NACIMIENTO WATER PROJECT

Final Environmental Assessment
SCH# 2001061022

Prepared for
County of San Luis Obispo

May 2008

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ESA

DOCUMENT OVERVIEW

Environmental Assessment
Nacimiento Water Project (NWP)

This Environmental Assessment (EA) addresses the California Army National Guard's issuance of a Report of Availability (ROA) of property on Camp Roberts Training Facility, California, to allow construction and operation of a water supply pipeline and storage tank within a proposed easement corridor. This document analyzes the Proposed Action, the No Action Alternative, and their potential environmental and socioeconomic effects as required by Environmental Analysis of Army Actions (32 CFR 651), the National Environmental Policy Act (NEPA), the President's Council on Environmental Quality regulations, and the *National Guard Bureau NEPA Handbook* (June 2006) The EA is organized as follows:

Section 1 PURPOSE AND NEED for the Proposed Action describes the purpose for and objectives of the Proposed Action, the issues addressed in this EA, the level of public participation, and the regulations applicable to the project.

Section 2 DESCRIPTION OF THE PROPOSED ACTION provides a detailed account of the location of the proposed easement and the pipeline and storage tank facilities at Camp Roberts, including environmental protection measures.

Section 3 ALTERNATIVES CONSIDERED provides a description of the alternative easement routes through Camp Roberts that were considered and a description of the No Action Alternative.

Section 4 AFFECTED ENVIRONMENT describes existing environmental and socioeconomic conditions at the proposed project site and the surrounding area.

Section 5 ENVIRONMENTAL CONSEQUENCES analyzes the potential direct, indirect, and cumulative effects of implementing the project alternatives and presents mitigation measures to reduce or eliminate identified impacts.

Section 6 COMPARISON OF ALTERNATIVES AND CONCLUSIONS summarizes the impacts associated with each alternative and identifies the magnitude of the effects for each resource area, providing the basis for the Finding of No Significant Impact.

Section 7 REFERENCES provides bibliographic information for sources cited in the text of the report.

Section 8 LIST OF PREPARERS identifies the people who prepared the report and their disciplines.

Section 9 AGENCIES AND INDIVIDUALS CONSULTED lists the persons and agencies who provided information to the preparers of this report.

APPENDICES:

Appendix A Agency Correspondence

Appendix B U.S. Fish & Wildlife Service Biological Assessment

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Appendix F Air Emissions Calculations

Appendix G Biological Qualifications

Appendix H Oak Tree Mitigation and Monitoring Plan

Nacimiento Water Project
Camp Roberts Training Facility, California
Final Environmental Assessment

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Acronyms and Abbreviations

af	acre-feet
afy	acre feet per year
AIRFA	American Indian Religious Freedom Act
APE	Area of Potential Effects
ATVs	All-terrain vehicles
B	boron
BMPs	best management practices
BP	before present
CA ARNG	California Army National Guard
Caltrans	California Department of Transportation
CEQ	Council on Environmental Quality
CCRWQCB	Central Coast Regional Water Quality Control Board
CDFG	California Department of Fish and Game
CFR	Code of Federal Regulations
CGS	California Geological Survey
CIH	Certified Industrial Hygienist
Cl	chloride
CNDDB	California Natural Diversity Database

Acronyms and Abbreviations (cont.)

CNEL	Community Noise Equivalent Level
CWA	Clean Water Act
dB	decibel
dBA	decibel, A-weighted
DOA	Determination of Availability
DOD	Department of Defense
EA	Environmental Assessment
EBS	Environmental Baseline Survey
EIR	Environmental Impact Report
EIS	Environmental Impact Statement
Eos	Executive Orders
ESA	Endangered Species Act
FDA	Food and Drug Administration
FEMA	Federal Emergency Management Agency
FMMP	Farmland Mapping and Monitoring Program
FNSI	Findings of No Significant Impact
HazMat Plan	Hazardous Materials Contingency Plan
HDD	horizontal directional drilling
INRMP	Integrated Natural Resource Management Plan
L_{dn}	Day-Night Noise Level
MCWRA	Monterey County Water Resources Agency
MBTA	Migratory Bird Treaty Act
MBTE	methyl tertiary butyl ether
ml	milliliters
mph	miles per hour
MPN	most probable number
N	nitrogen
Na	sodium
NAGPRA	Native American Graves Protection and Repatriation Act
NAHC	Native American Heritage Commission
NEPA	National Environmental Policy Act
NGB	National Guard Bureau
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NPDES	National Pollutant Discharge Elimination System

Acronyms and Abbreviations (cont.)

NRPH	National Register of Historic Places
NWP	Nacimiento Water Project
OSHA	Occupational Safety and Health Administration
PG&E	Pacific Gas & Electric
PPV	peak particle velocity
ROA	Report of Availability
RMS	root mean square
RV	recreational vehicle
SAA	Streambed Alteration Agreement
S-CCC	south-central California evolutionary significant unit
SHPO	State Historic Preservation Office(r)
SLO County	San Luis Obispo County
SLOAPCD	San Luis Obispo Air Pollution Control District
SLOCFCWCD	San Luis Obispo County Flood Control and Water Conservation District
SO_4	sulfate
SVWP	Salinas Valley Water Project
SWPPP	Storm Water Pollution Prevention Plan
TDS	Total Dissolved Solids
THM	trihalomethane
USACE	U.S. Army Corp of Engineers
USDA	U.S. Department of Agriculture
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
UST	underground storage tank
Vdb	Decibel notation
WTP	wastewater treatment plant

SECTION 1
Purpose and Need

1.1 Introduction

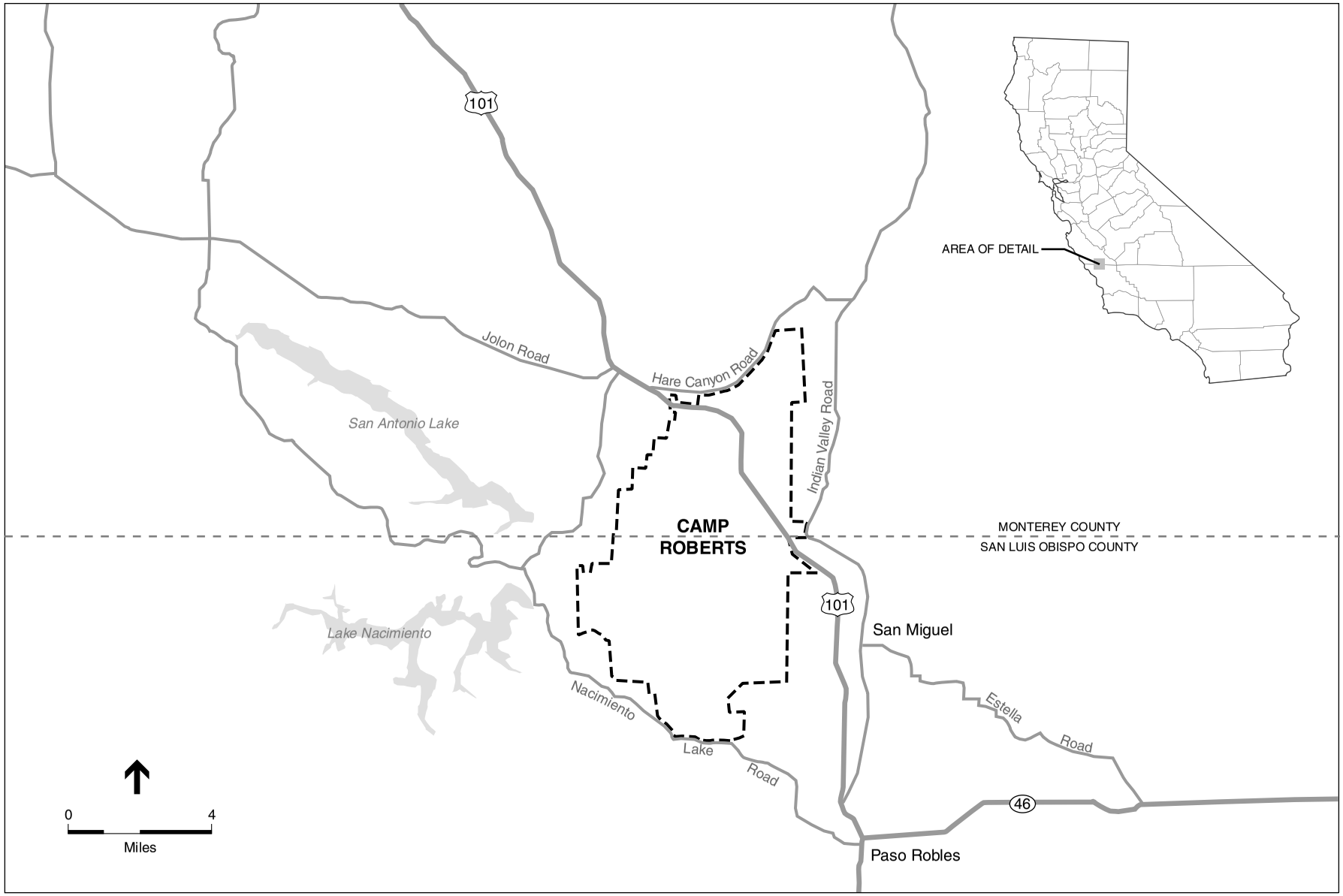
The California Army National Guard (CA ARNG) has prepared this Environmental Assessment (EA) to address the environmental effects of issuing a Report of Availability (ROA) of property for the Nacimiento Water Project (NWP) through the Camp Roberts Training Facility (Camp Roberts), located in Monterey County and San Luis Obispo County, California (**Figure 1-1**). Per AR 405-80, *Management of Title and Granting Use of Real Property*, The ROA, following approval by the National Guard Bureau (NGB) would be used by the U.S. Army Corps of Engineers (USACE) to issue an easement through Camp Roberts to allow construction and operation of NWP facilities.

The CA ARNG has prepared this EA pursuant to the National Environmental Policy Act (NEPA) of 1969, 42 USC § 4321 et seq., the Council on Environmental Quality (CEQ) regulations for implementing NEPA, 40 Code of Federal Regulation (CFR) Parts 1500-1508, and the Environmental Analysis of Army Actions (32 CFR 651), in conformity with the *National Guard Bureau NEPA Handbook* (June 2006).

The NEPA Lead Agency is the NGB. As the NEPA Lead Agency on projects for which the CA ARNG is the proponent, the NGB is responsible for the environmental analysis and documentation. As the executive agent of the Department of Defense for all matters pertaining to the Army National Guard, the NGB is responsible for reviewing and approving the Army National Guard NEPA documents. The NGB reviews the draft and final EAs before they are made available for public review and signs the Findings of No Significant Impact (FNSI) at the conclusion of the NEPA process.

1.2 Purpose and Need for the Proposed Action

The purpose of the Proposed Action is to provide the San Luis Obispo County Flood Control & Water Conservation District (SLOCFCWCD) with legal access to federal lands (i.e., Camp Roberts) to allow the construction and operation of the approved NWP as planned and approved. The ROA would be used by the USACE to grant an easement, which would be a real estate outgrant by the U.S. Army, allowing the use of real property for non-Army use. The use of the property would be in the public interest because the NWP is a public water supply project. This public use would satisfy the general requirements for an outgrant. The easement would allow



SOURCE: Street Map USA; ESA, 2006.

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Figure 1-1

Project Location Map

approximately nine miles of below-grade water transmission pipeline and one above-grade water storage tank to be constructed and maintained on Camp Roberts.

The need for the Proposed Action is to provide a new, reliable source of water to meet future demands in San Luis Obispo County (SLO County). Currently, SLO County's potable water is supplied by groundwater and surface water reservoirs. The water supplied by the NWP would offset the need for additional future groundwater pumping, increase water reliability and quality, and support the planning objectives of various communities within SLO County. In general, the objective of the NWP is to ensure better management of available water resources throughout SLO County.

1.3 Scope and Organization of the Document

This EA considers the Proposed Action and the No Action Alternative. The Proposed Action is described in **Section 2** and the No Action Alternative is described in **Section 3**. The EA identifies, evaluates, and documents the environmental impacts of the Proposed Action and the No Action Alternative. Existing resource conditions in the vicinity of the Proposed Action are described in **Section 4, Affected Environment**. Along with information presented for the No Action Alternative, these conditions constitute the baseline for analyzing potential effects of the Proposed Action.

Section 4 includes the following resource discussions:

- Land Use and Aesthetics
- Air Quality
- Noise
- Geology and Soils
- Water Resources
- Biological Resources
- Cultural Resources
- Socioeconomics
- Environmental Justice
- Infrastructure
- Traffic and Transportation
- Hazardous Materials and Waste

The environmental impacts of the Proposed Action and No Action Alternative are described in **Section 5, Environmental Consequences**. This analysis considers *direct impacts* (those occurring at the same time and place as the proposed action); *indirect impacts* (those occurring later in time or farther removed in distance as the proposed action); and *cumulative impacts* of the Proposed Action when considered in the context of other past, present,

and reasonably foreseeable future actions, regardless of whether they are federal or nonfederal actions (Army National Guard, 2006). Actions that could mitigate identified impacts are identified where appropriate.

Section 6 compares and contrasts the environmental impacts of the Proposed Action and Alternatives and presents the conclusions of the analysis.

1.4 Public Involvement

The CA ARNG provides opportunities for the public to participate in the NEPA process to promote open communication and improve the decision-making process. All persons and organizations having potential interest in the Proposed Action and Alternatives are encouraged to participate in the NEPA environmental analysis process.

The Final EA and draft FNSI will be circulated for a 30-day public review period. (Per the 2006 NGB NEPA Handbook, a public review of the Draft EA, prior to the mandatory 30-day review, is optional.) The public notice is published in a local newspaper to ensure that interested persons and organizations, including any potentially affected minority and low-income groups, are notified. In addition, copies of the Final EA are provided to local libraries and are mailed to individuals, organizations, Native American tribes, and government agencies if requested. The CA ARNG considers any comments on the Final EA and draft FNSI submitted by agencies, organizations, and members of the public. Once all public comments are considered, if the CA ARNG makes a final determination that the project will have no significant impacts on the environment, the NGB will sign the FNSI and the action will be implemented.

In accordance with the California Environmental Quality Act (CEQA), the Environmental Impact Report (EIR) for the NWP was circulated for public review from July 7, 2003 to September 5, 2003. The public response to the NWP was generally positive with virtually no controversy.

SECTION 2
Description of Proposed Action

This EA evaluates the Proposed Action and the No Action Alternative. This section describes the components, timing, and phasing of the Proposed Action at Camp Roberts. The No Action Alternative is described in Section 3.2 and, as required by the CEQ, serves as a benchmark against which project alternatives can be evaluated.

2.1 Introduction

The CA ARNG is a California agency that receives funding from the State and federal governments. Its federal mission is to organize and train forces to serve the community, State, and nation. The CA ARNG's stated mission is to protect the public safety of California by providing military support to the civil authority during natural disasters and other emergencies.

Camp Roberts is located in central California in the southern portion of the Salinas River Valley approximately 25 miles from the Pacific Ocean and five miles from the City of Paso Robles (Figure 1-1). Camp Roberts is bisected in an east-west direction by the Monterey County and SLO County Lines. U.S. Highway 101 runs through the northeast corner of Camp Roberts separating the East Garrison area from the Main Garrison. Camp Roberts encompasses 42,784 acres, of which approximately 2,514 acres are developed and 8,130 acres are designated as an impact area for all caliber direct and indirect weapon systems, the only dedicated live impact area in California controlled by CA ARNG (California Army National Guard, 2001). The remaining acreage is used for maneuver training. The main function of Camp Roberts is as a training facility for CA ARNG.

Land use around Camp Roberts is primarily agricultural, rural residential, open space, and recreation, including the Heritage Ranch development, the community of San Miguel, the Big Sandy Wildlife Area, and Lake Nacimiento Recreation Area (California Army National Guard, 2001; County of San Luis Obispo, 2006).

2.2 Proposed Action

The Proposed Action is the issuance of a Report of Availability (ROA) by the CA ARNG, with subsequent NGB Determination of Availability (DOA) to allow construction and operation of a nine-mile segment of the NWP water transmission pipeline to proceed as currently approved and planned, through Camp Roberts. The ROA would be used by the USACE to grant an easement to the SLOCFCWCD, which is necessary for implementation of the NWP, a new water supply

project that would transport raw water from Lake Nacimiento through Camp Roberts and south to communities including: Paso Robles, Templeton, Atascadero, and San Luis Obispo.

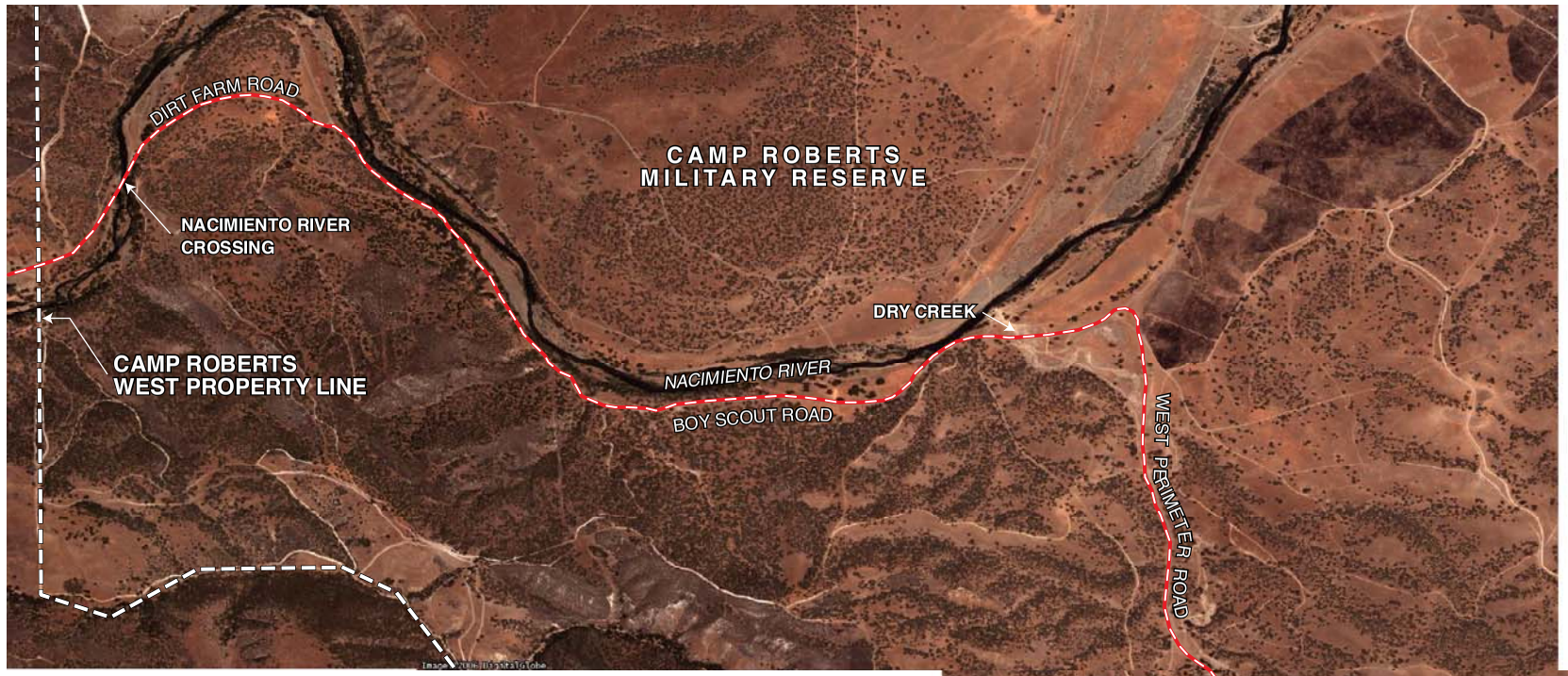
The easement would be a real estate outgrant by the U.S. Army, allowing the use of real property for non-Army use. Per AR 405-80, *Management of Title and Granting Use of Real Property*, the outgrant process begins with a ROA, which states the availability of property currently licensed to the CA ARNG for the proposed use (i.e., the NWP). The outgrant would identify the terms and conditions of non-Army land use within the easement. The use granted must be of direct benefit to the United States, promote the national defense or Army mission, or be in the public interest.

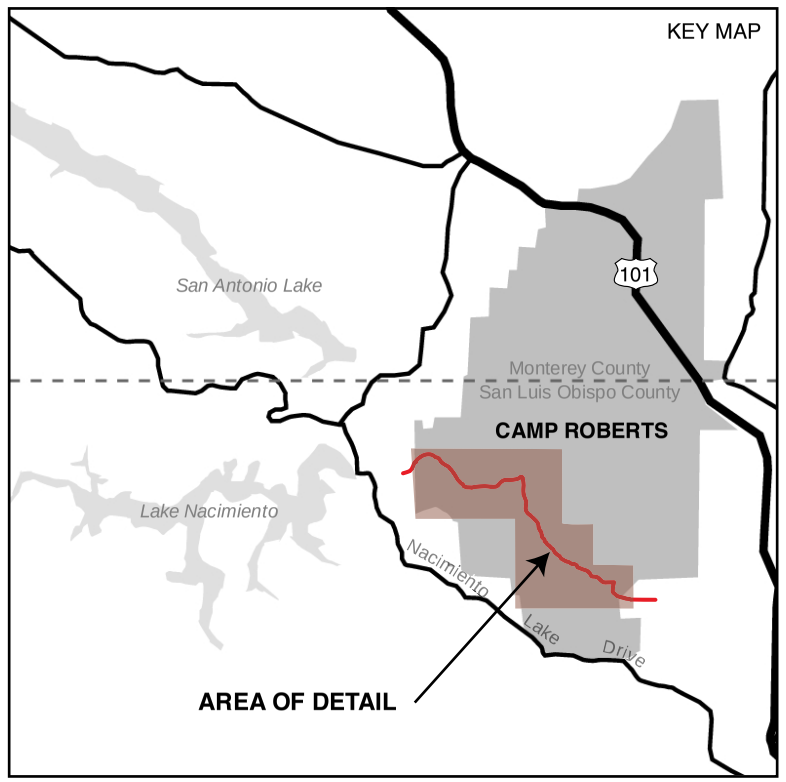
The ROA requires an Environmental Basesline Survey (EBS) and this EA. Pursuant to Army Regulation 200-1, an EBS must be conducted for all real property transactions, including outgrants. The EBS is a stand-alone document, written under direction of the CA ARNG, that must contain a summary statement of the environmental condition of the property. The EBS for the Proposed Action has been completed and approved by NGB (Padre Associates, Inc., 2008).The CA ARNG will issue the ROA following: (1) approval of the ROA by NGB, and (2) NGB approval of the EA and finalizing/signing the FNSI.

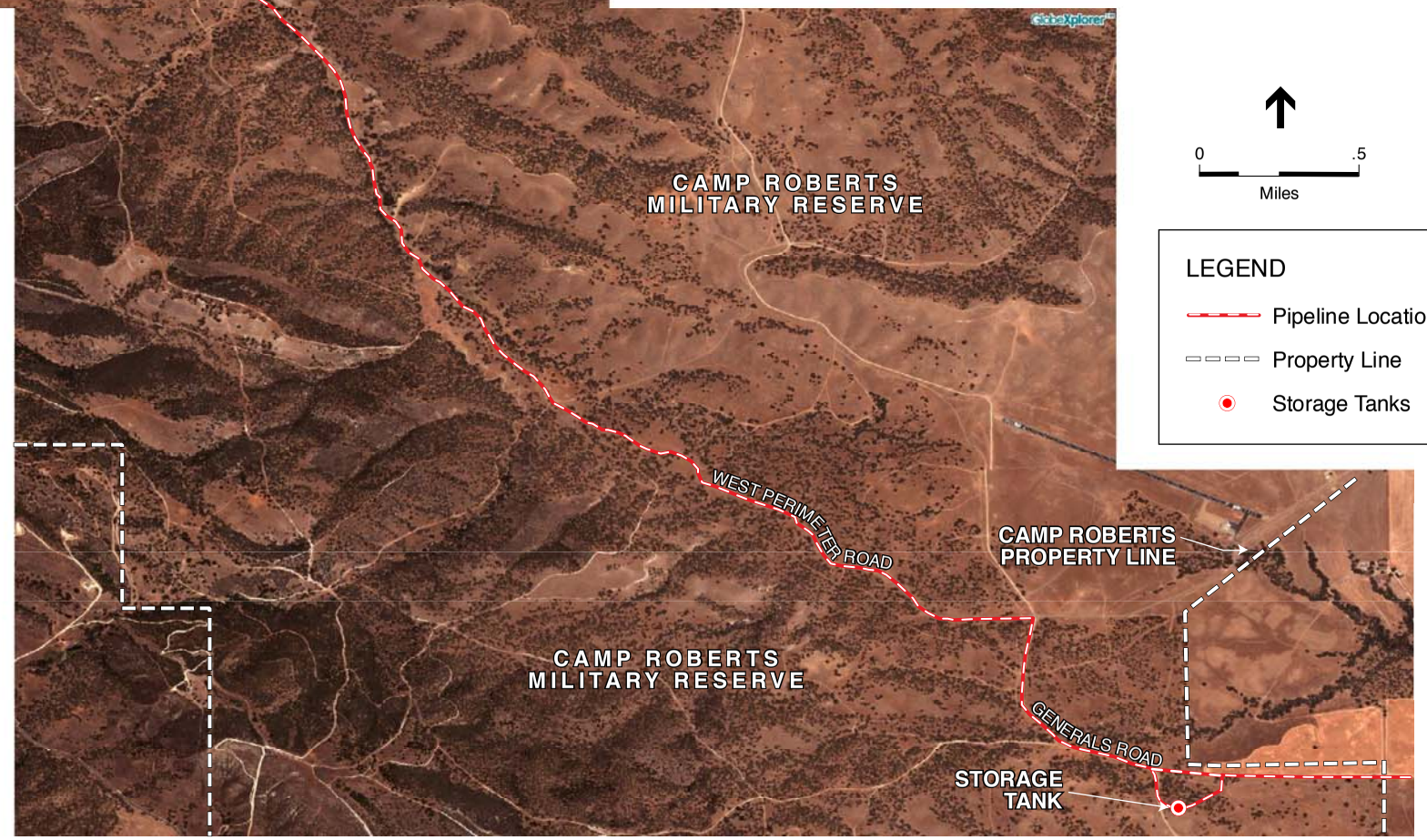
The property under consideration is an easement corridor that would run through the southern portion of the installation and would include one 850,000 gallon storage tank that would be constructed near the southeast boundary of the installation. The easement corridor, including the general location of the storage tank, is indicated in **Figure 2-1**.

The Proposed Action would be undertaken only after applicable regulatory agencies are consulted and any required permits are obtained by SLOCFCWCD. The CA ARNG and SLOCFCWCD would comply with all regulatory requirements. At a minimum, implementing the Proposed Action would involve coordination with the following agencies:

- Central Coast Regional Water Quality Control Board (CCRWQCB) for Section 401 Water Quality Certification under the Clean Water Act;
- State Water Resources Control Board for a National Pollutant Discharge Elimination System (NPDES) general construction activity permit (and associated Storm Water Pollution Prevention Plan (SWPPP)
- California Department of Fish and Game (CDFG) for a Streambed Alteration Agreement (SAA);
- USACE for a Section 404 Permit under the Clean Water Act and a Section 10 permit under the Rivers and Harbors Act;
- U.S. Fish and Wildlife Service (USFWS) and National Marine Fisheries Services (NOAA Fisherise) under Section 7 of the Endangered Species Act;
- The California State Historic Preservation Office (SHPO), under Section 106 of the National Historic Preservation Act; and
- The California Native American Heritage Commission (NAHC).







LEGEND

- Pipeline Location and Easement
- Property Line
- Storage Tanks

SOURCE: GlobeXplorer; Corollo Engineers, 2006.

Figure 2-1
Proposed Action

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All agency coordination has been completed, and all permits have been obtained except for the NPDES permits, which are the responsibility of individual construction contractors. Agency correspondence is included in **Appendix A**.

The entirety of the NWP, including that portion crossing Camp Roberts, has been analyzed and publicly reviewed in accordance with the California Environmental Quality Act (CEQA). The Final Environmental Impact Report (EIR) for the NWP was certified by the SLOCFCWCD Board of Supervisors on January 6, 2004.

2.2.1 NWP Project Description

The NWP approved by the SLOCFCWCD includes the following major elements:

- a water transmission pipeline approximately 45 miles long from Lake Nacimiento to the City of San Luis Obispo (with a portion of the pipeline running through Camp Roberts),
- an Intake Pump Station at Lake Nacimiento Dam,
- two additional pump stations,
- three water tanks (one located at Camp Roberts), and
- four water discharge facilities.

The NWP would supply up to 15,750 acre feet per year (afy) of water to various communities in San Luis Obispo County (SLO County). The SLOCFCWCD has a 17,500 acre-feet (af) annual entitlement from Lake Nacimiento per an agreement executed in 1959 with Monterey County Water Resources Agency. Of this 17,500 af entitlement, 15,750 af is slated for this project, and the remaining 1,750 af is being reserved for local lakeside use. As described in the Final EIR, fifteen purveyors (including CA ARNG Camp San Luis Obispo) had submitted requests for a total of 13,575 afy of Lake Nacimiento water. Subsequent to the completion of the Final EIR, the list has been reduced to just five entities: two cities, two county-operated water systems, and one mutual water company. The amount of water currently contracted is 9,655 afy.

NWP Objectives

The NWP would meet the need for future water supplies in SLO County and supplement existing groundwater sources. The objective of the NWP is to ensure better management of available water resources throughout SLO County. Although communities in SLO County have experienced water shortages during drought periods, the current water system has been reliable for the most part. The NWP would increase the reliability of participant's water supplies by adding a previously unused source of surface water. By supplementing the local groundwater and surface water supplies with a new surface water source, the NWP would:

- Provide a reliable supplemental water source for a variety of uses within SLO County.
- Increase reliability of water deliveries.
- Improve water quality.

- Lessen the extent of future groundwater pumping to existing residents.
- Provide sufficient supplies to support planning objectives in various communities of SLO County.

2.2.2 NWP on Camp Roberts

A portion of the NWP would be constructed within the proposed easement through the southern portion of Camp Roberts, which lies within SLO County. Two components of the NWP would be constructed within the proposed easement: a nine-mile segment of the mostly 30 inch diameter water transmission pipeline and one 850,000 gallon water storage tank. The proposed route for the easement, associated pipeline alignment, and storage tank are described below and illustrated in Figure 2-1.

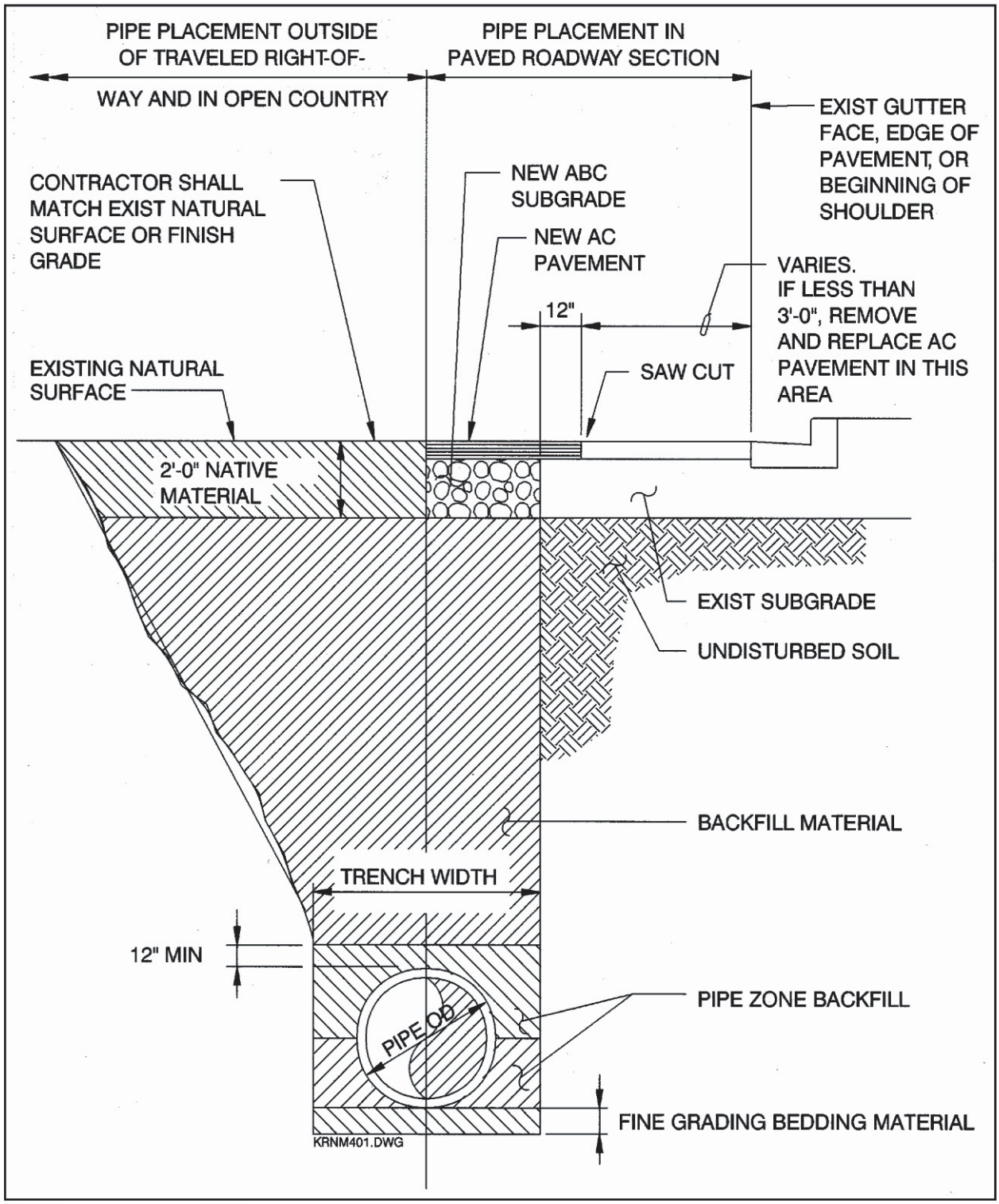
The 30 inch diameter pipeline, which would originate at Lake Nacimiento Dam, would enter Camp Roberts at its southwestern border following a dirt road. The pipeline would cross the Nacimiento River and continue east along a dirt road. The pipeline would then travel southeast and east along Boy Scout Road, following the Nacimiento River and crossing Dry Creek. The pipeline would then travel south and east along West Perimeter Road to the intersection with Generals Road. From here, the pipeline would continue south and east along Generals Road to the storage tank location. From the storage tank, the pipeline, now 36 inches in diameter, would continue east along a dirt fire road to the eastern camp boundary.

As described above, the pipeline segment through Camp Roberts would consist of pipe ranging from 30 to 36 inches in diameter. The pipe material would be a combination of cement mortar lined ductile iron and cement mortar lined and coated steel pipe.

Installation of the pipeline would generally involve open trench construction methods (**Figure 2-2**), with the exception of the Nacimiento River and Dry Creek crossings. The average trench width and depth would be approximately five by nine feet. The average construction corridor would be 50 to 60 feet wide, varying with the required temporary construction easements through the installation. The proposed temporary and permanent easement widths are presented on the draft plan sheets included in the Map Atlas in **Appendix E**.

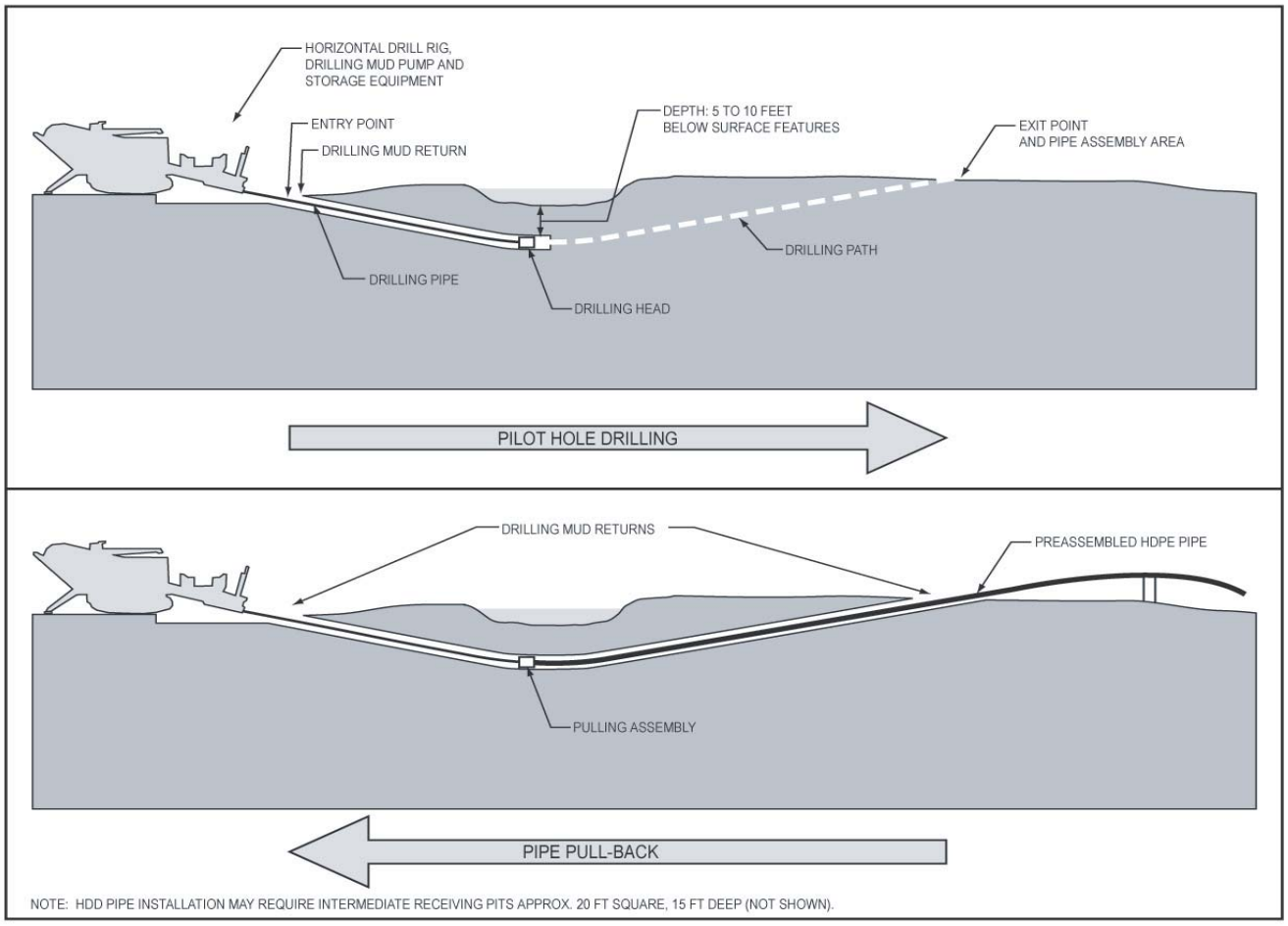
The Nacimiento River crossing would be accomplished with horizontal directional drilling (HDD) to minimize impacts to cultural resources and biological resources, including wildlife habitat and fisheries (**Figure 2-3**). The Dry Creek crossing would be accomplished using open trench construction if the abandoned bridge across the creek is removed. If Camp Roberts decides to maintain the bridge, then a trenchless method or open trenching method would be used to cross the creek at the bridge. The pipeline alignment across Dry Creek is designed to avoid an adjacent sensitive cultural resource site. Construction in and around Dry Creek and other streambeds would occur during the dry season to avoid the need for stream flow diversions.

HDD is a steerable, trenchless construction method that is used to install underground pipelines without disturbing the ground surface. Using horizontal and vertical control, the pipeline is stalled in an inverted arc profile. A Maxi-HDD system would be used to install the 30-inch diameter,



SOURCE: Carollo Engineers, 2002.

Figure 2-2
Trenching



SOURCE: ESA, 2006.

Figure 2-3
Horizontal Directional Drill

810-foot long pipe across the Nacimiento River. The exact pipeline depth has not been determined but could reach up to 200 feet.

An entrance pit and an exit pit would be set up on opposite sides of the river. The entrance side would require a construction lay down area for the HDD drill rig and associated equipment (approximately 75 by 400 feet). The exit side would require space for pipe assembly and laydown (approximately 200 feet longer than the actual drill path and 50 to 75 feet wide). Pipe handling at the exit side would require equipment such as cranes, pipe rollers, side booms, and welders. Using a HDD drill rig, the pipeline is installed in two stages: (1) a small diameter pilot hole is directionally drilled along a designed path, and (2) the pilot hole is then enlarged to a diameter that would accommodate the pipeline and the pipeline would be pulled back into the enlarged hole. Slurry, typically bentonite (an inert clay), is used as a drilling lubricant and processed by separating solids from the slurry and discharging the clear liquid to waterways or storm drains.

The construction schedules for the pipeline and storage tank would overlap. Construction of the storage tank would begin in April 2008, and last approximately 11-months. Construction of the pipeline would begin in June 2008, and last approximately 12-months. The pipeline crossing of the Nacimiento River would occur between July and November 2008.

Construction staging areas for temporary storage of equipment and materials and off-loading supplies would be located within the temporary construction easement as part of the Proposed Action. As part of their approval of the NWP, the SLOCFCWCD required that the contractor select staging areas that would not require removal of vegetation, would not impact creeks, and would not affect noise-sensitive receptors. Staging areas are required to be restored to pre-construction conditions or better (County of San Luis Obispo, 2003; SLOCFCWCD, 2006).

During construction, cut and fill materials would be balanced onsite (i.e., cut soil would be used as backfill) to reduce excess soil, or spoil, as much as possible. Spoil soil from construction would be spread across the easement width as part of the area restoration. As such, it is anticipated that the export of spoil for disposal would not be necessary. Other construction-related solid waste would be recycled to the greatest extent possible. Any remaining construction debris and excess material would be taken to the Camp Roberts Landfill, which has sufficient capacity to accommodate construction-related solid waste and is an approved disposal site for spoil soil (Class I). Access to and from the pipeline work area would be via the proposed easements, General's Road, and from the western boundary of Camp Roberts. If the Camp Roberts Landfill Expansion project is underway during construction of the NWP and temporarily unavailable to receive solid wastes, then alternate means of disposal off-site would be arranged by the contractor. One such alternative could entail the transport and disposal of construction materials at Cold Canyon Landfill in San Luis Obispo, which accepts Class I solid waste. Once construction is complete, the NWP pipeline would be entirely below ground through Camp Roberts. The impacted surface within the easement would be restored to pre-construction conditions.

Camp Roberts Storage Tank

The Camp Roberts Storage Tank facility would occupy approximately 1.3 acres on an undeveloped hilltop near the southeast boundary of the installation (**Figure 2-4)**.

The Camp Roberts storage tank would be 70 feet in diameter and 30 feet tall with a capacity of 850,000 gallons (**Figure 2-5**). Ancillary storage tank facilities would include control valves in underground vaults, lighting, a parking area, an access road, and an adjacent overflow detention basin. The tank would be painted steel, with colors chosen to be compatible with the surrounding landscape and subject to approval from Camp Roberts Department of Planning Training Mobilization and Security. Site drainage would be designed to direct storm water away from the site to the detention basin. The tank site would be surrounded by a chain-link fence and would include one exterior, metal halide light that would be directed downwards and equipped with motion detectors to minimize light pollution. The light would be installed with a 70 watt bulb and would be night vision compatible. Electrical loads at the water storage tank (e.g., lights, instrumentation devices, valve actuators) would be powered by solar systems.

The tank would be founded on a cut excavation; the site is relatively flat with a gentle slope. The tank would be above ground and visible from Generals Road and the land immediately surrounding the tank site. Due to the natural landforms, hills, and valleys, which range from 900 to 1200 feet in elevation, the tank would not be visible from locations more than one mile distant.

A tank overflow pipe would discharge any overflow water through the tank drain system to a detention basin. The detention basin area would be constructed by building small (24 – 30 inch high) gently rounded, mounds of earth around the tank perimeter. The basin area would be hydroseeded upon completion to create a natural appearance. Before entering the detention basin, overflow water would pass through an energy dissipation structure and rip-rap for erosion control. During construction of the storage tank and detention basin, soil erosion would be controlled by environmental protection measures and Best Management Practices (BMPs) implemented as part the California's NPDES General Construction Stormwater Permit required by the CCRWQCB, which would include a SWPPP and Erosion Control Plan. (See Section 2.3.3 Water Resources for examples of best management practices.)

After the storage tank construction is complete, the disturbed portions of the site around the tank would be restored through hydroseeding and landscaping activities done by a licensed landscape subcontractor. Hydroseeding would involve the use of native, blended seed mixtures obtained from a reputable source and would be done on an as needed basis to blend in with the surrounding landscaping. Landscaping would be implemented in accordance with a landscaping plan that would be subject to review and approval by the Camp Roberts Environmental and Integrated Training Area Management (ITAM) Directorates. All vegetation selected for the landscaping plan would be chosen from species native to the area and compatible with local soils and physical conditions, including evergreen and drought-tolerant plants. Existing site conditions support grasses, forbs, and coast live oak. Vegetation would be planted on the west, south, and east sides of the tank, including grasses, forbs, shrubs, grey pine, and coast live oak. Raw water from a tap

SOURCE: GlobeXplorer; Boyle Engineering Company, 2006.

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Figure 2-4
Camp Roberts Storage Tank
(Aerial)

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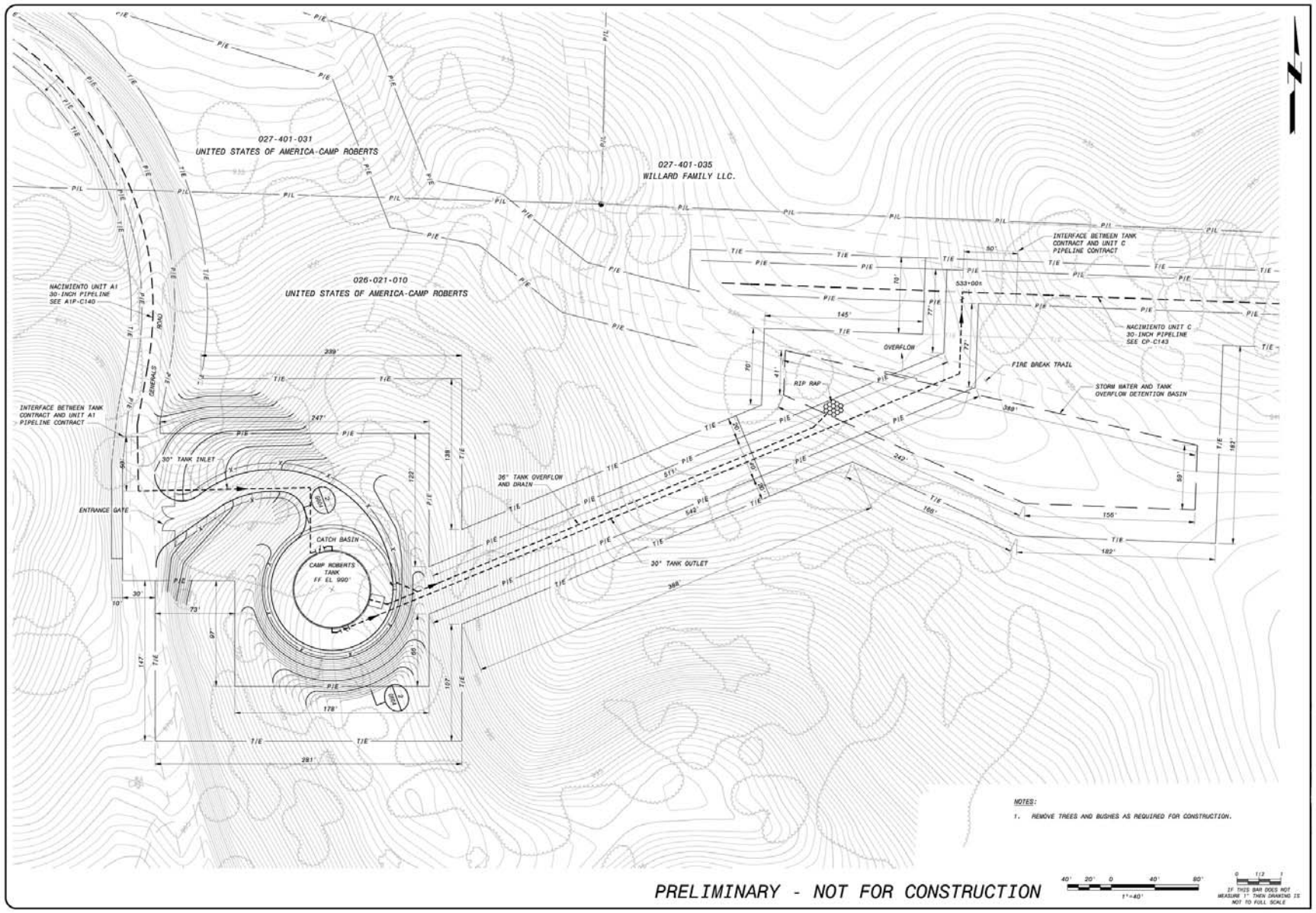

SOURCE: Black & Veatch, 2006.

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Figure 2-5
Camp Roberts Storage Tank
(Design Drawing)

in the tank would be used onsite for irrigation. Landscaping plans shall show how plants will be watered and what watering schedule would be applied to ensure successful and vigorous growth (SLOCFCWCD, 2006). SLOCFCWCD would be responsible for all site maintenance once construction, restoration, and landscaping are complete, including on-site pest management (e.g., rodents) and control of invasive plant species.

2.3 Environmental Protection Measures

This section describes measures to be implemented by SLOCFCWCD in association with the Proposed Action to ensure that environmental resources within the region of influence would be protected. These measures are classified into one of three categories: project-specific mitigation measures for potentially-significant adverse effects, project-specific mitigation measures for minor adverse effects, and best management practices.

2.3.1 Mitigation of Potentially-Significant Adverse Effects

Air Quality

The following San Luis Obispo Air Pollution Control District (SLOAPCD) standard dust reduction measures would be implemented during construction.

- Reduce the amount of disturbed area where possible.
- Use of water trucks or sprinkler systems in sufficient quantities to prevent airborne dust from leaving the site. Increased watering frequency would be required whenever wind speeds exceed 15 miles per hour (mph). Reclaimed (non-potable) water should be used whenever possible.
- All dirt stockpile areas shall be sprayed daily as needed.
- Permanent dust control measures identified in the approved project revegetation and landscape plans should be implemented as soon as possible following completion of any soil disturbing activities.
- Exposed ground areas that are planned to be reworked at dates greater than one month after initial grading should be sown with a fast-germinating native grass seed obtained from a reputable source and irrigated with water obtained from the river via existing allocation permits until vegetation is established.
- All disturbed soil areas not subject to revegetation should be stabilized using approved chemical soil binders, jute netting, weed-free straw bales, or other methods approved in advance by the SLOAPCD and the CA ARNG Environmental Directorate.
- All roadways, driveways, sidewalks, etc. to be paved should be completed as soon as possible. In addition, building pads should be laid as soon as possible after grading unless seeding or soil binders are used.

- Vehicle speed for all construction vehicles shall not exceed 15 mph on any unpaved surface at the construction site. All trucks hauling dirt, sand, soil, or other loose materials are to be covered or should maintain at least two feet of freeboard (minimum vertical distance between top of load and top of trailer) in accordance with California Vehicle Code Section 23114. This measure has the potential to reduce emissions of particulate matter less than 10 microns (PM_{10}) by 7–14 percent.

- Install wheel washers where vehicles enter and exit unpaved roads onto streets, or wash off trucks and equipment prior to leaving unpaved roads. This measure has the potential to reduce PM_{10} emissions by 40–70 percent. This measure would be conducted at least 50 feet from any drainage and at least 250 feet from vernal pool fairy shrimp habitat.

- Sweep streets at the end of each day if visible soil material is carried onto adjacent paved roads. Water sweepers with reclaimed water should be used where feasible. This measure has the potential to reduce PM_{10} emissions by 25–60 percent. This measure would be conducted at least 50 feet from any drainage and at least 250 feet from vernal pool fairy shrimp habitat.

- The contractor or builder shall designate a person or persons to monitor the dust control program and to order increased watering, as necessary, to prevent transport of dust offsite. Their duties shall include holidays and weekend periods when work may not be in progress. The name and telephone number of such persons shall be provided to the SLOAPCD prior to any site disturbance.

Table 2-1 lists equipment usage assumptions for construction based on reasonably foreseeable construction conditions for the level of effort needed to construct the pipeline and storage reservoir. The table also includes equipment usage during periods when both the pipeline and storage reservoir are under construction simultaneously.

Biological Resources

Vernal Pool Fairy Shrimp

SLOCFCWCD shall coordinate with Camp Roberts Environmental Staff regarding the management of potential or known vernal pool fairy shrimp within the project corridor. To protect vernal pool fairy shrimp, the following measures, which are authorized by USFWS under Biological Opinion 1-8-07-F-10 (Appendix A), shall be implemented during construction of the pipeline:

- Where feasible, the NWP will be designed to avoid or minimize effects to occupied and potential vernal pool fairy shrimp habitat;
- Runoff from the adjacent upland construction site would be either retained in the defined work area or directed away from identified vernal pool habitat;
- For vernal pool habitat that can be avoided, construction exclusion fencing will be erected to keep project vehicles, equipment and activities within the defined work area;

TABLE 2-1
ESTIMATED EQUIPMENT USAGE

		Pipeline		Storage Reservoir		Pipeline & Storage Reservoir	
Equipment	**Horsepower**	**Quantity**	**Hours per day usage**	**Quantity**	**Hours per day usage**	**Quantity**	**Hours per day usage**
Backhoe	79	2	7	1	7	3	7
Blade (Grader)	174	1	5	1	5	2	5
Broom	417	1	7			1	7
Bulldozer	352	1	7	1	7	2	7
Crane	190			1	5	1	5
Drilling rig/Micro-tunnel	190	1	5			1	5
Dump Truck	417	1	5	1	5	2	5
Loader	79	1	7	1	7	2	7
Water truck	417	1	7			1	7
Welding Truck	190	1	5	1	5	2	5

Notes:
Acreage per day = 1 acre
Average excavated material per day = 200 cubic yards
Construction Duration = 12 months

SOURCE: ESA, 2006.

- For pools that will be directly impacted, silt fencing will be erected around the deepest portion of pools to retain portions of these features following construction, if possible, and minimize project disturbances. If pools will be eliminated, a qualified biologist would assess the total acreage of pools that cannot be avoided. Construction activities would be limited to the dry season (roughly April 15 to October 15) near occupied shrimp pools. For pools that cannot be avoided, a qualified biologist will salvage the upper 1/2-inch of top soil prior to construction for later pool inoculation following construction.

- The project sponsor would engage a qualified biologist or equivalent professional to monitor construction activities that have the potential to affect vernal pool habitat.

- For occupied pools located within 100 feet of project activities, silt fencing will be erected at the limits of construction to minimize indirect effects to these features. Silt fencing would be included in construction specifications for these sites and would be erected under the direct supervision of a qualified biologist.

Special-Status Bird Species

To minimize potential project effects to special-status bird species, including the bald eagle, California condor, burrowing owl, yellow warbler, tricolored blackbird, and other migratory birds, the following measures will be implemented in accordance with Mitigation Measures BR-7, BR-8, and BR-16 of the NWP EIR (2004):

- The project sponsor shall engage a qualified biologist or equivalent professional to monitor construction activities that have the potential to affect special-status bird species.
- Preconstruction surveys shall be conducted by a qualified biologist to determine presence/absence of special-status bird species at known breeding sites and at potential breeding sites where the project could impact these species. If present, the areas shall be flagged and avoided until the end of the breeding season.
- Tree removal shall be avoided during the breeding season to the extent feasible. (See discussion of oak tree removal below.) If tree removal is unavoidable during the breeding season, then a qualified biologist shall conduct a preconstruction survey of the trees to be removed prior to removal. Damage or removal of trees with active nests, eggs, and/or fledglings shall be avoided until a qualified biologist determines that the nests in occupied trees have been vacated.

Bald Eagles

In addition to the general measures listed above, to minimize potential project effects to bald eagles, a seasonal construction-exclusion buffer around active nest sites shall be implemented during the breeding season. The Camp Roberts Environmental Office specifies that base training activities observe a 500 meter activity exclusion zone around nests during the bald eagle nesting season. Thus construction activities within 500 meters of bald eagle nests may not occur between January 15 and July 31, but thereafter may proceed without limitation, with respect to bald eagles.

California Condor

In addition to the general measures listed above, to minimize potential project effects to the California condor, all construction work shall be halted by the construction monitor if the California condor is observed in the project vicinity. Construction shall be resumed only after the construction monitor has determined that the bird has moved far enough away that resuming work will not result in disturbance to the California condor.

San Joaquin Kit Fox

To protect the San Joaquin kit fox, the USFWS *Standardized Recommendations for Protection of the San Joaquin Kit Fox* (USFWS, 1997) and the County of San Luis Obispo; *Guide to Kit Fox Mitigation Procedures* (County of San Luis Obispo, 2004) shall be implemented. Measures to be implemented include but are not limited to the following:

- Within potential habitat, preconstruction surveys will be conducted within 200 feet of work areas to identify potential San Joaquin kit fox dens or other refugia. Surveys for potential kit fox dens will be performed by a qualified biologist[1] 14-30 days prior to the commencement of construction activities. All identified potential dens would be monitored for evidence of kit fox use by placing an inert tracking medium at den

[1] A qualified biologist (biologist) means any person who has completed at least four years of university training in wildlife biology or a related science and/or has demonstrated field experience in the identification and life history of the San Joaquin kit fox.

entrances and monitoring for at least three consecutive nights. If no activity is detected at these dens, they may be closed following guidance established in the *Standardized Recommendations* document.

- An employee education program would be conducted to explain endangered species concerns to contractors, their employees, and agency personnel involved in the project. The program would consist of a brief presentation by a person knowledgeable in kit fox biology and legislative protection and would include the following: a description of the San Joaquin kit fox and its habitat needs; the occurrence of kit fox in the project corridor; status of the species and its protection under the federal and State Endangered Species Acts; legal penalties for violating the provisions of the federal Endangered Species Act; and measures being taken to reduce impacts to the species during project construction and implementation. A fact sheet conveying this information would be prepared for distribution to the above-mentioned people and anyone else who may enter the project site.

- If kit fox occupancy is determined at a given site, closure activities at that location would immediately be halted and the USFWS contacted. Depending on the type of identified den, one of the following reasonable and prudent measures would be implemented.

  – Known (active) den – establish a 100 foot construction exclusion zone around the identified location.

  – Natal/Pupping den (active or inactive) – contact the USFWS to determine the appropriate construction exclusion zone.

- To minimize the possibility for inadvertent kit fox mortality, project-related vehicles would observe a maximum 20-mile-per-hour speed limit on private roads in kit fox habitat, and observed posted speed limit signs within Camp Roberts.

- Kit fox protection measures will be included on project plans.

- Construction activities will be stopped at dusk.

- Off-road traffic outside the designated NWP project corridor would be prohibited in areas that provide kit fox habitat.

- To prevent accidental entrapment of kit fox or other animals during construction, all excavated holes or trenches greater than two feet deep would be covered at the end of each workday by suitable materials, or provided with escape routes constructed of earth fill or wooden planks. Before such holes are filled they would be thoroughly inspected for trapped animals.

- Pipes, culverts or similar structures 4-inches or greater in diameter would be inspected for kit fox before being buried, capped, or moved.

- All food-related trash items such as wrappers, cans, bottles, and food scraps would be disposed of in closed containers and removed daily from the project site.

- To prevent harassment, mortality of kit foxes, or destruction of dens, no pets would be allowed on the project site.

Steelhead Trout

To minimize potential effects to steelhead trout due to construction of the pipeline across the Nacimiento River, the following measures shall be implemented:

- Construction activities in the vicinity of potential steelhead occurrences will be restricted to the low-flow period of June 15 through November 1. Restricting construction activities to this work window will minimize potential impacts to migrating adult and smolt steelhead resulting from bentonite releases.

- A qualified biological monitor will be on site during all underground pipeline construction activities in the vicinity of potential steelhead occurrences. The biological monitor will have the authority to halt construction when contamination[2] is observed until the source of contamination is controlled.

Oak Trees

Up to approximately 500 oak trees could be removed or damaged during construction of the NWP through Camp Roberts. The proposed pipeline would primarily follow established roads within Camp Roberts and thus it is expected that the majority of mature oak trees could be avoided during construction. Compliance with the NWP Oak Tree Mitigation & Monitoring Plan (OTMMP) would reduce adverse effects of the Proposed Action and pipeline construction on oak trees to less than significant levels. The OTMMP is included as **Appendix H**. The OTMMP has been prepared pursuant to Mitigation Measure BR-10 of the NWP EIR (2004) and in accordance with all State, county, and local policies and ordinances, including Camp Roberts Integrated Natural Resources Management Plan (INRMP). According to the OTMMP, the Proposed Action shall target maximum avoidance of oak trees. If avoidance is not possible, then oak tree replacement shall be carried out in accordance with the INRMP Oak Replacement Policy for construction activities (California Army National Guard, 2001). This policy requires any oak trees removed from Camp Roberts to be replaced at a ratio of 3:1 (three surviving trees for each tree removed). The potential planting areas for replacement trees on Camp Roberts are described in the OTMMP (Table 2, page 12). SLOCFCWCD shall be responsible for monitoring oak trees and ensuring survivability. All oak tree removal and replacement shall be coordinated with CA ARNG Environmental Directorate and Camp Roberts Environmental and ITAM Directorates.

The OTMMP includes (but is not limited to) the following mitigation measures and requirements:

- Preconstruction Identification: Prior to ground disturbing or staging activities, identify all oak trees within the construction corridor to be avoided, trimmed, or removed using different colored flagging and a sequential numbering system.

[2] Sedimentation from soil spill into waterways and releases of bentonite clays (used as a lubricant) are the most likely sources of contamination and would be visible to the monitor as increased turbidity.

- Oak Tree Avoidance: Narrow the construction corridor where possible from 100 feet to a maximum of 30 feet to avoid individual oak trees and oak woodland stands.

- Mitigation Planting: Oak seedlings planted to offset impacts of the NWP on Camp Roberts must meet the following performance criteria: The duration of the monitoring will be seven years or when the oak plantings have (1) a basal diameter of 2 inches or a height of 6 feet, (2) survived one year without protective cages; and (3) survived two years without supplemental watering or irrigation.

Cultural Resources

As described in Section 4.7, there are ***known*** cultural resource sites on Camp Roberts within the vicinity of the proposed easement. For cultural resource sites that cannot be avoided due to physical site conditions, a pre-construction data recovery program has been developed to minimize adverse impacts to cultural resources. The data recovery program is described in the Archaeological Research Design and Treatment Plan (ARD/TP) for Evaluation and Data Recovery for the Nacimiento Water project (Albion 2007). The ARD/TP defines procedures for evaluating the cultural sites for eligibility for the National Register of Historic Places (NRHP). For sites that are NRHP eligible, the ARD/TP also defines procedures for recovering significant information for all cultural resources within the pipeline excavation area prior to pipeline installation.

In addition, the following procedures would be implemented during construction of the pipeline and storage tank on Camp Roberts to minimize impacts to discovery of ***unknown*** cultural resources.

The SLOCFCWCD would brief the construction staff on procedures for handling the unexpected discovery of archaeological resources prior to undertaking project activities. In the event that buried or otherwise previously unidentified archaeological remains such as chipped or ground stone, midden soil, large quantities of cans, bottles, or metal, bone, shell, building foundations, or other artifacts or building remains are identified during ground-disturbing activities, all work shall stop within 100 feet of the find until a qualified archaeologist is able to inspect it. If the find is considered to be potentially significant, the USACE, appropriate Camp Roberts environmental staff, and SLOCFCWCD shall be notified at once and a plan developed to avoid and evaluate the find. Procedures for evaluation and mitigation of unanticipated archaeological discoveries are contained in the ARD/TP.

If human remains are encountered, the environmental officer would contact the SLO County Coroner in compliance with Section 7050.5 of the California Health and Safety Code. Procedures for treatment of human remains are also outlined in the ARD/TP. If fossils are encountered during ground-disturbing activities, all construction would stop in the vicinity of the find, the SLOCFCWCD and Camp Roberts cultural resources manager would be contacted, and the resource would be documented and evaluated by a qualified paleontologist.

Hazardous Materials and Waste

The following environmental protection measures would be implemented to protect workers and the environment against adverse effects from hazardous materials and waste.

Camp Roberts' staff would provide training to construction workers on the hazards of conducting work at Camp Roberts prior to the beginning of groundbreaking activities. If suspected ordnance (pieces or whole units) is encountered during groundbreaking activities, all activities will stop and the construction foreman shall immediately notify the Camp's Range Control Officer for inspection and removal by qualified personnel.

Prior to beginning any excavation or trenching, a Hazardous Materials Contingency Plan (HazMat Plan) shall be developed to define procedures for handling and disposing of contaminated soils encountered during construction. The HazMat Plan shall be approved by the CA ARNG Environmental Directorate. The HazMat Plan shall include but not be limited to the following in the event that hazardous materials are encountered:

- Notify owner, engineer, agencies, and other affected persons.
- Designate a CIH to issue instructions for protection of workers.
- Identify and contact qualified licensed personnel to undertake storage, removal, transportation, disposal, and remediation.
- Instruct workers on recognition and reporting of materials that may be hazardous.

To minimize potential environmental effects from petroleum releases during construction, the SLOCFCWCD would prepare and implement a Pollution Prevention Plan that identifies potential pollutants and provides procedures for minimizing the environmental damage from releases, should they occur. The Pollution Prevention Plan would include but not be limited to the following measures:

- Designate "no fueling" zones within 50 feet of all drainages.
- All equipment used in or near drainages shall be clean and free of leaks and/or grease.
- Emergency provisions shall be in place at all drainage crossings prior to construction to deal with unintentional spills.

Construction Staging Areas

The exact locations of construction staging areas would be determined after the Proposed Action is approved and the contractor is selected. The contractor would be required to select staging areas that would not require removal of significant vegetation, would not impact creeks, and would minimize potential impacts to noise-sensitive receptors. Staging areas would be restored to pre-construction conditions (County of San Luis Obispo, 2003; SLOCFCWCD, 2006).

2.3.2 Mitigation of Minor Adverse Effects

Geology and Soils

Preliminary investigations shall be conducted to clarify the ground-rupture potential and location of fault traces of the Rinconada fault in the vicinity of the proposed easement. Any potential, future ground rupture or shaking resulting from movement on this fault shall be taken into account in the design of the pipeline and storage tank, in accordance with the 1997 Uniform Building Code.

Water Resources

Because construction of the Proposed Action would disturb greater than one acre of soil, it would be subject to the terms of California's NPDES General Construction Stormwater Permit. The terms of the permit require that the SLOCFCWCD file a notice of intent to be covered by the State's general permit before construction begins. Under the terms of the general permit, the SLOCFCWCD would prepare and implement a SWPPP that includes an Erosion Control Plan and BMPs. SLOCFCWCD also would implement a monitoring program. BMPs would include but not be limited to the following measures:

- Schedule construction in rivers, streams, and drainages during the dry season (April 15 to October 15) to reduce erosion.
- Implement standard erosion control procedures such as the use of certified weed-free straw bales, silt fences, and sandbags at the edges of construction sites and stream bank stabilization procedures.
- Grade the land surface to direct runoff into sediment retention areas (whose locations and construction details would be defined within the SWPPP).
- Direct any diverted flows to in-channel sedimentation basins to trap fine soil materials before diverted flows are released downstream.
- Heavy equipment and construction activities shall be restricted to the defined construction easement. Construction materials or spoils shall not be stored within the channel or overbanks. Excavated soil and stockpiles of imported fill shall be stored at least 20 feet from active channel banks.
- Develop an Emergency Construction Site Securing Procedure to protect dry streambeds during an unforeseen precipitation event. Procedure shall include personnel and equipment evacuation, trench closure, and materials removal procedures.

To minimize potential effects due to accidental pipeline or storage tank rupture during operation of the NWP, an emergency response plan shall be developed and implemented. The plan shall include remedial erosion control measures for areas downstream of the rupture. The plan shall also outline a regular inspection and maintenance program.

Biological Resources

A vegetation restoration plan shall be prepared in coordination with CA ARNG Environmental Directorate and implemented by a qualified restoration biologist and native plant horticulturist for the various vegetation communities and habitats that would be temporarily disturbed during project construction.

Infrastructure

Groundbreaking activities within the proposed easement could damage underground utilities. To avoid accidental disruption of utility service, a utility survey shall be conducted prior to groundbreaking. The Underground Service Alert shall be notified to properly identify any existing subsurface structures.

2.3.3 Best Management Practices

Biological Resources

All SLOCFCWCD construction supervisors shall receive an environmental briefing from the CA ARNG Environmental Directorate and Camp Roberts Environmental Staff and shall be responsible for all construction staff who does not comply with the guidance provided.

Infrastructure

Construction of the pipeline segment and storage tank would require minimal use of potable water for construction-related activities such as dust abatement. Water supply in SLO County is finite and demand is nearing its limits. To minimize potential short-term construction-related impacts to potable water supplies, all contractors shall use, to the greatest extent possible, non-potable water sources for dust abatement and other non-drinking purposes. Non-potable water would consist of water withdrawn from the river via existing allocation permits.

SECTION 3
Alternatives Considered

3.1 Alternatives Development

The Proposed Action is the issuance of a ROA by the CA ARNG, with subsequent approval by NGB, to allow construction and operation of the NWP through Camp Roberts. The approved ROA would be used by the USACE to grant an easement to the SLOCFCWCD, which is necessary for implementation of the NWP. CA ARNG developed alternatives to the Proposed Action that included different easement corridors through Camp Roberts. To be considered for evaluation in this EA, an alternative had to meet the purpose and need for the Proposed Action (Section 1.2) and had to satisfy the following screening criteria:

- Operation of the resulting NWP facilities within the alternative easement must not conflict with the training mission of Camp Roberts or the established training schedule.
- The alternative easement must avoid or substantially reduce environmental impacts associated with the Proposed Action.

None of the alternatives satisfied both the purpose and need and the screening criteria. The alternatives that were considered by CA ARNG but eliminated from further analysis are described below in Section 3.3. The No Action Alternative, which is described in Section 3.2, is evaluated in this EA along with the Proposed Action.

3.2 No Action Alternative

An environmental analysis of the No Action Alternative is required by the CEQ regulations to serve as a benchmark against which the Proposed Action can be evaluated. Under this alternative, CA ARNG would not issue the ROA, and the USACE would not grant the easement to the County of San Luis Obispo. Consequently, there would be no NWP facilities built on the grounds of Camp Roberts. Under the No Action Alternative, the pipeline route for the NWP would be established around the perimeter of the Camp Roberts property.

3.3 Alternatives Considered but Eliminated from Further Analysis

Three alternative easements corridors through Camp Roberts were considered and eliminated from further analysis by CA ARNG and the County of San Luis Obispo, as described in the 2003 NWP Final EIR (County of San Luis Obispo, 2003). In addition to these alternatives to the

Proposed Action, the 2003 NWP Final EIR also considered an alternative pipeline alignment around Camp Roberts.

3.3.1 West River Alignment

Under this alternative, water from Lake Nacimiento would be released into the Nacimiento River and would flow into Camp Roberts. Water would be diverted near the confluence of the Nacimiento and Salinas Rivers within Camp Roberts. The easement and pipeline would run south and east through the camp between the railroad, Salinas River and Highway 101, crossing the eastern camp boundary and continuing south to meet up with the NWP pipeline at Wellsona Road north of Paso Robles. A pump station would also be included within the easement near the river diversion point. This easement alternative was eliminated from further consideration due to incompatibility with CA ARNG training activities. A portion of the easement would be within an active access route to the Camp Roberts training facilities east of the Salinas River. In addition, due to potential impacts to riparian vegetation and habitat, flood control, archaeological resources, and aesthetic resources, this alternative would not avoid or substantially reduce environmental impacts associated with the Proposed Action.

3.3.2 East River Alignment

Under this alternative, water from Lake Nacimiento would be released into the Nacimiento River and would flow into Camp Roberts. Water would be diverted from the east side of the Salinas River near the confluence of the Nacimiento and Salinas Rivers within Camp Roberts. The easement and pipeline would run south and east through the camp along the east side of the Salinas River, crossing the eastern camp boundary. The pipeline would continue south to meet up with the NWP pipeline north of Paso Robles. A pump station and storage reservoir also would be constructed within the easement along the pipeline through Camp Roberts. This easement alternative was eliminated from further consideration due to incompatibility with CA ARNG training activities. The easement would be in an area of Camp Roberts where there are major training exercises with heavy armored equipment that would damage the pipeline due to unusual loads. In addition, due to potential impacts to riparian vegetation and habitat, flood control, unstable soils, and archaeological resources, and regulatory constraints due to water rights, this alternative would not avoid or substantially reduce environmental impacts associated with the Proposed Action.

3.3.3 Camp Roberts Direct Alignment

Under this alternative, water from Lake Nacimiento would be released into the Nacimiento River and would flow into Camp Roberts. Water would be diverted from the Nacimiento River within Camp Roberts. The easement and pipeline would run east along Boy Scout Road and Bee Rock Road. The pipeline would cross the eastern camp boundary and continue east and south to meet up with the NWP pipeline at Wellsona Road north of Paso Robles. This easement alternative was eliminated from further consideration due to incompatibility with Camp Roberts training mission and training activities. The easement would be in an area of Camp Roberts where actual maneuvers are held using heavy military vehicles, with training occurring both during the day and

night. The pipeline would be subject to severe loading due to heavy equipment and munitions used in this area. In addition, due to potential impacts to San Joaquin kit fox (*Vulpes macrotis mutica*) habitat, this alternative would not avoid or substantially reduce environmental impacts associated with the Proposed Action.

In summary, no additional alternatives to the Proposed Action were identified that satisfied all screening criteria and met both the purpose and need. The Proposed Action, however, does meet both the screening criteria and purpose and need. Therefore, the Proposed Action is identified as the CA ARNG's Preferred Alternative.

SECTION 4
Affected Environment

This section presents baseline information on the resources that could potentially be affected by the Proposed Action, including construction and operation of NWP facilities within Camp Roberts. In general, the affected environment within Camp Roberts would include a 200-foot wide corridor around the proposed easement (both permanent and temporary) and the storage tank facilities. CEQ regulations (40 CFR Part 1500), allow federal agencies to focus their NEPA analysis on those resources that could be affected and to omit discussion of resource areas that clearly would not be affected by the Proposed Action. However, no resource areas have been omitted from this analysis. The resource areas analyzed include: land use, aesthetics, air quality, noise, geology and soils, water resources, biological resources, cultural resources, socioeconomics, environmental justice, infrastructure, and hazardous materials and wastes.

4.1 Land Use and Aesthetics

This section addresses existing land use, landscape, and aesthetic resources at and around Camp Roberts, including discussion of applicable land use plans and policies.

4.1.1 Camp Roberts

Camp Roberts occupies 42,784 acres in southern Monterey County and northern SLO County. Within the camp, approximately 2,514 acres are developed and 8,130 acres are designated as an impact area for all caliber direct and indirect weapon systems, the only dedicated live impact area in California controlled by the CA ARNG (California Army National Guard, 2001). The remaining acreage is used for maneuver training. U.S. Highway 101 runs through the northeast corner of the installation. Camp Roberts is owned by the U.S. Army, administered by the USACE, Sacramento District, and licensed and operated by the CA ARNG. The main function of Camp Roberts is as a training facility for CA ARNG.

Camp Roberts is located in the California Coastal Range, and the topography is characterized by rolling hills, valleys, and stream channels. The landscape is characterized by oak woodlands, chaparral, coastal scrub, and grasslands. The Nacimiento, San Antonio, and Salinas Rivers flow through Camp Roberts. There is no Wild and Scenic River designation for the Nacimiento, San Antonio, or Salinas Rivers, per the federal Wild and Scenic Rivers Act of 1968 (P.L. 90-542, as amended) (National Park Service, 2006). Elevations in Camp Roberts range from 545 to 1,780 feet above sea level with slopes reaching up to 20 percent (California Army National Guard, 2001)

The Proposed Action would affect only the portion of Camp Roberts that is in SLO County. According to the SLO County General Plan, Camp Roberts is in the Adelaida Planning Area and designated as Federal Lands and Public Facility (County of San Luis Obispo, 2003a).

The proposed easement through Camp Roberts would run through current bivouac and maneuvers training areas that are characterized by open space. Historically, these areas might have been used as impact areas (see **Section 4.11.1 Military Ordnance**). The proposed easement would follow improved and unimproved roadways, including Boy Scout Road, West Perimeter Road, and Generals Road. The proposed easement would not run through the impact area. The proposed easement would cross the Nacimiento River and Dry Creek, and run through chaparral/scrub, oak woodland, riparian woodland, grasslands, and wetlands. (Refer to the Map Atlas in **Appendix E** for detailed aerial photographs of the proposed easement.)

Camp Roberts has allowed cattle and sheep grazing on the installation since 1942 (California Army National Guard, 2001). Grazing licenses are issued for five-year time periods. There is approximately 20,500 acres available for sheep grazing between January 1 and June 30 of each year, and approximately 5,600 acres available for cattle grazing between January 1 and May 31 of each year.

4.1.2 Surrounding Land Use

Within SLO County, land use adjacent to Camp Roberts is primarily designated as Agriculture, Rural Lands, Open Space, Recreation, Rural Residential, and Residential Suburban by the SLO County General Plan (County of San Luis Obispo, 2003a, 2003b, 2003c, 2006). The proposed easement would begin at the western Camp Roberts boundary where the Nacimiento River enters the installation. Immediately west of this point is the Heritage Ranch community, Lake Nacimiento, and the Lake Nacimiento Recreation Area. The closest residence is approximately 0.3 mile from this installation boundary. To the south and east of Camp Roberts, land is primarily used for agriculture and grazing. Additionally, there is a Camp Roberts Recreational Vehicle (RV) park with seven trailer residences and seven residents, located on the eastern edge of the camp near the San Luis Obispo County line. The closest residence to the proposed easement is a residence on Mahoney Drive located approximately 0.7 mile from the point where the proposed easement meets the southeast boundary of the installation. The community of San Miguel is approximately 1.75 miles east of Camp Roberts, and the City of Paso Robles is approximately five miles southeast of Camp Roberts. Lake Nacimiento Drive, which runs along the southeast edge of Camp Roberts and north to the Monterey County Line, is an officially-designated county scenic highway between Chimney Rock Road and the Monterey County line (California Department of Transportation, 2006; County of San Luis Obispo, 2003a).

4.2 Air Quality

4.2.1 Regional Setting

The County of San Luis Obispo comprises the South Central Coast Air Basin with three distinct subbasins: the Coastal Plateau, the Upper Salinas River Valley, and the East County Plain. Camp

Roberts is located in the Upper Salinas River Valley Air Basin. The local Mediterranean climate influenced by the Pacific Ocean and local topography play a key role in the movement of air pollutants in the Camp Roberts area. Local temperature inversions can trap air pollutants for periods of time within the air basin, raising levels of criteria pollutants. Air quality in the area is largely influenced by vehicle emissions blown in from local urban centers (such as Paso Robles). Local air emissions primarily include vehicle exhaust from local highways (U.S. Highway 101), agricultural vehicles, local traffic, and Camp Roberts traffic.

Bedrock underlying Camp Roberts consists of the Paso Robles Formation, which may contain occasional cobbles of serpentine rock. Serpentine rock is known to contain chrysotile asbestos, a designated toxic air contaminant (TAC). However, due to the small quantities of serpentine rock occurring, it is not expected that excavation into the bedrock would result in the release of asbestos into the air

4.2.2 Regulatory Setting

The federal Clean Air Act (CAA) establishes public health-based air quality standards. The State has also developed air quality standards. **Table 4-1** summarizes federal and State ambient air quality standards identified in the CAA for criteria pollutants. Areas that violate air quality standards are designated as non-attainment for relevant pollutants. The SLOAPCD regulates air emissions within the county. The SLOAPCD issues air emissions permits and prepares air quality attainment plans for criteria pollutants that exceed air standards.

The SLOAPCD has developed mitigation thresholds for air emissions attributable to construction activities (**Table 4-2)**. The SLOAPCD identifies required mitigation measures for construction activities in excess of these thresholds. The SLOAPCD also identifies significance criteria for assessing air quality impacts from project operations. Projects that would emit over 10 lbs/day of nitrogen oxides (NO_x), particulate matter less than 10 microns (PM_{10}), sulfur oxides (SO_x), or ROC, are required to implement mitigation measures. Emissions in excess of 25 tons per year of any of these constituents are considered significant. Projects that would emit over 550 lbs/day of carbon monoxide (CO) would be required to implement mitigation.

The federal CAA requires that federal agencies ensure that their actions are consistent with the CAA and applicable state attainment plans. Federal agencies are required to evaluate their proposed actions to make sure that they will not cause or contribute to new violations of air quality standards. The U.S. Environmental Protection Agency (USEPA) has established conformity analysis procedures for federal actions. The USEPA general conformity rule requires that a formal conformity determination be conducted for federally sponsored actions in non-attainment areas. The CAA conformity guidelines do not apply to actions at Camp Roberts because it is not within a federal non-attainment area.

TABLE 4-1
NATIONAL AND CALIFORNIA AMBIENT AIR QUALITY STANDARDS FOR CRITERIA POLLUTANTS

Pollutant	Averaging Time	California [a] Standards [b]	National Standards [b]	
			Primary [d]	Secondary [c,e]
Ozone (O_3)	1 hour 8 hour	0.09 ppm (180 µg/m^3) 0.08 ppm	0.12 ppm (235 µg/m^3) 0.08 ppm	0.12 ppm (235 µg/m^3) 0.08 ppm
Carbon Monoxide (CO)	8 hour 1 hour	9.0 ppm (10 µg/m^3) 20.0 ppm (23 µg/m^3))	9.0 ppm (10 µg/m^3) 35 ppm (40 µg/m^3))	NS[6] NS
Nitrogen Dioxide (NO_2)	Annual Avg. 1 hour	NS 0.25 ppm (470 µg/m^3)	0.053 ppm (100 µg/m^3) NS	0.053 ppm (100 µg/m^3) NS
Sulfur Dioxide (SO_2)	Annual Avg. 24 hour 3 hour 1 hour	NS 0.05 ppm[f] (131 µg/m^3) NS 0.25 ppm (655 µg/m^3)	80 µg/m^3 (0.03 ppm) 365 µg/m^3 (0.14 ppm) NS NS	NS NS 1300 µg/m^3 (0.5 ppm) NS
Suspended Particulate Matter – PM_{10}	Ann.Geo.Mean Ann.Arith.Mean 24 hour	30 µg/m^3 NS 50 µg/m^3	NS 50 µg/m^3 150 µg/m^3	NS 50 µg/m^3 150 µg/m^3
Suspended Particulate Matter – $PM_{2.5}$	Ann.Arith.Mean 24 hour	12 µg/m^3 NS	15 µg/m^3 65 µg/m^3	15 µg/m^3 65 µg/m^3
Sulfates (SO_4^{-2})	24 hour	25 µg/m^3	NS	NS
Lead (Pb)	30-day Avg. Calendar Qtr.	1.5 µg/m^3 NS	NS 1.5 µg/m^3	NS 1.5 µg/m^3
Hydrogen Sulfide (H_2S)	1 hour	0.03 ppm (42 µg/m^3)	NS	NS
Vinyl Chloride	24 hour	0.010 ppm (26 µg/m^3)	NS	NS
Visibility Reducing Particles	1 Observation	Insufficient amount to reduce the prevailing visibility [g] to less than 10 miles when the relative humidity is less than 70% (CA only).		

Note: µg/m^3 = microgram/cubic meter; ppm = parts per million by volume; NS = No Standard.

a. California standards for O_3, CO, SO_2 (1-hour), NO_2, $PM_{2.5}$, PM_{10} are values that are not to be exceeded. SO_4^{-2}, Pb, H_2S, Vinyl Chloride, and visibility-reducing particles standards are not to be equaled or exceeded. Sulfates are pollutants that include SO_4^{-2} ion in their molecule.

b. National Standards, other than ozone and those based on annual averages or annual arithmetic means are not to be exceeded more than once a year. The O_3 Standard is attained when the expected number of days per calendar year with maximum hourly average concentrations above the standard is equal to or less than one. For $PM_{2.5}$, the 24 hour standard is attained when 98% of the daily concentrations, averaged over three years, are equal to or less than the standard.

c. Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon reference temperature of 25^{o}C and a reference pressure of 760 mm of mercury. All measurements of air quality are to be corrected to a reference temperature of 25^{o}C and a reference pressure of 760 mm of mercury (1,013.2 millibar); ppm in this table refers to ppm by volume or micromoles of pollutant per mole of gas.

d. Primary Standards: The levels of air quality necessary, with an adequate margin of safety, to protect the public health. Each state must attain the primary standards no later than three years after that state's implementation plan is approved by the EPA.

e. Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant. Each state must attain the secondary standards within a "reasonable time" after the implementation plan is approved by the EPA.

f. At locations where the State standards for ozone and/or PM_{10} are violated. National standards apply elsewhere.

g. Prevailing visibility is defined as the greatest visibility, which is attained or surpassed around at least half of the horizon circle, but not necessarily in continuous sectors.

SOURCE: SLOCFCWCD, 2003.

TABLE 4-2
SAN LUIS OBISPO COUNTY AIR POLLUTION CONTROL DISTRICT
SIGNIFICANCE THRESHOLDS FOR CONSTRUCTION

Mitigation Required	ROC Mitigation Threshold	NO_x Mitigation Threshold	PM_{10} Mitigation Threshold
Best Available Control Technology for Construction Equipment (CBACT)	>185 lbs/day or 2.5 to 6.0 tons/qtr or >247,000 yd^3 of material/qtr or >9,100 yd^3 of material/day	>185 lbs/day or 2.5 to 6.0 tons/qtr or >53,500 yd^3 of material/qtr or >2,000 yd^3 of material/day	>2.5 tons/qtr or >4.0 acres grading area
CBACT plus further mitigation, including offsets	>6.0 tons/qtr. or >59,300 yd^3 of material/qtr	>6.0 tons/qtr. or >129,000 yd^3 of material/qtr	-

SOURCE: SLOAPCD, 1997.

4.2.3 Existing Air Quality Conditions

Camp Roberts is located in a predominantly rural area that exhibits fairly good air quality. SLO County is in attainment for both federal and State standards for CO, NO_x, SO_x, lead, sulfates, and hydrogen sulfide (H_2S). The county is in attainment for the federal standard for PM_{10} but is not in attainment for the State standard for PM_{10}. The USEPA is still considering the county's status for the federal 8-hour O_3 standard. **Table 4-3** summarizes the county's attainment status.

TABLE 4-3
SAN LUIS OBISPO AIR QUALITY ATTAINMENT STATUS

O_3		CO		NO_2		SO_2		$PM_{2.5}$		PM_{10}	
State	Fed	State	Fed	State	Fed	State	Fed	State	Fed	State	Fed
A	A	A	A	A	U/A	A	U/A	U/A	U/A	N	U

Note: A= Attainment; N=Non-Attainment; U=Unclassified; U/A unclassified/Attainment

SOURCE: California Air Resources Board, 2004.

4.3 Noise

This section presents information on ambient noise conditions in the vicinity of the proposed easement area and identifies potential impacts associated with noise and vibration due to the construction and operation of the Proposed Action.

4.3.1 Noise

Sound is mechanical energy transmitted by pressure waves through the air. Noise can be defined as unwanted sound. Sound is characterized by various parameters that include the rate of oscillation of sound waves (frequency), the speed of propagation, and the pressure level or energy content (amplitude). In particular, the sound pressure level has become the most common descriptor used to characterize the loudness of an ambient sound level. The decibel (dB) scale is used to quantify sound intensity. Since the human ear is not equally sensitive to all frequencies within the entire spectrum, noise measurements are weighted more heavily within those frequencies of maximum human sensitivity in a process called "A-weighting," referred to as dBA. In general, a difference of more than 3 dBA is a perceptible change in environmental noise, while a 5 dBA difference typically causes a change in community reaction. An increase of 10 dBA is perceived by people as a doubling of loudness (USEPA, 1974).

Cumulative noise levels from two or more sources will combine logarithmically, rather than linearly. For example, if two identical noise sources produce a noise level of 50 dBA each, the combined noise level would be 53 dBA, not 100 dBA.

Time variation in noise exposure is typically expressed in terms of the average energy over time (Leq), or alternatively, as a statistical description of the sound level that is exceeded over some fraction of a given period of time. For example, the L50 noise level represents the noise level that is exceeded 50 percent of the time – half the time the noise level exceeds this level and half the time the noise level is less than this level. This level is also representative of the level that is exceeded 30 minutes in an hour. Similarly, the L8 and L25 represent the noise levels that are exceeded eight and 25 percent of the time, respectively, or for five and 15 minutes during a 1-hour period, respectively.

Several methods have been devised to relate noise exposure over time to human response. The Day-Night Noise Level (L_{dn}) is a 24-hour L_{eq} that adds a 10 dBA penalty to sounds occurring between 10 PM to 7 AM to account for the increased sensitivity to noise events that occur during the quiet late evening and nighttime periods. A commonly used noise metric for this type of study is the Community Noise Equivalent Level (CNEL). The CNEL, originally developed for use in the California Airport Noise Regulation, adds a 5 dBA penalty to noise occurring during evening hours from 7 PM to 10 PM, and a 10 dBA penalty to sounds occurring between the hours of 10 PM and 7 AM to account for the increased sensitivity to noise events that occur during the quiet late evening and nighttime periods. Thus, the CNEL noise metric provides a 24-hour average of A-weighted noise levels at a particular location, with an evening and a nighttime adjustment, which reflects increased sensitivity to noise during these times of the day.

4.3.2 Vibration

Vibration is an oscillatory motion through a solid medium in which the motion's amplitude can be described in terms of displacement, velocity, or acceleration. There are several different methods that are used to quantify vibration. The peak particle velocity (PPV) is defined as the maximum instantaneous peak of the vibration signal. The PPV is most frequently used to

describe vibration impacts to buildings. The root mean square (RMS) amplitude is most frequently used to describe the affect of vibration on the human body. The RMS amplitude is defined as the average of the squared amplitude of the signal. Decibel notation (Vdb) is commonly used to measure RMS. The decibel notation acts to compress the range of numbers required to describe vibration (Federal Transit Administration, 1995). Typically, groundborne vibration generated by man-made activities attenuates rapidly with distance from the source of the vibration. Man-made vibration issues are therefore usually confined to short distances (i.e., 500 feet or less) from the source. Sensitive receptors for vibration include structures (especially older masonry structures), people (especially residents, the elderly and sick), and vibration sensitive equipment.

4.3.3 Existing Noise Setting

The area surrounding the proposed easement through Camp Roberts is undeveloped open space. Noise sources in the area include distant vehicular traffic on local roadways, training activities at Camp Roberts, occasional traffic on the fire roads, and occasional aircraft flyovers. No stationary noise sources exist near the easement itself. Noise measurements collected at a location adjacent to Camp Roberts are summarized in **Table 4-4**.

TABLE 4-4
LOCAL NOISE MEASUREMENTS

Measurement Location	Distance from Proposed Storage Reservoir (feet)	L_{eq}, dBA			
		Day	Night	CNEL	Average
Mahoney Road residence	~ 3,500	34.7	46.3	51.7	42.6

SOURCE: County of San Luis Obispo, 2003.

Noise-sensitive land uses are locations where people reside or where the presence of unwanted sound could adversely affect the use of the land. Residences, schools, hospitals, guest lodging, libraries, and some passive recreation areas would each be considered noise-sensitive and may warrant unique measures for protection from intruding noise. Camp Roberts is largely undeveloped in the vicinity of the proposed easement. The closest sensitive receptors to the proposed easement are residences along Mahoney Road off of the base property approximately 0.7 mile from the point, where the proposed easement meets the southeast boundary of the installation.

4.3.4 Applicable Regulations

Noise is generally regulated through local General Plan noise elements and noise ordinances that adopt federal and state guidelines to local conditions. These guidelines provide an assessment of noise level compatibility with different land uses. Noises can be rated as normally acceptable or unacceptable depending on the surrounding land uses.

The SLO County's General Plan Noise Element (1992) contains goals and policies to address potential noise impacts in the planning process. The goals outlined in the noise element include protecting residents from harmful and annoying effects of exposure to excessive noise, preserving tranquility of residential areas, and avoiding noise exposure with effective site planning. The General Plan restricts ambient noise levels from transportation sources to 60 dB within residential areas. The General Plan identifies a normally acceptable range for high-density residential uses as CNEL values below 65 dB.

The SLO County's Noise Ordinance (Section 22.06.040) has established that noise from construction activities may only occur between the hours of 7 AM and 9 PM on the weekdays, or 8 AM and 5 PM on weekends. The ordinance does not define an acceptable sound level limit for temporary construction activities.

4.4 Geology and Soils

This section describes the geology and soils of Camp Roberts and specifically the proposed easement, including fault rupture and associated ground shaking, seismic-related ground failure, landslides, soil erosion, soil instability, expansive soils, and farmland soils. Information about geologic setting, including soils types, and seismicity is derived from Camp Roberts' INRMP (California Army National Guard, 2001).

4.4.1 Geologic Setting

The proposed easement and all of Camp Roberts is located in the California Coast Ranges section of the Pacific Border physiographic province. Elevations at Camp Roberts range from 545 to 1,780 feet above sea level. Geologic formation within Camp Roberts consists of uplifted seafloor sediments that have been consolidated and metamorphosed into sandstone and shale, respectively. As these materials weathered, they created the topography of Camp Roberts, which varies from low plains and river valleys to hills.

Bedrock underlying Camp Roberts consists of the Paso Robles Formation, which may contain occasional cobbles of serpentine rock. Soils at the installation are grouped into three broad categories based on parent material and geographic location: (1) soils on alluvial fans and floodplains, (2) soils on terraces, and (3) soils on upland hills and mountains. Soils on alluvial fans and floodplains tend to be comprised of a very deep soil layer with shallow slopes and well drained to excessively drained clay loams to cobble sediments; these soils generally have a low shrink-swell potential due to low clay content and low erosion potential. Soils on terraces are usually very deep, range from nearly level to hilly, and are comprised of well- to very well-drained coarse sandy loams to silty clays. Terrace soils have low clay content (low shrink-swell potential) and slight to moderate erosion potential. Soils on upland hills and mountains tend to be shallow to moderately deep with strong to very steep slopes, composed of well to excessively drained clay loam to shaley clay loams, have a high shrink-swell potential due to their increased clay content, and have a variable erosion potential depending on vegetation cover and slope severity. **Table 4-5** summarizes these three broad soil categories at Camp Roberts.

