage Sacramento Sucker/Roach River North Central Coast Drainage Sacramento Sucker/Roach River	GNR SNR	None None		450 450	4 S:1	1	0	0	0	0	0	1	0	1	0	0
Perognathus inornatus San Joaquin Pocket Mouse	G2G3 S2S3	None None	BLM_S-Sensitive IUCN_LC-Least Concern	520 600	122 S:3	0	0	0	0	0	3	3	0	3	0	0

Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks A	B	C	D	X	U	Population Status Historic > 20 yr	Recent <= 20 yr	Presence Extant	Poss. Extirp.	Extirp.
Phrynosoma blainvillii coast horned lizard	G3G4 S3S4	None None	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern	1,080 1,080	758 S:1	0	1	0	0	0	0	0	1	1	0	0
Puccinellia simplex California alkali grass	G3 S2	None None	Rare Plant Rank - 1B.2	600 600	71 S:1	0	0	0	0	0	1	1	0	1	0	0
Rana boylii foothill yellow-legged frog	G3 S3	None Candidate Threatened	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_NT-Near Threatened USFS_S-Sensitive	400 1,000	1140 S:4	0	0	0	0	1	3	4	0	3	1	0
Rana draytonii California red-legged frog	G2G3 S2S3	Threatened None	CDFW_SSC-Species of Special Concern IUCN_VU-Vulnerable	260 1,800	1408 S:49	7	28	9	2	0	3	1	48	49	0	0
Spea hammondii western spadefoot	G3 S3	None None	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_NT-Near Threatened	580 580	454 S:1	0	1	0	0	0	0	0	1	1	0	0
Streptanthus insignis ssp. lyonii Arburua Ranch jewelflower	G3G4T2 S2	None None	Rare Plant Rank - 1B.2	1,100 1,700	18 S:7	0	1	0	0	0	6	7	0	7	0	0
Sycamore Alluvial Woodland Sycamore Alluvial Woodland	G1 S1.1	None None		320 500	17 S:2	0	0	0	0	0	2	2	0	2	0	0
Taxidea taxus American badger	G5 S3	None None	CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern	320 1,350	542 S:11	1	6	0	0	0	4	0	11	11	0	0
Vulpes macrotis mutica San Joaquin kit fox	G4T2 S2	Endangered Threatened		150 1,720	982 S:22	2	11	1	0	0	8	17	5	22	0	0

CNPS California Native Plant Society

Inventory of Rare and Endangered Plants

Plant List

27 matches found. *Click on scientific name for details*

Search Criteria

Found in Quads 3712122, 3712121, 3712028, 3712112, 3712111, 3712018, 3612182 3612181 and 3612088;

Modify Search Criteria Export to Excel Modify Columns Modify Sort Display Photos

Scientific Name	Common Name	Family	Lifeform	Blooming Period	CA Rare Plant Rank	State Rank	Global Rank
Acanthomintha lanceolata	Santa Clara thorn-mint	Lamiaceae	annual herb	Mar-Jun	4.2	S4	G4
Amsinckia furcata	forked fiddleneck	Boraginaceae	annual herb	Feb-May	4.2	S4	G4
Androsace elongata ssp. acuta	California androsace	Primulaceae	annual herb	Mar-Jun	4.2	S3S4	G5?T3T4
Atriplex cordulata var. cordulata	heartscale	Chenopodiaceae	annual herb	Apr-Oct	1B.2	S2	G3T2
Atriplex coronata var. coronata	crownscale	Chenopodiaceae	annual herb	Mar-Oct	4.2	S3	G4T3
Atriplex coronata var. vallicola	Lost Hills crownscale	Chenopodiaceae	annual herb	Apr-Sep	1B.2	S2	G4T2
Campanula exigua	chaparral harebell	Campanulaceae	annual herb	May-Jun	1B.2	S2	G2
Caulanthus lemmonii	Lemmon's jewelflower	Brassicaceae	annual herb	Feb-May	1B.2	S3	G3
Chloropyron molle ssp. hispidum	hispid bird's-beak	Orobanchaceae	annual herb (hemiparasitic)	Jun-Sep	1B.1	S1	G2T1
Clarkia breweri	Brewer's clarkia	Onagraceae	annual herb	Apr-Jun	4.2	S4	G4
Convolvulus simulans	small-flowered morning-glory	Convolvulaceae	annual herb	Mar-Jul	4.2	S4	G4
Cryptantha rattanii	Rattan's cryptantha	Boraginaceae	annual herb	Apr-Jul	4.3	S4	G4
Delphinium californicum ssp. interius	Hospital Canyon larkspur	Ranunculaceae	perennial herb	Apr-Jun	1B.2	S3	G3T3
Delphinium recurvatum	recurved larkspur	Ranunculaceae	perennial herb	Mar-Jun	1B.2	S2?	G2?
Eryngium spinosepalum	spiny-sepaled button-celery	Apiaceae	annual / perennial herb	Apr-Jun	1B.2	S2	G2
Fritillaria agrestis	stinkbells	Liliaceae	perennial bulbiferous herb	Mar-Jun	4.2	S3	G3
Iris longipetala	coast iris	Iridaceae	perennial rhizomatous herb	Mar-May	4.2	S3	G3