TABLE 4-5
BROAD SOIL CATEGORIES AT CAMP ROBERTS

Category	Soil Types	Soil Depth	Permeability	Shrink-Swell Potential	Topography	Erosion Potential
Alluvial Fans and Floodplains*	Clay loams to cobble sediments	Very deep	Well to excessively drained	Low (low clay content)	Shallow slopes	Low
Terraces	Coarse sandy loams to silty clays	Usually very deep	Well to very well drained	Low (low clay content)	Level to hilly	Slight to moderate
Upland hills and mountains	Clay loams to shaley clay loams	Shallow to moderately deep	Well to excessively drained	High (higher clay content)	Strong to very steep slopes	Variable (depends on cover and slope)

* Majority of the proposed easement traverses this broad soil category.

SOURCE: California Army National Guard, 2001.

The proposed easement traverses all three of these broad soil categories, but a majority of the proposed easement is found within alluvial fan and floodplain soils. This is because engineering considerations for the pipeline segment would preclude placing the easement within difficult terrain (i.e., terraces, upland hills, and mountains) and would favor areas that are relatively flat and contain deep soils (i.e., alluvial fans and floodplains). The easement would traverse more difficult terrain only when it is unavoidable.

Within the area of the proposed easement, there are also two identified areas of contaminated soils (Basgall, 2003; U.S. Army Corps of Engineers, 2000). This issue is further discussed in **Sections 4.11** and **5.11, Hazardous Materials and Wastes**.

4.4.2 Faults and Fault-Rupture Zones

Camp Roberts is within Seismic Risk Zone III according to the U.S. Geological Survey (USGS). Within this Risk Zone, earthquakes are expected to reach an intensity of VII and higher on the Mercalli Intensity Scale. Earthquakes of this magnitude generally cause considerable damage.

California Geological Survey (CGS, formerly the Division of Mines and Geology) classifies faults as active, inactive, or potentially active, according to standards developed for the implementation of the Alquist-Priolo Earthquake Fault Zone Act of 1972 (Hart and Bryant, 1997). Active faults have exhibited surface displacement within the Holocene Epoch [the last 11,000 years before present (BP)] and potentially active faults have exhibit displacement during the Quaternary Period (within the last 1.6 million years BP).

Additionally, for purposes of earthquake shaking and application to the Uniform Building Code, the CGS classifies faults as A-, B-, or C-faults. Only class A- and B-faults are included within CGS earthquake shaking maps and analyses. There are four class A- and B-faults within SLO County: (1) San Andreas, (2) Riconada, (3) Los Osos, and (4) Hosgri. A class A-fault is the most destructive and a class B-fault is intermediate in destructive capability.

The San Andreas fault is northwest of the Camp and is the most active fault (surface displacement in 1857, 1901, and 1966) within the easement's vicinity and is classified as a class A-fault by CGS (County of San Luis Obispo, 2003). The maximum moment magnitude for this fault is 7.8 (County of San Luis Obispo, 2003).

The Riconada fault of the Riconada fault system (which underlies the proposed easement) has not been classified as an active fault based on Alquist-Priolo Act standards, but has been classified as a B-fault (County of San Luis Obispo, 2003). The Riconada fault system shows evidence of displacement within the last 700,000 years. The maximum moment magnitude for this fault is 7.3 (County of San Luis Obispo, 2003).

The Los Osos fault is to the south of Camp Roberts and is zoned as active and is classified as a class B-fault (County of San Luis Obispo, 2003). The maximum moment magnitude for this fault is 6.8 (County of San Luis Obispo, 2003).

The Hosgri fault is offshore and further to the south of Camp Roberts and is zoned as active and is classified as a class B-fault (County of San Luis Obispo, 2003). The maximum moment magnitude for this fault is 7.3 (County of San Luis Obispo, 2003).

Of these four faults, the San Andreas is the most likely to generate the strongest shaking (County of San Luis Obispo, 2003). The Riconada fault is the closest to the proposed easement and, if it were to rupture, would generate strong shaking (County of San Luis Obispo, 2003). The Los Osos and Hosgri faults are more distant and earthquakes from these faults are not expected to significantly affect design of the Proposed Action.

4.4.3 Seismic-Related Ground Failure

Potential seismic-related ground failure includes seismic settlement and liquefaction. Seismic settlement occurs when loose, unconsolidated soil, such as recently deposited alluvium, settles in response to earthquake-related ground shaking. This settlement could cause damage to overlying structures. Liquefaction is when a soil, due to seismically-induced ground shaking, temporarily acts like a liquid as a result of increased pore pressure. Liquefaction also generally requires loose, unconsolidated soil, but also requires a high groundwater table that increases the amount of water present within the soil pores. Saturated sediments with clay contents less than 20 percent are generally most susceptible to liquefaction and liquefaction susceptibility generally decreases as depth to groundwater increases.

There is no data available that demarcates areas that are prone to seismic settlement and liquefaction within Camp Roberts. The SLO County General Plan and the Adelaida Area Plan (in which Camp Roberts is located) does not contain any information about seismic-related ground failure hazards nor does any of the CA ARNG documentation regarding the installation. However, liquefaction areas within the easement are likely to be restricted to the "alluvial fans and floodplains" and "terraces" soil categories (see Table 4-5) because liquefaction-prone areas generally contain low clay content.

4.4.4 Landslides

A landslide is the downward sliding of a relatively dry mass of earth and rock. According to the *Adelaida Rural Land Use Category & Combining Land Use Map* prepared by SLO County, the proposed easement is not within areas that present a "landslide risk" (County of San Luis Obispo, 2003d). However, the Final EIR prepared for the greater NWP indicates that there is a potential for landslides between the following pipeline alignment station numbers: 145+00 to 203+00, 245+00 to 257+00, and 303+00 to 353+00 for the pipeline. The proposed storage tank site is not prone to landslides (County of San Luis Obispo, 2003).

4.4.5 Soil Erosion, Soil Instability, and Expansive Soils

Erodability of Camp Robert's soils are largely determined by slope (California Army National Guard, 2001). The proposed easement is located in areas with varying erosion potential from very high to slight erosion potential (California Army National Guard, 2001). The areas that are described as having a "moderate" or "slight" erosion potential occur along certain portions of the banks of the Nacimiento River and certain limited areas within the southern interior of the installation. The majority of the areas within the easement have soils that are considered to have an "eroded or disturbed," "very high," or "high" erosion potential with a few scattered areas that have "moderate" or "slight" potential for soil erosion (California Army National Guard, 2001). At the storage tank site, the soil erosion potential is "high" (California Army National Guard, 2001).

Expansive soil is characterized by fine-grained clay which occurs naturally and is generally found in areas that historically were a flood plain or lake area, but can occur in hillside areas also. Expansive soil is subject to swelling and shrinkage of the soil, varying in proportion to the amount of moisture present in the soil. As water is initially introduced into the soil (by rainfall or watering), an expansion takes place. If dried out, the soil will contract, often leaving small fissures or cracks. Excessive drying and wetting of the soil will progressively deteriorate structures over the years. This excessive wetting and drying causes damage due to differential settlement within buildings and other improvements.

Areas broadly characterized as "upland hills and mountains" are the only areas at Camp Roberts that have a high shrink-swell potential and, therefore, could be expansive soils (see Table 4.5). The western portion of the easement along the Nacimiento River and Boy Scout Road is within the "upland hills and mountains" category and therefore could be within expansive soils. Expansive soils could affect the belowground pipeline segment if the soil possesses enough clay content to cause deformation of the pipeline due to the continual shrinkage and swelling of the soil. Soil at the proposed storage tank site have a low shrink-swell potential and, therefore, are not considered to be expansive soils.

4.4.6 Prime Farmland

According to the California Department of Conservation's Farmland Mapping and Monitoring Program (FMMP), Prime Farmland is land which has the best combination of physical and chemical characteristics for the production of crops. It has the soil quality, growing season, and

moisture supply needed to produce sustained high yields of crops when treated and managed according to current farming methods (California Department of Conservation, 2006). In the Important Farmland Maps Series produced by the FMMP, the Prime Farmland category is based on qualifying soil types, as determined by the U.S. Department of Agriculture (USDA). Land must also have been used for production of irrigated crops at some time during the four years prior to the mapping date to be considered Prime Farmland (California Department of Conservation, 2006). At Camp Roberts, there are 20 soil types (when irrigated) on approximately 4,900 acres (11.4 percent of the Camp's total acreage) that could qualify as Prime Farmland soils, but none of these soil types are irrigated or used for agricultural production (California Army National Guard, 2001). Therefore, no areas are classified as Prime Farmland at Camp Roberts.

4.5 Water Resources

This section outlines the affected environment as related to water resources issues for the Proposed Action, including surface water, groundwater, floodplains, water quality, and water-related erosion.

Camp Roberts is within the Mediterranean climate zone, which is characterized by warm, dry weather from June through September and mild, rainy weather from November through March (California Army National Guard, 2001). The Camp is periodically hit by winter storms originating in the Pacific Ocean that are driven inland by prevalent atmospheric forces (California Army National Guard, 2001). The Camp is within a rain shadow due to its location on the leeward side of the Santa Lucia Mountain Ranges, but still receives an annual average of 12.53 inches of rain, 95 percent of which falls between the months of October through April (California Army National Guard, 2001). The winter rains are typically long in duration, but low in intensity (California Army National Guard, 2001). Occasionally, tropical summer storms move northward through the area, producing localized, high intensity events (California Army National Guard, 2001).

4.5.1 Surface Water

Camp Roberts is located within the southern portion of the Salinas River Valley on the eastern edge of the Santa Lucia Mountain Ranges. The Camp is within the 3,287-square-mile Salinas River Watershed (USGS Hydrologic Unit #18060005), which is within the greater Central California Coastal Unit (USGS Hydrologic Unit #180600) (California Army National Guard, 2001). All surfaces flows within this watershed eventually drain into the Salinas River.

The Camp can be further divided into four subwatersheds: (1) the Nacimiento River Basin, (2) the Salinas River Basin, (3) the San Marcos Creek Basin, and (4) the San Antonio River Basin (Radian International, 2000). The proposed easement would briefly enter into the San Marcos Creek Basin (southeast corner of the Camp), but the majority of the proposed easement is within the Nacimiento River Basin. The Nacimiento River Basin drains approximately 57 percent (29,290 acres) of Camp Roberts through a network of intermittent streams that only carry water for a few hours to a few days after heavy rains and are otherwise dry (California Army National

Guard, 2001). These intermittent streams drain into the Nacimiento River and eventually the Salinas River in the north-central area of the installation (California Army National Guard, 2001). The San Antonio River Basin (4,895 acres or 11 percent of the Camp) drains into the San Antonio River, which follows the northwest border of the Camp and joins the Salinas River (California Army National Guard, 2001). The San Marcos Creek Basin (3,693 acres or 9 percent of the Camp) drains into the San Marcos Creek, which flows along the southern boundary of Camp Roberts and joins the Salinas River southeast of the Camp (California Army National Guard, 2001).

4.5.2 Groundwater

The southwestern portion of Camp Roberts (which includes the proposed easement area) is underlain by the Paso Robles groundwater basin (California Army National Guard, 2001). From the southern edge of the Camp, groundwater flows northeast. Groundwater from this basin provides for the agricultural and drinking water needs for the local community, including Camp Roberts (California Army National Guard, 2001). This formation is characterized by thick continental gravel, sand, and clay, which yields high volumes of water. Water wells in the basin range in depth between 50 to 250 feet and yield an average of 500 gallons per minute, with a maximum yield of 3,300 gallon per minute reported (California Army National Guard, 2001). The usable storage capacity of the basin is estimated at 1.7 million acre-feet (af) (California Army National Guard, 2001). Recharge of the Paso Robles groundwater basin occurs through percolation from streams and areas of coarse sediment next to mountainous zones, which allows for the greatest recharge rate. Treated wastewater, irrigation water, and precipitation also contribute to recharge (California Army National Guard, 2001).

4.5.3 Floodplains

Based on a review of flood plain maps for Camp Roberts (California Army National Guard, 2006), there are 100-year flood plain areas located within Camp Roberts. Areas identified for flooding include areas adjacent to the San Antonio River, Nacimiento River, Salinas River, and flat, low-lying areas. Additionally, Table 5.3.1a of the 2003 NWP Final EIR states that areas along the pipeline alignment, between stations 0+00 to 58+00, 106+00 to 113+00, 257+00 to 275+00, and 275+00 to 296+00 are within “flood hazard areas” (County of San Luis Obispo, 2003).

4.5.4 Water Quality

Within the proposed easement, raw water from Lake Nacimiento would be conveyed through the pipeline through the southern portion of Camp Roberts; the proposed water storage tank would store raw water that originated from Lake Nacimiento. Therefore, this subsection describes existing water quality at Lake Nacimiento. Additionally, this subsection describes water quality for the Salinas River (all surface water flows within the Salinas River Watershed drain into this River) and groundwater quality of the Paso Robles groundwater basin. Water quality parameters discussed include bacteria, mercury, metals, organics (including methyl tertiary butyl ether

[MBTE]), minerals, other inorganic materials, and radioactivity. **Table 4-6** outlines the beneficial uses for Lake Nacimiento, the Nacimiento River, and the Salinas River.

TABLE 4-6
BENEFICIAL USES OF INLAND SURFACE BODIES
AFFECTED BY THE PROPOSED EASEMENT

Waterbody	MUN	AGR	PROC	IND	GWR	REC1	REC2	WILD	COLD	WARM	MIGR	SPWN	BIOL	RARE	EST	NAV	POW	COMM	AQUA	SAL	SHELL
Lake Nacimiento	X	X			X	X	X	X	X	X		X		X		X	X	X			
Nacimiento River	X	X		X	X	X	X	X	X	X	X	X		X				X			
Salinas River	X	X		X	X	X	X	X	X	X	X	X		X				X			

MUN = Municipal and domestic supply
AGR = Agricultural supply
PROC = Industrial process supply
IND = Industrial service supply
GWR = Groundwater recharge
REC1 = Water contact recreation
REC2 = Non-contact water recreation
WILD = Wildlife habitat
COLD = Cold freshwater habitat
WARM = Warm water habitat
MIGR = Fish migration
SPWN = Fish spawning
BIOL = Preservation of biological habitat
RARE = Rare, threatened, or endangered species
EST = Estuarine habitat
FRESH = Freshwater replenishment
NAV = Navigation
POW = Hydropower generation
COMM = Commercial/sport fishing
AQUA = Aquaculture
SAL = Inland saline water habitat
SHELL = Shellfish harvesting

SOURCE: CCRWQCB, 1994.

Lake Nacimiento

Lake Nacimiento, which is found to the west of Camp Roberts, has a storage capacity of 377,900 af, is owned and operated by the Monterey County Water Resources Agency (MCWRA), and is used for recreation and as a source of drinking water (County of San Luis Obispo, 2003).

Samples taken between February 1997 and May 2003 at the lake contained an average most probable number (MPN) of approximately 800 total coliform per 100 milliliters (ml) for shallow-depth samples and 500 total coliform per ml for deeper-depth samples, which is an indicator for potential bacterial presence within the lake, including giardia and cryptosporidium (County of San Luis Obispo, 2003).

Areas surrounding Lake Nacimiento contain cinnabar (mercury sulfide) deposits that has been mined in the past, and the runoff from these operations have caused mercury contamination of lake sediments (County of San Luis Obispo, 2003). This mercury contamination has resulted in mercury levels above the Food and Drug Administration's (FDA's) action level for mercury. For all other metal concentrations (aluminum, antimony, arsenic, barium, beryllium, cadmium, chromium, copper, iron, lead, manganese, mercury, nickel, selenium, silver, thallium, and zinc), lake water complies with drinking water standards without treatment except for aluminum, manganese, and iron (County of San Luis Obispo, 2003).

Concentrations of organic compounds in Lake Nacimiento, such as MBTE, trihalomethane (THM), and other pesticides are below levels either required by the State or that would otherwise pose a health threat to people (Poel, 2002; County of San Luis Obispo, 2003).

Lake Nacimiento water quality is mesotrophic and has good mineral quality (County of San Luis Obispo, 2003). Relatively low levels of phosphate and nitrate are maintained by watershed management practices, which include minimal residential use, lack of fertilizer dependent crops in the watershed, and no wastewater effluent discharge into the lake (County of San Luis Obispo, 2003).Total Dissolved Solids (TDS) at Lake Nacimiento were well below the recommended MCLs of 500 mg/l, the upper MCL of 1,000 mg/l, and the 3,000 mg/l established in the State Water Resources Control Board's (SWRCB's) Sources of Drinking Water Policy (County of San Luis Obispo, 2003). Ammonia and phosphorus are detectable in Lake Nacimiento; however both compounds are removed during water treatment to below the MCL. In addition, gross alpha particle activity (radioactivity) in the lake is below the MCL (CCR Title 22) for radioactivity (County of San Luis Obispo, 2003).

Salinas River

The Salinas River is the principal river system that drains water from the proposed easement area. It originates from the La Panza Range and flows northwestward into Santa Margarita Lake. From Santa Margarita Lake the Salinas River continues to flow northward and discharges into the Pacific Ocean at Monterey Bay.

There is limited water quality information available for the Salinas River between Santa Margarita and Paso Robles. Historic data of Salinas River water quality is found in **Table 4-7**. The Central Coast Regional Water Quality Control Board's (CCRWQCB) Water Quality Control Plan (Basin Plan) provides median surface water quality objectives for the Salinas River and its tributaries (including the Nacimiento River) for TDS, chloride (Cl), sulfate (SO_4), boron (B), and sodium (Na), which are listed in **Table 4-8** (CCRWQCB, 1994).

TABLE 4-7
SALINAS RIVER HISTORIC WATER QUALITY

Source ID / Water Type	Date	Flow (cfs)	Units	Ca	Mg	Na	K	HCO_3	SO_4	Cl	TDS
Salinas River @ Hwy 58	4/10/1962	2,000	mg/l	18.00	7.00	7.70	2.40	68.00	32.00	6.0	172
Ca HCO_3-SO_4	-	-	meq/l	0.90	0.58	0.33	0.06	1.11	0.67	0.17	
	2/14/1954	150	mg/l	20.00	16.00	8.00	1.90	98.00	29.00	7.00	211
Mg-Ca HCO_3			meq/l	1.00	1.32	0.35	0.05	1.61	0.60	0.20	
Salinas @ Paso Robles	2/6/1958	1,500	mg/l	45.00	17.00	20.00	0.40	180.00	49.00	18.00	270
Ca HCO_3			meq/l	2.25	1.40	0.87	0.01	2.95	1.02	0.51	
	3/13/1968	500	mg/l	84.00	29.00	55.00	3.00	286.00	137.00	46.00	553
Ca HCO_3			meq/l	4.19	2.39	2.39	0.08	4.69	2.85	1.30	
	4/2/1965	25	mg/l	71.00	34.00	36.00	1.00	263.00	110.00	39.00	458
Ca HCO_3			meq/l	3.54	2.80	1.57	0.03	4.31	2.29	1.10	

SOURCE: Furgo, 2002; County of San Luis Obispo, 2003.

TABLE 4-8
SALINAS RIVER SURFACE WATER QUALITY OBJECTIVES

Subbasin/Subarea	TDS (mg/l)	Cl (mg/l)	SO_4 (mg/l)	B (mg/l)	Na (mg/l)
Salinas River					
Above Bradley	250	20	100	0.2	20
Above Spreckles	600	80	125	0.2	70
Nacimiento River	200	20	50	0.2	20

SOURCE: CCRWQCB, 1994.

The CCRWQCB established these water quality objectives for Salinas River for the reasonable protection of beneficial uses and for the prevention of nuisance. Based on the historic data, it appears that water quality is below MCLs for TDS, Cl, and Na, but not for SO_4.

Groundwater Quality

The CCRWQCB has established groundwater water quality objectives for the Paso Robles groundwater basin, which protect the beneficial use of the basin and prevent nuisances. **Table 4-9** contains the median groundwater quality objectives for TDS, Cl, SO_4, B, Na, and nitrogen (N) for the Paso Robles groundwater basin as defined in the Basin Plan.

TABLE 4-9
PASO ROBLES GROUNDWATER BASIN
MEDIAN GROUNDWATER QUALITY OBJECTIVES

Area	TDS (mg/l)	Cl (mg/l)	SO_4 (mg/l)	B (mg/l)	Na (mg/l)	N (mg/l)
Paso Robles	1,050	270	200	2.0	25	2.3

SOURCE: CCRWQCB, 1994.

Groundwater quality concerns regarding the Paso Robles groundwater basin include TDS, chlorides, and nitrates. Recent groundwater quality in the Paso Robles basin has TDS concentrations that range between 330 mg/l to over 1,200 mg/l (County of San Luis Obispo, 2003); chlorine concentrations range from 19 mg/l to 260 mg/l (County of San Luis Obispo, 2003). Recent nitrate concentrations in groundwater samples range from nondetected to 21 mg/l (County of San Luis Obispo, 2003).

4.5.5 Water-Related Erosion

The proposed easement is found within areas that have varying erosion potential ranging from very high to slight erosion potential (California Army National Guard, 2001). See Section 4.4.5 for a description of erosion potential within the proposed easement.

4.6 Biological Resources

The biological resources discussed in this section are vegetation and natural communities, wildlife, special status species, and sensitive habitats, including wetlands. The descriptions provided below are based on multiple site visits, published and unpublished reports, contact with resources agencies, and the following references:

- *California Natural Diversity Database* (CNDDB) (California Department of Fish and Game, 2006);
- *Inventory of Rare and Endangered Plants* (California Native Plant Society, 2006); and
- Camp Roberts' *Integrated Natural Resources Management Plan* (INRMP) (California Army National Guard, 2001).

Management of natural resources at Camp Roberts is guided by the INRMP, the purpose of which is as follows:

- To guide natural resources management in support of the military training mission at Camp Roberts;
- To ensure no net loss in the capability of Camp Roberts' training lands to support the military training mission; and
- To satisfy the legal requirements of the Sikes Act (16 U.S.C. 670a *et seq.*, as amended).

The INRMP provides a description of the natural resources at Camp Roberts, the features of its Integrated Training Area Management Program, the goals and objectives for ecosystem management, and conservation programs for federally listed species. The USFWS, National Marine Fisheries Service (NMFS), and California Department of Fish and Game (CDFG) were consulted during the development of the INRMP.

4.6.1 Regulatory Overview

Endangered Species Act

Assessment of biological resources under NEPA involves consideration of the degree to which a proposed action may adversely affect an endangered or threatened species or the species' critical habitat. The principal federal law addressing biological resources is the Endangered Species Act of 1973 as amended. These regulations forbid any person to "take" an endangered or threatened species. "Take" is defined by Section 3 of the Act as "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in such conduct." The United States Fish and Wildlife Service (USFWS) administers the Endangered Species Act by listing and delisting species as appropriate, designating critical habitat for listed species, and conducting federal consultation under Section 7 of the Endangered Species Act in order to permit incidental take of listed species for particular projects.

Section 7 of the Endangered Species Act directs all federal agencies to use their existing authorities to conserve threatened and endangered species and, in consultation with the USFWS, to ensure that their actions do not jeopardize listed species or destroy or adversely modify critical habitat. Section 7 applies to management of federal lands as well as other federal actions that may affect listed species, such as federal approval of private activities through the issuance of federal permits, licenses. Under Section 7, a biological assessment of the proposed action is conducted to identify any threatened or endangered species that are likely to be adversely affected by the proposed action. The USFWS (and other federal agencies such as NMFS) has the responsibility to review assessments and prepare formal Biological Opinions regarding the project. After completion of the formal Section 7 consultation, USFWS has the authority to make a determination regarding an incidental take permit for listed species after all measures are taken by the federal agency to conserve threatened and endangered species and protect designated critical habitat.

The Section 7 consultations with USFWS and NMFS (i.e. NOAA Fisheries) for the NWP are complete. All correspondence related to these consultations are included in Appendix A. The two biological assessments that were conducted to aid USFWS and NMFS in their determination of potential adverse effects of the NWP to listed species and critical habitat are included as Appendices B and C, respectively (County of San Luis Obispo, 2006c, 2006d). The biological assessments conclude that with appropriate environmental protection measures, including those described in Section 2.3 of this EA, the NWP is not likely to have adverse effects on special-status species. NMFS has concurred with this conclusion, stating that “potential impacts from construction of the NWP to S-CCC steelhead and their designated critical habitat are negligible” (McInnis, NMFS, January 4, 2007). The NMFS concurrence letter is included in Appendix A. The USFWS concurred with the conclusion of the biological assessments as well, with the exception of vernal pool fairy shrimp. The USFWS Biological Opinion (1-8-07-F-10) is also included in Appendix A. USFWS has determined that the NWP would adversely affect vernal pool fairy shrimp and their habitat. All of the vernal pool fairy shrimp habitat affected by the NWP occurs on Camp Roberts. Installation of the NWP pipeline across Camp Roberts as a result of the Proposed Action would crush and kill vernal pool fairy shrimp and eliminate vernal pool fairy shrimp habitat. However, the USFWS Biological Opinion states that the NWP “would not jeopardize the continued existence of vernal pool fairy shrimp” and therefore associated incidental take of this species is permitted.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act of 1918, as amended, establishes a federal prohibition to “pursue, hunt, take, capture, kill, attempt to take, capture or kill, possess, offer for sale, sell, offer to purchase, purchase, deliver for shipment, ship, cause to be shipped, deliver for transportation, transport, cause to be transported, carry, or cause to be carried by any means whatever, receive for shipment, transportation or carriage, or export, at any time, or in any manner, any migratory bird, included in the terms of this Convention… for the protection of migratory birds…or any part, nest, or egg of any such bird." This Act affirms and implements the United States’

commitments to four international conventions for the protection of a shared migratory bird resource. The USFWS has enforcement provisions over this statute.

Clean Water Act Section 404

The federal Clean Water Act (CWA) limits federal jurisdiction to "navigable waters," which it defines as "waters of the United States." Waters of the United States are further subdivided into seven categories [1]; Wetlands, as one of those categories, are defined under 33 CFR Part 328.3 (b) as "[T]hose areas that are inundated or saturated by surface or groundwater at a frequency or duration sufficient to support, and that under normal circumstances do support, prevalence of vegetation typically adapted for life in saturated soil conditions." The USACE is charged, in cooperation with the USEPA, with the responsibility for issuing permits under Section 404 of the CWA. USACE has developed a multiple parameter test for determining the presence and extent of wetlands in a given area. To meet the definition of "jurisdictional wetland" under Section 404 of the CWA, an area must exhibit three traits: (1) hydrophytic vegetation, (2) hydric soil, and (3) wetland hydrology (USACE, 1987). Areas that are periodically wet but do not meet all three criteria are not jurisdictional wetlands. When it is determined that an area meets all three criteria, it is subject to the restrictions and prohibitions of the CWA as they apply to wetlands.

In addition to wetlands, the CWA also regulates discharges to other waters of the United States, which include streams, rivers, and other drainages that are not wetlands but that are tributaries to navigable waters. The U.S Army Corps of Engineers, Regulatory Branch, issues permits for discharges to wetlands and other waters of the U.S. under the Regulatory Program of Section 404 of the CWA. The Corps requires a permit if a project proposes placement of fill or structures within navigable waters and/or alteration of waters of the U.S. The NWP has been authorized under Department of the Army Nationwide Permit 12 *Utility Line Discharges*. A copy of this permit authorization is included in **Appendix A**. Nationwide permits provide authorization to activities that meet certain requirements for minimizing effects (*i.e.*, temporary, permanent, or operational discharges of fill) to waters of the U.S.

4.6.2 Vegetation

The following natural communities are found within portions of Camp Roberts in the vicinity of the Proposed Action. The Camp Roberts INRMP includes Ecosystem Management Programs for each of these vegetation communities (California Army National Guard, 2001).

[1] The term "waters of the U.S." as defined in Code of Federal Regulations (33 CFR 328.3[a]; 40 CFR 230.3[s]) includes: (1) All waters which are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide; (2) All interstate waters including interstate wetlands; (3) All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mud flats, sand flats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation, or destruction of which could affect interstate or foreign commerce including any such waters which are or could be used by interstate or foreign travelers for recreational or other purposes; or from which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or which are used or could be used for industrial purposes by industries in interstate commerce; (4) All impoundments of waters otherwise defined as waters of the United States under the definition; (5) Tributaries of waters identified in paragraphs (1) through (4); (6) Territorial seas; and (7) Wetlands adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs (1) through (6).

Mixed Chaparral and Coastal Scrub

Chaparral and coastal scrub occur in small patches in highly sloped areas along the southwestern boundary of the installation. Chaparral and coastal scrub communities are dominated by low-growing, drought-resistant evergreen and soft-leaved shrubs with an understory of grasses and forbs. These communities occur on shallow, rocky, infertile soils on which other communities cannot survive. Typical species found in coastal scrub communities include black sage (*Salvia mellifera*) sticky monkey flower (*Mimulus aurantiacus*), and California sagebrush (*Artemisia californica*). Typical species found in mixed chaparral communities include chamise (*Adenostoma fasciculatum*), bigberry manzanita (*Arctostaphylos glauca*), poison oak (*Toxicodendrum diversilobum*), black sage, and California sagebrush.

Annual Grasslands

Annual grasslands occur on the deep soils of the lowlands and lower slopes of Camp Roberts. Grasslands are typically dominated by exotic annual grasses, such as ripgut brome (*Bromus diandrus*), soft chess (*Bromus hordeaceus*), rattail fescue (*Vulpia myuros*), wild oats (Avena barbata), and foxtail barley (*Hordeum murinum ssp. leporinum*). Some native perennial grasses are also found on the installation, such as purple needlegrass (*Nassella pulchra*) and others (*Muhlenbergia* sp., *Elymus* sp. et al).

Blue Oak and Coastal Oak Woodlands

The oak woodland ecosystems at Camp Roberts occur on dry slopes of the valleys and foothills. Blue oak woodland is the most extensive of the oak communities on the installation. Species characteristic of blue oak woodlands include blue oak (*Quercus douglasii*), valley oak (*Quercus lobata*), California buckeye (*Aesculus californicus*), grey pine (*Pinus sabineana*), scrub oak (*Quercus berberidifolia*), California coffeeberry (*Rhamnus californicus*), and buckbrush (*Ceanothus cuneatus*). Coastal oak woodlands are found interspersed with blue oak woodlands at higher elevations in the southwestern portion of Camp Roberts. These communities consist of open or closed canopies of large evergreen trees, mostly coast live oak (*Quercus agrifolia*), with an understory often dominated by nonnative weedy species such as ripgut grass.

Riparian Woodlands

Riparian communities in Camp Roberts are adapted to wet conditions found along the Nacimiento and Salinas Rivers. Mixed riparian woodlands are characterized by Freemont cottonwood (*Populus fremontii*), western sycamore (*Platanus racemosa*), coyote brush (*Baccharis pilularis*), blue elderberry (*Sambucus mexicana*), California rose (*Rosa californica*), mule fat (*Baccharis salicifolia*), California blackberry (*Rubus ursinus*), mugwort (*Artemesia douglasiana*), and poison oak. Riparian scrub communities also occur on Camp Roberts and are characterized by sandbar willow (*Salix exigua*), coyote brush, and mule fat.

4.6.3 Fish and Wildlife

Terrestrial, wetland, and aquatic habitat types occur on Camp Roberts within areas affected by the Proposed Action. Prey availability, water, topography, vegetative cover and protection, and soil composition are important in determining the value of a habitat to wildlife. Wildlife habitat types found within the proposed easement are described below. Sensitive wildlife species are described in Section 4.6.4.

Terrestrial

Terrestrial communities tend to have high wildlife habitat value because the variety of foraging and nesting options leads to a highly diverse wildlife component. Native and nonnative grasslands, native upland areas, and oak woodlands provide high to moderate wildlife habitat quality depending on the amount of cover, prey, and accessibility. These terrestrial habitats can support many bird species, such as the western meadowlark (*Sturnella neglecta*) and the redtailed hawk (*Buteo jamaicensis*), as well as mammal species, such as the black-tailed jackrabbit (*Lepus californicus*), mule deer (*Odocoileus hemionus*), San Joaquin kit fox (*Vulpes macrotis mutica*), and the California ground squirrel (*Spermophilis beechyii*).

Wetlands

Wetlands generally have high wildlife habitat value because of the presence of a complex vegetative overstory and understory, and water. Wetland habitat types support various aquatic, crustacean, and amphibian species, such as the California red-legged frog (*Rana aurora draytoni*), and California tiger salamander (*Ambystoma californiense*). Seasonal wetlands can support the vernal pool fairy shrimp (*Branchinecta lynchi*) and the western spadefoot toad (*Scaphiopus hammondii).* Wetlands provide habitat for passerine birds such as the red-winged and tricolored blackbird (*Agelaius phoeniceus* and *A. tricolor*); song sparrow (*Melospiza melodia***)**; common yellowthroat (*Geothlypis trichas*); and Wilson's warbler (*Wilsonia pusilla*). Northern harrier (*Circus cyaneus*) are frequently found foraging or breeding near emergent wetlands. Riparian wetlands, such as those along the Nacimiento River, provide a protective cover and nesting locations for many other bird species, such as Cooper's hawk (*Accipiter cooperii*), black phoebe (*Sayornis nigricans*), and yellow warbler (*Dendroica petechia*).

Aquatic Habitats

Areas of open water provide breeding habitat for amphibians and aquatic birds, as well as a source of drinking water for birds and mammals. Water bodies also provide fish habitat, the quality of which is often dependent on water quality, quantity, and seasonality. Typical fish species found in the Nacimiento River on Camp Roberts include Pacific lamprey (*Lampetra tridentate*), Sacramento sucker (*Catostomus occidentalis*), Sacramento squawfish (*Ptychocheilus grandis*), speckled dace (*Rhinichthys osculus*), unarmored threespine stickleback (*Gasterosteus aculeatus microcephalus*), south-central California coast steelhead trout (*Oncorhynchus mykiss*), prickly sculpin (*Cottus asper*), goldfish (*Carassius auratus*), and western mosquitofish (*Gambusia affinis*). Crayfish (*Cambaridae*), molluscs, amphipods, and insects are also found in the river.

4.6.4 Special Status Species

As described in the INRMP, the ecosystems present within the Camp Roberts facility provide habitat for many special-status species (California Army National Guard, 2001). **Table 4-10** and **4-11** include all federal- and State-listed endangered and threatened species, and special-status species that occur on Camp Roberts. Biological surveys were conducted between March and September 2005 (with ongoing vernal pool crustacean surveys and bald eagle observations continuing into winter 2006) to assess what special-status species were likely to occur within the vicinity of the Proposed Action (County of San Luis Obispo, 2006c, 2006d). Biologists conducting these surveys (Martha Lowe, Brian Pittman, Mike Podlech, Julie Remp, and Chris Rogers) were fully qualified and their resumes are attached in Appendix G. These special-status species are described briefly below. Detailed species accounts are found in the biological assessments, which are included as Appendices B and C. Camp Roberts has instituted conservation and management programs for each special-status species discussed below.

Purple Amole (*Chlorogalum purpureum* var. *purpureum*)

The federally-threatened purple amole is well documented in annual grassland ecosystems at Camp Roberts, although not in the vicinity of the Proposed Action. The purple amole was not identified during botanical surveys conducted between March and August 2005 (County of San Luis Obispo, 2006c). No additional threatened or endangered plant species are known or expected to occur in the vicinity of the Proposed Action.

Vernal pool fairy shrimp (*Branchinecta lynchi*)

The vernal pool fairy shrimp is a federally-listed threatened species. The ecology of fairy shrimp species is highly adapted to vernal pools, shallow depressions, and other similar ephemeral aquatic habitat. Vernal pool fairy shrimp eggs, or cysts, are protected from desiccation through dry months by a hard covering that surrounds each egg. Following a combination of continuous immersion in water, low temperatures and other environmental cues, vernal pool fairy shrimp quickly hatch, reproduce and lay their eggs before the seasonal aquatic habitat dries out.

Critical habitat for vernal pool fairy shrimp has not been designated within the Camp Roberts facility. Camp Roberts has established three vernal pool fairy shrimp protection areas that comprise a subset of known habitat on the base. These areas are fenced for protection from training, maintenance and construction activities. None of the fairy shrimp protection areas are within the affected areas of the proposed easement.

Results of the biological survey indicate that fairy shrimp are present in four in-road depressions that would be directly impacted by construction of the pipeline. Three off-alignment pools are within 50 feet of the pipeline, and an additional three pools are within 250 feet of the pipeline.

TABLE 4-10
SPECIAL STATUS PLANT SPECIES IDENTIFIED ON CAMP ROBERTS

Scientific Name	Common Name	Fed. Status (1)	State Status (2)	CNPS Status (3)
Federally and State-Listed Endangered or Threatened Species				
Chlorogalum purpureum var. purpureum	Purple Amole	T	sp	1B
Other State Listed Special Status Species				
Calycadenia villosa	Dwarf Calycadenia		sp	1B
Caulanthus coulteri var. lemmonii	Lemmon's Jewel-Flower		sp	1B
Camissonia hardhamia	Hardham's Evening Primrose		sp	1B
Chorizanthe rectispina	Straight-Awned Spineflower		sp	1B
Cryptantha decipiens[4] *(= C. rattanii)*	Rattan's Cryptantha		sp	4
Delphinium gypsophilum ssp. parviflorum	Small-Flowered Gypsum-Loving Larkspur		sp	4
Eschscholzia hypecoides	San Benito Poppy		sp	4
Hesperevax caulescens[4]	Hesperevax, Hogwallow Starfish		sp	4
Malacothamnus jonesii	Jones' Bush Mallow		sp	4
Micropus amphibolus	Mt. Diablo Cottonweed		sp	3
Mimulus subsecundus	One-Sided Monkeyflower		sp	4
Mucronea californica	California Spineflower		sp	4
Navarretia jaredii	Paso Robles Navarretia		sp	4
Navarretia nigelliformis ssp. radians	Shining Navarretia, Adobe Navarretia		sp	1B
Navarretia prostrata	Prostrate Navarretia		sp	1B
Trichodon cylindricus	Moss		sp	2

1. Federal status abbreviation codes: (E) endangered species; (T) threatened species; (SC) species of concern that have not been listed, proposed for listing nor placed in candidate status.
2. California Endangered Species Act & Native Plant Protection Act status abbreviation codes: (sp) sp – special plants list (California Department of Fish & Game's Natural Diversity Data Base)
3. California Native Plant Society status abbreviation codes: (List 1B) Plants rare, threatened, or endangered in California and elsewhere. (List 2) Plants rare, threatened, or endangered in California, but more common elsewhere. (List 3) Plants about which we need more information – a review list. Some of the plants are eligible for state listing. (List 4) Plants of Limited Distribution – a watch List. Plants in this category are of limited distribution or infrequent throughout a broader area in California, and their vulnerability or susceptibility to threat appears low at this time.

SOURCE: California Army National Guard, 2001.

Bald eagle (*Haliaeetus leucocephalus*)

The bald eagle (*Haliaeetus leucocephalus*) was federally listed as endangered on March 11, 1967 (32 FR 4001). A final rule to reclassify the bald eagle from endangered to threatened was finalized on July 12, 1995 (60 FR 35999). A proposed rule to remove the bald eagle in the lower 48 states from the list of endangered and threatened wildlife was filed on July 6, 1999, and is still pending.

TABLE 4-11
SPECIAL STATUS ANIMAL SPECIES IDENTIFIED ON CAMP ROBERTS

Scientific Name	Common Name	Fed. Status (1)	State Status (2)	CDFG Status (3)
Federally and State-Listed Endangered or Threatened Species				
Branchinecta lynchi	Vernal Pool Fairy Shrimp	T		*
Oncorhynchus mykiss (4)	Steelhead – South Central California Coast Esu	T		
Buteo swainsoni	Swainson's Hawk		T	*
Gymnogyps californianus	California Condor	E		FP*
Haliaeetus leucocephalus	Bald Eagle	PD	E	FP*
Vulpes macrotis mutica	San Joaquin Kit Fox	E	T	*
Other State Listed Species Of Concern				
Lampetra tridentata	Pacific Lamprey	SC		CSC*
Scaphiopus hammondii (=Spea hammondii)	Western Spadefoot	SC		CSC/P*
Anniella pulchra pulchra	Silvery Legless Lizard	SC		CSC*
Clemmys marmorata pallida	Southwestern Pond Turtle	SC		CSC/FP*
Masticophis flagellum ruddocki	San Joaquin Whipsnake	SC		CSC/P*
Phrynosoma coronatum frontale	California Horned Lizard	SC		CSC/FP*
Accipiter cooperii	Cooper's Hawk			CSC*
Accipiter striatus	Sharp-Shinned Hawk			CSC*
Aquila chrysaetos	Golden Eagle			CSC/FP*
Buteo regalis	Ferruginous Hawk	SC		CSC*
Circus cyaneus	Northern Harrier			CSC*
Elanus leucurus	White-Tailed Kite			FP*
Pandion haliaetus	Osprey			CSC*
Falco columbarius	Merlin			CSC*
Falco mexicanus	Prairie Falcon			CSC*
Gavia immer	Common Loon			CSC*
Eremophila alpestris actia	California Horned Lark			CSC*
Agelaius tricolor	Tricolored Blackbird	SC		CSC*
Dendroica petechia brewsteri	Yellow Warbler			CSC*
Icteria virens	Yellow-Breasted Chat			CSC*
Lanius ludovicianus	Loggerhead Shrike	SC		CSC*
Asio otus	Long-Eared Owl			CSC*
Athene cunicularia hypugaea	Burrowing Owl	SC		CSC*
Eumops perotis californicus	Greater Western Mastiff Bat	SC		CSC*
Antrozous pallidus pacificus	Pallid Bat			CSC*
Corynorhinus (=Plecotus) townsendii townsendii	Townsend's Western Big-Eared Bat	SC		CSC*

TABLE 4-11
SPECIAL STATUS ANIMAL SPECIES IDENTIFIED ON CAMP ROBERTS (CONT.)

Scientific Name	Common Name	Fed. Status (1)	State Status (2)	CDFG Status (3)
Myotis ciliolabrum melanorhinus	Western Small-Footed Myotis	SC		*
Myotis evotis evotis	Northern Long-Eared Myotis	SC		*
Myotis volans	Long-Legged Myotis	SC		*
Myotis yumanensis saturatus	Yuma Myotis (San Joaquin Myotis)	SC		CSC*
Neotoma fuscipes luciana	Monterey Dusky-Footed Woodrat	SC		CSC*
Chaetodipus (=Perognathus) inornatus psammophilus	Salinas Pocket Mouse	SC		CSC*

1. Federal Endangered Species Act (ESA) status abbreviation codes: (E) endangered species; (T) threatened species; (SC) species of concern that have not been listed, proposed for listing nor placed in candidate status; (PD) proposed for delisting.
2. California Endangered Species Act of 1984 status abbreviation codes: (E) state-listed endangered; (T) state-listed threatened.
3. California Department of Fish and Game status abbreviation codes: (CSC)—California Special Concern Species; (FP) Fully Protected Species may not be taken or possessed without a permit from CDFG; (P) Protected Species may not be taken or possessed without a permit from CDFG; (*) On the CDFG "Special Animals" List.
4. Steelhead have not been documented at Camp Roberts, but since the Nacimiento River was designated as critical habitat, the needs of steelhead populations are being addressed in the INRMP.

SOURCE: California Army National Guard, 2001.

The bald eagle was formerly widespread throughout California, but now mostly breeds in low mountain areas in the northern portion of the State with some nest sites also in San Luis Obispo and Santa Barbara Counties, and Santa Catalina Island. To support their mainly fish diet, bald eagles need large bodies of water, such as reservoirs, natural lakes, or rivers with free-flowing or regulated flows. Bald eagles generally nest in trees or large snags near available water and also are known to nest on cliffs and (rarely) on the ground. Adults tend to use the same breeding areas year after year, and often the same nest, though a breeding area may include one or more alternate nests.

From 1993 to 2003, 88 bald eagle sightings were reported at Camp Roberts (California Army National Guard, 2003, 2004). Of these, 66 were adult bald eagles, 20 were immature birds, and two were of unknown age. The majority of bald eagle sightings occur along the Nacimiento River at Camp Roberts, and a few sightings were along the Salinas River and in training areas away from the rivers (California Army National Guard, 2003, 2004). In recent years, bald eagle nesting attempts have been observed in a large sycamore tree on the northern upper terrace of the Nacimiento River floodplain, 0.36 mile north of the proposed easement (California Army National Guard, 2003, 2004; Thorngate, 2005). In 2007, a successful bald eagle nesting attempt resulted in one fledged eagle (Moore, pers. comm.).

San Joaquin kit fox (*Vulpes macrotis mutica*)

The San Joaquin kit fox was federally listed as threatened on March 11, 1967 (32 FR 4001) and is a State threatened species. The San Joaquin kit fox is a small fox with large ears set close together, a slim body with long slender legs, a narrow nose, and long, bushy tail tapering slightly

toward the tip. The San Joaquin kit fox inhabits grasslands and scrublands, many of which have been extensively modified. Oak woodland, alkali sink scrubland, vernal pool and alkali meadow communities also provide habitat for this species. San Joaquin kit fox are active year-round and are primarily nocturnal. Dens are used for housing and protection.

One kit fox was last observed on the base in 2007 on the East Garrison though foxes were previously more abundant (Moore, pers. comm.). When kit foxes were present, active den concentrations occurred primarily in two areas located one mile or greater from the proposed easement. The nearest known historically active den is located roughly 0.75 mile north of the proposed easement. Given active kit fox denning at Camp Roberts, the large home range of this species (several hundred acres within a single year), and prevalence of high quality annual grassland habitat in and near the proposed easement, this species could occur sporadically in the project alignment at Camp Roberts. Several potential dens, *i.e.*, dens with appropriate dimensions within characteristic kit fox habitat, were identified during biological surveys within 100 feet of the alignment that could support this species (County of San Luis Obispo, 2006c).

Steelhead trout (*Oncorhynchus mykiss*)

The south-central California coast evolutionary significant unit (S-CCC) of steelhead trout is known to occur in the Nacimiento River in the vicinity of the proposed easement. Critical habitat for S-CCC steelhead was designated in September 2005 and includes all areas that are known or assumed to be occupied by the species and contain physical and biological features essential to the conservation of the species (NMFS, 2005). Drainages in which critical habitat has been designated include the Nacimiento River. However, the portion of the Nacimiento River located within Camp Roberts is excluded from the designation because the military installation is operated under a qualifying INRMP (NMFS, 2005). The critical habitat designation went into effect on January 2, 2006.

4.6.5 Sensitive Habitats

Wetlands

Wetlands are sensitive habitats protected by Section 404 of the CWA. Vernal pools are a type of seasonal wetland that generally occurs in grasslands and are typically located in slight depressions that form over bedrock or hardpan soils that allow water to pool during winter and spring rains. Although seasonal wetlands occur naturally in grassland and woodland settings, they may also occupy disturbed locations where the underlying soil conditions remain intact or where disturbance has resulted in soil compaction. Vernal pools are considered unique habitat and often support endemic plant and invertebrate species, such as vernal pool fairy shrimp. Vernal pool communities provide seasonal aquatic habitat for invertebrates, amphibians, and provide a temporary water source for birds and terrestrial wildlife.

Seasonal wetlands occur along the pipeline alignment as it crosses Camp Roberts. A number of these depressions are located along tank trails and fire breaks and appear to have been created as a result of vehicle related disturbance. Plant species characteristic of vernal pools at the northern

end of the Camp Roberts alignment include popcornflower (*Plagiobothrys stipitatus*), which was often a dominant species, Mediterranean barley (*Hordeum marinum* ssp. *gussoneanum*), annual hairgrass (*Deschampsia danthonioides*), nit grass (*Gastridium ventricosum*), toad rush (*Juncus bufonius*), pygmy-weed (*Crassula connata*), rabbitfoot grass (*Polypogon monspeliensis*), wooly-marbles (*Psilocarphus* sp.), and annual bluegrass (*Poa annua*). Vernal pools at the southern end of the Camp Roberts alignment were also often dominated by popcornflower but, along with some of the species just mentioned, also supported a slightly different set of associates such as coyote thistle (*Eryngium* sp.), low barley (*Hordeum depressum*), water-starwort (*Callitriche* sp.), veronica (*Veronica* sp.), and grass-poly (*Lythrum hyssopifolium*).

A wetland delineation conducted for the NWP determined there are 0.539 acres of vernal pools within the Camp Roberts study area, which is defined as a 200-foot wide corridor centered on the preliminary pipeline alignment (SLOCFCWCD, 2005) (**Appendix D**). These vernal pools meet the USACE definition of jurisdictional wetlands; however, the majority of the vernal pools (0.505 acres) are considered non-jurisdictional because they are isolated from navigable waters of the U.S., from tributaries to navigable waters, or from culverts, ditches or canals that connect with navigable waters. Thus, there are 0.021 acres of jurisdictional vernal pool wetlands within the Proposed Action area inside Camp Roberts.

Oak Woodlands

Over 50 species of birds and mammals depend on the acorns produced by the five predominant oak species in California. The regional sensitivity of oak woodlands as habitats is evidenced by state law and local ordinances including the State Assembly Bill 242 (1999), San Luis Obispo County Oak Woodlands Management Plan (2003), and the City of Paso Robles Oak Tree Preservation Ordinance. Further, there is a long-standing and well documented problem with oak regeneration in California (Bartolome et al., 1987).

As described previously in Section 4.6.2 Vegetation, the oak woodland ecosystems at Camp Roberts include blue oak and coastal oak woodlands. The OTMMP included as **Appendix H** outlines actions that will be taken by SLOCFCWCD to protect, avoid and replace oak resources during implementation of the NWP.

4.7 Cultural Resources

This section describes cultural resources, potential Native American resources, and unique geologic resources at Camp Roberts as related to the Proposed Action. Cultural resources include paleontological, historic, and prehistoric resources. Paleontological resources are the recognizable remains of once-living nonhuman organisms and early hominids, such as shells, bones, leaves, tracks, trails, and other fossilized floral or faunal materials (National Research Council, 1987). Identified as fossils, these resources represent a record of the history of life on the planet dating as far back as four billion years.

Historic resources consist of physical properties, structures, or built items resulting from human activities that post-date written records, including archaeological remains and architectural structures. Prehistoric resources are physical properties resulting from human activities that predate written records and generally are identified as isolated finds or sites. Prehistoric resources can include village sites, temporary camps, lithic scatters, hearths, petroglyphs, and rock features.

Cultural resources are defined as historic properties as defined by the National Historic Preservation Act (NHPA), cultural items as defined by the Native American Graves and Repatriation Act (NAGPRA), archaeological resource are defined by the Archaeological Resources Protection Act (ARPA), sacred sites as defined in Executive Order 13007 to which access is afforded under the American Indian Religious Freedom Act (AIRFA), and collections and associated records as defined in 36 CFR Part 79 Collections Management.

4.7.1 Regulatory Overview

NEPA requires consideration of "important historic, cultural, and natural aspects of our natural heritage." Consideration of cultural resources under NEPA includes the necessity to independently comply with the applicable procedures and requirements of other federal and state laws, regulations, executive orders, presidential memoranda, and Army National Guard guidance.

The principal federal law addressing cultural resources is the National Historic Preservation Act (NHPA) of 1966, as amended (16 USC Section 470), and its' implementing regulations (36 CFR 800). The regulations, commonly referred to as the Section 106 process, describe the procedures for identifying and evaluating historic properties; assessing the effects of federal actions on historic properties; and consulting to avoid, reduce, or minimize adverse effects. As part of the Section 106 process, agencies are required to consult with the State Historic Preservation Officer (SHPO). The term "historic properties" refers to cultural resources that meet specific criteria for eligibility for listing on the National Register of Historic Places (NRHP); historic properties need not be formally listed on the NRHP. Section 106 does not require the preservation of historic properties, but ensures that the decisions of federal agencies concerning the treatment of these places result from meaningful considerations of cultural and historic values and of the options available to protect the properties. The Proposed Action is an undertaking as defined by 36 CFR 800.3 and is subject to Section 106 and consideration under other federal requirements.

The Section 106 review process normally involves a four-step procedure described in detail in the Section 106 regulations (36 CFR Part 800):

- Establish an Area of Potential Effects (APE) and identify and evaluate cultural resources in consultation with interested parties;
- Assess the effects of the undertaking on properties that are eligible for inclusion in the NRHP;

- Consult with the State Historic Preservation Officer (SHPO), other agencies, and interested parties to develop an agreement that addresses the treatment of historic properties and notify the Advisory Council on Historic Preservation; and
- Proceed with the project according to conditions of the agreement.

NWP Section 106 Consultation

Correspondence

The NWP Section 106 consultation commenced in December 2006 when the United States Army Corps of Engineers (USACE) (San Francisco District, Regulatory Branch) submitted a letter to the California State Historic Preservation Officer (SHPO) concerning the proposed project. This letter and all subsequent Section 106 correspondence are included in Appendix A (Appendix A).

In addition to project background and objectives, the December 2006 letter contained a brief description of the project Area of Potential Effect (APE), the status of Native American coordination, information on efforts to identify cultural resources within the APE, and results of evaluation of nine archaeological sites located in the APE. It was determined that the project was likely to cause adverse effects on historic properties; the USACE presented a draft Memorandum of Agreement (MOA) among the USACE District, the California National Guard, and the California SHPO, proposing resolution to said effects.

Subsequent to the December 2006 letter, the USACE received comments from the California National Guard regarding the scope of resource identification and evaluation efforts, as well as the Draft MOA and the Draft Archaeological Research Design/Treatment Plan.

Based on comments on the adequacy of cultural resource studies for the project, in conjunction with adjustments to the pipeline route and associated facilities, the USACE contacted the SHPO again in August 2007 to update several components of the Section 106 consultation including the project APE; consultation with Native American tribes and other interested parties; and historic property identification efforts (Appendix A).

Specifically, the letter requested concurrence on the proposed APE, as well as on proposed methods to complete consultation with Native American tribes and other interested parties, the historic property identification effort, evaluation studies, and resolution of adverse effects.

On September 11, 2007, the SHPO responded to the USACE indicating concurrence on determination of the project APE (Appendix A). The letter also indicated that proposed actions would indeed provide the types of data needed to enable completion of the historic property identification effort and National Register evaluation of those historic properties in the project APE. The letter also provided comments requiring the following actions:

- conduct a geoarchaeological review of the project (including subsurface investigations) to identify buried sites;
- continue with efforts to secure appropriate Native American consultation/participation;

- provide confirmation that the Advisory Counsel on Historic Preservation has been notified of the undertaking and has been invited to participate in the consultation (pursuant to 36 CFR 800.6 [a] [1] and 800.11 [e]); and
- ensure that updated copies of DPR 523 Site Record Forms are completed for all historic properties in the project APE.

The above mentioned topics were addressed in a letter from the USACE to the SHPO dated November 2007 (Appendix A). During this time, the USACE requested concurrence on completion of the historic property identification effort as well as the adequacy of the revised Archaeological Research Design and Treatment Plan to satisfy requirements set forth in 36 CFR 800.4 through 800.6 to evaluate historical significance, assess adverse effects, and develop appropriate mitigation measures for historic properties affected by the undertaking. The letter also notified the SHPO that a revised MOA was to be developed to identify steps to resolve adverse effects. Pursuant to 36 CFR 800.6 (b)(1) execution and implementation of this document evidences USACE's compliance with Section 106 regarding the undertaking.

Consultation with Native American Tribes and Other Interested Parties

Consultation with the Native American community concerning the NWP began in June 2005, and has continued since that time with the aim of ensuring that the requirements of Section 106 with regard to both federally recognized tribes and interested persons were met (pursuant to 36 CFR 800.3 [f]). A detailed description of the consultation with Native American tribes and other interested parties is provided in Section 4.7.3.

Historic Property Identification

Previous submittals for historic property identification effort for the NWP include: documentation of surface surveys conducted by Gibson and Parsons (2003); Phase II evaluations by ESA (2006); a supplemental records search; and a supplemental reconnaissance of the APE to assess the potential for effects on previously identified built environment resources or on historic district landscapes. These materials, in conjunction with the Extended Phase I Report (Farquhar and D'Oro 2007), the Extended Phase I Report Addendum (Farquhar 2007), and the Geoarchaeology Study Report (Ballentyne et al. 2007) are intended to fulfill the USACE's responsibilities under Section 106 of the NHPA to identify potential historic properties located in the undertaking's APE. In the November 2007 letter, the USACE requested SHPO concurrence on completion of the historic property identification effort as per 36 CFR 800.4 [a] and [b][1].

Resource Evaluations and Resolution of Adverse Effects

As detailed in the August 24, 2007 letter to the SHPO, four of the sites identified in the Gibson and Parsons (2003) study (all on Camp Roberts property) have been previously evaluated, and found to be eligible for the National Register. These sites include CA-SLO-1169 (Basgall 2003), CA-SLO-2215 (ESA 2006), CA-SLO-1180 (Carpenter et al. 2004), and CA-SLO-2210 (Garlinghouse and Farquhar 2005). All were addressed in the Gibson and Parsons (2003) survey report as well as a limited evaluation report (ESA 2006). It was anticipated that these sites would

be adversely affected by the undertaking (as per 36 CFR 800.5) and would require resolution of said effects (36 CFR 800.6). Data Recovery mitigation of these sites is detailed in the revised Archaeological Research Design/Treatment Plan (ARD/TP).

The ARD/TP describes a plan for NRHP data recovery mitigation of the archaeological sites identified in the project APE. The ARD/TP is intended to serve as part of the mitigation recommended by the Final EIR (Mitigation CR-12) and in consultation with the Army Corps of Engineers to resolve the potential adverse effects to the historic properties in accordance with Section 106 procedures.

Department of Defense American Indian and Alaska Native Policy

In addition to Section 106, the Department of Defense (DOD) American Indian and Alaska Native Policy governs the department's interactions with federally recognized tribes. The policy outlines DOD trust obligations, communication procedures with tribes on a government-to-government basis, consultation protocols, and actions to recognize and respect the significance that tribes ascribe to certain natural resources and properties of traditional cultural or religious importance. The policy requires consultation with federally recognized tribes for proposed activities that could significantly affect tribal resources or interests.

Camp Roberts is federally owned by USACE and is operated by the CA ARNG as a training site that supports a federal mission, so certain activities and projects are funded, all or in part, with federal funds. As such, all federal and military regulations, policies, and laws apply to this property, including Sections 106 and 110 of the NHPA, the American Indian Religious Freedom Act (AIRFA), Executive Orders (EOs) 13007 and 13175, and the DOD's Annotated Policy on American Indians and Alaska Natives (dated October 27, 1999). Moreover, the DOD completed a significant policy initiative concerning federally recognized tribal governments by signing DODI 4710.02: *DoD Interactions with Federally-Recognized Tribes* on September 14, 2006. This Instruction further implements DOD's October 1998 American Indian and Alaska Native Policy and provides additional details on statutory and regulatory requirements relative to tribal governments. The Department published the Instruction to ensure that DOD policy is implemented by assigning responsibilities and providing procedures for DOD interactions with federally recognized tribes in accordance with Executive Order 13175, entitled "Consultation and Coordination with Indian Tribal Governments" and the Presidential Memorandum on "Government-to-Government Relationship with Tribal Governments." The policy acknowledges DOD's trust responsibilities to tribes; directs the Department to build stable and enduring relationships with tribes; establishes consultation as the key component to successful, meaningful government-to-government dialog;

4.7.2 Cultural Resources Sites

For the Proposed Action, the APE is defined as the width and depth of the pipeline trench and the footprint of the storage tank facilities, and staging areas. The County of San Luis Obispo conducted a cultural resources inventory of the APE in 1996, 2003, 2006, and 2007 as part of the cultural resources environmental analysis for the NWP Final EIR and subsequent project

permitting activities (Gibson 2002; Gibson and Parsons, 1996, 2003; ESA, 2006; Albion, 2007) There are five cultural resource sites within the APE on Camp Roberts (County of San Luis Obispo, 2003; ESA, 2006) (**Table 4-12**).

CA-SLO-670 is a paleontological and prehistoric site and is an exemplary outcrop of fossiliferous Santa Margarita Formation sandstone. Fossils or fragments of fossils are abundant in much of the sandstone and, at places, make up most of the rock (County of San Luis Obispo, 2003). The pipeline crosses the Nacimiento River in this area.

TABLE 4-12
CULTURAL RESOURCE SITES WITHIN THE AREA OF POTENTIAL EFFECTS

Site Designation	Type of Resource	Description
CA-SLO-670	Paleontology and Prehistoric	Deeply stratified rock shelter
CA-SLO-1169	Prehistoric	Midden[a]/occupation site
CA-SLO-2215	Prehistoric	Denuded lithic[b] scatter and BRMs
CA-SLO-1180	Prehistoric	Buried midden deposit
CA-SLO-2210	Prehistoric	Prehistoric campsite

[a] A mound or deposit containing shells, animal bones, and other refuse that indicates the site of a human settlement.
[b] Relating to or characteristic of a specified stage in the use of stone by humans.

SOURCE: Site records on file at the Central Coastal Information Center, UCSB, as cited in ESA, 2006.

CA-SLO-1169 was originally recorded as part of the Camp Roberts sample survey (Breschini and Haversat 1988), and described as a sparse lithic scatter with midden-stained sediments. At the time of recordation, Breschini and Haversat (1988) conducted limited subsurface excavations revealing the presence of a significant buried deposit containing chert debitage, ground stone, marine shell, animal bone, and fire-affected rock.

In 2000, a program of subsurface investigation using a backhoe was initiated at the site by Jones & Stokes (2000). A very modest assemblage of cultural constituents was obtained as a result of these excavations, including groundstone, flaked stone, and two apparent hearth features. A single obsidian contracting-stem projectile point was also collected from the surface near one of the trenches.

The Archaeological Research Center (ARC) subsequently excavated the site in 2003 (Basgall 2003), in an attempt to provide a more quantitative determination of site constituents, age, and internal structure. This work documented a complex, multi-component residential occupation that evidently extended from the Middle Period into the terminal prehistoric/protohistoric period. Deposits in the main midden area typically extend to 100-120 cm below surface, whereas outlying areas are much shallower.

In 2005, ESA archaeologists conducted test excavations at CA-SLO-1169 as part of the Phase II Cultural Resource Investigation for the Nacimiento Water Project (ESA 2006:9). This consisted

of excavating a 1 x 0.5 m control unit to a depth of 50 cm, placed in the southern portion of the site on the dirt road. In contrast to the relatively high density of materials recovered during the ARC excavations, the ESA excavations were inconclusive from this portion of the site. Only a total of 17 chert flakes were recovered from this unit.

Based on their assessment of the site, the ARC recommended that CA-SLO-1169 be eligible for listing in the NRHP. Their excavations revealed that, despite some impacts to the site, the surviving site areas retain good vertical and horizontal integrity, and that chronological, subsistence, settlement, and technological information can be gleaned from site constituents.

The NWP pipeline alignment follows a course that skirts the southern boundary of the site, following Boy Scout road north for a little over 200 feet, then veering west following the dirt road away from the site. The ARC did not test this portion of the site, and the unit excavated by ESA, which was placed near the southern boundary of the site on the dirt road, yielded inconclusive evidence.

CA-SLO-2215 is a newly recorded prehistoric site described as a prehistoric site located on the south side of the Nacimiento River (Gibson 2001). The site consists of a low rock outcrop containing two mortar cups. The larger cup measures 18 cm in diameter, while the smaller cup measures 12 cm in diameter. Artifacts were observed on the ground near the outcrop and consisted of a very black Monterey chert tool fragment and a gray polyhedral core fragment. Gibson reports in his site record (2001) that CA-SLO-2215 appears to be an intact deposit, though the construction of Boy Scout road may have impacted at least some portions of the site, especially the area south and west of the mortar outcrop. ESA conducted limited test excavations at CA-SLO-2215 in 2005 as part of the Phase II Cultural Resource Investigation for the Nacimiento Water Project (ESA 2006). This work was conducted to determine if potentially significant deposits were present at the site and to refine site boundaries. Limited excavations produced only a single dark brown chert projectile point. ESA's results proved inconclusive, but based on Gibson's statement that the site appears to be intact, ESA regarded the site as a potentially significant resource. Eligibility for the NRHP was thus assumed.

The proposed NWP pipeline route cuts through the center of the site. Because this part of the site was not subjected to subsurface investigation little is known about the nature of the deposit.

CA-SLO-1180 is a large and deep significant prehistoric deposit initially recorded by Breschini and Haversat in 1988. Limited excavations at this time produced a rich and diverse assemblage including shell beads, flaked tools and tool making debris, groundstone tools, modified bone, charcoal, dietary bone and shellfish.

Subsequent excavations by the ARC (Carpenter et al. 2004:7-18) yielded several time sensitive artifacts, including obsidian flakes, beads, and projectile points, as well as abundant organic remains suitable for radiocarbon dating. Regarding subsistence practices, Carpenter et al. (2004:7-17) maintained that the site "contains one of the largest and most diverse assemblages of vertebrate and invertebrate faunal remains yet identified" at Camp Roberts. Technological issues are likewise well-addressed by data from the site; there is a wealth of ground, battered, and flaked

stone tools, accompanied by immense quantities of debitage at the site. Finally, the site retains considerable depositional integrity, and the presence of temporally well-defined component areas.

As currently proposed, the NWP pipeline alignment is projected to cut across the southern boundary of the site, in the area south of Boy Scout Road. As tested by the ARC, this portion of the site appears to be much sparser in materials than the northern part of the site. However, this part of the site was subjected to much less testing, and the ARC's assessment is based solely on the results of two STUs rather than a control unit. It is possible that more extensive testing in this area might yield a denser deposit.

Site CA-SLO-2210 is located in the rolling foothills of the Santa Lucia Mountains and is situated on a bench between two tributaries of Dry Creek. Subsurface excavations by Albion (Garlinghoue and Farquhar 2005) revealed a relatively large (yet narrow) artifact assemblage, consisting of flaked and ground stone tools and tool making debris.

Based on an assessment of several different criteria, Albion researchers (Garlinghouse and Farquhar 2005) concluded that CA-SLO-2210 is capable of contributing to a wide set of regional and local research issues and is eligible for listing in the NRHP. Although West Perimeter Road bisects the site, the Albion excavation revealed an intact deposit with a robust artifact assemblage, including flaked stone and ground stone. Two hearth features, each yielding datable organic remains, were also identified, allowing for chronological placement of the site.

The NWP pipeline is projected to run down the west shoulder of West Perimeter Road. This area was not previously tested, as it lies between the eastern and western parts of the site, and the disposition of cultural constituents is unknown.

Environmental protection and avoidance measures have been adopted as part of the Proposed Action to avoid known cultural resources and mitigate unavoidable impacts to known or unknown cultural resources during construction of the NWP. These measures include a data recovery program (see Section 5.7 for a description of the data recovery program.)

CA-SLO-670 would not be impacted by project construction due to construction techniques that would avoid site disturbance. The remaining four sites would be directly impacted by excavation activities during construction of the NWP pipeline. For these sites, implementation of the pre-construction data recovery program would result in no adverse effects to cultural resources.

4.7.3 Native American Resources

Consultation with the Native American community concerning the NWP began in June 2005. ESA queried the California Native American Heritage Commission (NAHC) for names of individual Native Americans, organizations, and tribes that might have concerns about the effect of the project on resources of heritage value. In response the NAHC provided a list of 24 individuals, groups and tribes (**Table 4-13**), with a recommendation to contact each listed person or entity for information or concerns. ESA contacted each entry on the list and after a second written inquiry received a response from the Santa Ynez Band of Mission Indians. In that

TABLE 4-13
NATIVE AMERICAN CONTACTS FOR NACIMIENTO WATER PROJECT

Person/Organization	Mailing Address	Tribe(s) Represented
John Burch	14650 Morro Rd, Atascadero, CA 93422	Salinan
Mary Trejo	PO Box 469, Santa Margarita, CA 93453	Chumash
Shirley Macagni, Cultural Resources Representative	1550 Guadalupe Rd, Nipomo, CA 93444	Salinan
Bonnie Pierce	440 Highland Dr, Los Oso, CA 93402	Salinan
Adelina Alva-Padilla, Chair Woman, Santa Ynez Tribal Elders Council	PO Box 365, Santa Ynez, CA 93460	Chumash
Doug Alger, Cultural Resources Coordinator, Salinan Nation Cultural Preservation Association	PO Box 56, Lockwood, CA 93932	Salinan
Randy Guzman	3044 E St, Simi Valley, CA 93085	Chumash; Fernandeno; Tavaviam; Shoshone Paiute; Yaqui
Robert Duckworth, Environmental Coordinator, Salinan Nation Cultural Preservation Association	Drawer 2447, Greenfield, CA 93927	Salinan
Donna Haro, Xolon Salinan Tribe	110 Jefferson St, Bay Point, CA 94565	Salinan
Jose Freeman, President, Salinan Nation Cultural Preservation Association	15200 Country Rd, 96B, Woodland, CA 95695	Salinan
Chief Joseph Ballesteros	5811 Lone Pine Pl, Paso Robles, CA 93446	Chumash; Salinan
Leilynn Odom	1339 24th St, Oceano, CA 93445	Chumash
Beverly Folkes	1931 Shadybrook Dr, Thousand Oaks, CA 91362	Chumash; Tataviam; Fernandeno
Judith Grindstaff	63161 Argyle Rd, King City, CA 93930	Salinan
Vincent Armenta, Chairperson, Santa Ynez Band of Mission Indians	PO Box 517, Santa Ynez, CA 93460	Chumash
Chief Mark Vigil, San Luis Obispo County Chumash Council	1030 Ritchie Rd, Grover Beach, CA 93433	Chumash
Puilulaw Khus	2001 San Bernardo Ck, Morro Bay, CA 93442	Chumash
Peggy Odom	1339 24th St, Oceano, CA 93445	Chumash
Julie Tumamalt	365 N Pole Ave, Ojai, CA 93023	Chumash
“Alyisha” Diane Garcia, DNA Cultural Resources Council	PO Box 129, Carpinteria, CA 93014	Chumash
Mona Tucker	660 Camino Del Rey, Arroyo Grande, CA 93420	Chumash
Matthew Goldman	660 Camino Del Rey, Arroyo Grande, CA 93420	Chumash
Laura Ray, Tribal Administrator, Santa Ynez Band of Mission Indians	PO Box 517, Santa Ynez, CA 93460	Chumash
Gregg Castro, Administrator, Salinan Nation Cultural Preservation Association	5225 Roeder Rd, San Jose, CA 95111	Salinan

SOURCE: ESA, 2006.

letter Santa Ynez, the only tribe recognized as such by the Department of the Interior (often referred to as "federal recognition") recommended monitoring of disturbance. The letter also recommended contacting the Elders Council at Santa Ynez or the "Chumash of the project area" for assistance in monitoring. Based on past experience the latter reference was to the Northern Chumash community of the northern San Luis Obispo County region, a well-known Native American community, which is not recognized as a tribe by the federal government. Follow up phone calls and emails were also placed to Robert Duckworth of the Salinan Nation and to the Santa Ynez Band in September, 2006 to solicit further comments. No response was received from Mr. Duckworth and a copy of the Phase II report (ESA 2006) was sent to Ms. Alva-Padilla per her request.

Consultation with the Native American community has thus far been conducted as a hybrid of the federal Section 106 process and the California CEQA process. This is a common and effective approach when a project needs to consider the opinions and advice of Native American groups that may have State but not federal level status as recognized tribes. The prescriptions for monitoring therefore consider the Section 106 process but also the requirements imposed by San Luis Obispo County, CEQA, and various sections of the California Public Resources Code. Under the federal or Section 106 process, only the Santa Ynez Band of Mission Indians has status to comment as a Tribe, and to elect to accept an invitation to participate in (sign) the Project MOA. Tribes not recognized by the federal governments may stand as "Interested Persons" with regard to the MOA and consultation process, but are not invited to full participation in the MOA.

On October 29, 2007 representatives of the Chumash and Salinan groups, including the federally recognized Santa Ynez Band, participated in a day-long project tour. The tour resulted in expressed concerns about the level of Native American representation during Project construction. The Santa Ynez Band and Salinan and Chumash groups intend to meet to discuss responses to San Luis Obispo County's policies on Native American monitoring. The Santa Ynez Band is also considering whether to participate in the Project MOA as an invited signatory.

Copies of all correspondence are included in **Appendix A**. As planning proceeds, Native American concerns will be incorporated into future treatment measures for archaeological sites that may be affected.

4.8 Socioeconomics

This section is a description of the socioeconomic setting for SLO County and the vicinity of Camp Roberts. The socioeconomic conditions addressed include population, employment, housing supply, schools, and recreation.

The Proposed Action would occur in the southern portion of Camp Roberts, which is in San Luis Obispo County. Camp Roberts is part of SLO County's Adelaida Planning Area. The Nacimiento and Salinas River Planning Areas are to the west and east of Camp Roberts, respectively. The Nacimiento Planning Area includes Lake Nacimiento and Heritage Ranch, and the Salinas River Planning Area includes the community of San Miguel. All three planning areas are part of the US Census Tract 100.

4.8.1 Population

In 1990, the population of SLO County was 217,800 (California Department of Finance, 2006). In 2000, the county's population increased by approximately 13.9 percent to 248,106 (California Department of Finance, 2006). By 2030, population in SLO County is expected to increase an additional 54.3 percent to 380,692 (County of San Luis Obispo, 2001). In 2000, the population of the Adelaida Planning Area, which includes the southern portion of Camp Roberts, was 3,114, and in 2030 the population is expected to more than double to 6,805 (County of San Luis Obispo, 2001). This increase is not due to any expected population expansion within Camp Roberts. Currently, there are seven trailer residences and seven residents residing within the Camp Roberts RV Park.

In 2000, the populations of the Nacimiento and Salinas River Planning Areas were 2,852 and 61,906, respectively (County of San Luis Obispo, 2001). By 2030, the populations of these planning areas are expected to increase to 3,055 and 103,350, respectively. In 2000, San Miguel had a population of 1,420, and by 2030 San Miguel is expected to have a population of 3,445 (County of San Luis Obispo, 2001).

4.8.2 Employment

Since 2000, the annual average unemployment rate for SLO County has been consistently lower than California's employment rate. During the period from 2000 to 2004, SLO County's unemployment rate fluctuated from a low of 3.9 percent in 2001 to a high of 4.6 percent in 2003 (California Department of Finance, 2006). In the State of California, unemployment fluctuated from a low of five percent in 2000 to a high of 6.8 percent in 2003.

4.8.3 Housing

According to the 2000 census data, approximately 93.7 percent of the County population lives within households, and the total number of housing units within SLO County is 102,275 as compared to 90,200 in 1990 and 66,780 in 1980. Occupied units made up 90.7 percent of the total housing stock in the County. Of the 90.7 percent, 55.7 percent were owner-occupied and 34.9 percent were renter-occupied units. Average household size consisted of 2.49 occupants. Of particular interest to this study is the number of seasonal and recreational homes located within the County. From 1980 to 2000 the number of seasonal homes in SLO County increased from 710 to 4,234. As of 2000, Census Tract 100 (which includes Lake Nacimiento) contained approximately 20 percent of all seasonal, recreational, and occasional use homes in the County. Within Census Tract 100, 30 percent of all housing units were seasonal, recreational, or occasional use homes, and 70 percent was year-round housing. Currently, there are seven trailer park residences and seven residents residing within the Camp Roberts RV Park.

4.8.4 Schools

SLO County schools are divided into ten school districts. The project site is located within the San Miguel Joint Unified School District, which includes the Lillian Larsen Elementary School

and the Cappy Culver Elementary School. For the 2005-2006 school year, the Lillian Larsen Elementary School and the Cappy Culver Elementary School had enrollment numbers of 383 and 94 students, respectively (Education Data Partnership, 2006).

In 2002, enrollments at most of SLO County's schools exceeded design capacities. To accommodate students, temporary classrooms are placed on individual school sites. Each district has calculated an estimated maximum capacity number for each of its schools. The maximum capacity estimate is generally approximately 25 percent higher than the established permanent design capacity. In 2002, enrollment at four of the County's 42 elementary schools, one middle school, and one high school currently exceeded their estimated "maximum" capacities (County of San Luis Obispo, 2003). However, since 2001, enrollment in SLO County schools has steadily declined and is expected to continue to decline (County of San Luis Obispo, 2006b).

4.8.5 Recreation

As a trustee of public land, CA ARNG has a responsibility to provide opportunities for outdoor recreation. However, this mission is secondary to use of land under CA ARNG control for national defense purposes. DOD Directive 4700.4, Natural Resources Management Program (January 24, 1989), states, "DOD lands shall be available to the public and DOD employees for enjoyment and use of natural resources, except when a specific determination has been made that a military mission prevents such access for safety or security reasons or that the natural resources will not support such usage."

Camp Roberts is open to the public, although access is controlled for military training, safety and liability reasons. Camp Roberts has outdoor recreation opportunities, including fishing, hunting, and hiking. There are seven hunting areas on Camp Roberts, with seasons for deer, turkey, pig, rabbit, waterfowl, dove, pigeon, and quail. Camp Roberts also supports a fishing program that is managed by Camp Roberts staff with input from CDFG and NMFS. Eight miles of the Juan Bautista de Anza National Historic Trail traverses Camp Roberts. There is an RV park available for public use on the installation. All-terrain vehicles (ATVs) are not permitted on the installation for any purpose (California Army National Guard, 2001).

In 1990, DOD signed a Memorandum of Understanding with Defenders of Wildlife and 12 other public and private organizations to set up public wildlife viewing stations on federal, state, and private lands. The Watchable Wildlife program seeks to protect wildlife habitat, educate visitors, and enhance public support of wildlife resource conservation. It addresses the public's growing interest in viewing and photographing animals in natural settings. In California, Defenders of Wildlife has coordinated fifteen government agencies and private organizations to join forces and funds to promote wildlife viewing, conservation and education. Opportunities for establishment of a Wildlife Viewing Site at Camp Roberts are being investigated.

4.8.6 Protection of Children

Executive Order 13045 *Protection of Children from Environmental Health Risks and Safety Risks*, April 23, 1997 (as amended April 18, 2003), seeks to protect children from

disproportionately incurring environmental health risks or safety risks that might arise as a result of federal policies, programs, activities, and standards. Environmental health risks and safety risks to children are those that are attributable to substances that a child is likely to come into contact with or to ingest.

4.9 Environmental Justice

On February 11, 1994, President Clinton issued Executive Order 12898, Federal Actions to Address Environmental Justice in Minority and Low-income Populations. The purpose of the order is to avoid disproportionately adverse environmental, human health, or economic impacts from federal policies and actions on minority and low-income populations. The executive order requires that any significant adverse impacts of a federal project or alternatives on minority and low-income populations be reported and, where appropriate, that mitigation measures be prescribed.

Information based on the 2000 census is presented in **Table 4-14** for the State of California, County of San Luis Obispo, and San Miguel, the closest community to Camp Roberts. In SLO County, the 2000 ethnic composition was 84.6 percent Caucasian, 16.3 percent Hispanic, 2.7 percent Asian, 2.0 percent African American, 0.9 percent American Indian and Alaskan, and 6.2 percent "other races." In San Miguel, the 2000 ethnic composition was 63.3 percent Caucasian, 0.4 percent Asian, 1.5 percent African American, 2.7 percent American Indian and Alaskan, and 23.8 percent "other races."

TABLE 4-14
SUMMARY OF CENSUS DATA FOR CALIFORNIA, SLO COUNTY, AND SAN MIGUEL

Factor	Population Group	California	SLO County	San Miguel
Race[A]	Caucasian	20,170,059 (59.5%)	208,699 (84.6%)	903 (63.3%)
	Hispanic	10,966,556 (32.4%)	40,196 (16.3%)	NA
	Asian	3,697,513 (10.9%)	6,568 (2.7%)	6 (0.4%)
	African American	2,263,882 (6.7%)	5,002 (2.0%)	21 (1.5%)
	American Indian/Alaskan	333,346 (1.0%)	2,335 (0.9%)	39 (2.7%)
	Other race	5,682,241 (16.8%)	15,312 (6.2%)	340 (23.8%)
Poverty status, 1999	Unemployment	1,110,274 (4.3%)	6,911 (3.4%)	42 (3.8%)
	Families	845,991 (10.6%)	3,991 (6.8%)	26 (6.1%)
	Individuals	4,706,130 (14.2%)	29,775 (12.8%)	153 (10.2%)

NA = Not Available.

A. The difference between 100% and sum of the percentages is percentage of persons of two or more races.

SOURCE: U.S. Bureau of the Census, 2000; California Department of Finance, California Statistical Abstract, Table B5, 2000.

In 1999, 14.2 percent of the population was below the poverty level in California, 12.8 percent was below the poverty level in SLO County, and 10.2 percent was below the poverty level in San Miguel.

The median family income in SLO County was $48,000 in 2000. This number was well below California's median family income of $55,200 in 2000 (California Department of Finance, 2006).

According to the 2000 Census, the median family income in Census Tract 100, which includes Camp Roberts, was $46,754. This slightly lower income level reflects the area's dependence on agricultural industries, which are traditionally among the lowest wage sectors in SLO County.

In general, minorities comprise a smaller percentage of the total population in SLO County relative to the State as a whole. In addition, poverty status based on unemployment levels is lower in SLO County than the State as a whole.

4.10 Infrastructure

This section addresses the potable water, wastewater, storm water, solid waste, natural gas, electricity, telecommunications, and transportation systems at Camp Roberts as related to the NWP.

4.10.1 Potable Water

Camp Roberts, and the greater SLO County, receives 80 percent of its potable water from groundwater sources (mostly from the Paso Robles Basin) and 20 percent from surface reservoirs and other sources, such as Santa Margarita Lake (Salinas Reservoir), Lopez Lake, Whale Rock, and Lake Nacimiento (SLO County, 2007). Water demand by SLO County, however, is nearing the limits of the available water supplies. The SLO County Integrated Regional Water Management Plan (IRWMP) (2007) summarizes existing water supplies in the county relative to projected demand for a 20-year time horizon. In areas to be served by the NWP, such as Paso Robles, Templeton, Atascadero, and San Luis Obispo, there are projected water supply deficiencies (SLO County, 2007). The Proposed Action would convey additional water to these communities. The IRWMP emphasizes the importance of the NWP to water resources in the region, stating that the NWP "will help preserve groundwater resources for agriculture in the Salinas Region's Watershed – where the basin is currently not in overdraft - and it will be an important facility helping to assure long term sustainable water resource management in the San Luis Region."

4.10.2 Wastewater

Camp Roberts has an operational wastewater treatment plant (WTP) (Building 701) that was constructed in 1941 with a treatment capacity of 3 mgd and provides secondary treatment to sanitary wastewater for the Camp (California Army National Guard, 2004). Originally, the WTP facilities were comprised of two trickling filters, two primary clarifiers, two secondary clarifiers, two sludge digesters, eight receiving ponds (i.e., sludge drying beds), and two sewage lagoons to accommodate processing of wastewater effluent during the Camp's peak use (World War II and the Korean War) (California Army National Guard, 2004) . In 1980 and 1981, the WTP's capacity was reduced in order to more efficiently serve the limited population at Camp Roberts

(California Army National Guard, 2004). The current operating capacity of the WTP is 1 mgd using one trickling filter, one clarifier that serves as a primary and secondary clarifier, one sludge digester, and two sludge drying beds. The current WTP also has a series of three evaporation/percolation ponds that have been converted from the plant's remaining original drying beds and sewage lagoons (California Army National Guard, 2004). The current capacity of the WTP is sufficient to accommodate all effluent generated by the Camp (California Army National Guard, 2004).

The WTP's discharge to groundwater is permitted through the CCRWQCB Monitoring and Reporting Program (Permit No. 88-37) (California Army National Guard, 2004). Compliance with the permit is monitored through groundwater monitoring wells located up and down gradient from the WTP; the most recent monitoring results showed no signs of groundwater contamination as a result of the operation of the WTP (California Army National Guard, 2004). The WTP does not discharge any effluent to surface waters (California Army National Guard, 2004).

4.10.3 Storm Water

There are approximately 23,000 linear feet of storm drain pipe (mostly concrete masonry), 50 catch basins, 45 manholes, and 2,500 linear feet of culvert at Camp Roberts that is not connected to the sanitary sewer system at Camp Roberts (California Army National Guard, 2001). Storm water from the northwest section of the Main Garrison drains into a 3,300-foot drainage ditch with outflow to the Nacimiento River to the north (California Army National Guard, 2001). Storm water from the rest of the Main Garrison is collected and discharged to the Salinas River through four separate storm drains that pass underneath U.S. Highway 101 (California Army National Guard, 2001). There are no storm drain facilities in the training areas or the artillery impact areas of the Main Garrison (California Army National Guard, 2001). A large portion of the flow from these areas flows naturally through stream courses to the Nacimiento River (California Army National Guard, 2001). Most storm water from the East Garrison is collected by a series of open lined and natural drainage ditches that flow into the Salinas River (California Army National Guard, 2001).

4.10.4 Solid Waste

Solid waste generated at Camp Roberts is collected by camp personnel and transported to the Camp Roberts Landfill area. This area consists of a 14.3-acre permitted solid waste disposal site, 4.4 acres of which are an active canyon fill area (California Army National Guard, 2004). The active portion of the 14.3-acre site is in the north, while the southern portion is inactive and currently undergoing closure by capping the trenched areas (Doll *et al*., 2000). The southern portion of the Camp Roberts Landfill area consists of at least five waste disposal areas. Use of these areas was discontinued prior to State and County landfill permitting programs came into effect (Doll *et al*., 2000). The southern portion of the landfill was developed during peak activities during World War II and the Korean War (Doll *et al*., 2000). The utilization of Camp Roberts Landfill in the future is subject to change due to the proposed Landfill Expansion Project. Timing for the proposed landfill project is dependent on funding and regulatory permitting, but estimates indicate construction over a 9 to 12 month period.

Solid waste generated at 700 tons per year is disposed of in the permitted active canyon fill area, which has been in operation since 1972 (California Army National Guard, 2004). Permitted wastes include general domestic waste such as food stuffs, paper, plastic, wood, and cardboard (California Army National Guard, 2004). An intermediate cover of 12 to 18 inches of native soil is applied on a daily basis or whenever additional waste materials are deposited at the fill (California Army National Guard, 2004). Both the active and inactive portions of the Landfill area are not lined and there are no leachate collection systems in place (California Army National Guard, 2004).

On May 6, 1983, the sludge pumps at the Camp Roberts WTP were inoperable and the facility was granted permission by the CCRWQCB to pump raw sewage from the clarifier units and transport it to the Camp Roberts Landfill area for disposal (California Army National Guard, 2004). The exact location of the sludge disposal is not known (California Army National Guard, 2004).

Camp Roberts Landfill is an approved disposal site for construction and demolition debris, such as excavated soils (Class I). Hazardous materials and wastes (Class II) are transported and disposed of in a facility that has sufficient capacity and is permitted to receive hazardous waste. **Table 4-15** shows three nearby landfills that are permitted to take contaminated soils.

TABLE 4-15
AVAILABLE ACTIVE CLASS I AND II WASTE DISPOSAL FACILITIES

Permit Information	Kettleman Hills	McKittrick	Clean Harbors Buttonwillow
Location	Kettleman City, Kings County, CA	McKittrick, Kern County, CA	Buttonwillow, Kern County, CA
Owner/Operator	Chemical Waste Management, Inc./Waste Management, Inc.	Liquid Waste Management, Inc.	Clean Harbors Buttonwillow LLC
Estimated Closure Date	2010	2029	2040
Maximum Permitted Capacity	4,200,000 cy	2,091,800 cy	14,292,760 cy
Remaining Capacity	3,374,413 cy (Sept 2001)	841,498 cy (Aug 2001)	N/A
Permitted Throughput	1,400 tons/day	1,180 tons/day	10,482 tons/day
Permitted Waste Types	Class II wastes, industrial, mixed municipal, sludge (biosoilds)	Class II, contaminated soil, industrial	Class I, contaminated soil, industrial

cy = cubic yards.

SOURCE: SLO County, 2003.

4.10.5 Natural Gas

The Southern California Gas Company provides natural gas to Camp Roberts and greater SLO County (San Luis Obispo Chamber of Commerce, 2005).

4.10.6 Electricity

Electric services in SLO County are provided by PG&E. PG&E operates one power plant in the County—Diablo Canyon Nuclear Power Plant. LS Power Equity Partners operates the Morro Bay Power Plant. In addition, the Monterey County Water Resources Agency (MCWRA), which owns and operates a hydroelectric facility at Lake Nacimiento, sells its power to PG&E. Energy supplied to SLO County comes from a variety of sources. These sources may range geographically from the Pacific Northwest to the Southwest, depending on market conditions. Energy deliveries to all of the County users in 2000 equaled 1,516 million kWh, of which 888 million kWh to non-residential users (California Energy Commission, 2001).

4.10.7 Telecommunications

Pacific Bell provides telephone service to Camp Roberts through overhead lines (San Luis Obispo Chamber of Commerce, 2005). Cable television and high-speed internet is provided to Camp Roberts and greater SLO County by Charter Communications (San Luis Obispo Chamber of Commerce, 2005). Telephone systems are also connected to the DOD via a secure telephone network.

4.10.8 Transportation

The primary regional transportation features near Camp Roberts are U.S. Highway 101 that runs through the northern portion of the installation and State Route 46 (SR-46) that connects with U.S. Highway 101 in Paso Robles and provides an eastern route out of the city. Other public roads that provide access within the vicinity of Camp Roberts include Hare Canyon Road that connects U.S. Highway 101 with Indian Valley Road north of the installation, Indian Valley Road that roughly parallels U.S. Highway 101 to the east of the installation, and Lake Nacimiento Drive that connects with the U.S. Highway 101 northwest and southeast of the installation and provides access to Lake Nacimiento and areas west and south of Camp Roberts (see Figure 1-1). The Southern Pacific Railroad also runs along U.S. Highway 101 through the northern portion of Camp Roberts, providing train service for passengers and freight.

4.10.9 Belowground Utilities

The entire length of the pipeline for the greater NWP would parallel and cross several underground utilities that may include water, sewer, electric, cable, telephone, and natural gas utilities as well as crude oil pipelines (County of San Luis Obispo, 2003d). The nine-mile segment of pipeline within Camp Roberts as well as the storage tank footprint could also cross such utilities. Therefore, groundbreaking activities within the easement, if such utilities are not identified prior to the beginning of construction, could accidentally damage any of these underground utilities resulting in utility service disruption or, in the case of natural gas or crude oil pipelines, fire or explosion.

4.11 Hazardous Materials and Wastes

This section discusses hazardous materials and wastes issues as related to the Proposed Action. Issues include unknown military ordnance and contaminated soils, hazardous materials storage and waste management, existing belowground utilities, and operational pipeline rupture and storage tank leakage as related to the Proposed Action.

Hazardous materials are defined as substances with strong physical properties of ignitability, corrosivity, reactivity, or toxicity, which may cause an increase in mortality, a serious irreversible illness, incapacitating reversible illness, or pose a substantial threat to human health or the environment. Hazardous wastes are defined as any solid, liquid, or contained gas, semi-solid waste, or any combination of wastes that pose a substantial present or potential hazard to human health or the environment.

4.11.1 Military Ordnance

Camp Roberts is a U.S. military installation where military training with live ordnance is routinely conducted. Therefore, areas within Camp Roberts may contain unexploded ordnance. Live ordnance is currently fired into a dedicated impact area to the north of the Nacimiento River, which is outside the proposed easement's footprint; this area is off limits to the general public (County of San Luis Obispo, 2003). However, two training areas, which comprise 11,700 acres south of the Nacimiento River, were used as an impact range in the 1940s and unexploded ordnance are still found in this area (California Army National Guard, 2004). These training areas could be within the easement footprint.

4.11.2 Contaminated Soil

The easement footprint is not near any federally-designated Superfund sites (County of San Luis Obispo, 2003). The proposed easement is approximately 4.5 miles from Camp Roberts Landfill and 0.5 miles from McMillan air field at the intersection of West Perimeter Road and Generals Road. McMillan air field contains fuels and other hazardous and toxic materials. Construction of the easement would not encroach up the landfill or air field. Two areas of contaminated soil have been identified in proximity to the proposed easement area (CA ARNG, 2006). Additionally, the proposed easement is within approximately 800 feet of an underground storage tank (UST) of undetermined previous use that the Army plans to investigate and remove in the future (Kleinfelder, 2005). A subsurface investigation should be conducted within the proposed easement within the vicinity of this UST (Kleinfelder, 2005).

The proposed easement and immediate surroundings consist of open space. However, it was historically common practice at the Camp to perform vehicle washing and engine oil changes in the field and then dump the waste oil (approximately eight quarts at a time) into gopher holes (California Army National Guard, 2004). This dumping was not centralized and was spread out across range and training areas and was discontinued in the 1980s (California Army National Guard, 2004). Therefore, there is a potential to unearth previously unknown contaminated soils during groundbreaking activities.

4.11.3 Hazardous Materials Storage and Waste Management

Construction activities require the onsite storage and use of hazardous materials such as fuels and lubricants. The accidental release of hazardous materials during construction could adversely affect construction workers, public health, and the environment. Additionally, there is the potential for fire or explosion due to spillage of fuels or other chemicals. Accidental releases could occur as a result of vehicular accidents, equipment malfunction, or improper storage.

4.11.4 Pipeline Rupture and Storage Tank Leakage

Operation of the pipeline segment and storage tank could result in the release of a large quantity of raw (untreated) water if the pipeline segment was to rupture or the storage tank was to leak. Also, in the event of rupture or leakage near contaminated soils, these soils could release hazardous materials into the water supply.

SECTION 5
Environmental Consequences

This section is a discussion of the potential environmental effects of the Proposed Action and Alternatives on the resources presented in Section 4. The conditions presented in Section 4 along with information presented for the No Action Alternative, constitute the baseline for impact analysis. Both beneficial and adverse effects are identified and discussed in this section. Mitigation measures required to address significant adverse impacts are specified where appropriate and are summarized in Section 5.12. Section 5.13 presents the cumulative impacts of the Proposed Action when added to other past, present, and reasonably foreseeable future actions.

5.1 Land Use and Aesthetics

An action would cause an adverse land use impact if a resulting change in land use was incompatible with existing land use policies and regulations, general plan designations, or zoning. An action would result in an adverse impact to aesthetic resources if it would substantially degrade or obstruct scenic resources, or generate light, glare, structures, or land alterations that are visually incompatible with the existing visual setting and landscape.

5.1.1 Proposed Action

No adverse land use effects are expected. As public facilities, the pipeline and storage tank are compatible with the underlying land use designations in the SLO County General Plan and with those of the federal government. The proposed easement and pipeline route within the camp and the proposed location of the storage tank would have minimal effect upon the military training mission of Camp Roberts.

No significant adverse impacts to aesthetic resources are expected. Construction of the pipeline and storage tank would have negative visual impacts due to the presence of construction machinery and clearing of vegetation. However, these impacts are temporary, and restoration of disturbed areas to pre-project or better conditions are part of the Proposed Action.

Operation of the pipeline would have no adverse aesthetic impacts because it is underground. The proposed storage tank is a permanent aboveground feature. The storage tank would affect short range views on the installation but would not be visible from Lake Nacimiento Drive or other public viewpoints, due to natural screening from existing hills and vegetation. As part of the project description, site restoration and vegetation screening would be implemented to promote a natural blending of the tank into the surrounding landscape (Section 2.2.2). These measures include a landscaping plan that includes local, native, drought-tolerant plants and painting the

tank a neutral color. With implementation of these design features, no significant impact to aesthetic resources would result.

5.1.2 No Action Alternative

No adverse impacts to land use or aesthetic resources would occur. Under the No Action Alternative, no land use conflicts would exist because no change would occur in land use at Camp Roberts. Aesthetic resources would remain unchanged.

5.2 Air Quality

An action would cause a significant impact to air quality if project emissions would exceed significance thresholds established by applicable federal, State, and local regulations. Examples of significance thresholds include *de minimis* emissions thresholds established by the federal Clean Air Act, emissions thresholds established by the SLOAPCD, and consistency with federal and state implementation plans.

5.2.1 Proposed Action

Pipeline installation and storage reservoir activities would emit air pollutants from equipment exhaust and fugitive dust. **Table 5-1** summarizes emissions associated with the pipeline and storage reservoir construction activities. Emissions were calculated using the California Air Resources Board approved construction air emissions model URBEMIS 2002 version 8.7 (**Appendix F**). The emissions estimates assume that the construction would be divided into two phases: construction of the pipeline and construction of the storage tank. As shown in the table the project would be below the SLOAPCD thresholds of significance. Table 5-1 provides combined emissions assuming a modified equipment usage scenario. The equipment list and hours per day assumptions for a reasonably foreseeable level of effort to construct the pipeline and storage reservoir are included in **Table 5-2**.

TABLE 5-1
SUMMARY OF ESTIMATED PEAK CONSTRUCTION EMISSIONS WITHIN CAMP ROBERTS (LBS/DAY)

	CO	ROC	NO_x	SO_2	PM_{10}
Pipeline	141	17	113	<1	28
Storage Reservoir	86	10	72	<1	27
Pipeline and Storage Reservoir	223	27	181	<1	31
Significance Criteria	-	185	185	-	2.5 tons per quarter
Requires Mitigation?	No	No	No	No	No

SOURCE: URBEMIS 2002, ver. 8.7.

TABLE 5-2
ESTIMATED EQUIPMENT USAGE

Equipment	Horsepower	Pipeline		Storage Reservoir		Pipeline & Storage Reservoir	
		Quantity	Hours per day usage	Quantity	Hours per day usage	Quantity	Hours per day usage
Backhoe	79	2	7	1	7	3	7
Blade (Grader)	174	1	5	1	5	2	5
Broom	417	1	7			1	7
Bulldozer	352	1	7	1	7	2	7
Crane	190			1	5	1	5
Drilling rig/Micro-tunnel	190	1	5			1	5
Dump Truck	417	1	5	1	5	2	5
Loader	79	1	7	1	7	2	7
Water truck	417	1	7			1	7
Welding Truck	190	1	5	1	5	2	5

Notes:
Acreage per day = 1 acre
Average excavated material per day = 200 cubic yards
Construction Duration = 12 months

Since the Camp Roberts area is not within a federally designated non-attainment area for air pollutants, an Air Conformity Analysis would not be required. As discussed in Section 4.2.3, the county is in attainment for the federal standard for PM_{10} but is not in attainment for the State standard for PM_{10}. The Proposed Action includes implementation of SLOAPCD's standard dust reduction measures, which would reduce emissions of PM_{10} during project construction (see Section 2.3). No further environmental protection measures are required.

As discussed in Section 4.2.1, bedrock underlying Camp Roberts consists of the Paso Robles Formation, which may contain occasional cobbles of serpentine rock. Serpentine rock is known to contain chrysotile asbestos, a designated toxic air contaminant (TAC). However, due to the small quantities of serpentine rock occurring, it is not expected that excavation into the bedrock would result in the release of asbestos into the air.

Operational activities would include occasional vehicle trips to the storage reservoir for maintenance and monitoring. The vehicle emissions associated with these periodic trips would not exceed annual *de minimis* thresholds established in the federal CAA.

5.2.2 No Action Alternative

Under the No Action Alternative, the pipeline route would be established around the perimeter of the Camp Roberts property. The air emissions associated with construction activities of the pipeline circumventing Camp Roberts would be similar to the emissions of the Proposed Action. Therefore, the No Action Alternative would result in similar effects to regional air quality.

5.3 Noise

An action would result in an adverse noise impact if it would violate federal, State or local standards or regulations established by General Plan policies or noise ordinances. An action could also result in adverse noise impacts if ambient noise levels were increased by over 5 dBA.

5.3.1 Proposed Action

Construction of the pipeline and storage tanks would temporarily increase ambient noise levels near the construction area. The increase would be limited to the daytime hours proscribed by the County Noise Ordinance. Within 500 feet of the pipeline alignment, construction noise levels would measure approximately 75 dBA. This increase is over 35 dBA greater than ambient noise levels in the open space areas.

The pipeline route would traverse undeveloped areas across Camp Roberts. The alignment would leave Camp Roberts property approximately 2,000 feet from 3,600 residences. The pipeline alignment would continue to within a few hundred feet of the residences off Camp Roberts property. Construction of the pipeline is anticipated to progress at a minimum of 200 feet per day. Construction activities in any one area would last for two or three weeks.

The proposed storage reservoir on Camp Roberts property is located approximately 4,500 feet from the nearest residences. Day-time noise from the storage reservoir construction activities could reach levels of 60 dBA at the residences located at a distance of approximately 4,500 feet.

The construction activities would comply with the County Noise Ordinance schedule restrictions. No significant impact to sensitive receptors would be experienced from construction.

Operation of the NWP would not increase noise levels in the undeveloped area. No stationary noise or vibration sources would be installed as part of the project. No adverse noise impacts would occur as a result of the Proposed Action.

5.3.2 No Action Alternative

No adverse noise impacts would occur as a result of the No Action Alternative because no construction activities would occur and the property would remain unchanged.

5.4 Geology and Soils

An action would result in adverse effects if people or structures were exposed to geologic or seismic hazards due to severe ground shaking, rupture of a known earthquake fault, erosion, liquefaction, expansive soils, or landslides.

The greatest earthquake threats to water supplies are seismic shaking, fault rupture, and liquefaction (Applied Technology Council, 1992). Seismic shaking can cause major damage to point features such as WTPs, storage tanks, and pump stations, but account for a very small

portion of damage to linear features such as pipelines (Applied Technology Council, 1992). Fault rupture may produce extensive damage to underground pipelines within a few hundred feet of the rupture, and liquefaction causes widespread damage to pipelines (Applied Technology Council, 1992). Point features (such as the proposed storage tank) could also be damaged within fault rupture and liquefaction zones (Applied Technology Council, 1992).

5.4.1 Proposed Action

No significant adverse effects to geology and soils are expected from the Proposed Action. Construction activities within the proposed easement could accelerate erosion. The effects of erosion would be mitigated with the preparation of an Erosion Control Plan in conjunction with a SWPPP that contains BMPs to ensure that exposed soils are protected. This issue is further addressed in Section 5.4, Environmental Consequences, Water Resources. Additionally, there is the potential for accelerated erosion during NWP operation if the pipeline segment was to rupture or the storage tank was to leak. This issue is further addressed in Section 5.4 as well.

Although the easement is traversed by the Riconada fault, no Alquist-Priolo Fault Zones occur within the construction area because the Riconada fault is considered inactive. Therefore, the possibility of ground rupture is considered remote. Severe ground shaking could occur resulting from any of the nearby active faults. Strong seismic ground shaking could damage the pipeline segment and/or storage tank. The San Andreas is the most active fault (class A-fault) within SLO County and is most likely to generate the strongest shaking and could damage the proposed facilities within the easement. The Riconada fault (class B-fault, which underlies the easement) could also generate strong shaking that could damage facilities. The pipeline and storage tank would be designed to resist seismically-induced ground shaking for class A- and B-faults per requirements of the Uniform Building Code. Additionally, as part of the project, additional investigations will be conducted to further clarify the ground-rupture potential of this fault and to make design recommendations to protect the pipeline from rupture, ground shaking and liquefaction (County of San Luis Obispo, 2003).

Some areas within the easement are prone to landslides. Operations of the belowground pipeline and storage tank would not be affected by landslides. During construction, workers would have limited exposure to landslides within these areas, and the probability of a landslide occurring while workers are present is remote. Work areas would comply with Occupational Safety and Health Administration (OSHA) standards. Therefore, landslide hazards are not considered significant.

During operation of the NWP, expansive soils could damage the underground pipeline if the soil possesses enough clay content to cause deformation of the pipeline due to the continual shrinkage and swelling of the soil. The pipeline and storage tank would be designed to avoid impacts from expansive soils per the requirements of the Uniform Building Code. No significant impacts would occur from geologic hazards.

During construction of the pipeline and storage tank, groundbreaking activities could temporarily disturb soils that qualify as Prime Farmland. However, trenched soils would be used as backfill to

the greatest extent possible, resulting in no significant permanent impact to potential Prime Farmland soils. The placement and operation of the storage tank could result in the permanent loss of less than an acre of potential Prime Farmland, which is insignificant relative to the total acreage of Camp Roberts. The soils are not irrigated and do not qualify for Prime Farmland designation. Therefore, no significant impacts to Prime Farmland would occur due to the Proposed Action.

5.4.2 No Action Alternative

No adverse effects with regard to geology and soils are expected because the No Action Alternative would involve a continuation of existing conditions within Camp Roberts.

5.5 Water Resources

Impacts on water resources generally include changes in water quality, changes in the quantity of water available for existing or potential beneficial uses, changes in hydraulic conditions, and changes in the potential for flooding. Adverse impacts are judged to be significant if they result in noncompliance with regulatory standards, plans, or policies, or reduce the existing or potential beneficial uses of water. Otherwise the significance of impacts is based on the degree to which they may harm people or the environment.

5.5.1 Proposed Action

No significant adverse impacts to water resources are expected from the Proposed Action. Construction activities may require the onsite storage and use of hazardous materials such as fuels and lubricants. The accidental release of hazardous materials during construction could adversely affect surface water quality and groundwater quality. In addition, construction activities could expose soils to erosion that could increase sedimentation in local waterways. A SWPPP and HazMat Plan would be prepared by SLOCFCWCD to address the potential for accidental releases of contaminants, erosion, and sedimentation during construction. Implementation of BMPs included within the SWPPP would ensure that accidental spills do not adversely affect soil or water quality. The SWPPP also would include an Erosion Control Plan. With implementation of the SWPPP by SLOCFCWCD, construction within the proposed easement would not result in an adverse effect to water quality.

Construction in streambeds would occur during the dry summer season. However, to mitigate the effects of storm water due to unexpected rain events, construction workers would implement a Emergency Construction Site Securing Procedure (ECSSP), which would be subject to approval by the CA ARNG Environmental Directorate. Compliance with the ECSSP would ensure that equipment, materials, and the pipeline trench would not be damaged during unforeseen precipitation events. The ECSSP also would include methods to ensure stabilization of soils to avoid downstream sediment transport.

Operation of facilities within the proposed easement could cause accelerated erosion if the pipeline ruptured or the storage tank leaked. The pipeline would be designed to include

checkpoints and shut off valves in order to isolate reaches. The proposed project includes implementation of an emergency response plan that highlights emergency repair procedures in case of accidental rupture. The plan also outlines regular inspection and maintenance programs. Compliance with these requirements would reduce potential erosion impacts from a rupture or tank leak to less than significant levels.

The presence of the storage tank facility would decrease the amount of permeable surface area, thereby increasing storm water runoff. The percentage change in permeable surfaces relative to the existing condition would be minimal, resulting in only a minor change in the quantity or rate of surface runoff. Therefore, effects to storm water runoff, flooding, or water quality would not be significant.

5.5.2 No Action Alternative

No adverse effects with regard to water resources are expected because the No Action Alternative would involve a continuation of existing conditions within Camp Roberts.

5.6 Biological Resources

An action would cause an adverse impact on biological resources if it would result in harm to plant or wildlife species or habitats. The loss of federally-listed or State-listed endangered or threatened species, or other federal, State, or locally regulated sensitive species, or the loss or degradation of habitat supporting such species would be considered significant impacts. The loss of sensitive habitats such as wetlands or oak woodlands, would also be considered a significant impact because such habitats support many species (rare and common) during sensitive life stages, such as breeding and rearing. A project-induced population level decline of any native or naturalized plant or animal species also would be considered a significant adverse impact.

The Proposed Action would have a less than significant adverse effect on biological resources with successful implementation of mitigation measures, including restoration and monitoring activities, as described in the following section. In accordance with Section 7 of the Endangered Species Act, the consultations with the USFWS, NMFS, and USACE for the NWP are complete (see Appendix A for correspondence). NMFS agrees with the finding that the NWP, including the Proposed Action, would not have a significant adverse effect on biological resources. USFWS agrees that the NWP, including the Proposed Action, would not jeopardize the continued existence of vernal pool fairy shrimp. A very small amount of low-quality vernal pool fairy shrimp habitat would be affected by the NWP. An incidental take permit for vernal pool fairy shrimp and habitat on Camp Roberts has been authorized by USFWS (see Appendix A).

In accordance with Section 404 of the Clean Water Act, the USACE has issued a Nationwide Permit 12 for the NWP, including Camp Roberts, indicating the Proposed Action would have a less-than-significant impact on wetlands and waters of the U.S (see Appendix A). A Nationwide Permit 12 is issued when utility line activities, such as pipeline construction and maintenance, would not result in the loss of more than 0.5 acres of waters of the U.S.

5.6.1 Proposed Action

No significant adverse effects on biological resources, including federally-listed species and their critical habitat, are expected as a result of the Proposed Action. With the implementation of the environmental protection measures described in Section 2.3, construction of the pipeline and storage tank should not result in significant adverse effects to special-status or migratory birds (such as bald eagles, California condors, and burrowing owls), San Joaquin kit fox, or S-CCC steelhead trout. The pipeline would be constructed across the Nacimiento River using HDD, avoiding direct impacts to the stream channels and thus avoiding injury or mortality to S-CCC steelhead due to short-term sedimentation, turbidity, and reduction in food sources.

Construction of the pipeline would have a direct impact on two vernal pools and could have an indirect impact on up to eight other vernal pools as described in the biological assessment (Appendix B). The incidental take of vernal pool fairy shrimp and their habitat is authorized by USFWS under Biological Opinion 1-8-07-F-10 (March 30, 2007). The Biological Opinion states that the NWP "would not jeopardize the continued existence of vernal pool fairy shrimp" and therefore associated incidental take of this species is permitted. This Biological Opinion also requires implementation of the avoidance and mitigation measures described in Section 2.3 to avoid and reduce impacts to vernal pool fairy shrimp to the extent possible.

In addition to sensitive species, the construction of the pipeline through Camp Roberts could require removal of up to approximately 500 oak trees. However, with implementation of the Oak Tree Mitigation & Monitoring Plan (OTMMP), as described in Section 2.3, there would be no significant adverse effects to sensitive habitats such as oak woodlands. The (OTMMP) provides guidelines for the implementation of mitigation and monitoring requirements as set forth in the NWP EIR (Mitigation Measure BR-10) for direct and indirect impacts to oak trees and oak woodlands, including Camp Roberts. The OTMMP complies with the INRMP Oak Replacement Policy for construction activities (California Army National Guard, 2001), and requires any oak trees removed from Camp Roberts to be replaced at a ratio of 3:1 (three surviving trees for each tree removed). Replacement trees shall be planted on Camp Roberts in the areas identified in the OTMMP, preferably sloped areas near existing mature oak trees that are not used for training exercises.

The construction of the pipeline through Camp Roberts would have a minimal effect on wetlands and waters of the U.S. The USACE Nationwide Permit 12 allows utility pipeline construction though waters of the U.S. as long as pre-construction contours are not changed. The Nationwide Permit 12 also includes, but is not limited to, the following conditions for activities in waters of the U.S.: breeding areas for migratory birds must be avoided to the extent feasible; minimize soil disturbance in wetlands and mudflats; use appropriate soil erosion and sediment controls; perform work during periods of low-flow or no-flow if possible.

Table 5-3 provides a summary of the biological resources affected by the Proposed Action and the source and location of the details of the measures described in Section 2.3.

TABLE 5-3
SUMMARY OF BIOLOGICAL RESOURCES AFFECTED WITHIN CAMP ROBERTS AND THE SOURCE AND LOCATION OF THE PROPOSED MITIGATIONS

	Source Document	Location	Section	Page
Bald Eagles	USFWS Biological Assessment	Appendix B	4.6	46
San Joaquin Kit Fox	USFWS Biological Assessment	Appendix B	4.7	48
Steelhead Trout	NMFS Biological Assessment	Appendix C	4.2	4-4
Vernal Pool Fairy Shrimp	USFWS Biological Assessment	Appendix B	4.1	42
Oak Trees	Oak Tree Mitigation and Monitoring Plan	Appendix H	4.2	12

SOURCE: ESA, 2006; SLOC, 2006.

5.6.2 No Action Alternative

No adverse biological resources effect would occur because the No Action Alternative would not change existing conditions on Camp Roberts.

5.7 Cultural Resources

An action would result in significant adverse effects to cultural resources if it were to negatively alter the integrity of significant historical resources, disrupt a prehistoric, historic, or archaeological site, or conflict with unique ethnic cultural values or religious or sacred uses within the APE.

5.7.1 Proposed Action

No significant effects to cultural resources or Native American sites are expected due to the Proposed Action. The APE for construction of the pipeline and storage tank was field verified; the APE does not include, and therefore would not affect, CA-SLO-670 (ESA, 2006). It is not possible to avoid the other four cultural resource sites within the APE due to physical site constraints (CA-SLO-1169, CA-SLO, 2215, CA-SLO-1180, and CA-SLO-2210). However, implementation of the pre-construction data recovery program as described in the Archaeological Research Design and Treatment Plan (ARD/TP) (Albion 2007) would resolve the adverse effects to these resources that may otherwise result from the project actions. All cultural resources sites would be unaffected by operation of the NWP

The ARD/TP describes a plan for data recovery mitigation of archaeological sites identified in the project APE. The ARD/TP is intended to serve as part of the mitigation recommended by the Final EIR (Mitigation CR-12) and in consultation with the Army Corps of Engineers to resolve the potential adverse effects to the historic properties in accordance with Section 106 procedures.

The ARD/TP begins with a description of the environmental context of the region, focusing on contemporary and past environmental conditions. This is followed by a discussion of the prehistory of the region, with specific emphases placed on cultural chronology and the history of

regional research. The ethnographic context of the region is then discussed, with a focus on the lifeways of the ethnohistoric northern Chumash and Salinan. A summary of regional research issues of importance to archaeologists working in the region is then presented. Specific descriptions of the seventeen archaeological sites are then presented, including their location, dimensions, major characteristics, previous excavation results, constituents, and current NRHP eligibility status. Proposed investigation/field methods are next presented, including field methods (for both evaluation and data recovery), laboratory processing, special studies, excavation report and curation. The final sections are devoted to Native American coordination and procedures to be followed in the event of unanticipated discoveries (including the discovery of human remains and additional archaeological sites).

Groundbreaking activities have the potential to unearth previously unknown cultural resources. However, the cultural resources monitoring plan includes a method of dealing with unexpected encountered resources, and significant adverse impacts are not anticipated.

In addition, all project actions will follow the policies for addressing inadvertent discoveries of historical properties outlined in SOP 11 of the CAARNG *Integrated Cultural Resource Management Plan* (2004: 5-65).

5.7.2 No Action Alternative

No adverse effects to cultural resources are expected because the No Action Alternative would involve a continuation of existing conditions within Camp Roberts.

5.8 Socioeconomics

An action would result in adverse socioeconomic effects if it were to cause an increase in population or the demand for housing, schools, public services, or community facilities and parks. Adverse effects also would result from the displacement of a large number of people, especially from decreases in affordable housing, local employment, or accessibility of community facilities and parks. An effect also would be considered adverse if it impacted public health and safety.

5.8.1 Proposed Action

No adverse effects are expected. The Proposed Action would have short-term beneficial impacts on socioeconomics because it would temporarily increase employment and associated regional spending during construction of NWP facilities. The Proposed Action would not result in direct, long-term impacts to population, employment, housing or schools because operation of NWP facilities would not require additional employees, which would affect local demographics, economics, and public services. The greater NWP could have an indirect effect on population growth because the project would introduce a new source of water, the lack of which is considered an obstacle to growth. However, the Proposed Action would not result in indirect impacts to population growth because the NWP is an approved project and would be constructed and implemented with or without the Proposed Action. In addition, local population and housing growth would be in accordance with approved General Plans and planning policies.

The Proposed Action would not result in significant adverse effects to recreational resources. The proposed easement and NWP facilities are located in designated hunting areas on Camp Roberts, which could disrupt hunting activities temporarily during construction. Once construction is complete, however, the below ground pipeline and the above ground storage tank would not have long-term impacts on hunting or other recreational activities.

The Proposed Action would not result in significant adverse effects to the safety or health of children. Currently, there are seven residents residing within the Camp Roberts RV Park, none of which are children. There are no parks or schools near the proposed easement where children may be present. Therefore, children would not be in proximity to the proposed easement during construction of the NWP facilities. Once constructed, operation of NWP facilities within the proposed easement would cause no risks to the safety or health of children.

5.8.2 No Action Alternative

No adverse impacts on socioeconomics would occur under the No Action Alternative because existing conditions and operations in and around Camp Roberts would not change.

5.9 Environmental Justice

An action would generate adverse environmental justice effects if it were to disproportionately decrease socioeconomic opportunities or to increase adverse health and environmental conditions within minority or low-income populations. Significant impacts to race and social condition are estimated by comparing the demographics of the area around and including the Proposed Action with the demographics of the region.

5.9.1 Proposed Action

The Proposed Action would have no adverse environmental justice impacts. Areas surrounding and including Camp Roberts do not have greater proportions of minority or low-income residents relative to the State of California or SLO County. Therefore, none of the effects of construction and operation of the pipeline and storage tank on Camp Roberts would disproportionately affect minority or low-income groups.

5.9.2 No Action Alternative

Under the No Action Alternative, existing conditions and operations on Camp Roberts would remain unchanged. Therefore, there would be no adverse impacts on minority or low-income groups.

5.10 Infrastructure

Adverse impacts to infrastructure from the Proposed Action include increased demand on utility systems, including water, wastewater, and storm water systems, electricity, and solid waste. This demand would be considered significant if it were to create the need for installing new utility systems or substantially expanding existing utility systems.

5.10.1 Proposed Action

Construction of the pipeline segment and storage tank within the proposed easement would not result in significant adverse environmental effects to infrastructure. Construction of the pipeline and storage tank would not require the use of natural gas, electricity (other than electricity generated by gasoline-powered generators), or telecommunications. Construction within the proposed easement is designed and required to comply with federal, State, and local statutes and regulations related to solid waste. During construction, the project proponent would balance cut and fill materials onsite (i.e., cut soil would be used as backfill) to reduce spoil as much as possible. It is not anticipated that construction would generate a need for disposal of spoil soil as the spoil would be spread over the disturbed easement area as part of restoration. Other remaining construction debris and excess materials may be generated and require disposal. Short-term impacts to waste disposal services are considered insignificant due to the availability of the Camp Roberts Landfill. If the proposed Camp Roberts Landfill Expansion project (see Section 5.13.1 below) is underway during construction of the NWP and the landfill is temporarily unavailable to receive solid wastes, alternate disposal sites such as the Cold Canyon Landfill in San Luis Obispo would be utilized. Where possible, other construction-related solid waste generated by construction would be recycled to the greatest extent possible. Remaining material would be taken to the Camp Roberts Landfill, which has sufficient capacity to accommodate construction-related solid waste and is an approved disposal site for spoil soil (Class I).

If previously unknown hazardous materials or other contaminated soils (Class II) are uncovered during groundbreaking activities, these materials would be disposed of either at the Kettleman Hills, McKittrick, or Clean Harbors Buttonwillow facility, which have sufficient capacity.

Groundbreaking activities within the proposed easement would not damage underground utilities because the Proposed Action includes a utility survey that would be conducted prior to groundbreaking. Regional transportation systems would be utilized temporarily by construction employees and for delivery/disposal of construction equipment and materials. Additional vehicles would not affect the levels of service on public roadways and would not have significant adverse effects. Roads on Camp Roberts may be congested and/or temporarily unavailable during construction. However, impacts would be short term and damage to roads would be restored following construction. Construction activities may also temporarily disrupt military training (i.e., Pacific Warrior) occurring at Camp Roberts. However, such impacts would be short-term and less than significant.

Operation of the pipeline segment and storage tank on Camp Roberts also would not result in significant adverse environmental effects to infrastructure. Operation of the new facilities would not have a significant affect on water demand, storm water runoff, wastewater treatment, or solid waste disposal within Camp Roberts. There would be minimal electrical demand for exterior lighting around the storage tank. This demand would not require expansion or construction of electrical facilities and is not significant.

5.10.2 No Action Alternative

No adverse effects on infrastructure are expected because the No Action Alternative would involve a continuation of existing conditions within Camp Roberts.

5.11 Hazardous Materials and Wastes

Significant adverse effects due to hazardous materials and wastes would occur if an action were to increase the risk of accidental explosion of military ordnance, encounters with contaminated soils, exposure to asbestos-containing dust or other health hazards, or accidental release of construction-related hazardous materials.

5.11.1 Proposed Action

No significant adverse effects due to hazardous materials and wastes are expected for the Proposed Action. Two areas of contamination have been identified near the proposed easement and other areas of unknown contaminated soils could also exist in the easement area. During construction, there is a potential for workers to encounter unexploded ordinance and contaminated soils. The environmental protection measures included in Section 2.3 would reduce potential impacts to worker health and safety to less than significant levels. Protection measures include pre-construction surveys for contaminated soils, worker health and safety programs, and a HazMat Plan.

Bedrock underlying Camp Roberts consists of the Paso Robles Formation, which may contain occasional cobbles of serpentine rock. Serpentine rock is known to contain chrysotile asbestos, a designated toxic air contaminant (TAC). However, due to the small quantities of serpentine rock occurring, it is not expected that excavation into the bedrock would result in the release of asbestos into the air.

Construction of the pipeline and storage tank within the proposed easement would require the onsite storage and use of hazardous materials such as fuels and lubricants. Accidental release of these materials could affect soil and water quality. Implementation of the SWPPP and Pollution Prevention Plan (Section 2.3) would ensure that accidental spills do not adversely affect soil or water quality.

5.11.2 No Action Alternative

No adverse effects with regard to hazardous and toxic materials/wastes are expected because the No Action Alternative would involve a continuation of existing conditions within Camp Roberts.

5.12 Mitigation Measures

Mitigation measures are actions used to avoid, minimize, rectify, reduce, or compensate for adverse effects from a project. In an EA, mitigation measures are required to be implemented if they reduce an adverse environmental impact below the significant level. As described in **Section 2.3**, the SLOCFCWCD will implement several environmental protection measures as

part of the Proposed Action. The environmental protection measures include mitigation measures that reduce potentially-significant adverse effects of construction of the NWP through Camp Roberts below the significant level. Implementation of the Proposed Action with those measures would reduce adverse environmental effects to air quality, biological resources, cultural resources, water resources, and noise levels to less-than-significant levels, and would reduce adverse environmental effects due to hazardous materials and waste to less-than-significant levels. The environmental protection measures described in Section 2.3 also include mitigation measures for minor adverse effects of the Proposed Action and best management practices.

5.13 Cumulative Effects

This subsection describes cumulative projects and discusses the cumulative effects of those projects when considered in combination with the previously identified effects of the Proposed Action.

5.13.1 Cumulative Projects

Cumulative projects include regional past, present, and reasonably foreseeable actions. The cumulative projects were identified by consulting with the County of San Luis Obispo Department of Planning and Building, California Department of Transportation (Caltrans) and CA ARNG.

Three related projects were identified for consideration in the cumulative analysis, all three of which are proposed to occur within Camp Roberts: Landfill Expansion Project, High Water Bridge Project, and the Waterline Replacement Project. Timing of all three proposed projects would be dependent on funding and regulatory permitting. Pursuant to NEPA, CANG is in the process of preparing Environmental Assessments for the Landfill Expansion Project and High Water Bridge Project; CANG has completed a Categorical Exclusion and Record of Environmental Consideration for the Waterline Replacement Project. Assuming the best case scenario, construction of the Landfill Expansion Project is anticipated to occur over a 9 – 12 month period beginning at the earliest in winter 2007. Currently, the proposed Waterline Replacement Project is in redesign to avoid certain archaeological impacts. If redesign proves successful, currently construction could begin over a 4 month period as early as fall 2007. The High Water Bridge project is currently in the initial processing stage and could be under construction for a 12 – 24 month period by summer 2007.

There are no planned Caltrans projects in the vicinity of the Proposed Action (California Department of Transportation, 2006a). Projects considered in SLO County include funded/ planned public works projects and approved/planned private development projects. The two most substantial cumulative projects in the vicinity of the Proposed Action on Camp Roberts are the NWP (considered in its entirety as described in Section 2.2.1, NWP Project Description), and the Monterey County Salinas Valley Water Project (SVWP), which is described below.

County of San Luis Obispo

Various residential and commercial development projects are planned in the communities of Heritage Ranch and San Miguel in SLO County (County of San Luis Obispo, 2005). As an indication of cumulative development within the county, information on population, residential construction, and employment is presented below.

Population growth in SLO County has been fluctuating since the 1970s. Since 1970, the average annual growth rate has fluctuated between a low of 2 percent and a high of 5.3 percent. Population is projected to grow 1.8 percent between 2005 and 2010, with an annual average growth rate of 1.2 percent (County of San Luis Obispo, 2003e). Based on the county's projections, the population will increase from 248,158 in 2000 to 284,735 in 2010 (County of San Luis Obispo, 2003e).

The total residential build out capacity area for SLO County is 3,094 acres (County of San Luis Obispo, 2003e). As part of a five-year housing program that started in January 2004, the County is facilitating the development of 3,554 new housing units (County of San Luis Obispo, 2004a).

Monterey County Salinas Valley Water Project (SVWP)

The Monterey County Water Resources Agency (MCWRA) is the public agency that has responsibility to manage and ensure preservation of water resources in the Salinas Valley. As such, MCWRA has developed the Monterey County Salinas Valley Water Project (SVWP) with the purpose to meet the following objectives:

- stopping sea water intrusion into the groundwater basin;
- providing adequate water supplies to meet current and future (year 2030) needs; and
- improving the hydrologic balance of the groundwater basin in the Salinas Valley.

The Draft EIR/EIS for the SVWP was published in June 2001. The proposed SVWP includes several actions, including:

- Modification of the Nacimiento Dam spillway to increase spillway capacity and allow the reservoir to store a higher volume of water throughout the wet season. The surface elevation would not change.
- Reoperation of Nacimiento and San Antonio Reservoirs to store more water during the wet season for release during the irrigation season.
- New diversion/impoundment facilities on the northern reach of the Salinas River to divert an average of 9,700 afy for irrigation during April through October.

The SVWP would not be constructed concurrently with the NWP. Therefore there are no cumulative, short-term, construction-related impacts to consider for the SVWP and the Proposed Action.

5.13.2 Proposed Action

Only those resources affected by both the Proposed Action and the cumulative projects are considered to have cumulative effects. Resources experiencing cumulative effects are discussed in this section. Those resources not discussed are determined to have no cumulative effects. No significant, adverse, cumulative effects resulting from the Proposed Action have been identified.

Land Use and Aesthetics

Cumulative impacts to aesthetic resources would occur during construction of the Proposed Action, related development projects in Camp Roberts, and the greater NWP. The NWP includes construction of additional above-ground facilities such as pump stations, water tanks, and discharge facilities. The approved NWP has incorporated measures to mitigate adverse impacts to aesthetic resources due to the presence of new structures in rural landscapes. Similar to the Proposed Action, the NWP would use native landscaping, vegetation screening, and rural architectural design to blend new structures into the surrounding environment. Related projects would also be subject to environmental review and would likely incorporate mitigation measures such as the use of native landscaping, vegetation screening, and rural architectural design . The cumulative impact to aesthetic resources would be less than significant.

Air Quality

Regional air emissions would increase as a result of the construction of cumulative projects. SLO County is in attainment or unclassified for all federal air quality criteria (O_3, CO, NO_x, SO_x, $PM_{2.5}$, PM_{10}). Emissions due to construction are temporary and would not affect long-term air quality in the region. Construction within the Camp Roberts property would add to the emissions associated with construction of the project off-base in addition to other cumulative projects in the region. The cumulative net increase in emissions due to construction of cumulative projects would be temporary and would not result in a reclassification of SLO County to non-attainment for any of the federal criteria air pollutants.

Noise

The simultaneous construction of public works and development projects would increase local noise levels. These increases would be temporary and intermittent and not considered significant because the SLO County Noise Ordinance does not define an (un)acceptable sound level limit for temporary construction activities. The operation of the Proposed Action would have no impact on noise levels, and therefore would not contribute to long-term cumulative noise impacts.

Geology and Soils

The geology and soils affected by the Proposed Action are limited to Camp Roberts. However, the Proposed Action is part of the greater NWP, which continues to the east and west of the installation. In addition, development projects are planned in the adjacent communities of Heritage Ranch and San Miguel. Construction of these public works and development projects

are likely to increase the disturbance of soil and the overall volume of soil in storm water runoff. These effects would be mitigated for each project through implementation of required SWPPPs and construction BMPs that minimize runoff. Therefore, cumulative construction impacts to geology and soils are considered less than significant. Operation of the Proposed Action would have no effect on geology and soils, and therefore would have no long-term cumulative effect on geology and soils.

Water Resources

The construction of cumulative public works and development projects would increase the potential for soil erosion and sedimentation in surface waters due to ground-disturbing activities. Construction also could compromise cumulative surface water quality due to accidental release of hazardous materials (e.g., fuels and oils) into drainages. Any construction projects on sites greater than one acre are required to implement a SWPPP to minimize the effects of construction on surface water. Implementation of SWPPPs would reduce the cumulative effects of projects on surface water quality to less than significant levels. Operation of the Proposed Action would not have a cumulative effect on surface water quality because all permanent, above-ground development, including the Camp Roberts' storage tank, would be required to design facilities to direct storm water runoff into appropriate drainages or collection facilities.

Biological Resources

Impacts to biological resources generally are a local occurrence and site-specific. Cumulative development projects on Camp Roberts and in the vicinity could affect sensitive biological resources. Construction of the NWP and the related projects on Camp Roberts and in the vicinity could affect sensitive biological resources in the vicinity of Camp Roberts similar to those affected by the Proposed Action (e.g., vernal pools, oak woodlands, San Joaquin kit fox); however, the NWP has incorporated the same mitigation measures to reduce impacts to less than significant levels. Furthermore, related projects in and around Camp Roberts would be subject to environmental review and would likely incorporate appropriate mitigation measures to ensure that impacts would be less than significant. Operation of the SVWP and NWP could result in cumulative effects to fisheries; however the impacts would be insignificant because there is only a small influence to hydrology from cumulative projects combined (County of San Luis Obispo, 2003).

Socioeconomics

Cumulative projects would have short-term beneficial impacts on socioeconomics because employment, associated regional spending, and demand for services in the region would increase temporarily during construction. As a public works project, the Proposed Action would not contribute to direct, long-term cumulative effects on housing, population, employment, schools, or recreational resources. Operation and maintenance of the pipeline and storage tank on Camp Roberts would not bring a significant number of additional employees and residents to the local area.

As water supply projects, operation of the SVWP and NWP could contribute to indirect cumulative effects on population growth because introducing a new water supply removes an obstacle to growth. However, as part of the greater NWP, the Proposed Action itself would not make an incremental contribution to cumulative growth inducement because the approved NWP would be constructed and implemented regardless of the Proposed Action. An alternative alignment around Camp Roberts would be implemented if the proposed easement is not approved.

Infrastructure

Cumulative projects could impact public infrastructure systems such as storm water and transportation systems. All development and public works projects (greater than one acre in size) would be required to implement a SWPPP during construction and to implement project design features to properly manage any operational increases in storm water runoff due to increases in impervious surfaces. As a result, cumulative impacts to storm water collection systems would be less than significant.

Construction of cumulative projects could affect traffic and levels of service on local and regional roadways due to road closures and the addition of construction-related vehicles. Traffic Control Plans would be developed for the NWP and development projects to mitigate construction-related traffic impacts (County of San Luis Obispo, 2003). As a result, short-term cumulative impacts to transportation would be less than significant. Operation of the Proposed Action would not contribute to long-term cumulative impacts to transportation systems because operation and maintenance of the pipeline and storage tank on Camp Roberts would not require bringing permanent additional employees and residents to the local area.

Hazardous Materials and Waste

Construction of cumulative projects could increase the potential for accidental releases of petroleum products into the environment. Similar to the Proposed Action, the NWP and development projects (greater than one acre) would be required to implement SWPPPs and HazMat Plans during construction to mitigate for accidental releases of hazardous materials into soils and surface waters. As a result, associated cumulative impacts would be considered less than significant. In addition, during construction of the NWP, serpentine soils could be disturbed or discovered during ground-disturbing activities. The same mitigation measures incorporated into the Proposed Action for protecting worker health and safety have been adopted by the NWP; therefore, there are no cumulatively-considerable impacts to public health.

SECTION 6
Comparison of Alternatives and Conclusions

6.1 Irreversible and Irretrievable Loss of Resources

Irreversible and irretrievable resource commitments are related to the use of nonrenewable resources and the effects this use could have on future generations.

Irreversible effects primarily result from the use or destruction of a specific resource (e.g., energy and minerals) that cannot be replaced within a reasonable time frame. Irretrievable resource commitments involve the loss in value of an affected resource that cannot be restored as a result of the action (e.g., extinction of a threatened or endangered species or the disturbance of a cultural resource). The Proposed Action and Alternatives would not result in a considerable commitment of nonrenewable resources.

Project construction would require the irretrievable commitment of fossil fuels (diesel and gasoline), oils, and lubricants used by construction equipment and by workers commuting to the site. Construction materials and some equipment that may not be productively recycled would be consumed by the project. Ongoing operation and maintenance of the pipeline and storage tank facilities would use marginal amounts of fuels, lubricants, and other nonrenewable consumables.

6.2 Comparison of the Environmental Consequences of the Alternatives

The environmental effects of the Proposed Action and the No Action Alternative are presented in **Table 6-1**. The Proposed Action would have beneficial effects on socioeconomics and no effect on environmental justice. The adverse effects of the Proposed Action on land use and aesthetics, air quality, noise, geology and soils, water resources, biological resources, cultural resources, infrastructure, and hazardous and toxic materials and waste would not be significant. The only adverse effect expected under the No Action Alternative would be on air quality, which would not be significant.

6.3 Conclusions

Based on this EA, implementing the Proposed Action would have no potentially significant direct, indirect, or cumulative effects on the quality of the natural or human environment, provided the environmental protection measures included in Section 2.3 are implemented. An

TABLE 6-1
SUMMARY OF ENVIRONMENTAL EFFECTS

Resource	Proposed Action	Proposed Action Cumulative	No Action Alternative
Land Use and Aesthetics	⊖	⊖	○
Air Quality	⊖	⊖	⊖
Noise	⊖	⊖	○
Geology and Soils	⊖	⊖	○
Water Resources	⊖	⊖	○
Biological Resources	⊖	⊖	○
Cultural Resources	⊖	○	○
Socioeconomics	⊕	⊕	○
Environmental Justice	○	○	○
Infrastructure	⊖	⊖	○
Hazardous and Toxic Materials and Waste	⊖	⊖	○

LEGEND:

● = Significant adverse effect
⊖ = Less than significant adverse effect
⊕ = Beneficial effect
○ = No effect

EIS is, therefore, not required, and a FNSI will be published. The CA ARNG plans to implement the Proposed Action, its preferred alternative.

Based on the analysis in this EA, the Proposed Action does not have the potential to degrade the quality of the environment, to substantially reduce the habitat of a fish or wildlife species, to cause a fish or wildlife population to drop below self-sustaining levels, to threaten to eliminate a plant or animal community, to reduce the number or restrict the range of a sensitive species or State or federally listed species, or to eliminate important examples of the major periods of California history or prehistory. As described in Section 5.13, the Proposed Action does not have impacts that are individually limited but cumulatively considerable. In addition, the Proposed Action does not have environmental effects that would have substantial adverse effects on human beings, either directly or indirectly.

SECTION 7
References

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SECTION 8
List of Preparers

Tom Roberts, CWB
M.S. Wildlife Biology
B.A. Anthropology
Years of Experience: 25
(Project Director)

Jennifer Jacobus, PhD
Ph.D. Natural Resources & Environment
M.A. Geography
B.A. Economics
Years of Experience: 8
(Project Manager, Land Use, Biological Resources, Socioeconomics, Environmental Justice)

Tom Barnes, REA
Years of Experience: 16
(Air Quality, Noise)

Dean Martorana, RPA
M.A. Anthropology
Years of Experience: 10
(Cultural Resources)

Jennifer M. Farquhar
M.A. Anthropology
Years of Experience: 18
(Cultural Resources)

Steve Esselman
M.A. Geography
B.A. Geography
Years of Experience: 5
(Geology and Soils, Water Resources, Infrastructure, Hazardous and Toxic Materials and Waste)

Rachel Kwok
M.A. Environmental Management
B.S. Environmental Policy Analysis and Planning
Years of Experience: 6
(Interim Project Manager)

SECTION 9
Agencies and Individuals Consulted

9.1 Federal Agencies

- US Fish and Wildlife Service, Ventura Field Office: Diane K. Noda
- National Marine Fisheries Service
- US Army Corps of Engineers, San Francisco District

9.2 State Agencies

- Native American Heritage Commission: Rob Wood, Environmental Specialist
- Central Coast Regional Water Quality Control Board
- California State Water Resources Control Board
- California Department of Fish and Game
- California Department of Transportation
- California Army National Guard: Douglas A. Bryceson, Senior Environmental Planner
- California Army National Guard, Camp Roberts Environmental Office: Mark Williams, Environmental Office Lead; Ethan Bertrando, Archaeologist
- California State Information Office at University of California, Santa Barbara
- California State Historic Preservation Office

9.3 County Agencies

- County of San Luis Obispo, Department of Public Works: Eric Wier, Environmental Resource Specialist; John R. Hollenbeck, P.E., Nacimiento Project Manager
- San Luis Obispo County Air Pollution Control District
- Monterey County Parks Department
- San Luis Obispo County Parks and Recreation

9.4 Individuals

- Boyle Engineering: Andrew Romer

9.5 Other Organizations

- Northern Chumash Tribal Council
- Salinan Council

Appendices

Appendix A
Agency Correspondence

ESA

DEPARTMENT OF THE ARMY
SAN FRANCISCO DISTRICT, U.S. ARMY CORPS OF ENGINEERS
1455 MARKET STREET
SAN FRANCISCO, CALIFORNIA 94103-1398

APR 25 2007

Regulatory Branch

SUBJECT: File Number 22374S

Ms. Lee Miles
Environmental Science Associates
225 Bush Street, Suite 1700
San Francisco, California 94104

Dear Ms. Miles:

This letter is written in response to your submittal on behalf of the County of San Luis Obispo concerning Department of the Army authorization to construct a 45 mile water pipeline and associated facilities in northern San Luis Obispo County between Lake Nacimiento and the City of San Luis Obispo.

Based on a review of the information you submitted your project qualifies for authorization under Department of the Army Nationwide Permit (NWP) 12 – Utility Line Activities, (72 Fed. Reg. 11092, March 12, 2007), pursuant to Section 404 of the Clean Water Act (33 U.S.C. Section 1344). See Enclosure 1. All work shall be completed in accordance with the plans and drawings contained in the Naciemento Water Project preconstruction notification dated April 21, 2006.

The project must be in compliance with the General Conditions cited in Enclosure 2 for this Nationwide Permit authorization to remain valid. Non-compliance with any condition could result in the suspension, modification or revocation of the authorization for your project, thereby requiring you to obtain an Individual Permit from the Corps. This Nationwide Permit authorization does not obviate the need to obtain other State or local approvals required by law.

This authorization will remain valid for two years from the date this letter is issued, unless the Nationwide Permit is suspended, modified or revoked. If you have commenced work or are under contract to commence work prior to the suspension, or revocation of the Nationwide Permit and the project would not comply with the resulting Nationwide Permit authorization, you have twelve (12) months from that date to complete the project under the present terms and conditions of the Nationwide Permit. Upon completion of the project and all associated mitigation requirements, you shall sign and return the Certification of Compliance, Enclosure 3, verifying that you have complied with the terms and conditions of the permit.

This Corps permit does not authorize you to take an endangered species. In order to legally take a listed species, you must have a separate authorization under the Endangered Species Act (ESA) (e.g., an ESA Section 10 permit or a Biological Opinion (BO) under ESA Section 7 with "incidental take" provisions with which you must comply). The enclosed U.S. Fish and Wildlife Service (FWS) BO dated March 30, 2007 contains mandatory terms and conditions to implement the reasonable and prudent measures that are associated with "incidental take" that is also specified in the BO. Your authorization

under this Corps permit is conditional upon your compliance with all of the mandatory terms and conditions associated with incidental take authorized by the attached BO, whose terms and conditions are incorporated by reference in this permit. Failure to comply with the terms and conditions associated with incidental take of the BO, where a take of the listed species occurs, would constitute an unauthorized take and it would also constitute non-compliance with this Corps permit. The FWS is the appropriate authority to determine compliance with the terms and conditions of its BO and with the ESA.

The permittee shall carry out the measures contained in the "Archeological Research Design and Treatment Plan for Data Recovery at the Nacimiento Water Project Memorandum of Agreement between the U.S. Army Corps of Engineers and the California State Historic Preservation Officer regarding the Issuance of a Permit Under Section 404 of the Clean Water Act (33 U.S.C. 1344) for the Nacimiento Water Project, San Luis Obispo County, California."

Mitigation shall be carried out in accordance with the "Nacimiento Water Project, Mitigation, Monitoring and Compensation Plan" prepared by the County of San Luis Obispo, dated April 2006.

Should you have any questions regarding this matter, please call Bob Smith of our Regulatory Branch at 415-503-6792. Please address all correspondence to the Regulatory Branch and refer to the File Number at the head of this letter. If you would like to provide comments on our permit review process, please complete the Customer Survey Form available through the Forms and Contacts Block on our website: www.spn.usace.army.mil/regulatory/

Sincerely,

Jane M. Hicks

Jane M. Hicks
Chief, Regulatory Branch

Enclosures

Copy furnished (w/o enclosures):

US FWS, Ventura, CA
CA RWQCB, San Luis Obispo, CA

12. Utility Line Activities. Activities required for the construction, maintenance, repair, and removal of utility lines and associated facilities in waters of the United States, provided the activity does not result in the loss of greater than 1/2 acre of waters of the United States.

Utility lines: This NWP authorizes the construction, maintenance, or repair of utility lines, including outfall and intake structures, and the associated excavation, backfill, or bedding for the utility lines, in all waters of the United States, provided there is no change in pre-construction contours. A "utility line" is defined as any pipe or pipeline for the transportation of any gaseous, liquid, liquescent, or slurry substance, for any purpose, and any cable, line, or wire for the transmission for any purpose of electrical energy, telephone, and telegraph messages, and radio and television communication. The term "utility line" does not include activities that drain a water of the United States, such as drainage tile or french drains, but it does apply to pipes conveying drainage from another area.

Material resulting from trench excavation may be temporarily sidecast into waters of the United States for no more than three months, provided the material is not placed in such a manner that it is dispersed by currents or other forces. The district engineer may extend the period of temporary side casting for no more than a total of 180 days, where appropriate. In wetlands, the top 6 to 12 inches of the trench should normally be backfilled with topsoil from the trench. The trench cannot be constructed or backfilled in such a manner as to drain waters of the United States (e.g., backfilling with extensive gravel layers, creating a french drain effect). Any exposed slopes and stream banks must be stabilized immediately upon completion of the utility line crossing of each waterbody.

Utility line substations: This NWP authorizes the construction, maintenance, or expansion of substation facilities associated with a power line or utility line in non-tidal waters of the United States, provided the activity, in combination with all other activities included in one single and complete project, does not result in the loss of greater than 1/2 acre of waters of the United States. This NWP does not authorize discharges into non-tidal wetlands adjacent to tidal waters of the United States to construct, maintain, or expand substation facilities.

Foundations for overhead utility line towers, poles, and anchors: This NWP authorizes the construction or maintenance of foundations for overhead utility line towers, poles, and anchors in all waters of the United States, provided the foundations are the minimum size necessary and separate footings for each tower leg (rather than a larger single pad) are used where feasible.

Access roads: This NWP authorizes the construction of access roads for the construction and maintenance of utility lines, including overhead power lines and utility line substations, in non-tidal waters of the United States, provided the total discharge from a single and complete project does not cause the loss of greater than 1/2-acre of non-tidal waters of the United States. This NWP does not authorize discharges into non-tidal wetlands adjacent to tidal waters for access roads. Access roads must be the minimum width necessary (see Note 2, below). Access roads must be constructed so that the length of the road minimizes any adverse effects on waters of the United States and must be as near as possible to pre-construction contours and elevations (e.g., at grade corduroy roads or geotextile/gravel roads). Access roads constructed above pre-construction contours and elevations in waters of the United States must be properly bridged or culverted to maintain surface flows.

This NWP may authorize utility lines in or affecting navigable waters of the United States even if there is no associated discharge of dredged or fill material (See 33 CFR Part 322). Overhead utility lines constructed over section 10 waters and utility lines that are routed in or under section 10 waters without a discharge of dredged or fill material require a section 10 permit.

This NWP also authorizes temporary structures, fills, and work necessary to conduct the utility line activity. Appropriate measures must be taken to maintain normal downstream flows and minimize flooding to the maximum extent practicable, when temporary structures, work, and discharges, including cofferdams, are necessary for construction activities, access fills, or dewatering of construction sites. Temporary fills must consist of materials, and be placed in a manner, that will not be eroded by expected high flows. Temporary fills must be removed in their entirety and the affected areas returned to pre-construction elevations. The areas affected by temporary fills must be revegetated, as appropriate.

Notification: The permittee must submit a pre-construction notification to the district engineer prior to commencing the activity if any of the following criteria are met: (1) the activity involves mechanized land clearing in a forested wetland for the utility line right-of-way; (2) a section 10 permit is required; (3) the utility line in waters of the United States, excluding overhead lines, exceeds 500 feet; (4) the utility line is placed within a jurisdictional area (i.e., water of the United States), and it runs parallel to a stream bed that is within that jurisdictional area; (5) discharges that result in the loss of greater than 1/10-acre of waters of the United States; (6) permanent access roads are constructed above grade in waters of the United States for a distance of more than 500 feet; or (7) permanent access roads are constructed in waters of the United States with impervious materials. (See general condition 27.) (Sections 10 and 404)

Note 1: Where the proposed utility line is constructed or installed in navigable waters of the United States (i.e., section 10 waters), copies of the pre-construction notification and NWP verification will be sent by the Corps to the National Oceanic and Atmospheric Administration (NOAA), National Ocean Service (NOS), for charting the utility line to protect navigation.

Note 2: Access roads used for both construction and maintenance may be authorized, provided they meet the terms and conditions of this NWP. Access roads used solely for construction of the utility line must be removed upon completion of the work, accordance with the requirements for temporary fills.

Note 3: Pipes or pipelines used to transport gaseous, liquid, liquescent, or slurry substances over navigable waters of the United States are considered to be bridges, not utility lines, and may require a permit from the U.S. Coast Guard pursuant to Section 9 of the Rivers and Harbors Act of 1899. However, any discharges of dredged or fill material into waters of the United States associated with such pipelines will require a section 404 permit (see NWP 15).

72 Fed. Reg. 11,092 (March 12, 2007).

Enclosure 2 - Nationwide Permit General Conditions

Note: To qualify for NWP authorization, the prospective permittee must comply with the following general conditions, as appropriate, in addition to any regional or case-specific conditions imposed by the division engineer or district engineer. Prospective permittees should contact the appropriate Corps district office to determine if regional conditions have been imposed on an NWP. Prospective permittees should also contact the appropriate Corps district office to determine the status of Clean Water Act Section 401 water quality certification and/ or Coastal Zone Management Act consistency for an NWP.

1. *Navigation.* (a) No activity may cause more than a minimal adverse effect on navigation.
(b) Any safety lights and signals prescribed by the U.S. Coast Guard, through regulations or otherwise, must be installed and maintained at the permittee's expense on authorized facilities in navigable waters of the United States.
(c) The permittee understands and agrees that, if future operations by the United States require the removal, relocation, or other alteration, of the structure or work herein authorized, or if, in the opinion of the Secretary of the Army or his authorized representative, said structure or work shall cause unreasonable obstruction to the free navigation of the navigable waters, the permittee will be required, upon due notice from the Corps of Engineers, to remove, relocate, or alter the structural work or obstructions caused thereby, without expense to the United States. No claim shall be made against the United States on account of any such removal or alteration.

2. *Aquatic Life Movements.* No activity may substantially disrupt the necessary life cycle movements of those species of aquatic life indigenous to the waterbody, including those species that normally migrate through the area, unless the activity's primary purpose is to impound water. Culverts placed in streams must be installed to maintain low flow conditions.

3. *Spawning Areas.* Activities in spawning areas during spawning seasons must be avoided to the maximum extent practicable. Activities that result in the physical destruction (e.g., through excavation, fill, or downstream smothering by substantial turbidity) of an important spawning area are not authorized.

4. *Migratory Bird Breeding Areas.* Activities in waters of the United States that serve as breeding areas for migratory birds must be avoided to the maximum extent practicable.

5. *Shellfish Beds.* No activity may occur in areas of concentrated shellfish populations, unless the activity is directly related to a shellfish harvesting activity authorized by NWPs 4 and 48.

6. *Suitable Material.* No activity may use unsuitable material (e.g., trash, debris, car bodies, asphalt, etc.). Material used for construction or discharged must be free from toxic pollutants in toxic amounts (see Section 307 of the Clean Water Act).

7. *Water Supply Intakes.* No activity may occur in the proximity of a public water supply intake, except where the activity is for the repair or improvement of public water supply intake structures or adjacent bank stabilization.

8. *Adverse Effects From Impoundments.* If the activity creates an impoundment of water, adverse effects to the aquatic system due to accelerating the passage of water, and/or restricting its flow must be minimized to the maximum extent practicable.

9. *Management of Water Flows.* To the maximum extent practicable, the preconstruction course, condition, capacity, and location of open waters must be maintained for each activity, including stream channelization and storm water management activities, except as provided below. The activity must be constructed to withstand expected high flows. The activity must not restrict or impede the passage of normal or high flows, unless the primary purpose of the activity is to impound water or manage high flows. The activity may alter the preconstruction course, condition, capacity, and location of open waters if it benefits the aquatic environment (e.g., stream restoration or relocation activities).

10. *Fills Within 100-Year Floodplains.* The activity must comply with applicable FEMA-approved state or local floodplain management requirements.

11. *Equipment.* Heavy equipment working in wetlands or mudflats must be placed on mats, or other measures must be taken to minimize soil disturbance.

12. *Soil Erosion and Sediment Controls.* Appropriate soil erosion and sediment controls must be used and maintained in effective operating condition during construction, and all exposed soil and other fills, as well as any work below the ordinary high water mark or high tide line, must be permanently stabilized at the earliest practicable date. Permittees are encouraged to perform work within waters of the United States during periods of low-flow or no-flow.

13. *Removal of Temporary Fills.* Temporary fills must be removed in their entirety and the affected areas returned to pre-construction elevations. The affected areas must be revegetated, as appropriate.

14. *Proper Maintenance.* Any authorized structure or fill shall be properly maintained, including maintenance to ensure public safety.

15. *Wild and Scenic Rivers.* No activity may occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a "study river" for possible inclusion in the system while the river is in an official study status, unless the appropriate Federal agency with direct management responsibility for such river, has determined in writing that the proposed activity will not adversely affect the Wild and Scenic River designation or study status. Information on Wild and

affected a historic property to which the permit would relate, or having legal power to prevent it, allowed such significant adverse effect to occur, unless the Corps, after consultation with the Advisory Council on Historic Preservation (ACHP), determines that circumstances justify granting such assistance despite the adverse effect created or permitted by the applicant. If circumstances justify granting the assistance, the Corps is required to notify the ACHP and provide documentation specifying the circumstances, explaining the degree of damage to the integrity of any historic properties affected, and proposed mitigation. This documentation must include any views obtained from the applicant, SHPO/THPO, appropriate Indian tribes if the undertaking occurs on or affects historic properties on tribal lands or affects properties of interest to those tribes, and other parties known to have a legitimate interest in the impacts to the permitted activity on historic properties.

19. *Designated Critical Resource Waters.* Critical resource waters include, NOAA-designated marine sanctuaries, National Estuarine Research Reserves, state natural heritage sites, and outstanding national resource waters or other waters officially designated by a state as having particular environmental or ecological significance and identified by the district engineer after notice and opportunity for public comment. The district engineer may also designate additional critical resource waters after notice and opportunity for comment.
(a) Discharges of dredged or fill material into waters of the United States are not authorized by NWPs 7, 12, 14, 16, 17, 21, 29, 31, 35, 39, 40, 42, 43, 44, 49, and 50 for any activity within, or directly affecting, critical resource waters, including wetlands adjacent to such waters.
(b) For NWPs 3, 8, 10, 13, 15, 18, 19, 22, 23, 25, 27, 28, 30, 33, 34, 36, 37, and 38, notification is required in accordance with general condition 27, for any activity proposed in the designated critical resource waters including wetlands adjacent to those waters. The district engineer may authorize activities under these NWPs only after it is determined that the impacts to the critical resource waters will be no more than minimal.

20. *Mitigation.* The district engineer will consider the following factors when determining appropriate and practicable mitigation necessary to ensure that adverse effects on the aquatic environment are minimal:
(a) The activity must be designed and constructed to avoid and minimize adverse effects, both temporary and permanent, to waters of the United States to the maximum extent practicable at the project site (i.e., on site).
(b) Mitigation in all its forms (avoiding, minimizing, rectifying, reducing, or compensating) will be required to the extent necessary to ensure that the adverse effects to the aquatic environment are minimal.
(c) Compensatory mitigation at a minimum one-for-one ratio will be required for all wetland losses that exceed 1/10 acre and require preconstruction notification, unless the district engineer determines in writing that some other form of mitigation would be more environmentally appropriate and provides a projectspecific waiver of this requirement. For wetland losses of 1/10 acre or less that require pre-construction notification, the district engineer may determine on a case-by-case basis that compensatory mitigation is required to ensure that the activity results in minimal adverse effects on the aquatic environment. Since the likelihood of success is greater and the impacts to potentially valuable uplands are reduced, wetland restoration should be the first compensatory mitigation option considered.
(d) For losses of streams or other open waters that require pre-construction notification, the district engineer may require compensatory mitigation, such as stream restoration, to ensure that the activity results in minimal adverse effects on the aquatic environment.
(e) Compensatory mitigation will not be used to increase the acreage losses allowed by the acreage limits of the NWPs. For example, if an NWP has an acreage limit of 1/2 acre, it cannot be used to authorize any project resulting in the loss of greater than 1/2 acre of waters of the United States, even if compensatory mitigation is provided that replaces or restores some of the lost waters. However, compensatory mitigation can and should be used, as necessary, to ensure that a project already meeting the established acreage limits also satisfies the minimal impact requirement associated with the NWPs.
(f) Compensatory mitigation plans for projects in or near streams or other open waters will normally include a requirement for the establishment, maintenance, and legal protection (e.g., conservation easements) of riparian areas next to open waters. In some cases, riparian areas may be the only compensatory mitigation required. Riparian areas should consist of native species. The width of the required riparian area will address documented water quality or aquatic habitat loss concerns. Normally, the riparian area will be 25 to 50 feet wide on each side of the stream, but the district engineer may require slightly wider riparian areas to address documented water quality or habitat loss concerns. Where both wetlands and open waters exist on the project site, the district engineer will determine the appropriate compensatory mitigation (e.g., riparian areas and/or wetlands compensation) based on what is best for the aquatic environment on a watershed basis. In cases where riparian areas are determined to be the most appropriate form of compensatory mitigation, the district engineer may waive or reduce the requirement to provide wetland compensatory mitigation for wetland losses.
(g) Permittees may propose the use of mitigation banks, in-lieu fee arrangements or separate activityspecific compensatory mitigation. In all cases, the mitigation provisions will specify the party responsible for accomplishing and/or complying with the mitigation plan.
(h) Where certain functions and services of waters of the United States are permanently adversely affected, such as the conversion of a forested or scrub-shrub wetland to a herbaceous wetland in a permanently maintained utility line right-of-way, mitigation may be required to reduce the adverse effects of the project to the minimal level.

21. *Water Quality.* Where States and authorized Tribes, or EPA where applicable, have not previously certified compliance of an NWP with CWA Section 401, individual 401 Water Quality Certification must be obtained or waived (see 33 CFR 330.4(c)). The

determine the need for compensatory mitigation. Sketches should be provided when necessary to show that the activity complies with the terms of the NWP. (Sketches usually clarify the project and when provided result in a quicker decision.);
(4) The PCN must include a delineation of special aquatic sites and other waters of the United States on the project site. Wetland delineations must be prepared in accordance with the current method required by the Corps. The permittee may ask the Corps to delineate the special aquatic sites and other waters of the United States, but there may be a delay if the Corps does the delineation, especially if the project site is large or contains many waters of the United States. Furthermore, the 45 day period will not start until the delineation has been submitted to or completed by the Corps, where appropriate;
(5) If the proposed activity will result in the loss of greater than 1/10 acre of wetlands and a PCN is required, the prospective permittee must submit a statement describing how the mitigation requirement will be satisfied. As an alternative, the prospective permittee may submit a conceptual or detailed mitigation plan.
(6) If any listed species or designated critical habitat might be affected or is in the vicinity of the project, or if the project is located in designated critical habitat, for non-Federal applicants the PCN must include the name(s) of those endangered or threatened species that might be affected by the proposed work or utilize the designated critical habitat that may be affected by the proposed work. Federal applicants must provide documentation demonstrating compliance with the Endangered Species Act; and
(7) For an activity that may affect a historic property listed on, determined to be eligible for listing on, or potentially eligible for listing on, the National Register of Historic Places, for non-Federal applicants the PCN must state which historic property may be affected by the proposed work or include a vicinity map indicating the location of the historic property. Federal applicants must provide documentation demonstrating compliance with Section 106 of the National Historic Preservation Act.
(c) *Form of Pre-Construction Notification:* The standard individual permit application form (Form ENG 4345) may be used, but the completed application form must clearly indicate that it is a PCN and must include all of the information required in paragraphs (b)(1) through (7) of this general condition. A letter containing the required information may also be used.
(d) *Agency Coordination:* (1) The district engineer will consider any comments from Federal and state agencies concerning the proposed activity's compliance with the terms and conditions of the NWPs and the need for mitigation to reduce the project's adverse environmental effects to a minimal level.
(2) For all NWP 48 activities requiring pre-construction notification and for other NWP activities requiring preconstruction notification to the district engineer that result in the loss of greater than 1/2-acre of waters of the United States, the district engineer will immediately provide (e.g., via facsimile transmission, overnight mail, or other expeditious manner) a copy of the PCN to the appropriate Federal or state offices (U.S. FWS, state natural resource or water quality agency, EPA, State Historic Preservation Officer (SHPO) or Tribal Historic Preservation Office (THPO), and, if appropriate, the NMFS). With the exception of NWP 37, these agencies will then have 10 calendar days from the date the material is transmitted to telephone or fax the district engineer notice that they intend to provide substantive, site-specific comments. If so contacted by an agency, the district engineer will wait an additional 15 calendar days before making a decision on the preconstruction notification. The district engineer will fully consider agency comments received within the specified time frame, but will provide no response to the resource agency, except as provided below. The district engineer will indicate in the administrative record associated with each preconstruction notification that the resource agencies' concerns were considered. For NWP 37, the emergency watershed protection and rehabilitation activity may proceed immediately in cases where there is an unacceptable hazard to life or a significant loss of property or economic hardship will occur. The district engineer will consider any comments received to decide whether the NWP 37 authorization should be modified, suspended, or revoked in accordance with the procedures at 33 CFR 330.5.
(3) In cases of where the prospective permittee is not a Federal agency, the district engineer will provide a response to NMFS within 30 calendar days of receipt of any Essential Fish Habitat conservation recommendations, as required by Section 305(b)(4)(B) of the Magnuson-Stevens Fishery Conservation and Management Act.
(4) Applicants are encouraged to provide the Corps multiple copies of pre-construction notifications to expedite agency coordination.
(5) For NWP 48 activities that require reporting, the district engineer will provide a copy of each report within 10 calendar days of receipt to the appropriate regional office of the NMFS.
(e) *District Engineer's Decision:* In reviewing the PCN for the proposed activity, the district engineer will determine whether the activity authorized by the NWP will result in more than minimal individual or cumulative adverse environmental effects or may be contrary to the public interest. If the proposed activity requires a PCN and will result in a loss of greater than 1/10 acre of wetlands, the prospective permittee should submit a mitigation proposal with the PCN. Applicants may also propose compensatory mitigation for projects with smaller impacts. The district engineer will consider any proposed compensatory mitigation the applicant has included in the proposal in determining whether the net adverse environmental effects to the aquatic environment of the proposed work are minimal. The compensatory mitigation proposal may be either conceptual or detailed. If the district engineer determines that the activity complies with the terms and conditions of the NWP and that the adverse effects on the aquatic environment are minimal, after considering mitigation, the district engineer will notify the permittee and include any conditions the district engineer deems necessary. The district engineer must approve any compensatory mitigation proposal before the permittee commences work. If the prospective permittee elects to submit a compensatory mitigation plan with the PCN, the district engineer will

Enclosure 3

Permittee: San Luis Obispo County

File Number: 22374S

Certification of Compliance
for
Nationwide Permit

"I hereby certify that the work authorized by the above referenced File Number and all required mitigation have been completed in accordance with the terms and conditions of this Nationwide Permit authorization."

_____ _____

(Permittee) (Date)

Return to:

Bob Smith
U.S. Army Corps of Engineers
1455 Market Street, SPNOR-R
San Francisco, CA 94103-1398

DEPARTMENT OF THE ARMY
SAN FRANCISCO DISTRICT, U.S. ARMY CORPS OF ENGINEERS
333 MARKET STREET
SAN FRANCISCO, CALIFORNIA 94105-2197

JUN 27 2006

Regulatory Branch

SUBJECT: File Number 22374S

Ms. Diane K. Noda
U.S. Fish and Wildlife Service
Ventura Field Office, Ecological Services
2493 Portola Road, Suite B
Ventura, California 93003

Dear Ms. Noda:

We hereby request initiation of consultation under section 7 of the Endangered Species Act on a request by the San Luis Obispo County Flood Control and Water Conservation District for a Department of the Army authorization under Nationwide Permit 12 – Utility Line Activities to construct the Nacimiento Water Project to deliver an alternative raw water supply to San Luis Obispo County and 15 other potential purveyors. The project includes construction and operation of the following elements: a water intake structure and pump station at Lake Nacimiento, a 45 mile water pipeline, three water storage tanks, and three pump stations. The pipeline and associated facilities are located in northern San Luis Obispo County stretching between Lake Nacimiento and the City of San Luis Obispo.

The attached biological assessment contains a description of the action to be considered, the specific areas that may be affected by the action, and a description of the listed species that may be affected by the action. With the implementation of the reasonable and prudent measures proposed as part of the project the Corps believes the project may affect, but is not likely to adversely affect vernal pool fairy shrimp, California red-legged frog, bald eagle, least Bell's vireo or San Joaquin kit fox. The project will have no effect on California tiger salamander or southwestern willow flycatcher.

Should you have any questions regarding this matter, please call Bob Smith of our Regulatory Branch at 415-977-8450. Please address all correspondence to the Regulatory Branch and refer to the File Number at the head of this letter.

Sincerely,

Jane M. Hicks
Chief, Regulatory Branch

Enclosures

Copy Furnished (w/o enclosures):

ESA, San Francisco, CA

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Ventura Fish and Wildlife Office
2493 Portola Road, Suite B
Ventura, California 93003

IN REPLY REFER TO:
PAS 705.753.5880

November 20, 2006

Jane M. Hicks, Acting Chief
Regulatory Branch, San Francisco District
U.S. Army Corps of Engineers
333 Market Street
San Francisco, California 94105-2197

Subject: Construction of the Nacimiento Pipeline, San Luis Obispo County, California (File No. 22374S).

Dear Ms. Hicks:

We have reviewed your request, dated June 27, 2006, for our concurrence that the Nacimiento Water Project (NWP) may affect, but is unlikely to adversely affect the federally endangered least Bell's vireo (*Vireo bellii pusillus*), San Joaquin kit fox (*Vulpes macrotis mutica*), or the federally threatened vernal pool fairy shrimp (*Branchinecta lynchi*), California red-legged frog (*Rana aurora draytonii*), and bald eagle (*Haliaeetus leucocephalus*). You also determined that the proposed project would have no effect on the federally endangered southwestern willow flycatcher (*Empidonax traillii extimus*) or California tiger salamander (*Ambystoma californiense*). We received your request in our office on June 29, 2006. Your request and our response are made pursuant to section 7 of the Endangered Species Act of 1973, as amended.

The San Luis Obispo County Flood Control and Water Conservation District (District) proposed to implement the NWP to access their 17,500 acre-feet per year entitlement from Lake Nacimiento. The proposed project would deliver water to several San Luis Obispo County cities and unincorporated communities to supplement existing groundwater and surface water supplies. The NWP includes construction and operation of a water intake structure and pump station located on the north side of the Lake Nacimiento Dam near the spillway; a 45-mile raw water conveyance pipeline; three water storage tanks (located at Camp Roberts, Rocky Canyon Road, and Cuesta Tunnel); and three pump stations. The pipeline and associated facilities would extend from Lake Nacimiento to the City of San Luis Obispo. The District would use open trenching, horizontal direction drilling, and auger boring to install the pipeline. The overall pipeline alignment is depicted in Appendix A of the NWP Biological Assessment.

Environmental Science Associates conducted a comprehensive literature review and focused field surveys in 2005 and 2006 to determine what federally listed species have the potential to occur in or near the pipeline alignment. They identified potential habitat in the vicinity of the project area for California red-legged frogs, least Bell's vireos, vernal pool fairy shrimp, San Joaquin kit foxes, and bald eagles.

We concur with your determination that the proposed project may affect, but is unlikely to adversely affect California red-legged frog, San Joaquin kit fox, and bald eagles. We came to this conclusion because: (1) California red-legged frogs, San Joaquin kit foxes, and bald eagles only have the potential to occur within very small portions of the pipeline alignment, and (2) the District proposed measures to minimize adverse effects to California red-legged frogs, San Joaquin kit foxes, and bald eagles as part of the project description. The minimization measures are provided in detail in the District's NWP Biological Assessment.

The District proposed to avoid conducting activities during the least Bell's vireos breeding season; however, the biological assessment stated that the breeding season ends July 15. We recognize the end of the breeding season as September 15, and therefore recommend that the District change July 15 to September 15. Because the District currently proposes to work within the breeding season, we do not concur with your determination that the proposed project may affect, but is unlikely to adversely affect least Bell's vireos.

We do not concur with your determination that the proposed project may affect, but is unlikely to adversely affect vernal pool fairy shrimp. We came to this conclusion because the project would directly affect four occupied vernal pools. We recommend that you avoid all direct and indirect effects to occupied vernal pool fairy shrimp habitat. If the impacts to vernal pool fairy shrimp cannot be avoided, we recommend that you initiate formal consultation.

Additionally, we concur with your determination that the proposed project would have no effect on California tiger salamanders and southwestern willow flycatchers because: (1) there is no suitable upland or aquatic habitat in or near the pipeline alignment for California tiger salamanders and (2) the project occurs out of the known range of southwestern willow flycatchers.

If you have any questions, please contact Nic Huber of my staff at (805) 644-1766, extension 249.

Sincerely,

Steve Henry
Assistant Field Supervisor

DEPARTMENT OF THE ARMY
SAN FRANCISCO DISTRICT, U.S. ARMY CORPS OF ENGINEERS
333 MARKET STREET
SAN FRANCISCO, CALIFORNIA 94105-2197

DEC 7 2006

Regulatory Branch

SUBJECT: File Number 22374S

Mr. Nic Huber
U.S. Fish and Wildlife Service
2493 Portola Road, Suite B
Ventura, California 93003

Dear Mr. Huber:

This is in reference to your letter of November 20, 2006 on our request for initiation of consultation under section 7 of the Endangered Species Act for the Nacimiento Water Project.

With reference to avoiding the four vernal pools occupied by fairy shrimp, the San Luis Obispo County Flood Control and Water Conservation District (District) informs us that they will avoid the pools as much as possible, but total avoidance is unlikely because methods such as microtunneling are not practicable at these locations. We therefore request you continue with a formal consultation on impacts to fairy shrimp.

With respect to least Bell's vireo the District has stated that to avoid impacts to breeding vireos, no work will occur in vireo habitat until after September 15th. With this stipulation we believe the proposed project is not likely to adversely affect least Bell's vireo.

Should you have any questions regarding this matter, please call Bob Smith of our Regulatory Branch at 415-977-8450. Please address all correspondence to the Regulatory Branch and refer to the File Number at the head of this letter.

Sincerely,

Jane M. Hicks
Chief, Regulatory Branch

Enclosures

Copy Furnished:

ESA, San Francisco, CA

U.S. FISH & WILDLIFE SERVICE

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Ventura Fish and Wildlife Office
2493 Portola Road, Suite B
Ventura, California 93003

TAKE PRIDE IN AMERICA

IN REPLY REFER TO:
PAS 705.753.6665

March 30, 2007

Jane M. Hicks, Acting Chief
Regulatory Branch, San Francisco District
U.S. Army Corps of Engineers
333 Market Street
San Francisco, California 94105-2197

Subject: Biological Opinion for the Nacimiento Water Project, San Luis Obispo County, California (1-8-07-F-10).

Dear Ms. Hicks:

This document transmits the U.S. Fish and Wildlife Service's (Service) biological opinion based on our review of your proposed authorization, pursuant to section 404 of the Clean Water Act, of the San Luis Obispo County Flood Control and Water Conservation District's (District) proposal to implement the Nacimiento Water Project (NWP) and its effects on the federally threatened vernal pool fairy shrimp (*Branchinecta lynchii*), in accordance with section 7 of the Endangered Species Act of 1973, as amended (Act) (16 U.S.C. 1531 *et seq.*). We received your request for formal consultation, dated December 7, 2006, in our office on December 11, 2006.

We prepared this biological opinion based on the information in your request for consultation, the biological assessment prepared by the District, electronic and telephone conversations between our staffs, and information in our files. A complete administrative record of this consultation is available at the Ventura Fish and Wildlife Office.

CONSULTATION HISTORY

We received a letter in our office on June 29, 2006, requesting informal consultation for the NWP and its effects on the federally endangered least Bell's vireo (*Vireo bellii pusillus*), San Joaquin kit fox (*Vulpes macrotis mutica*), and the federally threatened vernal pool fairy shrimp (*Branchinecta lynchi*), California red-legged frog (*Rana aurora draytonii*), and bald eagle (*Haliaeetus leucocephalus*). In addition, you determined that the proposed project would have no effect on the federally endangered southwestern willow flycatcher (*Empidonax traillii extimus*) and California tiger salamander (*Ambystoma californiense*).

In our response letter to you, dated November 20, 2006, we concurred that the NWP may affect, but is unlikely to adverse affect California red-legged frogs, San Joaquin kit foxes, or bald eagles. Additionally, we concurred with your determination that the proposed project would have no effect on California tiger salamanders and southwestern willow flycatchers. However, we did not concur

that the NWP may affect, but is unlikely to adversely affect least Bell's vireo or vernal pool fairy shrimp because the District proposed to conduct work during the least Bell's vireo's breeding season and the project activities would directly affect vernal pool fairy shrimp. We recommended that the District: (1) modify their project proposal to avoid conducting work during the least Bell's vireo's breeding season, and (2) avoid the vernal pool fairy shrimp habitat or initiate formal consultation for the NWPs effects on fairy shrimp.

In your request for formal consultation, we note that the District stated that no work would occur in least Bell's vireo habitat before September 15, effectively avoiding the breeding season. Therefore, we concur with your determination that the proposed project may affect, but is unlikely to adversely affect least Bell's vireo. The proposed project would not be able to avoid adverse affects to vernal pool fairy shrimp. Thus, the U.S. Army Corps of Engineers (Corps) initiated formal consultation for the NWPs effects on vernal pool fairy shrimp on December 11, 2006.

DESCRIPTION OF THE PROPOSED ACTION

The District proposed to implement the NWP to access their 17,500 acre-feet per year entitlement from Lake Nacimiento. The proposed project would deliver water to several San Luis Obispo County cities and unincorporated communities to supplement existing groundwater and surface water supplies. The NWP includes construction and operation of a water intake structure and pump station located on the north side of the Lake Nacimiento Dam near the spillway, a 45-mile raw water conveyance pipeline, three water storage tanks (located at Camp Roberts, Rocky Canyon Road, and Cuesta Tunnel), and three pump stations. The pipeline and associated facilities would extend from Lake Nacimiento to the City of San Luis Obispo. The District would use open trenching, horizontal direction drilling, and auger boring to install the pipeline. The NWP Biological Assessment depicts the overall pipeline alignment and provides a detailed description of each component of the proposed project (District 2006).

To minimize the adverse effects from the NWP to vernal pool fairy shrimp, the District proposed to implement the following measures:

- A qualified biologist will be present to monitor construction activities that have the potential to affect vernal pool fairy shrimp habitat.
- The District would avoid occupied vernal pool fairy shrimp habitat to the maximum extent possible.
- The District would install exclusion fencing to keep equipment, vehicles, and personnel within the defined work area.
- Construction activities near occupied vernal pool fairy shrimp habitat will be limited to the dry season (April 15 to October 15).

- The District will install silt fencing at the limits of the construction footprint to minimize the indirect affects (e.g., runoff) on occupied vernal pool fairy shrimp habitat that is within 100 feet of the construction site.

STATUS OF THE SPECIES

Vernal pool fairy shrimp

The Service listed the vernal pool fairy shrimp as threatened on September 19, 1994 (59 Federal Register (FR) 48136). Critical habitat was designated on August 6, 2003 (68 FR 46684). The recovery plan for vernal pool ecosystems of California and southern Oregon (December 15, 2005) also addresses this species. The following account summarizes information contained in those documents as supplemented by information since the publication of the final rules and availability of the recovery plan.

The vernal pool fairy shrimp is a small freshwater crustacean in the family Branchinectidae of the order *Anostraca*. Adult vernal pool fairy shrimp range in size from 0.4 to 1.0 inches and are distinguished from a similar species, the Colorado fairy shrimp (*Branchinecta coloradensis*), by the males' ridge-like outgrowth on the basal segment of the antennae, and the females' shorter, pyriform brood pouch. Vernal pool fairy shrimp, like other fairy shrimp, swim on their backs throughout their adult life cycle.

Vernal pool fairy shrimp are restricted to vernal pools and vernal pool-like depressions. Vernal pools are a type of ephemeral wetland that occurs from southern Oregon through California into northern Baja California, Mexico. Vernal pools form in regions with Mediterranean climates where shallow depressions fill with water during fall and winter rains and then dry up when the water evaporates in the spring. Downward percolation of water within pools is prevented by the presence of an impervious subsurface layer consisting of claypan, hardpan, or volcanic stratum. Seasonal inundation makes vernal pools too wet for adjacent upland plant species while rapid drying during late spring makes them unsuitable for marsh or aquatic species that require a permanent source of water. The vernal pool fairy shrimp often occurs in pools that exhibit an unpredictable and short-lived inundation pattern.

Anostracans, including the vernal pool fairy shrimp, are non-selective filter-feeders that filter suspended solids from the water column. Detritus, bacteria, algal cells, and other items between 0.00000118 to 0.00394 inches may be filtered and ingested. Only rarely does the vernal pool fairy shrimp co-occur with other fairy shrimp species, and where it does, the vernal pool fairy shrimp is never the numerically dominant species. The vernal pool fairy shrimp has been observed with the versatile fairy shrimp (*Branchinecta lindahli*) and Santa Rosa Plateau fairy shrimp (*Linderiella santarosae*) as well as the federally listed Conservancy fairy shrimp (*Branchinecta conservatio*) and longhorn fairy shrimp (*Branchinecta longiantenna*). Fairy shrimp are prey for a wide variety of wildlife, including beetles, insect larvae, frogs, salamanders, toad tadpoles, shorebirds, ducks, and even other fairy shrimp.

Freshwater crustaceans, including the vernal pool fairy shrimp, have a two-stage life cycle with the majority of their life cycle spent in the cyst (egg) stage. Vernal pool fairy shrimp females produce

an unknown number of cysts per clutch and over their lifetime. The cysts are either dropped to the pool bottom or remain in the brood sac until the female dies and sinks. Fairy shrimp cysts are capable of withstanding heat, cold, and prolonged desiccation and may persist in the soil for an unknown number of years until conditions are favorable for successful hatching. The cysts hatch when the vernal pools fill with rainwater. Not all cysts are likely to hatch in a season, thus providing a mechanism for survival if the inundation period is too short in a given year. This species can mature quickly, allowing it to persist in short-lived shallow pools; however, the species also persists later into the spring where pool inundation persists.

Although the vernal pool fairy shrimp is more widely distributed than most other fairy shrimp species, it is generally uncommon throughout its range and rarely abundant. The species currently occurs predominantly in the Central Valley and Coast Range of California, with a limited number of sites in the Transverse Range and on the Santa Rosa Plateau and in Hemet, Riverside County. One disjunct occurrence is reported from Jackson County in southern Oregon. California counties where extant records occur include Alameda, Butte, Contra Costa, El Dorado, Fresno, Glenn, Kings, Los Angeles, Madera, Merced, Monterey, Napa, Placer, Riverside, Sacramento, San Benito, San Joaquin, San Luis Obispo, Santa Barbara, Shasta, Solano, Stanislaus, Tehama, Tulare, Ventura, and Yuba. Elevations at which the species is typically found range from 33 to 4,003 feet above sea level (ASL), although it has been found at 5,600 feet ASL in the Los Padres National Forest.

Within vernal pool habitat on the Central Coast of California (Monterey, San Luis Obispo, and Santa Barbara counties), vernal pool fairy shrimp occupy at least 55 basins on Fort Hunter Liggett, at least 46 basins at Camp Roberts, Soda Lake at the Carrizo Plain National Monument, several areas in the vicinity of Paso Robles, at least two sites in the Los Padres National Forest, at least 60 natural or man-made features at the Unocal-Chevron tank farm and an isolated nearby area, at least two vernal pools at the Santa Maria Airport, and in at least 12 complexes on Vandenberg Air Force Base. A number of these sites were discovered after the publication of the listing and critical habitat rules.

Maintaining the integrity of surrounding upland habitat is critical to the proper ecological functioning of vernal pool habitat. Habitat loss and fragmentation is the largest threat to the survival and recovery of vernal pool fairy shrimp and other species that are restricted to vernal pool and other ephemeral wetland habitats. Habitat loss is generally a result of urbanization, agricultural conversion, and mining, although loss also occurs in the form of habitat alteration and degradation as a result of changes to natural hydrology, competition from invasive species, incompatible grazing regimes (including insufficient grazing for prolonged periods), infrastructure projects (e.g., roads, water storage and conveyance, utilities), recreational activities (e.g., off-highway vehicles and hiking), erosion, mosquito abatement activities, climatic and environmental change, and contamination.

ENVIRONMENTAL BASELINE

The implementing regulations for section 7(a)(2) of the Act define the "action area" as all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action (50 C.F.R. 402.02). For the purposes of this biological opinion, we consider the action

area to include the five in-road puddles (Pools 2,3, 6b, 6c, 10) that would be directly affected, which together comprise approximately 728 square feet, and three pools (Pools 11, 23, 24) in the near vicinity to the pipeline alignment that could be indirectly affected by the project activities. These pools comprise approximately 1,251 square feet. All of the affected vernal pool fairy shrimp habitat occurs on Camp Roberts.

Camp Roberts contains natural and artificially-created vernal pool fairy shrimp habitat. Environmental Science Associates (ESA) conducted protocol-level surveys for vernal pool fairy shrimp. ESA also consulted Camp Roberts' environmental staff and the California Natural Diversity Database to identify vernal pool fairy shrimp habitat in the project area.

Occupied vernal pool fairy shrimp habitat occurs within and/or adjacent to existing dirt roads that are vulnerable to periodic road maintenance activities and vehicular traffic. Three pools are not within the pipeline alignment, but are located within 50 to 250 feet of the alignment. This habitat has previously been adversely affected by military training and firebreak maintenance activities. We analyzed the impacts to vernal pool fairy shrimp in the biological opinion entitled: Biological Opinion for Combined-Forces Training Activities, Use of New Equipment, and Range Modernization Program at Camp Roberts, Army National Guard Training Site, San Luis Obispo and Monterey Counties, California (1-8-96-F-32) (Moore, pers. comm. 2007).

EFFECTS OF THE ACTION

Activities that the District would conduct within the action area that would directly or indirectly adversely affect vernal pool fairy shrimp include installing the pipeline and the associated movement of personnel and vehicles to complete the proposed project. Installing the pipeline would crush and kill vernal pool fairy shrimp and eliminate vernal pool fairy shrimp habitat. Of the water bodies that would be directly affected, the project activities would eliminate all or portions of three of the pools, while the other pools would not be eliminated by installing the pipeline, but would be subject to vehicles and equipment traversing the action area. The District proposed to minimize the adverse affects to vernal pool fairy shrimp by conducting the project activities that are in the vicinity of occupied vernal pool fairy shrimp habitat during the dry season. However, vernal pool fairy shrimp could still be adversely affected in the dry season because eggs are still present, but dormant within the soil until the next rainy season.

Three pools located within 50 to 250 feet of the pipeline alignment could be subject to indirect effects (e.g. dust, runoff, and erosion) because any ground disturbance adjacent to or within the watershed of vernal pool fairy shrimp habitat could result in siltation of the habitats. However, if some of these pools are located within existing tank training roads and maneuvering areas, we assume that these habitats would have a high impact threshold and the indirect affects would most likely be minimal. The District proposed to install silt fencing at the limits of the construction footprint to minimize indirect affects to vernal pool fairy shrimp.

In summary, the NWP would adversely affect a small quantity of occupied vernal pool fairy shrimp habitat. The affected vernal pool fairy shrimp habitat is located entirely on Camp Roberts, with the majority of the affected habitat occurring within existing dirt roads and tank training areas. The

affected habitat also endures periodic road maintenance activities and Camp Roberts' vehicular traffic. Thus, the affected vernal pool fairy shrimp habitat is most likely lower quality habitat. Following the proposed project, the vernal pool fairy shrimp habitat would also be subject to Camp Roberts' vehicular traffic, periodic road maintenance, and military training activities.

CUMULATIVE EFFECTS

Cumulative effects include the effects of future State, tribal, local or private actions that are reasonably certain to occur in the action area considered in this biological opinion. Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the Act. We are not aware of any other non-federal actions that are reasonably certain to occur in the action area.

CONCLUSION

After reviewing the current status of vernal pool fairy shrimp, the environmental baseline, the effects of the action, and the cumulative effects, it is the Service's biological opinion that the proposed NWP would not jeopardize the continued existence of vernal pool fairy shrimp. We have reached this conclusion because:

1. A very small amount of vernal pool fairy shrimp habitat known throughout its range would be adversely affected.

2. The affected vernal pool fairy shrimp habitat occurs in existing roadways and/or tank training areas and therefore is low quality habitat.

3. The District proposed measures to minimize the adverse affects to vernal pool fairy shrimp.

INCIDENTAL TAKE STATEMENT

Section 9 of the Act and Federal regulation pursuant to section 4(d) of the Act prohibit the take of endangered and threatened species, respectively, without special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. Harm is further defined by the Service to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. Harass is defined by the Service as intentional or negligent actions that create the likelihood of injury to listed species by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the Act provided that such taking is in compliance with this incidental take statement. To monitor the impact of incidental take, the District must report the progress of the action and its impact on the species to the Service as specified in the incidental take statement [50 CFR 402.14(i)(3)].

We anticipate that the following incidental take may result from the proposed activities analyzed in this document. Vernal pool fairy shrimp that occur within or adjacent to the NWP on Camp Roberts may be killed or injured as a result of activities associated with the installation of the pipeline. We cannot predict the exact number of vernal pool fairy shrimp that may be affected by the project activities because of fluctuations in population sizes between years and the species random distribution in the environment. Therefore, we anticipate an unquantifiable number of vernal pool fairy shrimp cysts, adults and juveniles within the action area may be crushed, buried or displaced in any occupied habitat as a result of proposed project activities. Because of their small size, finding dead or injured vernal pool fairy shrimp is unlikely.

This incidental take statement does not exempt any activity from the prohibitions against take contained in section 9 of the Act that is not incidental to the action as described in this biological opinion. The vernal pool fairy shrimp may be taken only within the defined boundaries of the action area as described in the Environmental Baseline section of this biological opinion.

REASONABLE AND PRUDENT MEASURE

The Service believes the following reasonable and prudent measure is necessary and appropriate to minimize the take of the vernal pool fairy shrimp.

> The District must ensure that the level of incidental take that occurs during project implementation is commensurate with the analysis contained herein.

TERM AND CONDITION

To be exempt from the prohibitions of section 9 of the Act, the District must comply with the following term and condition, which implements the reasonable and prudent measure described above. This term and condition is non-discretionary.

> If more than 0.045-acre of vernal pool fairy shrimp habitat is disturbed during the life of the project, the District must contact us to determine if additional protective measures are needed. Project activities may continue during this review period, provided that all protective measures proposed by the District have been and continue to be implemented.

REPORTING REQUIREMENT

The District must provide an annual report to the Service by January 31 each year, covering all of the activities conducted under this biological opinion during the preceding year. The report should document the amount of vernal pool fairy shrimp habitat affected during the course of the project and provide suggestions of how these measures could be changed to improve conservation of these species while facilitating compliance with the Act. This document would assist the Service in evaluating terms and conditions for conservation of vernal pool fairy shrimp during future projects. The report must be sent to the Ventura Fish and Wildlife Office at the letterhead address.

DISPOSITION OF DEAD OR INJURED SPECIMENS

Because of their small size, finding dead or injured vernal pool fairy shrimp is unlikely. Therefore, it is unlikely that the District would be able to dispose of dead or injured specimens.

CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the Act directs Federal agencies to use their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information.

1. Cooperate with the California Department of Parks and Recreation, the California Department of Fish and Game, conservation organizations, and local land owners to ensure the long-term survival and conservation of vernal pools through educational brochures, signage, and workshops; and

2. Support efforts to raise public awareness of the threat of non-native vegetation to native species and methods to manage this threat.

We request notification of the implementation of any conservation recommendations so we may be kept informed of actions minimizing or avoiding adverse effects or benefiting listed species.

REINITIATION NOTICE

This concludes formal consultation on the effects of the NWP. Reinitiation of formal consultation is required if: 1) the amount or extent of incidental take is exceeded; 2) new information reveals effects of the agency action that may adversely affect listed species or critical habitat in a manner or to an extent not considered in this biological and conference opinion; 3) the agency action is subsequently modified in a manner that causes an effect to a listed species or critical habitat that was not considered in this biological and conference opinion; or 4) a new species is listed or critical habitat designated that may be affected by this action (50 CFR 402.16).

If you have any questions, please contact Nic Huber of my staff at (805) 644-1766, extension 249.

Sincerely,

Steve Henry
Assistant Field Supervisor

LITERATURE CITED

San Luis Obispo County Flood Control and Water Conservation District (District). 2006. Nacimiento Water Project: Biological Assessment.

U.S. Fish and Wildlife Service. 1997. Biological Opinion for Combined-Forces Training Activities, Use of New Equipment, and Range Modernization Program at Camp Roberts, Army National Guard Training Site, San Luis Obispo and Monterey Counties, California (1-8-96-F-32).

PERSONAL COMMUNICATIONS

Moore, M. 2007. Telephone conversation. Presence of military activities in the area that surrounds the proposed pipeline alignment and if that area was included in the biological opinion (1-8-96-F-32). Dated January 26, 2007. Wildlife biologist. Camp Roberts Environmental Office.

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Southwest Region
501 West Ocean Boulevard, Suite 4200
Long Beach, California 90802- 4213

Public Works
JAN 08 2007
Accounting

January 4, 2007

In response refer to:
2006/05922

cc: Eric Wier, Tom Roberts

NWP Nacimiento Water Project
RECEIVED
JAN - 9 2007
FILE NO. 300187 - E.7.3

Lt. Colonel Craig W. Kiley
Department of the Army
San Francisco District, U.S. Army Corps of Engineers
333 Market Street
San Francisco, California 94105-2197

Dear Colonel Kiley:

This letter acknowledges NOAA's National Marine Fisheries Service's (NMFS) June 30, 2006, receipt of your June 28, 2006, letter (file number 22374S) requesting consultation with NMFS pursuant to the Endangered Species Act of 1973 (ESA) as amended (16 U.S.C. 1531 *et seq.*). The consultation pertains to the U.S. Army Corps of Engineer's (Corps) authorization, under Nationwide Permit 12, of the San Luis Obispo County Flood Control and Water Conservation District (District) to construct the Nacimiento Water Project (NWP) and the potential effects of the NWP on South-Central California Coast (S-CCC) Distinct Population Segment (DPS) steelhead (*Oncorhynchus mykiss*) and their designated critical habitat in San Luis Obispo County, California. S-CCC steelhead are listed as threatened under the ESA and available information indicates S-CCC DPS steelhead are present in the proposed project action area.

The proposed project includes construction and operation of a water intake structure and pump station at Nacimiento Reservoir, a 45-mile water pipeline connecting Nacimiento Reservoir, in Monterey County, California, to the City of San Luis Obispo, three water storage tanks, and three pump stations. The County of San Luis Obispo has a 17,500 acre foot per year (afy) entitlement (per an agreement executed in 1959 with Monterey County) to the waters in Nacimiento Reservoir and up to 1,200 afy of the total will be distributed via the proposed pipeline to deliver an alternative raw water supply to San Luis Obispo County and five other purveyors. The project is intended to: (1) provide a reliable supplemental water source to San Luis Obispo County; (2) improve water quality to users; (3) lessen extent of future groundwater pumping to existing residents; and (4) provide sufficient supplies to support planning objectives in various communities of San Luis Obispo County. This project will not adversely affect pre-established minimum downstream flow release out of the Reservoir into the Nacimiento River.