Lessingia tenuis	spring lessingia	Asteraceae	annual herb	May-Jul	4.3	S4	G4
Malacothamnus arcuatus	arcuate bush-mallow	Malvaceae	perennial evergreen shrub	Apr-Sep	1B.2	S2	G2Q
Malacothamnus hallii	Hall's bush-mallow	Malvaceae	perennial evergreen shrub	(Apr)May-Sep(Oct)	1B.2	S2	G2
Navarretia gowenii	Lime Ridge navarretia	Polemoniaceae	annual herb	May-Jun	1B.1	S1	G1
Navarretia nigelliformis ssp. radians	shining navarretia	Polemoniaceae	annual herb	(Mar)Apr-Jul	1B.2	S2	G4T2
Piperia michaelii	Michael's rein orchid	Orchidaceae	perennial herb	Apr-Aug	4.2	S3	G3
Puccinellia simplex	California alkali grass	Poaceae	annual herb	Mar-May	1B.2	S2	G3
Senecio aphanactis	chaparral ragwort	Asteraceae	annual herb	Jan-Apr(May)	2B.2	S2	G3
Streptanthus insignis ssp. lyonii	Arburua Ranch jewelflower	Brassicaceae	annual herb	Mar-May	1B.2	S2	G3G4T2
Stuckenia filiformis ssp. alpina	slender-leaved pondweed	Potamogetonaceae	perennial rhizomatous herb (aquatic)	May-Jul	2B.2	S3	G5T5

Suggested Citation

California Native Plant Society, Rare Plant Program. 2018. Inventory of Rare and Endangered Plants of California (online edition, v8-03 0.39). Website http://www.rareplants.cnps.org [accessed 27 March 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: September 26, 2017
Consultation Code: 08ESMF00-2017-SLI-3393
Event Code: 08ESMF00-2017-E-09320
Project Name: San Luis Reservoir Dam Maintenance

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: 08ESMF00-2017-SLI-3393

Event Code: 08ESMF00-2017-E-09320

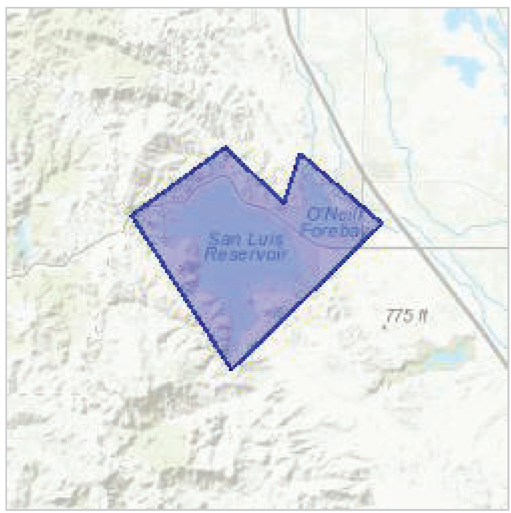
Project Name: San Luis Reservoir Dam Maintenance

Project Type: DAM

Project Description: Dam maintenance for seismic safety

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/37.04911407544098N121.10566056028921W



Counties: Merced, CA

Endangered Species Act Species

There is a total of 13 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
Fresno Kangaroo Rat *Dipodomys nitratoides exilis* There is **final designated** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/5150	Endangered
Giant Kangaroo Rat *Dipodomys ingens* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/6051	Endangered
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

Birds

NAME	STATUS
California Condor *Gymnogyps californianus* Population: U.S.A. only, except where listed as an experimental population There is **final designated** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/8193	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 designated** critical habitat for this species. Your location overlaps the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/2891	Threatened
California Tiger Salamander *Ambystoma californiense* Population: U.S.A. (Central CA DPS) There is **final designated** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/2076	Threatened

Fishes

NAME	STATUS
Delta Smelt *Hypomesus transpacificus* There is **final designated** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/321	Threatened
Steelhead *Oncorhynchus (=Salmo) mykiss* Population: Northern California DPS There is **final designated** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/1007	Threatened

Insects

NAME	STATUS
Valley Elderberry Longhorn Beetle *Desmocerus californicus dimorphus* There is **final designated** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/7850 Habitat assessment guidelines: https://ecos.fws.gov/ipac/guideline/assessment/population/436/office/11420.pdf	Threatened

Crustaceans

NAME	STATUS
Vernal Pool Fairy Shrimp *Branchinecta lynchi* There is **final designated** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/498	Threatened
Vernal Pool Tadpole Shrimp *Lepidurus packardi* There is **final designated** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/2246	Endangered

Critical habitats

There is 1 critical habitat wholly or partially within your project area under this office's jurisdiction.

NAME	STATUS
California Red-legged Frog *Rana draytonii* https://ecos.fws.gov/ecp/species/2891#crithab	Final designated