Pipeline Construction Issues

The 45-mile long water conveyance pipeline will consist of a single pipe ranging from 20- to 36-inches in diameter. The primary construction method will use cut and cover techniques. The

pipeline alignment crosses several drainages which support S-CCC steelhead and their designated critical habitat, including the Nacimiento and Salinas Rivers (Table 1). To avoid impacts to S-CCC steelhead and designated critical habitat the District has proposed trenchless construction techniques for all stream crossings that maintain flow at the time of construction and/or are major river systems.[1]

Table 1. Pipeline crossings with known or potential presence of S-CCC DPS steelhead or designated critical habitat and proposed construction techniques.

Drainage	Pipeline Station #	Expected Flow Conditions During Construction	Construction Technique
Nacimiento R.	110+00	Active flow	Horizontal directional drilling (HDD)
San Marcos Cr.	684+00	Dry	Open trench
Salinas R. N.	890+00	Dry	HDD
Salinas R. Middle	1225+00	Dry	HDD
Salinas R. S.	1915+00	Dry	Auger bore
Santa Margarita Cr. N.	1989+00	Active flow	New pipe bridge
Yerba Buena Cr.	2110+00	Dry	Open trench
Santa Margarita Cr. S.	2255+00	Active flow	Auger bore
Stenner Cr. N.	2389+00	Active flow	Suspension
Stenner Cr. Middle	2481+50	Active flow	Existing casing
Stenner Cr. S.	2512+00	Active flow	Existing bridge

Additional pipeline construction avoidance and minimization measures include the following for all creek crossings:

- Construction across waterways will be restricted to low-flow periods of June 15 through November 1. If the channel is dry construction can occur as early as June 1;
- Spoil sites will be located so they do not drain directly into waterways;
- A qualified biological monitor will be on site during construction activities. The qualified biological monitor will be authorized to halt construction if impacts to steelhead are evident;
- Project sites will be revegetated with an appropriate assemblage of native upland vegetation, and if necessary, riparian and wetland vegetation, suitable for the area; and

[1] Supplemental information to the BA provided by the District to NMFS dated October 19, 2006.

- A spill prevention plan will be prepared and implemented.

Through the use of these techniques and timing restrictions during construction, potential adverse effects to S-CCC steelhead and their designated critical habitats will be avoided and minimized.

Interrelated and Interdependent Effects

NMFS was concerned this project may have substantial growth inducing effects that could adversely affect S-CCC steelhead and their designated critical habitat based on the California Environmental Quality Act (CEQA) findings[2] adopted for the NWP which stated:

> "Approval of the NWP could result in additional growth or rate of growth in areas now subject to water resource constraints. Recently approved/updated General Plans have acknowledged that future growth will have significant, cumulative impacts. In areas where forecasted water supplies exceed future demand, NWP water could be used to foster growth outside existing service area boundaries."

NMFS requested additional information from the San Luis Obispo County Department of Public Works and their consultants, Environmental Science Associates, regarding the likelihood of the NWP to result in future additive effects to S-CCC steelhead and their designated critical habitat. NMFS was concerned the potential interdependent and interrelated consequences of this project could lead to urban growth resulting in negative changes to stream hydrology (due to increased hardscape leading to rapid runoff), increased sedimentation of streams (due to increased agricultural practices and urban encroachment into riparian areas), and a long term trend of stream degradation (due to in-channel maintenance practices to protect new developments from flooding and channel meander).

Information provided to NMFS from the County of San Luis Obispo in a letter dated October 19, 2006, has alleviated our concerns for this project to lead to additional growth in the action area. In its current form the project proposes to deliver supplemental water to five[3] existing urbanized areas including the City of Paso Robles, the community of Templeton, the City of San Luis Obispo, the City of Atascadero, and the community of Cayucos. Water from the NWP will allow growth that otherwise could not reasonably occur within the urbanized areas of Templeton, the City of San Luis Obispo, and Cayucos. In Atascadero, growth is not water dependent because of the operating rules of the mutual water company. In Paso Robles, growth would be expected to continue even without NWP supplies, albeit with reduced water quality. In all areas where growth is dependent on NWP supplies, that growth would be contained by existing urban limits due to general plan policies. Further, growth in these areas can be best characterized as infill of developed areas, rather than as clear extensions of existing urban boundaries.

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[2] Nacimiento Water Project Final Environmental Impact Report, December 2003, San Luis Obispo County Department of Planning and Building.

[3] The BA had stated water would be delivered to 15 potential purveyors. Subsequent analysis by the County reduced the number to five.

All of the land use jurisdictions in San Luis Obispo County have general plan policies aimed at controlling the pace and direction of growth as well as mitigating impacts of growth as it occurs. Cities and community services districts have measures in place to allow the provision of urban services (including water) outside of city limits in only a limited set of circumstances, thus minimizing urban sprawl. The County and cities have adopted general plans that establish hard urban edges, greenbelts, and community separators to ensure sprawl does not occur in the action area. Further, drainage design standards contained in the San Luis Obispo County and City of San Luis Obispo regulations ensure that new development attributable to the NWP (in Templeton, City of San Luis Obispo, and Cayucos) will not result in stormwater runoff that negatively impacts the geomorphic stability of area waterways, nor contribute substantial on-going sediment loads to those waterways.

Conclusion

Based on: (1) no changes to the minimum flow releases out of the Reservoir are proposed, and (2) construction techniques outlined in the biological assessment (April, 2006), and the supplemental information provided by the San Luis Obispo Department of Public Works (October 19, 2006), NMFS believes potential impacts from construction of the NWP to S-CCC steelhead and their designated critical habitat are negligible. Based on the supplemental information provided by the San Luis Obispo Department of Public Works (October 19, 2006), NMFS believes the growth attributable to the NWP is not substantial, will be limited to existing urban areas, and mitigated by existing plans, policies and programs. NMFS concludes that interdependent and interrelated adverse effects on S-CCC steelhead and their designated critical habitat attributable to the growth potentially induced by the proposed project are not likely to occur. Based on the provided information I concur with the Corps determination that this project is not likely to adversely affect S-CCC steelhead or their designated critical habitat.

This concludes consultation in accordance with 50 CFR 402.14(b)(1) for the proposed NWP. However, further ESA consultation may be required if new information becomes available indicating that ESA-listed species or critical habitat may be adversely affected by the project in a manner not previously considered, current project plans change in a manner that affects ESA-listed species or critical habitat, or a new species is listed or critical habitat designated that may be affected by the action. If you have any questions concerning this consultation, please contact Mr. Jonathan Ambrose of my staff at (707) 575-6091 or via email at jonathan.ambrose@noaa.gov.

Sincerely,

for Rodney R. McInnis
Regional Administrator

cc: Russ Strach, NMFS, Sacramento
Mike Podlech, Environmental Science Associates
Eric Wier, San Luis Obispo County Dept. of Public Works
Copy to file – ARN 151422SWR2006SR00672

Linda Adams
Secretary for Environmental Protection

California Regional Water Quality Control Board
Central Coast Region

Internet Address: http://www.waterboards.ca.gov/centralcoast/
895 Aerovista Place, Suite 101, San Luis Obispo, California 93401
Phone (805) 549-3147 • FAX (805) 543-0397

Arnold Schwarzenegger
Governor

cc: P Knetz via email
E Wier
R Drake
B Lewis

April 5, 2007

John R. Hollenbeck
County Government Center
Room 207
San Luis Obispo, CA 93408

Dear Mr. Hollenbeck:

WATER QUALITY CERTIFICATION NUMBER 34006WQ19 FOR NACIMIENTO WATER PROJECT, SAN LUIS OBISPO COUNTY

Thank you for the opportunity to review your April 25, 2006 application for water quality certification of the Nacimiento Water Project. The application was completed on March 6, 2007 with the submission of a Wetland Compensation and Monitoring Plan. The project appears to protect beneficial uses of State waters. We are issuing the enclosed Technically Conditioned Water Quality Certification.

Per California Code of Regulations Section 3857, we will take no further action on your application and anticipate no further regulatory involvement. Should new information come to our attention that indicates a water quality problem, we may issue Waste Discharge Requirements.

Your Section 401 Water Quality Certification application and CEQA documents indicate that project activities may affect beneficial uses and water quality. The Water Board issues this certification to protect water quality and associated beneficial uses from project activities. We need reports to determine compliance with this certification. All technical and monitoring reports requested in this certification, or anytime after, are required per Section 13267 of the California Water Code.

Your failure to submit reports required by this certification, or your failure to submit a report of technical quality acceptable to the Executive Officer, may subject you to enforcement action per Section 13268 of the California Water Code. The Water Board will base enforcement actions on the date of certification. Any person affected by this Water Board action may petition the State Water Resources Control Board (State Board) to review this action in accordance with California Water Code Section 13320; and Title 23, California Code of Regulations, Sections 2050 and 3867-3869. The State Board, Office of Chief Counsel, PO Box 100, Sacramento, CA 95812, must receive the petition within 30 days of the date of this certification. We will provide upon request copies of the law and regulations applicable to filing petitions.

If you have questions please contact **Dominic Roques at (805) 542-4780 or by e-mail at DRoques@waterboards.ca.gov**. Please include the above certification number in all correspondence pertaining to this certification.

Sincerely,

for Roger W. Briggs
Executive Officer

Enclosure: Action on Request for CWA Section 401 Water Quality Certification

S:\Section 401 Certification\Certifications by County\San Luis Obispo Co\Nacimiento Water Project.doc

Cc: Enclosures

Tom Roberts
Environmental Science Associates
225 Bush Street, Suite 1700
San Francisco, CA 94104

California Department of Fish and Game
Lake and Streambed Alteration Program
1234 East Shaw Street
Fresno, CA 93710

U.S. Army Corps of Engineers
San Francisco District
Regulatory Section
333 Market Street
San Francisco, CA. 94105-2197

Dave Smith, Supervisor
Wetlands Regulatory Office (WTR-8)
U.S. Environmental Protection Agency
75 Hawthorne St.
San Francisco, CA 94105

401 Program Manager
State Water Resources Control Board
Division of Water Quality
Water Quality Certification Unit
1001 "I" Street
Sacramento, CA 95812-0100

Action on Request for
Clean Water Act Section 401 Water Quality Certification
for Discharge of Dredged and/or Fill Materials

PROJECT: Nacimiento Water Project
APPLICANT: John R. Hollenbeck
Department of Public Works
County Government Center
Room 207
San Luis Obispo, CA 93408

ACTION:
1. ☐ Order for Standard Certification
2. ■ Order for Technically-conditioned Certification
3. ☐ Order for Denial of Certification

STANDARD CONDITIONS:

1. This certification action is subject to modification or revocation upon administrative or judicial review, including review and amendment per section 13330 of the California Water Code and section 3867 of Title 23 of the California Code of Regulations (23 CCR).

2. This certification action is not intended to apply to any discharge from any activity involving a hydroelectric facility requiring a Federal Energy Regulatory Commission (FERC) license or an amendment to a FERC license unless the pertinent certification application was filed per to 23 CCR subsection 3855(b) and the application specifically identified that a FERC license or amendment to a FERC license was being sought.

3. The validity of any non-denial certification action (Actions 1 and 2) shall be conditioned upon total payment of the fee required under 23 CCR section 3833, unless otherwise stated in writing by the certifying agency.

4. In the event of a violation or threatened violation of this certification, the violation or threatened violation shall be subject to any remedies, penalties, process or sanctions as provided for under state law. For purposes of Section 401(d) of the Clean Water Act, the applicability of any state law authorizing remedies, penalties, process or sanctions for the violation or threatened violation constitutes a limitation necessary to assure compliance with the water quality standards and other pertinent requirements incorporated into this certification.

5. In response to a suspected violation of any condition of this certification, the Regional Board may require the holder of any permit or license subject to this

certification to furnish, under penalty of perjury, any technical or monitoring reports the Regional Board deems appropriate, provided that the burden, including costs, of the reports shall have a reasonable relationship to the need for the reports and the benefits obtained from the reports.

6. If you violate conditions of this certification, or if there is a water quality problem, the Regional Board may change the conditions of this certification to ensure compliance, or may issue Waste Discharge Requirements. Otherwise, we plan no further action on your application. Should new information come to our attention that indicates a water quality problem, we may reassess certification conditions

REGIONAL WATER QUALITY CONTROL BOARD CONTACT PERSON:
Dominic Roques
Central Coast Region, Region 3
(805) 542-4780
(805) 788-3562 (fax)
DRoques@waterboards.ca.gov
Please refer to the above certification number when corresponding with the Water Board concerning this project.

WATER QUALITY CERTIFICATION:
I hereby issue an order certifying that any discharge from the Nacimiento Water Project shall comply with the applicable provisions of sections 301 ("Effluent Limitations"), 302 ("Water Quality Related Effluent Limitations"), 303 ("Water Quality Standards and Implementation Plans"), 306 ("National Standards of Performance"), and 307 ("Toxic and Pretreatment Effluent Standards") of the Clean Water Act.

Except insofar as may be modified by any preceding conditions, all certification actions are contingent on (a) the discharge being limited and all proposed mitigation being completed in strict compliance with the applicant's project description and the attached Project Information Sheet, and (b) compliance with all applicable requirements of the Regional Water Quality Control Board's Water Quality Control Plan (Basin Plan).

Roger W. Briggs
Executive Officer
Regional Water Quality Control Board

4-5-07
Date

Attachment 1: Project Information Sheet

Attachment 1

PROJECT INFORMATION

Application Date	Received: April 25, 2006 Completed: March 6, 2007
Applicant	John R. Hollenbeck – Department of Public Works (DPW)
Applicant Representatives	Tom Roberts – Environmental Science Associates
Project Name	Nacimiento Water Project
Regional Board Application Number	34006WQ19
Type of Project	Installation of infrastructure for water utilities
Project Location	Paso Robles to San Luis Obispo
County	San Luis Obispo
Receiving Water(s)	Lake Nacimiento, Nacimiento River, Dry Creek, San Marcos Creek, Salinas River, Santa Margarita Creek, Yerba Buena Creek, Stenner Creek, and un-named ephemeral drainages 309.00 Some Hydrologic Unit
Water Body Type	Creeks, rivers, and lake.
Designated Beneficial Uses	Municipal and Domestic Supply Agricultural Supply Industrial Process Supply Industrial Service Supply Ground Water Recharge Water Contact Recreation Non-Contact Recreation Wildlife Habitat Cold Fresh Water Habitat Warm Fresh Water Habitat Migration of Aquatic Organisms Spawning, Reproduction, and/or Early Development Rare, Threatened, or Endangered Species Commercial and Sport Fishing
Project Description (purpose/goal)	The purpose of the project is to ensure better management of available water resources in San Luis Obispo County. The Central Coast Regional Water Quality Control Board (Water Board) understands that the project includes construction and operation of the following elements: • A water intake structure and pump station at Lake Nacimiento. • 45 miles of water transmission pipeline. • Four water storage tanks. • Two intermediate pump stations.

	• Four water holding tanks.
Preliminary Water Quality Concerns	The Water Board is concerned about sedimentation, siltation, and pollutant release in the waterways. Erosion could be caused by the construction activities. Pollution from leaking oil, gasoline, hydraulic fluid, and other liquid contaminants are associated with earth-moving equipment. The Water Board is also concerned about impaired function and/or hydromodification of streams in the pipeline right-of-way.
Water Board Mitigation Requirements	Mitigations that are required to comply with 401 Water Quality Certification are as follows: • All work in stream channels shall be executed during the dry season of the year. • DPW shall retain a qualified biologist to conduct and oversee construction monitoring that pertains to the protection of biological resources. • Pre- and post-project photographs are required for each site where incursions into waterbodies or riparian areas occur. • DPW shall ensure that erosion and sediment control measures (sediment curtains) are implemented and maintained during the project until disturbed areas are stabilized. • DPW shall install silt fencing in all areas where construction occurs within 100 feet of known or potential steelhead habitat. • DPW shall ensure that all debris is picked up and removed to an offsite location on a daily basis. No debris shall be deposited within 100 feet of wetlands. • DPW shall ensure that spoil sites do not drain directly into the waterways. If a spoil site drains into a water body, catch basins shall be constructed to intercept sediment before it reaches the channels. Spoil sites shall be graded to reduce the potential for erosion. • DPW shall clearly mark with highly visible flagging or fencing all environmentally sensitive areas and route. • Specifically, once flagged, the biological monitor shall ensure that construction activities make additional effort to avoid impacting vernal pools: 0523aavp, 0532aavp, and 0548aavp. • All equipment, materials, fuels, lubricants, and solvent shall be stored at least 50 feet from the waterways. • Staging areas for fueling of construction equipment shall be located at least 50 feet beyond the project boundary. • All equipment and vehicles that will be operated within the work area shall be checked and maintained on a daily

	basis to avoid possible leaks or spills. • Any water encountered in the immediate work area of the project shall be dewatered to an upland location and prevented from flowing back into the channel. • DPW shall restore all work areas to pre-construction channel conditions. • DPW shall perform all mitigations described in the April 21, 2006 Pre-Construction Notification, pp. 5-9 through 5-11. • DPW shall notify Water Board staff if mitigations as described in the 401 Water Quality Certification application for this project are altered by the imposition of subsequent permit conditions by any local, state or federal regulatory authority. DPW shall notify Water Board staff of any modifications that interfere with compliance to Water Board conditions listed in this certification.
Area of Disturbance	A total of 1.032 acres of waterbodies will be disturbed by the project: Jurisdictional Waters Streambed: 0.11 acres permanent, 0.39 acres temporary Lake: 0.17 acres permanent, 0.092 acres temporary Non-jurisdictional Waters Vernal pool: 0.04 acres permanent, 0.266 acres temporary
Fill/Excavation Area	Approximately 0.32 acres of permanent fill
Dredge Volume	N/A
U.S. Army Corps of Engineers Permit No	Nationwide Permit 12 - Utility Line Activities Nationwide Permit 39 - Residential, Commercial, and Institutional Developments
Federal Public Notice	N/A
Dept. of Fish and Game Streambed Alteration Agreement	Streambed Alteration Agreements are pending. DPW will send to Water Board final, signed copies immediately upon execution.
Possible Listed Species	Vernal pool fairy shrimp, California red-legged frog, California tiger salamander, and California coast steelhead.
Status of CEQA Compliance	Environmental Impact Report filed January 6, 2004 Lead Agency: County of San Luis Obispo SCH No. 2001061022
Water Board Compensatory Mitigation Requirements	To address 0.32 acres of permanent impact from the Nacimiento Water Project (NWP), DPW will select one of the following compensatory mitigation projects and submit a plan for its implementation to the Water Board before ground is broken on the NWP. The plan shall include mitigation monitoring and performance criteria. DPW shall initiate implementation of a Water Board approved mitigation project within 12 months of breaking ground on the NWP. Under no circumstances shall activities satisfying this

	compensatory mitigation requirement be counted as mitigation for impacts associated with other projects. 1) San Marcos Creek Restoration: DPW will submit a plan for restoring the reach adjacent to Rabbit Ridge Winery. The plan will include analysis of hydrology and channel hydraulics to support design of successful restoration. Low-water crossings upstream of the degraded site shall be evaluated and addressed in the restoration. A total of 0.64 acres (2:1) will be restored. 2) Off-site Invasive Species Eradication: DPW will conduct eradication of non-native vegetation in riparian areas within the watersheds affected by the NWP. A total of 3.2 acres (10:1) will be treated within a 5-year period. 3) Funding of an Off-site Stream Restoration Project to be Conducted by a Third Party: In lieu of completing the San Marcos Creek project, DPW shall allocate funds to a third party to complete a stream restoration project in one of the watersheds affected by the NWP project. The in-lieu project will be comparable in terms of, 1) mitigation goals: 2:1 ratio; increased functions of sediment stabilization, nutrient removal, flood flow attenuation, aquatic diversity/abundance, and groundwater recharge, and 2) robust analytical basis for restoration design.
Total Certification Fee	The Total Fee is: Application fee $500 (paid April 25, 2006) + $2,954 project impact fees (due immediately).
Additional Conditions	The Water Board requires visual inspection and three reports for to confirm completion of mitigation requirements during construction of the NWP: • Visually inspect the sites (at least one reach upstream and downstream) after completion of the project and for two subsequent rainy seasons to ensure that disturbed areas have been restored to pre-project conditions, and that new structures are not causing water quality problems. If DPW identifies water quality problems, contact the Water Board staff member overseeing the project. You will be responsible for obtaining any additional permits necessary for implementing plans for restoration to prevent further water quality problems. • First Report: Within 30 days of project completion, submit a project completion report that contains a summary of daily activities, monitoring observations, and problems incurred and actions taken; include properly identified pre- and post-project photos. • Second and Third Report: Submit annual reports complete with photos of revegetation efforts by December 31 of the first and second year after project completion. Annual

	reports must quantify growth and progress of restoration and determine to what extent performance criteria have been met. All revegetation sites shall be assessed for percent cover, general health and stature, and signs of reproduction. The report shall also include photographs of revegetation progress over time. <u>The Water Board requires monitoring and reporting for the compensatory mitigation project:</u> • Mitigation monitoring reports are due by February 1 of each year for five years. • Performance criteria shall address vegetation, erosion control, channel stability, and function, as necessary.

December 21, 2006

Environmental Section B

Milford Wayne Donaldson
State Historic Preservation Officer
P.O. Box 94296
Sacramento, California 94296-0001

Dear Mr. Donaldson,

The San Francisco District, Regulatory Branch, has reviewed the Nacimiento Water Project (NWP) in San Luis Obispo County and determined that the fill activities involving Section 404 (Clean Water Act) jurisdiction will be authorized under Nationwide Permit 12. The NWP is being undertaken by the San Luis Obispo County Flood Control and Water Conservation District (District). It appears that the project will have an adverse effect on historic properties identified within the project's Area of Potential Effects (APE).

The following information was prepared for the San Luis Obispo County Flood Control and Water Conservation District (applicant) by Gibson's Archaeological Consulting of Paso Robles and Environmental Science Associates in Oakland. The letter and the enclosed documents provide information regarding the nature of the project, the efforts to identify and evaluate historic properties, the eligibility of identified sites for listing in the National Register of Historic Places (NRHP), the area of potential effects, the involvement of the public and Native Americans, and the steps being taken to resolve the adverse effects.

Project Objective

The proposed NWP would meet the need for future water supplies in SLO County and supplement existing groundwater sources. The objective of the NWP is to ensure better management of available water resources throughout SLO County. By supplementing the local groundwater and surface water supplies with a new surface water source, it is hoped that the project will:

- Provide a reliable supplemental water source for a variety of uses within SLO County.
- Increase reliability of water deliveries.
- Improve water quality.
- Lessen the extent of future groundwater pumping to existing residents.
- Provide sufficient supplies to support planning objectives in various communities of SLO County.

Project Background

The San Luis Obispo County Flood Control and Water Conservation District (or District) proposes to construct the NWP, which includes the following: a water transmission pipeline from Lake Nacimiento to the City of San Luis Obispo; an Intake Pump Station at Lake Nacimiento Dam; two additional pump stations; and three water tanks (Please see Enclosure 1).

The proposed project would supply up to 15,750 acre feet per year (afy) of water to various communities in San Luis Obispo County (SLO County). The District has a 17,500 acre-feet (af) annual entitlement from Lake Nacimiento per an agreement executed in 1959 with Monterey County. Of this 17,500 af entitlement, 15,750 af is slated for this project, and the remaining 1,750 af is being reserved for local lakeside use.

Cultural Resource Investigations

Previous investigations for the NWP have identified 50 cultural resource sites along the pipeline route corridor (200-foot wide corridor)[1]. The results of this survey were incorporated into the EIR prepared in 2003 (SCH#2001061022). The EIR found that no significant impact would result from the project with the implementation of several mitigations, including site avoidance by re-design. Indeed, many of the sites identified in the EIR have been avoided by alignment re-design[2]. However, the presence and integrity of a number of sites along the alignment was poorly documented in the Gibson (2003) report. Consequently, a Phase II supplemental survey and minor testing investigation was prepared by ESA in 2006. This report re-identified and investigated those sites identified within the proposed pipeline route to determine site integrity and/or presence of significant deposits within the impact area. Nine sites (CA-SLO-2216, CA-SLO-670, CA-SLO-1169, CA-SLO-2215, CA-SLO-1180, CA-SLO-2210, CA-SLO-2087H, CA-SLO-2213, CA-SLO-2211) were re-examined either through pedestrian survey or shovel probe and screening methods. Three sites potentially affected in Santa Margarita Ranch (CA-SLO-1429, CA-SLO-1386, CA-SLO-1387) revealed inconclusive results during the field investigations, but previous work done by Applied Earthworks[3] and Gibson[1] indicated that these sites were of potential importance.

CA-SLO-2216, CA-SLO-670, CA-SLO-2087H, CA-SLO-2213, and CA-SLO-2211 were determined to either be avoided by the pipeline operations or to lack sufficient integrity to be considered discrete archaeological sites eligible for the California Register or National Register (however, monitoring was recommended in some of these areas in the EIR).

The remaining sites (CA-SLO-1169, CA-SLO-2215, CA-SLO-1180, CA-SLO-2210, and the Santa Margarita Ranch sites) have been determined to be eligible for listing in the National Register of Historic Places

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[1] Gibson, R.O., and J.A. Parsons. *Inventory of Prehistoric, Historic, Paleontological, and Geologic Resources for the Camp Roberts/ East Salinas River Alignment, Nacimiento Water Supply Pipeline Project, San Luis Obsipo, County, CA.* On file at Environmental Science Associates, Oakland, CA., 2003.

Gibson, R.O., and J.A. Parsons. *Inventory of Prehistoric, Historic, and Geological Resources for the Nacimiento Water Supply Pipeline Project, San Luis Obispo County, CA.* Prepared for Ogden Environmental and Energy, Santa Barbara, CA. On file at Environmental Science Associates, Oakland, CA, 1996.

[2] For example, a large habitation site in Atascadero (CA-SLO-1964) potentially impacted by an earlier alignment was avoided by re-design to follow El Camino Real along the road and railway rights-of-way.

[3] Applied Earthworks, *Archaeological Survey of Selected Portions of the Santa Margarita Ranch, San Luis Obispo County, California.* Prepared for Santa Margarita Ranch, 2000.

(NRHP) or are assumed to eligible under Criterion D, or based on their potential to yield information important to our knowledge of prehistory. Full evaluations of SLO-1169, SLO-1180, and SLO-2210 are available[4].

Based on these findings, the ESA (2006) report recommended that the sites identified within the APE be avoided by re-directing the pipeline to avoid the sites or to avoid the sites through jack-and-bore methods. Subsequent consultation with the design engineers revealed that the particular locations of the sites and the nature of the surrounding topography or substrate precluded the possibility of re-directing the pipeline or utilizing jack-and-bore methods to avoid the sites.

Area of Potential Effects

The Area of Potential Effects (APE) for the NWP includes the entire project alignment, staging areas, pump stations and reservoirs, and any new access roads. The APE also includes staging areas, new access roads, and pump station locations located within jurisdictional wetland as delineated by the Corps, or within 100 feet of such wetlands. The trench width for the pipeline will vary depending on pipe diameter and earth conditions, but is approximately 5-feet wide by 9-feet deep.

No built historical properties are included in the APE. The Gibson (2003) report did not identify any eligible properties within the project corridor that would be adversely affected. The pipeline alignment will not directly or indirectly affect any buildings or structures.

Seven archaeological sites (CA-SLO-1169, CA-SLO-2215, CA-SLO-1180, CA-SLO-2210, CA-SLO-1429, CA-SLO-1386, CA-SLO-1387) have been identified within the Area of Potential Effect for the NWP, as currently proposed, that will be impacted by the construction of the project. The specific areas and site records that represent the sites affected are attached.

TABLE 1
ARCHAEOLOGICAL SITES WITHIN THE APE
BY ALIGNMENT SECTION

Station Number	Site Trinomial	Recommendations
(112+00)	CA-SLO-670	Project will avoid site; no further treatment recommended.
(143+00)	CA-SLO-1169	Conduct Phase III Data Recovery; monitor construction
(177+50)	CA-SLO-2215	Conduct Phase III Data Recovery; monitor construction
(250+00)	CA-SLO-1180	Conduct Phase III Data Recovery; monitor construction
(390+00)	CA-SLO-2210	Conduct Phase III Data Recovery; monitor construction
(1193+00)	CA-SLO-2087/H	Field verified outside APE; monitor construction.
(2102+00)	CA-SLO-1429 (Santa	Conduct Phase III Data Recovery; monitor construction

[4] Basgall, M.E., *Eligibility Assessments for Eight Prehistoric Archaeological Sites at Camp Roberts and Camp San Luis Obispo, San Luis Obispo and Monterey Counties, CA*, Archaeological Research Center, Institute of Archaeology and Cultural Studies, Department of Anthropology, California State University, Sacramento, 2003.

Carpenter, T., Nicholson, D., and Zeanah, D.W., *Archaeological Evaluations of Twelve Prehistoric Properties on Camp San Luis Obispo and Camp Roberts, San Luis Obispo County, California*, Archaeological Research Center, Institute of Archaeology and Cultural Studies, Department of Anthropology, California State University, Sacramento, 2004.

Garlinghouse, T., Farquhar, J.M., and Jones, T.L., *Archaeological Evaluation of Four Sites at Camp Roberts, Monterey and San Luis Obispo Counties, CA*, Prepared for California Army National Guard, 2005.

Station Number	Site Trinomial	Recommendations
	Margarita Ranch)	
(2072+00, 2080+00)	CA-SLO-1386 & CA-SLO-1387 (Santa Margarita Ranch)	Conduct Phase III Data Recovery; monitor construction

* Station numbers are approximate and may change as project proceeds.

EIR Alternatives and Engineering Constraints

A wide variety of alternatives for the NWP were considered in a screening analysis to address potential alternatives to the proposed project, as well as individual project components. This process focused the environmental review process and ensured that the full spectrum of environmental concerns was adequately represented.

While many areas of impact to cultural resources have been successfully avoided by this process, the remaining sites were not feasibly avoided. An enclosed memorandum from the project engineers describes in more detail the rationale that necessitates trenching methods through known archaeological sites (Enclosure 2).

Native American Coordination

Native American Coordination. ESA has initiated Native American contacts for this project by requesting from the Native American Heritage Commission (NAHC) a list of Native Americans that should be contacted concerning the project. ESA sent a letter to each person or organization on the NAHC list with a brief project description, a map of the project alignment, and a request for information. Although it is anticipated that members of the Salinan and Chumash groups will want to participate in more detailed consultation, no responses have been received to date. Further attempts to elicit responses were made through follow-up letters mailed on September 22, 2005. To date only one response has been received: Adelina Alva-Padilla of the Santa Ynez Band of Mission Indians on September 29, 2005. Follow-up phone calls were placed to Ms. Alva-Padilla and Mr. Duckworth of the Salinan Nation. Ms. Alva-Padilla requested a copy of the most recent reports on sites to be affected and will make contact with project planners to determine a monitoring plan. The ESA (2006) report was sent to Ms. Alva-Padilla on November 3, 2006. No specific information regarding archaeological or sacred sites has yet been provided. Additional consultation to involve the Salinan and Chumash tribes in the excavation and monitoring phases is being conducted as planning proceeds.

Finding of Adverse Effects

Implementing the proposed project could diminish the physical integrity of the identified historic properties. However, a full data recovery is expected for those segments impacted by the pipeline alignment. We have therefore made a finding of no adverse effects pursuant to 36 CFR 800.5(d)(2).

Mitigation of Adverse Effects

A draft Memorandum of Agreement (MOA) between the District, the California National Guard, and your office has been prepared to resolve the finding of adverse effects (Enclosure 3).

An Archaeological Research Design/Treatment Plan (ARD/TP) is currently being prepared in accordance with the *Secretary of the Interior's Standards and Guidelines for Archaeological Documentation* (48 FR 44734-37). The ARD presents a historical context and research topics and questions as well as data requirements necessary to recover the maximum level of information from each site that may be affected by the undertaking. The Treatment Plan will describe a program of monitoring and data recovery to ensure full documentation of recovered resources, including procedures for the treatment of unanticipated discoveries of historic and/or prehistoric Native American archaeological resources. A separate Cultural Resource Monitoring Plan will also be prepared in compliance with the EIR. It is anticipated that only the zone of impact posed by the pipeline alignment will be investigated and the remaining elements of the sites will be preserved.

Resolution of Adverse Effects

As directed by 36 CFR 800.5 we have assessed the adverse effects and we agree that the proposed project would have an affect on a historic properties although, adverse effects, will be resolved by conditioning the permit to reflect the compliance with the measures described in the mitigation and treatment plans and the stipulations outlined in the MOA. In accordance with 36 CFR 800.6(a), the District environmental consultant, will notify the Council on Historic Preservation of the finding of no adverse effects. We do not plan to invite the Council to participate in the Section 106 consultation. Pursuant to 36 CFR 800.6(b)(1) we request your review of the Area of Potential Effects, the adequacy of the cultural resources inventory, and the determination that historic properties are present in the APE.

The project team and I would welcome a meeting with you in your offices to facilitate your understanding of the project and treatment plans and to answer any of your questions. Should there be any questions or concerns, your staff may contact Kathleen Ungvarsky at (415) 977-8698, or by email at Kathleen.ungvarsky@usace.army.mil.

Sincerely,

Jane M. Hicks
Chief, Regulatory Branch

Enclosures (3)

CF:
Project File (Oakland Inner Harbor Tidal Basin)
CESPN-PE Rdg
CESPN-DE Rdg
CESPN-CO-RM Rdg (Smith)
CESPN-ET-PB Rdg (Ungvarsky)
CESPN-PM-Rdg

UNGVARSKY/ku
CESPN-ET-PB
DEC 19, 2006

SUDA
CESPN-ET-PB

DEPARTMENT OF THE ARMY
SAN FRANCISCO DISTRICT, U.S. ARMY CORPS OF ENGINEERS
1455 MARKET ST.
SAN FRANCISCO, CALIFORNIA 94103-1398

AUG 24 2007

REPLY TO
ATTENTION OF

Environmental Sciences B

Milford Wayne Donaldson, FAIA
State Historic Preservation Officer
Office of Historic Preservation
P.O. Box 942896
Sacramento, CA 94296-0001

SUBJECT: Continuing Section 106 Consultation for the Nacimiento Water Pipeline, San Luis Obispo County, California

Dear Mr. Donaldson:

In December 2006, the United States Army Corps of Engineers (USACE) (San Francisco District, Regulatory Branch) submitted a letter to your office concerning the proposed Nacimiento Water Project (NWP) in San Luis Obispo County, CA (Attachment 1). The San Luis Obispo County Flood Control and Water Conservation District proposes to construct a water pipeline, turnouts, pumping stations, and other associated facilities to transport water from Lake Nacimiento to the City of San Luis Obispo. A section of the pipeline crosses Camp Roberts National Guard Installation in San Luis Obispo County. The main objective of the NWP is to provide a reliable supplemental water source for a variety of uses within San Luis Obispo County by supplementing the local ground and surface water supplies with a new surface water source. Other objectives are to increase reliability of water deliveries, to improve water quality, to reduce the extent of future ground water pumping to supply existing residents, and provide sufficient supplies to support planning objectives in various communities of San Luis Obispo County.

Because the project requires permitting under Section 404 of the Clean Water Act, it is considered a federal undertaking and requires the USACE to consider project effects on historic properties. The purpose of the December 2006 letter was to initiate consultation in accordance with 36 CFR 800, regulations implementing Section 106 of the National Historic Preservation Act (NHPA).

In addition to project background and objectives, the December 2006 letter contained a brief description of the project Area of Potential Effect (APE), the status of Native American coordination, information on efforts to identify cultural resources within the APE, and results of evaluation of nine archaeological sites locate in the APE. Determination that the project was likely to cause adverse effects on historic properties, the USACE presented a draft Memorandum of Agreement (MOA) among the USACE District, the California National Guard, and the Office of Historic Preservation (OHP), proposing resolution to said effects.

To date, the USACE has not received any correspondence from the OHP regarding this project.

PROJECT STATUS

Since the submission of the December 2006 letter, the USACE has received comments from the California National Guard regarding the scope of resource identification and evaluation efforts, as well as the Draft MOA and the Draft Archaeological Research Design/Treatment Plan. San Luis Obispo County has recently retained the services of Albion Environmental, Inc. (Albion) to address issues raised by the National Guard and to assist in the Section 106 consultation.

Recent comments on the adequacy of cultural resource studies for the project, in conjunction with adjustments to the pipeline route and associated facilities, has prompted the USACE to update several components of the Section 106 consultation including the project APE; consultation with Native American tribes and other interested parties; and historic property identification efforts. Based on these efforts, the USACE District, in consultation with Albion, has developed a plan to:

1) complete consultation with interested parties as per 36 CFR 800.3 [f];
2) complete the historic property identification effort as per 36 CFR 800.4 [a] and [b];
3) evaluate historical significance as per 36 CFR 800.4 [c] and [d];
4) assess adverse effects as per 36 CFR 800.5; and
5) develop appropriate mitigation measures for historic properties affected by the undertaking as per 36 CFR 800.6.

The following sections present information for each of the above mentioned topics. At this time, the USACE is requesting your concurrence on the proposed APE. We are also requesting concurrence on proposed methods to complete consultation with Native American tribes and other interested parties, the historic property identification effort, evaluation studies, and resolution of adverse effects.

Enclosed, please find a CD containing the following materials in support of our consultation effort:

Attachment 1: Letter from the USACE to OHP regarding the NWP (Dated December 21, 2006)

Attachment 2: Figure 1. USGS maps depicting project location (paper copy also submitted)

Attachment 3: Figure 2. USGS maps depicting project location and Area of Potential Effect (13 sheets) (paper copy also submitted)

Attachment 4: Letters for Native American consultation (previously submitted)

Attachment 5: Gibson and Parsons 1996 (previously submitted survey report)

Attachment 6: Gibson and Parsons 2003 (previously submitted survey report)

Attachment 7: ESA 2006 (previously submitted archaeological site evaluation report)

Attachment 8: Central Coast Information Center Records Search Invoice (dated July 24, 2007)

Attachment 9: Figure 3. Map of sites and surveys within .25 mile radius of the NWP APE (4 sheets) (paper copy also submitted)

Attachment 10:CC Information Center List and maps of all archaeological sites and historic resources identified during the July 2007 records search.

Attachment 11: Table 2: NWP Cultural Resources

Attachment 12:Albion 2007 (previously submitted Archaeological Research Design and Treatment Plan for Data Recovery for the NWP.

Attachment 13:Site records

PROJECT AREA OF POTENTIAL EFFECT

The NWP is a 45-mile linear corridor located within western San Luis Obispo County that traverses from the Nacimiento Reservoir southward mainly along the current or historical rights-of-way near the Nacimiento River, the Salinas River, and Santa Margarita Creek (Attachment 2: Figure 1). The proposed project will consist of constructing a water pipeline, storage reservoirs, booster pump stations, distribution pumps, associated connecting pipelines, and other facilities. Water treatment facilities are not proposed as part of the project. Most of the pipeline will be located in existing roadways, but several segments will cross undeveloped land.

Upon review of the December 2006 letter, it became apparent that the APE description did not provide sufficient detail to assist in the identification of historic properties in accordance with 36 CFR 800.4 (a). The following section provides a more detailed APE description, detailing both the horizontal and vertical extent of proposed direct and indirect impacts. The APE (Direct and Indirect) is depicted in detail in Attachment 3 (Figures 2a-2m).

The APE for the current project includes all areas, within which the project may directly (Direct APE) or indirectly (Indirect APE) cause changes in the character or use of historic properties. A Direct APE for archaeological and built environment resources includes all areas that may be directly and physically impacted by the project; it comprises all temporary and permanent easements, the pipeline alignment, storage, booster, and distribution facilities, and any access roads/turn-outs to facilities. An Indirect APE for built environment resources is proposed to assess audible and visual effects to properties in close proximity to above ground project components (e.g., water pump or intake facilities). The Indirect APE includes all areas within 0.25-miles of above ground facilities. The Direct APE boundary is indicated by several symbols representing easements, pipeline alignment, right-of-way, facilities, and turnouts (Attachment 3). The following is a detailed description of the project APE.

Pipeline Route

The pipeline's route, as currently proposed, runs southward from the Nacimiento Reservoir to the City of San Luis Obispo, generally following State Highway 101 and the Salinas River (Attachment 2: Figure 1). Specifically, the proposed route for the NWP pipeline starts at the northeastern end of the Nacimiento Reservoir, approximately 500 feet west of Nacimiento Lake Drive at the Intake Pump Station. The route travels east, following along the northern bank of the Nacimiento River for approximately 1.5 miles. At Station 88+24.23 the pipeline crosses into Camp Roberts Training Area, continuing to travel along the northern bank of the Nacimiento River. After approximately a quarter of a mile from the Camp Roberts fenceline, the pipeline route crosses the Nacimiento River and proceeds along the southern bank of the river for a little over 2 miles on Boy Scout Road until veering sharply south away from the river. From there, the pipeline proceeds in a southeasterly direction, following West Perimeter Road (except for a short stretch on East Perimeter Road) for approximately 3 miles, then turns south briefly and follows Generals Road. The pipeline connects into the Camp Roberts Tank and, from there, swings sharply east.

The pipeline leaves Camp Roberts at Station 568+50 and continues east cross country, joining up briefly with Mahoney Road, and continuing east on Texas Road to Wellsona Road. The pipeline crosses Highway 101 at Wellsona and proceeds east until meeting up with Monterey Road. The pipeline then proceeds directly south on Monterey Road, paralleling the eastern side of Highway 101. After nearly two miles, the pipeline route crosses the Salinas River and continues along the eastern side of the River, following North River Road all the way to Paso Robles. The route continues along the eastern side of Highway 101, skirting the eastern side of the city of Paso Robles, eventually joining up with South River Road, at the Niblick Road intersection, and turning south. The pipeline veers east for a short stretch and joins up with Old South River Road, and then veers south again. Old South River Road becomes South River Road again and the pipeline continues south on South River Road. Eventually, the pipeline veers off of South River Road and proceeds south on Santa Ysabel Road for a stretch until veering off and proceeding cross country to the Santa Ysabel Pump Station. Leaving the Pump Station, the pipeline route continues cross country, crosses the Salinas River, and proceeds on Vaquero Drive south to El Pomar Drive all the way to Templeton. At Templeton, the pipeline veers southeast away from Highway 101 and passes along the eastern side of the city of Atascadero following Templeton Road. Just past Highway 46, the route joins up with Rocky Canyon Road and continues in a southeasterly direction. The pipeline connects up with the Rocky Canyon Tank and Pump Station, and then continues south. As Rocky Canyon Road veers northeast, the pipeline route breaks away and continues in a southeasterly direction following the Salinas River.

At Santa Clara Road, the pipeline turns southwest for a brief period before turning directly south and joining up with Sandoval Road and the Union Pacific Railroad. After a little over a mile, the pipeline joins with El Camino Real and proceeds south all the way to Santa Margarita. At the northern end of Santa Margarita, the pipeline turns southwest, using Yerba Buena Boulevard to join up with Highway 58, and proceeding southwest through the community of Santa Margarita, eventually meeting up with and following along the east side of Highway

101. From there, the pipeline follows Highway 101 south, eventually crossing Highway 101 and veering southwest a little over half a mile south of Tassajara Creek Road. After connecting to the Cuesta Tunnel Tank, the pipeline connects with an existing one mile-long section of pipe through the Cuesta Tunnel, then proceeds for approximately 3 miles cross country, passes TV Tower Road, follows a section of the Union Pacific Railroad, and eventually joins up with Stenner Creek Road near Chorro locality. From there, the pipeline continues southwest on Stenner Creek Road before terminating just south of Goldtree and less than a mile north of the City of San Luis Obispo.

Direct APE Description

The proposed NWP Direct APE encompasses the 45-mile linear corridor, within which the pipeline will be constructed. More specifically, the Direct APE is defined as the area, both surface and subsurface, that will be subject to potentially direct impacts from the NWP pipeline construction, installation, and any other associated impacts. Impacts include actual ground disturbing activities (such as pipeline trench excavation) as well as any vehicular travel and disturbance outside the actual pipeline trench. The NWP Direct APE includes both a horizontal and a vertical dimension. Both dimensions vary according to the scope and level of effort involved during pipeline construction and installation. The horizontal dimension of the Direct APE varies in width along the entire pipeline route. However, for much of the pipeline's length, the width of the Direct APE measures, at its narrowest, 25 feet (a measurement that includes the pipeline trench and permanent easement) and, at its widest, between approximately 100 and 125 feet (a measurement that includes the temporary easement). In certain cases, however, the Direct APE expands along its horizontal length to measurements greater than 125 feet, especially in the areas around the facilities associated with the NWP. There are five facilities associated with the NWP, which include: the Intake Pump Station at the Nacimiento Reservoir, the Camp Roberts Tank, the Santa Ysabel Pump Station, the Rocky Canyon Tank and Pump Station, and the Cuesta Tunnel Tank. The Direct APE around the Intake Pump Station includes a maximum width of 250 feet (north-south) and a maximum length of approximately 600 feet (east-west). The Camp Roberts Tanks Direct APE includes a maximum width of 390 feet (north-south), and a maximum length of 980 feet (east-west). The Direct APE for the Santa Ysabel Pump Station measures a maximum of 270 feet in width (east-west) and a maximum length of 400 feet (north-south). The maximum width for the Rocky Canyon Tank and Pump Station Direct APE measures 530 feet (east-west), while its maximum length dimension measures 520 feet (north-south). Finally, the Direct APE for the Cuesta Tunnel Tank includes a maximum width of 310 feet and a maximum length of 450 feet.

As with the horizontal dimension of the NWP APE, the vertical dimension varies along the pipeline's route in response to the particular characteristics of the terrain. In most cases, however, the vertical extent of the pipeline, as determined from the existing grade, measures no deeper than 8 feet. Nevertheless, along certain stretches of the pipeline, the vertical depth measures considerably more than 8 feet. At the extreme, for example at river crossings, the pipeline excavation can go from 40 feet to as deep as nearly 170 feet. These deep excavations occur at specific river, highway, and railroad crossings. In most instances, the depth exceeds the 8 feet barrier by only a few feet. Altogether, there are 42 instances of pipeline excavation

exceeding 8 feet. The following table provides a detailed breakdown of these 42 instances, including Station number segment and accompanying depth.

Table 1. Depth of Impact for Direct APE.

Station Number(s)	Depth (in feet)
5+00	12
189+00 to 190+00	10
258+00 to 261+77	Between 20 and 25
286+00 to 288+00	Between 14 and 16
329+00 to 331+00	Between 14 and 18
366+00 to 370+00	Between 12 and 16
503+00 to 506+00	10
576+00 to 577+00	10
594+00	26
616+00 to 617+00	10
644+00 to 644+50	10
674+00	10
699+00 to 700+00	10
700+00 to 702+00	Between 16 and 18
780+50 to 789+00	Between 10 and 12
846+50	12
854+50	10
902+00 to 912+00	Between 20 and 40
912+00 to 982+00	Between 12 and 14
994+00 to 996+00	12
1005+00 to 1010+00	Between 10 and 12

Station Number(s)	Depth (in feet)
1115+50 to 1117+00	Between 12 and 14
1128+00 to 1131+00	10
1175+00 to 1176+50	20
1224+00 to 1253+00	Maximum depth of 167
1301+50	10
1307+50	10
1381+00 to 1381+50	10
1789+00	10
1834+50 to 1836+50	Between 16 and 20
1846+50 to 1848+00	Between 14 and 16
1914+00 to 1918+50	Between 30 and 32
2068+50 to 2070+00	12
2112+00 to 2115+00	Between 12 and 14
2183+00 to 2183+50	12
2253+50 to 2256+50	Between 12 and 40
2297+00 to 2297+50	10
2303+00 to 2304+00	10
2394+00 to 2395+50	Between 20 and 32
2485+50	10
2486+50 to 2488+00	12
2495+50	10

CONSULTATION WITH NATIVE AMERICAN TRIBES AND OTHER INTERESTED PARTIES

Previous Consultation Efforts

Consultation with the Native American community concerning the NWP began in June 2005 (Attachment 4). ESA queried the California Native American Heritage Commission (NAHC) for names of individual Native Americans, organizations, and tribes that might have concerns about the effect of the project on resources of heritage value (Attachment 4: letter, ESA to Rob Wood, NAHC May 20, 2005). In response the NAHC provided a list of 24 individuals, groups and tribes (Attachment 4: letter Rob Wood, NAHC to ESA, June 15, 2005), with a recommendation to contact each listed person or entity for information or concerns. ESA contacted each entry on the list and after a second written inquiry received a response from the Santa Ynez Band of Mission Indians (Attachment 4: letter Alva-Padilla, Santa Ynez to ESA, September 29, 2005). In that letter Santa Ynez, the only tribe recognized as such by the Department of the Interior (often referred to as "federal recognition") recommended monitoring

of disturbance. The letter also recommended contacting the Elders Council at Santa Ynez or the "Chumash of the project area" for assistance in monitoring. Based on past experience the latter reference was to the Northern Chumash community of the northern San Luis Obispo County region, a well-known Native American community, which is not recognized as a tribe by the federal government. Follow up phone calls and emails were also placed to Robert Duckworth of the Salinan Nation and to the Santa Ynez Band in September, 2006 to solicit further comments. No response was received from Mr. Duckworth and a copy of the Phase II report (ESA 2006) was sent to Ms. Alva-Padilla per her request.

Consultation with the Native American community has thus far been conducted as a hybrid of the federal Section 106 process and the California CEQA process. This is a common and effective approach when a project needs to consider the opinions and advice of Native American groups that may have State but not federal level status as recognized tribes. The prescriptions for monitoring therefore consider the Section 106 process but also the requirements imposed by San Luis Obispo County, CEQA, and various sections of the California Public Resources Code. Under the federal or Section 106 process, only the Santa Ynez Band of Mission Indians has status to comment as a Tribe, and to elect to accept an invitation to participate (sign) the Project MOA. Tribes not recognized by the federal governments may stand as "Interested Persons" with regard to the MOA and consultation process, but are not invited to full participation in the MOA.

Plan to Complete Consultation

Pursuant to 36 CFR 800.3 [f]) continued consultation will be revisited with the aim of ensuring that the requirements of Section 106 with regard to both federally recognized tribes and interested persons are met. This will require at least one meeting with staff or possibly the tribal council of the Santa Ynez Band to determine if they: 1) wish to participate formally in the MOA; 2) wish to participate in field work as observers; or 3) wish to share or pass responsibilities to non-recognized tribes closer to the project alignment. In the latter case, the Santa Ynez Band may wish to directly involve Chumash representatives from the San Luis Obispo based Northern Chumash Council of San Luis Obispo County, or one of the Salinan groups in southern Monterey County. The Santa Ynez Band will provide written confirmation of the results of the consultation.

HISTORIC PROPERTY IDENTIFICATION

Previous Identification Efforts

Previous efforts to identify historic properties were briefly detailed in the December 2006 letter, referencing surface surveys conducted by Gibson and Parsons (1996, 2003) (Attachments 5 and 6) and follow up Phase II evaluation by ESA (2006) (Attachment 7). Recent review of this supporting documentation revealed several problems including: 1) reliance on outdated record searches at the Central Coast Information Center, UCSB (Wilcoxon and Dondero 1993; Gibson

and Parson 1996; and Farrell 2000); 2) absence of detailed project maps showing location of sites in relation to the project APE; and 3) a lack of correspondence between identified sites and recommendations in the survey report and the Phase II evaluation report.

Recent Identification Efforts

Record Search Update

In an effort to conduct a reasonable and good faith effort to identify historic properties (as per 36 CFR 800.4 [b] [1]), Albion completed a supplemental records search to identify cultural resources within the proposed project APE. The records search was conducted by the Central Coast Information Center in July 2007 (Attachment 8). Results of the records search show that all areas of the proposed APE have been previously surveyed for cultural resources (Attachment 9). Totals of 63 archaeological sites and 17 Historic Resources (all built environment resources) were identified within a 0.25-mile radius from the APE. Attachment 10 contains lists and maps generated by the Central Coast Information Center for all resources identified during this effort. All sites and studies identified during the records search were plotted on a reduced-size APE map (Attachment 9).

Archaeological sites located more than 200 meters from the APE, or separated from the APE by a major feature (i.e., highway or river) were determined to be sufficiently distant from the APE, requiring no further action. Sites located within 200 meters of the APE are judged as having some potential to be affected by the undertaking, requiring further consideration. These resources are labeled on the project APE map (Attachment 2). Table 2 (Attachment 11) lists each of these sites, and includes information pertaining to geomorphologial context, potential for buried deposits, distance to APE, current NHRP status, recommendations made during the previous inventory (Gibson 2003), and current recommendations for additional studies. Site records for these resources are in Attachment 13.

Supplemental Field Reconnaissance

While past documentation (the 2007 records search, Gibson and Parsons 2003, and ESA 2006) indicates the APE has been previously surveyed for cultural resources, Albion conducted a supplemental reconnaissance of the APE to assess the potential for any direct or indirect effects on previously identified built environment resources (See Historic Resources listed in Attachment 10), or on historic district landscapes which were not adequately addressed during the Phase I survey. The survey was conducted on July 27, 2007 by staff historian and archaeologist Leslie Fryman who is qualified in accordance with the Secretary of the Interior's standards for work in architectural history as well as historical archaeology.

The only built environment resources identified to date within the Direct APE are a number of concrete culverts (circa 1930s) located along roadways where the pipeline will be buried in, or adjacent to, the road. The culverts have been identified in a preliminary fashion during the previous Phase I surveys and will be mapped and recorded on California Department of Parks and Recreation Primary Record forms, and evaluated as part of the Phase II Evaluation studies. The potential for further direct effects to historic archaeological sites in the Direct APE

appears unlikely and is well within the scope of standard mitigation measures for the unanticipated discovery of buried remains.

Several segments of El Camino Real (Juan Bautista de Anza Trail) are located within the direct APE. The El Camino Real is a designated National Historic Trail managed by government partnerships for its public recreation and interpretive value rather than for preservation purposes (see National Park Service, Anza Trail Comprehensive Management and Use Plan/Final Environmental Impact Statement, 1996). El Camino Real segments in the proposed pipeline Direct APE are modern paved roads that no longer retain sufficient historic integrity to meet National Register of Historic Places criteria.

The Indirect APE for historic buildings and potential historic districts with contributing landscape elements is defined as any such resource within sight, or within the viewshed, of the proposed pipeline. Once constructed, the pipeline will be buried and virtually invisible from its surroundings, with the exception of several small pumping plants or other above-ground facilities distributed along its length. All of the previously identified historic buildings along the project route (approximately 8-10) are located within modern townscapes (e.g., Paso Robles, Atascadero, Santa Margarita) and are not within view of any proposed above-ground pipeline facilities; most are not even within view of the route proposed for the buried portion of the pipeline.

No potential historic districts with contributing landscapes have been identified in proximity to the proposed pipeline route. The windshield survey of the indirect APE suggests that the rural settings of historic ranches Santa Ysabel and Santa Margarita may at one time have had intact field plots, ranch roads, tree windbreaks, developed springs and other features comprising a contributing historic landscape, but within the last 10-20 years these attributes have been compromised by Highway 101 corridor developments and by new residential communities. Other historic landmarks, such as the Nacimiento Ranch and the mission/town of San Miguel, either have no such attributes or are safely distant from the proposed pipeline route.

Plan to Complete Identification Effort

Based on site information contained in Table 1 as well as the results of the built environment field reconnaissance, the following actions are proposed to complete the identification effort in accordance with 36 CFR 800. 4.

Extended Phase I Investigation

Extended Phase I investigation is recommended for portions of the APE within 50 meters of an existing archaeological site, or within 100 meters in areas with some potential for buried deposits. Extended Phase I is recommended for portions of the APE that are in or in close proximity to the following sites: CA-SLO-2216, -1827, -2084, -1920, -2087, -2086, -2214, -2047,-1978, -1959, -1429, -1964, -2056, -2212, -587, -2211, -2042, -539, -538, -2283, -1805.

Extended Phase I investigations will involve backhoe trenching to explore areas in the APE that will be subjected to ground disturbing activities and are close to site boundaries. Trenches will be approximately one meter wide by four meters long; depth of the trench will be dictated by depth of impact planned for the specific area. One or two trenches are planned for each area. Samples of spoils from each trench will be screened through 1/4" mesh. Samples will be equivalent to the volume of a 50 cm x 50 cm x 10 cm shovel probe (about .12 cubic meters), taken every 50 cm from top to bottom (or as appropriate). Any cultural materials will be collected for further processing. Excavation results will be documented on appropriate field forms.

Determination of the presence of intact subsurface deposit will be based on two criteria: 1) identification of intact soil strata, lacking evidence of redeposition or disturbance; and 2) identification of prehistoric or historic age materials in densities greater than 3 items per 0.12 cubic meters (or 25 items per cubic meter). If no archaeological deposits are encountered, or are found in disturbed contexts, no further action is required. If intact deposits are encountered, Phase II test excavations will be required to evaluate the site for National Register eligibility, assess project impacts, and (if needed), develop mitigation measures.

Site Recording

Built environment resources identified to date (HR #1 and #13,) within the direct APE will be mapped and recorded on California Department of Parks and Recreation Primary Record forms, and evaluated as part of the Phase II Evaluation studies.

RESOURCE EVALUATIONS AND RESOLUTION OF ADVERSE EFFECTS

Three of the sites identified in the APE have been previously evaluated, and found to be eligible for the National Register. These sites include CA-SLO-1169 (Basgall 2003), SLO-1180 (Carpenter et al. 2004), and SLO-2210 (Garlinghouse and Farquhar 2003). All were addressed in the Gibson and Parsons (2003) survey report as well as the ESA (2006) Evaluation Report. The December 2006 letter submitted by the USACE indicated these sites would be adversely affected by the undertaking (as per 36 CFR 800.5) and would require resolution of said effects (36 CFR 800.6). Mitigation measures for said effects were presented in Albion's (2007) Archaeological Research Design and Treatment Plan for the project (Attachment 12).

Four additional sites in the APE have not yet been evaluated. Pursuant to 36 CFR 800.4 and 800.5, these sites will require additional study to asses NRHP eligibility and potential project impacts. These sites (CA-SLO-2213, -2215, -1386, and -1387) were addressed in the Gibson and Parsons (2003) survey report as well as the ESA (2006) Evaluation Report; however were not formally evaluated.

Any additional resources discovered during the Extended Phase I effort will also require evaluation and assessment of impacts.

Upon completion of the proposed Extended Phase I effort, Albion proposes to revise the existing Archaeological Research Design and Treatment Plan (Attachment 12) to include a combined (or phased) approach to evaluation and data recovery. This phased approach is essential to facilitate the established construction schedule, set to begin October 17, 2007.

CONCLUSION

To conclude, USACE is requesting your concurrence on the following items:

1) Appropriateness of the APE for the proposed undertaking (pursuant to 36 CFR 800.4[a]);

2) Adequacy of the proposed methods for identification effort (pursuant to 36 CFR 800. 4 [b]);

3) Adequacy of the proposed methods for consultation with Native American tribes and other interested parties (pursuant to 36 CFR 800. 3 [f]);

In addition, we would like to seek guidance from your office regarding development of the proposed combined evaluation and data recovery plan to satisfy regulations set forth in 36 CFR 800.4 through 800.6.

Thank you for your review and response to our request for assistance. We look forward to continuing consultation for this project. Please direct any questions, concerns, or requests for more information to Albion's Senior Archaeologist Jennifer Farquhar at (831) 469-1875 (fax: 831-469-9137; email: jfarquhar@albionenvironmental.com; cell: 831-588-1724) and The U.S. Army Corps San Francisco District Archaeologist Kathleen Ungvarsky (415) 503-6842; email: Kathleen.ungvarsky@usace.army.mil.

Sincerely,

Jane M. Hicks

Jane Hicks
Chief, Regulatory Branch

CD with Attachments 1 – 13:

Attachment 1: Letter from the USACE to OHP regarding the NWP (Dated December 21, 2006)

Attachment 2: Figure 1. USGS maps depicting project location (paper copy also submitted)

Attachment 3: Figure 2. USGS maps depicting project location and Area of Potential Effect (paper copy also submitted)

Attachment 4: Previously submitted letters regarding Native American consultation

Attachment 5: Gibson and Parsons 1996 (previously submitted survey report)

Attachment 6: Gibson and Parsons 2003 (previously submitted survey report)

Attachment 7: ESA 2006 (previously submitted archaeological site evaluation report)

Attachment 8: Central Coast Information Center Records Search Invoice (dated 7/24/07)

Attachment 9: Figure 3. Map of sites and surveys within .25 mile radius of the NWP APE (paper copy also submitted)

Attachment 10:CC Information Center List and maps of all archaeological sites and historic resources identified during the 2007 records search.

Attachment 11:Table 2: NWP Cultural Resources

Attachment 12:Albion 2007 (previously submitted Archaeological Research Design and Treatment Plan for Data Recovery for the NWP.

Attachment 13:Site records

STATE OF CALIFORNIA – THE RESOURCES AGENCY
ARNOLD SCHWARZENEGGER, *Governor*

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September 11, 2007

In Reply Refer To: COE070416A

Jane M. Hicks
Chief, Regulatory Branch
Department of the Army
San Francisco District
U.S. Army Corps of Engineers
1455 Market Street
San Francisco, California 94103-1398

Re: Proposed San Luis Obispo County Flood Control and Water Conservation District Section 404 (Clean Water Act) Permit to Construct the Nacimiento Water Project, San Luis Obispo County, California.

Dear Ms. Hicks:

Thank you for submitting to our office, your letters and supporting documentation regarding the undertaking noted above. The U.S. Army Corps of Engineers (COE), San Francisco District, is requesting my consultation regarding the subject undertaking, pursuant to 36 CFR Part 800 (as amended 8-05-04) regulations implementing Section 106 of the National Historic Preservation Act. The San Luis Obispo County Flood Control and Water Conservation District is seeking a permit from the COE pursuant to Section 404 of the Clean Water Act to authorize the construction of the proposed Nacimiento Water Project. The COE has identified this permitting action as an undertaking pursuant to the NHPA and is seeking my comments regarding the affects that this undertaking will have to historic properties. The proposed project will include a pipeline from Lake Nacimiento to the City of San Luis Obispo, an intake pump station at Lake Nacimiento, three additional pump stations, and three water tanks. The construction and operation of these facilities would supply up to 16,200 acre-feet of water per year to various communities in San Luis Obispo County.

In addition to your letter of August 24, 2007 and attachments, you have previously submitted letters on April 11, 2007 and April 20, 2007, as well as numerous maps, site records, and lists of historic properties and surveys, and the following reports and documents:

- Draft *Memorandum of Agreement Between the U.S. Army Corps of Engineers and the California State Historic Preservation Officer Regarding the Issuance of a Permit Under Section 404 of the Clean Water Act (33 U.S.C. 1344) for the Nacimiento Water Project, San Luis Obispo County, California.*

- *Archaeological Research Design and Treatment Plan for Data Recovery at the Nacimiento Water Project, San Luis Obispo California* (Albion Environmental, Inc.: March 2007).

- *Nacimiento Water Project Phase II Cultural Resources Investigation Nacimiento Water Project.* (D. Martorana, B Scott, T. O'Brien; ESA: April 2006, Amended February 2007).

- *Inventory of Prehistoric, Historic, and Geological Resources for the Nacimiento Water Supply Pipeline Project, San Luis Obispo County, CA*, (R.O. Gibson and J. Parsons; Gibson's Archaeological Consulting: November 5, 1996).

- *Inventory of Prehistoric, Historic, Paleontological and Geological Resources for the Camp Roberts/East Salinas River Alignment, Nacimiento Water Supply Pipeline Project, San Luis Obispo County, CA.* (R.O. Gibson and J.A. Parsons; Gibson's Archaeological Consulting: January 30, 2003).

- *Memorandum: To Eric Wier, Environmental Specialist from Christine Halley, TJ Cross Engineers; Re: Cultural Resource Site Approach* (NWP Nacimiento Water Project, San Luis Obispo County Flood Control and Water Conservation District: December 13, 2006).

- *NWP Nacimiento Water Project, San Luis Obispo County Flood Control and Water Conservation District Final EIR*; 5.8-1 Cultural Resources and Paleontological Resources (December 2003).

- *Cultural Resources Investigation Report and Avoidance Plan, Nacimiento Water Project* (Preliminary, January 2005).

- *Phase II Cultural Resources Assessment, Nacimiento Water Project* (April 2006).

- *Archaeological Evaluations of Twelve Prehistoric Properties On Camp San Luis Obispo and Camp Roberts, San Luis Obispo County, California* (T. Carpenter, D. Nicholson, and D.W. Zeanah; Archaeological Research Center, California State University, Sacramento: July 2004).

At this time you are requesting that I review your letter of August 24, 2007 and the supporting documentation noted above, concur on your determination of an Area of Potential Effects, comment on the adequacy of the additional identification efforts that you are proposing to evaluate the historic properties in the APE, and comment on the adequacy of your consultation with Native American tribes.

After reviewing your letters and supporting documentation, I have the following comments:

1) The Area of Potential Effects (APE) of this undertaking has been identified as the entire project alignment from Lake Nacimiento to the City of San Luis Obispo, all four pump stations and all three tank locations, staging locations, and all new access roads. Based on your description and map of the APE, I concur that it has been properly determined pursuant to 36 CFR Part 800.4(a)(1).

2) After reviewing the geomorphology section in Gibson and Parsons (2003) and discussing the approach initially being proposed for this aspect of the project with Jennifer Farquhar of Albion Environmental, Inc., I do not agree with the treatment being planned at these 14 locations (Gibson and Parsons 2003:66). The action proposed for these locations, that of monitoring the pipeline installation during the trench excavation, is not a historic property identification technique that my office considers appropriate pursuant to 36 CFR Part 800.4, nor is it one that I believe has been insightful or effective when employed in past consultations. I recommend that the COE instead pursue a proactive type of subsurface historic property identification, specifically, trenching by backhoe or other mechanical technology at these locations prior to project construction, and inspection of these trenches by a qualified geoarcheologist. I would also be willing to consider alternative types of subsurface investigation or geoarcheological analysis of these locations if the COE can demonstrate that they would achieve comparable results.

3) Please continue with your efforts as described on page 7 of your letter of August 24, 2007, to secure appropriate Native American consultation and/or participation during subsequent phases of this undertaking.

4) Please provide confirmation that you have submitted appropriate notification and documentation, pursuant to 36 CFR Parts 800.6(a)(1) and 800.11(e), of this undertaking to the Advisory Council on Historic Preservation (ACHP) and copies of their response, if any, regarding whether or not they wish to be a participant.

5) Please ensure that updated copies of DPR 523 Site Record Forms or the equivalent are completed for all of the historic properties located in the project APE. Many of those in your supporting documentation are dated and lack sufficient detail of recordation.

6) I agree that the actions proposed in your letter of August 24, 2007 should provide the types of data needed to enable you to complete your historic property identification efforts and proposed appropriate National Register of Historic Places evaluations of those historic properties in the project APE, if taken in concert with the previous identification efforts and in consideration of my comments as stated above.

I will be available to continue this consultation following the completion of your proposed additional identification and evaluation efforts, your response to those items noted above, and your determination of a finding of effect for this undertaking. Thank you for seeking my comments and for considering historic properties in planning your project. If you require further information, please contact William Soule, Associate State Archeologist, at phone 916-654-4614 or email wsoule@parks.ca.gov.

Sincerely,

Susan K Stratton for

Milford Wayne Donaldson, FAIA
State Historic Preservation Officer

cc:

Jennifer Farquhar
Albion Environmental Inc.
1414 Soquel Avenue, Suite 205
Santa Cruz, California 95062

DEPARTMENT OF THE ARMY
SAN FRANCISCO DISTRICT, U.S. ARMY CORPS OF ENGINEERS
1455 MARKET ST.
SAN FRANCISCO, CALIFORNIA 94103-1398

NOV 28 2007

Environmental Section B

Milford Wayne Donaldson, FAIA
State Historic Preservation Officer
Office of Historic Preservation
P.O. Box 942896
Sacramento, CA 94296-0001

Attention: William Soule

Subject: Continuing Section 106 Consultation for the Nacimiento Water Project, San Luis Obispo County, California (COE 070416A)

Dear Mr. Donaldson:

In December 2006, the United States Army Corps of Engineers San Francisco District (COE) submitted documentation to continue consultation on the Nacimiento Water Project (NWP) in San Luis Obispo County, California (Enclosure A).

The San Luis Obispo County Flood Control and Water Conservation District applied to the COE for a permit under Section 404 of the Clean Water Act. The San Luis Obispo County Flood Control and Water Conservation District proposes to construct a water pipeline, turnouts, pumping stations, and other associated facilities to transport water from Lake Nacimiento to the City of San Luis Obispo in San Luis Obispo County, California. A section of the pipeline crosses U. S. Army National Guard Bureau and California Army National Guard and Installation Camp Roberts in San Luis Obispo County.

The main objective of the NWP is to provide a reliable supplemental water source for a variety of uses within San Luis Obispo County by supplementing the local ground and surface water supplies with a new surface water source. Other objectives are to increase reliability of water deliveries, to improve water quality, to reduce the extent of future ground water pumping to supply existing residents, and provide sufficient supplies to support planning objectives in various communities of San Luis Obispo County. In keeping with 36 CFR Part 800.3, the proposed project has the potential to affect historic properties and is therefore considered an undertaking as defined at 36 CFR Part 800.16(y).

Section 106 of the National Historic Preservation Act (NHPA) requires federal agencies to consider the effects of a proposed project on properties listed or determined eligible for listing in the National Register of Historic Places (NRHP). In consultation with you, we are developing an effective plan to satisfactorily mitigate the adverse effects of the proposed project.

In consultation with you we concluded that upon review of the project's initial documentation cultural resources were not adequately addressed. We are providing supplemental documentation for your information.

In December 2006 we submitted information including the project background and objectives, a brief description of the project's Area of Potential Effects (APE), the status of Native American coordination, efforts to identify historic properties throughout the APE, evaluation of nine archaeological

sites within the APE, and a draft Memorandum of Agreement (MOA) among the COE, California Army National Guard, and Office of Historic Preservation (OHP). We received comments and planned to implement additional reasonable and necessary changes to obtain additional data needed to complete identification and evaluation of historic properties (pursuant to 36 C.F.R. Parts 800.4 to 800.6). Environmental Science Associates (ESA) retained the services of Albion Environmental, Inc. (Albion) to conduct the additional investigations.

In a letter to your office dated August 24, 2007 (Enclosure C), we outlined the plan to secure full compliance. We requested your concurrence with our proposed APE, our efforts to provide adequate identification and evaluation of historic properties, our efforts to consult with Native American tribes and other interested parties, and our determination of adverse effects. We sent thirteen enclosures with our letter August 24, 2007. We are again providing all supporting documentation for your review and information on the enclosed CD (Enclosure D).

1) complete consultation with Native American tribes and interested parties as per 36 C.F.R. Part 800.3 [f];

2) complete the historic property identification effort as per 36 C.F.R. Part 800.4 [a] and [b];

3) evaluate historical significance as per 36 C.F.R. Part 800.4 [c] and [d];

4) assess adverse effects as per 36 C.F.R. Part 800.5; and

5) develop appropriate mitigation measures for historic properties affected by the undertaking as per 36 C.F.R. Part 800.6.

The following actions were proposed to achieve the above stated goals:

1) meet with staff or tribal council of the Santa Ynez Band (pursuant to 36 C.F.R. Part 800.3 [f]);

2) conduct Extended Phase I investigation of 21 sites in close proximity to the APE (pursuant to 36 C.F.R. Part 800.4);

3) map and record two built environment resources in the APE as part of the Phase II evaluation study (pursuant to 36 C.F.R. Part 800.4);

4) revise the existing Archaeological Research Design and Treatment Plan to include a phased approach to evaluation and data recovery mitigation of archaeological sites in the APE (pursuant to 36 C.F.R. Part 800.4 through 800.6).

On September 11, 2007, your office concurred with the project APE (Enclosure E) and recommended additional studies to meet the full intent of the law. The recommended tasks would indeed provide the types of data needed to enable completion of the historic property identification effort and National Register evaluation of historic properties within the project APE.

1) a geoarchaeological review of the project (including subsurface investigations) to identify buried sites;

2) continue efforts to secure appropriate Native American consultation/participation;

3) provide confirmation that the Advisory Counsel on Historic Preservation has been notified of the undertaking and has been invited to participate in the consultation (pursuant to 36 C.F.R. Part 800.6 [a] [1] and 800.11 [e]); and

4) prepare and file new site record forms, DPR 523, for all sites identified within the project APE and prepare new (updated) site record forms for existing sites within the APE. for all historic properties in the project APE.

We requesting your concurrence with our completion of the historic property identification, and finding of adverse effects for four archaeological sites (CA-SLO-1169, CA-SLO-2215, CA-SLO-1180, and CA-SLO-2210) within the project APE. We also seek concurrence on the adequacy of the Revised Archaeological Research Design and Treatment Plan to evaluate historical significance, assess adverse effects, and develop appropriate mitigation measures for historic properties affected by the undertaking.

Albion has conducted supplemental investigations as recommended. The content includes Native American Consultations, Identification of Historic Properties, Geoarchaeological Review, Evaluation and Resolution of Adverse Effects.

Supporting documentation listed below is provided for your review and information on the enclosed CD.

Enclosure A:	Letter from the COE to OHP regarding the NWP (Dated December 21, 2006)
Enclosure B:	Comments California Army National Guard regarding the Phase II Evaluation Report (ESA 2006)
Enclosure C:	Letter from the COE to OHP regarding the NWP (Dated August 24, 2007)
Enclosure D:	Thirteen attachments sent previously with letter to OHP dated August 24, 2007.
Enclosure E	Letter from the OHP to COE regarding the NWP (Dated September 11, 2007)
Enclosure F:	Farquhar and D'Oro 2007 (Extended Phase I Report)
Enclosure G:	Farquhar 2007 (Extended Phase I Addendum Report)
Enclosure H:	Meyer 2007 (recommendations for geoarchaeological review of the NWP)
Enclosure I:	Gibson and Parsons 2003 (previously submitted survey report)
Enclosure J:	Ballantyne et al. 2007 (Geoarchaeological Study)
Enclosure K:	ESA 2006 (Evaluation Report)
Enclosure L:	Central Coast Information Center Records Search Invoice (Dated 7/24/07).
Enclosure M:	Farquhar et al. 2007 (Revised Archaeological Research Design and Treatment Plan for Evaluation and Data Recovery for the NWP)

CONSULTATION WITH NATIVE AMERICAN TRIBES AND INTERESTED PARTIES

As indicated in the August 24, 2007 letter, consultation continued with the aim of ensuring that the requirements of Section 106 with regard to both federally recognized tribes and interested persons were met (pursuant to 36 C.F.R. Part 800.3 [f]). On October 29, 2007 representatives of the Chumash and Salinan groups, including the federally recognized Santa Ynez Band, participated in a day-long project tour. The tour resulted in expressed concerns about the level of Native American representation during Project construction. We will continue to consider their concerns throughout the Section 106 consultation process.

HISTORIC PROPERTY IDENTIFICATION

The COE August 24, 2007 letter to the OHP outlined two tasks to complete the historic property identification effort in accordance with 36 C.F.R. Part 800. 4. Proposed tasks included an Extended Phase I investigation of 21 sites in the APE, and recording and evaluation two culverts in the APE. In addition to these tasks, OHP recommended a geoarchaeological review of the project in order to complete the historic property identification effort (Enclosure E). Each of these tasks is described below.

Extended Phase I

As detailed in Enclosure C, an Extended Phase I study was proposed for portions of the APE that are in or in close proximity to the following sites: CA-SLO-1805, SLO-2283, SLO-538, SLO-539, SLO-2042, SLO-2084, SLO-2211, SLO-1964, SLO-587/2212 area, SLO-1429, SLO-1959, SLO-1978, SLO-2047, SLO-2214, SLO-2086, SLO-1920/2087 area, SLO-2084, SLO-1827, and SLO-2216.

Extended Phase I investigations were to employ backhoe trenching to explore areas in the APE that will be subjected to ground disturbing activities and are close to site boundaries. The letter also provided that samples of spoils from each trench would be screened through 1/4" mesh. Samples will be equivalent to the volume of a 50 cm x 50 cm x 10 cm shovel probe (about .12 cubic meters), taken every 50 cm from top to bottom (or as appropriate).

Determination of the presence of intact subsurface deposit was to be based on two criteria: 1) identification of intact soil strata, lacking evidence of redeposition or disturbance; and 2) identification of prehistoric or historic age materials in densities greater than 3 items per 0.12 cubic meters (or 25 items per cubic meter). If no archaeological deposits are encountered, or are found in disturbed contexts, no further action is required. If intact deposits are encountered, Phase II test excavations will be required to evaluate the site for National Register eligibility, assess project impacts, and (if needed), develop mitigation measures.

Albion Environmental, Inc. (Albion) completed the Extended Phase I study of 21 locations between August 21 and September 1, 2007. The resulting report is contained in Enclosure F.

Each location was visited during a field reconnaissance between August 20 and August 21, 2007 to further assess the need for Extend Phase I investigations. During the initial field reconnaissance it was determined that six of the sites (SLO-2084, SLO-1978, SLO-2056, SLO-2042, SLO-539, and SLO-538 did not require further investigation. Also during the initial reconnaissance it was determined that SLO-2216 (an extensive debitage scatter located just west of the western boundary of Camp Roberts) would require formal recording (DPR forms) and Phase II evaluation. Lastly, as the APE adjacent to SLO-1827 is under paved Old South River Road in the City of Paso Robles and was not accessible during the current project, it was determined that this site would be investigated during planned Phase II evaluation investigations.

The remaining 13 sites were assessed to determine if intact cultural deposits are located in the APE. These sites include (listed in order from south to north): CA-SLO-1805, SLO-2283, SLO-2211, SLO-1964, SLO-587/2212 area, SLO-1429, SLO-1959, SLO-2047, SLO-2214, SLO-2086, SLO-1920/2087 area.

The Extended Phase I investigation satisfactorily achieved the stated project goal based on the determination of the above stated two criteria. The following is a restatement of findings in the Extended Phase I Report:

- The study area in the vicinity of **SLO-1805** did not yield archaeological materials, indicating that cultural materials likely associated with CA-SLO-1805 are not located within the NWP pipeline APE. The deposit does not have the potential to contribute to eligibility of SLO-1805 and no further archaeological investigation (evaluation or mitigation) is warranted.

- The study area in **SLO-2283** did not yield archaeological materials; however, since the area is recorded as a prehistoric cinnabar quarry, the site should be evaluated using the following methods: formal site recording, mapping, and background research.

- Investigations at **SLO-2211** revealed a sparse accumulation of prehistoric materials present within the APE from the surface to approximately 120 centimeters below surface (cmbs). Prehistoric artifacts are intermixed with (and in places are located above) modern/historic artifacts; subsurface integrity is therefore judged to be substantially impaired. The soil profile indicating introduced fill for Trench 1 and Trench 2 seems to support this interpretation. None of the areas examined contained significant quantities of cultural materials and do not appear to constitute an intact cultural deposit. No further archaeological investigation (evaluation or mitigation) is necessary.

- Limited excavations in the study area adjacent to **SLO-1964** revealed no prehistoric or historic-era artifacts; modern trash included several fragments of bottle glass and a piece of a plastic music record. The Extended Phase I study indicates that cultural materials possibly associated with CA-SLO-1964 are not located within this portion of the NWP APE and no further archaeological investigation is warranted.

- Investigations in the vicinity of **SLO-2212** and **SLO-587** indicate that potential significant cultural materials are located within the NWP pipeline APE. The deposit appears to be minimally disturbed to at least 120 cm below the ground surface; no materials were recovered between 80-120 cmbs (5 feet), the maximum depth of impact by planned pipe installation. This portion of the APE may contain intact cultural deposits, and further archaeological investigation is warranted to assess NRHP eligibility.

- The Extended Phase I study indicates that cultural materials possibly associated with **CA-SLO-1429** are not located within the NWP pipeline APE and no further archaeological investigation is warranted.

- Investigations indicate that cultural materials associated with **CA-SLO-1959/H** are located within the NWP pipeline APE, however the deposit appears to be disturbed to at least 200 cm below the ground surface. The deposit no longer has the potential to contribute to eligibility of SLO-1959/H (or any other site), and no further archaeological investigation is warranted.

- The Extended Phase I study indicates that cultural materials associated with **CA-SLO-2047** are located within the NWP pipeline APE. While several aspects of the site including presence of modern trash and absence of A horizion soils suggest some level of disturbance, additional investigation is needed to confirm. The deposit has some potential to contribute to eligibility of SLO-2047, and further testing is recommended.

- The current Extended Phase I study indicates that cultural materials possibly associated with **CA-SLO-2214** are located within the NWP pipeline APE. A potentially significant deposit may occur below 120 cmbs, consistent with mapped Pico soils known to harbor a buried A horizion at this depth. While artifact density falls short of thresholds established for this study, the presence of intact soils and a small cluster of items at 120 cmbs do warrant further investigation to assess significance.

- Investigations reveal significant quantities of cultural materials likely associated with **CA-SLO-2086** (or other surrounding sites) located within the NWP pipeline APE. While the deposit has likely been disturbed by plowing and disking, sampled deposits appear somewhat intact, possibly contributing to the eligibility of SLO-2086. Archaeological evaluation is recommended to confirm.

- The Extended Phase I study indicates that significant quantities of cultural materials likely associated with **CA-SLO-2087** or **SLO-1920** are located within the NWP pipeline APE. The deposit appears to be only minimally disturbed to 160 cmbs. While the deposit has likely been disturbed by plowing and disking, it appear that the APE does contain cultural deposits that may contribute to the eligibility of SLO-2087, and warrants further archaeological investigation to confirm.

One additional site was discovered in the Atascadero area after completion of the Extended Phase I effort, during a geoarchaeological assessment of the project. An Extended Phase I investigation was carried out at the site (referred to as "Dairy Site #1") on October 4, 2007. Results were documented in an addendum (Enclosure G) to the previous Extended Phase I Report (Farquhar and D'Oro 2007). The Extended Phase I study revealed significant quantities of cultural materials likely associated with Dairy Site #1 located within the NWP pipeline APE. The deposit appeared intact, extending to at least 75 cmbs. While upper portions of the deposit have likely been disturbed by road construction, it appears that the APE does contain intact cultural deposits that may contribute to the eligibility of the site, and warrants further archaeological investigation to confirm.

Site Recording

The August 24, 2007 letter identified two built environment resources (HR #1 and #13) within the APE. It was proposed that sites would be mapped and recorded on California Department of Parks and

Recreation Primary Record forms, and evaluated as part of the Phase II/Phase III Evaluation and Data Recovery efforts. In addition, during excavation effort, updated site record forms will be completed for all historic properties located in the APE.

Geoarchaeological Review

Because the pipeline corridor crosses and follows several major drainages in the northern portion of the County, and because buried archaeological resources are known from portions of the pipeline corridor, the State Historic Preservation Office (SHPO) requested a geoarchaeological study of the project corridor during the NRHP Section 106 Consultation for the NWP (Enclosure E). In September 2007, Albion Environmental, Inc., (Albion) contracted with geoarchaeologist Jack Meyer to review project maps and make recommendations for a geoarchaeological study (Enclosure H). As outlined by Meyer, the main goals of the review were to: 1) assess existing geologic data generated for the project to identify areas that may contain buried archaeological resources; 2) to reevaluate several segments of the project where construction monitoring was previously recommended by Gibson and Parsons (2003)(Enclosure I) as the preferred method to identify potentially buried resources; 3) to isolate and define sensitive areas where buried resources are most likely to be found; and 4) provide recommendations for identifying buried resources in sensitive project segments.

Enclosure J describes the field work conducted following Meyer's recommendations and makes recommendations for further monitoring during project construction. This report is the final element of the body of work undertaken to complete the historic property identification effort pursuant to 36 C.F.R. Part 800.4 (b). Other reports pertaining to the identification effort for the NWP Section 106 Consultation include Gibson and Parsons' (2003) survey report (Enclosure I); ESA's (2006) evaluation report (Enclosure K); Farquhar and D'Oro's (2007) Extended Phase I Report (Enclosure F); and Farquhar's (2007) Extended Phase I Addendum Report (Enclosure G).

All geoarchaeological fieldwork was conducted by Kate Ballantyne, San Luis Obispo County Environmental Resource Specialist, between October 1 and 4, 2007. Ms. Ballantyne holds a B.S. in Soil Science and an M.A. in Anthropology (Geoarchaeology). She has 10 years experience in geoarchaeological studies.

Windshield surveys were conducted for much of the project area to determine favorable locations for trenching. Some areas identified as ASL's were dismissed outright as field conditions indicated the project alignment was not located in depositional environments or were located in such close proximity to active floodplains that soil development was not possible. Several locations were not accessible due to unfavorable presence of utilities or lack of right-of-way.

As previously mentioned, the purpose of the current study was to fulfill recommendations made by Meyer (Enclosure H) for identifying archaeological resources that may be buried in sensitive NWP segments. The testing program was successful in determining which landforms would be most sensitive for containing buried archaeological deposits. Of the 17 ASLs identified by Meyer, five exhibited buried soils, and seven did not. One area was judged as having no potential for soil development, save for two small areas. Four areas were not examined due to lack of accessibility. Only one of these areas (near the confluence of Salinas River and Santa Margarita Creek) produced cultural materials.

Nine areas were identified as requiring monitoring by a geoarchaeologist or archaeologist trained in geoarchaeology (Enclosure J). Monitoring requirements range from full-time presence in areas with

confirmed or suspected buried soils, to intermittent in areas that were not accessible during the current study. Monitoring as proposed during construction will reduce potential impacts to buried archaeological resources along the project route.

Identification Summary

Previous submittals for historic property identification effort for the NWP include: documentation of surface surveys conducted by Gibson and Parsons (2003) (Attachments I); Phase II evaluation by ESA (2006) (Enclosure K); a supplemental records search (Enclosure L); and a supplemental reconnaissance of the APE to assess the potential for effects on previously identified built environment resources or on historic landscapes. These materials, in conjunction with the Extended Phase I Report (Enclosure F), the Extended Phase I Report Addendum (Enclosure G), and the Geoarchaeology Study Report (Enclosure J) fulfill the COE's responsibilities under Section 106 of the NHPA to identify historic properties. We are seeking your concurrence with completion of the historic property identification effort as per 36 C.F.R. Part 800.4 [a] and [b][1].

RESOURCE EVALUATIONS AND RESOLUTION OF ADVERSE EFFECTS

As detailed in the August 24, 2007 letter to the OHP, four of the sites identified in the Gibson and Parsons (2003) study (all on Camp Roberts property) have been previously evaluated, and found to be eligible for the National Register. These sites include CA-SLO-1169 (Basgall 2003), CA-SLO-2215 (ESA 2006), CA-SLO-1180 (Carpenter et al. 2004), and CA-SLO-2210 (Garlinghouse and Farquhar 2003). All were addressed in the Gibson and Parsons (2003) survey report as well as a limited evaluation report (ESA 2006). These sites will be adversely affected by the undertaking (as per 36 C.F.R. Part 800.5) and will require resolution of effects in accordance with (36 C.F.R. Part 800.6). Data Recovery mitigation of these sites is detailed in the revised Archaeological Research Design/Treatment Plan (ARD/TP) (Enclosure M).

The August 24, 2007 letter identified two additional sites identified in the APE during the 2003 study that had not yet been evaluated, but were thought to contain potentially significant archaeological deposits. Pursuant to 36 C.F.R. Part 800.4 and 800.5, it was determined that these sites would require additional study to asses NRHP eligibility. These sites (CA-SLO-1386, and CA-SLO-1387) were addressed in the Gibson and Parsons (2003) survey report as well as the ESA (2006) limited evaluation report. Pursuant to 36 C.F.R. Part 800.4 (b) (2), the COE is proposing a combined (or phased) approach to evaluation and data recovery. Evaluation and data recovery methods for these sites are detailed in the revised ARD/TP (Enclosure M).

Extended Phase I studies detailed previously in this letter identified eleven additional sites recorded near the project APE that were judged as requiring further evaluation. These include: CA-SLO-2216, CA-SLO-1827, CA-SLO-2047, CA-SLO-2213, Dairy Site #1, CA-SLO-1920/H, CA-SLO-2087/H, CA-SLO-2086/H, CA-SLO-2214, CA-SLO-2212, and CA-SLO-587 (Attachments F and G). Pursuant to 36 C.F.R. Part 800.4 (b) (2), the COE is also proposing a combined (or phased) approach to evaluation and data recovery. Evaluation and data recovery methods for these sites are detailed in the revised ARD/TP (Enclosure M).

CONCLUSION

The COE is requesting your concurrence on the following:

1 completion of the historic property identification effort (pursuant to 36 C.F.R. Part 800. 4 [a] and [b][1]); and

2 determination that NRHP eligible sites CA-SLO-1169, CA-SLO-2215, CA-SLO-1180, and CA-SLO-2210 will be adversely affected by the undertaking (as per 36 C.F.R. Part 800.5).

3 adequacy of the Revised Archaeological Research Design and Treatment Plan to satisfy requirements set forth in 36 C.F.R. Part 800.4 (b)(2) -800.6 to evaluate historical significance, assess adverse affects, and develop appropriate mitigation measures for historic properties affected by the undertaking. Pursuant to 36 C.F.R. Part 800.4 (b) (2), the COE is proposing a combined (or phased) approach to evaluation and data recovery.

In addition, we would like to seek guidance from your office regarding development of Memorandum of Agreement for the NWP. We are currently working on a draft of the text and will forward it to you in the near future. Pursuant to 36 C.F.R. Part 800.6 [a] [1] and 800.11 [e]; the COE will send a copy of this letter (and enclosures) to the Advisory Council on Historic Preservation to serve as notification of the undertaking as well as an invitation to participate in the consultation. If you have questions regarding this project, please contact Kathleen Ungvarsky at 415-503-6842, kathleen.ungvarsky@COE.army.mil, or Jennifer Farquhar at (831) 469-1875 jfarquhar@albionenvironmental.com; cell: 831-588-1724.

Sincerely,

Jane M. Hicks

Jane M. Hicks
Chief, Regulatory Branch

Enclosures (CD Enclosures A - M)

CD with Enclosures A-M:

Enclosure A:	Letter from the COE to OHP regarding the NWP (Dated December 21, 2006)
Enclosure B:	Comments from California Army National Guard regarding the Phase II Evaluation Report (ESA 2006)
Enclosure C:	Letter from the COE to OHP regarding the NWP (Dated August 24, 2007)
Enclosure D:	Thirteen attachments sent previously with letter to OHP dated August 24, 2007
Enclosure E:	Letter from the OHP to COE regarding the NWP (Dated September 11, 2007)
Enclosure F:	Farquhar and D'Oro 2007 (Extended Phase I Report)
Enclosure G:	Farquhar 2007 (Extended Phase I Addendum Report)
Enclosure H:	Meyer 2007 (recommendations for geoarchaeological review of the NWP)
Enclosure I:	Gibson and Parsons 2003 (previously submitted survey report)
Enclosure J:	Ballantyne et al. 2007 (Geoarchaeological Study)
Enclosure K:	ESA 2006 (Evaluation Report)
Enclosure L:	Central Coast Information Center Records Search Invoice (Dated 7/24/07).
Enclosure M:	Farquhar et al. 2007 (Revised Archaeological Research Design and Treatment Plan for Evaluation and Data Recovery for the NWP)

MEMORANDUM OF AGREEMENT

AMONG AND BETWEEN
THE U.S. ARMY CORPS OF ENGINEERS (SAN FRANCISCO DISTRICT), THE CALIFORNIA ARMY NATIONAL GUARD, THE NATIONAL GUARD BUREAU, THE SAN LUIS OBISPO COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT
AND THE CALIFORNIA STATE HISTORIC PRESERVATION OFFICER
REGARDING THE ISSUANCE OF A PERMIT UNDER SECTION 404 OF THE CLEAN WATER ACT (33 USC. § 1344) FOR THE NACIMIENTO WATER PROJECT,
SAN LUIS OBISPO COUNTY, CALIFORNIA

WHEREAS, the U. S. Army Corps of Engineers, San Francisco District (USACE) (Lead Agency) issued a permit on April 25, 2007 (Undertaking), under File No. 22374S pursuant to Section 404 of the Clean Water Act (33 U.S.C. § 1344) to the San Luis Obispo County Flood Control and Water Conservation District (Conservation District), for the Nacimiento Water Project (Project); and

WHEREAS, the National Guard Bureau (NGB), as a Federal agency, is required to comply with the National Historic Preservation Act (16 U.S.C. §470f) (NHPA), and the NGB provides federal funding and guidance to California Army National Guard (CAARNG); and

WHEREAS, Camp Roberts is owned by the Department of the Army; and

WHEREAS, the CAARNG has environmental responsibilities regarding Camp Roberts as per real estate license from the Department of the Army; and

WHEREAS, the Undertaking will adversely affect archaeological sites CA-SLO-1169, CA-SLO-2215, CA-SLO-1180 and CA-SLO-2210 on Camp Roberts; and

WHEREAS, previous evaluations have determined that the above sites possess integrity of location, setting, and association and have yielded, or are likely to yield, information important to prehistory and are therefore eligible for inclusion in the National Register of Historic Places (NRHP) under 36 CFR § 60.4 (Criterion d); and

WHEREAS, the USACE, CAARNG, NGB, and the Conservation District have determined that archaeological sites CA-SLO-1169, CA-SLO-2215, CA-SLO-1180, CA-SLO-2210 located within the boundaries of Camp Roberts are not affiliated with any federally-recognized Native American Indian Tribe; and

WHEREAS, the Undertaking may also affect unevaluated archaeological sites CA-SLO-2216, CA-SLO-1827, CA-SLO-2047, CA-SLO-2213, Dairy Site #1, CA-SLO-1920/H, CA-SLO-2087/H, CA-SLO-2086/H, CA-SLO-2214, CA-SLO-1386, CA-SLO-1387, CA-SLO-2212, and CA-SLO-587 located on private and publicly-owned property outside of the boundaries of Camp Roberts; and

WHEREAS, the USACE and SHPO have determined that the above sites require further evaluation to determine NRHP eligibility and Project impacts; and

WHEREAS, the USACE, CAARNG, NGB, and the Conservation District have consulted with the California State Historic Preservation Officer (SHPO) pursuant to 36 CFR Part 800, and notified the Advisory Council on Historic Preservation (ACHP) of USACE's effect finding for the Undertaking; and

WHEREAS, the USACE, CAARNG, NGB, and the Conservation District in consultation with the SHPO, are complying with Section 106 of the National Historic Preservation Act of 1966 (NHPA) for the Undertaking through execution and implementation of this MOA so that the process of identifying properties eligible for the NRHP that may be affected by the Project, determining the nature and scope of any such effects, and resolving any adverse effects of the Project on historic properties may proceed in the phased manner authorized by 36 CFR § 800.4 (b)(2) and detailed in the *Archaeological Research Design and Treatment Plan of the Evaluation and Data Recovery for the Nacimiento Water Project (ARD/TP)* (Attachment A); and

WHEREAS, the Conservation District has participated in the consultation and is invited to be a signatory to the MOA; and

WHEREAS, the USACE, CAARNG, NGB, and the Conservation District agree that traditional Tribal lands associated with the Santa Ynez Band of Chumash Indians, a federally-recognized Native American Indian Tribe, extend to project areas outside the boundary of Camp Roberts and that the Santa Ynez Band of Chumash Indians are affiliated with and have an interest in cultural resources that are encountered; and

WHEREAS, the Santa Ynez Band of Chumash Indians will be consulted with respect to such areas and will be invited to be a concurring party to this MOA; and

WHEREAS, USACE and the Conservation District have consulted with the Northern Chumash and Salinan Tribes as interested parties, and will ensure that these groups and individuals continue to be consulted about the Project as it affects properties these tribes are interested in outside of Camp Roberts; and

WHEREAS, CAARNG and the NGB assume no responsibility for actions outside Camp Roberts property.

NOW, THEREFORE, the USACE shall ensure that the Undertaking is implemented by the CAARNG, NGB, and the Conservation District in accordance with the following stipulations in order to take into account the effects of the Project on historic properties, and that these stipulations shall govern the Project and all of its parts until this MOA expires or is terminated.

STIPULATIONS

The USACE, CAARNG, NGB, and the Conservation District shall ensure that the following measures are carried out:

I. PROJECT DESCRIPTION AND AREA OF POTENTIAL EFFECTS

A. A description of the Nacimiento Water Project is provided in Attachment B**.** The USACE, CAARNG, and NGB have established the Area of Potential Effect (APE) for the Undertaking, in consultation with the Conservation District and SHPO. The established APE is depicted in maps contained in Attachment C. Any changes to the APE shall be in accordance with section (B) of this stipulation. The APE for this Undertaking shall include all Project development areas and account for all Project activities related to the Undertaking.

B. The Conservation District shall promptly notify the USACE, CAARNG, and NGB if it becomes necessary to revise the APE. Following said notification, a qualified archaeologist (see Stipulation VIII.A.) will ensure that any cultural resources within any revised APE are identified. The

Conservation District shall report results of the cultural resources identification effort to the USACE, CAARNG, and NGB within 48 hours from completion of identification effort. If no cultural resources are present, the Conservation District shall proceed with the Project. If cultural resources are identified, the USACE, CAARNG, NGB, and the Conservation District shall have 14 days from receipt of notification to consult with the SHPO to revise the APE and identify proper course of action pursuant to Stipulations II (Identification of Historic Properties) and III (Determination and Treatment of Effects). Failure of SHPO to respond within this timeframe shall constitute concurrence with the proposed APE revision and proposed plan to identify historic properties and to determine and treat effects.

II. IDENTIFICATION OF HISTORIC PROPERTIES

A. The USACE shall ensure that the Conservation District shall ensure that cultural resources within the established APE and within any revised APE are identified and evaluated according to the provisions of the ARD/TP appended to the MOA as Attachment A, or pursuant to any successor ARD/TP that is developed through consultation among signatories following execution of this MOA**.**

B. Determinations of eligibility shall conform to requirements set forth in 36 CFR § 800.4 (c) (1-2). A qualified archaeologist (see Stipulation VIII.A.) will make in-field determinations of eligibility following procedures identified in the ARD/TP. The Conservation District shall immediately report eligibility determinations to the USACE, CAARNG, and the NGB. The USACE, CAARNG, and the NGB shall have 24 hours from receipt of notification to consult with the SHPO regarding the eligibility determination. Failure of SHPO to respond within this timeframe shall constitute concurrence with the eligibility determination.

III. DETERMINATION AND TREATMENT OF EFFECTS

A. USACE, CAARNG, NGB and the Conservation District will ensure adverse effects on historic properties identified pursuant to Stipulation II are avoided. Where such avoidance is ensured, USACE, CAARNG, and NGB may authorize the Conservation District to proceed with the Project.

B. If USACE, CAARNG, NGB, and the SHPO in consultation with the Conservation District, determine that effects on historic properties cannot be avoided, and that such effects will be adverse, then the adverse effects will be resolved by the Conservation District implementing and completing the data recovery program prescribed and set forth in the ARD/TP, or any successor ARD/TP that is developed. The USACE, CAARNG, and NGB may authorize the Conservation District to proceed with the Project after the adverse effect on the historic property has been resolved to the satisfaction of the USACE, CAARNG, NGB and the SHPO by completion of the fieldwork phase of ARD/TP.

IV. AMENDING THE ARD/TP

A. At any time following the implementation of the MOA any signatory may in writing propose to the other signatories that the ARD/TP be amended. The signatories shall have 30 days following receipt to review and comment on proposed amendment. Should any signatory propose modifications or object to modifications within the stipulated time frame, the signatories shall consult for no more than 20 days following receipt of the proposed modifications or the objection to consider the modifications or to resolve the objection. If at the end of this time frame, any

party objects to the proposed modifications or if the objection is not resolved, the USACE, CAARNG, NGB, and the Conservation District shall proceed in accordance with **Stipulation VIII (C) Resolving Objections**.

B. Amendment of the ARD/TP will not require amendment of the MOA.

V. REPORTING REQUIREMENTS

A. Reporting requirements as stated in the ARD/TP, **Attachment A**, shall be completed by the Conservation District within twenty-four (24) months of completion of the proposed fieldwork.

B. Within the twenty-four month period, a draft technical report will be prepared by the Conservation District and distributed for review to signatory parties to this MOA. Signatory parties will have 30 days from receipt of draft technical report to submit written comments to the Conservation District. At the end of the 30 day comment period, the Conservation District will take into account comments received and issue the final technical report. Failure of reviewing signatory parties to submit written comments within the established timeframe will be construed as acceptance of the document.

VI. TREATMENT OF HUMAN REMAINS OF NATIVE AMERICAN ORIGIN

A. The parties to this MOA agree that Native American burials and related items discovered during the implementation of the MOA and the Project will be treated in accordance with the requirements of 7050.5 (b) of the California Health and Safety Code. If, pursuant to 7050.5 (c) of the California Health and Safety Code, the county coroner/medical examiner determines that the human remains are or may be of Native American origin, then the discovery shall be treated in accordance with the provisions of 5097.98 (a)-(d) of the California Public Resources Code. To the extent permitted under 5097.98 and 5097.991 of the California Public Resources Code, human remains and related items resulting from the work stipulated in this MOA will be curated in accordance with 36 CFR Part 79 standards.

B. No federally recognized Native American Indian Tribes that claim affiliation to the land that is now Camp Roberts have been identified; if in the event that human remains, associated or unassociated funerary objects, sacred objects, or objects of cultural patrimony as defined by the Native American Graves Protection and Repatriation Act (NAGPRA) (25 U.S.C. § 3001), are encountered during work conducted at Camp Roberts (including known sites CA-SLO-1169, -2215, -1180, and -2210), those remains shall be documented and treated in accordance with the ARD/TP, and removed from the site and placed in a repository that meets 36 CFR Part 79 standards and will be treated according to federal law and current NGB policies .

VII. DISCOVERIES AND UNANTICIPATED EFFECTS

A. If the USACE, CAARNG, NGB, SHPO, and the Conservation District determine that implementation of the ARD/TP or the Project will affect a previously unidentified property that may be eligible for the National Register, or affect a known historic property in an unanticipated manner, the Conservation District will address the discovery, or unanticipated effect, in accordance with those provisions of the ARD/TP that relate to the treatment of discoveries and unanticipated effects. Eligibility determinations for discoveries shall follow procedures identified in Stipulation II of this document. Determination and treatment of effects for discoveries and unanticipated effects shall follow procedures identified in Stipulation III of this document. The USACE, CAARNG, NGB, and the Conservation District at their discretion may hereunder assume any discovered property to be eligible for inclusion in the National Register, compliance with this

stipulation shall satisfy the requirements of 36 CFR § 800.13(a)(2). The signatories agree that only cultural resources determined or assumed to be eligible for the National Register will be subject to further consideration under terms of the MOA.

VIII. ADMINISTRATIVE STIPULATIONS

A. STANDARDS

1. *Professional Qualifications*. All activities prescribed by Stipulations II, III, V, VI, and VII. of this MOA shall be carried out under the authority of the USACE, CAARNG, NGB, and the Conservation District by or under the direct supervision of a person or persons meeting at a minimum the Secretary of the Interior's *Professional Qualifications Standards* (48 Fed Reg. 44,738-44,739) (PQS) in the appropriate disciplines. However, nothing in this stipulation may be interpreted to preclude the USACE, CAARNG, NGB, the Conservation District or any agent or contractor thereof, from using the services of persons who do not meet the PQS who are supervised by persons who meet the PQS.

2. *Historic Preservation Standards*. All activities prescribed by Stipulations II, III, V, VI and VII of this MOA shall reasonably conform to applicable standards and guidelines established by the *Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation* (48 Fed Reg. 44,716-44,740) and SHPO guidelines.

3. *Curation and Curation Standards.* The USACE, CAARNG, NGB, and the Conservation District shall ensure that, to the extent permitted by applicable federal law, the materials and records resulting from the activities prescribed by Stipulations II, III, V, and VII of this MOA are curated in accordance with 36 CFR Part 79.

B. CONFIDENTIALITY

The parties to this MOA acknowledge that historic properties covered by this MOA are subject to the provisions of Section 304 of the National Historic Preservation Act of 1966 relating to the disclosure of archaeological site information and having so acknowledged, will ensure that all actions and documentation prescribed by this MOA are consistent with Section 304 of the National Historic Preservation Act of 1966.

C. RESOLVING OBJECTIONS

1. Should any signatory to this MOA object at any time to the manner in which the terms of this MOA are implemented, or to any action carried out or proposed with respect to implementation of the MOA (other than the Project itself), or to any documentation prepared in accordance with and subject to the terms of this MOA, the USACE (and CAARNG and NGB if in regard to Camp Roberts property) shall immediately (within 24 hours) notify the other parties to this MOA of the objection and consult with the objecting party, the other parties to the MOA for no more than 14 days to resolve the objection. If the objection is resolved through such consultation, the action in dispute may proceed in accordance with the terms of that resolution. If, after initiating such consultation, the USACE (and CAARNG and NGB if in regard to Camp Roberts property) determines that the objection cannot he resolved through consultation, then the USACE (and CAARNG and NGB if in regard to Camp Roberts property) shall forward all documentation relevant to the objection to the ACHP, including the USACE's (and CAARNG and NGB if in regard to Camp Roberts property) proposed response to the objection, with the expectation that the ACHP will, within thirty (30) days after receipt of such documentation:

a. Advise the USACE (and CAARNG and NGB if in regard to Camp Roberts property) that the ACHP concurs in the USACE's proposed response to the objection, whereupon the USACE's will respond to the objection accordingly; or

b. Provide the USACE (and CAARNG and NGB if in regard to Camp Roberts property) with recommendations, which the USACE will take into account in reaching a final decision regarding its response to the objection; or

c. Notify the USACE (and CAARNG and NGB if in regard to Camp Roberts property) that the objection will be referred for comment pursuant to 36 CFR § 800.7(a) (4), and proceed to refer the objection and comment. The USACE shall take the resulting comments into account in accordance with 36 CFR § 800.7(c) (4) and Section 110(1) of the NHPA.

2. Should the ACHP not exercise one of the preceding options within 30 days after receipt of all pertinent documentation, the USACE (and CAARNG and NGB if in regard to Camp Roberts property) may assume the ACHP's concurrence in its proposed response to the objection.

3. The USACE (and CAARNG and NGB if in regard to Camp Roberts property) shall take into account any ACHP recommendation, or comment, provided in accordance with this stipulation with reference only to the subject of the objection. The USACE responsibility to carry out all other actions under this MOA that are not the subject of the objection will remain unchanged.

4. The USACE (and CAARNG and NGB if in regard to Camp Roberts property) shall provide all parties to this MOA and the ACHP, when the ACHP has issued comments hereunder, with a copy of its final written decision regarding and objection addressed pursuant to this stipulation.

5. The USACE (and CAARNG and NGB if in regard to Camp Roberts property) may authorize any action subject to objection under this stipulation to proceed after the objection has been resolved in accordance with the terms of this stipulation.

6. At any time during implementation of the measures stipulated in this MOA, should an objection pertaining to such implementation be raised by a member of the public, the USACE (and CAARNG and NGB if Federal land is involved) shall notify the parties to the MOA in writing of the objection and take the objection into consideration. The USACE (and CAARNG and NGB if Federal land is involved) shall consult with the objecting party and, if the objecting party so requests shall also consult with SHPO, for no more than 15 days. Within ten (10) days following closure of this consultation period, the USACE (and CAARNG and NGB if Federal land is involved) will render a decision regarding the objection and notify all consulting parties of its decision in writing. In reaching its decision, the USACE (and CAARNG and NGB if Federal land is involved) will take into account any comments from the consulting parties regarding the objection, including the objecting party. The USACE (and CAARNG and NGB if Federal land is involved) decision regarding the resolution of the objection will be final.

7. The USACE (and CAARNG and NGB if Federal land is involved) may authorize any action subject to objection under this paragraph to proceed after the objection has been resolved in accordance with the terms of this paragraph.

D. AMENDMENTS

1. Any signatory to this MOA may propose that this MOA be amended, whereupon the parties to this MOA will consult for no more than 30 days to consider such amendment. The amendment process shall comply with 36 CFR § 800.6(c) (l) and 800.6(c) (7). This MOA may be amended only upon the written agreement of the signatory parties. If it is not amended, this MOA may be terminated by either signatory party in accordance with Stipulation VIII.E.

2. The ARD/TP may be amended through consultation among the parties without amending the MOA.

E. TERMINATION

1. If this MOA is not amended as provided for in Stipulation VIII.D., or if any signatory party proposes termination of this MOA for other reasons, the signatory party proposing termination shall, in writing, notify the other parties to this MOA, explain the reasons for proposing termination, and consult with the other parties for at least 30 days to seek alternatives to termination. Such consultation shall not be required if the USACE, CAARNG, NGB and the Conservation District proposes termination because the Undertaking no longer meets the definition set forth in 36 CFR § 800.16(y).

2. Should such consultation result in an agreement on an alternative to termination, then the Parties shall proceed in accordance with the terms of that agreement.

3. Should such consultation fail, the signatory party proposing termination may terminate this MOA by promptly notifying the other parties to this MOA in writing. Termination hereunder shall render this MOA without further force or effect.

4. If this MOA is terminated hereunder, and if the USACE, CAARNG, NGB, and the Conservation District determine that the Project will nonetheless proceed, then the USACE, CAARNG, NGB, and the Conservation District shall either consult in accordance with 36 CFR § 800.6 to develop a new MOA or request the comments of the ACHP pursuant to 36 CFR Part 800.

F. DURATION OF THE MOA

1. Unless terminated pursuant to Stipulation VIII.E., or unless it is superseded by an amended MOA, this MOA will be in effect following execution by the signatory parties until the USACE, CAARNG, NGB, and the Conservation District in consultation with the other parties, determines that all of its stipulations have been satisfactorily fulfilled. This MOA will terminate and have no further force or effect on the day that the USACE, CAARNG, NGB, and the Conservation District notifies the other parties in writing of its determination that all stipulations of this MOA have been satisfactorily fulfilled.

2. The terms of this MOA shall be satisfactorily fulfilled within five (5) years following the date of execution by SHPO. If the USACE, CAARNG, NGB, and the Conservation District determine that this requirement cannot be met, the parties to this MOA will consult to reconsider its terms. Reconsideration may include continuation of the MOA as originally executed, amendment or termination. In the event of termination, the USACE will comply with Stipulation VIII.E.4 if it determines that the Project will proceed notwithstanding termination of this MOA.

3. If the Project has not been implemented within five (5) years following execution of this MOA by SHPO, this MOA shall automatically terminate and have no further force or effect. In such event, the USACE, CAARNG, NGB, and the Conservation District shall notify the other parties in writing and, if it chooses to continue with the Project, shall reinitiate review of the Project in accordance with 36 CFR Part 800.

G. EFFECTIVE DATE

This MOA shall take effect on the date that it has been executed by SHPO.

EXECUTION of this MOA by the USACE, CAARNG, NGB, the Conservation District and SHPO, its transmittal by the USACE to the ACHP in accordance with 36 CFR § 800.6(b)(1)(iv), and subsequent implementation of its terms, shall evidence that the USACE has afforded the ACHP an opportunity to comment on the Project and its effect on historic properties and that the USACE, CAARNG, NGB, and the Conservation District have taken into account the effects of the Project on historic properties.

SIGNATORIES:

U.S. ARMY CORPS OF ENGINEERS, SAN FRANCISCO DISTRICT

By: _____ Date: _____
Craig W. Kiley
Lieutenant Colonel, U. S. Army
Commanding

CALIFORNIA STATE HISTORIC PRESERVATION OFFICER

By: _____ Date: _____
Milford Wayne Donaldson, FAIA
State Historic Preservation Officer

CALIFORNIA ARMY NATIONAL GUARD

By: _____ Date: _____

Title: _____

NATIONAL GUARD BUREAU

By: _____ Date: _____
Jeffrey G. Phillips
Colonel, U.S. Army
Chief, Environmental Programs Division

SAN LUIS OBISPO COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT

By: _____
Chairperson of the Board
San Luis Obispo County Flood Control
and Water Conservation District
State of California

ATTEST:

_____
Clerk and Ex-Officio Clerk of the Board of Supervisors
San Luis Obispo County Flood Control
and Water Conservation District
State of California

APPROVED AS TO FORM AND LEGAL EFFECT:
R. WYATT CASH
County Counsel

By: _____
Deputy Conservation District Counsel

Date: _____

CONCURRING PARTIES:

SANTA YNEZ BAND OF CHUMASH INDIANS

By: _____ Date: _____

Title: _____

SIGNATORIES:

U.S. ARMY CORPS OF ENGINEERS, SAN FRANCISCO DISTRICT

By: _____ Date: _____
Craig W. Kiley
Lieutenant Colonel, U. S. Army
Commanding

CALIFORNIA STATE HISTORIC PRESERVATION OFFICER

By: _____ Date: 4/15/08
Milford Wayne Donaldson, FAIA
State Historic Preservation Officer

CALIFORNIA ARMY NATIONAL GUARD

By: _____ Date: _____

Title: _____

NATIONAL GUARD BUREAU

By: _____ Date: _____
Jeffrey G. Phillips
Colonel, U.S. Army
Chief, Environmental Programs Division

SAN LUIS OBISPO COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT

By: _____
Chairperson of the Board
San Luis Obispo County Flood Control
and Water Conservation District
State of California

ATTEST:

_____
Clerk and Ex-Officio Clerk of the Board of Supervisors
San Luis Obispo County Flood Control
and Water Conservation District
State of California

SIGNATORIES:

U.S. ARMY CORPS OF ENGINEERS, SAN FRANCISCO DISTRICT.

By: _____ Date: 12 MAR 08
Craig W. Kiley
Lieutenant Colonel, U. S. Army
Commanding

CALIFORNIA STATE HISTORIC PRESERVATION OFFICER

By: _____ Date: _____
Milford Wayne Donaldson, FAIA
State Historic Preservation Officer

CALIFORNIA ARMY NATIONAL GUARD

By: _____ Date: 1 APR 08
Title: Director Environmental Programs
Col (R) USA

NATIONAL GUARD BUREAU

By: _____ Date: _____
Jeffrey G. Phillips
Colonel, U.S. Army
Chief, Environmental Programs Division

SAN LUIS OBISPO COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT

By: _____
Chairperson of the Board
San Luis Obispo County Flood Control
and Water Conservation District
State of California

ATTEST:

_____
Clerk and Ex-Officio Clerk of the Board of Supervisors
San Luis Obispo County Flood Control
and Water Conservation District
State of California

SIGNATORIES:

U.S. ARMY CORPS OF ENGINEERS, SAN FRANCISCO DISTRICT

By: _____ Date: _____
Craig W. Kiley
Lieutenant Colonel, U. S. Army
Commanding

CALIFORNIA STATE HISTORIC PRESERVATION OFFICER

By: _____ Date: _____
Milford Wayne Donaldson, FAIA
State Historic Preservation Officer

CALIFORNIA ARMY NATIONAL GUARD

By: _____ Date: _____

Title: _____

NATIONAL GUARD BUREAU

By: _____ Date: 10 APR 2008
Jeffrey G. Phillips
Colonel, U.S. Army
Chief, Environmental Programs Division

SAN LUIS OBISPO COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT

By: _____
Chairperson of the Board
San Luis Obispo County Flood Control
and Water Conservation District
State of California

ATTEST:

_____
Clerk and Ex-Officio Clerk of the Board of Supervisors
San Luis Obispo County Flood Control
and Water Conservation District
State of California

SIGNATORIES:

U.S. ARMY CORPS OF ENGINEERS, SAN FRANCISCO DISTRICT

By: _____ Date: _____
Craig W. Kiley
Lieutenant Colonel, U. S. Army
Commanding

CALIFORNIA STATE HISTORIC PRESERVATION OFFICER

By: _____ Date: _____
Milford Wayne Donaldson, FAIA
State Historic Preservation Officer

CALIFORNIA ARMY NATIONAL GUARD

By: _____ Date: _____

Title: _____

NATIONAL GUARD BUREAU

By: _____ Date: _____
Jeffrey G. Phillips
Colonel, U.S. Army
Chief, Environmental Programs Division

SAN LUIS OBISPO COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT

By: James R. Patterson MARCH 18, 2008
Chairperson of the Board
San Luis Obispo County Flood Control
and Water Conservation District
State of California

ATTEST:

JULIE L. RODEWALD
Clerk and Ex-Officio Clerk of the Board of Supervisors
San Luis Obispo County Flood Control
and Water Conservation District
State of California

By: Deputy Clerk

APPROVED AS TO FORM AND LEGAL EFFECT:
R. WYATT CASH
County Counsel

By: _____
Deputy ~~Conservation District~~ County Counsel

Date: 3.07.08

CONCURRING PARTIES:

SANTA YNEZ BAND OF CHUMASH INDIANS

By: _____ Date: _____

Title: _____

Attachments:

A. *Archeological Research Design and Treatment Plan for the Evaluation and Data Recovery for the Nacimiento Water Project*, dated November 2007
B. Project Description
C. Area of Potential Effect Maps

ESA

8950 Cal Center Drive
Building 3, Suite 300
Sacramento, CA 95826
916.564.4500 phone
916.564.4501 fax

www esassoc.com

May 20, 2005

Ms. Debbie Pilas-Treadway
Native American Heritage Commission
915 Capitol Mall, Room 364
Sacramento, CA 95814

Subject: Request for search of Sacred Lands files and Contact List

Dear Ms. Treadway:

ESA will be assisting with Section 106 compliance for the Nacimiento Water Project located in San Luis Obispo County as it moves into the pre-construction phase.

The proposed water distribution pipeline and facilities would be located throughout a wide area of San Luis Obispo County between Lake Nacimiento and the City of San Luis Obispo (see attached map Figure 2-2). The proposed water delivery system would consist of approximately 64 miles of pipeline, staging areas, and associated facilities/structures. Pipeline segments range in size from 10 to 36 inches in diameter. The pipeline would be laid in trenches at a minimum depth of cover of between 4 and 5 feet and the construction corridor would generally be assumed to be 100 feet wide, unless special circumstances dictate a narrower construction.

In an effort to provide an adequate appraisal of all potential impacts that may result from the proposed project, ESA is requesting that a search be conducted of the sacred lands files and records of traditional cultural properties that may exist within or adjacent to the project area. I would also like to request a list of Native American individuals and organizations that should be contacted about potential sites and resources of importance to Native Americans.

Thank you for your time and cooperation regarding this matter. Please contact me at 916-564-4500 if you have any questions.

Sincerely,

Traci O'Brien

Traci O'Brien
Senior Associate Archaeologist

STATE OF CALIFORNIA Arnold Schwarzenegger, Governor

NATIVE AMERICAN HERITAGE COMMISSION
915 CAPITOL MALL, ROOM 364
SACRAMENTO, CA 95814
(916) 653-4082
(916) 657-5390 - Fax

June 15, 2005

Traci O'Brien
Senior Associate Archaeologist
ESA
8950 Cal Center Drive
Building 3, Suite 300
Sacramento, CA 95826

Sent by Fax: ~~619-293-7920~~ 916-564-4501
Number of Pages: 4

RE: Proposed Nacimiento Water Project, San Luis Obispo County

Dear Ms. O'B rien:

A record search of the Sacred Lands File indicates the presence of Native American cultural resources that may be impacted by your project. The site is described as the *Garcia Ranch Site, recorded archaeological site no. CA-SLO-1427* (San Luis Obispo USGS quadrangle, township 31s, range 12e, section 1). Please contact Ms. Patti Dunton, 377 Fairview, Morro Bay, Ca 93442, telephone number 805-462-0893, to determine if your project will impact this site.

The presence or absence of specific site information in the Sacred Lands File does not indicate the absence of other cultural resources in any project area. Other sources of information regarding cultural resources in your project area should also be contacted for information regarding known and recorded sites. I suggest you consult with all of those on the accompanying Native American Contacts list, if they cannot supply information, they might recommend others with specific knowledge about cultural resources in your project area. If a response has not been received within two weeks of notification, the Commission requests that you follow-up with a telephone call to ensure that the project information has been received.

If you receive notification of change of addresses and phone numbers from any these individuals or groups, please notify me. With your assistance we are able to assure that our lists contain current information. If you have any questions or need additional information, please contact me at (916) 653-4040.

Sincerely,

Rob Wood

Rob Wood
Environmental Specialist III

Native American Contacts
San Luis Obispo County
June 14, 2005

Salinan Tribe of Monterey, San Luis Obispo and San Benito Counties
John W. Burch
14650 Morro Road Salinan
Atascadero , CA 93422
805 235-2730 Cell
805 461-5192 Fax

Mary E. Trejo
P.O. Box 469 Chumash
Santa Margarita , CA 93453
(805) 483-4280

Salinan Tribe of Monterey, San Luis Obispo and San Benito Counties
Shirley Macagni, Cultural Resources Representative
1550 Guadalupe Road Salinan
Nipomo , CA 93444
805 343-1015
805 343-2726-Fax

Salinan Tribe of Monterey, San Luis Obispo and San Benito Counties
Bonnie Pierce
440 Highland Drive Salinan
Los Osos , CA 93402
805 528-1362 - Home
805 781-1844 - work

Santa Ynez Tribal Elders Council
Adelina Alva-Padilla, Chair Woman
P.O. Box 365 Chumash
Santa Ynez , CA 93460
elders@santaynezchumash.
(805) 688-8446
(805) 693-1768 FAX

Salinan Nation Cultural Preservation Association
Doug Alger, Cultural Resources Coordinator
PO Box 56 Salinan
Lockwood , CA 93932
fabbq2000@earthlink.net
(831) 262-9829 - cell
(831) 385-3450

Randy Guzman - Folkes
3044 East Street Chumash
Simi Valley , CA 93065-3929 Fernandeño
traditional75@hotmail.com Tataviam
Shoshone Paiute
(805) 579-9206 Yaqui
(805) 797-5605 (cell)

Salinan Nation Cultural Preservation Association
Robert Duckworth, Environmental Coordinator
Drawer 2447 Salinan
Greenfield , CA 93927
dirobduck@thegrid.net
(831) 385-1882
(831) 674-5019

Xolon Salinan Tribe
Donna Haro
110 Jefferson Street Salinan
Bay Point , CA 94565
DMARIE_H@prodigy.net
(925) 709-6714
(925) 458-0341 FAX

Salinan Nation Cultural Preservation Association
Jose Freeman, President
15200 Country Road, 96B Salinan
Woodland , CA 95695
josefree@ccio1.com
(530) 662-5316

This list is current only as of the date of this document.

Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources for the proposed Nacimiento Water Project, between Lake Nacimiento and the City of San Luis Obispo, San Luis Obispo County.

Native American Contacts
San Luis Obispo County
June 14, 2005

Chief Joseph Ballesteros
5811 Lone Pine Place
Paso Robles , CA 93446
(805) 238-2784
Chumash
Salinan

Lei Lynn Odom
1339 24th Street
Oceano , CA 93445
(805) 489-5390
Chumash

Beverly Salazar Folkes
1931 Shadybrook Drive
Thousand Oaks , CA 91362
805 492-7255
Chumash
Tataviam
Fernandeño

Judith Bomar Grindstaff
63161 Argyle Road
King City , CA 93930
(831) 385-3759-home
Salinan

Santa Ynez Band of Mission Indians
Vincent Armenta, Chairperson
P.O. Box 517
Santa Ynez , CA 93460
varmenta@santaynezchumash
(805) 688-7997
(805) 686-9578 Fax
Chumash

San Luis Obispo County Chumash Council
Chief Mark Steven Vigil
1030 Ritchie Road
Grover Beach , CA 93433
chiefmvigil@fix.net
(805) 481-2461
(805) 474-4729 - Fax
Chumash

Puilulaw Khus
2001 San Bernardo Creek
Morro Bay , CA 93442
(805) 772-0579
Chumash

Peggy Odom
1339 24th Street
Oceano , 93445
(805) 489-5390
Chumash

Julie Lynn Tumamait
365 North Pole Ave
Ojai , CA 93023
jtumamait@hotmail.com
(805) 646-6214
Chumash

DNA Cultural Resources Consultants
"Alyisha" Diane Marie Garcia
P.O. Box 129
Carpinteria , CA 93014
DNAnSB@aol.com
(805) 689-8050 Cell
Chumash

This list is current only as of the date of this document.

Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources for the proposed Nacimiento Water Project, between Lake Nacimiento and the City of San Luis Obispo, San Luis Obispo County.

Native American Contacts
San Luis Obispo County
June 14, 2005

Mona Olivas Tucker
660 Camino Del Rey Chumash
Arroyo Grande 93420
, CA
(805) 489-1052 Home
(805) 748-2121 Cell

Matthew Darian Goldman
660 Camino Del Rey Chumash
Arroyo Grande 93420
, CA
(805) 550-0461 Home

Santa Ynez Band of Mission Indians
Laura Ray, Tribal Administrator
P.O. Box 517 Chumash
Santa Ynez , CA 93460
lray@santaynezchumash.net
(805) 688-7997
(805) 686-9578 Fax

Salinan Nation Cultural Preservation Association
Gregg Castro, Administrator
5225 Roeder Road Salinan
San Jose , CA 95111
glcastro@pacbell.net
(408) 864-4115

This list is current only as of the date of this document.

Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources for the proposed Nacimiento Water Project, between Lake Nacimiento and the City of San Luis Obispo, San Luis Obispo County.

ESA

September 22, 2005

John W. Burch
14560 Morro Road
Atascadero, CA 93422

SUBJECT: 2nd Letter Request for Cultural Resources Information for the Nacimiento Water Project located in San Luis Obispo County

Dear John W. Burch:

ESA will be assisting with Section 106 compliance for the Nacimiento Water Project located in San Luis Obispo County as it moves into the pre-construction phase.

The proposed water distribution pipeline and facilities would be located throughout a wide area of San Luis Obispo County between Lake Nacimiento and the City of San Luis Obispo (see attached map). The proposed water delivery system would consist of approximately 64 miles of pipeline, staging areas, and associated facilities/structures. Pipeline segments range in size from 10 to 36 inches in diameter. The pipeline would be laid in trenches at a minimum depth of cover of between 4 and 5 feet and the construction corridor would generally be assumed to be 100 feet wide, unless special circumstances dictate a narrower construction.

A Cultural Resources Inventory Report which included a record search and pedestrian survey and an Environmental Impact Report have been prepared for the project alignment. These documents include the results of a record search and a pedestrian survey as well as the potential impact analysis to cultural resources. The cultural resources studies conducted for this project has resulted in the identification and recordation of several archaeological sites.

In an effort to provide an adequate appraisal of all potential impacts that may result from the proposed project, ESA is requesting information about cultural resources, including archaeological and traditional cultural properties that may exist within or adjacent to the project area.

Thank you for your time and cooperation regarding this matter. Please contact me at 916\564-4500 if you have any questions and information you can provide regarding this project.

Sincerely,

Traci O'Brien
Senior Associate Archaeologist

SANTA YNEZ BAND OF MISSION INDIANS
Tribal Elders Council
P.O. Box 365
Santa Ynez, Ca 93460
(805) 688-8446 FAX (805) 693-1768
elders@santaynezchumash.org

September 29, 2005

Traci O'Brien, Senior Associate Archaeologist
Environmental Science Associates
8950 Cal Center Drive, Suite 300
Sacramento, CA 95826

RE: 2nd Letter Request for Cultural Resources Information for the Nacimiento Water Project located in San Luis Obispo County

To Whom It May Concern:

Thank you for contacting the Tribal Elders Council for the Santa Ynez Band of Chumash Mission Indians in regards to the above mentioned site.

In a letter dated August 29, 2005 the Tribal Elders Council stated we would like to review the assessment documents as they relate to cultural/archaeological resources for this project. Due to the potential for disturbance of archaeological sites, we are requesting that all earthwork pertaining to the sites be subject to Native American monitoring. Please contact our office or Chumash of the project area.

We look forward to hearing from you at your earliest convenience.

On behalf of the Tribal Elders Council
Sincerely Yours,

Adelina Alva-Padilla, Chairwoman
Tribal Elders Council

AAP: hg

From: Dean Martorana
Sent: Friday, September 15, 2006 1:28 PM
To: 'fabbq2000@earthlink.net'; 'dirobduck@thegrid.net'
Subject: Nacimiento Water Project

Importance: High
Sensitivity: Confidential

Attachments: arch-sites_091506_SantaMarg_Nacimiento.pdf

Dear Mr. Alger and Mr. Duckworth:

I believe you had been in contact with Traci O'Brien of ESA last year regarding the Nacimiento Water Project (NWP). I wanted to follow up with you to elicit further comment regarding the project and known archaeological sites of concern in the area. I have record that Traci had sent to the Salinan Nation maps of the project alignment; I've attached a figure that depicts the sites that are of principle concern in Santa Margarita that may be affected by the pipeline project (the survey reports prepared for this project has identified 7 sites within the Area of Potential Effect for this project; the Santa Margarita area represents the primary area outside Camp Roberts that may be impacted). The sites in Santa Margarita have been re-identified in the field and have been characterized as lithic processing sites.

Please let me know if you have any questions or further data needs. We are currently preparing a Memorandum of Agreement that addresses the treatment of these sites and the process of minimizing the impact posed to them by the project. We would appreciate any input you may have on achieving this goal.

Regards,

Dean Martorana, RPA
ESA | Energy
436 14th Street, Suite 600
Oakland, CA 94612
510.839-5066 | 510.839-5825 fax
cell 510.292-8333
dmartorana@esassoc.com

ESA

436 14th Street
Suite 600
Oakland, CA 94612
510.839.5066 phone
510.839.5825 fax

www.esassoc.com

telephone notes

project	Nacimiento Water Project	project no.	204453
date	09/28/06	time	11.38
present			
route to	Robert Duckworth		
contact			
title	Environmental Coordinator		
agency	Salinan Nation Cultural Preservation Officer		
phone	831.385.1882		
subject			
action required			

Left message.

ESA

436 14th Street
Suite 600
Oakland, CA 94612
510.839.5066 phone
510.839.5825 fax

www.esassoc.com

telephone notes

project	Nacimiento Water Project	project no.	204453
date	09/28/06	time	11.22
present			
route to	Adelina Alva-Padilla		
contact			
title	Tribal Elders Council		
agency	Santa Ynez Band of Mission Indians		
phone	805.688.8446		
subject			
action required	Send inventory report to elders@santaynezchumash.org		

Karen of the Santa Ynez Band requested the inventory report; she will pass on this to the Tribal Elders and submit their recommendations for monitoring or other steps to prevent undue impacts to sacred objects, etc.

Appendix B

U.S. Fish & Wildlife Service Biological Assessment

ESA

NACIMIENTO WATER PROJECT

Biological Assessment

April 2006

NWP NACIMIENTO WATER PROJECT

San Luis Obispo County Flood Control & Water Conservation District

NACIMIENTO WATER PROJECT

Biological Assessment

April 2006

Prepared for:

Environmental Programs Division
Department of Public Works
County of San Luis Obispo

NWP NACIMIENTO WATER PROJECT

San Luis Obispo County Flood Control & Water Conservation District

NACIMIENTO WATER PROJECT / BIOLOGICAL ASSESSMENT

Table of Contents

CHAPTER 1
Introduction

1.1 Purpose and Need

This Biological Assessment (BA) documents potential effects of the Nacimiento Water Project (NWP or Proposed Action) on six federally listed threatened and endangered (T&E) species in the County of San Luis Obispo, California. The BA was prepared in accordance with Section 7(a)(2) of the Federal Endangered Species Act (Act) of 1973, as amended (16 USC 1531-1543), at the request of the U.S. Army Corps of Engineers (USACOE) in support of the NWP.

The intent and scope of this document is for use by the USACOE to support formal consultation with the U.S. Fish and Wildlife Service (USFWS) under the provisions of the Act. This BA assesses potential effects to federally listed species or designated critical habitat within the project area that may be affected by the Proposed Action, and those which may be listed (at either the state or federal level) during the implementation of the Project.

1.2 Project Sponsor

The NWP is sponsored by the San Luis Obispo County Flood Control and Water Conservation District (SLOCFCWCD or District), which is also termed the applicant for permits required by the Proposed Action. The County contact for the project is:

San Luis Obispo County Flood Control and Water Conservation District
Public Works Department
County Government Center, Room 207
San Luis Obispo, CA 93408

Contact: John Hollenbeck, Project Manager
jhollenbeck@co.slo.ca.us
(805) 781-1288

1.3 Description of the Proposed Action

The District proposes to implement the Nacimiento Water Project to deliver an alternative raw water supply to San Luis Obispo County and 15 other potential purveyors. The project proponent proposes to implement the NWP to access their 17,500 acre-feet per year (afy) entitlement from Lake Nacimiento per an agreement executed in 1959 with Monterey County. Of this 17,500 afy, 16,200 afy are slated for this project and the remaining 1,300 afy are being reserved for local lakeside use. The NWP would include construction of a number of facilities to deliver supplemental water to several San Luis Obispo County cities and unincorporated communities to supplement existing groundwater and surface water supplies. The NWP would include construction and operation of the following elements: (1) a water intake structure and pump station located on the north side of the Lake Nacimiento Dam, near the spillway, (2) a 45-mile raw water conveyance pipeline, (3) three water storage tanks (Camp Roberts, Rocky Canyon Road, and Cuesta Tunnel), and (4) three pump stations.

The pipeline and associated facilities are located in northern San Luis Obispo County stretching from Lake Nacimiento to the City of San Luis Obispo.

Project Purpose

The goal of the NWP is to ensure better management of available water resources throughout the county. By supplementing the local groundwater and surface water supplies with a new surface water source, it is hoped that the project will:

- Provide a reliable supplemental water source for a variety of uses within San Luis Obispo County;
- Increase reliability of water deliveries;
- Improve water quality;
- Lessen the extent of future groundwater pumping to existing residents;
- Provide sufficient supplies to support planning objectives in various communities of San Luis Obispo County.

Project Components

The NWP project entails the construction of 45 miles of new pipeline, construction of 3 new pump stations, construction and installation of the Intake Pump Station (IPS) at Lake Nacimiento and appurtenant facilities. **Table 1** describes the pipeline reaches and associated facilities. Details on each project component are provided below:

Lake Nacimiento Intake Structure and Pump Station

The District proposes to construct and operate an intake structure and pump station to transport water to the water transmission pipeline. The multi-level three-port intake structure would

TABLE 1
NWP PIPELINE SYSTEM AND ITS COMPONENTS

Project and Pipeline Parts	Component Description	Pipeline Diameter (in.)	Station No. along the Pipeline
Reach No. 1	Lake Nacimiento Intake and Pump Station to Storage Tank Site	36	0+00 to 560+00
Reach No. 2	Storage Tanks Site, Pump Station No.2	30	560+00
Reach No. 3	Pump Station to Monterey Rd. / Wellsona – San Miguel Turnout	30	560+00 to 775+00
Reach No. 3A	Monterey Rd. / Wellsona to Charolais Rd. / So. River Rd. – City of Paso Robles Turnout	30	775+00 to 1130+00
Reach No. 4	Charolais Rd. to Vineyard Dr.–Templeton CSD Turnout	30	1130+00 to 1415+00
Reach No. 5	Vineyard Dr. to New Hwy 41–AMWC Turnout	30	1415+00 to 1635+00
Reach No. 6	New Hwy 41 to Rocky Canyon Road	24	1635+00 to 1830+00
Reach No. 6A	Rocky Canyon Storage Tank	24	1785+00
Reach No. 6B	Rocky Canyon Pump Station	24	1785+00
Reach No. 7	Rocky Canyon Road to Santa Margarita/CSA 23 Turnout	24	1830+00 to 2150+00
Reach No. 7A	Santa Margarita / CSA 23 Turnout to Cuesta Tunnel Entrance Connection	24	2150+00 to 2320+00
Reach No. 7B	Cuesta Tunnel Storage Tank	24	2310+00
Reach No. 8	Cuesta Tunnel	20	2320+00 to 2370+00
Reach No. 8A	Cuesta Tunnel to San Luis Obispo WTP	20	2370+00 to 2520+00

Note: Station numbering is preliminary and subject to minor changes

SOURCE: MRS, 2003.

comprise a single shaft drilled or excavated vertically into the ground from the shoreline pump station to the depth of approximately 160 - 170 feet. At that depth, the shaft would be connected with three 6-foot diameter horizontal intake tunnels or 36 - 42 inch bored intake pipes at different elevations. The shaft would be of sufficient diameter to accommodate the vertical turbine pumps, control gates, and maintenance access. Both the vertical shaft and the tunnels or pipes would be concrete lined. Hydraulic control of the facility would be achieved within the vertical shaft where the control gates would be housed. Water would flow through the horizontal tunnels and into the sump at the bottom of the vertical shaft where the pump bowl assemblies are located. Five electrical turbine pumps that are part of the Intake Pump Station with bowl assemblies would extend vertically to the bottom of the vertical shaft. It is anticipated that the excavation for the vertical shaft and the horizontal tunnels or pipelines will generate no more than approximately 4,000 cubic yards (cy) of material.

Each intake tunnel will have fish screens installed to the upstream end of each intake tunnel. The purpose of the screens is to prevent fish and other aquatic animals from being trapped but also to prevent trash and other debris form entering the wetwell and intake tunnels. The screens will be 27 inches in diameter, cylindrical in shape, and will be fabricated from steel plates. The maximum screen openings will be 1-1.5 inches.

The Intake Pump Station (IPS) would be constructed in conjunction with the reservoir water intake site, near the upstream face of the Nacimiento Dam. The Intake Pump Station would consist of five vertical turbine pumps (four active, one on stand-by), 500 horsepower each, located on the cover of the vertical shaft; a 20- to 30-foot diameter shaft in the intake. The size of the central building would be approximately 42 by 70 feet and the electrical transformer yard would be approximately 26 by 35 feet.

The pump station would be designed to accommodate the surface water level of Lake Nacimiento, which varies from 670 feet to 800 feet in elevation from year to year. The water would be pumped to the water storage facility. A meter will be provided to record water flow rates and total pumped volumes. Both manual and automated controls will be provided, along with telemetry to a central control station.

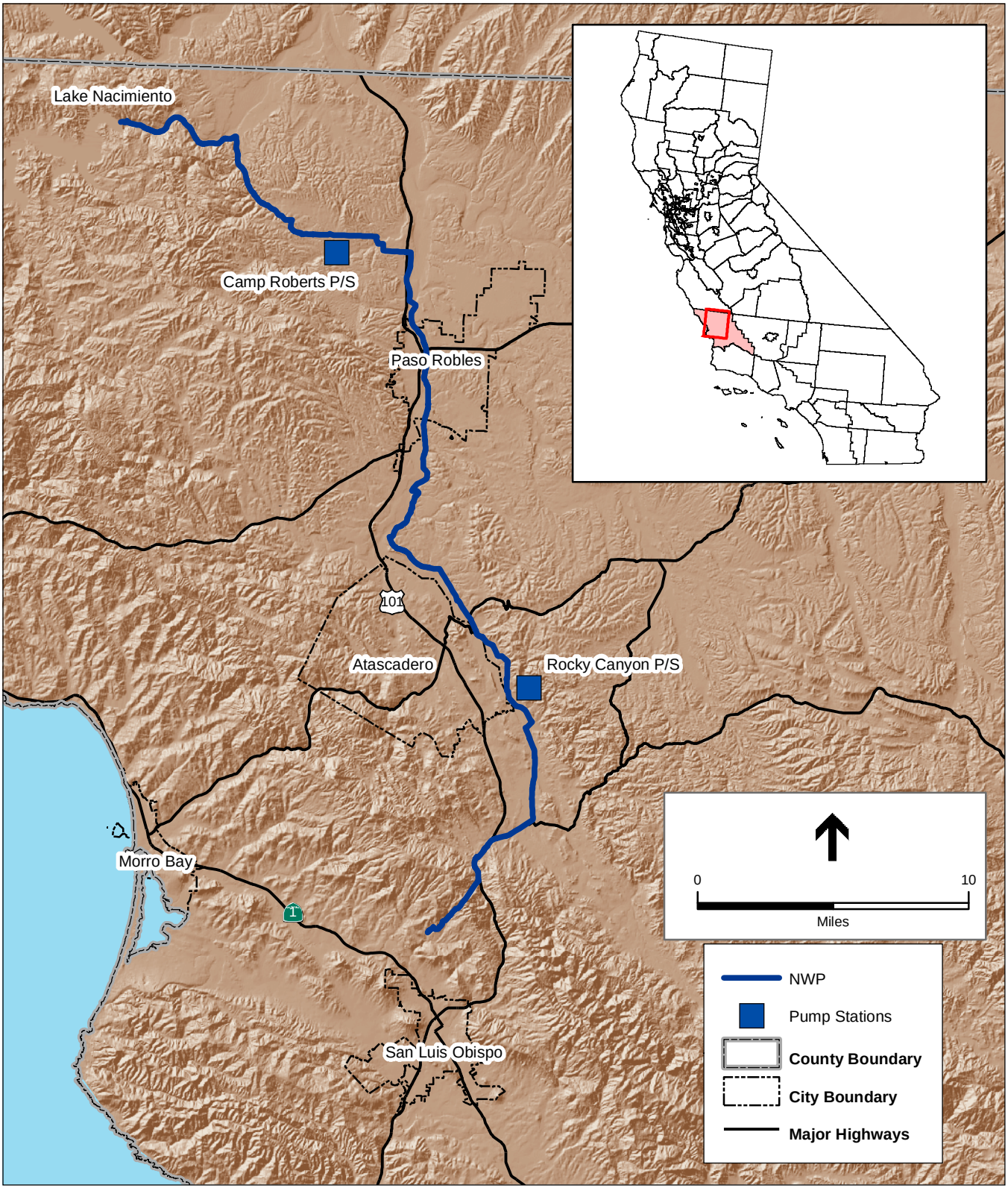
The intake and pump station combined would require up to 2 acres of disturbed area above the high-water level, and as much as 0.5 acre below the high-water level.

Water Conveyance Pipeline

The proposed 45-mile-long water transmission pipeline would consist of single pipe ranging from 20 to 36 inches in diameter. Where possible, the pipeline will be placed in the shoulder of the road to minimize pavement disruption, avoid conflicting utilities, minimize the need for traffic control, and to enhance safety during construction and maintenance. However, on busy roadways (e.g., North and South River Roads near Paso Robles, and El Camino Real near Santa Margarita.), the pipe will be placed parallel to the road to minimize traffic interruptions. On dirt trails/roads, the pipeline will follow the center of the road. On Camp Roberts, the pipeline will generally follow roads and fire breaks and will minimize impacts to existing pavement on West Perimeter Road. The overall pipeline alignment is shown in **Figure 1**.

Air Release Valves, Blow-offs, and Vaults

Air valves release air displaced by water upon pipeline filling, admit air to displace water released by pipeline drainage, and release air which comes out of solution during normal pipeline operation. Air valves are typically installed at higher elevations along the pipeline and are installed at intervals of no less than 1,500 linear feet.



SOURCE: SLO County

Nacimiento Water Project . 204453

Figure 1

Project Location

Blow-offs are used to remove water from a segment or segments of pipeline for routine or emergency maintenance or during emergencies when immediate dewatering of the pipeline is required. Blow-offs are typically located in lower elevations along the pipeline and are installed at no less than every 1,500 linear feet.

Camp Roberts Transmission Line

The power supplier, Pacific Gas & Electric (PG&E), indicates that the current power supply to Nacimiento Dam is insufficient support the new intake pump station and must be augmented. Thus, a new transmission line is planned for installation across Camp Roberts to supply electrical power to the pump station. The power line alignment parallels the NWP pipeline from Nacimiento Dam eastward through Camp Roberts to Texas Road (Station 600+00). The new lines will cross the Nacimiento River at Station 115+00 and will be an average of 100 to 300 feet from the rivers edge along Boyscout Road. Poles will be spaced an average of 300 to 400 feet apart, and will measure 40 to 45 feet high. Lines will be a minimum of 25 feet from the ground at their lowest point.

Storage Tanks

The District proposed to construct and operate three Storage Tanks, one on Camp Roberts, one on Rocky Canyon Road, and one near the entrance to the Cuesta Tunnel.

The Camp Roberts Storage Facility is expected to have two above ground tanks with a storage capacity of 2,000,000 gallons each. The base elevation is set at 1,000 feet. The cut and fill material will be balanced at approximately 9,000 cy for each storage tank.

The Rocky Canyon Storage Facility, which would be constructed underground, would consist of one storage tank with a capacity of 2,000,000 gallons. The base elevation of the storage tank is set at 980 feet. The cut material will be approximately 12,000 cy and the fill material approximately 2,000 cy.

The Cuesta Tunnel Reservoir will consist of one storage tank with a storage capacity of 2,000,000 gallons. The base elevation is set at 1,380 feet. The cut and fill material will be balanced at approximately 15,000 cy. It is expected that the existing tunnel spoil area at elevation 1,356 feet will be raised to elevation of 1,380 feet to accommodate the cut material and will serve as a parking area for the tank maintenance.

Pump Stations

In addition to the Lake Nacimiento Intake Pump Station, the District proposes to construct and operate three pump stations to transfer water between the three proposed water storage tanks. The Camp Roberts Pump station is proposed to pump water from the Camp Roberts storage facility to Rocky Canyon Reservoir from an elevation of 900 feet to 1,510 feet mean sea level (msl). This pump station will be an inline booster station being fed from the Camp Roberts Storage Facility. Pump station facilities would include a 2,500 square foot building to house five 400 horsepower

vertical turbine electrical pumps (four active, one on stand-by). A fenced area approximately 150 by 200 feet would be required for the pump station and the electrical transformers. Construction of an access road and a parking lot would also be required.

The Rocky Canyon Pump Station would be located on Rocky Canyon Road near the water storage tank and will pump water to Cuesta Tunnel reservoir. This pump station will contain three 550 horsepower pumps (two active, one on stand-by). The site will require an area of approximately 150 by 200 feet with a building of approximately 50 by 50 feet. A sound attenuated building will house the pumps, motor control center, variable speed drives if required, and a small emergency generator for security lights and controls. Adjacent to the building will be an overflow basin with an approximate volume of 0.46 acre-foot (approximately 100 by 100 feet by 3 feet deep) where infrequent surge water would be directed. Water from the basin will percolate into the native soils. The pump station will also include a transformer mounted on a pad and connecting electrical lines to deliver power to the station.

Pipeline Construction Techniques

The temporary construction easement would generally be assumed to be 100 feet wide, unless special circumstances (e.g., traffic control or existing vegetation) dictate a narrower construction corridor. The construction corridor could be reduced to a width of 30 feet or less where specialized construction techniques are implemented. The width of a shored trench is assumed to vary from 5 to 10 feet, and there must also be room for two vehicles to pass each other along the side of the trench. A permanent easement of 30 feet will be obtained for the pipeline and its operation.

Open Trench

Trench width will be a function of stability of excavated soils and the presence of groundwater. Native materials will be used for backfill in the trench zone or that portion of the trench 1 foot above the pipe to the surface. When necessary for structural stability, and where desirable from a construction convenience, soil-cement, or controlled low-strength material (CLSM) will be used for bedding and backfill.

The construction method to install the majority of the pipeline alignment utilizes cut and cover techniques, which is adequate for crossing small streams and other minor water features. However, the pipeline alignment crosses several perennial drainages, including the Nacimiento River, several highways, and numerous railroad right-of-ways. Alternative construction methods will be utilized to address environmental and regulatory concerns at those locations.

At stream crossings, the pipeline will be placed deep underground, below the lowest expected scour depth of the creek. Trench width could be 20 to 40 feet, with the work area total footprint of 100 to 200 feet wide. Further study will be required at each specific site to determine the depth of cover. The pipeline will likely be encased in reinforced concrete under the creek bottom. Work areas would also be required on one or both banks of the creek.

Ideally, construction of all creek crossings would take place in the dry summer months. Surface and ground water flows, if encountered, will be diverted during trenching, pipe laying and backfilling activities. A temporary diversion channel or pipe could divert any creek flows around the construction area. In addition to diverting surface flows, underground flows and ground water will need to be collected and pumped to a point downstream of the construction. After completion of construction across the creek, all diversion facilities will be removed and the stream bottom restored to near its original condition. Construction operations may increase turbidity in surface water when the temporary diversion structures are installed and removed.

Dewatering operations will comply with State Water Resources Control Board (SWRCB) discharge permit requirements and other jurisdictional agencies. Alternately, a temporary collection pond could be constructed upstream to collect surface and ground water, which would be pumped downstream in a temporary pipe. However, gravity flow is preferable to pumping, where possible.

Horizontal Directional Drilling

Horizontal Directional Drilling (HDD) technique will be used for the installation of the pipeline at major river crossings (i.e., Nacimiento and Salinas rivers) to avoid direct impacts to jurisdictional waters of the U.S. HDD entails trenchless pipeline installation techniques that install the pipeline by boring underneath the river rather than using cut and fill methods.

The HDD process begins by boring a small horizontal pilot hole under the river with a continuous string of steel rod called the drill string. The pilot hole will establish the path of the drill rod and the location of the pipeline. The drill string is pushed through the pilot hold by a bore head and rod. For the NWP, the pilot bore will use a 4-12 inch diameter hollow steel pipe drill string with a drill head is pushed forward along the pilot bore path. Steel casing is used to assist the HDD with penetration and for holding the near surface hole open and for installation of the carrier pipe.

Driller's mud or slurry is pumped into from the drill rig to the drill head under pressure. Driller's mud is an engineered fluid that typically consists of water and bentonite clay. The clay becomes a dense fluid when mixed with water and is then capable of supporting the ground, reducing friction during drilling, carrying spoils out of the bore hole. Driller's mud is injected into the center of the drill steel and pumped to the drill tool or cutter head. Once the fluid exits the drill string, it picks up the earth spoils and carries them back to the drill rig through the annular space made by the pilot bore.

The driller's mud exits through the cutting nozzles or through the mud motor located on the drill head. The mud and earth spoils are carried back to the drill rig through an annular space of the drilled hole.

Once the head reaches the receiving side of the pipeline installation area, a special cutter, called a back reamer or reamer is attached to the drill string and pulled back through the pilot hole to enlarge the pilot hole to the needed size for the product pipe. The carrier pipe is attached by a swivel and pulled by the drill string behind the reamer. Driller's mud is pumped into the jets on

the reamer from the drill rig so that when the reamer is retrieved on the drill rig side, the enlarged tunnel contains the drill string and remains full of driller's mud to provide the temporary ground support so the newly constructed tunnel does not collapse. Once the carrier pipe has been installed, the product pipe is attached by a swivel behind the reamer and pulled through the bore in one continuous motion.

For the Nacimiento River HDD pipeline crossing, a scour depth of 20 – 25 feet has been determined and the pipeline will be placed approximately 90 feet below the channel bottom. Scour depths and final pipeline depths for the Salinas River HDD crossing sites are still being determined.

Auger Boring

Auger boring is considered the best option for crossing under highways and railroads and beneath streams that are expected to be dry during construction but where cut and cover techniques could result in impacts to jurisdictional features or special status species. Auger boring will be used to install a casing that will carry the water (carrier) pipe. The carrier pipe is installed within the casing using spacers to achieve the required grade. Auger boring is less sophisticated than HDD, but remains in wide use because of its relatively low cost compared to other trenchless construction methods as well as the fact that the methods and capabilities of the technique are well understood. One advantage of this system is that it causes little or no disruption to soil surface and no disruption to the roadway or railroad above.

The basic components of an auger boring system are the base unit, the casing pusher, and a rotating auger. Soil is removed back to the drive pit by a helically wound auger flights rotating in a steel casing. Different cutting bits are available to accommodate different types of soil. The steel casing is jacked forward as the auger proceeds forward. As each section of the casing is installed, the next section is welded to the last section. The limited steering capabilities of the system are achieved by adjusting the cutting head at the front of the auger string. Once the full length of the bore is complete, the auger string is removed and the casing is ready to receive the carrier pipe. This construction method works best in clay, sand, sandy loam, gravels, and cobbles up to 1/3 the casing diameter. Geotechnical investigations undertaken indicate that auger boring is feasible for all of the proposed crossings.

Each auger boring site will require a staging area. Before the boring operation, a drive pit and a reception pit are prepared. Equipment and facilities such as generators, pumps, storages, and offices are also necessary for some operations. The working area for the dive unit, which is either track- or rail-mounted, should be reasonably level, firm, and suitable for movement of the unit as the bore proceeds. The area at both the entry and exit bore pits should be 26-36 feet long and 8-12 feet wide. Additional room for storing augers, casing, etc., is also required.

Scour depths and final pipeline depths for the auger boring crossing sites are still being determined.

Suspended Pipeline

One stream crossing in the upper Stenner Creek watershed will be constructed as a pipeline bridge spanning the across the canyon. The total length of the suspended portion of the pipeline will be approximately 50 feet. The pipeline will be encased in abutments on either side of the canyon to provide anchoring and stiffness. All construction activities will occur outside the channel.

Materials Storage

Several equipment staging areas will be required for storing equipment and materials during implementation of the Project. Construction staging areas are temporary locations for the storage, maintenance, and off-loading of construction-related equipment, employee vehicles, and supplies. These areas along the pipeline route would need to be cleared of any surface materials and fenced. Grassy areas will need to be cut, but other vegetation will not necessarily be removed. Primary staging areas are locations that would be expected to exceed the 100-foot road right-of-way (ROW). The District has identified numerous potential staging areas within the 100-foot corridor. However, the exact locations and duration of construction staging areas cannot be determined precisely until after project approval and contractor selection. It would be the contractor's responsibility to determine where construction staging areas are needed, following general guidelines issued by the County to remain within public road ROW where possible, avoid removing existing vegetation or impacting creeks, locate in level areas that have been previously disturbed, and attempt to locate away from residences, schools, hospitals, and other noise sensitive areas. Final approval of construction staging areas would be contingent on a mitigation monitoring program which would include site inspection prior to use. The staging areas would be restored to previously existing conditions upon completion of construction.

1.4 Consultation History

This BA was prepared based on the documented, observed, or suspected presence of T&E plant and wildlife species in the immediate vicinity of the NWP, and due to proposed activities that will affect these species and waters of the United States, including wetlands.

The final project Environmental Impact Report (EIR) was completed in December 2003 and certified on January 6, 2004. The following summarizes the project consultation history to date.

- May 11, 2005, Letter entitled, "Species List for Nacimiento Pipeline Project" mailed to B. Pittman from the USFWS Ventura Office.
- Pre-consultation meeting with the USFWS to brief about the project. Objective was to identify the T&E species to be covered by the BA, introduce the project and identify appropriate project mitigation.
- Request by B. Pittman to conduct dry season branchiopod surveys shrimp was mailed to Diane Noda, USFWS Ventura Office, on July 12, 2005. Approval to conduct dry season

surveys pursuant to recovery permits TE-027422-1 (B. Pittman) and 795930-3 (Brent Helm) was received on July 14, 2005.

- A request by B. Pittman to conduct California red-legged frog surveys following a modified survey protocol was sent to Julie Vanderwier, USFWS Ventura Office, on July 26, 2005. Approval to use the modified protocol was provided on August 25, 2005.
- Peter Bloom provided a 10-Day Notification of Intent to initiate protocol surveys for the least Bell's vireo and southwestern willow flycatcher in a letter dated April 23, 2005. The final survey letter report was dated August 19, 2005.
- Request to conduct wet season vernal pool fairy branchiopod surveys was sent to D. Noda, USFWS Ventura Office on December 7, 2005. Approval to conduct wet season surveys pursuant to recovery permits TE-027422-1 (B. Pittman) was received from Julie Vanderwier, Fish and Wildlife Biologist, on December 19, 2005.

CHAPTER 2
Covered T&E Species and Critical Habitat in the Action Area

2.1 Survey Dates and Surveying Personnel

Environmental Science Associates (ESA) botanists conducted in-season botanical surveys of NWP work sites and potential-staging areas between March and August 2005. Specific survey dates and surveying personnel are provided in the NWP Botanical Survey Report (under separate cover).

General and focused wildlife surveys of the NWP alignment, facility sites, and adjacent habitats were conducted by ESA biologists between March and September 2005, with ongoing vernal pool crustacean surveys and bald eagle observations continuing into winter 2006. Protocol-level surveys for arroyo toad were conducted by ESA wildlife biologist Brian Pittman, CWB, on May 17, 26, and 27, 2005 (see Appendix B). California red-legged frog surveys were conducted August 3 and August 4, 2005 by B. Pittman and Julie Remp (see Appendix B). Dry season branchiopod surveys were conducted on August 3 and August 4, 2005 by B. Pittman with cyst identification conducted by Brent Helm. Due to continued rainfall into April 2006, wet season branchiopod surveys were on-going as of the BA publication date (April 12, 2006) and the preliminary results are presented herein. Peter Bloom conducted least Bell's vireo and southwestern willow flycatcher surveys at select sites on May 22, June 1, 11, and 22, July 2, 12, 21, and 30, 2005 (see Appendix C).

2.2 Survey Methods

The NWP Environmental Impact Report (MRS, 2003; SCH #2001061022) was consulted to prepare an initial list of plant and wildlife species to be considered for the current project. The CDFG Natural Diversity Database (CNDDB, 2006) was consulted concerning sensitive botanical and wildlife resources in the vicinity of the NWP. In addition, the California Native Plant Society (CNPS) online inventory (CNPS, 2005) was reviewed to identify sensitive plants in the general project region.

Starting with the initial project analysis presented in the EIR (MRS, 2003), ESA biologists conducted an initial reconnaissance survey of all project construction, laydown, and access routes between April 18 and 22, 2005. Surveys attempted to identify species and habitat elements that could support rare or federally listed plant or wildlife species. Particular concern was given to identify potential habitat for purple amole, vernal pool fairy shrimp, California tiger salamander,

arroyo toad, California red-legged frog, bald eagle, least Bell's vireo, southwestern willow flycatcher, and San Joaquin kit fox. Additional focus was given to non-listed special status species including western spadefoot (*Spea hammondii*) and silvery legless lizard (*Anniella pulchra pulchra*), both of which were identified in the near-project area, burrowing owl (*Athene cunicularia*) and rare plants. These non-listed species will be protected under the NWP's California Environmental Quality Act (CEQA) obligations and are not considered further in this BA.

Federal protocol-level surveys were conducted to determine the presence/absence status and distribution of vernal pool fairy shrimp, southwestern willow flycatcher, least Bell's vireo, arroyo toad, and California red-legged frog in and near the project corridor. Surveys were conducted at appropriately-timed intervals and as per federal survey protocols, with fairy shrimp surveys ongoing into spring 2006. Completed survey reports are appended to this BA and can be additionally referenced for survey methods. Focused surveys for bald eagle were conducted by Ventana Wildlife Society during the 2005 breeding season, and eagle activity was recorded by ESA biologist B. Pittman concurrent with wet season branchiopod surveys in 2006. Vegetation types and wildlife habitats in the NWP alignment were characterized on the basis of the project EIR and field observations, and are presented in Appendix D.

2.3 T&E Plant Species in the Action Area

Established by ESA botanists the only listed plant species known to occur in the project vicinity, the federal threatened purple amole (*Chlorogalum purpureum*), was not identified during appropriately timed botanical surveys (see Appendix B, NWP Botanical Survey Report). The distribution of this species at Camp Roberts is well known, and is beyond the project action area. Based on survey results, coordination with Camp Roberts biologists (Moore, pers. comm.), and the CNPS Electronic Database (CNPS, 2005) and California Natural Diversity Database (CNDDB, 2006), no T&E plant species are known or expected to occur in the NWP corridor. As a result of these findings, no project effects will be incurred to T&E plant species, and such species are not considered further in this BA.

2.4 T&E Wildlife Species in the Action Area

A comprehensive literature search and focused field surveys were conducted in 2005 and 2006 to ascertain the likelihood of encountering T&E wildlife species in the project action area. Forty-four special status wildlife species were identified in the *Nacimiento Water Project Environmental Impact Report* (MRS, 2003). Of these, potential habitat for seven T&E or candidate wildlife species was identified in the NWP vicinity.

Based in part on previous and recent survey findings, the known distribution of federally listed and candidate species in the project vicinity, consideration of species that may become listed during the implementation of the Project, and input from the U.S. Fish and Wildlife Service (Vanderwier, pers. comm.), the following species are the primary focus of this BA:

Vernal pool fairy shrimp (*Branchinecta lynchi*)	**FT**[1]
California red-legged frog (*Rana aurora draytonii*)	**FT**
California tiger salamander (*Ambystoma californiense*)	**FT**
Bald eagle (*Haliaeetus leucocephalus*)	**FT (PD)**
Least Bell's vireo (*Vireo bellii pusillus*)	**FE**
Southwestern willow flycatcher (*Empidonax traillii extimus*)	**FE**
San Joaquin kit fox (*Vulpes macrotis mutica*)	**FE**

As determined through federal protocol-level surveys and known distribution, the arroyo toad (*Bufo californicus*) is regarded as absent from the project area and is therefore not considered in this BA (see Appendix B). The southwestern willow flycatcher was not identified during focused surveys (see Appendix D); however, this species is described in the species accounts.

2.5 Critical Habitat

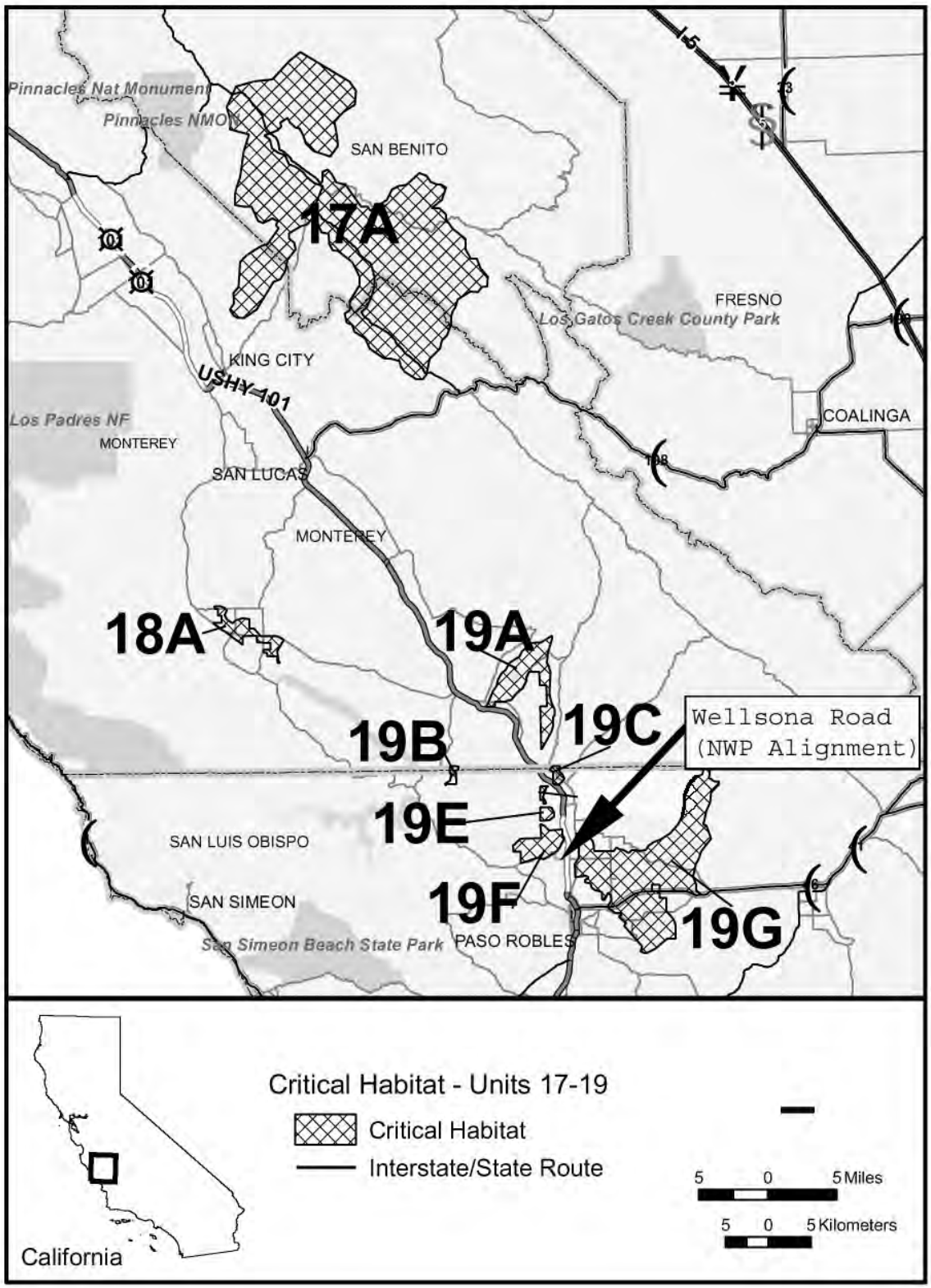
A portion of the NWP is within designated critical habitat for vernal pool fairy shrimp; however, fairy shrimp habitat is not present in the portion of the NWP alignment that is within critical habitat. There is no other proposed or designated critical habitat for any species in the NWP alignment.

Critical habitat for vernal pool fairy shrimp, Unit 19F is flanked to the south by San Miguel Road, to the west and north by Camp Roberts Military Reservation, and to the east by Highway 101 (generally) (see **Figure 2**). A 2.3-mile segment of the alignment between Camp Roberts (Station 568+00) and San Miguel Road (Station 690+00) is within designated critical habitat for vernal pool fairy shrimp. However, based on focused vernal pool branchiopod surveys, suitable fairy shrimp habitat is absent from this portion of the NWP alignment. As a result, the NWP will not result in the adverse modification of critical habitat for vernal pool fairy shrimp, or result in direct or indirect effects upon critical habitat. Camp Roberts Military Reservation was excluded from the critical habitat designation.

Critical habitat was designated for the California red-legged frog on March 13, 2001, partially rescinded on November 2, 2002 (excluding Unit 5 in Tuolumne and Mariposa counties), and re-proposed on April 13, 2004 using the configuration of the previously published final designation (USFWS, 2001; 2004). Red-legged frog critical habitat does not occur and is not proposed in San Luis Obispo County.

Final critical habitat for the California tiger salamander was designated on August 10, 2004 (USFWS, 2004). The nearest designated critical habitat for this species, Unit 6, is located in eastern San Luis Obispo County, roughly 50 miles east of the NWP. The NWP is not within designated critical habitat for this species.

[1] FT = federal threatened species;
FE = federal endangered species;
FT (PD) = federal threatened, proposed for delisting.



NWP Project / *204453* ■

Source: USFWS, 2005

Figure 2

Distribution of designated critical habitat for vernal pool fairy shrimp near the NWP alignment in northern San Luis Obispo County, California

The USFWS designated final critical habitat for the least Bell's vireo on February 2, 1994. This designation included portions of Santa Barbara County southward to the Mexico border. Critical habitat for this species does not occur in San Luis Obispo County.

Critical habitat has not been designated by the USFWS for the bald eagle or San Joaquin kit fox.

CHAPTER 3
Species Accounts

The status, general ecology and distribution of T&E species in and near the NWP ROW are presented below.

3.1 Vernal pool fairy shrimp *(Branchinecta lynchi)*

Status

The vernal pool fairy shrimp is a federal listed threatened species.

General Ecology and Distribution

The ecology of fairy shrimp species is highly adapted to vernal pools, puddles, and similar shallow, ephemeral aquatic habitat. Vernal pool fairy shrimp eggs, or cysts, are protected from desiccation through dry months by a hard covering that surrounds each egg. Following a combination of continuous immersion in water, low temperatures and other environmental cues, vernal pool fairy shrimp quickly hatch, reproduce and lay their eggs before the seasonal aquatic habitat dries out. Adult shrimp reach maturity in 18 to 41 days under ordinary conditions, with a life span on the order of 70 to 139 days (Eng and Belk, 1999). The short-lived pools and puddles that host this species persist for only 6 to 7 weeks in winter and 2 to 3 in spring, and are otherwise dry (Eriksen and Belk, 1999).

Fairy shrimp are preyed upon by insects, amphibians and migratory birds. Agricultural and urban development has led to the destruction of vernal pools and other seasonal aquatic habitat and the decline of the vernal pool fairy shrimp in California. Vernal pool fairy shrimp are widespread throughout California and are well documented in northern San Luis Obispo County.

Project Area Occurrence

Vernal pool fairy shrimp have been identified in hundreds, and likely occur in thousands of natural and created pools at Camp Roberts (Camp Roberts undated GIS file data). In accordance with their 1997 Biological Opinion (USFWS, 1997a), Camp Roberts established three vernal pool fairy shrimp protection areas that comprised a subset of known or potential shrimp habitat on the base. These areas were fenced for protection from training, maintenance and construction activities include 8 to 9 acres of artificial wetlands in Training Area O east of Avery Road, one seasonal wetland in Training Area X, east of Perimeter Road, and a four-acre pond located in

Training Area X east of East Perimeter Road. Additionally, a monitoring program was established that included a Land Condition Trend Analysis plots and ongoing monitoring. Based on the on-going monitoring of pools, GIS-based maps of occupied vernal pool fairy shrimp habitat at Camp Roberts were provided to ESA and provided a basis for determining near-project distribution of vernal pool fairy shrimp.

The vernal pool branchiopod wet season survey report will be completed in April 2006 and will document the distribution of vernal pool fairy shrimp in and near the NWP alignment. As of the publication date of the BA, there are still one or perhaps two survey events outstanding. Preliminary survey results indicate that shrimp are present in four in-road puddles that are directly in the NWP project alignment, and an additional four off-alignment pools that are within 50 to 250-feet of the project ROW (see **Table 2**; **Figure 3**) (ESA, 2005; CNDDB, 2006; Camp Roberts GIS file data). The distribution of occupied vernal pool fairy shrimp habitat in the NWP project corridor is presented in **Figure 4** and **Figure 5**.

In addition to the 13 pools that were sampled using the full USFWS wet season/dry season survey protocol, 16 additional pools that were created by tank training and maneuvering activities became apparent in winter 2006 (Pools 16 to 31) and were sampled using the wet season protocol. Of these, three locations within 50 to 250 feet of the project ROW support vernal pool fairy shrimp, and an additional three locations were identified by the CNDDB and Camp Roberts Environmental Office (Table 2). Dry season surveys are not scheduled at the tank training pools. These pools are generally greater than 50 feet from the project ROW and include low-lying portions of active tank training roads and maneuvering areas. In three locations, where tank training roads intersect paved vehicle roads (on West Perimeter Road and General's Road), scoured water-holding depressions on each side of the paved road are within the project ROW. These crossing features did not support vernal pool fairy shrimp during wet season sampling and habitat is considered poor due to repeated tank disturbances. While vernal pool fairy shrimp absence is suspected at these roadside sites, it cannot be concluded without completion of the full protocol.

No potential shrimp habitat was identified within designated critical habitat, shown in **Figure 2**. Four of the pools that were identified to contain shrimp will be subject to direct project effects as a result of the NWP project.

TABLE 2
OCCUPIED VERNAL POOL FAIRY SHRIMP HABITAT AND ANTICIPATED PROJECT EFFECTS

Station/Pool	Description	Potential Project Effects
138+00 / Pool #2	10 foot x 22 foot pool on road shoulder that floods into Boyscout Road.	**Direct project effects to in-road portions, though partial avoidance may be possible.**
142+50 / Pool #3	Unvegetated 9 foot x 45 foot puddle in Boyscout Road.	**Avoidance not possible; direct habitat effects.**
148+00 / Source: CNDDB, no pool #	Natural pools located 70 to 100 feet north of project ROW (no photo).	Project will avoid habitat; no direct or indirect effects anticipated.
262+00 / Pool 6b	Unvegetated 3 foot by 10 foot puddle in road.	**Avoidance not possible; direct habitat effects.**
262+50 / Pool 6c	Unvegetated 3 foot by 10 foot puddle in road.	**Avoidance not possible; direct habitat effects.**
296+00 / Pool 28	Large, unvegetated puddle in active tank road.	Project will avoid habitat; no direct or indirect effects anticipated.
296+50 / Pool 29	Large, unvegetated puddle in active tank road.	Project will avoid habitat; no direct or indirect effects anticipated.
297+00 / Pool 31	Large, unvegetated puddle in active tank road.	Project will avoid habitat; no direct or indirect effects anticipated.
300+00 / Source: Camp. Roberts, no ref. #	Natural pools located 50 feet from project ROW (no photo)	Project will avoid habitat; no direct or indirect effects.
500+00 / Pool 8	Large natural pool located roughly 100 feet off project alignment.	Project will avoid habitat; no direct or indirect effects.
530+00 / Source: Camp. Roberts, no ref. #	Four pools in roadside drainage swale (no photo).	**Project will avoid habitat; possible indirect (runoff) effects can be minimized through mitigation.**
566+00 / Pool 10	Seasonal pools/puddle created by fire road blading, 100 feet from project ROW. This site is regularly bladed.	**Project will avoid habitat; possible indirect (runoff) effects can be minimized through mitigation.**
576+00 / Pool 11	Seasonal pools/puddle created by fire road blading, 100 feet from project ROW. This site is regularly bladed.	**Project will avoid habitat; possible indirect (runoff) effects can be minimized through mitigation.**

SOURCE: ESA; CNDDB, 2006; Camp Roberts file data.

Stn. 138+00 (Pool #2)

Stn. 142+50 / Pool #3

Stn. 262+00 / Pool 6b

Stn. 262+50 / Pool 6c

Stn. 566+00 / Pool 10

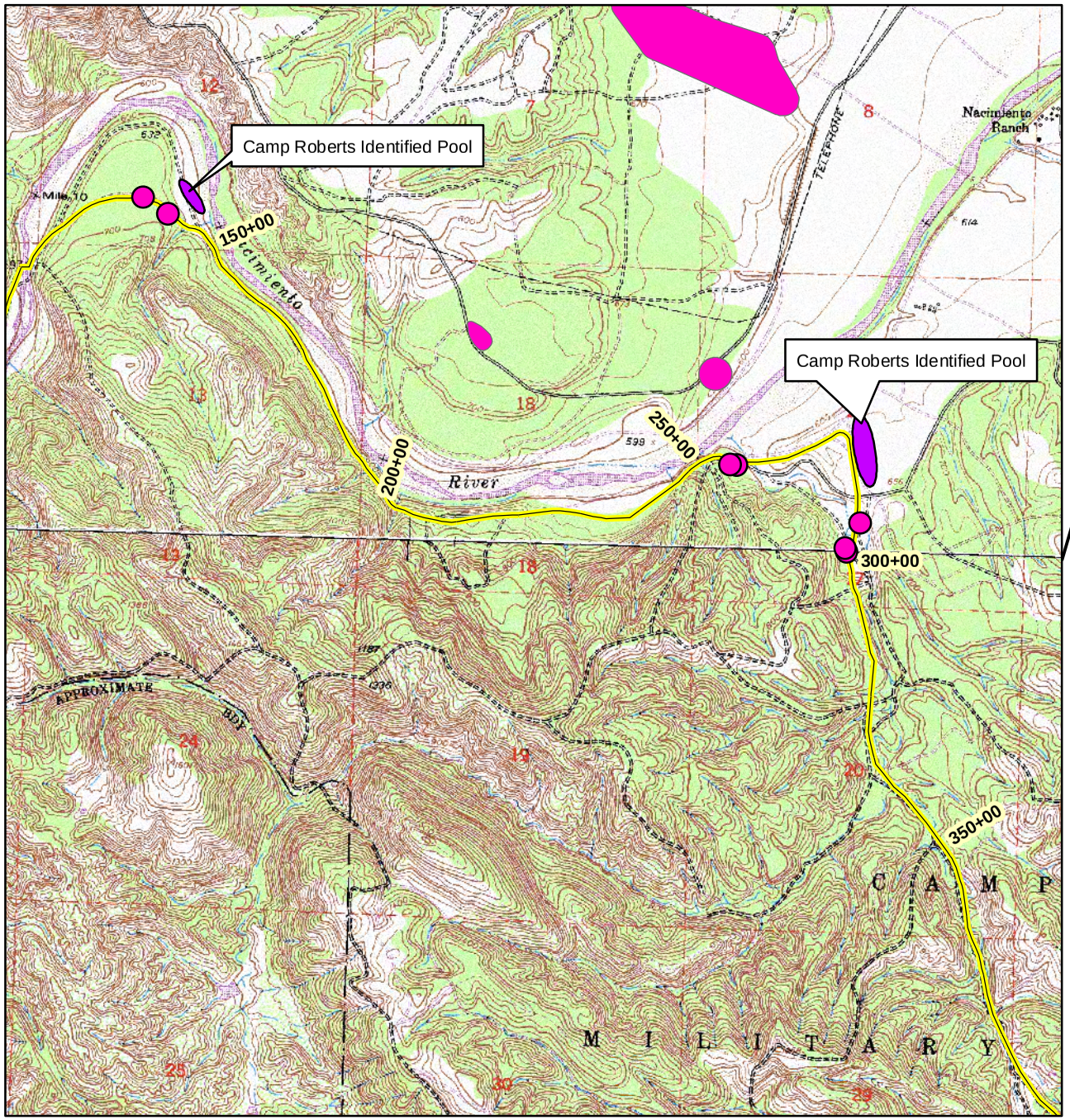
Stn 576+00 / Pool 11

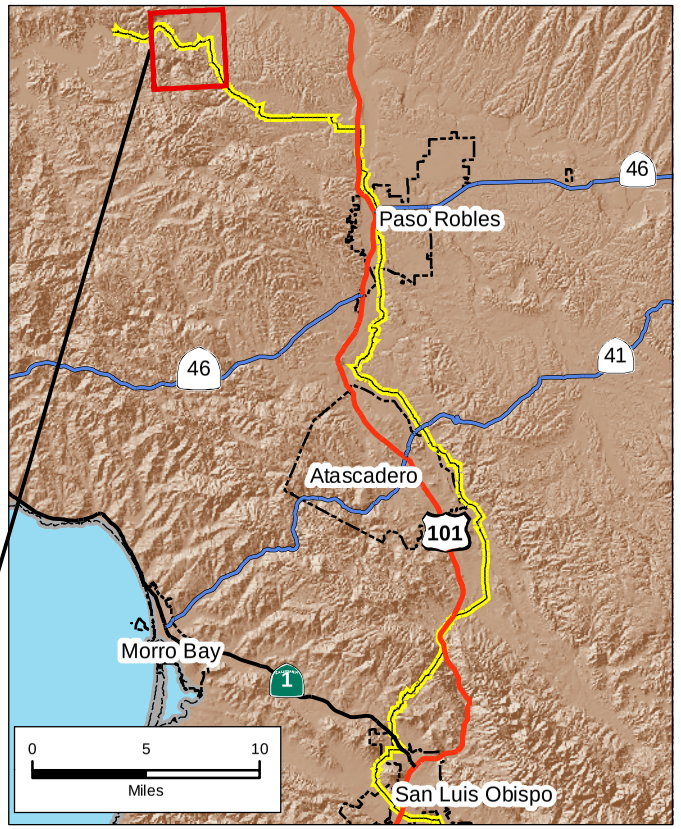
NWP Project / *204453* ■

Source: ESA

Figure 3

Photos of occupied fairy shrimp pools in and near the NWP alignment at Camp Roberts





Inset: Nacimiento Water Project Pipeline and Vicinity

Legend

- Vernal Pool Fairy Shrimp
- Pipeline Alignment

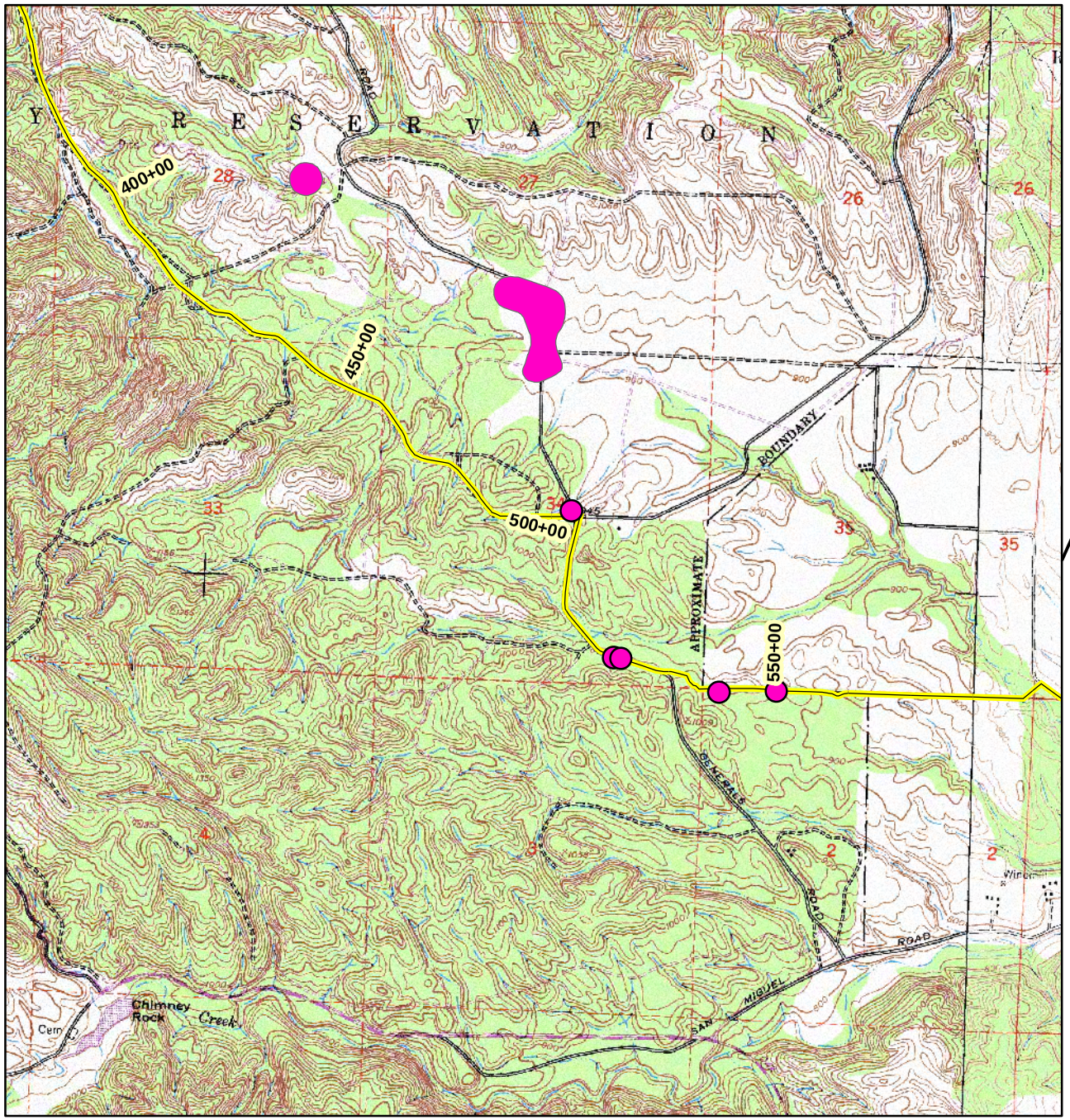
0 0.5 1
Miles

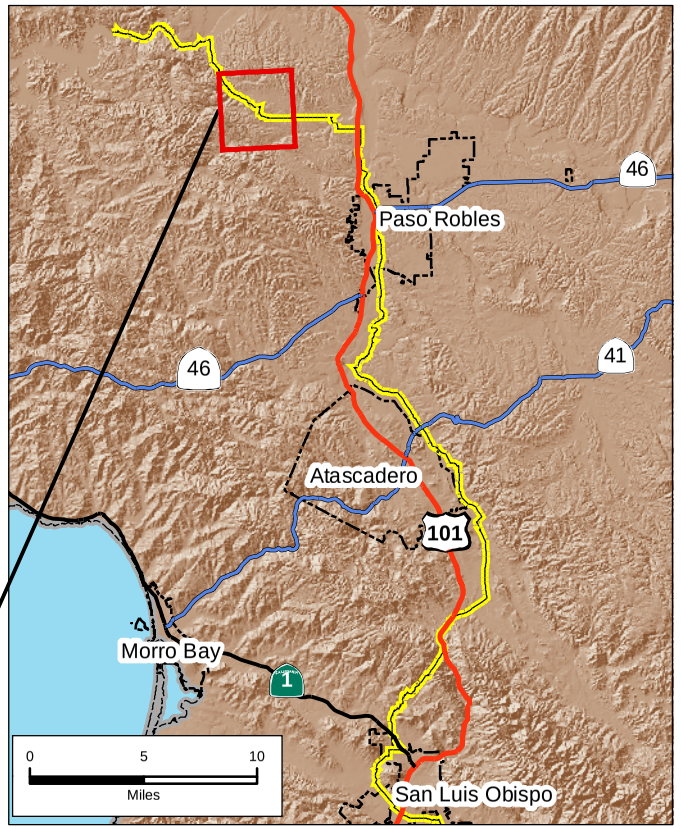
SOURCE: SLO County; ESA

NACIMIENTO WATER PROJECT . 204453

Figure 4

Vernal Pool Fairy Shrimp Locations





Inset: Nacimiento Water Project Pipeline and Vicinity

Legend

Pipeline Alignment

Vernal Pool Fairy Shrimp

0 0.5 1

Miles

SOURCE: SLO County; ESA

NACIMIENTO WATER PROJECT . 204453

Figure 5

Vernal Pool Fairy Shrimp Locations

3.2 California Red-legged Frog (*Rana aurora draytonii*)

Status

The California red-legged frog was federally listed as threatened on May 23, 1996 (61 FR 25813), effective June 24, 1996.

General Ecology and Distribution

The California red-legged frog is the largest native frog in the western United States (Wright and Wright, 1949), ranging from 4 to 13 centimeters (1.5 to 5.1 inches) in length (Stebbins, 1985). The abdomen and hind legs of adults are largely red; the back is characterized by small black flecks and larger irregular dark blotches with indistinct outlines on a brown, gray, olive, or reddish background color.

California red-legged frog populations are typically associated with deep pools or lakes with overhanging woody vegetation, usually willows, and an intermixed fringe of cattails (*Typha latifolia*) (Jennings, 1988). However, California red-legged frogs frequently breed in ephemeral creeks and drainages and in ponds that may or may not have riparian vegetation. During summer and fall months this species may disperse upstream and downstream of breeding sites to forage and seek sheltering habitat. Such shelter may include all aquatic, riparian, and upland areas within the range of the species and any landscape features that provide cover, such as small mammal burrows, rocks piles, organic debris (e.g., downed trees or logs), leaf litter, or industrial debris. Incised stream channels with portions narrower than 18 inches and depths greater than 18 inches also may provide important summer sheltering habitat. Accessibility to sheltering habitat is essential for the survival of California red-legged frog populations and can be an important factor that limits their survival. During winter rain events, juvenile and adult California red-legged frogs are known to disperse up to 1 to 2 kilometers (km) (Rathbun and Holland, unpublished data, cited in Rathbun et al., 1991).

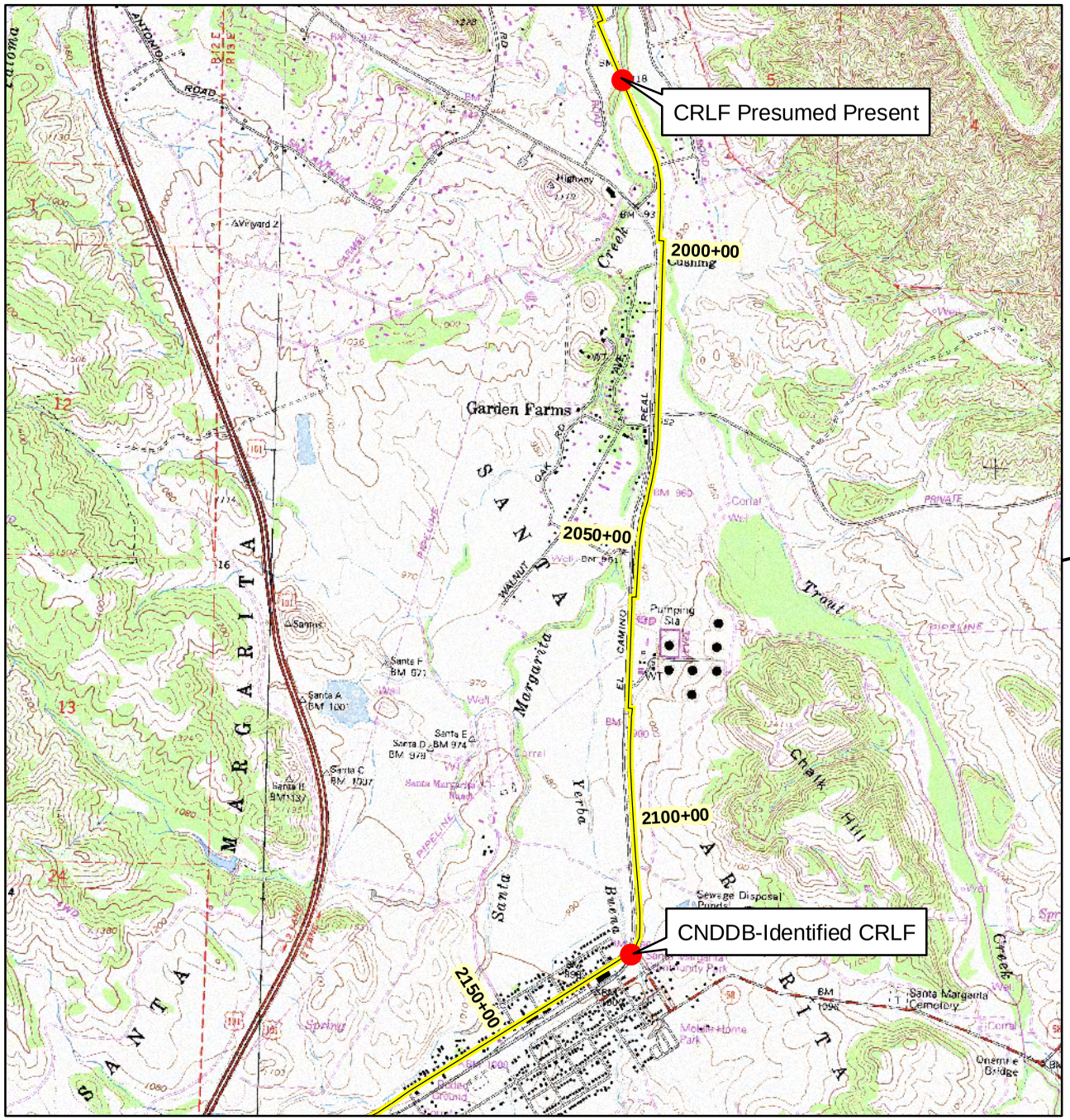
California red-legged frogs generally breed from January to May, attaching eggs to vegetation, fencing, or any available attachment sites in shallow water. Tadpoles grow to three inches before metamorphosing. California red-legged frogs are adapted to a highly variable climate that can alternate yearly between very wet and extreme drought conditions. In response to this variability, in wet years frog reproduction is high, and more sites become occupied by dispersing young frogs. In drought years populations may decline, and previously occupied sites are no longer inhabited. Such aquatic sites may be infrequently occupied by this species but can still be important to species migration and dispersal during successful breeding years.

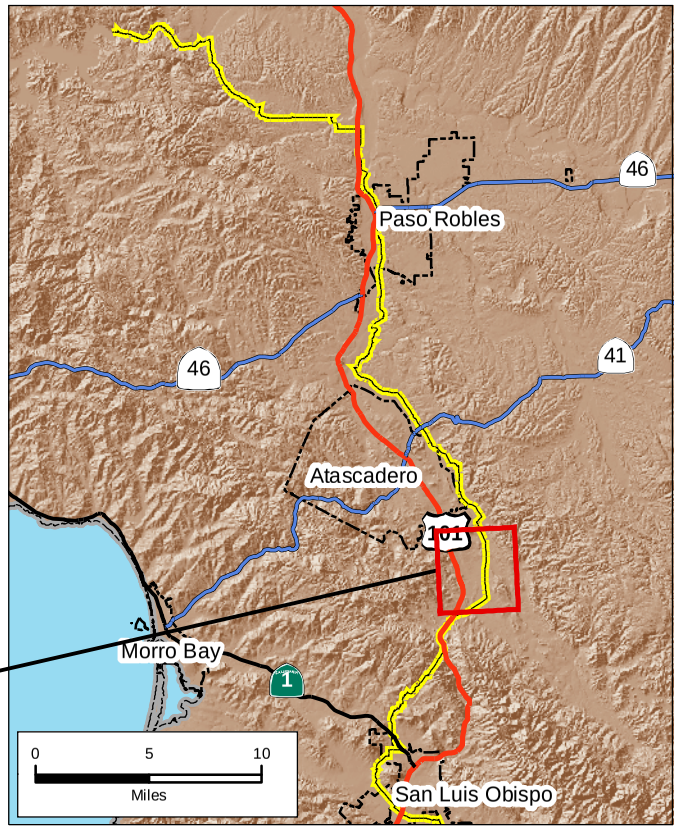
Project Area Occurrence

Following the implementation of federal, protocol-level California red-legged frog surveys in August 2005, potential aquatic habitat that could support this species was identified at two sites on the NWP alignment: Santa Margarita Creek (Station 1965+00) and Yerba Buena Creek (Station 2125+00) (**Figure 6**). Based on survey findings, California red-legged frogs are considered absent from other aquatic sites on the NWP ROW. The NWP California Red-legged Frog and Arroyo Toad Survey Report is presented in Appendix B.

The California Natural Diversity Database (CNDDB) reports two recent (2003) red-legged frog occurrences in Yerba Buena Creek near the NWP crossing site (CNDDB, 2006). As a result, this species is presumed present at this location.

Red-legged frogs were not identified in Santa Margarita during protocol-level surveys. However, given the hydrologic connection between Santa Margarita Creek and Yerba Buena Creek, which supports this species, roughly 1.0 mile south of the Santa Margarita Creek crossing site, it is possible that red-legged frogs could occur sporadically at this location as a result of normal migratory behavior. The protocol-level survey informs us that Santa Margarita Creek is not a principal red-legged frog breeding area. We conclude that red-legged frogs were absent during the protocol-level surveys; however, species absence cannot be definitively ruled out at this site during project construction. The California red-legged frog is therefore presumed present at this site and precautionary actions will be taken to avoid effects to this species.





Inset: Nacimiento Water Project Pipeline and Vicinity

Legend

Pipeline Alignment

0 0.5 1

Miles

SOURCE: SLO County; ESA

NACIMIENTO WATER PROJECT . 204453

Figure 6

Known and Potential California Red-Legged Frog Locations

3.3 California tiger salamander (*Ambystoma californiense*)

Status

The California tiger salamander was designated a federally threatened species on August 4, 2004 (69 FR 47212).

General Ecology and Distribution

The California tiger salamander is a large (75 to 125 mm snout-vent length) terrestrial salamander with several white or pale yellow spots or bars on black skin (Stebbins, 1985). The undersides are highly variable and range from uniformly white or pale yellow to variegated white or pale yellow and black (Jennings and Hayes, 1994). It has dark, protruding eyes and a broad, rounded snout.

California tiger salamanders have been separated into several geographically isolated and genetically distinct populations and have been introduced into areas outside of their natural range (Jennings and Hayes, 1994). The natural range of the California tiger salamander includes Sonoma County, east through the Central Valley to Yolo and Sacramento Counties and south to Tulare County, and from the vicinity of San Francisco Bay south to Santa Barbara County.

This species most commonly breeds in vernal pools, but also breeds in the quiet waters of ponds, reservoirs, lakes, roadside ditches and occasionally streams. Adult California tiger salamanders spend most of the year in subterranean refugia, especially burrows of California ground squirrels (*Spermophilus beecheyi*) and pocket gophers (*Thomomys spp.)*, debris piles, and man-made structures. The species appears to be restricted to grasslands and low foothill regions of Central and Northern California, which is where the longest-lasting rain pools tend to form (Jennings and Hayes, 1994).

The California tiger salamander breeds following relatively warm rains in winter months, generally December through March. This species participates in nocturnal breeding migrations that may cover distances of 1,000 meters or more (Jennings and Hayes, 1994). Following their development, juvenile salamanders emigrate from drying breeding sites to nearby small mammal burrows and may take two years or longer to mature (Jennings and Hayes, 1994). During years of low rainfall, California tiger salamanders may not reproduce at all and because they take refuge in burrows during the dry months, they are rarely observed outside of the breeding season.

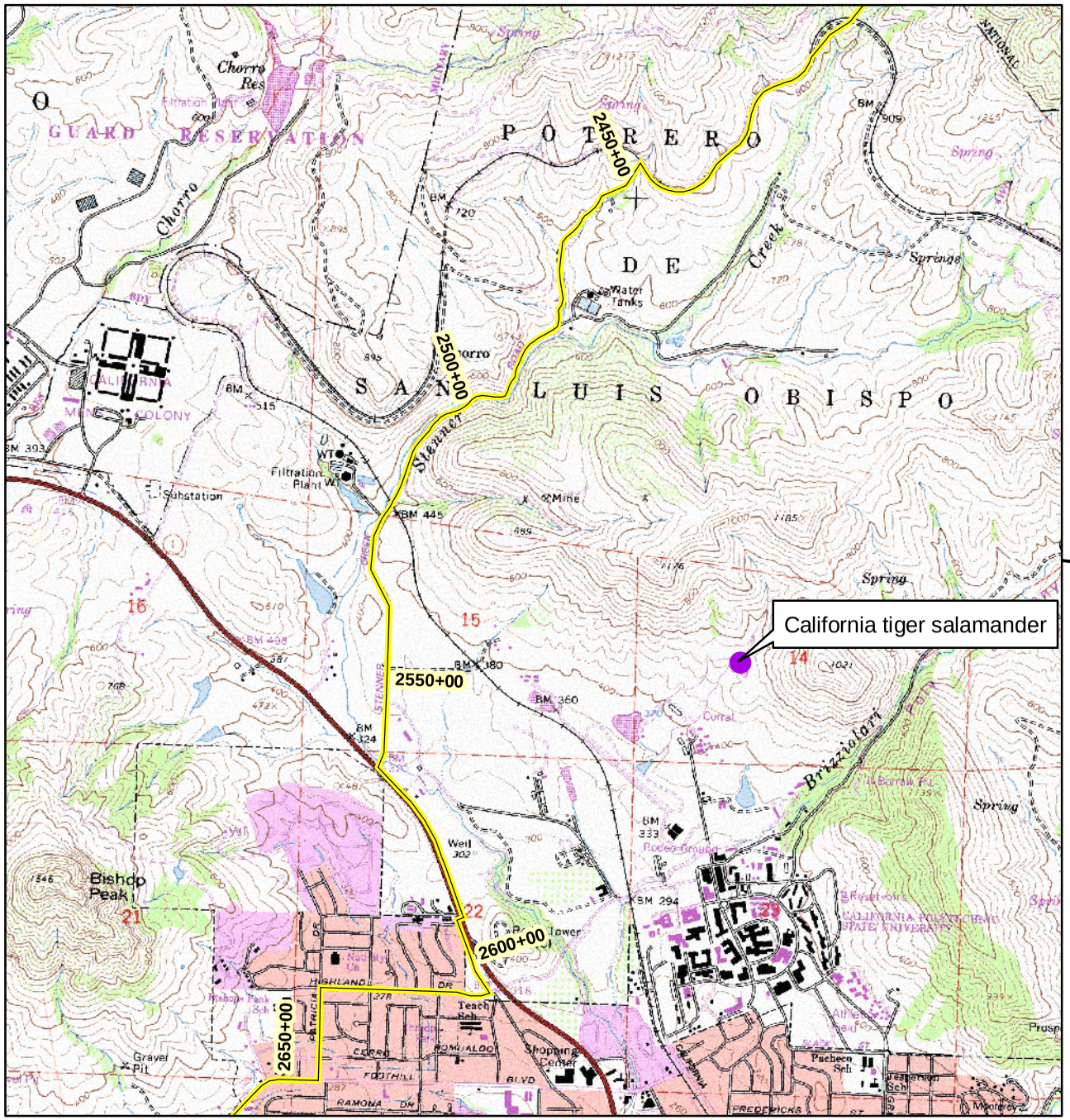
Urban development and conversion of grassland habitat to agricultural uses are primary threats to this species.

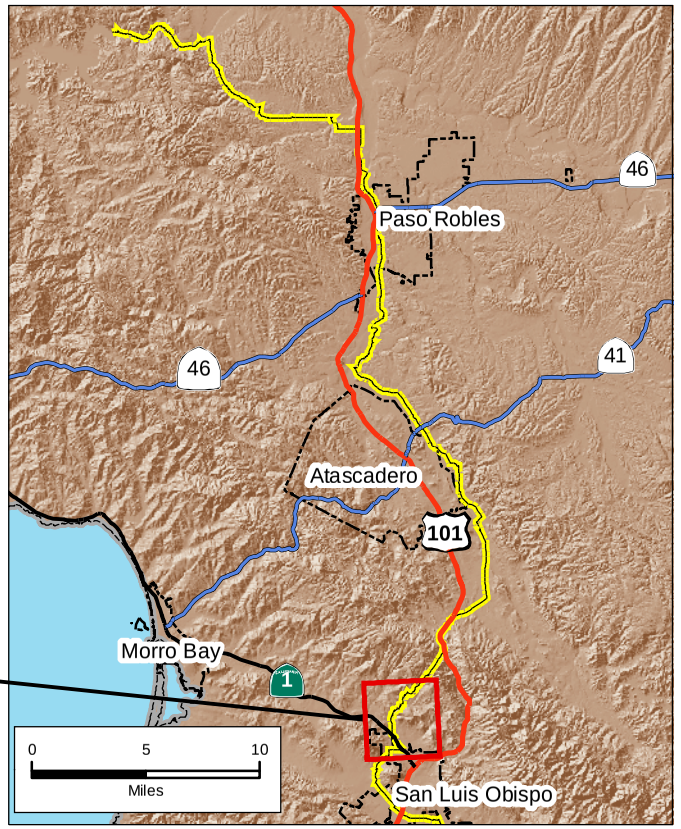
Project Area Occurrence

The Berkeley Museum of Vertebrate Zoology (MVZ) and CNDDB report a historic 1939 California tiger salamander occurrence in San Luis Obispo County. The original MVZ report cites this location roughly 1.3 miles east of the NWP alignment and City of San Luis Obispo water treatment facility (MVZ, 2005; record no. 31387) (**Figure 7**). In a follow-up study, Mark Jennings sampled the historic breeding location for his 1994 publication *Amphibian and Reptile Species of Special Concern in California*, and concluded that this site was locally extirpated (Jennings, 1994; CNDDB, 2006).

An agriculture irrigation pond located adjacent to the San Luis Obispo water treatment facility, near the NWP's southern terminus is a potential California tiger salamander breeding site. The pond is bordered to the west and north by vineyards and to the south east by Stenner Creek and the treatment facility. Project facilities near this location would be limited to within the paved roadway and would not affect upland or aquatic habitat that may be occupied by California tiger salamander, if present.

There are no other documented breeding California tiger salamander breeding locations located within 5 miles of the NWP alignment (CNDDB, 2006).





Inset: Nacimiento Water Project Pipeline and Vicinity

Legend

Pipeline Alignment

0 0.5 1

Miles

SOURCE: SLO County; ESA

NACIMIENTO WATER PROJECT . 204453

Figure 7

California Tiger Salamander Location (presumed extirpated)

3.4 Least Bell's Vireo (*Vireo bellii pusillus*)

Status

The least Bell's vireo was listed as a federal endangered species on May 2, 1986 and is also listed as endangered by the State of California.

General Ecology and Distribution

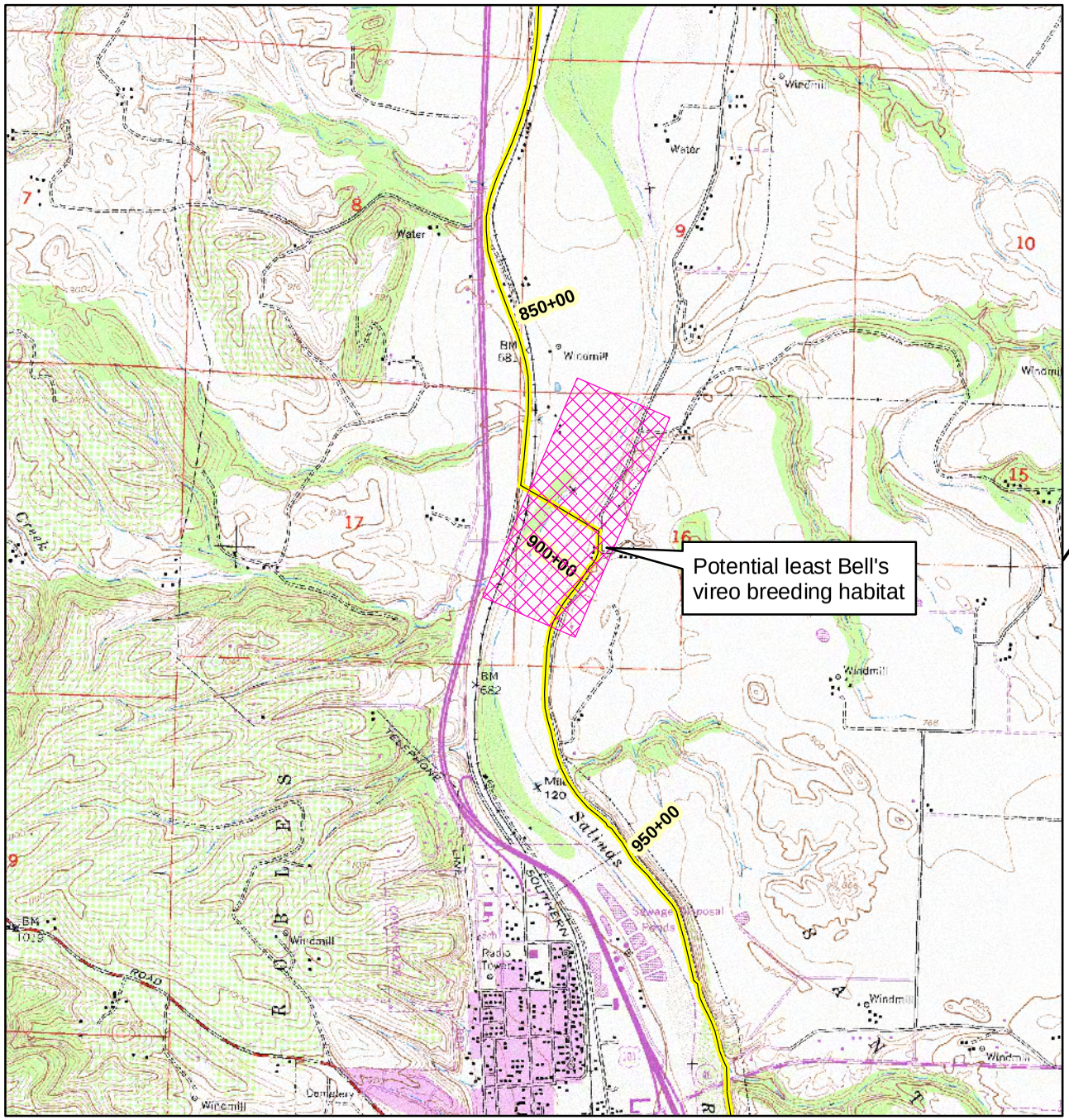
Least Bell's vireos are endangered due largely to habitat loss, although they are also susceptible to cowbird parasitism. They nest in low riparian vegetation, usually near water but also in intermittent stream bottoms; although nests can be as high as 25 feet, the usual range is from two to three feet. Typical nest vegetation includes willow, cottonwood, and coyote brush (CDFG, 1999; Ehrlich et al., 1988).

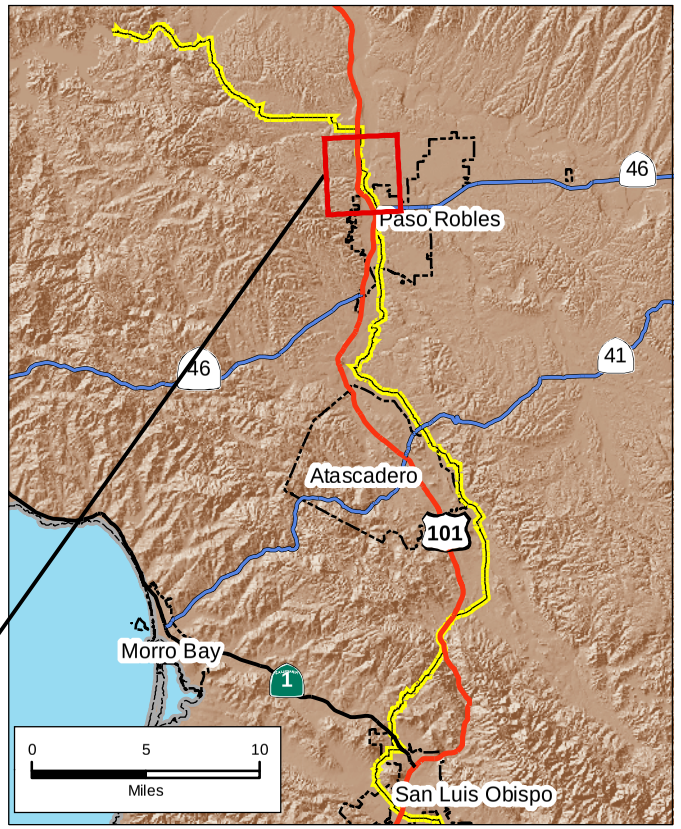
On average, four eggs are laid, with a range of three to five eggs. Two broods may be produced, particularly after cowbird parasitism of the first brood, when a second nest may be built on top of the first (Ehrlich et al., 1988); peak laying is from May to June (CDFG, 1999). Least Bell's vireos generally migrate south to Mexico by July or August, though some are summer residents of areas below 2,000 feet elevation. In central California, they are largely found in dense valley foothill riparian vegetation and the lower portions of canyons (CDFG, 1999).

Project Area Occurrence

Two locations on the NWP alignment were identified as potential least Bell's vireo habitat and were surveyed in 2005 by Peter Bloom following the USFWS survey protocol. The detailed survey report is presented in Appendix D. This species was not identified at Santa Margarita Creek; however, a breeding pair was identified at the northernmost Salinas River crossing (Station 885+00) (**Figure 8**). This location supported a lush riparian habitat dominated by willows including black willow (*Salix goodingii*), arroyo willow (*S. lasiolepis*), and narrow-leaved willow (*S. exigua*) and flowing water 10 – 20 feet across. Mule fat (*Baccharis salicifolia*) and poison hemlock (*Conium maculatum*) comprised most of the understory vegetation.

As a result of these findings, least Bell's vireo is considered seasonally present at this crossing location where dense riparian vegetation is present.





Inset: Nacimiento Water Project Pipeline and Vicinity

Legend

Pipeline Alignment

0 0.5 1

Miles

SOURCE: SLO County; ESA

NACIMIENTO WATER PROJECT . 204453

Figure 8

Location of Identified Least Bell's Vireo Sighting and Potential Habitat

3.5 Southwestern Willow Flycatcher (*Empidonax traillii extimus*)

Status

The USFWS designated the southwestern willow flycatcher (*Empidonax traillii extimus*) as endangered, effective March 29, 1995. All willow flycatcher (*E. traillii*) subspecies that occur in California are listed as endangered by the State.

General Ecology and Distribution

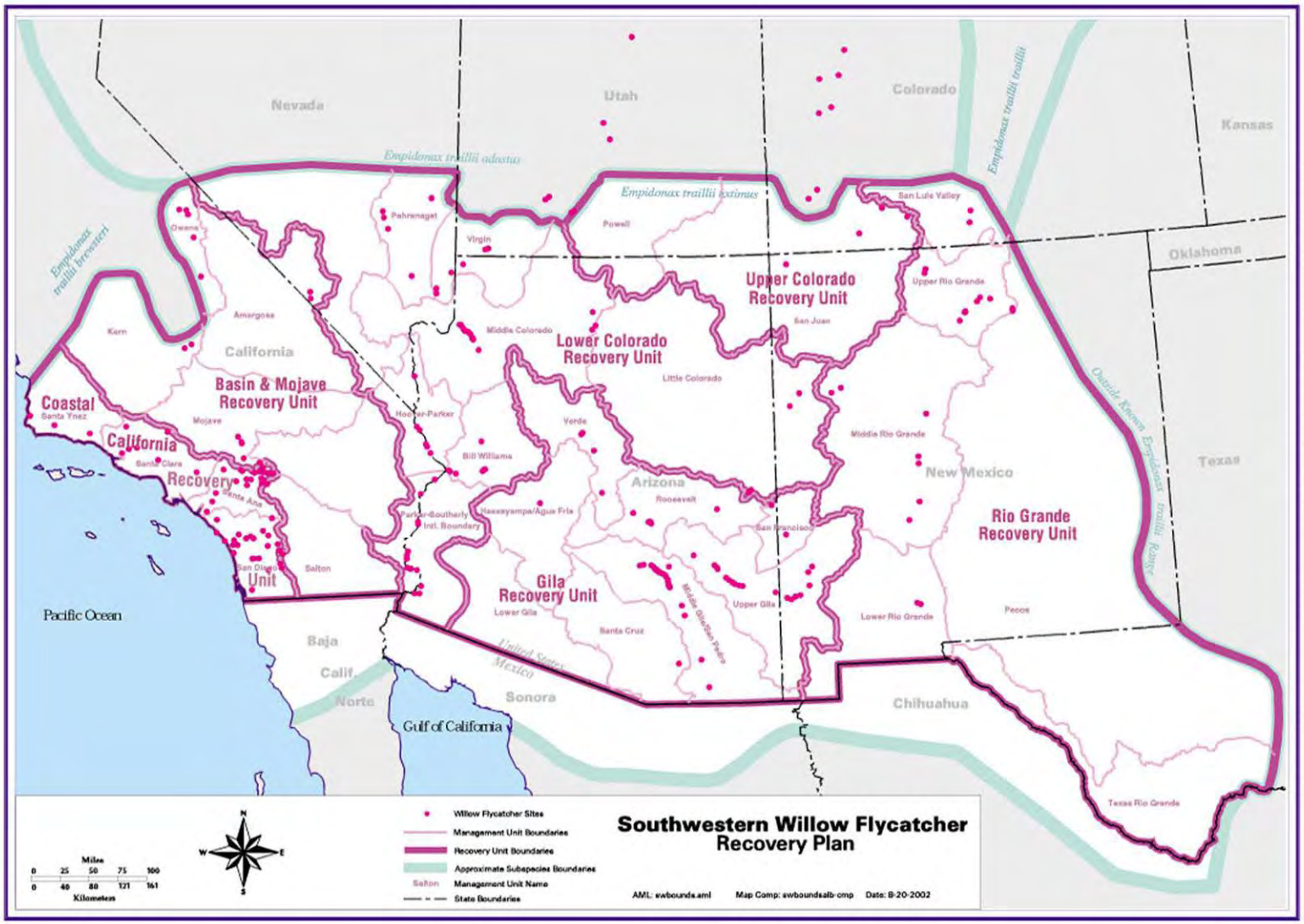
The southwestern willow flycatcher is one of two willow flycatcher subspecies that occur in California. This seasonal migrant nests in riparian habitats along rivers, streams, or other wetlands, where dense stands of willow (*Salix* sp.), *Baccharis*, arrowweed (*Pluchea* sp.), buttonbush (*Cephalanthus* sp.), tamarisk (*Tamarix* sp.), or other plants are present, often with a scattered overstory of cottonwood (*Populus* sp.) (USFWS, 1995). Within this species' range, such riparian communities tend to be infrequent, widely separated, small and/or located along linear stream corridors, and separated by vast arid expanses. The southwestern willow flycatcher has experienced extensive loss and modification of this habitat and is also endangered by other factors, including brood parasitism by the brown-headed cowbird.

After wintering in Central and South America, adult birds return to California breeding sites in late May and June. The southwestern willow flycatcher is present and singing on breeding territories by mid-May, although its presence and status is often confused by the migrating individuals of northern subspecies passing through southwestern willow flycatcher breeding habitat (USFWS, 1995). This subspecies builds nests and lays 3 to 4 eggs in late May and early June and fledges young in early to mid-July, with some variation in actual breeding dates (USFWS, 1995). Between early August and early September, parents and their offspring begin their southward migration (Biosystems, 1995).

Project Area Occurrence

Based on the known distribution of the southwestern willow flycatcher detailed in the 2002 final recovery plan for this species, the project is beyond the ordinary range of this species (USFWS, 2002). The recovery plan distribution maps identify that the project is in the range of the little willow flycatcher subspecies (*E. t. brewsterii*), which is State- but not federal-listed (**Figure 9** and **Figure 10**). There are no CNDDB-reported little willow flycatcher breeding sites in central cismontane California, including San Luis Obispo or Monterey counties (CNDDB, 2006).

The southwestern willow flycatcher was not identified during protocol-level surveys at the two sites on the NWP that support dense riparian habitat: the northern Salinas River crossing (Station 1965+00) and Santa Margarita Creek (Station 885+00) (see Appendix C).



NWP Project / *204453* ■

Source: USFWS, 2002

Figure 9

Recovery and Management Units and willow flycatcher subspecies ranges identified in the 2002 species Recovery Plan. The NWP is located north and west of the Coastal California Recovery Unit and within the range of the non-federally listed little willow flycatcher (*E. t. brewsterii*)

NWP Project / *204453* ■

Source: USFWS, 2005

Figure 10

Coastal California Recovery Unit identified in the 2002 Southwestern Willow Flycatcher Recovery Plan (USFWS, 2002). The northernmost "willow flycatcher site" (SYVAND) is located near Lompoc, greater than 50-miles south of the NWP.

3.6 Bald Eagle (*Haliaeetus leucocephalus*)

Status

The bald eagle (*Haliaeetus leucocephalus*) was federally listed as endangered on March 11, 1967 (32 FR 4001). A final rule to reclassify the bald eagle from endangered to threatened was finalized on July 12, 1995 (60 FR 35999). A proposed rule to remove the bald eagle in the lower 48 states from the list of endangered and threatened wildlife was filed on July 6, 1999 and is still pending.

General Ecology and Distribution

The bald eagle was formerly widespread throughout California, but now mostly breeds in low mountain areas in the northern portion of the state. Through both long-term release programs and natural colonization, populations have recently increased in the coastal ranges and now include nest sites in San Luis Obispo and Santa Barbara counties, and Santa Catalina Island. To support their mainly fish diet, bald eagles need large bodies of water – such as reservoirs, natural lakes, or rivers with free-flowing or regulated flows. This species also eats waterfowl, gulls, mammals and carrion fish, launching their attacks from snags, large conifers, or other tall perches.

Bald eagles generally nest in trees or large snags near available water, but are known to nest on cliffs and (rarely) on the ground (USFWS, 1995). Nest sites are usually in large trees along shorelines in relatively remote areas that are free of disturbance. Adults tend to use the same breeding areas year after year, and often the same nest, though a breeding area may include one or more alternate nests.

After several weeks of courtship, egg-laying and incubation in California may begin in late February, though most females lay their eggs in March or April (Biosystems, 1995). The nesting season lasts about six months. Incubation lasts approximately five weeks and fledging takes place at 11 to 12 weeks of age; some time during July or August (Biosystems, 1995; USFWS, 1995). Parental care may extend 4 to 11 weeks after fledging when young birds leave their parents territories toward abundant food sources in Alaska and Canada. (USFWS, 1995).

The majority of California's breeding bald eagles are year-round residents of their breeding areas, and mated pairs remain together throughout the year. Beginning in autumn, many out-of-state bald eagles migrate to California to overwinter. Wintering areas, typically located in the northern-third of the state, generally offer abundant and readily available food supply with suitable night roosts that offer isolation and thermal protection from winds.

Project Area Occurrence

From 1993 to 2003, 88 bald eagle sightings were reported at Camp Roberts (CA ARNG 2003; CA ARNG 2004). Of these, sixty-six were adult bald eagles, 20 were immature birds, and two

were of unknown age. The sightings occurred from October through June, with those in January, February, and March accounting for 73 percent of the total sightings. The majority of bald eagle sightings occur along the Nacimiento River at Camp Roberts and a few sightings were along the Salinas River and in training areas away from the rivers (CA ARNG 2003; CA ARNG, 2004).

In February 2003, a bald eagle nesting attempt was documented at Camp Roberts (CA ARNG 2003; CA ARNG, 2004). This was the first time that bald eagle reproductive activities had been recorded on the installation. The nest was located in a large sycamore on the northern upper terrace of the Nacimiento River floodplain, 0.36 miles north of the NWP project area at Station 275+00 (**Figure 11**). The nesting eagles were observed in various incubation postures in the nest over the course of approximately five weeks. On March 22, 2003, the eagles abandoned the nest during an artillery live-fire training exercise (CA ARNG 2003a; ARNG, 2004). Since 2003, breeding behavior has been observed at the nest, including incubating adults, however, successful nesting has not been documented (Thorngate, 2005a). In 2006, eagles were again observed roosting in the nest tree, but breeding activity has not been identified (B. Pittman, pers. obs.). Adult eagles overwinter at Camp Roberts.

Since the Nacimiento River does not support a salmonid fishery, the fish portion of their diet presumably relies upon fish species that include centrarchid fish such as crappie, bass and bluegill. The proposed project is not expected to influence regulated Nacimiento River flow rates or influence the availability of food to foraging eagles.

3.7 San Joaquin kit fox (*Vulpes macrotis mutica*)

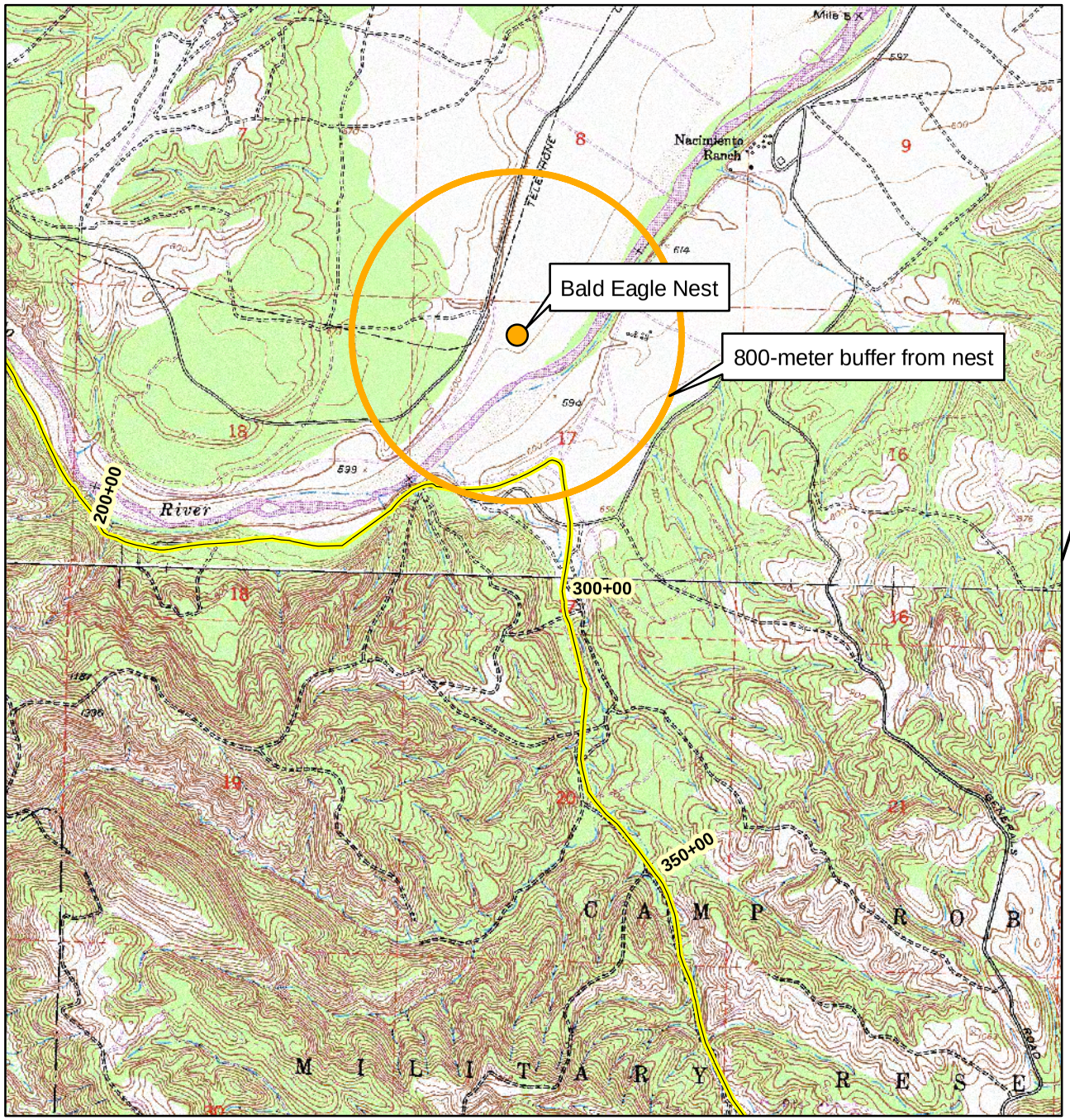
Status

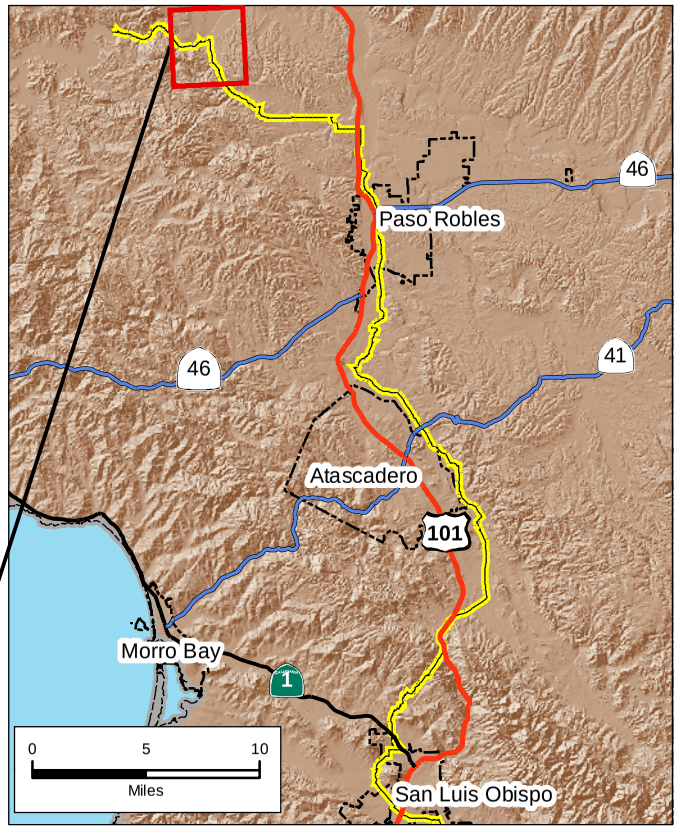
The San Joaquin kit fox was federally listed as threatened on March 11, 1967 (32 FR 4001) and is a State threatened species.

General Ecology and Distribution

The San Joaquin kit fox is a small fox with large ears set close together. It has a slim body with long slender legs, a narrow nose, and long, bushy tail tapering slightly toward the tip. The tail is usually carried low and straight. The color and texture of the San Joaquin kit fox fur varies seasonally and geographically. Buff, tan, and yellowish-gray are the most common colors. The undersides vary from light buff to white, with the shoulders, lower sides, flanks, and chest varying from buff to a rust color. The ears are dark on their inner (back) sides, and the tail is black-tipped.

The San Joaquin kit fox inhabits grasslands and scrublands, many of which have been extensively modified. This species often seeks shelter in modified habitats that include oil fields and wind turbine fields, agricultural mosaics of row crops, irrigated pastures, orchards, grazed grasslands and vineyards, and native annual grasslands. Oak woodland, alkali sink scrubland, vernal pool and alkali meadow communities also provide habitat for this species.





Inset: Nacimiento Water Project Pipeline and Vicinity

Legend

Pipeline Alignment

0 0.5 1
Miles

SOURCE: SLO County; ESA

NACIMIENTO WATER PROJECT . 204453

Figure 11

Location of Bald Eagle Nest at Camp Roberts

San Joaquin kit fox are active year-round and are primarily nocturnal. Dens are used for housing and protection. One fox may use several dens, particularly during the summer months. They also den in human-made structures, such as culverts, abandoned pipes, and banks in roadbeds. Most dens, especially natal and pupping dens, have multiple entrances. Kit foxes prey primarily upon small mammals and insects and may scavenge in urban interface habitats. Mating usually takes place between late December and March, and the median gestation period is estimated to range from 48 to 52 days. Litters are born between February and late March and number between two to six pups.

Similar to other predators, the reproductive success of San Joaquin kit fox is related to the abundance of their prey base. Decreases in prey abundance caused by natural or human-induced circumstances, such as drought, too much rainfall, or land conversion can decrease the reproductive success of this species.

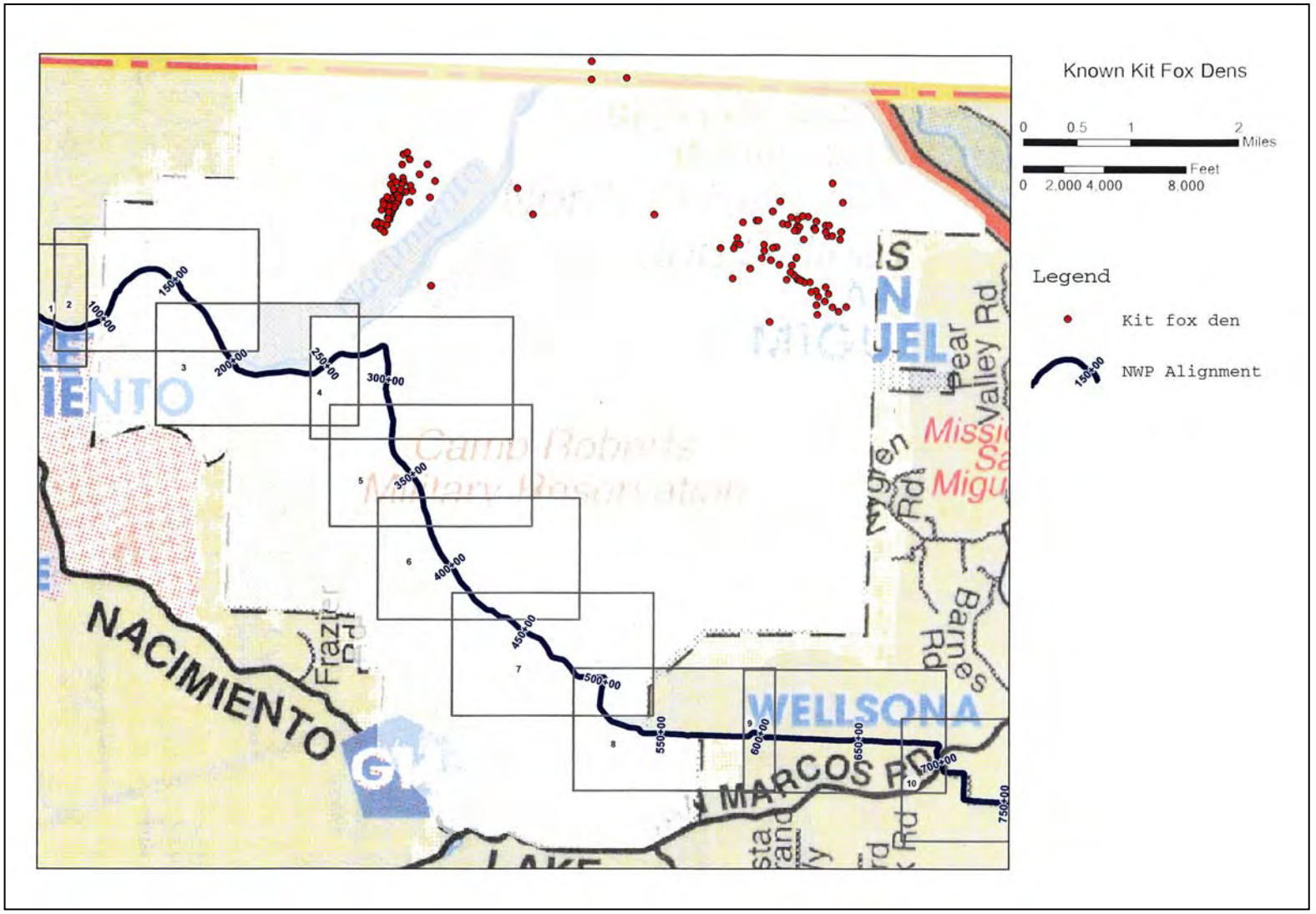
Many factors have contributed to the decline of the San Joaquin kit fox in California. By the 1950s, the loss, degradation, and fragmentation of habitats in the San Joaquin Valley as a result of agricultural, industrial, and urban development were main factors in the species' decline. Since the 1970s, researchers have identified predation, starvation, flooding, and drought as natural mortality factors. Human-induced mortality factors include shooting, trapping, poisoning, and significantly, road kills.

The historic range of San Joaquin kit fox includes most of the San Joaquin Valley from southern Kern County north to Contra Costa County. The species' range includes a portion of the Salinas Valley and other valleys of the interior Coast Range from the Cuyama Valley north to Soledad in Monterey County. Kit fox are frequently reported in the vicinity of Fort Hunter Liggett, in the vicinity of Jolon, Monterey County and range southward to Camp Roberts and across the Salinas River.

With respect to the loss or fragmentation of grassland habitat within the San Joaquin kit fox range, the USFWS (1998) issued the Recovery Plan for Upland Species of the San Joaquin Valley, which covers 34 species of plants and animals that occur in the San Joaquin Valley. The recovery plan identifies protecting the connectivity of existing kit fox populations in the *Salinas-Pajaro Region* to the Carrizo Plain as a primary recovery action (USFWS, 1997).

Project Area Occurrence

The San Joaquin kit fox occurs sporadically on Camp Roberts, with habitat use likely dependent on the intensity and distribution of military operations on the base. Staff biologists report that kit foxes were last observed on the base in 2003 though were previously more abundant (Moore, pers. comm.). When kit foxes were present, active den concentrations occurred primarily in two areas located 1.0 mile or greater from the NWP alignment (**Figure 12**). The first of these is located generally 1.0 to 1.5 miles north of the NWP pipeline alignment at Station 280+00, north of the Nacimiento River. The second area is located roughly 3.25 miles east of the alignment



Source: Camp Roberts Environmental Office, GIS Data, 2005

Figure 12

Location of recently active San Joaquin kit fox dens at Camp Roberts.

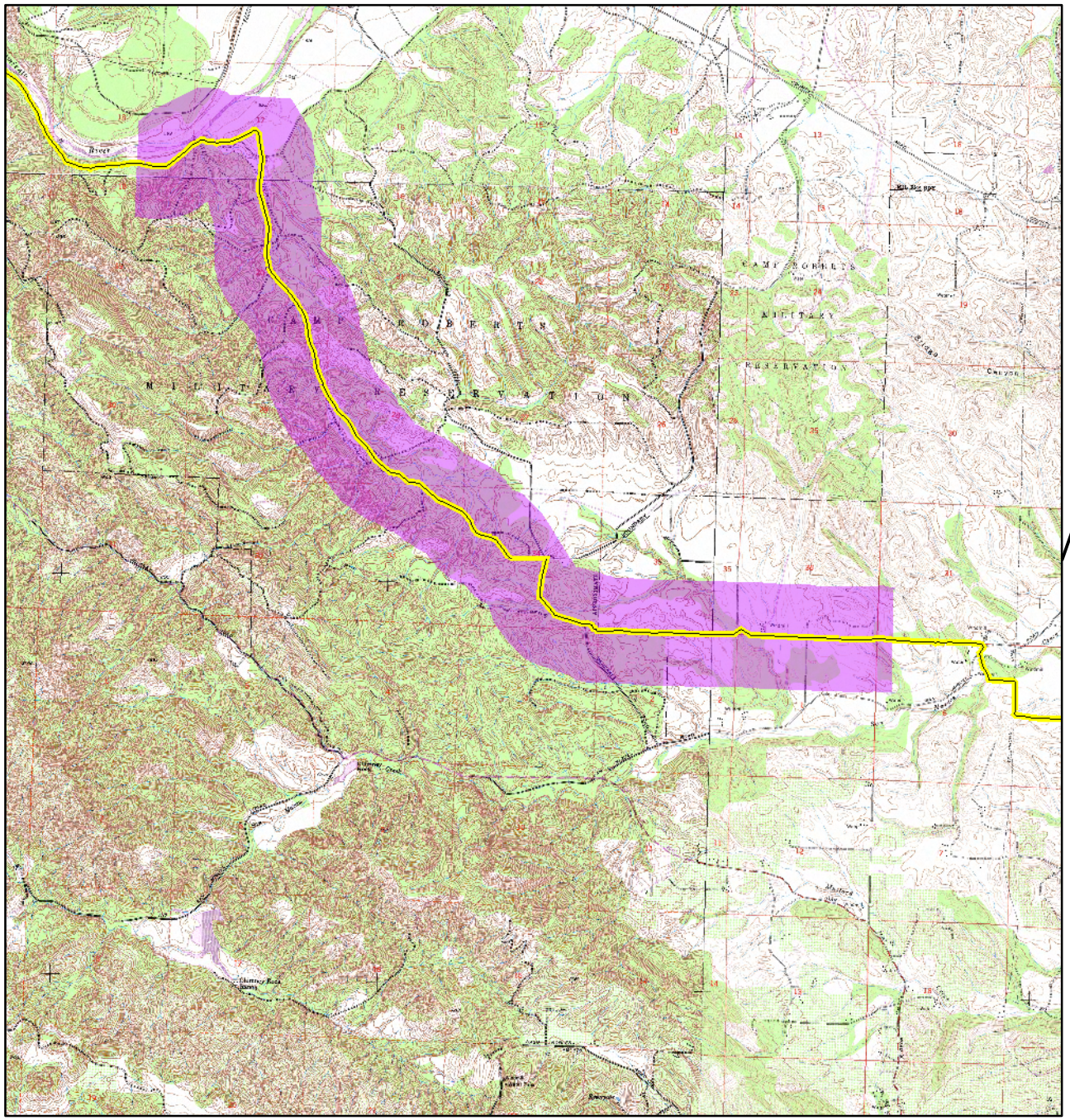
(Camp Roberts GIS file data). The CNDDB reports numerous kit fox sightings in the Camp Roberts containment area in 1997, with sightings generally bound by Washington Blvd Wyoming Ave., and Montana Blvd (CNDDB, 2006). At the time, kit foxes were seeking refuge beneath abandoned buildings in unused portions of the base near Highway 101. These areas are located well away from the NWP alignment. Given active kit fox denning at Camp Roberts, the large home range of this species (several hundred acres within a single year), and prevalence of high quality annual grasslands habitat in and near the NWP alignment, this species could occur sporadically in the project alignment at Camp Roberts. The nearest known historically active den is located roughly 0.75 mile north of the NWP at Station 280+00. However, several potential dens, *i.e.*, dens with appropriate dimensions within characteristic kit fox habitat, were identified during the biological reconnaissance within 100 feet of the alignment that could support this species.

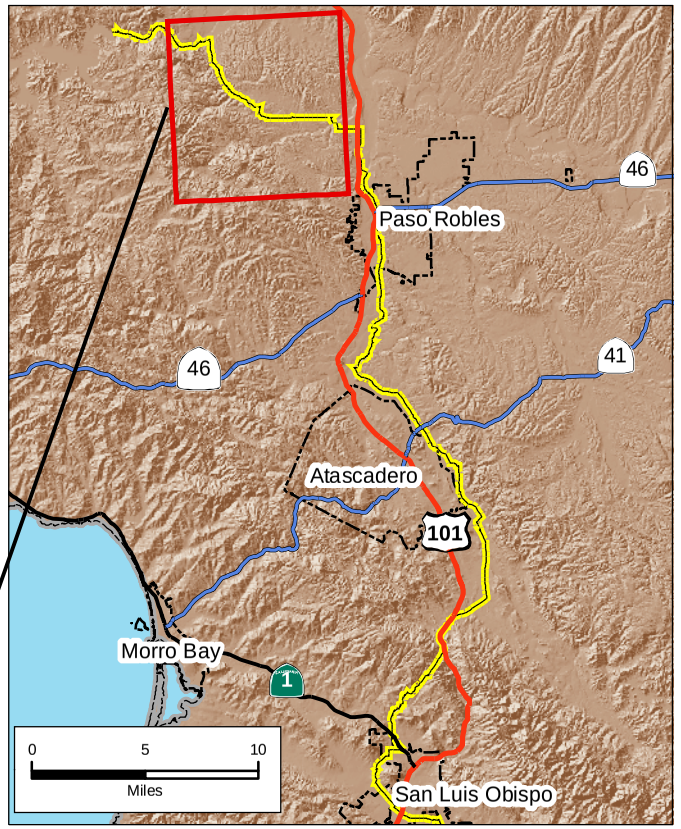
Along the NWP route, potential kit fox habitat is considered moderate to optimal in two locations, which are supported by field reconnaissance surveys and CNDDB-records.

1. Station 240+00 to 650+00, a distance of 7.8 miles (**Figure 13**). This includes a portion of the NWP alignment within Camp Roberts and areas to the east. To the west this area starts near the pipeline divergence from the Nacimiento River corridor and continues east to the western edge of Rabbit Ridge Winery. These areas generally support open annual grassland habitat and oak savanna with an abundance of small mammal activity. Within this area, the project follows paved and dirt roads between Stations 240+00 and 535+00 (5.6 miles), annual grasslands from 535+00 to 597+00 (0.8 mile), and paved road from 597+00 to 650+00 (1.0 mile).

2. Station 1183+00 to 1300+00, a distance of 2.2 miles (**Figure 14**). In this reach, the NWP alignment is within or adjacent to Santa Ysabel Road, crosses through a dry farmed oat field, and crosses the Salinas River. The surrounding, relatively undeveloped ranchlands support annual grasslands and sparse oak woodlands and are within the accessible range of San Joaquin kit fox (CNDDB, 2006). Several potential kit fox dens were observed in the NWP alignment on the undisked river terrace between Station 1200+00 and 1230+00, and the generally dry Salinas River bed may provide a movement corridor for this species.

The majority of the NWP alignment within Camp Roberts is within or immediately adjacent to active paved and dirt roads, thus the likelihood of encountering an active den in these areas is considered low. More likely for these areas, kit foxes could den within 250-feet of the construction envelope and may be subject to the indirect project effects of noise and equipment disturbance.





Inset: Nacimiento Water Project Pipeline and Vicinity

Legend

Pipeline Alignment

San Joaquin kit fox habitat

0 1 2

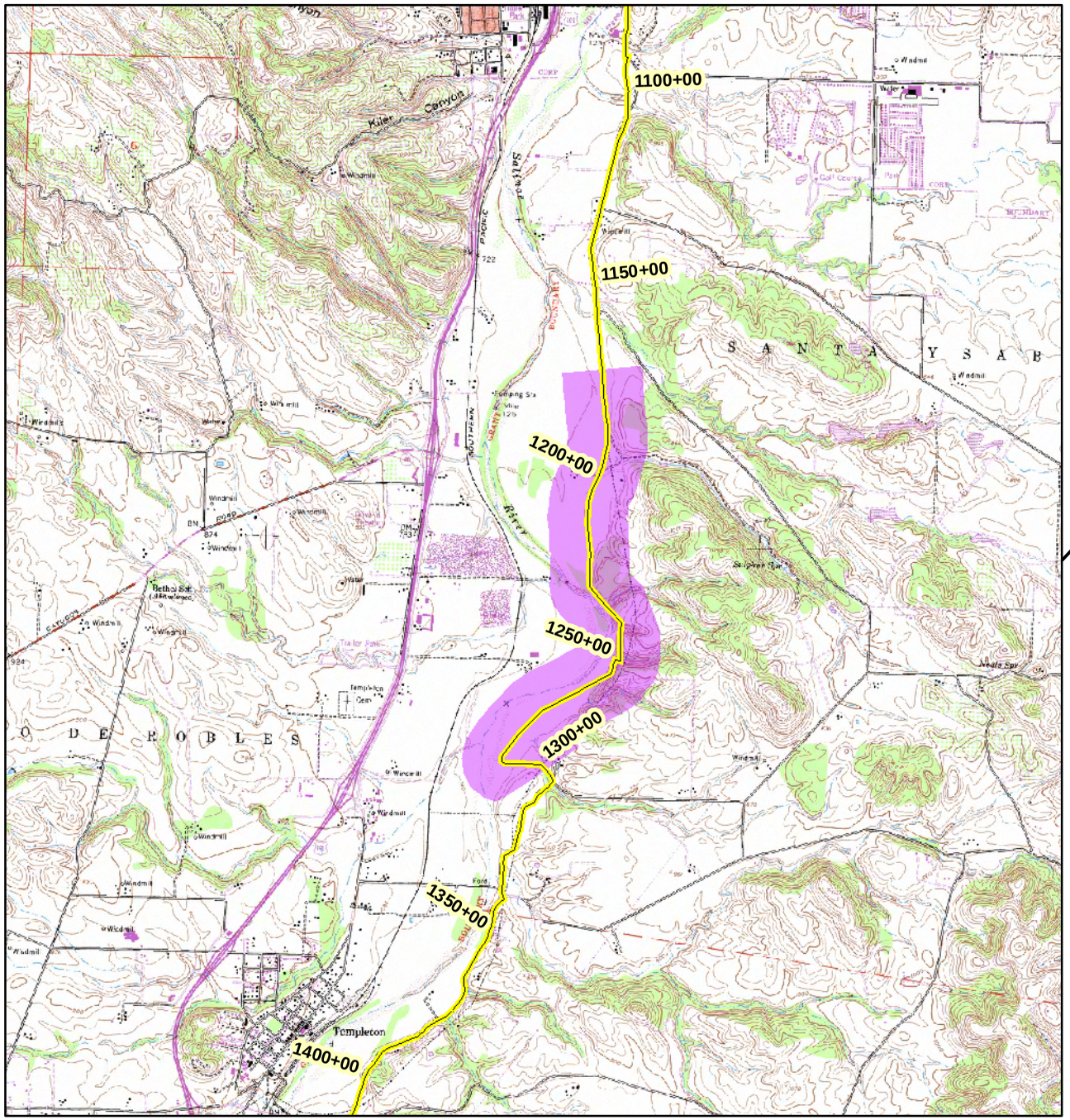
Miles

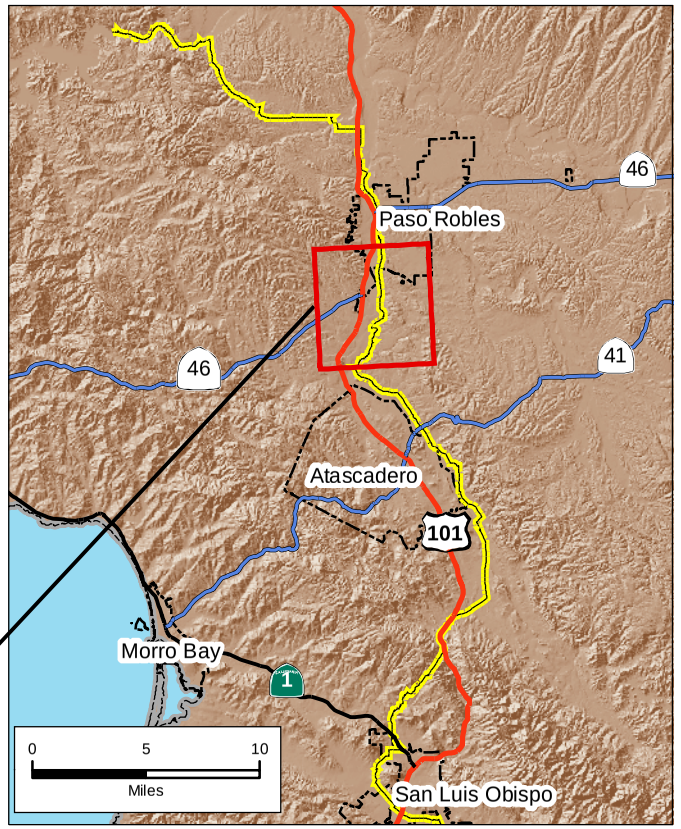
SOURCE: SLO County; ESA

NACIMIENTO WATER PROJECT . 204453

Figure 13

Location of San Joaquin Kit Fox Upland Habitat on Camp Roberts and Areas Further East





Inset: Nacimiento Water Project Pipeline and Vicinity

Legend

Pipeline Alignment

San Joaquin kit fox habitat

0 1 2

Miles

SOURCE: SLO County; ESA

NACIMIENTO WATER PROJECT . 204453

Figure 14

Location of San Joaquin Kit Fox Upland Habitat South of Paso Robles

CHAPTER 4

Potential Project Effects and Reasonable and Prudent Measures to Minimize Incidental Take

The purpose of this BA is to determine if the construction and operation of the NWP will have an adverse effect on federal listed species and to provide analyses of project effects to those species and any designated critical habitats that occur in the action area. This section of the BA identifies and analyzes project effects to these listed species and proposes reasonable and prudent measures that will be incorporated into the NWP to address and reduce potential project effects.

4.1 Vernal pool fairy shrimp

Potential Project Effects

Four pools at Camp Roberts that are occupied by vernal pool fairy shrimp would be directly affected by the NWP, as presented in **Table 2** and **Figure 3**. These features are located in dirt roads that are presently subject to persistent disturbance from vehicle and road maintenance. The proposed alignment intersects Pool 2 and Pool 3 and could eliminate all or a portion of each. Pool 6b and Pool 6c are not within the NWP ROW, per se, but are located in the main project access road that will be traversed by vehicle traffic. These pools would not be eliminated by the project, but would be subject to project traffic. Following the project each of the four pools, if still present, would be subject to Camp Roberts vehicle use and road maintenance activities.

Six pools are additionally located within 50 to 250 feet of the alignment and could be subject to indirect impacts such as dust and runoff (Table 2). Three of these features would be subject to indirect project effects, for example, due to the possibility for dust contamination; but the location of these pools was identified early in the planning stages will be avoided by project design.

For the three features located in tank training roads (Pool 28, 29, and 31), these pools are located greater than 50 feet from the project ROW and have such a high impact threshold, given their current use, that indirect project effects are considered negligible. Tanks had traversed all three pools within hours before the March 28, 2006 and April 7, 2006 sampling events.

Reasonable and Prudent Measures

Because the four pools that would be directly affected by the NWP project are located within a heavily used road, some degree of avoidance may be possible; however, it is not feasible to restore and subsequently monitor these barren puddles in the middle of Boyscout Road. To reduce project effects to vernal pool fairy shrimp within occupied and potentially occupied habitat, the following measures will be applied:

1. Where feasible, the NWP will be designed to avoid or minimize effects to occupied and potential vernal pool fairy shrimp habitat;

2. runoff from the adjacent upland construction site would be either retained in the defined work area or directed away from identified vernal pool habitat;

3. for vernal pool habitat that can be avoided, construction exclusion fencing will be erected to keep project vehicles, equipment and activities within the defined work area;

4. for pools that will be directly impacted (Pools 2, 3, 6b, and 6c), silt fencing will be erected around the deepest portion of pools (Pool 2, 3, 6a, and 6b) to retain portions of these features following construction, if possible, and minimize project disturbances. If pools will be eliminated, a qualified biologist would assess the total acreage of pools that cannot be avoided. Construction activities would be limited to the dry season (roughly April 15 to October 15) near occupied shrimp pools. For pools that cannot be avoided, a qualified biologist will salvage the upper 1/2-inch of top soil prior to construction for later pool inoculation following construction. If inoculation is not possible at the same pool, it would be conducted in one of several high quality non-maintained Camp Roberts pools that were sampled for fairy shrimp in 2005/2006 and had negative survey results (e.g., Pools 18, 19, 30).

5. the project sponsor would engage a qualified biologist or equivalent professional to monitor construction activities that have the potential to affect vernal pool habitat; and

6. For other occupied pools located within 100 feet of project activities (Table 2), silt fencing will be erected at the limits of construction to minimize indirect effects to these features. Silt fencing would be included in construction specifications for these sites and would be erected under the direct supervision of a qualified biologist.

The project would cause no direct effects to fairy shrimp at the identified sites, and have only minor indirect effects, compensation beyond the inoculation of non-shrimp supporting pools is not proposed for vernal pool fairy shrimp effects. Following implementation of the above measures, the NWP will have negligible effects on individuals or habitat for vernal pool fairy shrimp.

4.2 California Red-legged Frog

Potential Project Effects

Because the California red-legged frog has a limited range in the project area, potential project effects are considered unlikely. Potential effects would be limited to Yerba Buena Creek in the town of Santa Margarita and possibly at the Santa Margarita Creek crossing located about 2.5 miles further north (**Figure 6**). The NWP would use trenchless methods (e.g., jack and bore or directional drilling) to cross these waterways. As a result, direct effects to red-legged frogs and their habitat are not anticipated unless there was an accidental release of materials that required

instream cleanup. If an accidental release occurs at one or both of these locations, the following project effects may occur to California red-legged frog adults, sub-adults, tadpoles, or eggs:

- injury or mortality from being crushed by earth moving equipment, construction debris, and worker foot traffic;
- frog mortality as a result of improper handling, containment, or transport of individuals or from releasing them into unsuitable habitat;
- displacement from suitable habitat as a result of noise and disturbance from instream cleanup activities;
- mortality as a result of the physical effects of hazardous materials upon frogs, including drilling materials, fuel or oil.

Since Yerba Buena Creek and Santa Margarita Creek will be avoided by subsurface construction methods, the project will not modify upland or aquatic habitat that could support red-legged frogs. Consequently no temporary or permanent habitat loss or disruptions associated with the NWP are anticipated.

Reasonable and Prudent Measures

To minimize the likelihood of project effects to red-legged frogs, the following reasonable and prudent measures will be implemented prior to and during construction at Yerba Buena Creek and Santa Margarita Creek. Implementing these measures will substantially reduce the risk of incidental "take" of California red-legged frog.

- A qualified biologist shall conduct a training session for all construction personnel at the locations that provide California red-legged frog habitat. At a minimum, the training shall include a description of the California red-legged frog and its habitat, the importance of the California red-legged frog and its habitat, the general measures that are being implemented to conserve the California red-legged frog as they relate to the project, and the boundaries within which the project may be accomplished.
- A qualified biologist shall be present at the active work sites until such time that the initial survey for California red-legged frogs, instruction of workers, and (upland) habitat disturbance have been completed. After this time, the contractor or permittee shall designate a person to monitor on-site compliance with all minimization measures. The qualified biologist shall ensure that this individual receives appropriate training as to the identification of frogs, potential hazards to this species, inappropriate and allowable work activities, and appropriate contacts for immediate, professional biological support.
- During work activities, all trash that may attract predators shall be properly contained, removed from the work site and disposed of regularly. Following construction, all trash and construction debris shall be removed from work areas.
- All fueling and maintenance of vehicles and other equipment and staging areas shall occur at least 20 meters from site riparian habitat or water bodies. The USACOE and permittee shall ensure that contamination of habitat does not occur during such operations. Prior to the onset

of work, the USACOE shall ensure that the permittee has prepared a plan to allow a prompt and effective response to any accidental spills.

- To avoid potential timing conflicts with the red-legged frog breeding period, work activities at these sites shall be completed between April 1 and November 1.

4.3 California Tiger Salamander

Potential Project Effects

The NWP would not result in the loss or disturbance to upland or aquatic habitat capable of supporting the California tiger salamander. Project elements are greater than 1-mile from the historic breeding location and are within or adjacent to paved roadways near potential breeding and upland habitat for this species (Stenner Creek Road at the Water Treatment Plant entrance road). As a result, no direct or indirect effects are anticipated to the California salamander or potential habitat for this species.

Reasonable and Prudent Measures

The following reasonable and prudent measures will minimize adverse effects to the California tiger salamander, if present near the project alignment.

- To the degree feasible, project activities will maintain the minimum work area necessary when working within 500 feet of the irrigation pond adjacent to the San Luis Obispo water treatment facility. This pond provides a potential, though undocumented, breeding site. The project (a 20-inch diameter pipe at this location) is proposed within the existing paved roadbed and would minimally disturb upland habitat.

- Storage of project materials and vehicle staging will not occur in the area adjacent to the irrigation pond.

- All fueling and maintenance of vehicles and other equipment and staging areas shall occur at least 20 meters from the irrigation pond and Stenner Creek. Prior to the onset of work, the USACOE shall ensure that the permittee has prepared a plan to allow a prompt and effective response to any accidental spills.

4.4 Least Bell's Vireo

Potential Project Effects

Horizontal directional drilling will be used to install a 30-inch diameter pipeline beneath the northern Salinas River crossing, a distance of 1,100 linear feet. This pipeline installation method will minimize the potential loss of riparian habitat, and thus reduce potential habitat effects to least Bell's vireo. Potential effects to least Bell's vireos include the possibility for nest abandonment resulting from construction disturbances at or near the Salinas River crossing site. Construction equipment will be working on the immediate fringe of the riparian corridor. If vireos are present during construction, noise and disturbance effects could result in nesting failure or abandonment, and possible mortality of hatchlings. We anticipate that habitat for this species

will not be permanently or temporarily modified, thus, no long-term project effects to this species or its habitat are anticipated.

Reasonable and Prudent Measures

The project protection measures for least Bell's vireos depend principally on seasonal avoidance of habitat during the nesting season and protection of suitable habitat. Implementation of the following measures will minimize the potential for project effects to this species.

- To avoid working during the active breeding season, construction activities within 500 feet of the northern Salinas River crossing (Station 885+00) may not proceed until July 15, but thereafter may proceed without limitation.

- Project activities within the Salinas River floodplain will maintain the minimum work area necessary to complete the pipeline installation.

- The project will not remove or otherwise impact woody riparian vegetation (e.g., willow and sycamore trees) at this crossing location.

With the implementation of these measures, NWP activities would occur when least Bell's vireo do not occupy the crossing site. Furthermore, activities would not degrade riparian habitat over the near- or long-term.

4.5 Southwestern Willow Flycatcher

Potential Project Effects

Based on focused survey findings, the southwestern willow flycatcher (and little willow flycatcher) are presumed absent from the NWP alignment. As a result, the NWP would not adversely affect this species or degrade its habitat over the long term.

Reasonable and Prudent Measures

Measures proposed to protect the least Bell's vireo at the Salinas River crossing (Station 885+00 would equally protect potential habitat for southwestern willow flycatcher from project effects. Direct effects to this species are not anticipated.

4.6 Bald Eagle

Potential Project Effects

Two potential project effects were identified to bald eagle: construction-related effects to breeding eagles, if present and the long term risk of raptor electrocution at Camp Roberts due to the PG&E power line alignment.

In the vicinity of the eagle nest on Camp Roberts, the NWP pipeline would be installed using standard trenching methods in and adjacent to Boyscout Road and West Perimeter Road.

Potential effects to bald eagle include the possibility for nest abandonment resulting from construction disturbances near the nest site. If bald eagles were nesting during project construction, noise and disturbance effects could result in nesting failure or abandonment, and possibly mortality of hatchlings.

Based on bald eagle nest observations at Camp Roberts, the 0.5-mile (800 meter) activity exclusion buffer appears to have been effective in preventing the disturbance of birds during their 2005 nesting attempt (Thorngate, 2005a). Based on these findings, a 0.5-mile no-activity buffer area will be established around the nest for the NWP project during the bald eagle breeding period, generally January 15 through July 31, or until birds leave the nest (in 2005 eagles were last observed at the nest on May 15; Thorngate, 2005a). The 0.5-mile exclusion area is depicted in **Figure 11** and spans the project area roughly between Stations 250+00 to 300+00. NWP project vehicle traffic would continue to use West Perimeter Road, Boyscout Road and General's Road during the bald eagle exclusion period. But staging and construction activities within this area would only be conducted after breeding activity ceases.

Power lines are identified as a primary threat to wintering and nesting bald eagles at Camp Roberts due to the potential for bird collisions and electrocution hazards (CA ARNG. 2004). In 2003, two golden eagles and one bald eagle died as a result of power line collisions (Moore, as cited in CA ARNG. 2004). The management of human disturbances to bald eagles at Camp Roberts has largely been implemented on a case-by-case basis, largely because eagle disturbance thresholds area a function of disturbance-specific variables such as the type and frequency of the disturbance and site-specific variables such as topography and the degree of audio and visual buffering in the vicinity of the bird or the nest (CA ARNG. 2004).

The project would not alter or modify riparian habitat along the Nacimiento River, therefore, long-term project effects are not anticipated.

Reasonable and Prudent Measures

Project effects to nesting bald eagles can be avoided through the implementation of a seasonal construction-exclusion buffer around the active nest site during the breeding season. The Camp Roberts Environmental Office specifies that base training activities observe a 0.5 mile (800-meter) activity exclusion zone around the nest during the bald eagle nesting season (Moore, pers. comm.). Consistent with guidance provided by base biologists, implementation of the following bald eagle protection measure for areas within 800-meters of the nest (Stations 250+00 to 300+00) will minimize the potential for project effects to this species.

- Construction activities within 0.5 mile of the bald eagle nest (Stations 250+00 to 300+00) may not occur between January 15 and July 31, but thereafter may proceed without limitation.

The portion of the PG&E power pole alignment that parallels the Nacimiento River has a single power line that traverses, but does not parallel the Nacimiento River. Where it crosses the river, the existing line is fitted with Bird Flight Diverters to minimize bird strike hazards. The new pole

alignment will be installed adjacent to the Nacimiento River from the Nacimiento Dam to Station 300+00, a linear distance of 5.6 miles, before heading east toward the pump station. Bald eagles are known to roost on the south bank of the river near Station 250+00 and are may traverse the river corridor daily to feed and roost. Poles will be spaced an average of 300 to 400 feet apart, and will measure 40 to 45 feet high. Lines will be a minimum of 25 feet from the ground at their lowest point.

As seen in previous years, there is a potential for bald eagle mortality as a result of collisions with power lines or due to electrocution at poles. The following measures would minimize the potential for bald eagle mortality as a result of the NWP project.

- Pursuant to the CA ANG (2004) *Bald Eagle Management Plan* and the *Power Structure Risk Assessment and Avian Protection Plan for Camp Roberts Army National Guard Training Site* (Thorngate, 2005b) the County will sponsor a risk assessment model to identify bald eagle concentration areas where poles and lines could cause species mortality.

- New installed poles within bald eagle use areas will be designed and installed with consideration for Avian Power Line Interaction Committee recommendations for lines (APLIC, 1994) and poles (APLIC, 1996).

- Per the above measures, poles that are scored high risk to eagles due to their location will be fitted with perches so that perching eagles will not come into contact with electrified portions of the pole (APLIC, 1996).

- Power line spans evaluated under the above analysis that are deemed to pose a risk to bald eagles will be fit with Bird Flight Diverters (APLIC, 1994).

With the implementation of the above measures, NWP activities are not expected to affect nesting or overwintering bald eagles.

4.7 San Joaquin Kit Fox

Potential Project Effects

Within the two areas that were identified to provide potential kit fox habitat, if kit fox were present in burrows during construction, project activities have the potential to directly take adult or juvenile kit fox through harassment, dislocation, or mortality. Project activities including noise and vibration could harass kit foxes by causing them to leave the local project area. Kit foxes may become entrapped in construction pipes or within excavated trenches, or could be struck by project vehicles traveling within Camp Roberts or along the NWP project corridor. Additionally, trash left during project activities could attract predators or San Joaquin kit foxes to work sites, which could in turn result in harassment of kit foxes.

San Joaquin kit fox activity has not been observed or reported within 0.75 mile of the NWP corridor (**Figure 12**). Focused small mammal burrow surveys have not been conducted in all

areas within 200-feet of the NWP alignment to determine the presence of potential kit fox dens. However, because most of the alignment in kit fox habitat is within or adjacent to established roads, we expect to encounter relatively few potential kit fox burrows that would be directly affected by the NWP. In these areas, due to the small number of expected potential kit fox burrows and the temporary nature of project disturbances, the NWP is expected to have few direct effects to San Joaquin kit fox.

Construction of the Camp Roberts Reservoir and Pump Station on the eastern portion of Camp Roberts would result in the permanent loss of 10 acres of high quality annual grasslands (San Joaquin kit fox habitat). The area that would be impacted is primarily valley oak savanna and relatively open-canopy oak woodlands. Several "potential" kit fox dens (i.e., dens of appropriate size and dimension) were identified in and near the construction footprint and it is possible that this species may travel through or den local area. The surrounding vicinity supports similar habitat to that in the reservoir impact area; generally open grasslands with scattered valley oaks and unimpeded species access throughout.

Reasonable and Prudent Measures

The following reasonable and prudent measures are derived from the USFWS *Standardized Recommendations for Protection of the San Joaquin Kit Fox* (USFWS, 1997) and the County of San Luis Obispo, Guide to Kit Fox Mitigation Procedures (Appendix E). These measures would be implemented within areas that provide potential kit fox habitat. Specifically, these areas are located between Station 240+00 and 650+00, which includes a portion of Camp Roberts and areas to the east; and between Station 1183+00 and 1300+00.

- Within potential habitat, preconstruction surveys will be conducted within 200 feet of work areas to identify potential San Joaquin kit fox dens or other refugia. Surveys for potential kit fox dens will be performed by a qualified biologist 14-30 days prior to the commencement of construction activities. All identified potential dens would be monitored for evidence of kit fox use by placing an inert tracking medium at den entrances and monitoring for at least three consecutive nights. If no activity is detected at these dens, they may be closed following guidance established in the *Standardized Recommendations* document.

- An employee education program would be conducted to explain endangered species concerns to contractors, their employees, and agency personnel involved in the project. The program would consist of a brief presentation by a person knowledgeable in kit fox biology and legislative protection and would include the following: a description of the San Joaquin kit fox and its habitat needs; the occurrence of kit fox in the project corridor; status of the species and its protection under the federal and state Endangered Species Acts; legal penalties for violating the provisions of the federal Endangered Species Act; and measures being taken to reduce impacts to the species during project construction and implementation. A fact sheet conveying this information would be prepared for distribution to the above-mentioned people and anyone else who may enter the project site.

- If kit fox occupancy is determined at a given site, closure activities at that location would immediately be halted and the USFWS contacted. Depending on the type of identified den, one of the following reasonable and prudent measures would be implemented.

    1. Known (active) den – establish a 100 foot construction exclusion zone around the identified location.

    2. Natal/Pupping den (active or inactive) – contact the USFWS to determine the appropriate construction exclusion zone.

- To minimize the possibility for inadvertent kit fox mortality, project-related vehicles would observe a maximum 20-mile-per-hour speed limit on private roads in kit fox habitat, and observed posted speed limit signs within Camp Roberts.

- Kit fox protection measures will be included on project plans.

- Construction activities will be stopped at dusk.

- Off-road traffic outside the designated NWP project corridor would be prohibited in areas that provide kit fox habitat.

- To prevent accidental entrapment of kit fox or other animals during construction, all excavated holes or trenches greater than two feet deep would be covered at the end of each workday by suitable materials, or provided with escape routes constructed of earth fill or wooden planks. Before such holes are filled they would be thoroughly inspected for trapped animals.

- Pipes, culverts or similar structures 4-inches or greater in diameter would be inspected for kit fox before being buried, capped, or moved.

- All food-related trash items such as wrappers, cans, bottles, and food scraps would be disposed of in closed containers and removed daily from the project site.

- To prevent harassment, mortality of kit foxes, or destruction of dens, no pets would be allowed on the project site.

The permanent loss of approximately 6.5 of habitat on account of the Camp Roberts Reservoir and Pump Station will be mitigated following guidance from the County (County of San Luis Obispo, 2004; Appendix E), which is consistent with USFWS policy. According to County guidance, habitat loss will be mitigated either by:

- establishing a conservation easement on-site or off-site in a suitable San Luis Obispo County location and provide anon-wasting endowment for management and monitoring of the property in perpetuity;

- depositing funds into an approved in-lieu fee program;

- purchasing credits in an approved conservation bank in San Luis Obispo County; or

- entering into a mitigation agreement with CDFG and provide a non-wasting endowment for management and monitoring of the terms of the agreement for perpetuity.

The NWP will use a standard mitigation ratio, based on the results of previous kit fox habitat evaluations, of 3:1, applied to the area of disturbance from project activities. Thus the NWP will compensate for loss of 10 acres of habitat with 30 acres of compensation, with the final calculation subject to actual disturbances based on Project "as-built" drawings. The NWP will utilize either option 2) or 3), above. If the in-lieu option is selected, funds will be deposited in CDFG's "Species Fund," at the amount of $2500/acre. Alternately, 30 habitat compensation acre credits will be purchased at the San Juan Creek San Joaquin Kit Fox Mitigation Bank, which will be authorized by CDFG and the USFWS to sell credits in late 2006. Either way, funds will be deposited before construction begins.

Following implementation of the above reasonable and prudent measures, the Proposed Action is not likely to adversely affect individual San Joaquin kit fox.

4.8 Cumulative Effects

As identified in the project Environmental Impact Report (EIR), effects to biological resources are mostly a local occurrence. Most of the projects identified in the EIR's cumulative impacts analysis occur in urban areas without sensitive biological resources. As a result, the EIR concludes that there would be no cumulative project effects to biological resources (MRS, 2003). The Monterey County Salinas Valley Water Project (SVWP) could impact biological resources in the vicinity of Lake Nacimiento; however those direct impacts to biological resources would not be significant. Taken together, the two projects could have cumulative effects to fisheries resources; however, the EIR concludes that these impacts would be insignificant due to the relatively small anticipated influence to hydrology (MRS, 2003). To provide background on the SVWP, a brief description of this project is provided below.

With the Monterey County Water Resources Agency as the lead agency, the stated objectives of the SVWP are to stop sea water intrusion into the Salinas Valley, provide adequate water supplies to meet current and future needs through 2030, and improve the hydrologic balance of the groundwater basin in the Salinas Valley (MRS, 2003).

The proposed SVWP includes several actions identified below, as excerpted from the NWP EIR (MRS, 2003):

- Modification of the Nacimiento spillway – The existing spillway would be modified by replacing a section with an inflatable rubber dam or radial gates that are capable of passing the probable maximum flood event. This modification will increase the spillway capacity and allow the reservoir to store a higher volume of water throughout the wet season. The surface elevation would not change.

- Reoperation of Nacimiento and San Antonio Reservoirs – Because Lake Nacimiento can store more water through the wet season, it can be reoperated to release less water in the wet season and release it during the irrigation season. San Antonio Reservoir would also

be reoperated to store more water in the wet season and release it during the irrigation season. This store/release scenario would allow for a greater level of groundwater recharge and diversion of water at the lower Salinas River for direct delivery. Water will be in the Salinas River year round, except during droughts.

- Surface Diversion/Impoundment – A seasonal diversion structure would be constructed on the northern reach of the Salinas River to divert an average of 9,700 afy for irrigation during April through October. The diversion structure would be equipped with pneumatically operated gates. Outside the diversion season, the gates would be lowered to lay flat on a concrete sill on the river bed. During the diversion season, the gates would be raised to create an impoundment from which water would be diverted. The gates would be comprised of multiple panels that may be raised and lowered independently to facilitate fish passage and control the water level in the impoundment. The maximum depth of the impoundment would be 9 feet at the diversion structure. The impoundment would extend approximately 4.5 miles upstream. The diversion structure would also include a fishway and fish screens to provide for fish passage when the dam is raised. A pump station with a capacity of 85 cfs would discharge the diverted water into the existing Castorville Seawater Intrusion Project (CSIP) pipeline and co-mingle with water from the Monterey County Regional Wastewater Treatment Plant. If the amount of diverted water needs to be increased in the future, an expanded delivery and distribution system would be required.

- Delivery – The diversion structure would be constructed near the current point where the CSIP pipeline crosses the Salinas River. The CSIP pipeline delivers recycled water to agricultural users in the CSIP service area. The pipeline has sufficient capacity to deliver project water to the CSIP area also. Hydrologic modeling shows that the project may not halt seawater intrusion in the long-term future (year 2030). If this were to occur, additional distribution capacity will be created in a new pipeline and water would be delivered outside the CSIP area to ensure project objectives are met and seawater intrusion is halted. The proposed surface diversion facility would divert up to 25,000 acre feet of water from the Salinas River at Salachi Ranch Road into the exiting CSIP distribution pipeline for delivery to agricultural users for irrigation. The diverted water would serve as an alternate groundwater supply to offset groundwater pumping. San Antonio Reservoir and Lake Nacimiento would be reoperated to release water primarily during the late-spring and summer irrigation season. Increased spring and summer flows would be available for diversion to agricultural users via the surface diversion facility. Increased flows would also provide increased recharge through the river bed to the groundwater aquifer.

- Pumping Limitations – In areas where project water is delivered, groundwater pumping would be limited to peaking capacity and deliveries during drought. The proposed SVWP is expected to halt seawater intrusion. This would be a substantial beneficial impact to groundwater quality within the MCWRA jurisdiction. The schedule for releasing water from reoperated Lake Nacimiento and San Antonio Reservoir would result in additional variation in surface elevations compared with existing operations.

CHAPTER 5.0
Determination

With implementation of reasonable and prudent measures proposed as part of the NWP, the project is "not likely to adversely affect" vernal pool fairy shrimp, California red-legged frog, bald eagle, least Bell's vireo, or San Joaquin kit fox. The project would have "no effect" on California tiger salamander or southwestern willow flycatcher.

The four small vernal pool fairy shrimp pools that would be directly affected by the NWP were created by anthropogenic causes and are not essential to the continued viability of the species or persistence of shrimp populations at Camp Roberts. Impacts to these features would present a minimal loss of habitat that could have been impacted by Camp Roberts road maintenance at these locations. The implementation of minimization measures attempt to reduce impacts to these features to the greatest degree possible.

Based on the lack of suitable upland or aquatic habitat that would support California tiger salamander in or near the NWP alignment, it is unlikely that this species would be affected by the Proposed Action. The nearest historic occurrence for this species near the project alignment, from 1939, has been revisited and is likely extirpated. Regardless, the Proposed Action is located greater than 1.0 mile from the identified location and would not affect aquatic or upland habitat for this species. As such, we conclude that the NWP would have "no effect" on the California tiger salamander.

The project will avoid known and potential habitat for the California red-legged frog at the two identified sensitive locations by using trenchless technology (i.e., boring). This method will not result in habitat intrusion or alteration and is not anticipated to have a direct effect on red-legged frogs. Proposed activities at Santa Margarita Creek and Yerba Buena Creek, the two areas that were identified to support potential active habitat for this species, would not in themselves endanger individual frogs. Given the nature of boring operations, there is a potential for accidental materials (i.e., bentonite fluid) releases into aquatic systems during construction. The implementation of reasonable and prudent measures described in this BA will minimize the potential for harming frogs in the instance of an unintentional release.

With implementation of proposed seasonal avoidance measures, the NWP is "not likely to adversely affect" bald eagle or least Bell's vireo in the action area. This determination is based on the restricted distribution of these species in the project ROW and their seasonal absence or non-breeding status at identified breeding locations. With seasonal avoidance measures, NWP construction activities will have no effect on bald eagle roosting or nesting, or least Bell's vireo nesting. Project operations will not adversely affect bald eagle foraging by changing access to

fisheries resources or altering stream flows. The NWP will not destroy or adversely modify habitat (critical or otherwise) for these species and will not jeopardize their continued recovery.

The project would have “no effect” on southwestern willow flycatcher based on the known range of this species its presumed absence based on survey results.

For the San Joaquin kit fox, occupied dens (and hence individual animals) can be avoided through preconstruction surveys; however, there will be an incremental loss of open grassland habitat on Camp Roberts that may not be actively in use, but is within the range of this species. Habitat this species utilizes within the project area is largely limited to rural lands on Camp Roberts and adjoining lands immediately east of the base. In this area, the NWP will be located within existing paved and dirt roads. Within potential kit fox habitat, 0.9 mile of pipeline traverses unimproved lands (between Stations 540+00 and 590+00). Additionally, the Camp Roberts Reservoir and Pumping Station would cause the permanent loss of 10 acres of moderately suitable kit fox habitat.

With the implementation of species avoidance measures the NWP is “not likely to adversely affect” San Joaquin kit fox and would cause a minimal incremental loss of habitat for this species.

CHAPTER 6.0
References, Communications and Report Preparation

6.1 References

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6.2 List of Contacts, Contributors and Preparers

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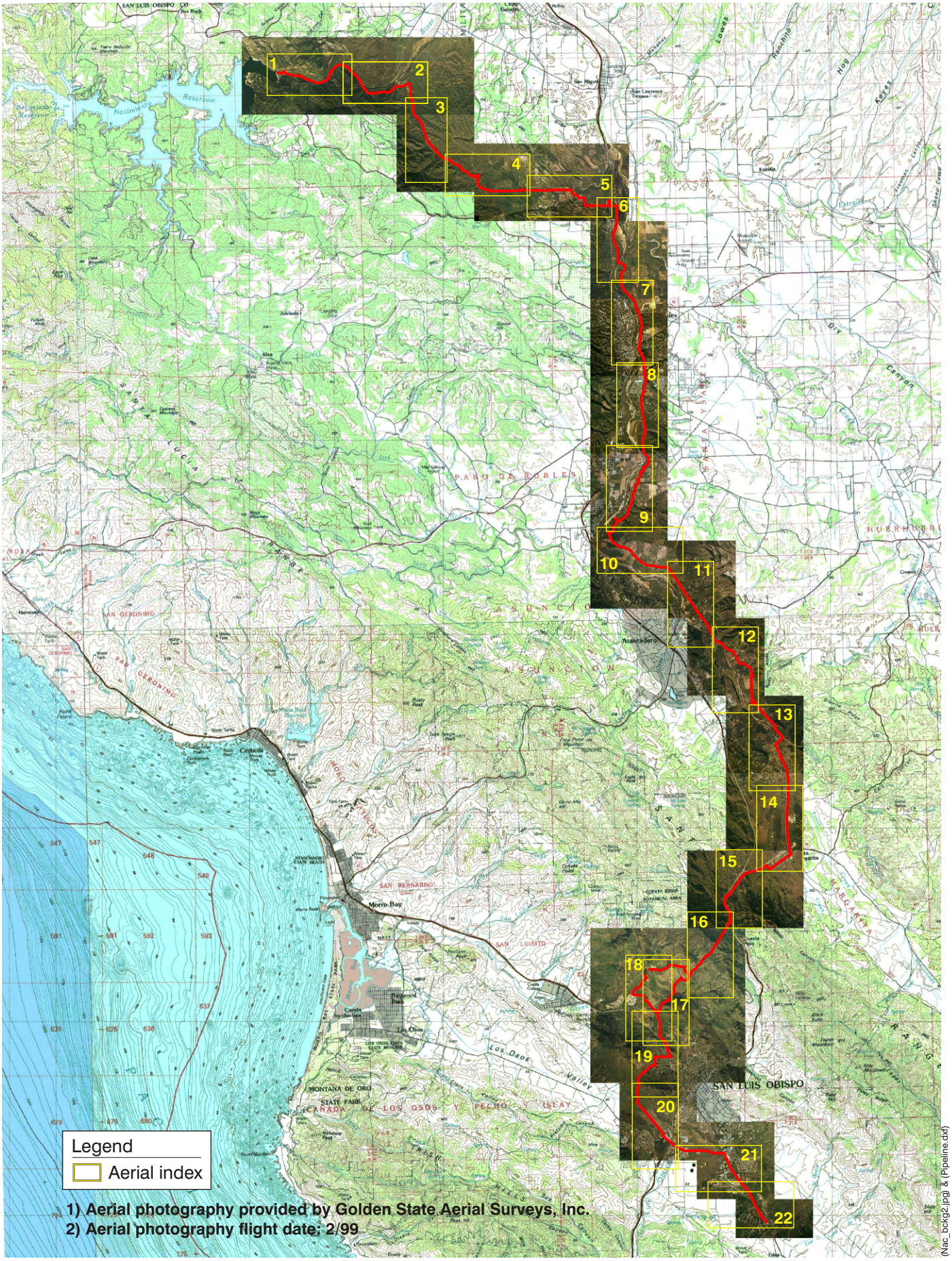
Martha Lowe, Plant Ecologist
Mark Fogiel, Plant Ecologist
Lee Miles, Regulatory Specialist
Julie Remp, Wildlife Biologist
Jennifer Johnson, Regulatory Specialist

APPENDIX A

Proposed Project Facilities (2002)

Please note that the following project facility figures produced by Carollo Engineers in 2002 are subject to change and do not reflect recent design changes. The pipeline alignment has not changed substantially from that shown in the attached figures; with the exception of the new southern terminus, where the alignment now terminates at the San Luis Obispo Water Treatment Plant at Stenner Road.

Importantly, staging areas shown in the attached figures have been moved and several water treatment facilities and pump stations have been relocated.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Legend
Aerial index
1) Aerial photography provided by Golden State Aerial Surveys, Inc.
2) Aerial photography flight date: 2/99
(Nac_bckg2.jpg) & (Pipeline.dxf)

0 500' 1000' 2000'

KEY

MAIN PIPELINE LOCATION

BRANCH PIPELINE LOCATION

⇦P1 PHOTO/CROSS SECTION LOCATION

NOTES

1. THE YELLOW LINE IDENTITFIES THE PROPOSED PIPE WHICH REPRESENTS THE CENTERLINE OF THE 100 FT ENVIRONMENTAL/ BIOLOGICAL SURVEY CORRIDOR
2. FOR MORE ACCURATE LOCATION IN RELATION TO THE ROADS SEE ACCOMPANYING PHOTO AND CROSS SECTION SHEETS

Aerial 1
PIPELINE ALIGNMENT
STA 0+00 TO STA 150+00
NACIMIENTO PROJECT
SAN LUIS OBISPO COUNTY

0 500' 1000' 2000'

KEY

MAIN PIPELINE LOCATION

BRANCH PIPELINE LOCATION

⇦P1 PHOTO/CROSS SECTION LOCATION

NOTES

1. THE YELLOW LINE IDENTITFIES THE PROPOSED PIPE WHICH REPRESENTS THE CENTERLINE OF THE 100 FT ENVIRONMENTAL/ BIOLOGICAL SURVEY CORRIDOR
2. FOR MORE ACCURATE LOCATION IN RELATION TO THE ROADS SEE ACCOMPANYING PHOTO AND CROSS SECTION SHEETS

Aerial 2
PIPELINE ALIGNMENT
STA 150+00 TO STA 310+00
NACIMIENTO PROJECT
SAN LUIS OBISPO COUNTY

corollo engineers

0 500' 1000' 2000'

KEY

MAIN PIPELINE LOCATION

BRANCH PIPELINE LOCATION

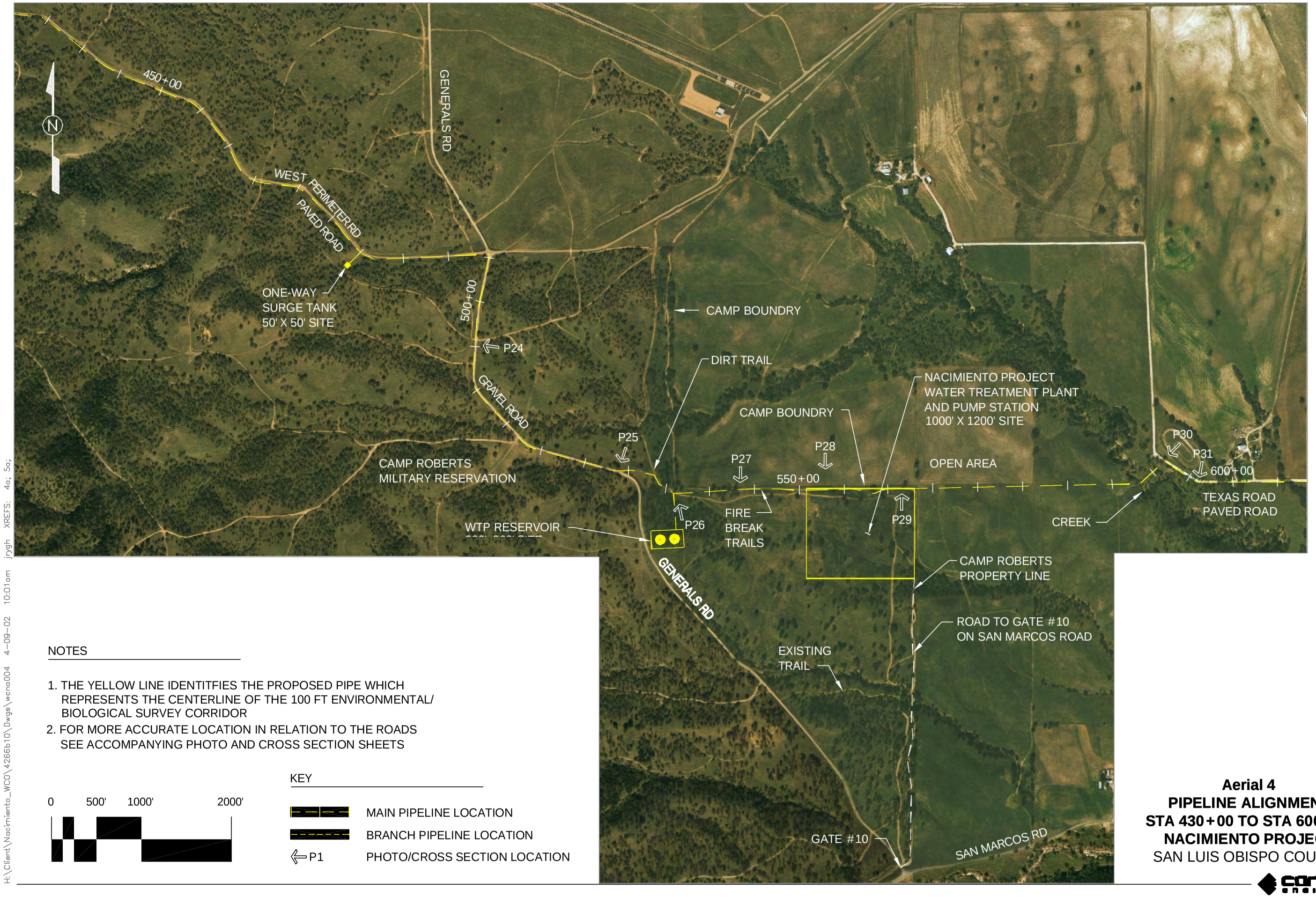
P1 PHOTO/CROSS SECTION LOCATION

NOTES

1. THE YELLOW LINE IDENTITFIES THE PROPOSED PIPE WHICH REPRESENTS THE CENTERLINE OF THE 100 FT ENVIRONMENTAL/ BIOLOGICAL SURVEY CORRIDOR
2. FOR MORE ACCURATE LOCATION IN RELATION TO THE ROADS SEE ACCOMPANYING PHOTO AND CROSS SECTION SHEETS

Aerial 3
PIPELINE ALIGNMENT
STA 310+00 TO STA 430+00
NACIMIENTO PROJECT
SAN LUIS OBISPO COUNTY

corollo engineers



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2. FOR MORE ACCURATE LOCATION IN RELATION TO THE ROADS SEE ACCOMPANYING PHOTO AND CROSS SECTION SHEETS

0 500' 1000' 2000'

KEY

MAIN PIPELINE LOCATION

BRANCH PIPELINE LOCATION

P1 PHOTO/CROSS SECTION LOCATION

Aerial 4
PIPELINE ALIGNMENT
STA 430+00 TO STA 600+00
NACIMIENTO PROJECT
SAN LUIS OBISPO COUNTY

corollo engineers

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KEY

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- BRANCH PIPELINE LOCATION
- ⇦P1 PHOTO/CROSS SECTION LOCATION

NOTES

1. THE YELLOW LINE IDENTITFIES THE PROPOSED PIPE WHICH REPRESENTS THE CENTERLINE OF THE 100 FT ENVIRONMENTAL/ BIOLOGICAL SURVEY CORRIDOR
2. FOR MORE ACCURATE LOCATION IN RELATION TO THE ROADS SEE ACCOMPANYING PHOTO AND CROSS SECTION SHEETS

Aerial 5
PIPELINE ALIGNMENT
STA 600+00 TO STA 752+00
NACIMIENTO PROJECT
SAN LUIS OBISPO COUNTY

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carollo engineers

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MAIN PIPELINE LOCATION

BRANCH PIPELINE LOCATION

P1 PHOTO/CROSS SECTION LOCATION

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2. FOR MORE ACCURATE LOCATION IN RELATION TO THE ROADS SEE ACCOMPANYING PHOTO AND CROSS SECTION SHEETS

Aerial 6
PIPELINE ALIGNMENT
STA 752+00 TO STA 902+00
NACIMIENTO PROJECT
SAN LUIS OBISPO COUNTY

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KEY

- MAIN PIPELINE LOCATION
- BRANCH PIPELINE LOCATION
- ⇐ P1 PHOTO/CROSS SECTION LOCATION

NOTES

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2. FOR MORE ACCURATE LOCATION IN RELATION TO THE ROADS SEE ACCOMPANYING PHOTO AND CROSS SECTION SHEETS

Aerial 7
PIPELINE ALIGNMENT
STA 902+00 TO STA 1052+00
NACIMIENTO PROJECT
SAN LUIS OBISPO COUNTY

carollo engineers

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- BRANCH PIPELINE LOCATION
- ⇦P1 PHOTO/CROSS SECTION LOCATION

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2. FOR MORE ACCURATE LOCATION IN RELATION TO THE ROADS SEE ACCOMPANYING PHOTO AND CROSS SECTION SHEETS

Aerial 8
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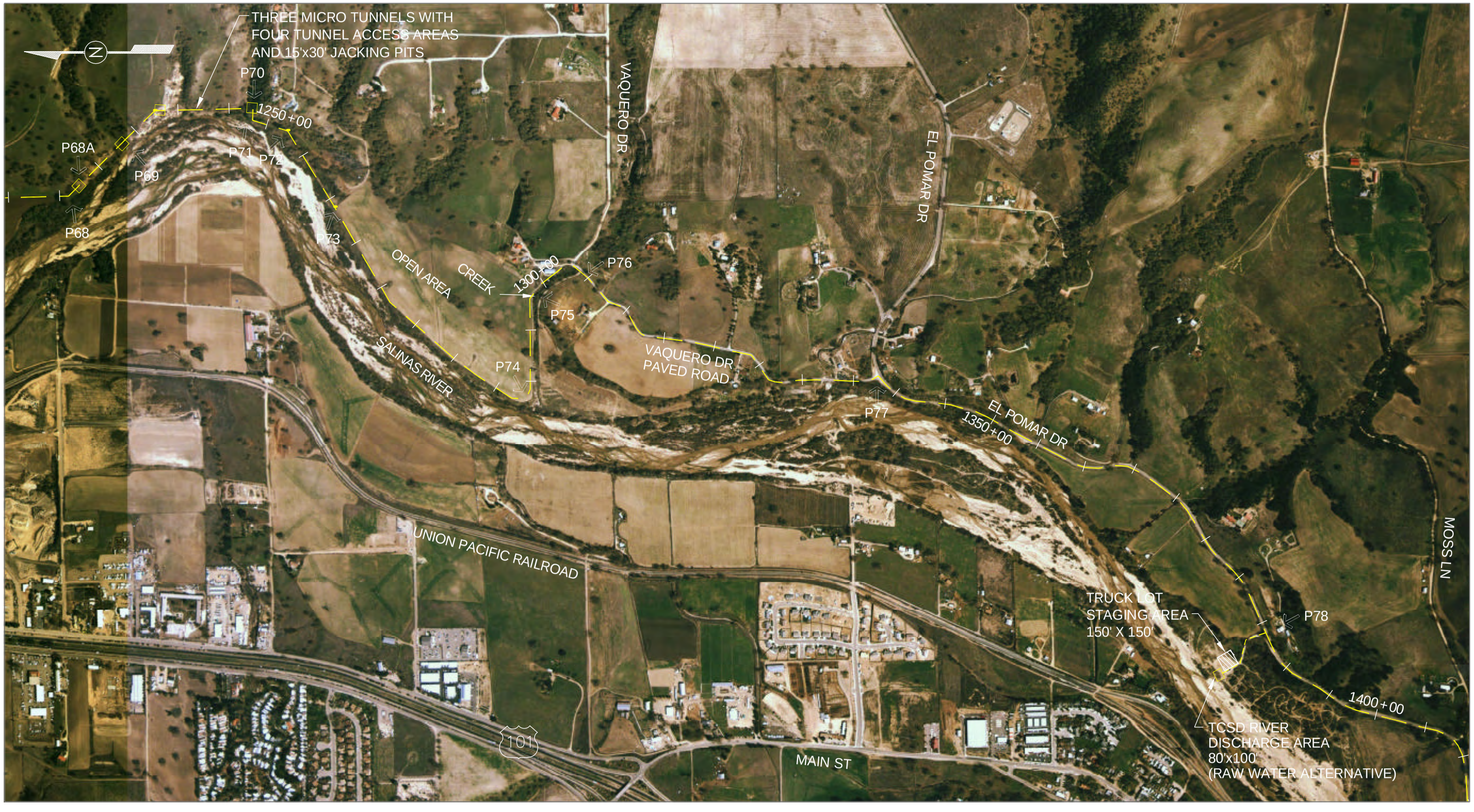
STA 1052+00 TO STA 1220+00
NACIMIENTO PROJECT
SAN LUIS OBISPO COUNTY

corollo engineers



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BRANCH PIPELINE LOCATION

P1 PHOTO/CROSS SECTION LOCATION

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2. FOR MORE ACCURATE LOCATION IN RELATION TO THE ROADS SEE ACCOMPANYING PHOTO AND CROSS SECTION SHEETS

Aerial 9
PIPELINE ALIGNMENT
STA 1220+00 TO STA 1400+00
NACIMIENTO PROJECT
SAN LUIS OBISPO COUNTY

carollo engineers

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- BRANCH PIPELINE LOCATION
- P1 PHOTO/CROSS SECTION LOCATION

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2. FOR MORE ACCURATE LOCATION IN RELATION TO THE ROADS SEE ACCOMPANYING PHOTO AND CROSS SECTION SHEETS

Aerial 10
PIPELINE ALIGNMENT
STA 1400+00 TO STA 1550+00
NACIMIENTO PROJECT
SAN LUIS OBISPO COUNTY

carollo engineers

0 500' 1000' 2000'

KEY

MAIN PIPELINE LOCATION

BRANCH PIPELINE LOCATION

P1 PHOTO/CROSS SECTION LOCATION

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2. FOR MORE ACCURATE LOCATION IN RELATION TO THE ROADS SEE ACCOMPANYING PHOTO AND CROSS SECTION SHEETS

Aerial 11
PIPELINE ALIGNMENT
STA 1550+00 TO STA 1690+00
NACIMIENTO PROJECT
SAN LUIS OBISPO COUNTY

carollo engineers

0 500' 1000' 2000'

KEY

- MAIN PIPELINE LOCATION
- BRANCH PIPELINE LOCATION
- ⇐ P1 PHOTO/CROSS SECTION LOCATION

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1. THE YELLOW LINE IDENTITFIES THE PROPOSED PIPE WHICH REPRESENTS THE CENTERLINE OF THE 100 FT ENVIRONMENTAL/ BIOLOGICAL SURVEY CORRIDOR
2. FOR MORE ACCURATE LOCATION IN RELATION TO THE ROADS SEE ACCOMPANYING PHOTO AND CROSS SECTION SHEETS

Aerial 12
PIPELINE ALIGNMENT
STA 1690+00 TO STA 1850+00
NACIMIENTO PROJECT
SAN LUIS OBISPO COUNTY

carollo engineers

0 500' 1000' 2000'

KEY

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- BRANCH PIPELINE LOCATION
- ⇐P1 PHOTO/CROSS SECTION LOCATION

NOTES

1. THE YELLOW LINE IDENTITFIES THE PROPOSED PIPE WHICH REPRESENTS THE CENTERLINE OF THE 100 FT ENVIRONMENTAL/ BIOLOGICAL SURVEY CORRIDOR
2. FOR MORE ACCURATE LOCATION IN RELATION TO THE ROADS SEE ACCOMPANYING PHOTO AND CROSS SECTION SHEETS

Aerial 13
PIPELINE ALIGNMENT
STA 1850+00 TO STA 2020+00
NACIMIENTO PROJECT
SAN LUIS OBISPO COUNTY

carollo engineers

0 500' 1000' 2000'

KEY

MAIN PIPELINE LOCATION

BRANCH PIPELINE LOCATION

P1 PHOTO/CROSS SECTION LOCATION

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2. FOR MORE ACCURATE LOCATION IN RELATION TO THE ROADS SEE ACCOMPANYING PHOTO AND CROSS SECTION SHEETS

Aerial 14
PIPELINE ALIGNMENT
STA 2020+00 TO STA 2180+00
NACIMIENTO PROJECT
SAN LUIS OBISPO COUNTY

carollo engineers

0 500' 1000' 2000'

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- MAIN PIPELINE LOCATION
- BRANCH PIPELINE LOCATION
- P1 PHOTO/CROSS SECTION LOCATION

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2. FOR MORE ACCURATE LOCATION IN RELATION TO THE ROADS SEE ACCOMPANYING PHOTO AND CROSS SECTION SHEETS

Aerial 15
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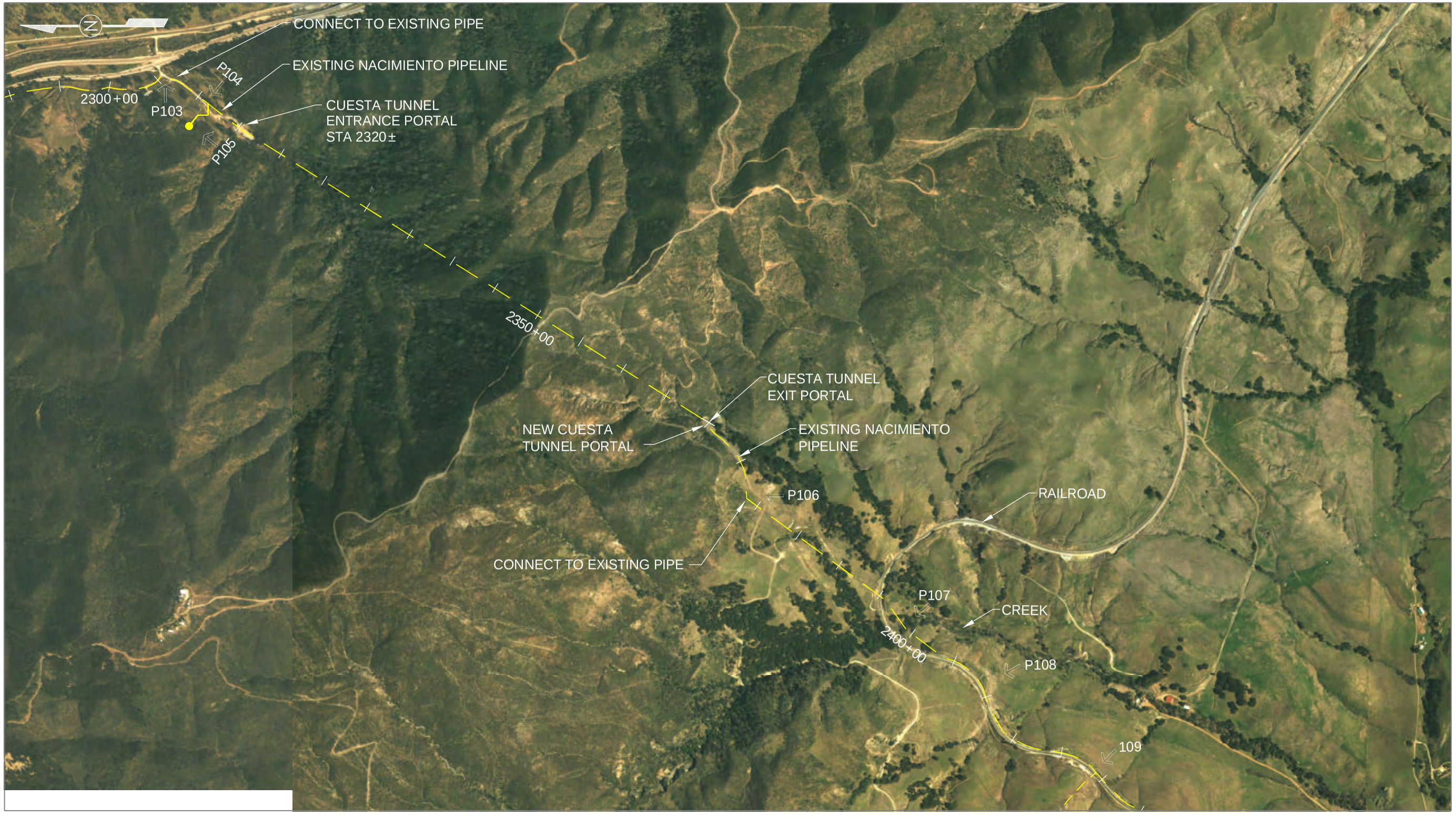
NACIMIENTO PROJECT
SAN LUIS OBISPO COUNTY

carollo engineers



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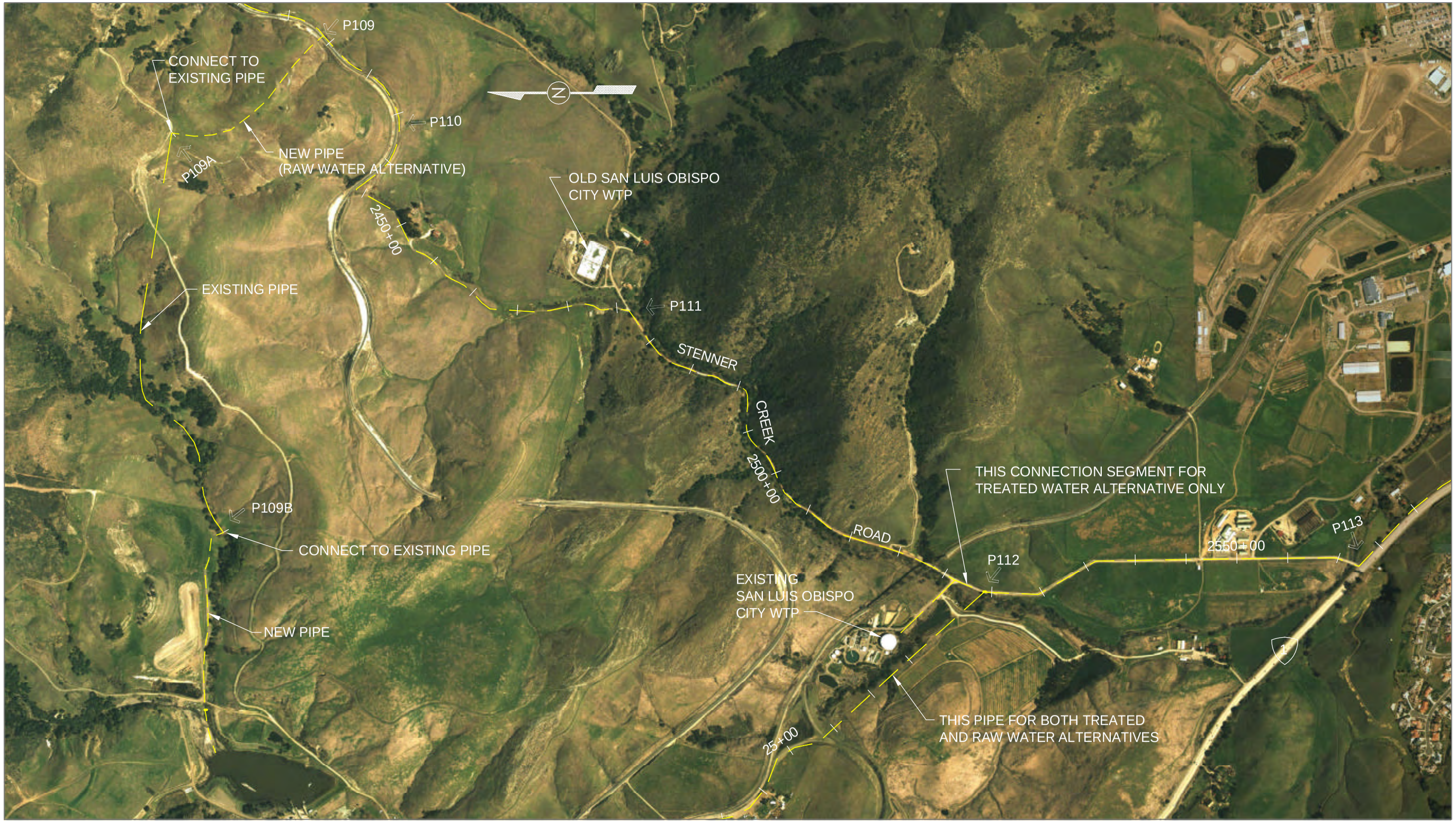
2. FOR MORE ACCURATE LOCATION IN RELATION TO THE ROADS SEE ACCOMPANYING PHOTO AND CROSS SECTION SHEETS

Aerial 16
PIPELINE ALIGNMENT CUESTA TUNNEL
STA 2320± TO STA 2430+00
NACIMIENTO PROJECT
SAN LUIS OBISPO COUNTY

carollo engineers



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2. FOR MORE ACCURATE LOCATION IN RELATION TO THE ROADS SEE ACCOMPANYING PHOTO AND CROSS SECTION SHEETS

Aerial 17
PIPELINE ALIGNMENT
STA 2420+00 TO STA 2522+89
NACIMIENTO PROJECT
SAN LUIS OBISPO COUNTY

carollo engineers

0 500' 1000' 2000'

KEY

- MAIN PIPELINE LOCATION
- BRANCH PIPELINE LOCATION
- ⇐P1 PHOTO/CROSS SECTION LOCATION

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2. FOR MORE ACCURATE LOCATION IN RELATION TO THE ROADS SEE ACCOMPANYING PHOTO AND CROSS SECTION SHEETS

Aerial 18
PIPELINE ALIGNMENT
START PIPELINE 2 - STA 2522+89
NACIMIENTO PROJECT
SAN LUIS OBISPO COUNTY

carollo engineers

APPENDIX B

NWP California Red-legged frog and Arroyo Toad Survey Report

NACIMIENTO WATER PROJECT

California Red-legged Frog and Arroyo Toad Survey Report

August 24, 2005

NWP NACIMIENTO WATER PROJECT

San Luis Obispo County Flood Control & Water Conservation District

NACIMIENTO WATER PROJECT

California Red-legged Frog and Arroyo Toad Survey Report

August 24, 2005

Prepared for:

Environmental Programs Division
Department of Public Works
County of San Luis Obispo

NWP NACIMIENTO WATER PROJECT
San Luis Obispo County Flood Control & Water Conservation District

NACIMIENTO WATER PROJECT / CALIFORNIA RED-LEGGED FROG AND ARROYO TOAD SURVEY REPORT

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Attachments

(Arroyo toad and California red-legged frog survey data sheets were included with the initial USFWS submittal and are not included in this BA-appended report)

NACIMIENTO WATER PROJECT

California Red-legged Frog and Arroyo Toad Survey Report

Summary

This report considers the potential presence of the California red-legged frog (*Rana draytonii* [=*aurora draytonii*]) and arroyo toad (*Bufo californicus* [=*microscaphus*]) at seven locations that provide potentially suitable habitat for these species near the proposed Nacimiento Water Project (NWP) alignment. Federal protocol-level presence/absence surveys were conducted for these species in spring and summer 2005 by Environmental Science Associates (ESA) biologists. The survey results are presented in this report in accordance with survey guidelines provided by the U.S. Fish and Wildlife Service (USFWS).

Five sites near the Project alignment were identified in April 2005 to provide potentially suitable habitat for red-legged frog. Two of these sites were dry during the August 2005 survey. Consequently, the full survey protocol was conducted at three locations. Red-legged frogs were not identified at any of the three survey locations. This species is presumed present in Yerba Buena Creek in the town of Santa Margarita, per the California Natural Diversity Database (CNDDB, 2005), but is likely absent from surveyed locations based on survey results. The present survey informs us that the Santa Margarita Creek survey site (Site 4) is not a principal breeding area for red-legged frogs. While surveys were negative at this location, this area may serve as a migratory route for this species. If present, species use of this area would be infrequent or seasonal.

Two aquatic sites were identified to provide potential habitat for arroyo toad at the two Salinas River crossings. A third arroyo toad survey location on the Salinas River floodplain was studied for a single evening, but surveys were later abandoned due to safety concerns. This portion of the Salinas River will be avoided by the project. Protocol-level surveys for arroyo toad were conducted on May 17, 26, and 27, 2005 under optimal survey conditions. Following the three night survey protocol, the arroyo toad was not identified at either site. This species is not reported within five miles of the project alignment or from San Luis Obispo, according to the CNDDB. Based on these findings, arroyo toads are likely absent from the project area.

I. Introduction

A. Project Description

The study area is a 72 km (45 mile) linear corridor located in San Luis Obispo County (SLO County), reaching from Lake Nacimiento to the existing water treatment facility in the city of San Luis Obispo. The biological resources study area was typically a 61- m (200 foot) wide corridor centered on the preliminary pipeline alignment. In a few locations, the study area boundary was expanded to accommodate potential revisions to the alignment that may result from refinements during the engineering and design phase of the project. The total study area is approximately 615 ha (1,520 acres).

The main objective of the Nacimiento Water Project is to provide a reliable supplemental water source for a variety of uses within SLO County by supplementing the local ground and surface water supplies with a new surface water source. The objective is also to increase reliability of water deliveries, to improve water quality and to lessen the extent of future ground water pumping to existing residents and provide sufficient supplies to support planning objectives in various communities of SLO County. The objective of the project is, therefore, to ensure better management of water resources throughout the County.

B. Study Area Location

This assessment considers seven aquatic sites in creeks and channels within roughly 60 m (200 feet) of the Nacimiento Water Project pipeline alignment between the Camp Roberts military base (California Army National Guard) and the City of San Luis Obispo, California.

Five sites were identified to carry out the California red-legged frog survey protocol (Sites 1-5 in this report), and two sites were identified for arroyo toad surveys (Sites 6 and 7). These sites within the known range for both species and their locations are provided in Appendix A.

II. Survey Methods

A. California Red-legged Frog

Based on an April 18-21, 2005 biological reconnaissance survey of the Nacimiento Water Project alignment, instream and upland habitat conditions at five survey sites were deemed to provide at least minimally suitable basking or breeding habitat for red-legged frog. This survey considered the presence of breeding habitat, available aquatic cover, and overall stream characteristics in determining potential habitat; however, two of the five sites were later excluded from the full protocol for lack of water. As a result, three aquatic sites were examined under a modified USFWS survey protocol.

Surveys were conducted on August 3 and August 4, 2005 by ESA biologists Brian Pittman, CWB, and Julie Remp. Surveys were modified somewhat, but generally followed the USFWS guidelines, "*Guidance on Site Assessment and Field Surveys for California Red-legged Frogs*" (USFWS, 1997a). Under the modified survey protocol, day and nighttime surveys were conducted on the same day, with at least five hours between successive day and night surveys. The modified protocol was expected to have the same likelihood of finding red-legged frogs, if present, as the standard USFWS protocol. Verbal concurrence for the modified survey methods was received from USFWS biologist Julie Vanderweir on July 29, 2005, followed by written confirmation.

Per the USFWS protocol, conditions reported during each survey include survey start and end times, air and water temperature, and wind speed. Photographs of each site are provided in Appendix B. Appendix C provides survey data sheets for sites considered in the red-legged frog analysis.

A handheld Garmin GPS unit was used in the field to determine the Universal Transverse Mercator (UTM) coordinates for each maintenance site. All data are presented in the NAD 27 datum. Red-legged frog sightings within five miles of each survey site were identified using July 1, 2005 GIS data provided by the CNDDB.

B. Arroyo Toad

Suitable habitat for arroyo toad was surveyed following the USFWS March 7, 1995 "*Survey Protocol for Arroyo Toads*" guidelines (USFWS, 1995). The survey sites are below 1,500 feet in elevation, therefore, surveys were conducted between the April 1 to May 30 survey window. Surveys were conducted on May 17, 26, and 27, 2005 by ESA biologist B. Pittman. Surveys were conducted between one hour after dusk and midnight, seven days before, and two days after a full moon. Sunset was at 1949 hours, 2008 hours, and 2008 hours, on respective days and moonrise times were 1853 hours, 2350 hours and 0037 hours (U.S. Naval Observatory Astronomical Applications Department, 2005). Surveys for calling adult male arroyo toads were made from the edge of the riparian corridor and lasted between 30 and 60 minutes during each visit. Survey conditions were considered optimal, with warm air temperatures and light wind. Appendix D presents survey data sheets for the arroyo toad survey sites.

III. Species Range

A. California Red-legged Frog

The Nacimiento Water Project is located within the active range of the red-legged frog. Though this species has been extirpated from much of its former range, it is almost continuously distributed in coastal California (USFWS, 1997b). The distribution of this species presently extends from western Los Angeles County to northeastern Sonoma County.

B. Arroyo Toad

The arroyo toad is found in the southern part of the Coast Ranges from southern Monterey Co. south to Baja California to an elevation of 6,400 ft. This species is found in semi-arid regions near washes or intermittent streams (CDFG, 2002). The Nacimiento Water Project is within the range of this species. Though historically more prevalent, the CNDDB does not report any arroyo toad occurrences from the County of San Luis Obispo or in the Salinas River (CNDDB, 2005).

IV. Site Assessments

A. California Red-legged Frog

Site 1: Nacimiento River – Milepost 105+00

UTM Coordinates 10N, 694005E, 3959475N (NAD 27)

At this location, the NWP would cross the Nacimiento River at a right angle to stream flow, a distance of approximately 21 to 30 m. This site is located 2.8 kilometers east of the Nacimiento Dam, downstream from the Nacimiento Reservoir.

The Nacimiento River is a large, managed release waterway that ranges between roughly 21 to 30 m wide during spring and summer in the study area. Stream flows in the center of the channel are swift (<7 sec. /3m), though flows are relatively slow along the channel edges and backwater areas. The river's path in the survey area appears to change slightly from year to year, causing alternating erosion and accretion on opposing banks. As a possible consequence, vegetation in this portion of the river is mostly limited to a narrow 0.5 m to 1.0 m wide shoreline band of annual herbs and grasses. The quieter backwater areas have limited willow (*Salix* sp.) growth, which accounts for about 10% of overall vegetative cover.

The shoreline was about 80% vegetated at the time of the survey. Vegetated areas predominately support water smartweed (greater than 80% of total cover) and lesser amounts (<3% total cover) of an unidentified aquatic grass and curly dock (*Rumex crispus*). The riparian canopy was relatively open, with Fremont's cottonwood (*Populus fremontii*) as the sparse dominant both upstream and downstream of the survey area.

Though this is a particularly swift stream, water flow was slow enough along stream edges to support amphibian breeding. Along the stream edges we observed large numbers of larval pacific chorus frogs (*Pseudacris regilla*) and western toads (*Bufo boreas*), and a few very small bullfrog (*Rana catesbeiana*) larvae. However, the best bullfrog rearing areas were in a sheltered backwater pool on the inside crook of the channel. Water temperatures in this backwater area were typically 4° C to 6° C higher than the main channel (13° C vs. 7° C) and flows were essentially stagnant. Each of the six adult bullfrogs identified at this site were from the backwater pool, and the numerous bullfrog larvae observed here were all greater than 6 cm total length. Table 1 lists the amphibian species observed during survey visits. Survey conditions are presented in Table 2. A representative photograph of this site is provided in Figure B-1 in Appendix B.

All amphibians observed at this location, including larvae, were identified to species with no unidentified amphibians.

TABLE 1:
SUMMARY OF AMPHIBIAN SPECIES IDENTIFIED DURING RED-LEGGED FROG SURVEYS[a]

Site Number	Site Name and Station Number	*Rana draytonii (=aurora draytonii)* (California red-legged frog)	*Rana catesbeiana* (Bullfrog)	*Pseudacris regilla* (Pacific chorus frog)	*Bufo boreas* (Western toad)	Identification Method
1	Nacimiento River Station 105+00	0	61	15	31+	Visual/hand
2	San Marcos Creek Station 690+00	N/A (dry)	N/A (dry)	N/A (dry)	N/A (dry)	N/A (dry)
3	Tributary to Salinas River at Santa Isabel Ave Station 1160+00	0	27	0	0	Visual/hand
4	Santa Margarita Creek Station 1970+00	0	6	1	2	Visual/hand
5	Trout Creek Station 2010+00	N/A (dry)	N/A (dry)	N/A (dry)	N/A (dry)	N/A (dry)

[a] See Appendix C for California red-legged frog survey data sheets.

TABLE 2:
SURVEY CONDITIONS FOR SITE 1: NACIMIENTO RIVER

	Survey begin time (PDT)	Survey Duration (min)	Observers	Air/Water Temperature (ºC)	Wind speed (mph)
Aug 3, 2005 1st day survey	1055	45	B. Pittman J. Remp	28 / 13	<5
Aug 3, 2005 1st night survey	2100	30	B. Pittman J. Remp	18 / 10	<5
Aug 4, 2005 2nd day survey	0940	30	B. Pittman J. Remp	22 / 8	<5
Aug 4, 2005 2nd night survey	2115	35	B. Pittman J. Remp	17 / 17	<5

The CNDDB does not report red-legged frogs within one or five miles of Site 1 (CNDDB, 2005), and according to Camp Roberts biologists, this species is not known from the military base (Moore, pers. comm.). The nearest reported red-legged occurrence to Site 1 is located 24.0 km (14.9 miles) to the west, east of Cambria in Santa Rosa Creek (CNDDB, 2005; Occ. No. 315).

Surveys for red-legged frogs included all shoreline areas and backwaters of the Nacimiento River, approximately 107 m (350 feet) upstream and downstream of the project area. Threespine stickleback (*Gasterosteus aculeatus*) and mosquito fish (*Gambusia affinis*) were identified in abundance in this drainage. Red-legged frogs were not observed during the four survey periods. There several drainages on Camp Roberts that support perennial water; however, in the local vicinity, due to the mountainous nature of the terrain there are few areas other than the Nacimiento River that would support red-legged frogs.

Survey Conclusions. This site provides relatively good quality habitat for ranid frogs, though red-legged frogs have not been historically observed in the Nacimiento River and are not reported on the base by Camp Roberts biologists (Moore , pers. comm.). Based on current survey findings, it is unlikely that California red-legged frogs occur at this site.

Site 2: San Marcos Creek – Milepost 690+00

UTM Coordinates: 10N, 706692E, 3953288N (NAD 27)

Site 2 is located on San Marcos Creek, 2.0 km west of the town of Welsona. San Marcos Creek was identified as a potential red-legged frog survey site on April 18, 2005. At that time this site had moderate water flows and several deep, shaded pools. Three bullfrog tadpoles were found in a portion of the creek approximately 213 m (700 feet) upstream from the proposed NWP crossing location and San Marco Creek supported mosquito fish and a second, unidentified minnow species. The creek was dry during the August 3, 2005 site visit; hence, the red-legged frog survey protocol was not carried out at this location.

The substrate in the dry creek channel consisted mostly of unvegetated boulders and cobble with a thick layer of dried algae. Along a 610 m (2,000 foot) reach, the only water present was in a single, small puddle that measured 0.7 m by 3.2 m, and 2 cm deep (see Figure B-2, Appendix B). No amphibians were observed at this location and the single puddle showed no signs of aquatic life.

There are no reported red-legged frog sightings within one or five miles of Site 2. The nearest reported species occurrence is 19.1 km (11.9 miles) south of this site (CNDDB, 2005; Occ. No. 617).

Site 3: Tributary to the Salinas River – Milepost 1160+00

UTM Coordinates 10N, 710133, 3941817N (NAD 27)

This unnamed tributary to the Salinas River is located 5 km north of the town of Templeton, immediately north of the confluence of River Road and Santa Isabel Avenue. This drainage receives flows from a relatively small watershed, but maintains perennial standing water. Pooled water was present both upstream and downstream of River Road; the two sides connected by a 5-foot diameter corrugated metal pipe.

Habitat in the stream is typified by large, deep pools with sporadic shoreline vegetation growth. The largest pool, which measured approximately 5 m by 15 m, was mostly unvegetated around its perimeter. Water depth averaged between 0.3 and 0.5 m, with an estimated maximum depth of greater than 1.0 m. Portions of the stream were densely vegetated with cattails (*Typha latifolia*) and sedges (*Scripus* sp.), with rabbitsfoot grass (*Polypogon monospliensis*) as a subdominant. Several large willows (*Salix* sp.) and valley oaks (*Quercus lobata*) formed a sparse canopy over portions of the stream, but the canopy was generally more than 75% open. Overall, this site had excellent upland and aquatic conditions for ranid frogs, including a combination of shallow and deep water habitat, accessible aquatic escape cover, moderate shoreline vegetation, available shade with an open canopy, warm water temperatures, and perennial water.

Upland vegetation was predominantly yellow star-thistle but included some non-native grasses such as wild oats (*Avena fatua*). Other dominants included numerous coyote bushes (*Baccharis pilularis*) on upper bank and small valley oaks.

Survey conditions during daytime and evening surveys were excellent for frog identification – warm with a light breeze. Surveys included a 183 m (600-foot) segment of the stream that started upstream from River Road and continued downstream (southwest) onto private lands. Bullfrogs were identified in abundance at this location, both in the large deep pool and in smaller pools. No other amphibians were seen or heard during surveys (Table 1). Survey conditions are presented in Table 3. A representative photograph of this site is provided in Figure B-2 in Appendix B.

All amphibians observed at this location, including larvae, were identified to species with no unidentified amphibians.

Red-legged frogs were not observed during the four survey periods. The CNDDB does not report red-legged frogs within one or five miles of Site 3 (CNDDB, 2005). The nearest reported red-legged occurrence is located 8.2 km (5.1 miles) to the south (CNDDB, 2005; Occ. No. 617).

Survey Conclusions. This site provides relatively good quality habitat for ranid frogs, though red-legged frogs have not been observed within five miles of this location. Based on the current survey findings, it unlikely that California red-legged frogs occur at this site.

TABLE 3:
SURVEY CONDITIONS FOR SITE 3: TRIBUTARY TO THE SALINAS RIVER

	Survey begin time (PDT)	Survey Duration (min)	Observers	Air/Water Temperature (ºC)	Wind speed (mph)
Aug 3, 2005 1st day survey	1405	25	B. Pittman J. Remp	25 / 21	5-20
Aug 3, 2005 1st night survey	2215	20	B. Pittman J. Remp	15 / 21	0
Aug 4, 2005 2nd day survey	1720	20	B. Pittman J. Remp	26 / 22	0
Aug 4, 2005 2nd night survey	2230	20	B. Pittman J. Remp	24 / 22	0

Site 4: Santa Margarita Creek – Milepost 1970+00

UTM Coordinates: 10N, 717358E, 3923703N (NAD 27)

Santa Margarita Creek is a densely vegetated perennial stream that flows south to north across the NWP alignment at Site 4. Site 4 is located roughly 4.8 km (3.0 miles) southeast of the town of Atascadero, where Santa Margarita Creek is bridged by the Southern Pacific Railroad.

The creek at this location supports lush canopy and understory vegetation dominated by willows (*Salix* sp.) along the lower banks and Fremont cottonwood and valley oak on upper banks. Emergent vegetation covers approximately 30% of the streambank and includes willows, cattails, and rabbitsfoot grass. Poison oak (*Toxicodendron diversilobum*) and an unidentified mint were dominant understory species.

Instream habitat provided a combination of long (100m) runs with few relatively long riffles and a few areas with large instream boulders. The stream substrate was generally sandy, with cobbles and larger boulders in the riffles.

Numerous sunfish were observed in the larger pools, as was a school of 100 or more 3-cm long catfish. With the exception of the predatory fish seen at this site and the relatively closed canopy, habitat for ranid frogs is considered fair to good at this location. Site 4 has a good combination of shallow and deep water habitat and aquatic escape cover, with moderate shoreline vegetation and perennial water.

Survey conditions during daytime and evening surveys were excellent for frog identification. Surveys included a 600-foot segment of the stream that went about 122 m (400 feet) upstream and 61 m (200 feet) downstream from the Southern Pacific railroad bridge. Six adult bullfrogs were identified at this location, both aurally and visually. Additional species identified include an adult pacific chorus frog and several juvenile western toads (Table 1). Survey conditions are presented in Table 4. A representative photograph of this site is provided in Figure B-3 in Appendix B.

All amphibians observed at this location, including larvae, were identified to species with no unidentified amphibians.

Red-legged frogs were not observed during the four survey periods. The CNDDB does not report red-legged frogs within one mile of Site 4, but four occurrences are reported within five miles (CNDDB, 2005). The nearest reported occurrence, Occ. No. #494, is located 4.7 km (2.9 miles) to the south in Yerba Buena Creek, in the town of Santa Margarita. Occurrence No. 741 is located in the same drainage, another 1.3 km (0.8 mile) upstream in Yerba Buena Creek. The two other records are from the west side of the valley: 6.4 km (4.0 miles) to the west at a springbox in the vicinity of Mclain Spring in Kathleen Valley (Occ. No. 395) and 7.9 km (4.9 miles) to the southwest in Tassajara Creek, along Tassajara Creek Road (Occ. No. 528).

Survey Conclusions. Site 4 provides relatively good quality habitat for ranid frogs, though this site appears to be dominated by bullfrogs and not red-legged frogs. Red-legged frogs are reported

TABLE 4:
SURVEY CONDITIONS FOR SITE 4: SANTA MARGARITA CREEK

	Survey begin time (PDT)	Survey Duration (min)	Observers	Air/Water Temperature (ºC)	Wind speed (mph)
Aug 3, 2005 1st day survey	1510	20	B. Pittman J. Remp	28 / 21	< 5
Aug 3, 2005 1st night survey	2305	20	B. Pittman J. Remp	13 / 17	0
Aug 4, 2005 2nd day survey	1815	20	B. Pittman J. Remp	26 / 20	< 5
Aug 4, 2005 2nd night survey	2320	25	B. Pittman J. Remp	14 / 17	0

within several miles of this site with a hydrologic connection between Santa Margarita Creek and Yerba Buena Creek roughly 1.6 km (1.0 mile) south of Site 4. Red-legged frogs are not currently present at this site; however, given watershed connectivity, it is possible that this species could occur sporadically at the site as a result of normal migratory behavior. The present survey informs us that Site 4 is not a principal breeding area for red-legged frogs and is not particularly sensitive relative to this species. Its main use by red-legged frogs could perhaps as a potential migratory route for this species, though use would be infrequent given that there are no identified areas further downstream that support this species.

Site 5: Trout Creek – Milepost 2010+00

UTM Coordinates: 10N, 717644E, 3922720N (NAD 27)

Site 5 is located on Trout Creek, 3.6 km north of the town of Santa Margarita. Trout Creek was identified as a potential red-legged frog survey site on April 18, 2005. Water was flowing through the site at that time; however, the site was completely dry during the August site assessment. A photograph is not available of this site.

There are no reported red-legged frog sightings within one mile of Site 5 and five occurrences are reported within five miles of the site. These are located 6.3 km and 7.2 km (3.9 miles and 4.5 miles) to the west (CNDDB Occ. No. 395 and 528), and 3.7 km and 4.8 km (2.3 miles and 3.0 miles) to the south (CNDDB Occ. No. 494 and 741). Occurrence number 395 is from a spring box in Kathleen Valley and record number 528 is from Tassajara Creek, 4.8 km (3 miles) west of Santa Margarita. Occurrences 494 and 741 are both from Yerba Buena Creek, at Santa Margarita Community Park and another location 1.3 km (0.8 mile) further upstream (CNDDB, 2005). A representative photo of this site is presented in Appendix B.

B. Arroyo Toad

Site 6: Salinas River, 2 Miles North of Paso Robles – Milepost 890+00

UTM Coordinates: 10N, 708985E, 3949497N (NAD 27)

Site 6 is located roughly 3.2 km north of the town of Paso Robles, 0.3 km east of State Highway 101. The Salinas River at this location is a broad, willow-dominated riparian corridor with perennial water. The river channel is confined to a relatively narrow (20 m wide) channel by extensive vegetation growth.

Survey conditions were excellent for arroyo toads, conducted on warm nights and avoiding bright moonlit conditions. Survey conditions are presented in Table 5. Surveys were conducted both within the riparian corridor and from the edge of the corridor, listening for calling male toads. The assessment considered a stream length of 150 m (500 feet) at this location. As identified in Table 6, bullfrogs and pacific chorus frogs were identified at this location. Arroyo toads were not found at Site 6.

The CNDDB does not identify arroyo toads from the Salinas River and does not report this species from the County of San Luis Obispo. The closest reported sighting of this species is in Monterey County, 43.5 km (27 miles) north of Site 6.

Survey Conclusions. Based on survey findings and the known distribution of arroyo toad, this species is considered absent from Site 6.

TABLE 5:
SURVEY CONDITIONS FOR SITE 6: SALINAS RIVER

	Survey begin time (PDT)	Survey Duration (min)	Observers	Air/Water Temperature (ºC)	Wind speed (mph)
May 17, 2005 1st night survey	2140	40	B. Pittman	13	0
May 26, 2005 2nd night survey	2252	40	B. Pittman	15	< 5
May 27, 2005 3rd night survey	2200	30	B. Pittman	15	< 5

TABLE 6:
SUMMARY OF AMPHIBIAN SPECIES IDENTIFIED DURING ARROYO TOAD SURVEYS[a]

Site Number	Site Name and Station Number	*Bufo californicus* Arroyo toad	*Rana catesbeiana* Bullfrog	*Pseudacris regilla* Pacific chorus frog	Identification Method
6	Salinas River, 2 Miles North of Paso Robles Milepost 890+00	0	7	10	Aural/Visual
7	Salina River 3 Miles Southeast of Atascadero Milepost 1920+00	0	5	120+	Aural

[a] See Appendix D for arroyo toad survey data sheets.

Site 7: Salinas River, 3 Miles Southeast of Atascadero – Milepost 1920+00

UTM Coordinates: 10N, 717257E, 3924932N (NAD 27)

Site 7 is located at the Salinas River, 4.8 km southeast of the town of Atascadero. This portion of the Salinas River supports a very sparse, cobble and sand dominated wash with seasonal flows that go subsurface by late summer. The dominant shoreline vegetation at this location is mulefat (*Baccharis salicifolia*) with an unvegetated main channel. The flooded portion of the channel varied between 2 and 5 m in width in spring months and dries completely by roughly July of each year.

Survey conditions were excellent for arroyo toads (Table 7). Toad surveys at this location were conducted primarily form the edge of the riparian (mulefat) corridor, listening for calling male toads. The assessment considered a stream length of 150 m (500 feet) at this location. As identified in Table 6, bullfrogs and pacific chorus frogs were identified at this location, but arroyo toads were not.

The CNDDB does not identify arroyo toads from the Salinas River and does not report this species from the County of San Luis Obispo. The nearest reported sighting of this species is in Monterey County, 70.8 km (44 miles) north of Site 7.

Survey Conclusions. Based on survey findings and the known distribution of arroyo toad, this species is considered absent from Site 7.

TABLE 7:
SURVEY CONDITIONS FOR SITE 7: SALINAS RIVER

	Survey begin time (PDT)	Survey Duration (min)	Observers	Air Temperature (ºC)	Wind speed (mph)
May 17, 2005 1st night survey	2240	30	B. Pittman	13	0
May 26, 2005 2nd night survey	2105	40	B. Pittman	17	0
May 27, 2005 3rd night survey	2105	35	B. Pittman	16	< 5

V. References

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Personal Communications

Moore, Mike. Camp Roberts biologist. Camp Roberts sensitive plant and wildlife training session, April 18, 2005.

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ATTACHMENT A

Location of Survey Sites

FIGURE A-1.
LOCATION OF SURVEY SITES 1, 2, AND 6, NORTH OF PASO ROBLES

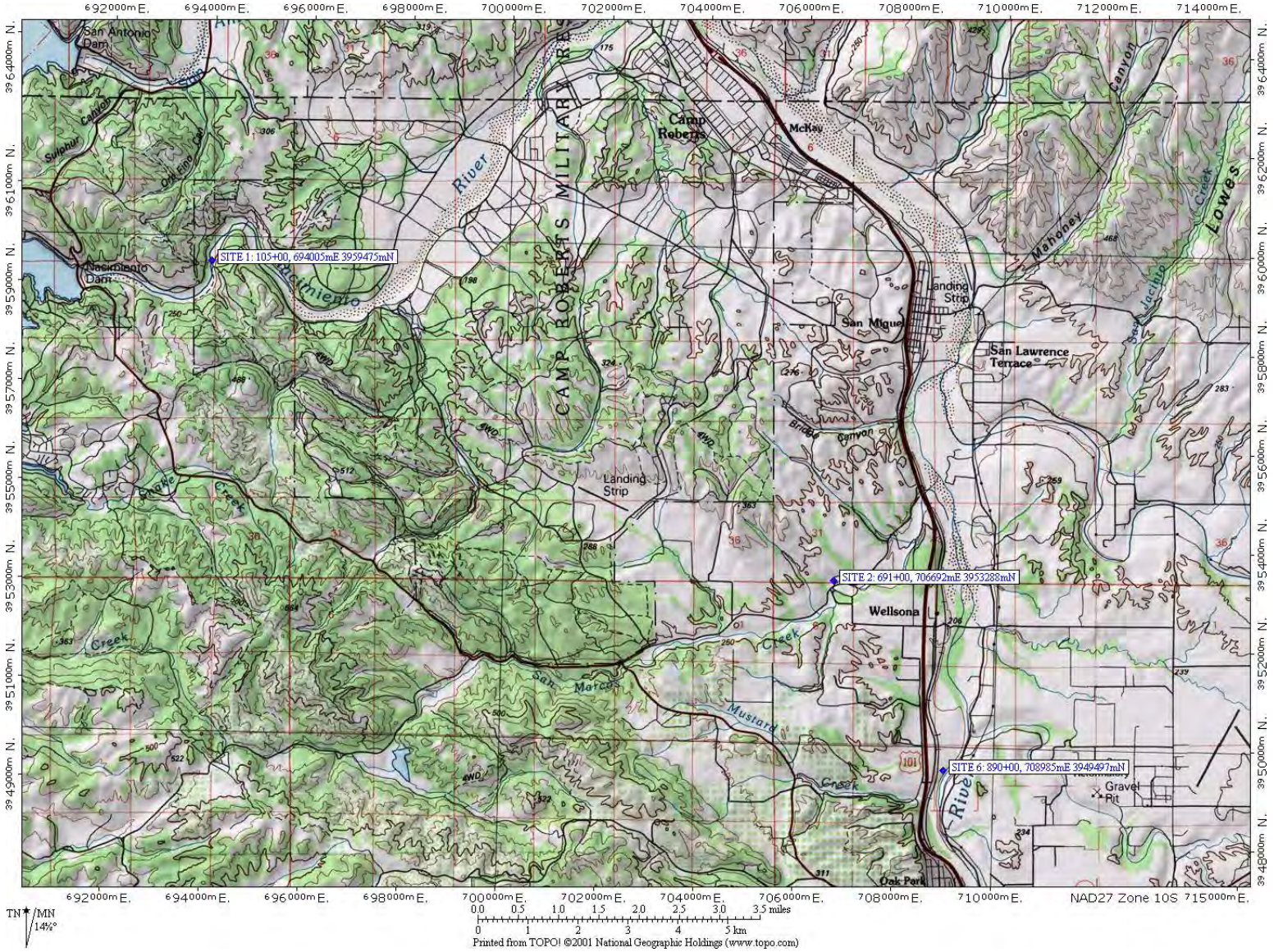
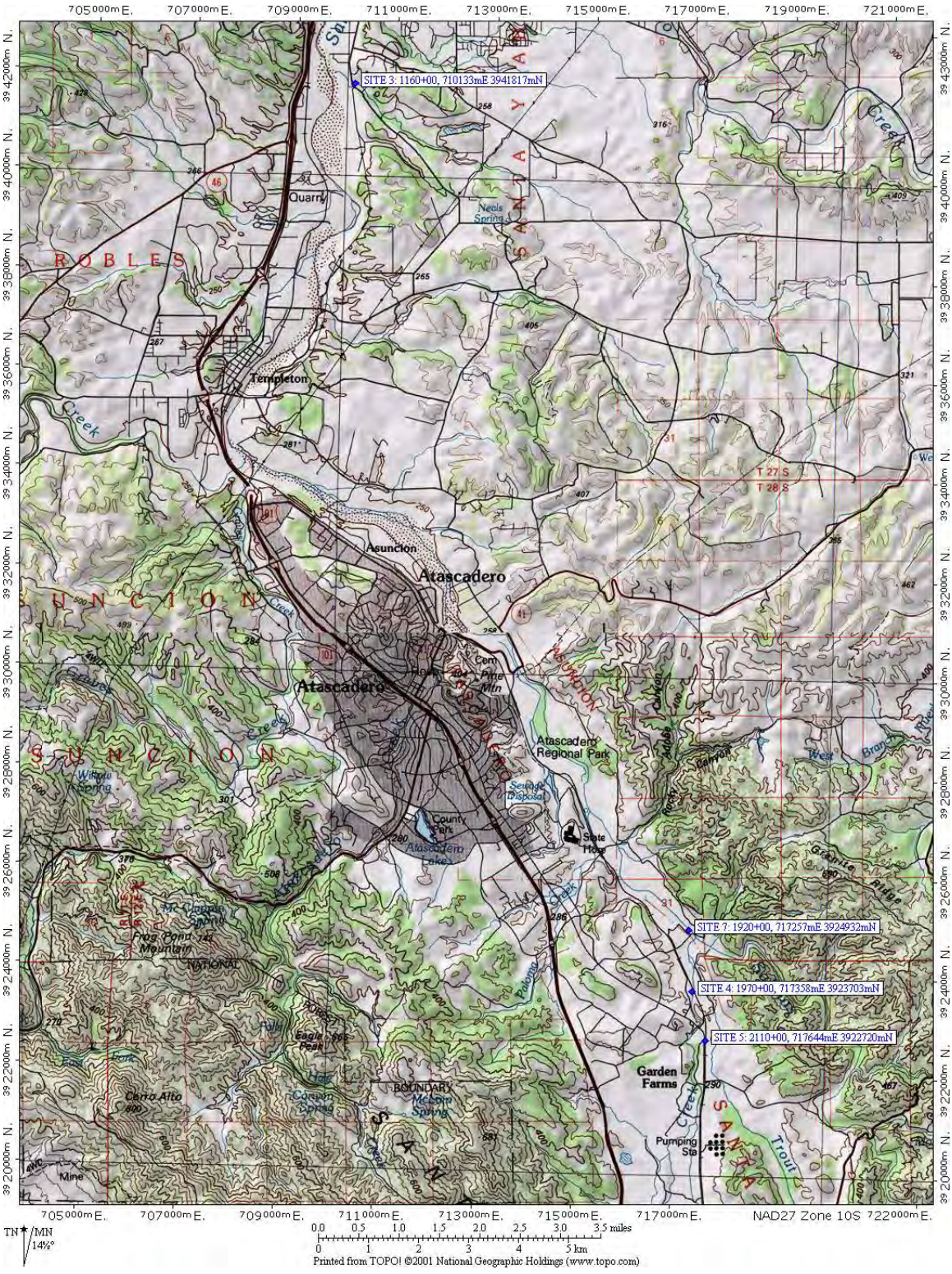


FIGURE A-2.
LOCATION OF SURVEY SITES 3, 4, 5, AND 7,
NEAR THE TOWN OF ATASCADERO



ATTACHMENT B

Representative Photographs of California Red-legged Frog Survey Sites

FIGURE B-1
REPRESENTATIVE PHOTOGRAPH OF SITE 1, NACIMIENTO RIVER

FIGURE B-2
SITE 2: REPRESENTATIVE PHOTOGRAPH OF SITE 2, SAN MARCOS CREEK

FIGURE B-3.
REPRESENTATIVE PHOTOGRAPH OF SITE 3, TRIBUTARY TO THE SALINAS RIVER

FIGURE B-4.
REPRESENTATIVE PHOTOGRAPH OF SITE 4, SANTA MARGARITA CREEK

APPENDIX C

45-day Report for Least Bell's Vireo and Southwestern Willow Flycatcher

August 19, 2005

USFWS – Ventura Field Office
Attn: Mr. David Pereksta
2493 Portola Road, STE B
Ventura, CA 93003

Subject: 45 Day Report Regarding Protocol Surveys for the Least Bell's Vireo (LBVI) and Southwestern Willow Flycatcher (WIFL).

Mr. David Perekstra,

Background

I provided you with a 10 Day Notification of Intent to initiate protocol surveys for the LBVI and WIFL in a letter dated April 23, 2005. These surveys were conducted as part of the proposed Nacimiento Water Project which is a proposed regional transmission facility that would deliver water from Lake Nacimiento to communities throughout San Luis Obispo County. The project would consists of 45 miles of pipe ranging from 12" to 36" in diameter, three (3) storage tank sites, three (3) pump stations, an intake tower at Nacimiento Dam and appurtenances. Design and permitting is to take place in 2005 and 2006 with construction proposed during a 3 year window from 2006-09.

The project EIR identified potential habitat for both WIFL and LBVI at the Salinas River Crossing (UTM 708841 E; 3949648 N.), and ESA (permitting consultants to SLO County) has identified one other area along Santa Margarita Creek (UTM 717546 E; 3922884 N). CNDDB has no records for WIFL, but there is a 1993 LBV observation in the Salinas River about 30 miles north of the northern end of the pipeline.

The surveys are now complete hence this letter report serves as the official 45 day report which provides results of the aforementioned survey activities.

Methods

Fish and Wildlife Service (FWS) permitted biologist, Peter H. Bloom (TE787376-10), conducted the least Bell's vireo and southwestern willow flycatcher surveys according to the FWS survey guidelines for the species. To determine the distribution and abundance, presence/absence surveys were conducted at all suitable and potential habitat within the survey area.

Least Bell's Vireo

Presence/absence surveys were conducted according to the 19 January 2001 USFWS Least Bell's Vireo (LBVI) Survey Guidelines. All potential LBVI habitat and riparian areas within the study sites were surveyed eight times during the breeding season (April

10 to July 31) with at least 10 days between survey visits for each site. The surveys were conducted during the morning hours (0530 - 0730) and when the temperature exceeded 13 degrees Celsius (° C). Less than 3 linear kilometers (km) of habitat were surveyed per day. Biologists listened for LBVI songs, calls, whisper songs, scolds and looked for adult and juvenile LBVI.

LBVI observations were recorded, plotted, and/or GPS readings of the locations were taken during the surveys. Numbers and locations of paired or unpaired territorial males; ages, and sexes of encountered LBVI were noted. The biologist also checked for leg bands and if present the color combination of the bands were recorded. Bird locations were mapped on U.S. Geological Survey (USGS) topographic maps (Figures 1 and 2.).

Protocol surveys were conducted on the following dates: 5/22/05, 6/1/05, 6/11/05, 6/22/05, 7/2/05, 7/12/05, 7/21/05 and 7/30/05.

Willow Flycatcher

Presence/absence surveys were conducted according to the 11 July 2000 revised protocol for project-related surveys and the general guidelines described by Sogge et al. (1997). All potential SWWF habitat and riparian areas within the survey sites were surveyed five times: one visit during Period 1 (May 15 to May 31), one visit during Period 2 (June 1 to June 21), and three visits during Period 3 (June 22 to July 17). Each visit was at least 5 days apart. Since I was already present to perform LBVI surveys, I conducted additional WIFL surveys for a total of eight. Surveys of the sites were conducted during morning hours (between 0530 to 10:00 a.m.) and when the temperature exceeded 13° C. Less than 3 km of habitat were surveyed per day.

When feasible, surveys were conducted within potential habitat patches. If a singing SWWF was not heard in an area after 1 to 2 minutes, a permitted biologist played a taped vocalization for 15 to 30 seconds and observed the area for responding SWWF. This was repeated every 20 to 30 meters. If a SWWF was detected, tape playing was discontinued.
SWWF observations were recorded, plotted and GPS readings of the locations taken during the surveys. Behavior, numbers, and locations of paired or unpaired birds; ages; and sexes of encountered SWWF were noted. The biologist also checked for leg bands and if present the color combination of the bands were recorded.

Protocol surveys were conducted on the following dates: 5/22/05, 6/1/05, 6/11/05, 6/22/05, 7/2/05, 7/12/05, 7/21/05 & 7/30/05.

<u>natural communities</u>

SANTA MARGARITA CREEK

This location supported a riparian habitat dominated by valley oaks (*Quercus lobata*), coast live oaks (*Q. agrifolia*), cottonwoods (*Populus fremontii*), western sycamores (*Platanus racemosa*) and willows (*Salix lasiolepis*). A dense ground cover of western rag weed (*Ambrosia psilostachya*), and poison oak (*Toxicodendrum diversilobum*) dominated the understory. A small perennial stream perhaps 5 feet wide meanders through the vegetation.

SALINAS RIVER

This location supported a lush riparian habitat dominated by willows including black willow (*S. goodingii*), arroyo willow (*S. lasiolepis*), and narrow-leaved willow (*S. exigua*) and flowing water 10 – 20 feet across. Mule fat (Baccharis salicifolia) and poison hemlock (*Conium maculatum*) comprised most of the understory vegetation. Small beaver dams punctuated the perennial flow of water causing small pools less than 2 feet deep.

results

No LBVI or SWWF were detected or observed at the Santa Margarita survey location. However one male LBVI was observed during the first five site visits (05/22/05, 06/01/05, 06/11/05, 06/22/05 & 07/02/05) and a female LBVI was observed on 7/2/05 at the Salinas River Site. While I considered these two birds a breeding pair, I don't believe the attempt was successful as they were not observed again on the three subsequent visits within 300 yards of the original location. The male was unbanded, the female was not seen well enough to determine if it was banded.

Appendix A – species compendia

Common name	scientific name
Green heron	*Butorides virescens*
Mallard	*Anas platyrhynchos*
Turkey Vulture	*Cathartes aura*
Red-shouldered hawk	*Buteo lineatus elegans*
American kestrel	*Falco sparverius*
California quail	*Callipepla californica*
killdeer	*Charadrius vociferus*
Anna's hummingbird	*Calypte anna*
downy woodpecker	*Picoides pubescens*
hairy woodpecker	*P. villosus*
northern flicker	*Colaptes auratus*
acorn woodpecker	*Melanerpes formicivorus*
pacific slope flycatcher	*Empidonax difficilis*
black phoebe	*Sayornis nigricans*
ash-throated flycatcher	*Myiarchus cinerascens*
casein's kingbird	*Tyrannus vociferans*
warbling vireo	*Vireo gilvus*
western scrub jay	*Aphelocoma californica*
American crow	*Corvus brachyrhyncos*
oak titmouse	*Baeolophus inornatus*
bushtit	*Psaltriparus minimus*
house wren	*Troglodytes aedon*
European starling	*Sturnus vulgaris*

orange crowned warbler	*Vermivora celata*
common yellow-throat	*Geothlypis trichas*
black-headed grosbeak	*Pheucticus melanocephalus*
blue grosbeak	*Guiraca caerulea*
spotted towhee	*Pipilo maculatus*
California towhee	*Toxostoma redivivum*
brown headed cowbird	*Molothrus ater*
brewers blackbird	*Euphagus cyanocephalus*
house finch	*Carpodacus cassinii*
lesser goldfinch	*Carduelis psaltria*
great blue heron	*Ardea herodias*
American bittern	*Botaurus lentiginosus*
great egret	*Ardea alba*
black-crowned night heron	*Nycticorax nycticorax*
Red-tailed hawk	*Buteo jamaicensis*
cinnamon teal	*Anas cyanoptera*
yellow warbler	*Dendroica petechia*
song sparrow	*Melospiza melodia*

If you have any questions or concerns please feel free to contact me at (714) 544-5147.

Sincerely,

Peter H. Bloom
Zoologist
13611 Hewes Avenue
Santa Ana, CA 92507

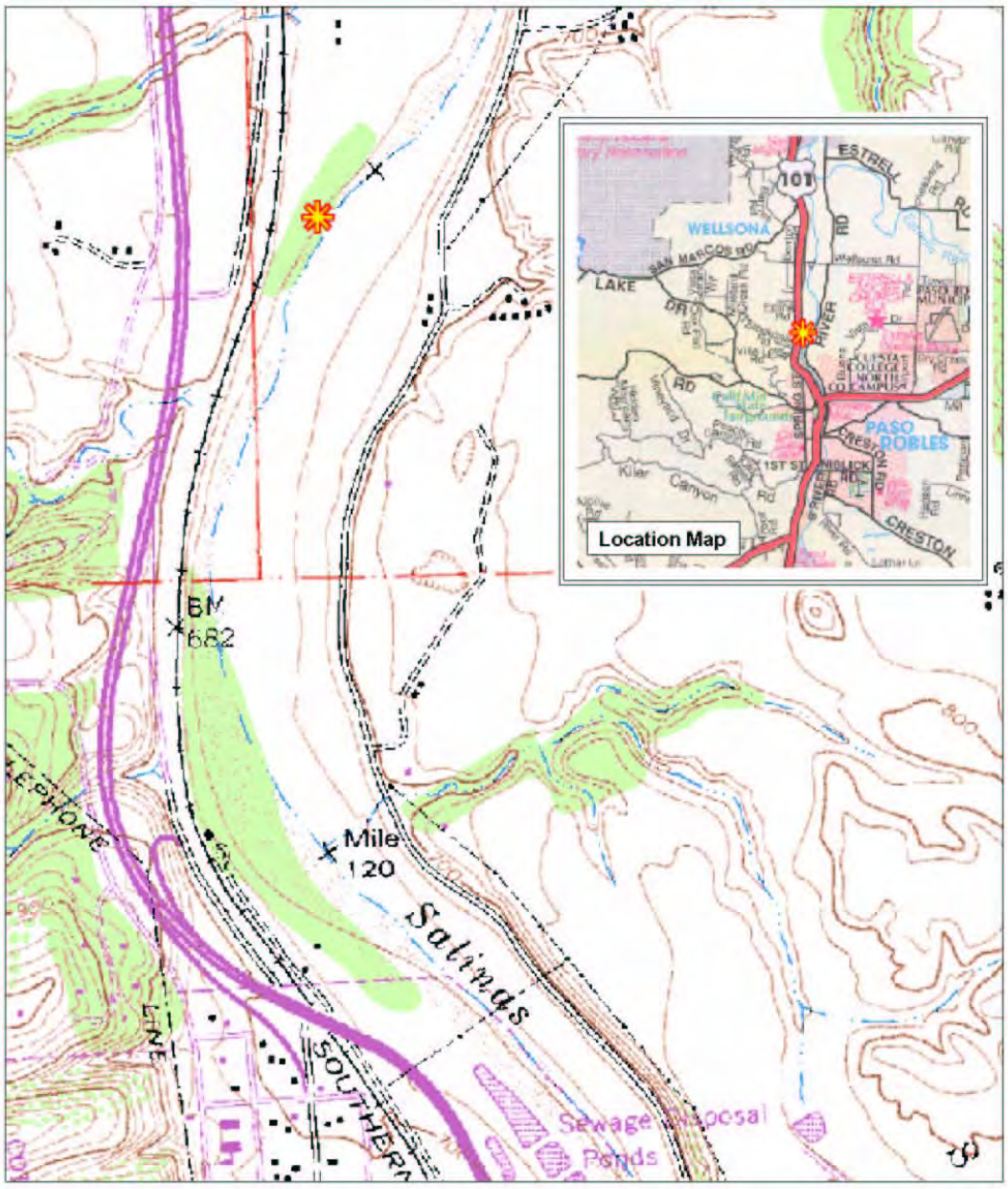


Figure 1 - Salinas River Survey Site

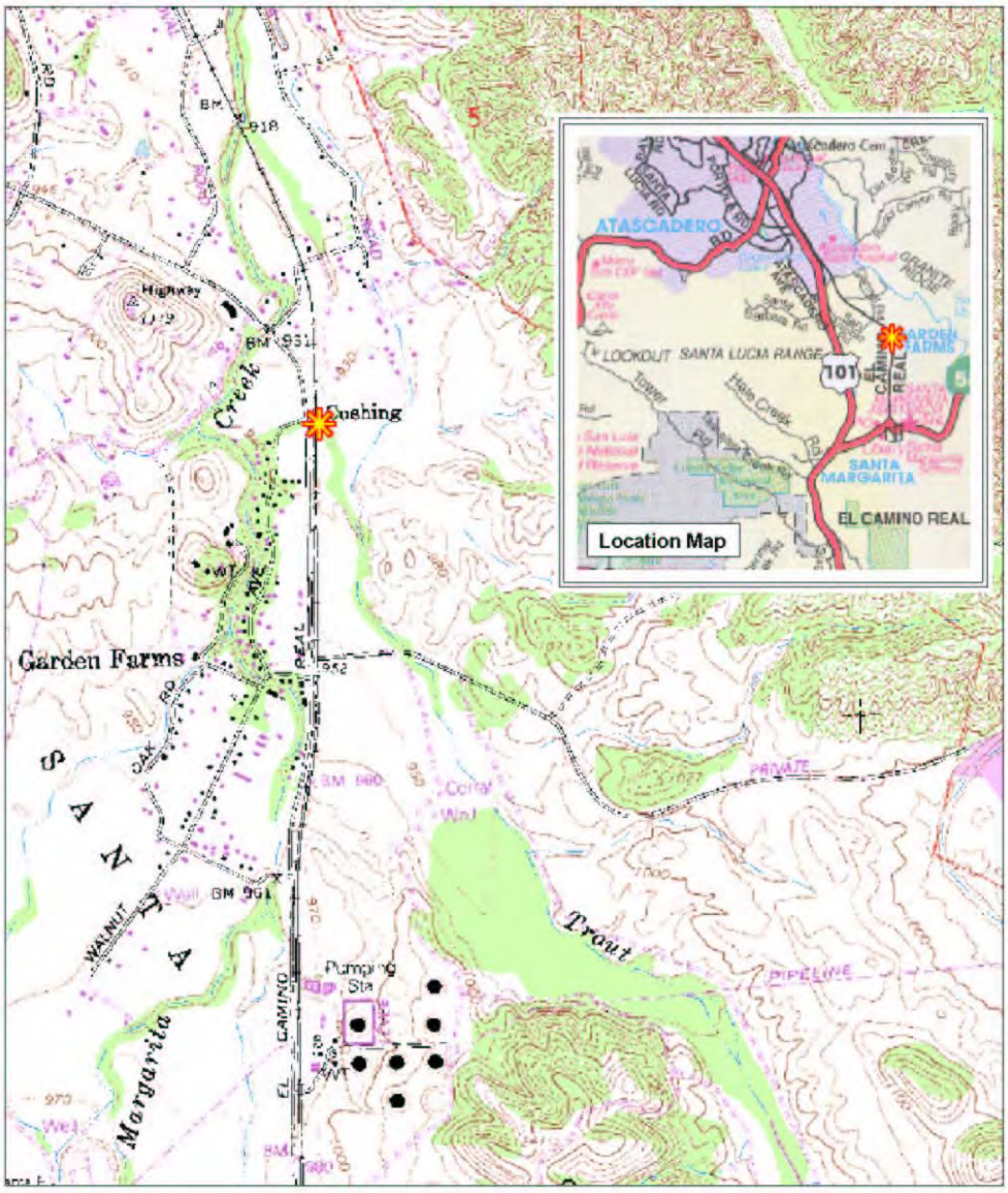


Figure 2 - Santa Margarita Creek Survey Site

APPENDIX D

Vegetation Types and Wildlife Habitats in the NWP Alignment

Vegetation Types and Wildlife Habitat Descriptions in the NWP Alignment (extracted from the NWP Final Environmental Impact Report, prepared by Marine Research Specialists, December 2003).

5.7 Biological Resources

Biological resources include the native and naturalized plants and animals at and in the vicinity of the proposed project site, or in the project area. The project area is defined as the region where biological resources could be physically affected by project activities (construction or operation), such as the pipeline corridor where trenching would occur, all the project facilities including staging areas, and any other areas that can be affected by the project activities (e.g., travel routes used for equipment/materials deliveries, areas where biology could be affected in case of accidental releases, areas where noise from the project construction or operation could affect any noise-sensitive species).

For discussion purposes, the biological resources are divided into vegetation, wildlife, threatened and endangered species, and sensitive habitats. *Vegetation* discusses plants and plant communities within the project area. *Wildlife* includes all terrestrial and aquatic animals that occupy or potentially occupy the project area. *Threatened and Endangered Species* presents information on species occurring or potentially occurring in the project area that are afforded protection under State or Federal law or that are being considered for such protection. *Sensitive Habitats* includes wetlands, plant communities that are unusual or of limited distribution, and important seasonal wildlife use areas (e.g., migration routes, breeding areas, or crucial seasonal habitat).

The descriptions of natural communities, wildlife, threatened and endangered species and sensitive habitats provided below are the result of site visits, published and unpublished reports, the California Natural Diversity Data Base (CNDDB), and contact with resources agencies.

5.7.1 Environmental Setting

5.7.1.1 Vegetation

A total of 13 native and six nonnative vegetative communities are present along the proposed project pipeline alignment. The communities are categorized based on the classification system defined in *Preliminary Descriptions of the Terrestrial Natural Communities of California* (Holland 1986). Appendix B contains maps of the project area where locations of these vegetation communities are depicted. A full list of the vegetative species observed during site surveys of the pipeline ROW is also contained in Appendix B, Table B.1. Identification and location of sensitive vegetative species occurring on the project site are defined in Section 5.7.1.3, Sensitive Species and Habitats, of this document.

Wetlands

The wetland communities found along the project area are composed of native emergent perennials (e.g., bulrushes or cattails) and perennial herbs (e.g., Mexican rush [*Juncus mexicanus*], nodding needlegrass [*Nassella Cernua*], long-beak filaree [*Erodium botrys*], and soft chess [*Bromus hordeaceus*]). The disturbed wetland communities are generally dominated by invasive exotic species.

Vernal Pools/Seasonal Wetlands

Vernal pools are temporary/seasonal wetlands with abrupt boundaries that form on relatively level sites underlain by an impervious hardpan soil layer. The impermeable soil layer allows the pools to retain water much longer then the surrounding uplands; nonetheless, the pools are shallow enough to dry up each season. Vernal pools often fill and empty several times during the rainy season. Only plants and animals that are adapted to this cycle of wetting and drying can survive in vernal pools over time.

These specialized plants and animals are what make vernal pools unique. As winter rains fill the pools, freshwater invertebrates, crustaceans, and amphibians emerge. Vernal pool plants sprout underwater, some using special floating leaves and air-filled stems to stay afloat. Some of these plants even flower underwater.

In spring, flowering plants produce the brightly-colored concentric rings of flowers that vernal pools are famous for. Native bees nest in vernal pools and pollinate pool flowers. Insects and crustaceans produce cysts and eggs, and plants produce seeds that are buried in the muddy pool bottom. At the end of the summer season vernal pools completely dry out and most of the plant and animal species either disappear into the soils or set seed and die. In this phase, vernal pools are really “banks” full of resting seeds, cysts, and eggs that can survive through summer, and even extended droughts, until the onset of the rains begin the life cycle anew.

Riparian Forest

Riparian forests occur along channels or other hydrologic features. Typical riparian understories onsite consist of coyote bush (*Baccharis pilularis*), blue elderberry (*Sambucus mexicana*), California rose (*Rosa californica*), mule fat (*Baccharis salicifolia*), California blackberry (*Rubus ursinus*), mugwort (*Artemesia douglasiana*), and poison oak (*Toxicondendron diversilobum*).

Riparian scrub communities also occur within the project area.

Uplands

Upland plant communities occurring within the project area include central coast scrub, northern mixed chaparral, valley needle grassland, serpentine bunchgrass, valley oak woodland, blue oak woodland, and coast live oak woodland, as well as nonnative grassland, eucalyptus woodland, ruderal or weedy vegetation, general agriculture, and developed lands. A brief description of these upland communities is provided below.

Central coast scrub – This community occurs on exposed often south-facing slopes near the coast and is distributed between Monterey County and Point Conception. Characteristic plant species include black sage (*Salvia mellifera*), sticky monkeyflower (*Mimulus aurantiacus*), California sagebrush (*Artemisia californica*), poison oak, coyote bush, mock heather (*Ericameria ericoides*), and California coffeeberry (*Rhamnus californicus*).

Northern mixed chaparral – This community tends to occur on north-facing slopes. Typical species include chamise (*Adenostoma fasciculatum*), scrub oak (*Quercus dumosa*), several species of manzanita (*Arctostaphylos* spp.), and wild lilac (*Ceanothus* spp.). The understory component may include species such as mariposa lily (*Calochortus* spp.) and soap plant (*Chlorogalum* spp.), among others.

Native grasslands – The grasslands in the study area include valley needlegrass grassland and serpentine bunchgrass. Valley needlegrass grassland is dominated by the perennial species purple needlegrass (*Nassella pulchra*). Characteristic associates include several species of brodiaea (*Brodiaea* spp.), soap plant, mariposa lily, and blue-eyed grass (*Sisyrinchium* spp.). Serpentine bunchgrass is a native grassland community that is restricted to serpentine outcrops. Common species include needlegrass (*Nasella lepida* and *N. cernua*), wavy soap plant (*Chlorogalum pomeridianum*), California poppy (*Escholtzia californica* var. *peninsularis*), wild onion (*Allium lacunosum* var. *lacunosum*), spineflowers (*Chorizanthe* spp.), live forevers (*Dudleya* spp.), and mariposa lilies.

Valley oak woodland – This community is an open-canopied woodland dominated by valley oak (*Quercus lobata*) with a grassy understory. The habitat type occurs below 2,000 feet elevation in the Sacramento and San Joaquin valleys along the foothills of the Sierra Nevada, and the valleys of the Coast Ranges from Lake to Los Angeles counties. The resulting mixed forest may include valley oak and blue oak (*Quercus douglasii*) with an understory of creeping wild rye (*Elymus triticoides*) and poison oak.

Blue oak woodland – This community is typically found in the valleys and foothills of the southern and interior North Coast Ranges, in the South Coast ranges, and the western foothills of the Sierra Nevada (Holland 1986). Characteristic species of this community include blue oak, valley oak, California buckeye (*Aesculus californicus*), digger pine (*Pinus sabiniana*), scrub oak, California coffeeberry, and buckbrush (*Ceanothus cuneatus*).

Coast Live Oak Woodland – This community consists of an open or closed canopy of large evergreen trees, mostly coast live oak (*Quercus agrifolia*) and occurs on slopes and in shaded ravines. The understory is often dominated by nonnative, weedy species, particularly ripgut grass (*Bromus diandrus*).

Nonnative grassland – These grasslands are dominated by nonnative grasses and weedy annual and perennial forbs (non-grasses). Typical species include wild oat (*Avena fatua*), soft chess, red brome (*Bromus rubens*), long-beak filaree, red-stem filaree (*Eriogonum cicutarium*), bur clover (*Medicago hispida*), and Italian rye grass (*Lolium multiflorum*).

Eucalyptus woodland – This community typically consists of dense stands eucalyptus trees

(*Eucalyptus* spp.). Very few native plant species are compatible with eucalyptus.

Ruderal or weedy vegetation – This community consists of any lands on which the native

vegetation has been significantly altered by grading, plowing, or land-clearing activities and the species composition and site conditions are not characteristic of the disturbed phase of one of the plant communities within the study region. Typical plant species include Russian-thistle (*Salsola iberica*), short-pod mustard (*Hirschfeldia incana*), sweet fennel (*Foeniculum vulgare*), and wild oats (*Avena* spp.), among others. Nonnative and ornamental trees, such as eucalyptus, peppertrees (*Schinus* spp.), and Russian olive (*Olea europea*) can also occur in this community.

Agricultural – This component includes actively cultivated lands or lands that support nursery operations. These may include vineyards and hay production.

Developed areas – These areas support no native vegetation and may be additionally characterized by the presence of man-made structures such as roads or buildings. The level of soil disturbance is such that only the most ruderal plant species would be expected.

5.7.1.2 Wildlife Species and Associated Habitats

A full list of the wildlife species observed during site surveys of the pipeline ROW is contained in Appendix B, Table B.2. These species have established themselves successfully due to the presence of suitable wildlife habitat throughout the project area. Wetland, terrestrial, and aquatic habitat types occur within the proposed project area. Prey availability, water, topography, vegetative cover and protection, and soil composition are important in determining the value of a habitat to wildlife. Descriptions of wildlife habitat types found within the project site are listed below. Identification and location of sensitive wildlife species occurring on the project site are defined in Section 5.7.1.3, Sensitive Species and Habitats, of this document.

Wetlands

Wetlands generally have high wildlife habitat value because of the presence of a complex vegetative overstory and understory, and water. Riparian habitat provides a protective cover and nesting locations for many bird species, such as Cooper's hawk (*Accipiter cooperii*), black phoebe (*Sayornis nigricans*), yellow warbler (*Dendroica petechia*), and red-winged blackbird (*Agelaius phoeniceus*). Wetland habitat types can also support various aquatic, crustacean, and amphibian species, such as the California red-legged frog (*Rana aurora draytoni*), and California tiger salamander (*Ambystoma californiense*). Seasonal wetlands (vernal pools) can support the vernal pool fairy shrimp (*Branchinecta lynchi*) and the western spadefoot toad (*Scaphiopus hammondii).*

Terrestrial

Terrestrial communities tend to have high wildlife habitat value because the variety of foraging and nesting options leads to a highly diverse wildlife component. Native and nonnative grasslands, native upland areas, and oak woodlands provide high to moderate wildlife habitat quality depending on the amount of cover, prey, and accessibility. These terrestrial habitats can support many bird species, such as the western meadowlark (*Sturnella neglecta*) and the red-tailed hawk (*Buteo jamaicensis*), as well as mammal species, such as the black-tailed jackrabbit (*Lepus californicus*), mule deer (*Odocoileus hemionus*), San Joaquin kit fox (*Vulpes macrotis mutica*), and the California ground squirrel (*Spermophilis beechyii*).

Aquatic Habitats

Areas of open water provide breeding habitat for amphibians and aquatic birds, as well as a source of drinking water for birds and mammals. Water bodies also provide fish habitat, the quality of which is often dependent on water quality, quantity, and seasonality. The aquatic habitats present on-site are briefly described below.

Lake Nacimiento is an impoundment of the Nacimiento River operated by the MCWRA. The lake was filled in 1958 and designed to provide water for irrigation, human consumption, prevention of saltwater intrusion, and recreation. The lake is 5,370 acres at a maximum pool elevation of 800 feet above msl, with a maximum capacity of 377,900 af. Water levels within the lake fluctuate frequently (up to 130 feet). The Nacimiento River flows throughout the year. The Nacimiento Dam, located upstream, regulates the flow of the Nacimiento River. Typical fish species found within Lake Nacimiento include largemouth bass (*Micropterus salmoides*), smallmouth bass (*Micropterus dolomieui*), white bass (*Roccus chrysops*), rainbow trout (*Oncorhynchus mykis*), black crappie (*Pomoxis nigromaculatus*), spotted bass (*Micropterus punctulatus*), white catfish (*Ictalurus catus*), channel catfish (*Ictalurus punctatus*), bluegill (*Lepomis macrochirus*), threadfin shad (*Dorosoma petenense*), common carp (*Cyprinus carpio*), Sacramento sucker (*Catostomus occidentalis*), brown bullhead (*Ictalurus nebulosus*), and green sunfish (*Lepomis cyanellus*).

Typical fish species found within the Nacimiento River on Camp Roberts include Pacific lamprey (*Lampetra tridentate*), Sacramento sucker (*Catostomus occidentalis*), Sacramento squawfish (*Ptychocheilus grandis*), speckled dace (*Rhinichthys osculus*), unarmored threespine stickleback (*Gasterosteus aculeatus microcephalus*), coastal rainbow trout (*Oncorhynchus mykiss irideus*), prickly sculpin (*Cottus asper*), goldfish (*Carassius auratus*), and western mosquitofish (*Gambusia affinis*) (California Army National Guard [CANG] 2001). Crayfish (*Cambaridae*), molluscs, amphipods, and insects are also found in the river.

The Salinas River has flow throughout the majority of the year with the flow regulated by Santa Margarita Lake, located upstream. The river channel is wide (ranging from 150 to 1,000 feet) with several smaller channels carrying water through the larger channel. Perennial streams and intermittent creeks present within the project site include Trout Creek, Yerba Buena Creek, and Chorro Creek. Trout and Yerba Buena creeks are heavily damaged by cattle activity. Chorro Creek supports predominantly weedy species in and along the creek bed (DWR 1993).

APPENDIX E

County of San Luis Obispo, Guide to Kit Fox Mitigation Procedures, December 2004

County of San Luis Obispo
Department of Planning and Building

A GUIDE TO SAN LUIS OBISPO COUNTY SAN JOAQUIN KIT FOX MITIGATION PROCEDURES FOR THE CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA)

This pamphlet was prepared by the San Luis Obispo County Department of Planning and Building to help project applicants understand the County permitting process and the California Environmental Quality Act (CEQA) mitigation requirements for discretionary projects that occur within the San Joaquin kit fox habitat area. Discretionary permits are permits that the County has discretion over whether or not to issue, and include land divisions such as Parcel Maps and Tract Maps, Minor Use Permits, Conditional Use Permits, Lot Line Adjustments, and General Plan Amendments.

STANDARD KIT FOX CEQA MITIGATION MEASURES

The following mitigation measures are standard measures required by the County that when implemented, will avoid take and reduce impacts to kit fox habitat to an insignificant level.

However, the requirements for individual permits may vary depending on the type of project, extent of disturbance, and other project specifics.

a. Mitigate for the loss of kit fox habitat either by:
   1) establishing a conservation easement on-site or off-site in a suitable San Luis Obispo County location and provide a non-wasting endowment for management and monitoring of the property in perpetuity;
   2) deposit funds into an approved in-lieu fee program;
   3) purchase credits in an approved conservation bank in San Luis Obispo County; or
   4) enter into a mitigation agreement with CDFG and provide a non-wasting endowment for management and monitoring of the terms of the agreement for perpetuity.

b. Retain a qualified biologist to conduct a pre-construction survey of the project site and conduct a pre-construction briefing for construction workers on kit fox biology and protection measures to be implemented.

c. Include kit fox protection measures on project plans.

d. Require a maximum 25 mph speed limit at the project site during construction.

e. Stop all construction activities at dusk.

f. Cover excavations deeper than 2 feet at the end of each working day or provide escape ramps for kit fox.

g. Inspect pipes, culverts or similar structures for kit fox before burying, capping, or moving.

h. Remove food-related trash from project site.

i. If pesticides or herbicides are used, they must be used according to local, state, and federal regulations to prevent secondary poisoning of kit foxes.

j. If a kit fox is discovered at any time in the project area, all construction must stop and the CDFG and USFWS contacted immediately. The appropriate federal and state permits must be obtained before the project can proceed.

k. Permanent fencing installed as part of the project must allow passage of dispersing kit foxes.

PERMIT PROCESSING STEPS FOR PROJECTS OCCURRING WITHIN THE KIT FOX HABITAT AREA

The following steps are intended to describe the process by which the County processes permits for projects proposed within the kit fox habitat area and to assist Applicants in estimating the timeline and potential costs involved for their project.

1. Applicant submits application for County discretionary permit (e.g. Land use permits, subdivisions, or grading permits on slopes equal to or greater than 10 percent).

2. If the project site occurs within the kit fox habitat area, and project site is less than 40 acres in size, County informs Applicant of the pre-determined standard mitigation ratio for the project area. The standard mitigation ratio is based on the results of previous kit fox habitat evaluations and determines the amount of mitigation acreage based on the total area of disturbance from project activities. For example, if a project results in 2 acres of permanent disturbance and the standard mitigation ratio is 3:1, Applicant must mitigate for a total of 6 acres (2 acres X 3:1 ratio = 6 acres). Applicant has the option of accepting the standard mitigation ratio or hiring a biologist to conduct a kit fox habitat evaluation. If the project occurs on a site at least 40 acres in size, a habitat evaluation must be conducted.

3. County staff reviews application and makes site visit.

4. County either sends Applicant an acceptance letter stating that the permit will be processed, or letter requesting additional information. If a kit fox habitat evaluation is to be conducted, the Applicant is provided a Partial List of Qualified Kit fox Biologists, which is a list of biologists that have verified experience and training in conducting kit fox habitat evaluations. If Applicant chooses to hire a biologist not on the County list, the biologist must contact the County before conducting the evaluation.

5. **Applicant** hires a qualified biologist to conduct the habitat evaluation and provides the results of the evaluation and other required information to County.

6. County meets with CDFG biologist every month, who reviews the habitat evaluation. CDFG determines the mitigation ratio and the mitigation ratio determines the total amount of acreage needed to mitigate for loss of habitat based on the total area of permanent disturbance.

7. County prepares and sends Applicant Developer's Statement to sign, which includes standard kit fox mitigation measures and other environmental protection measures that will reduce environmental impacts to an insignificant level.

8. If the **Applicant** agrees, they sign the Developer's Statement and return it to County. If the Applicant has questions or concerns, the County project manager should be contacted.

9. County completes environmental determination and, if appropriate, issues a Negative Declaration. The issued Negative Declaration includes impacts the project may have on the environment and a signed Developer's Statement that lists mitigation measures developed to reduce kit fox impacts to a less than significant level.

10. County publishes notice in newspaper and schedules public hearing with the appropriate hearing body (e.g. Planning Commission, Subdivision Review Board, etc.). Grading permits do not require public hearings. A 30-day public review period is required for projects requiring kit fox mitigation.

For grading permits, go to section A. For subdivisions and land use permits, go to section B.

A. Process for Grading Permits

11. Concurrently with public review period, **Applicant** has kit fox conditions printed on project grading plans and submits with other plan corrections that may be required by Public Works and/or Building Division.

12. Concurrently with public review period, County sends project information to CDFG.

13. CDFG sends letter to Applicant regarding kit fox mitigation options (as described previously in item a).

14. **Applicant** selects mitigation option. If the in-lieu fee option is selected, **Applicant** can pay the fee after receipt of the letter from CDFG. The fee is currently paid to the Monterey office of The Nature Conservancy. If **Applicant** chooses the conservation bank option, the fee is paid to the conservation bank holder. If the conservation easement or mitigation agreement options are chosen, **Applicant** must coordinate with CDFG to establish the easement or agreement conditions, find a public agency or non-profit organization to manage the easement, and establish a non-wasting endowment for the management of the property for perpetuity.

15. **Applicant** must provide proof to County that kit fox mitigation was completed. If the in-lieu fee option was selected, The Nature Conservancy sends Applicant and County a letter indicating that the fee was received. If the conservation bank option is selected, **Applicant** provides proof to County that credits were purchased. If the conservation easement or mitigation agreement options are selected, **Applicant** provides verification to County that the easement was established or agreement was completed.

16. Within 30 days prior to start of any ground-disturbing activities, **Applicant** arranges for kit fox biologist to conduct pre-construction survey for kit fox dens and give on-site pre-construction briefing for contractor.

17. After **Applicant** has met all requirements from the Planning and Building Department, County issues permit.

18. During grading and/or construction, **Applicant** must ensure that all kit fox protection measures are implemented to avoid take of kit fox.

B. Process for Subdivisions and Land Use Permits (i.e. Minor Use Permits, Conditional Use Permits, Lot line Adjustments, Parcel Maps, and Tract Maps)
Follow steps 1 through 10 in previous sections.

19. After 30-day public review period, a public hearing is held and the project is either approved or denied by the County. If the project is approved, County sends project information to CDFG.

20. Follow steps 13 and 14 in grading permit section.

21. For lot line adjustments, **Applicant** signs mitigation agreement prepared by County Counsel that identifies mitigation measures that must be implemented for the project. The mitigation agreement runs with the land and is applicable to future owners. For parcel and tract maps, the mitigation measures are entered onto a second map sheet. The mitigation measures run with the land and are applicable to future landowners. For Minor Use Permits and Conditional Use Permits, the kit fox mitigation measures are included as conditions of approval, and for General Plan Amendments they are included as standards.

22. If a subsequent grading/construction permit is required, **Applicant** completes items 15 through18 of the grading permit section.

Note: It is the Applicant's responsibility to comply with all local, state, and federal regulations.

Contact Information

For questions about the County permitting process, please contact Julie Eliason at the County Department of Planning and Building at (805) 781-5029 or (805) 781-5010.

For questions concerning state requirements, contact CDFG at (805) 528-8670 or (805) 772-4318.

For questions concerning federal requirements, contact the USFWS at (805) 644-1766.

December 3, 2004

Appendix C

National Marine Fisheries Service Biological Assessment

ESA

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Southwest Region
501 West Ocean Boulevard, Suite 4200
Long Beach, California 90802- 4213

Public Works
JAN 08 2007
Accounting

January 4, 2007

In response refer to:
2006/05922

cc: Eric Wier, Tom Roberts

NWP Nacimiento Water Project
RECEIVED
JAN - 9 2007
FILE NO. 300187 - E.7.3

Lt. Colonel Craig W. Kiley
Department of the Army
San Francisco District, U.S. Army Corps of Engineers
333 Market Street
San Francisco, California 94105-2197

Dear Colonel Kiley:

This letter acknowledges NOAA's National Marine Fisheries Service's (NMFS) June 30, 2006, receipt of your June 28, 2006, letter (file number 22374S) requesting consultation with NMFS pursuant to the Endangered Species Act of 1973 (ESA) as amended (16 U.S.C. 1531 *et seq.*). The consultation pertains to the U.S. Army Corps of Engineer's (Corps) authorization, under Nationwide Permit 12, of the San Luis Obispo County Flood Control and Water Conservation District (District) to construct the Nacimiento Water Project (NWP) and the potential effects of the NWP on South-Central California Coast (S-CCC) Distinct Population Segment (DPS) steelhead (*Oncorhynchus mykiss*) and their designated critical habitat in San Luis Obispo County, California. S-CCC steelhead are listed as threatened under the ESA and available information indicates S-CCC DPS steelhead are present in the proposed project action area.

The proposed project includes construction and operation of a water intake structure and pump station at Nacimiento Reservoir, a 45-mile water pipeline connecting Nacimiento Reservoir, in Monterey County, California, to the City of San Luis Obispo, three water storage tanks, and three pump stations. The County of San Luis Obispo has a 17,500 acre foot per year (afy) entitlement (per an agreement executed in 1959 with Monterey County) to the waters in Nacimiento Reservoir and up to 1,200 afy of the total will be distributed via the proposed pipeline to deliver an alternative raw water supply to San Luis Obispo County and five other purveyors. The project is intended to: (1) provide a reliable supplemental water source to San Luis Obispo County; (2) improve water quality to users; (3) lessen extent of future groundwater pumping to existing residents; and (4) provide sufficient supplies to support planning objectives in various communities of San Luis Obispo County. This project will not adversely affect pre-established minimum downstream flow release out of the Reservoir into the Nacimiento River.

Pipeline Construction Issues

The 45-mile long water conveyance pipeline will consist of a single pipe ranging from 20- to 36-inches in diameter. The primary construction method will use cut and cover techniques. The

pipeline alignment crosses several drainages which support S-CCC steelhead and their designated critical habitat, including the Nacimiento and Salinas Rivers (Table 1). To avoid impacts to S-CCC steelhead and designated critical habitat the District has proposed trenchless construction techniques for all stream crossings that maintain flow at the time of construction and/or are major river systems.[1]

Table 1. Pipeline crossings with known or potential presence of S-CCC DPS steelhead or designated critical habitat and proposed construction techniques.

Drainage	Pipeline Station #	Expected Flow Conditions During Construction	Construction Technique
Nacimiento R.	110+00	Active flow	Horizontal directional drilling (HDD)
San Marcos Cr.	684+00	Dry	Open trench
Salinas R. N.	890+00	Dry	HDD
Salinas R. Middle	1225+00	Dry	HDD
Salinas R. S.	1915+00	Dry	Auger bore
Santa Margarita Cr. N.	1989+00	Active flow	New pipe bridge
Yerba Buena Cr.	2110+00	Dry	Open trench
Santa Margarita Cr. S.	2255+00	Active flow	Auger bore
Stenner Cr. N.	2389+00	Active flow	Suspension
Stenner Cr. Middle	2481+50	Active flow	Existing casing
Stenner Cr. S.	2512+00	Active flow	Existing bridge

Additional pipeline construction avoidance and minimization measures include the following for all creek crossings:

- Construction across waterways will be restricted to low-flow periods of June 15 through November 1. If the channel is dry construction can occur as early as June 1;
- Spoil sites will be located so they do not drain directly into waterways;
- A qualified biological monitor will be on site during construction activities. The qualified biological monitor will be authorized to halt construction if impacts to steelhead are evident;
- Project sites will be revegetated with an appropriate assemblage of native upland vegetation, and if necessary, riparian and wetland vegetation, suitable for the area; and

[1] Supplemental information to the BA provided by the District to NMFS dated October 19, 2006.

- A spill prevention plan will be prepared and implemented.

Through the use of these techniques and timing restrictions during construction, potential adverse effects to S-CCC steelhead and their designated critical habitats will be avoided and minimized.

Interrelated and Interdependent Effects

NMFS was concerned this project may have substantial growth inducing effects that could adversely affect S-CCC steelhead and their designated critical habitat based on the California Environmental Quality Act (CEQA) findings[2] adopted for the NWP which stated:

> "Approval of the NWP could result in additional growth or rate of growth in areas now subject to water resource constraints. Recently approved/updated General Plans have acknowledged that future growth will have significant, cumulative impacts. In areas where forecasted water supplies exceed future demand, NWP water could be used to foster growth outside existing service area boundaries."

NMFS requested additional information from the San Luis Obispo County Department of Public Works and their consultants, Environmental Science Associates, regarding the likelihood of the NWP to result in future additive effects to S-CCC steelhead and their designated critical habitat. NMFS was concerned the potential interdependent and interrelated consequences of this project could lead to urban growth resulting in negative changes to stream hydrology (due to increased hardscape leading to rapid runoff), increased sedimentation of streams (due to increased agricultural practices and urban encroachment into riparian areas), and a long term trend of stream degradation (due to in-channel maintenance practices to protect new developments from flooding and channel meander).

Information provided to NMFS from the County of San Luis Obispo in a letter dated October 19, 2006, has alleviated our concerns for this project to lead to additional growth in the action area. In its current form the project proposes to deliver supplemental water to five[3] existing urbanized areas including the City of Paso Robles, the community of Templeton, the City of San Luis Obispo, the City of Atascadero, and the community of Cayucos. Water from the NWP will allow growth that otherwise could not reasonably occur within the urbanized areas of Templeton, the City of San Luis Obispo, and Cayucos. In Atascadero, growth is not water dependent because of the operating rules of the mutual water company. In Paso Robles, growth would be expected to continue even without NWP supplies, albeit with reduced water quality. In all areas where growth is dependent on NWP supplies, that growth would be contained by existing urban limits due to general plan policies. Further, growth in these areas can be best characterized as infill of developed areas, rather than as clear extensions of existing urban boundaries.

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[2] Nacimiento Water Project Final Environmental Impact Report, December 2003, San Luis Obispo County Department of Planning and Building.

[3] The BA had stated water would be delivered to 15 potential purveyors. Subsequent analysis by the County reduced the number to five.

All of the land use jurisdictions in San Luis Obispo County have general plan policies aimed at controlling the pace and direction of growth as well as mitigating impacts of growth as it occurs. Cities and community services districts have measures in place to allow the provision of urban services (including water) outside of city limits in only a limited set of circumstances, thus minimizing urban sprawl. The County and cities have adopted general plans that establish hard urban edges, greenbelts, and community separators to ensure sprawl does not occur in the action area. Further, drainage design standards contained in the San Luis Obispo County and City of San Luis Obispo regulations ensure that new development attributable to the NWP (in Templeton, City of San Luis Obispo, and Cayucos) will not result in stormwater runoff that negatively impacts the geomorphic stability of area waterways, nor contribute substantial on-going sediment loads to those waterways.

Conclusion

Based on: (1) no changes to the minimum flow releases out of the Reservoir are proposed, and (2) construction techniques outlined in the biological assessment (April, 2006), and the supplemental information provided by the San Luis Obispo Department of Public Works (October 19, 2006), NMFS believes potential impacts from construction of the NWP to S-CCC steelhead and their designated critical habitat are negligible. Based on the supplemental information provided by the San Luis Obispo Department of Public Works (October 19, 2006), NMFS believes the growth attributable to the NWP is not substantial, will be limited to existing urban areas, and mitigated by existing plans, policies and programs. NMFS concludes that interdependent and interrelated adverse effects on S-CCC steelhead and their designated critical habitat attributable to the growth potentially induced by the proposed project are not likely to occur. Based on the provided information I concur with the Corps determination that this project is not likely to adversely affect S-CCC steelhead or their designated critical habitat.

This concludes consultation in accordance with 50 CFR 402.14(b)(1) for the proposed NWP. However, further ESA consultation may be required if new information becomes available indicating that ESA-listed species or critical habitat may be adversely affected by the project in a manner not previously considered, current project plans change in a manner that affects ESA-listed species or critical habitat, or a new species is listed or critical habitat designated that may be affected by the action. If you have any questions concerning this consultation, please contact Mr. Jonathan Ambrose of my staff at (707) 575-6091 or via email at jonathan.ambrose@noaa.gov.

Sincerely,

for Rodney R. McInnis
Regional Administrator

cc: Russ Strach, NMFS, Sacramento
Mike Podlech, Environmental Science Associates
Eric Wier, San Luis Obispo County Dept. of Public Works
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NACIMIENTO WATER PROJECT

Draft Biological Assessment - Fisheries

April 2006

NWP NACIMIENTO WATER PROJECT

San Luis Obispo County Flood Control & Water Conservation District

NACIMIENTO WATER PROJECT

Draft Biological Assessment - Fisheries

April 2006

Prepared for:

Environmental Programs Division
Department of Public Works
County of San Luis Obispo

NWP NACIMIENTO WATER PROJECT
San Luis Obispo County Flood Control & Water Conservation District

NACIMIENTO WATER PROJECT DRAFT BIOLOGICAL ASSESSMENT - FISHERIES

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CHAPTER 1
Introduction

1.1 Purpose and Need

This Biological Assessment (BA) documents potential effects of the Nacimiento Water Project (NWP or Proposed Action) on federally threatened south-central California coast steelhead (*Oncorhynchus mykiss*) in the County of San Luis Obispo, California. The BA was prepared in accordance with Section 7(a)(2) of the Federal Endangered Species Act (Act) of 1973, as amended (16 USC 1531-1543), at the request of the U.S. Army Corps of Engineers (USACOE) in support of the NWP.

The intent and scope of this document is for use by the USACOE to complete consultation with the National Marine Fisheries Service (NMFS) under the provisions of the Act. This BA assesses potential effects of the proposed action on federally listed south-central California steelhead and designated critical habitat within the action area. Upon its completion, the BA will support formal consultation on the Proposed Action between the USACOE and NMFS.

1.2 Project Sponsor

The NWP is sponsored by the San Luis Obispo County Flood Control and Water Conservation District (District), the applicant for permits required by the Proposed Action. The County contact for the project is:

San Luis Obispo County Flood Control and Water Conservation District
Public Works Department
County Government Center, Room 207
San Luis Obispo, CA 93408

Contact: John Hollenbeck, Project Manager
jhollenbeck@co.slo.ca.us
(805) 781-1288

1.3 Description of the Proposed Action

The District proposes to implement the Nacimiento Water Project to deliver an alternative raw water supply to San Luis Obispo County and 15 other potential purveyors. The project proponent proposes to implement the NWP to access their 17,500 acre-feet per year (afy) entitlement from Lake Nacimiento per an agreement executed in 1959 with Monterey County. Of this 17,500 afy,

16,200 afy are slated for this project and the remaining 1,300 afy are being reserved for local lakeside use. The NWP would include construction of a number of facilities to deliver supplemental water to several San Luis Obispo County cities and unincorporated communities to supplement existing groundwater and surface water supplies. The NWP would include construction and operation of the following elements: (1) a water intake structure and pump station located on the north side of the Lake Nacimiento Dam, near the spillway, (2) a 45-mile raw water conveyance pipeline, (3) three water storage tanks (Camp Roberts, Rocky Canyon Road, and Cuesta Tunnel), and (4) three pump stations.

The pipeline and associated facilities are located in northern San Luis Obispo County stretching from Lake Nacimiento to the City of San Luis Obispo.

1.3.1 Project Purpose

The goal of the NWP is to ensure better management of available water resources throughout the county. By supplementing the local groundwater and surface water supplies with a new surface water source, it is hoped that the project will:

- Provide a reliable supplemental water source for a variety of uses within San Luis Obispo County;
- Increase reliability of water deliveries;
- Improve water quality;
- Lessen the extent of future groundwater pumping to existing residents;
- Provide sufficient supplies to support planning objectives in various communities of San Luis Obispo County.

1.3.2 Project Components

The NWP project entails the construction of 45 miles of new pipeline, construction of 3 new pump stations, construction and installation of the Intake Pump Station (IPS) at Lake Nacimiento and appurtenant facilities. **Table 1.3-1** describes the pipeline reaches and associated facilities. Aerial photographs of the entire action area depicting the location of project components are provided in **Appendix A.** Descriptions of the project component are provided below:

Lake Nacimiento Intake Structure and Pump Station

The District proposes to construct and operate an intake structure and pump station to transport water to the water transmission pipeline. The multi-level three-port intake structure would comprise a single shaft drilled or excavated vertically into the ground from the shoreline pump station to the depth of approximately 160 - 170 feet. At that depth, the shaft would be connected with three 6-foot diameter horizontal intake tunnels or 36 - 42 inch bored intake pipes at different

TABLE 1.3-1
NWP PIPELINE SYSTEM AND COMPONENTS BY UNIT

Unit Name	Component Description	Station No. on the Pipeline[a]
Unit A	Lake Nacimiento Intake and Pump Station to Camp Roberts west property line	0+00 to 88+00
Unit A1	Camp Roberts west property line to Camp Roberts Tank and Pump Station	88+00 to 549+00
Unit B	Camp Roberts Pump Station	–
Unit C	Camp Roberts Pump Station discharge to Monterey Road / Wellsona	560+00 to 777+00
Unit C1	Monterey Road / Wellsona to Paso Robles Turnout	777+00 to 1161+00
Unit D	Paso Robles Turnout to Templeton CSD Turnout	1157+00 to 1405+00
Unit E	Templeton CSD Turnout to Atascadero MWC Turnout	1405+00 to 1627+00
Unit F	Atascadero MWC Turnout to Rocky Canyon Tank Inlet	1627+00 to 1774+00
Unit F1	Rocky Canyon Tank	–
Unit F2	Rocky Canyon Pump Station	–
Unit G	Rocky Canyon PS Discharge to Route 58/Maria Avenue	1785+00 to 2152+00
Unit G1	Route 58/Maria Avenue to Cuesta Tank Inlet	2150+00 to 2308+00
Unit G2	Cuesta Tunnel North Portal and Tank	–
Unit H	Cuesta Tunnel	–
Unit H1	Cuesta Tunnel South Portal to SLO WTP	2370+00 to 2513+00
Unit T2	City of Paso Robles Turnout	–
Unit T4	Templeton CSD Turnout	–
Unit T6	Atascadero MWC Turnout	–
Unit T11	City of San Luis Obispo Turnout	–

[a] Station numbers correspond to linear foot distances relative to the Lake Nacimiento Intake and Pump Station. Thus, Reach No. 1 is 8,800 feet in length.

SOURCE: Black & Veatch, 2006.

elevations. The shaft would be of sufficient diameter to accommodate the vertical turbine pumps, control gates, and maintenance access. Both the vertical shaft and the tunnels or pipes would be concrete lined. The horizontal intakes shafts would be constructed using either microtunneling or horizontal directional drilling (HDD) methods. If HDD is used, excess drilling fluids such as bentonite would enter the lake. In order to prevent a major silt build-up within the lake and the possible release of bentonite-laden water to the lower Nacimiento River, a silt curtain and some form of water suction/filtering system would be used.

Hydraulic control of the facility would be achieved within the vertical shaft where the control gates would be housed. Water would flow through the horizontal tunnels and into the sump at the bottom of the vertical shaft where the pump bowl assemblies are located. Five electrical turbine pumps that are part of the Intake Pump Station with bowl assemblies would extend vertically to the bottom of the vertical shaft. It is anticipated that the excavation for the vertical shaft and the

horizontal tunnels or pipelines will generate no more than approximately 4,000 cubic yards (cy) of material.

Each intake tunnel will have fish screens installed to the upstream end of each intake tunnel. The purpose of the screens is to prevent fish and other aquatic animals from being trapped but also to prevent trash and other debris form entering the wet-well and intake tunnels. The screens will be 27 inches in diameter, cylindrical in shape, and will be fabricated from steel plates. The maximum screen openings will be 1-1.5 inches.

The Intake Pump Station (IPS) would be constructed in conjunction with the reservoir water intake site, near the upstream face of the Nacimiento Dam. The Intake Pump Station would consist of five vertical turbine pumps (four active, one on stand-by), 500 horsepower each, located on the cover of the vertical shaft; a 20- to 30-foot diameter shaft in the intake. The size of the central building would be approximately 42 by 70 feet and the electrical transformer yard would be approximately 26 by 35 feet.

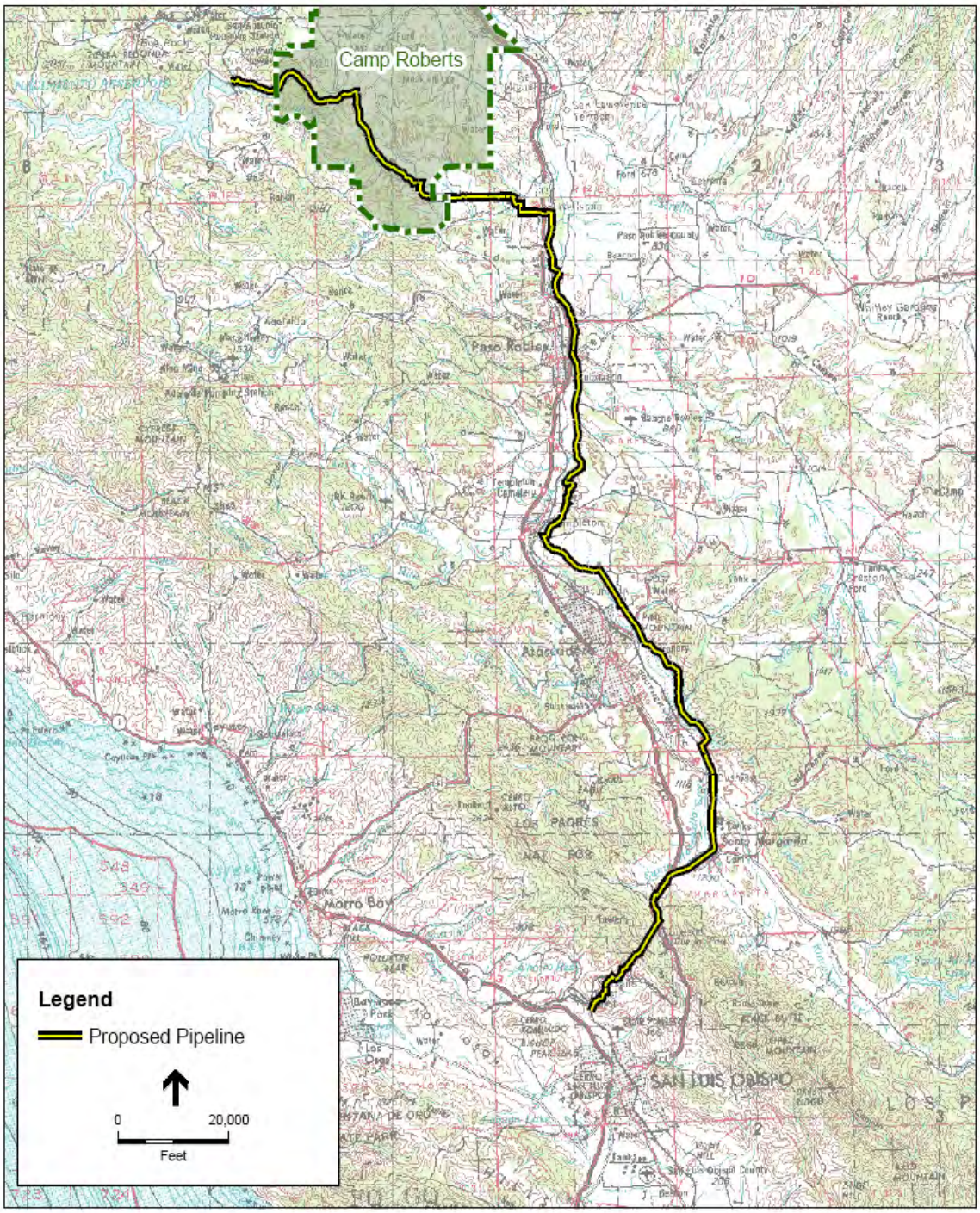
The pump station would be designed to accommodate the surface water level of Lake Nacimiento, which varies from 670 feet to 800 feet in elevation from year to year. The water would be pumped to the water storage facility. A meter will be provided to record water flow rates and total pumped volumes. Both manual and automated controls will be provided, along with telemetry to a central control station. According to the power supplier, Pacific Gas & Electric (PG&E), the current power supply to Nacimiento Dam will need to be augmented. A new transmission line is planned for installation across Camp Roberts to supply the electrical power for the intake pump station.

The intake and pump station combined would require up to 2 acres of disturbed area above the high-water level, and as much as 0.5 acre below the high-water level.

Water Conveyance Pipeline

The proposed 45-mile-long water conveyance pipeline would consist of single pipe ranging from 20 to 36 inches in diameter. Where possible, the pipeline will be placed in the shoulder of the road to minimize pavement disruption, avoid conflicting utilities, minimize the need for traffic control, and to enhance safety during construction and maintenance. However, on busy roadways (e.g., North and South River Roads near Paso Robles, and El Camino Real near Santa Margarita.), the pipe will be placed parallel to the road to minimize traffic interruptions. On dirt trails/roads, the pipeline will follow the center of the road. On Camp Roberts, the pipeline will generally follow roads and fire breaks and will minimize impacts to existing pavement on West Perimeter Road.

An overview of the pipeline alignment is shown in **Figure 1.3-1**.



SOURCE: USGS, 2005; ESA, 2006

Nacimiento Water Project . 204453

Figure 1.3-1

Project Location

Air Release Valves, Blow-offs, and Vaults

Air valves release air displaced by water upon pipeline filling, admit air to displace water released by pipeline drainage, and release air which comes out of solution during normal pipeline operation. Air valves are typically installed at higher elevations along the pipeline and are installed at intervals of no less than 1,500 linear feet.

Blow-offs are used to remove water from a segment or segments of pipeline for routine or emergency maintenance or during emergencies when immediate dewatering of the pipeline is required. Blow-offs are typically located in lower elevations along the pipeline and are installed at no less than every 1,500 linear feet.

Vaults and manholes will be constructed to house the blow-offs. Vaults will vary is size depending on the type and size of the blow-off installed. Vaults will be installed within jurisdictional areas in some locations and may result in minor permanent impacts. Manholes will be required for vault access. Vault structures will be at-grade structures.

Storage Tanks

The District proposed to construct and operate three Storage Tanks, one on Camp Roberts, one on Rocky Canyon Road, and one near the entrance to the Cuesta Tunnel.

The Camp Roberts Storage Facility is expected to have two above ground tanks with a storage capacity of 2,000,000 gallons each. The base elevation is set at 1,000 feet. The cut and fill material will be balanced at approximately 9,000 cy for each storage tank.

The Rocky Canyon Storage Facility, which would be constructed underground, would consist of one storage tank with a capacity of 2,000,000 gallons. The base elevation of the storage tank is set at 980 feet. The cut material will be approximately 12,000 cy and the fill material approximately 2,000 cy.

The Cuesta Tunnel Reservoir will consist of one storage tank with a storage capacity of 2,000,000 gallons. The base elevation is set at 1,380 feet. The cut and fill material will be balanced at approximately 15,000 cy. It is expected that the existing tunnel spoil area at elevation 1,356 feet will be raised to elevation of 1,380 feet to accommodate the cut material and will serve as a parking area for the tank maintenance.

Pump Stations

In addition to the Lake Nacimiento Intake Pump Station, the District proposes to construct and operate three pump stations to transfer water between the three proposed water storage tanks. The Camp Roberts Pump station is proposed to pump water from the Camp Roberts storage facility to Rocky Canyon Reservoir from an elevation of 900 feet to 1,510 feet mean sea level (msl). This pump station will be an inline booster station being fed from the Camp Roberts Storage Facility. Pump station facilities would include a 2,500 square foot building to house five 400 horsepower vertical turbine electrical pumps (four active, one on stand-by). A fenced area approximately 150

by 200 feet would be required for the pump station and the electrical transformers. Construction of an access road and a parking lot would also be required.

The Rocky Canyon Pump Station would be located on Rocky Canyon Road near the water storage tank and will pump water to Cuesta Tunnel reservoir. This pump station will contain three 550 horsepower pumps (two active, one on stand-by). The site will require an area of approximately 150 by 200 feet with a building of approximately 50 by 50 feet. A sound attenuated building will house the pumps, motor control center, variable speed drives if required, and a small emergency generator for security lights and controls. Adjacent to the building will be an overflow basin with an approximate volume of 0.46 acre-foot where infrequent surge water would be directed. Water from the basin will percolate into the native soils. The pump station will also include a transformer mounted on a pad and connecting electrical lines to deliver power to the station.

1.3.3 Pipeline Construction Techniques

The temporary construction easement would generally be assumed to be 100 feet wide, unless special circumstances (e.g., traffic control or existing vegetation) dictate a narrower construction corridor. The construction corridor could be reduced to a width of 30 feet or less where specialized construction techniques are implemented. The width of a shored trench is assumed to vary from 5 to 10 feet, and there must also be room for two vehicles to pass each other along the side of the trench. A permanent easement of 30 feet will be obtained for the pipeline and its operation.

Open Trench

Trench width will be a function of stability of excavated soils and the presence of groundwater. Native materials will be used for backfill in the trench zone or that portion of the trench 1 foot above the pipe to the surface. When necessary for structural stability, and where desirable from a construction convenience, soil-cement, or controlled low-strength material (CLSM) will be used for bedding and backfill.

The construction method to install the majority of the pipeline alignment utilizes cut and cover techniques, which is adequate for crossing small streams and other minor water features. However, the pipeline alignment crosses several perennial drainages, including the Nacimiento River, several highways, and numerous railroad right-of-ways. Alternative construction methods will be utilized to address environmental and regulatory concerns at those locations.

At stream crossings, the pipeline will be placed deep underground, below the lowest expected scour depth of the creek. Trench width could be 20 to 40 feet, with the work area total footprint of 100 to 200 feet wide. Further study will be required at each specific site to determine the depth of cover. The pipeline will likely be encased in reinforced concrete under the creek bottom. Work areas would also be required on one or both banks of the creek.

Ideally, construction of all creek crossings would take place in the dry summer months. Surface and ground water flows, if encountered, will be diverted during trenching, pipe laying and backfilling activities. A temporary diversion channel or pipe could divert any creek flows around the construction area. In addition to diverting surface flows, underground flows and ground water will need to be collected and pumped to a point downstream of the construction. After completion of construction across the creek, all diversion facilities will be removed and the stream bottom restored to near its original condition. Construction operations may increase turbidity in surface water when the temporary diversion structures are installed and removed.

Dewatering operations will comply with State Water Resources Control Board (SWRCB) discharge permit requirements and other jurisdictional agencies. Alternately, a temporary collection pond could be constructed upstream to collect surface and ground water, which would be pumped downstream in a temporary pipe. However, gravity flow is preferable to pumping, where possible.

Horizontal Directional Drilling

Horizontal Directional Drilling (HDD) technique will be used for the installation of the pipeline at major river crossings (i.e., Nacimiento and Salinas rivers) to avoid direct impacts to jurisdictional waters of the U.S. HDD entails trenchless pipeline installation techniques that install the pipeline by boring underneath the river rather than using cut and fill methods.

The HDD process begins by boring a small horizontal pilot hole under the river with a continuous string of steel rod called the drill string. The pilot hole will establish the path of the drill rod and the location of the pipeline. The drill string is pushed through the pilot hold by a bore head and rod. For the NWP, the pilot bore will use a 4-12 inch diameter hollow steel pipe drill string with a drill head is pushed forward along the pilot bore path. Steel casing is used to assist the HDD with penetration and for holding the near surface hole open and for installation of the carrier pipe.

Driller's mud or slurry is pumped into from the drill rig to the drill head under pressure. Driller's mud is an engineered fluid that typically consists of water and bentonite clay. The clay becomes a dense fluid when mixed with water and is then capable of supporting the ground, reducing friction during drilling, carrying spoils out of the bore hole. Driller's mud is injected into the center of the drill steel and pumped to the drill tool or cutter head. Once the fluid exits the drill string, it picks up the earth spoils and carries them back to the drill rig through the annular space made by the pilot bore.

The driller's mud exits through the cutting nozzles or through the mud motor located on the drill head. The mud and earth spoils are carried back to the drill rig through an annular space of the drilled hole.

Once the head reaches the receiving side of the pipeline installation area, a special cutter, called a back reamer or reamer is attached to the drill string and pulled back through the pilot hole to enlarge the pilot hole to the needed size for the product pipe. The carrier pipe is attached by a swivel and pulled by the drill string behind the reamer. Driller's mud is pumped into the jets on

the reamer from the drill rig so that when the reamer is retrieved on the drill rig side, the enlarged tunnel contains the drill string and remains full of driller's mud to provide the temporary ground support so the newly constructed tunnel does not collapse. Once the carrier pipe has been installed, the product pipe is attached by a swivel behind the reamer and pulled through the bore in one continuous motion.

For the Nacimiento River HDD pipeline crossing, a scour depth of 20 – 25 feet has been determined and the pipeline will be placed approximately 90 feet below the channel bottom. Scour depths and final pipeline depths for the Salinas River HDD crossing sites are still being determined.

Auger Boring

Auger boring is considered the best option for crossing under highways and railroads and beneath streams that are expected to be dry during construction but where cut and cover techniques could result in impacts to jurisdictional features or special status species. Auger boring will be used to install a casing that will carry the water (carrier) pipe. The carrier pipe is installed within the casing using spacers to achieve the required grade. Auger boring is less sophisticated than HDD, but remains in wide use because of its relatively low cost compared to other trenchless construction methods as well as the fact that the methods and capabilities of the technique are well understood. One advantage of this system is that it causes little or no disruption to soil surface and no disruption to the roadway or railroad above.

The basic components of an auger boring system are the base unit, the casing pusher, and a rotating auger. Soil is removed back to the drive pit by a helically wound auger flights rotating in a steel casing. Different cutting bits are available to accommodate different types of soil. The steel casing is jacked forward as the auger proceeds forward. As each section of the casing is installed, the next section is welded to the last section. The limited steering capabilities of the system are achieved by adjusting the cutting head at the front of the auger string. Once the full length of the bore is complete, the auger string is removed and the casing is ready to receive the carrier pipe. This construction method works best in clay, sand, sandy loam, gravels, and cobbles up to 1/3 the casing diameter. Geotechnical investigations undertaken indicate that auger boring is feasible for all of the proposed crossings.

Each auger boring site will require a staging area. Before the boring operation, a drive pit and a reception pit are prepared. Equipment and facilities such as generators, pumps, storages, and offices are also necessary for some operations. The working area for the dive unit, which is either track- or rail-mounted, should be reasonably level, firm, and suitable for movement of the unit as the bore proceeds. The area at both the entry and exit bore pits should be 26-36 feet long and 8-12 feet wide. Additional room for storing augers, casing, etc., is also required.

Scour depths and final pipeline depths for the auger boring crossing sites are still being determined.

Suspended Pipeline

One stream crossing in the upper Stenner Creek watershed will be constructed as a pipeline bridge spanning the across the canyon. The total length of the suspended portion of the pipeline will be approximately 50 feet. The pipeline will be encased in abutments on either side of the canyon to provide anchoring and stiffness. All construction activities will occur outside the channel.

Materials Storage

Several equipment staging areas will be required for storing equipment and materials during implementation of the Project. Construction staging areas are temporary locations for the storage, maintenance, and off-loading of construction-related equipment, employee vehicles, and supplies. These areas along the pipeline route would need to be cleared of any surface materials and fenced. Grassy areas will need to be cut, but other vegetation will not necessarily be removed. Primary staging areas are locations that would be expected to exceed the 100-foot road right-of-way (ROW). The District has identified numerous potential staging areas within the 100-foot corridor. However, the exact locations and duration of construction staging areas cannot be determined precisely until after project approval and contractor selection. It would be the contractor's responsibility to determine where construction staging areas are needed, following general guidelines issued by the County to remain within public road ROW where possible, avoid removing existing vegetation or impacting creeks, locate in level areas that have been previously disturbed, and attempt to locate away from residences, schools, hospitals, and other noise sensitive areas. Final approval of construction staging areas would be contingent on a mitigation monitoring program which would include site inspection prior to use. The staging areas would be restored to previously existing conditions upon completion of construction.

1.4 Consultation History

This BA was prepared based on the documented, observed, or suspected presence of listed salmonid species in the NWP action area. The final project Environmental Impact Report (EIR) was completed in December 2003 and certified on January 6, 2004.

The following summarizes the project consultation history to date:

- The U.S. Fish and Wildlife Service (USFWS) Ventura Office provided a list of federally listed threatened and endangered species that may be present in the vicinity of the NWP project on May 11, 2005.
- ESA contacted the NMFS Southwest Regional Offices in Long Beach (Anthony Spina) and Santa Rosa (Dick Butler) in May 2005 to verify that the Santa Rosa staff would take the lead on Section 7 consultation for the NWP.
- A pre-consultation/project initiation meeting with Jason Kahn and Joyce Ambrosius of the NMFS Southwest Region Santa Rosa office was held on June 22, 2005.

CHAPTER 2
Summary of Findings and Conclusions

2.1 Listed Species in the Action Area

A comprehensive literature search, conversations with National Marine Fisheries Service (NMFS) staff, and reconnaissance-level field surveys conducted in 2005 provided information on the likelihood of encountering listed salmonid species in the action area. Only one salmonid species, the south-central California coast (S-CCC) steelhead Distinct Population Segment (DPS) is known to occur within the action area, which is located within the Salinas River and San Luis Obispo Creek drainages.

A chinook salmon (*Oncorhynchus tshawytscha*) was caught in the Salinas Lagoon in 2002 (Casagrande *et al.*, 2003). However, the fish was believed to be a stray from either a hatchery in a nearby watershed or from the Sacramento River drainage. Some anecdotal references to chinook salmon in the Salinas River prior to the construction of the San Antonio, Nacimiento, and Salinas dams exist (Casagrande *et al.*, 2003), but the species is currently not known to occupy drainages within the action area. Therefore, chinook salmon are not discussed further in this Biological Assessment.

2.2 Critical Habitat in the Action Area

Critical habitat for S-CCC steelhead was designated in September 2005 and includes all areas that are known or assumed to be occupied by the species and contain physical and biological features essential to the conservation of the species (NMFS, 2005). Drainages in which critical habitat has been designated within the action area include the Salinas River, Nacimiento River, San Marcos Creek, Santa Margarita Creek, and Stenner Creek. However, the portion of the Nacimiento River located within Camp Roberts is excluded from the designation because the military installation is operated under a qualifying Integrated Natural Resources Management Plan (INRMP) (NMFS, 2005). The critical habitat designation went into effect on January 2, 2006.

2.3 Summary of Effects of the Proposed Action

The NWP pipeline alignment crosses numerous intermittent, seasonal, and perennial drainages. However, the majority of these crossings will occur on drainages that do not support S-CCC steelhead or designated critical habitat. Furthermore, most of the crossings will occur on seasonal and intermittent streams that are expected to be dry at the time of construction. Therefore, the

potential direct effects of the proposed project construction would only occur at those stream crossings where steelhead are known or assumed to be present or critical habitat has been designated. A total of 11 pipeline crossing locations were identified as potentially supporting S-CCC steelhead or designated critical habitat.

Of these 11 sites, pipeline crossings at six locations (Nacimiento River, three Salinas River locations, and two Santa Margarita Creek locations) will be installed using underground construction techniques such as horizontal directional drilling or auger boring, which avoid direct impacts to the stream channels. One pipeline crossing (Stenner Creek North) will be constructed above ground (i.e., suspended pipeline bridge). Open trench pipeline construction methods will be used at four stream crossings (San Marcos Creek, Yerba Buena Creek, Stenner Creek Middle, and Stenner Creek South).

The following potential impacts to S-CCC steelhead or designated critical habitat may result from open trench pipeline crossings at San Marcos Creek, Yerba Buena Creek, Stenner Creek Middle, and Stenner Creek South:

- injury or mortality from being crushed by earth moving equipment, construction debris, and worker foot traffic;
- injury or mortality as a result of improper capture, handling, containment, or transport of individuals during pre-construction capture and relocation activities;
- injury or mortality resulting from short-term sedimentation and turbidity that may occur during construction and removal of cofferdams;
- injury or mortality during dewatering activities;
- injury or mortality as a result of the accidental spill of hazardous materials or careless fueling or oiling of vehicles or equipment near sensitive upland or aquatic habitats;
- temporary destruction of steelhead habitat through alterations of the stream substrate, downstream sedimentation, and the temporary loss of riparian vegetation and stream function as fishery habitat.

The following potential impacts to S-CCC steelhead or designated critical habitat may result from underground construction of stream crossings at Nacimiento River, three Salinas River sites, and two Santa Margarita Creek sites:

- injury or mortality resulting from short-term sedimentation and turbidity that may occur during bentonite spills;
- temporary reduction in food availability due to smothering of aquatic invertebrates during bentonite spills.

The following impacts to steelhead or critical habitat may occur as a result of the construction of an above-ground (i.e., suspension) pipeline crossing at Stenner Creek North:

- injury or mortality as a result of the accidental spill of hazardous materials or careless fueling or oiling of vehicles or equipment near sensitive upland or aquatic habitats;

- temporary destruction of steelhead habitat through alterations of the stream substrate, downstream sedimentation, and the loss of riparian vegetation and stream function as fishery habitat.

2.4 Summary of Determination

This BA identifies a total of 11 sites where the proposed pipeline alignment crosses drainages that are known or assumed to support S-CCC steelhead and/or designated critical habitat for the species. The project will minimize the likelihood of direct impacts to the species at six of these locations (Nacimiento River, three Salinas River locations, and two Santa Margarita Creek locations) through the use of underground pipeline construction methods (horizontal directional drilling and auger boring). Furthermore, the potential for direct impacts to the species is low at one site (Stenner Creek North) proposed for above-ground (suspension) pipeline crossing construction. At the four remaining sites (San Marcos Creek, Yerba Buena Creek, Stenner Creek Middle, and Stenner Creek South), direct impacts to steelhead and designated critical habitat are likely due to the use of open trench construction methods. Potential affects to S-CCC steelhead and critical habitat at all of the crossing locations will be minimized through the implementation of reasonable and prudent measures described in **Section 4.2** of this BA. Capture-and-relocation activities associated with open trench crossings at Stenner Creek Middle and Stenner Creek South are expected to result in the mortality of approximately one juvenile S-CCC steelhead.

With implementation of reasonable and prudent measures proposed as part of the NWP, the project "may affect, but is not likely to adversely affect" south-central California coast steelhead or critical habitat designated for this Distinct Population Segment.

CHAPTER 3
Existing Environment and Species Description

3.1 Survey Dates and Personnel

Environmental Science Associates (ESA) aquatic ecologist Mike Podlech conducted reconnaissance-level surveys of the project corridor on April 18-21, 2005. Aquatic habitat surveys were conducted on August 3, 2005 by ESA biologists Brian Pittman and Julie Remp.

3.2 Survey Methods

Due to the extensive time period required to obtain a project-specific Section 10(a) "take" authorization from NMFS for conducting capture-and-release surveys of listed salmonids, no focused fish surveys were conducted in support of this Biological Assessment. The following discussion of the environmental setting and species distribution is based on information gathered during reconnaissance and aquatic habitat surveys of the action area conducted in spring 2005, relevant environmental documents such as the *Nacimiento Water Project Environmental Impact Report* (MRS, 2003) and the *Draft Environmental Impact Report/Environmental Impact Statement for the Salinas Valley Water Project* (MCWRA and USACOE, 2001), and other references (e.g., Titus *et al.*, in prep.; Boughton *et al.*, 2005; Casagrande *et al.*, 2003).

Aquatic habitat surveys conducted on August 3, 2005 consisted of quantifying standard habitat parameters such as average width, average and maximum depth, substrate composition, riparian and emergent vegetation composition, and channel shading.

3.3 Existing Environment in the Action Area

The NWP action area extends into portions of two major drainages within San Luis Obispo County; the Salinas River watershed and the San Luis Obispo Creek watershed. The proposed pipeline alignment crosses numerous seasonal, intermittent, and perennial drainages. Due to the limited distribution of S-CCC steelhead and suitable habitat within the action area, the majority of the pipeline crossings would not affect the species. Field surveys and literature review resulted in the identification of 11 locations where the proposed pipeline crosses drainages known or assumed to support S-CCC steelhead and/or designated critical habitat for the species. The following description of the existing environment within the action area focuses on overall watershed characteristics and site-specific conditions at pipeline crossings. A summary of these

locations is provided in **Table 4.1-1**. Figures depicting the proposed pipeline alignment at these locations are presented in **Appendix A**.

3.3.1 Salinas River Drainage

The Salinas River extends for approximately 155 miles between its headwaters in the Santa Lucia Ranges and its mouth at Monterey Bay. The approximately 4,205 square mile watershed supports various land uses. In general, grazing and natural lands exist in the surrounding foothills and mountainous areas, while agricultural and urban developments are found throughout the valley floor (Casagrande *et al.*, 2003). The Salinas River contains year-round flow, though during the dry season, the flow is regulated primarily by releases from reservoirs on the San Antonio and Nacimiento rivers. Flow from the Salinas River, considered the largest submerged stream in the United States, is mostly subsurface during much of the year. The present day mouth of the Salinas River is at the Salinas Lagoon, but some flow still continues along the coast through the Old Salinas River Channel toward Elkhorn Slough.

The Salinas basin consists of several large sub-watersheds. On the eastern side, starting from the south, are the Huerhuero Creek, Estrella River, Big Sandy Creek, Pancho Rico Creek, San Lorenzo Creek, Chalone Creek and Chualar Creek watersheds. The climate of the eastern mountains, the Gabilan, Diablo and Temblor Ranges, is significantly drier than the mountains of the western side of the drainage. The eastern slopes are primarily covered with annual grasses and shrubs in the upper altitudes while oaks, gray pines and a variety of riparian species occur in the canyons. The streams on this side of the valley are on average much drier, with alternating reaches of perennial and non-perennial water (Casagrande *et al.*, 2003).

The mountains to the west of the valley, the Santa Lucia Range and the Sierra de Salinas, provide most of the annual water supply to the Salinas River. These mountains are generally more forested and many of the streams originating in this area provide perennial water flows (Casagrande *et al.*, 2003). Major sub-watersheds on the west side, starting from the south, include Santa Margarita Creek, Atascadero Creek, Paso Robles Creek, Nacimiento River, San Antonio River, Arroyo Seco River and El Toro Creek (Casagrande *et al.*, 2003).

Three major dams affect surface water flows in the Salinas River watershed: Salinas Dam on the main stem of the Salinas River near Santa Margarita, Nacimiento Dam on the Nacimiento River, and San Antonio Dam on the San Antonio River.

Within the Salinas River watershed, the proposed action may affect the following streams known to support, or with a potential to support, S-CCC steelhead: Nacimiento River, Salinas River, San Marcos Creek, and Santa Margarita Creek. Specific reaches of these drainages that may be affected by the proposed action are described below in a north-to-south order of occurrence along the pipeline alignment.

Nacimiento River

Lake Nacimiento

Lake Nacimiento is located on the Nacimiento River about 18 miles northwest of Paso Robles. It was created by the construction of the Nacimiento Dam, completed in 1957. The reservoir's irregular shoreline comprises about 165 miles. At maximum pool, the reservoir's storage capacity is 377,900 acre-feet (af) with a surface elevation of 800 feet and a surface area of 5,400 acres. The maximum depth of the lake is 175 feet, with annual fluctuations usually ranging from 30 to 70 feet (MCWRA and USACOE, 2001).

Thermal stratification exists in the reservoir during spring, summer and fall. Surface water temperatures vary from approximately 52°F in winter to 82°F in the summer. The thermocline occurs at depths ranging between 20 to 30 feet (MCWRA and USACOE, 2001). Below the thermocline, summer water temperature remains at approximately 52°F and dissolved oxygen becomes depleted since there is little circulation with the surface water. Sampling for dissolved oxygen during September of 1993 indicated that levels fall from about 7-8 parts per million (ppm) above 20 feet depth to less than 2 ppm below 25 feet. The depletion of dissolved oxygen during the summer months limits use of the reservoir by trout and other coldwater species that need cool temperature (generally less than 68°F) and dissolved oxygen concentration of at least 7-9 ppm (MCWRA and USACOE, 2001).

The most recent sampling of the fish species composition in the reservoir was performed by CDFG staff in October of 1995. The results of the electrofishing efforts at eight sites indicate that the reservoir fish community is dominated by threadfin shad, largemouth bass, black crappie, and bluegill. Other species sampled include smallmouth bass, carp, Sacramento sucker, channel catfish, hitch, white bass and green and redear sunfish (MCWRA and USACOE, 2001). Occasionally rainbow trout are reported in the catch of recreational fishermen. These are likely fish from upstream populations in the Nacimiento River that are either attempting to migrate downstream or are using the reservoir during periods when water quality conditions are favorable (MCWRA and USACOE, 2001).

Nacimiento River

The lower Nacimiento River extends for approximately twelve miles between Nacimiento Dam and the confluence with the Salinas River. The Lake Nacimiento reservoir and dam are operated by the Monterey County Water Resources Agency (MCWRA) and aquatic habitat in the lower Nacimiento River is controlled largely by water releases from the lake. The lower section of the river is characterized by a low gradient and long, wide reaches with sparse riparian vegetation. Typical substrate consists of gravel with lesser amounts of sand and cobble. Water temperatures in the lower Nacimiento River are highly variable, depending on reservoir releases, air temperature, and reservoir storage. In general water released through the reservoir outlet is at a relatively constant temperature of 52 to 54°F. The water warms rapidly as it moves downstream, generally in proportion to fluctuation in daily air temperature. At minimum release levels of 25 to 30 cubic feet per second (cfs), water temperature can increase to as much as 73°F within 5 miles of the dam and 75°F within 10 miles of the dam. At times when releases amount to flows of

300 cfs or more, water temperature is generally maintained at less than 64°F within 5 miles of the dam and 68°F or less within 10 miles of the dam (MCWRA and USACOE, 2001).

Except for uncontrolled flows during winter storms, the hydrology of the lower Nacimiento River is regulated by controlled reservoir releases managed by the MCWRA. Flood control releases are made to maintain adequate storage capacity during runoff periods. In wet years, these releases can continue into the summer. During times when the Salinas River is dry, MCWRA makes releases from Nacimiento Reservoir (as well as San Antonio Reservoir) to keep water flowing in the Salinas River downstream to the area between Chualar and Spreckels. The objective of these releases is to recharge the groundwater aquifer. If flow moves further downstream than Spreckels, releases are cut back. During wet years, approximately 100,000 acre-feet may be released in this way; during dry years, as much as 230,000 acre-feet may be released. When natural runoff is sufficient to maintain flow in the Salinas River, releases from the reservoirs are cut back to minimum levels as specified in a Memorandum of Agreement (MOA) and an informal agreement between the MCWRA and the California Department of Fish and Game (CDFG). The required minimum release from Lake Nacimiento is 25 cubic feet per second (cfs). The purpose of these releases is to maintain fish in downstream reaches in good condition. These minimum flows may be reduced under conditions of low reservoir storage. In drought conditions (Lake Nacimiento storage at or below 132,900 acre-feet), the minimum release required is reduced to 10 cfs. However, MCWRA often continues releases at the 25 cfs even if level storage fall below 132,900 acre-feet (Hollenbeck, pers. comm.). When storage in Lake Nacimiento falls below 22,300 acre-feet storage, the MCWRA is not required to make releases to the river.

Future reservoir releases from Lake Nacimiento (and San Antonio Reservoir) are currently being negotiated by MCWRA and NMFS as part of formal Section 7 consultation for permitting the Salinas Valley Water Project (SVWP). Pursuant to a 1959 agreement with MCWRA, San Luis Obispo County has an entitlement to 17,500 acre-feet of Lake Nacimiento water per year. San Luis Obispo County has no control over releases from Lake Nacimiento and is not a party to the ongoing SVWP negotiations. As such, the future flow regimes in the Nacimiento River are unknown at this time. However, it is assumed that the San Luis Obispo County entitlement is being incorporated into the SVWP release requirement negotiations by MCWRA and NMFS, and that the final outcome of these negotiations will result in instream flows that protect steelhead and aquatic habitat within the lower Nacimiento River.

The proposed pipeline alignment crosses the Nacimiento River (Station 110+00[1], **Figure 5**) within the boundaries of Camp Roberts, approximately 1.75 miles downstream of Nacimiento Dam. At this location, the river is approximately 100 feet wide. The average water depth in August 2005 was 1.5 feet, with some areas up to 2.5 feet deep. The river channel within this reach is not confined and its location appears to change slightly from year to year, causing alternating erosion and accretion on opposing banks. As a possible consequence, vegetation in this portion of the river is mostly limited to a narrow, 1 to 3 feet wide shoreline band of annual herbs and grasses. Some backwater areas have limited willow growth, which accounts for about 10% of overall vegetative cover. The riparian canopy is relatively open, with Fremont's cottonwood as

[1] Pipeline station numbers presented in this document are preliminary and subject to change.

the dominant but sparse vegetation both upstream and downstream of the crossing site. Carp and sunfish were observed in the river in August 2005. The channel substrate is comprised of a relatively even mix of sand, gravel, and cobble.

Salinas River

The action area for the proposed project extends along the Salinas River from the Nacimiento River confluence upstream to the Santa Margarita Creek confluence. Within the action area, the pipeline alignment crosses the Salinas River in three locations. From north to south, these are: (1) approximately 2 miles north of Paso Robles, (2) approximately 2.6 miles south of Paso Robles, and (3) at Santa Clara Road immediately downstream of the Santa Margarita Creek confluence.

The Salinas River in the vicinity of the northern crossing location (Station 890+00, **Figures 28** and **29**) is a broad, low-gradient channel with a willow-dominated riparian corridor. Flows during the late summer and fall are typically subsurface. The active channel at this location is confined to a relatively narrow (65 feet wide) channel by extensive vegetation growth. However, the overall channel width, including several braids, is approximately 325 feet. The riparian corridor varies in width between approximately 50 and 150 feet. Sand and gravel dominate the river bottom. The site contained flowing water in March 2005, but is expected to be dry during the summer and fall.

At the middle Salinas River crossing south of Paso Robles (Station 1225+00, **Figures 42, 43,** and **44**), the channel is similar to conditions at the northern crossing described above. As shown in the figures, the proposed pipeline alignment runs straight through a large bend in the river channel and thus actually crosses the river twice at this site. The channel at this location is braided and its width is approximately 480 feet. The width of the riparian corridor, dominated by willows, varies between approximately 50 and 150 feet. The channel substrate is made up almost entirely of sand. The site contained flowing water in March 2005, but is expected to be dry during the summer and fall.

At the southern pipeline alignment crossing in the vicinity of the Santa Margarita Creek confluence (Station 1915+00, **Figure 59**), the Salinas River supports a very sparse, cobble and sand dominated wash with seasonal flows that are subsurface in the summer and fall. The channel is approximately 200 feet wide at this location. The dominant shoreline vegetation at this location is mulefat, offering no channel shading. This site was dry in late March 2005.

San Marcos Creek

San Marcos Creek is a western tributary to the Salinas River. The confluence of this seasonal creek with the Salinas River is located approximately 1.5 miles north of Wellsona. The proposed pipeline crossing of San Marcos Creek (Station 684+00, **Figure 26**) would occur approximately 2.25 miles upstream of the creek's confluence with the Salinas River, in the vicinity of the intersection of San Marcos Road and Wellsona Road.

San Marcos Creek was identified as a potential steelhead stream during reconnaissance surveys conducted on April 18, 2005. At that time, this reach had moderate water flows and several deep, partially shaded pools and contained mosquito fish and a second, unidentified species. However, the creek was dry during an August 3, 2005 site visit, except for a small, shallow pool with no signs of aquatic life.

The substrate at the proposed pipeline crossing site consists mostly of boulders and cobble. Downstream of the crossing, the substrate is dominated by fine sand particles with scattered cobbles and small gravel areas. The average width the channel is approximately 17 feet. A few large trees comprise a small patch of riparian vegetation at the pipeline crossing site, but most of the channel in this reach contains only very sparse vegetation.

Santa Margarita Creek

Santa Margarita Creek is a densely vegetated, perennial tributary to the Salinas River. A tributary to Santa Margarita Creek, Yerba Buena Creek, is also within the NWP pipeline alignment. Another tributary, Trout Creek, joins Santa Margarita Creek approximately 200 feet downstream of the proposed pipeline crossing, but the proposed action will not affect this drainage.

Santa Margarita Creek

The NWP pipeline alignment crosses Santa Margarita Creek twice, approximately 3.0 miles southeast of the City of Atascadero and adjacent to U.S. Highway 101 approximately 1.25 miles southwest of the town of Santa Margarita.

At the northern crossing of Santa Margarita Creek, adjacent to the Southern Pacific Railroad (Station 1965+00, **Figure 60**), the creek supports a lush canopy and understory of riparian vegetation dominated by willows along the lower banks, and Fremont cottonwood and valley oak on the upper banks. Emergent vegetation covers approximately 30% of the streambank and includes willows, cattails, and rabbitsfoot grass. The width of the riparian corridor ranges between 50 and 100 feet. Instream habitat consists of a combination of runs with few relatively long riffles and a few areas with large instream boulders. The stream substrate was generally sandy, with some gravel, cobbles and larger boulders in the riffles. The average channel width is approximately 15 feet. Water depths in August 2005 averaged approximately 8 inches while some pools had maximum depths of 1.5 feet. Numerous sunfish were observed in the larger pools, as was a school of 100 or more 1-inch catfish.

At the southern crossing of Santa Margarita Creek, adjacent to U.S. Highway 101 (Station 2255+00, **Figure 69**), the channel is approximately 6 feet wide and supports a moderately dense riparian corridor that is approximately 25 feet wide on each bank. The stream substrate is made up of sand, gravel, and some cobble.

Yerba Buena Creek

Yerba Buena Creek flows into Santa Margarita Creek approximately 1.2 miles north of the town of Santa Margarita. The NWP pipeline alignment crosses Yerba Buena Creek at the northeastern

corner of the town of Santa Margarita (Station 2110+00, **Figure 66**) near El Camino Real. The creek is a seasonal drainage with a sparse to non-existent riparian corridor along most of its length. At the pipeline crossing location, the creek is approximately 3 feet wide with riparian vegetation dominated by willows and blackberry just upstream of the crossing, but no significant riparian vegetation at the actual crossing location. The channel substrate is dominated by fine sand.

3.3.2 San Luis Obispo Creek Drainage

Although the majority of the proposed action would occur within the Salinas River watershed, the final three miles of the pipeline alignment extend into the upper reaches of Stenner Creek, tributary to San Luis Obispo Creek. San Luis Obispo Creek originates in the Santa Lucia Mountains and flows southerly, draining to the Pacific Ocean in the town of Avila Beach. The watershed contains approximately 84 square miles and consists of a main channel and nine major tributaries: Brizziolari, Stenner, Reservoir Canyon, Prefumo, Froom, Davenport, East Fork, Castro and See Canyon Creeks (Tamagni, 1995). Brizziolari and Stenner creeks originate in the Los Padres National Forest and converge just south-east of California Polytechnic State University and form a confluence with San Luis Obispo Creek near the northern end of the city of San Luis Obispo. The upper watershed is characterized by V-shaped canyons, cool and clear water, and undisturbed riparian corridors. Stream flows in this area are intermittent in the summer and during dry years. The mid-reaches of San Luis Obispo Creek contain more fragmented riparian areas, some channel alterations, and significant sedimentation. Upstream portions of this area usually have a perennial flow with downstream portions becoming intermittent during the summer months. The riparian corridor in the lower section of San Luis Obispo is relatively sparse with significant agricultural encroachment. Flows in the lower portion are typically perennial, primarily due to the addition of treated effluent from San Luis Obispo's water treatment plant (Tamagni, 1995).

Stenner Creek, a major 6-mile long headwater tributary, is the only stream within the San Luis Obispo Creek watershed that may be affected by the proposed action. Reaches of Stenner Creek that may be affected by the proposed action are described below.

Stenner Creek

The proposed NWP pipeline alignment crosses Stenner Creek in three locations. From north to south, these are: (1) immediately upstream of the uppermost Union Pacific Railroad (UPRR) track crossing, (2) at the upper Stenner Creek Road crossing, approximately 0.5 miles northwest of the City of San Luis Obispo Water Treatment Plant, and (3) at the access road to the Water Treatment Plant.

At the northern pipeline crossing upstream of the UPRR track (Station 2375+00, **Figures 74** and **75**), Stenner Creek is an intermittent stream with a channel width of 10 to 13 feet located within a steep canyon. Riparian vegetation is generally dense within this area, but the proposed pipeline would cross through a gap within the vegetation where two existing pipelines already cross the

creek. The channel substrate in this reach is dominated by cobbles with some sand, gravel and boulders. This site contained flowing water in March 2005, and remains wet into the summer and fall during some years (TRPA, 2004).

At the middle crossing (Station 2485+00, **Figure 83**), Stenner Creek flows during most of the year and supports a relatively dense riparian corridor (approximately 30 to 50 feet wide) consisting of willow, sycamore, and California bay, as well as blackberry, poison oak, and sedges. Channel shading is moderate upstream of the crossing and almost complete downstream. The channel is approximately 17 feet wide and water depths in March 2005 ranged between 6 and 10 inches, with a deeper plunge pool downstream of a concrete apron below the bridge. The channel below this apron has been downcut, leaving the apron perched approximately 2 feet above the channel, forming a potential impediment to fish movement during low flow conditions. The site likely contains some streamflows during most parts of the year.

At the southern crossing (Station 2520+00, **Figure 85**), Stenner Creek is also perennial, but contains a narrower, but relatively dense, band of riparian vegetation. The channel is approximately 10 feet wide upstream of the Water Treatment Plant access road, but only about 5 feet wide downstream of the road crossing. The pipeline will likely be installed within and upstream of the existing access road crossing of Stenner Creek. The site contained flowing water in March 2005 and likely contains some streamflows during most parts of the year.

3.4 Status and Description of the Species

3.4.1 Status

South-central California coast (S-CCC) steelhead (*Oncorhynchus mykiss*) were listed as a federal threatened species in 1997 (NMFS, 1997a). This population occurs in coastal basins from the Pajaro River (included) south to Santa Maria River (excluded). In 2004, NMFS completed extensive status reviews of this and other salmonids populations and proposed to continue listing S-CCC steelhead as threatened (NMFS, 2004a). On January 5, 2006, NMFS issued a revised final listing determination for west coast steelhead (NMFS, 2006) confirming the continued threatened status of S-CCC steelhead. This final determination also changes the designation of individual steelhead populations from Evolutionarily Significant Unit (ESU) to Distinct Population Segments (DPS).

Critical habitat for S-CCC steelhead was designated in September 2005 and includes all areas that are known or assumed to be occupied by the species and contain physical and biological features essential to the conservation of the species (NMFS, 2005). Drainages in which critical habitat has been proposed within the action area include the Salinas River, Nacimiento River, San Marcos Creek, Santa Margarita Creek, and Stenner Creek (**Figure 3.4-1)**. However, the portion of the Nacimiento River located within Camp Roberts is excluded from the designation because the military installation has a qualifying Integrated Natural Resources Management Plan (INRMP) (NMFS, 2005). The critical habitat designation went into effect on January 2, 2006.

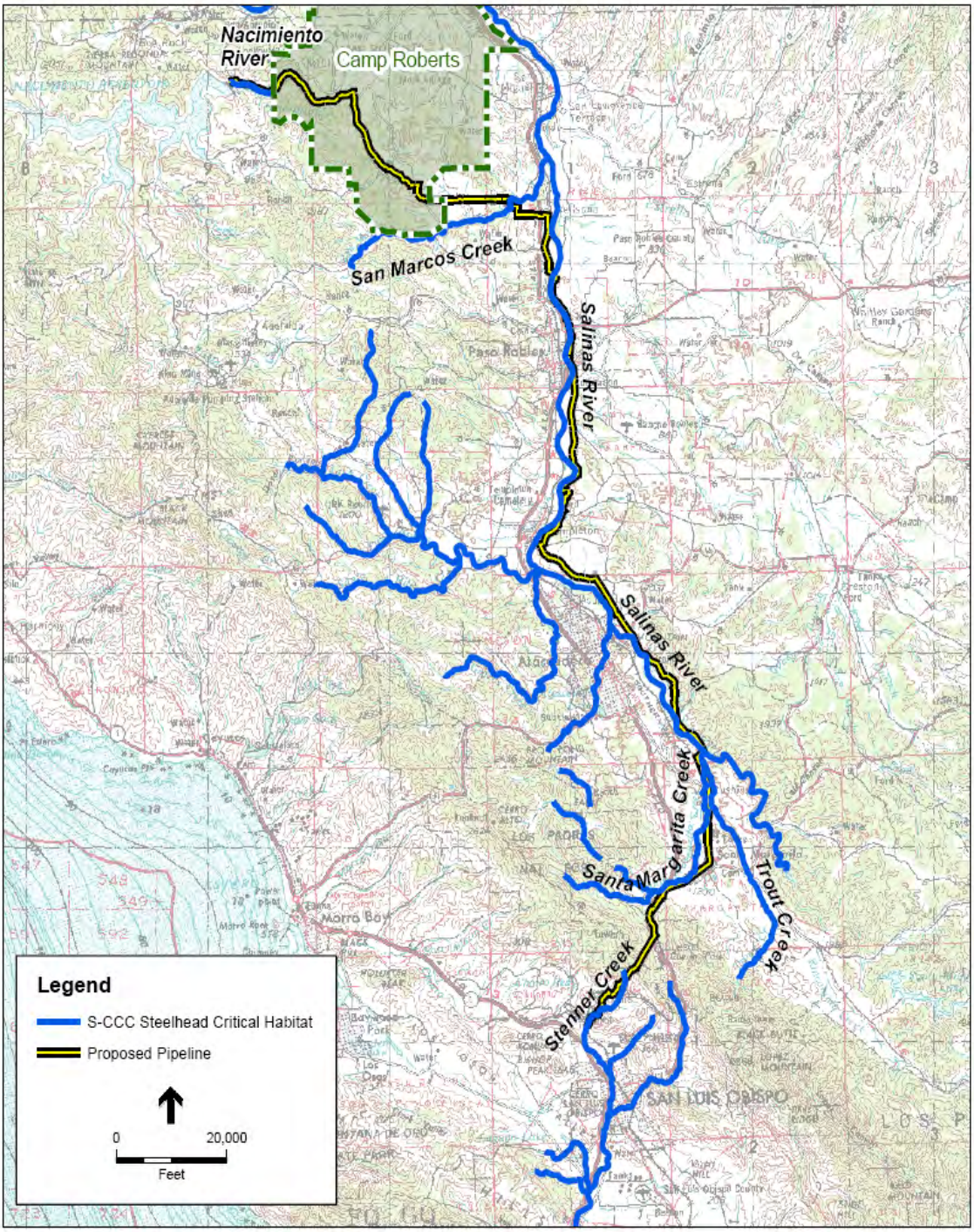
3.4.2 General Ecology and Distribution

Steelhead trout (*Oncorhynchus mykiss*) exhibit one of the most complex life histories of any salmonid species. The resident rainbow trout form spends its entire life in freshwater environments while the anadromous steelhead form migrates between their natal streams and the ocean. Furthermore, two reproductive forms of steelhead are recognized, the "stream maturing" and "ocean maturing" forms (also termed summer-run and winter-run, respectively), which describes the level of sexual development following return to the freshwater environment. The south-central California DPS consists entirely of winter-run steelhead (Busby *et al.*, 1996).

Steelhead migrate to marine waters after spending up to seven years in freshwater, although two to three years is more common. They then typically reside in marine waters one to three years prior to returning to their natal stream to spawn as three- or four-year olds. Unlike salmon, steelhead are iteroparous, meaning they can spawn more than once before they die; in California, females commonly spawn twice before they die. The spawning season can run from December through May, depending on the stream, with most spawning occurring in January through March.

When spawning, female steelhead construct redds (spawning "nests") near the head of a riffle in substrate consisting of gravel and small cobble. Newly hatched fry (embryos) remain in the interstices of the gravel for approximately three weeks before emerging and schooling in still, shallow water along stream margins. As they grow and become known as parr during the spring, juvenile steelhead disperse to pools where they set up individual territories. After rearing for one to three years in freshwater, juvenile steelhead begin to migrate downstream toward the ocean in spring, primarily during the months of March, April, and May. During this time, juveniles undergo smoltification, the process of adapting to the marine environment. After one to three years of growing and sexually maturing in the ocean, adult steelhead return to their natal streams to spawn and begin the life cycle again. Although steelhead require perennial streams for rearing, intermittent streams may also be used for spawning.

Water temperatures influence the growth rate, population density, swimming ability, ability to capture and metabolize food, and ability to withstand diseases of rearing juveniles. Rearing steelhead prefer water temperatures between 50 and 55ºF and have an upper lethal limit of about 75ºF (Bjornn and Reiser, 1991). Steelhead also require relatively high levels of dissolved oxygen in the water. Low oxygen levels have similar effects as high water temperature. Dissolved oxygen levels should ideally remain at or near saturation levels with temporary reductions to no less 5.0 ppm (Bjornn and Reiser, 1991). Furthermore, high levels of suspended sediments (turbidity) can adversely affect rearing steelhead. While feeding and territorial behavior of larger juveniles may be disrupted at turbidity levels in excess of 60 nephlometric turbidity units (NTU), newly emerged fry may be adversely affected by turbidity levels in the 25-50 NTU range (Bjornn and Reiser, 1991).



SOURCE: NOAA, 2005; USGS, 2005; ESA, 2006

Nacimiento Water Project . 204453

Figure 3.4-1

Designated Critical Habitat for South-Central California Coast Steelhead

3.4.3 Action Area Occurrence

The known and potential distribution of S-CCC steelhead within the action area is depicted in **Figure 3.4-2**.

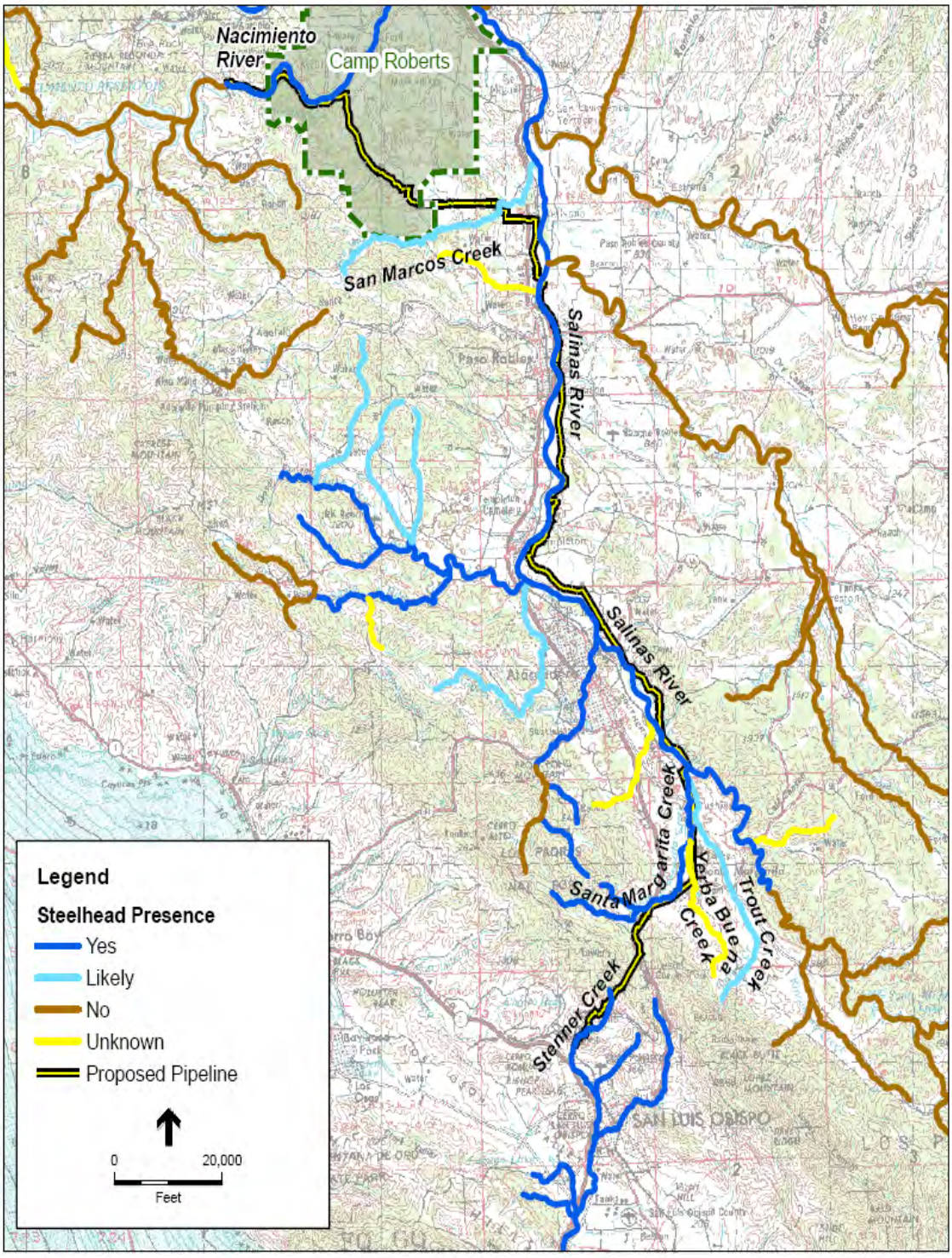
Nacimiento River

The Nacimiento River was historically one of the most important spawning and rearing tributaries for Salinas River steelhead (Titus *et al.*, in prep.). Juvenile steelhead/rainbow trout were found at all of three sampling stations in the Nacimiento River, from the foothill to the mountainous portions of the drainage, in the early 1900's. In 1956, the Nacimiento Dam, which lacks provisions for fish passage, was completed and steelhead no longer had access to historic spawning and rearing habitats in the upstream portions of the system, such as Las Tablas Creek and Old Negro Fork. In addition to being stocked with catchable rainbow trout, the upper Nacimiento River (above the reservoir) was included in the CDFG's development of brown trout fisheries in Monterey County (Titus *et al.*, in prep.). CDFG surveyed the upper river in 1992 and found juvenile steelhead/rainbow trout densities of 59 trout/100 meter (m) (Titus *et al.*, in prep.).

A catchable rainbow trout planting program in the lower river (below the dam) was initiated in 1963 (MCWRA and USACOE, 2001). Fishing occurs largely within the boundaries of Camp Roberts, and the program is now administered cooperatively by CDFG and the California National Guard. About 12,000 trout are stocked annually with a catch rate of about 25%. Some of these trout are believed to survive as residents based on the size of some fish taken by anglers. However, there is no evidence that the stocked trout reproduce in the Nacimiento River since juvenile trout have not been reported in any surveys (MCWRA and USACOE, 2001).

NMFS Southwest Fisheries Science Center conducted snorkel surveys of six sites along the lower Nacimiento River in July 2003 (Boughton, pers. comm.). Survey conditions were not ideal due to releases of 420 cubic feet per second (cfs) from Nacimiento Dam creating very swift and turbid water conditions. No *O. mykiss* were observed at the six sites (Boughton, pers. comm.). Although not conclusive evidence of the absence of the species from the lower Nacimiento River, the survey results are consistent with other available information (MCWRA and USACOE, 2001; CAARNG, 2001) suggesting that steelhead trout are currently unlikely to occur in the lower Nacimiento River. However, due to its connection to the Salinas River and the presence of potential habitat for the species, steelhead are assumed to be present in the lower Nacimiento River for the purposes of this Biological Assessment. The lower Nacimiento River has been designated as critical habitat for S-CCC steelhead; however, the pipeline crossing site of the Nacimiento River is located on Camp Roberts, which is not included in the designation (NMFS, 2005) due to the fact that the military installation is operated under a qualifying Integrated Natural Resources Management Plan (INRMP) (CAARNG, 2001).

No S-CCC steelhead are expected to occur in Lake Nacimiento and therefore impacts to the species resulting from the construction of the NWP intake at the Nacimiento Dam spillway are not expected.



SOURCE: NOAA, 2005; USGS, 2005; ESA, 2006

Nacimiento Water Project . 204453

Figure 3.4-2

Distribution of South-Central California Coast Steelhead

Salinas River

According to a history and status review of coastal California steelhead south of San Francisco Bay (Titus *et al.*, in prep.), steelhead historically used the headwaters of the Salinas River and the tributaries draining the western side of the basin for spawning and rearing. The lower main stem serves primarily as a migration corridor, when sufficient runoff during the winter and spring seasons provides a connection to the Pacific Ocean. The valley portion of the mainstem Salinas River is unsuitable as spawning and rearing habitat for juvenile steelhead, because of the sandy and silty substrate, high water temperatures, and lack of flow during the summer and early fall (Titus *et al.*, in prep.).

As of 1965, the CDFG estimated the annual steelhead spawning run in the Salinas drainage at little more than about 500 fish, based on the observations of local field personnel (Titus *et al.*, in prep.). By 1991, however, the run size was estimated at less than 100 and was classified as having a moderate risk of extinction (Busby *et al.*, 1996). In its most recent status review and proposed listing determination, NMFS notes that current abundance data for the Salinas basin are not available (NMFS, 2004a).

All three Salinas River pipeline crossing locations are located within designated critical habitat for S-CCC steelhead (NMFS, 2004b). Based on the available information, as well as habitat characteristics, these three locations, along with the rest of the mainstem river, serve only as a migratory corridor for the species. As such, steelhead are only expected to occur at these locations during the winter/spring adult spawning migration and the spring smolt outmigration. Furthermore, all three sites are known to be dry during the summer and fall, thus precluding any steelhead presence during that period.

San Marcos Creek

The only available reference to steelhead observations in San Marcos Creek date back to the early 1920's when local residents reported catching steelhead in the creek (US-LT RCD, 2002). The creek was dry when surveyed by NMFS Southwest Fisheries Science Center staff in the summer of 2003 (Boughton *et al.*, 2005) and no sightings of the species have been reported in recent years (US-LY RCD, 2002). However, NMFS has included the drainage in its critical habitat designation (NMFS, 2005) and steelhead presence in the stream is described as "likely" in the NMFS Global Information System (GIS) layers of steelhead distribution in the Salinas River basin (NMFS, 2004c) (**Figure 3.4-2)**.

As discussed above, San Marcos Creek is an intermittent stream with no flowing water in the summer and fall. Therefore, the stream does not provide juvenile rearing habitat. However, steelhead may access San Marcos Creek during the winter and spring spawning migration. Spawning may be possible in San Marcos Creek, but young-of-the-year steelhead would need to move downstream to the Salinas River prior to the stream drying out. As the Salinas River does not provide juvenile rearing habitat during the summer either, it appears unlikely that San Marcos Creek provides a significant contribution to S-CCC steelhead production within the Salinas basin.

However, due to the NMFS critical habitat designation for San Marcos Creek, the stream is assumed to support steelhead for the purposes of this BA.

Santa Margarita Creek

Juvenile steelhead/rainbow trout were abundant in Santa Margarita Creek when surveyed in 1975 (Titus *et al.*, in prep.) and local residents reported seeing adult steelhead in 1999 (US-LT RCD, 2002). NMFS Southwest Fisheries Science Center staff surveyed the creek in 2003 and list *O. mykiss* as present in the drainage (Boughton *et al.*, 2005).

There are no available records of steelhead presence in Yerba Buena Creek and observed habitat conditions suggest that this drainage is not a steelhead stream. However, the proposed NWP pipeline alignment crosses Yerba Buena Creek approximately one mile upstream of its confluence with Santa Margarita Creek and therefore a slight potential for the occasional presence of stray steelhead at the crossing location exists.

Population estimates are not available for either of these two streams. Santa Margarita Creek has been designated as critical habitat for S-CCC steelhead (NMFS, 2005). Yerba Buena Creek, however, is not included in the designation.

Stenner Creek

Stenner Creek is one of the primary steelhead streams in the San Luis Obispo Creek watershed. During surveys conducted in June 1975, only 16 trout/100 m were found at one electrofishing station in lower Stenner Creek, while a site on upper Stenner Creek contained 131 trout/100 m. During the fall of the same year, juvenile population density averaged 249 trout/100 m in several stream sections. Of the trout sampled at that time, 83% were age 0+ (young-of-the-year), 16% were age 1+, and 1% was age 2+. Based on age-class specific survival rates from Shapovalov and Taft (1954), the observed juvenile production in Stenner Creek in 1975 corresponded to an adult steelhead production of approximately 249 fish (Titus *et al.*, in prep.). As of 1985, some of the best spawning and rearing habitats in the San Luis Obispo Creek watershed still occurred in Stenner Creek. At that time, the creek supported up to 435 trout/100 m (Titus *et al.*, in prep.).

The City of San Luis Obispo conducted a steelhead distribution and abundance of the San Luis Obispo Creek watershed, including Stenner Creek, during the late summer and early fall of 2003 (TRPA, 2004). The results of this recent survey indicate steelhead density estimates of 506 fry (<100 mm) and 593 juveniles (≥100 mm) per mile of pool habitat in the upper Stenner Creek watershed (i.e., upstream of the lower UPRR track crossing in the vicinity of the Water Treatment Plant) (TRPA, 2004). Thus, the estimated density of rearing steelhead in this reach of Stenner creek is almost 1,100 fish per mile of pool habitat. In addition to the pool sampling, 35 feet of run and riffle habitat in the upper reach were sampled, but no fish were captured (TRPA, 2004).

Stenner Creek has been designated as critical habitat for S-CCC steelhead (NMFS, 2005). The designation extends from the confluence of Stenner Creek with San Luis Obispo Creek upstream to approximately 1,000 feet north of the railroad tracks in the upper watershed. Suitable spawning

habitat in Stenner Creek appears to extend upstream to approximately the location of a wooden bridge at Serano Ranch (part of the California Polytechnic State University) but juvenile rearing extends further upstream (Highland pers., comm.). Although the culvert below the upper UPRR tracks appears to be a significant migration barrier, fish were observed upstream of the tracks in the fall of 2003 (Otte, pers. comm.).

CHAPTER 4
Potential Project Effects and Reasonable and Prudent Measures to Minimize Incidental Take

The previous chapter described the known and potential distribution of S-CCC steelhead and designated critical habitat in the NWP action area. This information was presented to provide an overall context for assessing the potential impacts of the proposed action on this species. This chapter identifies potential direct, indirect, and cumulative impacts to S-CCC steelhead that may occur as a result of the construction and operation of the proposed project. In all cases where impacts may occur, reasonable and prudent measures to minimize those effects are proposed so that project implementation does not jeopardize the existence of the species.

4.1 Direct Effects on Steelhead and Critical Habitat

4.1.1 Pipeline Construction

The NWP pipeline alignment crosses numerous intermittent, seasonal, and perennial drainages. However, the majority of these crossings will occur on drainages that do not support S-CCC steelhead or designated critical habitat. Furthermore, most of the crossings will occur on seasonal and intermittent streams that are expected to be dry at the time of construction. Therefore, the potential direct effects of the proposed project construction would only occur at those stream crossings where steelhead are known or assumed to be present or critical habitat has been designated. A total of 11 pipeline crossing locations were identified as potentially supporting S-CCC steelhead or designated critical habitat. These stream crossings are described in **Section 3.3** and summarized in **Table 4.1-1** below.

Of these 11 sites, pipeline crossings at 6 locations (Nacimiento River, three Salinas River locations, and two Santa Margarita Creek locations) will be installed using underground construction techniques such as horizontal directional drilling or auger boring, which greatly reduce, but not entirely eliminate, the potential direct impacts to the species and habitat. Furthermore, one pipeline crossing (Stenner Creek North) will be constructed above ground (i.e., suspended pipeline bridge). Open trench pipeline construction will be used at four stream crossings (San Marcos Creek, Yerba Buena Creek, Stenner Creek Middle, and Stenner Creek South).

TABLE 4.1-1
NWP PIPELINE CROSSINGS WITH KNOWN OR POTENTIAL PRESENCE OF STEELHEAD OR DESIGNATED CRITICAL HABITAT

Drainage	Approx. Pipeline Station Number	Expected Flow Conditions during Construction	Construction Technique	Appendix A Figure Number
Nacimiento River	110+00	Active flow	HDD	5
San Marcos Creek	684+00	Dry	Trench	26
Salinas River North	890+00	Dry	HDD	28, 29
Salinas River Middle	1225+00	Dry	HDD	42, 43, 44
Salinas River South	1915+00	Dry	Auger Bore	59
Santa Margarita Creek North	1965+00	Active flow	Auger Bore	60
Yerba Buena Creek	2110+00	Dry	Trench	66
Santa Margarita Creek South	2255+00	Active flow	Auger Bore	69
Stenner Creek North	2375+00	Active Flow	Suspended	74, 75
Stenner Creek Middle	2485+00	Active flow	Trench	83
Stenner Creek South	2520+00	Active flow	Trench	85

SOURCE: ESA, 2006.

Of the four open trench stream crossing locations, the channel at the San Marcos Creek and Yerba Buena Creek crossings are expected to be dry during construction, but Stenner Creek Middle and Stenner Creek South will likely contain some flowing water. Surface and/or ground water flows, if encountered at these sites, will be diverted during trenching, pipe laying and backfilling activities. A temporary diversion channel or pipe will divert any creek flows around the construction area. In addition to diverting surface flows, underground flows and ground water will be collected and pumped to a point downstream of the construction site. After completion of construction across the creek, all diversion facilities will be removed and the stream bottom restored to near its original condition. All dewatering operations will comply with State Water Resources Control Board (SWRCB) discharge permit requirements and requirements of other jurisdictional agencies. In order to meet these requirements, the extracted water may be pumped to a temporary sedimentation basin and clean water would be returned to the channel. The remaining sediment would be dried and either left on site or removed, depending on landowners' preference. If left on-site, the sediment would be placed in a location where it would not drain into the stream. The pipeline would be installed within an excavated trench to approximately below the scour depth (to be determined) of the stream bed. The pipe would likely be concrete encased and the trench backfilled with cobble and native materials to the level of the existing streambed.

The anticipated equipment on site includes excavators for trenching and pipe laying, trucks for hauling material, pumper trucks for placing concrete, pumps, hose, and other miscellaneous construction equipment. Once the water diversion is in place and the construction site is dewatered, all equipment would operate within the dewatered area or entirely outside the channel.

The surface areas of critical habitat (channel and riparian corridor) impacted by open trench pipeline installation are as follows:

San Marcos Creek: A 30-foot wide construction corridor would be used along 50 linear feet (LF) of riparian zone and 17 LF of stream channel. Thus, approximately 1,500 square feet (sq. ft.) of riparian zone and approximately 510 sq. ft. of channel would be disturbed.

Yerba Buena Creek: A 75-foot wide construction corridor would be used along 3 LF of stream channel. There is no significant riparian corridor along this portion of the creek. Thus, approximately 225 sq. ft. of channel bed would be disturbed.

Stenner Creek Middle: A 30-foot wide construction corridor would be used along 70 LF of riparian zone and 17 LF of stream channel. Thus, approximately 2,100 sq. ft. of riparian zone and 510 sq. ft. of channel bed would be disturbed.

Stenner Creek South: Although the total width of the construction corridor at this site is 75 feet, the majority of it will be located within an existing road crossing of the stream. The width of the construction corridor through the channel and riparian area will be 30 feet. This corridor would extend along approximately 70 LF of riparian zone and 10 LF of stream channel. Thus, approximately 2,100 sq. ft. of riparian zone and 300 sq. ft. of channel bed would be disturbed.

The following potential impacts to S-CCC steelhead and critical habitat may result from open trench construction at these four sites:

- injury or mortality from being crushed by earth moving equipment, construction debris, and worker foot traffic;
- injury or mortality as a result of improper capture, handling, containment, or transport of individuals during pre-construction capture and relocation activities (see below);
- injury or mortality resulting from short-term sedimentation and turbidity that may occur during construction and removal of diversions;
- injury or mortality during dewatering activities;
- injury or mortality as a result of the accidental spill of hazardous materials or careless fueling or oiling of vehicles or equipment near sensitive upland or aquatic habitats;
- temporary destruction of steelhead habitat through alterations of the stream substrate, downstream sedimentation, and the temporary loss of riparian vegetation and stream function as fishery habitat.

While underground pipeline construction at the Nacimiento River, Salinas River (three locations), and Santa Margarita Creek (two locations) avoids most of the potential impacts associated with open trench construction, steelhead may nevertheless be impacted by potential releases of construction materials into the water course. Bentonite clay used as a lubricant during underground drilling activities may enter bedrock fissures and subterranean connections to the streambed. Although bentonite is not a toxic substance, it may have the following impacts on steelhead and their habitat due to its muddy consistency:

- injury or mortality resulting from short-term sedimentation and turbidity that may occur during bentonite spills;

- temporary reduction in food availability due to smothering of aquatic invertebrates.

Construction of the suspension pipeline crossing at Stenner Creek North may result in the following impacts to steelhead or critical habitat:

- injury or mortality as a result of the accidental spill of hazardous materials or careless fueling or oiling of vehicles or equipment near sensitive upland or aquatic habitats;

- temporary destruction of steelhead habitat through alterations of the stream substrate, downstream sedimentation, and the temporary loss of riparian vegetation and stream function as fishery habitat.

4.2 Reasonable and Prudent Measures to Minimize Effects

The following reasonable and prudent measures will be implemented to minimize the potential for impacts to steelhead resulting from open trench construction at San Marcos Creek, Yerba Buena, Stenner Creek Middle, and Stenner Creek South:

- All trenching activities across waterways will be restricted to low-flow periods of June 15 through November 1. If the channel is dry, construction can occur as early as June 1. Restricting construction activities to this work window will minimize impacts to migrating adult and smolt steelhead.

- If the channel is not dry, water from around the section of trench that is within the actively flowing channels will be diverted. This will reduce the potential for sediment or other pollutants to enter the waterways and to impact downstream resources.

- Sediment curtains will be placed downstream of the construction zone to prevent sediment disturbed during trenching activities from being transported and deposited outside of the construction zone.

- Prior to construction of the diversion and placement of the sediment curtains, a qualified biologist will conduct fish relocation activities, and immediately release captured fish to a suitable habitat near the project site. Capture and relocation activities will be conducted in accordance with the *Guidelines for Electrofishing Waters* Containing *Salmonids Listed under the Endangered Species Act* (NMFS, 2000).

- If ground water is encountered, or if water remains in the channel after flows are diverted, it will be pumped out of the construction area and into a retention basin constructed of hay bales lined with filter fabric. The pump(s) will be screened according to NMFS fish screening criteria for anadromous salmonids (NMFS, 1997b). A qualified biologist will be on-site during such pumping activities to ensure that any fish that may have remained within the construction area are relocated to suitable habitat near the project site.

- Silt fencing will be installed in all areas where construction occurs within 100 feet of known or potential steelhead habitat.

- Spoil sites will be located so they do not drain directly into the waterways. If a spoil site drains into a water body, catch basins will be constructed to intercept sediment before it reaches the channels. Spoil sites will be graded to reduce the potential for erosion.

- A spill prevention plan for potentially hazardous materials will be prepared and implemented. The plan will include the proper handling and storage of all potentially hazardous materials, as well as the proper procedures for cleaning up and reporting of any spills. If necessary, containment berms will be constructed to prevent spilled materials from reaching the creek channels.

- Equipment and materials will be stored at least 50 feet from waterways. No debris such as trash and spoils will be deposited within 100 feet of wetlands. Staging and storage areas for equipment, materials, fuels, lubricants and solvents, will be located outside of the stream channel and banks. Stationary equipment such as motors, pumps, generators, compressors and welders, located within or adjacent to the stream will be positioned over drip pans. Any equipment or vehicles driven and/or operated within or adjacent to the stream will be checked and maintained daily, to prevent leaks of materials that if introduced to water could be deleterious to aquatic life. Vehicles will be moved away from the stream prior to refueling and lubrication.

- Proper and timely maintenance for vehicles and equipment used during construction will be provided to reduce the potential for mechanical breakdowns leading to a spill of materials into or around the creeks. Maintenance and fueling will be conducted in an area that meets the criteria set forth in the spill prevention plan (i.e., away from the creeks).

- A qualified biological monitor will be on site during all open trench stream crossing activities. The biological monitor will be authorized to halt construction if impacts to steelhead are evident.

- Project sites will be restored to pre-construction channel conditions, including streambed composition, compaction, and gradient. Channel banks will be returned to original grade slope and appropriate bank stabilization techniques will be implemented to reduce the potential for erosion and sedimentation. A plan describing pre-project conditions and restoration methods will be prepared prior to construction.

- Project sites will be revegetated with an appropriate assemblage of native upland vegetation, and if necessary, riparian and wetland vegetation, suitable for the area. A plan describing pre-project conditions, restoration and monitoring success criteria will be prepared prior to construction.

The following reasonable and prudent measure will be implemented to minimize the potential for impacts to steelhead resulting from construction of the suspended pipeline crossing at Stenner Creek North:

- All construction activities across waterways will be restricted to low-flow periods of June 15 through November 1. If the channel is dry, construction can occur as early as June 1. Restricting construction activities to this work window will minimize impacts to migrating adult and smolt steelhead, if present.

- Silt fencing will be installed in all areas where construction occurs within 100 feet of known or potential steelhead habitat.

- Spoil sites will be located so they do not drain directly into the waterways. If a spoil site drains into a water body, catch basins will be constructed to intercept sediment before it reaches the channels. Spoil sites will be graded to reduce the potential for erosion.

- A spill prevention plan for potentially hazardous materials will be prepared and implemented. The plan will include the proper handling and storage of all potentially hazardous materials, as well as the proper procedures for cleaning up and reporting of any spills. If necessary, containment berms will be constructed to prevent spilled materials from reaching the creek channels.

- Equipment and materials will be stored at least 50 feet from waterways. No debris such as trash and spoils will be deposited within 100 feet of wetlands. Staging and storage areas for equipment, materials, fuels, lubricants and solvents, will be located outside of the stream channel and banks. Stationary equipment such as motors, pumps, generators, compressors and welders, located within or adjacent to the stream will be positioned over drip pans. Any equipment or vehicles driven and/or operated within or adjacent to the stream will be checked and maintained daily, to prevent leaks of materials that if introduced to water could be deleterious to aquatic life. Vehicles will be moved away from the stream prior to refueling and lubrication.

- Proper and timely maintenance for vehicles and equipment used during construction will be provided to reduce the potential for mechanical breakdowns leading to a spill of materials into or around the creeks. Maintenance and fueling will be conducted in an area that meets the criteria set forth in the spill prevention plan (i.e., away from the creeks).

- A qualified biological monitor will be on site during construction activities. The biological monitor will be authorized to halt construction if impacts to steelhead are evident.

- Project sites will be revegetated with an appropriate assemblage of native upland vegetation, and if necessary, riparian and wetland vegetation, suitable for the area. A plan describing pre-project conditions, restoration and monitoring success criteria will be prepared prior to construction.

The following reasonable and prudent measure will be implemented to minimize the potential for impacts to steelhead resulting from underground pipeline construction at the Nacimiento River, the three Salinas River locations, and the two Santa Margarita Creek locations:

- All underground construction activities in the vicinity of potential steelhead occurrences will be restricted to the low-flow period of June 15 through November 1. If the channel is dry, construction can occur as early as June 1. Restricting construction activities to this work window will minimize potential impacts to migrating adult and smolt steelhead resulting from bentonite releases.

- A qualified biological monitor will be on site during all underground pipeline construction activities in the vicinity of potential steelhead occurrences. The biological monitor will have the authority to halt construction until the source of contamination is controlled.

Following implementation of the above reasonable and prudent measures, the Proposed Action may affect, but is not likely to adversely affect, individual S-CCC steelhead or critical habitat for the species.

4.3 Incidental Take

Section 9 of the federal Endangered Species Act and federal regulation pursuant to Section 4(d) of the Act prohibit the "take" of endangered or threatened species, respectively without special exemption. "Take" is defined as to harass, harm, pursue, hunt, shoot, wound, kill, capture or collect, or to attempt to engage in any such conduct. Harm is further defined by NMFS as an act which actually kills or injures fish or wildlife. Such an act may include significant habitat modification or degradation which actually kills or injures fish or wildlife by significantly impairing essential behavioral patterns including breeding, spawning, rearing, migrating, feeding, or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of a federal agency's action is not considered to be prohibited "take" under the Act provided that such "take" is in compliance with the terms and conditions of an Incidental Take Statement.

4.3.1 Amount or Extent of Take

"Take" of threatened S-CCC steelhead during the implementation of the NWP is expected to be confined to capture and relocation activities associated with the installation of streamflow diversions and dewatering of work sites at Stenner Creek Middle, Stenner Creek South, and possibly San Marcos Creek and Yerba Buena Creek. Electrofishing methods typically used in capture and relocation activities are known to be potentially harmful to fish. Potential effects include stress, disease transmission, injury, or death. With the implementation of protocols used for capturing fish for relocation, unintentional mortality of listed juvenile steelhead is not likely to exceed 3% (NMFS, 2003).

No steelhead population density estimates are available for San Marcos Creek and Yerba Buena Creek. However, based on the fact that these two sites are expected to be dry during construction, no "take" of steelhead is expected to occur within the construction area.

Based on the most recent (2003) available steelhead population density data for Stenner Creek, the upper watershed supports approximately 1,100 rearing steelhead (506 fry and 593 juveniles) per mile of pool habitat (TRPA, 2004). No steelhead were observed in a 35-foot riffle/run sample reach (TRPA, 2004). For the purposes of this "take" evaluation, open trench pipeline crossing construction is assumed to occur entirely within pool habitat. Thus, an average of up to 6.25 steelhead may be present within each 30-foot wide construction corridors at the Stenner Creek Middle and Stenner Creek South, and a total of up to 13 fish would need to be captured and relocated. Based on the NMFS estimate of 3% unintentional mortality, a total of one S-CCC steelhead (actual estimate is 0.3) may be killed as a result of capture and relocation efforts associated with open trench construction activities.

In addition, juvenile steelhead are likely to be harmed or killed downstream of some of the project sites by increases in sediment and turbidity and accidental releases of hydraulic fluids or

bentonite. The number of S-CCC steelhead that may be incidentally taken at these sites during project activities would be minimal, but cannot be accurately quantified due to (1) the unknown level of harm or mortality that might occur when juvenile fish are displaced to other habitat areas of the stream, (2) the uncertainty of steelhead presence in action areas, and (3) the unknown level of harassment, harm, or mortality resulting from rewatering of the construction areas and accidental releases of bentonite and/or hydraulic fluids.

4.4 Indirect Effects on Steelhead and Critical Habitat

4.4.1 Blow-offs

Blow-offs are typically used along pipelines to remove water from a segment or segments of pipeline for routine or emergency maintenance, or during emergencies (e.g., pipeline rupture) when immediate dewatering of the pipeline is required. Blow-offs are typically located in lower elevations along the pipeline. The NWP pipeline will include a minimum of 96 blow-offs between the intake at Nacimiento Dam and Station 2095+00, north of the town of Santa Margarita. The need for blow-offs between Station 2095+00 and the pipeline terminus at the City of San Luis Obispo Water Treatment Plant has not been determined.

Although final designs for blow-off sites are not available at this time, it is assumed that the placement of these features would occur outside the Ordinary High Water (OHW) of channels under USACOE jurisdiction. All channels identified in this BA as actually or potentially occupied by S-CCC steelhead (**Figure 3.4-2**), or as designated critical habitat (**Figure 3.4-1**), are assumed to be jurisdictional Waters of the U.S. Thus, it is assumed that blow-off sites would not be located within known or potential steelhead habitat and therefore no direct construction-related impacts to S-CCC steelhead or critical habitat are expected.

However, the operation of blow-offs may adversely impact S-CCC steelhead, depending on the season, volume, and water temperature of water drained through the blow-offs. For example, a large volume of pipeline water discharged to, for example, Santa Margarita Creek during the late summer when the pipeline water is expected to be at its warmest, may adversely impact rearing juvenile steelhead by creating excessive water temperatures within the stream. The magnitude and frequency of such events, however, cannot be accurately predicted.

Emergency use of blow-offs cannot be predicted or scheduled, and reasonable and prudent measures to minimize the potential impacts of water releases during emergency events are therefore not possible. However, the following reasonable and prudent measure will be implemented to minimize the potential for impacts to steelhead resulting from blow-off releases associated with scheduled pipeline maintenance activities:

- All non-emergency blow-off releases to stream reaches known or assumed to support S-CCC steelhead, as well as releases to areas draining directly into such reaches, will be restricted to the high-flow (and low temperature) periods of November 1 through June 1. Restricting releases to this window will minimize impacts to rearing steelhead, if present,

because released pipeline water temperatures are expected to be sufficiently low to support steelhead, and streamflows are expected to be sufficiently high to allow for adequate mixing with ambient stream water during that period.

4.4.2 Growth Inducement Potential and Secondary Effects of Growth

With respect to the project's potential to induce urban development, Chapter 7 of the NWP EIR concluded that implementation of the proposed project would remove an obstacle to growth by increasing water supply and reliability. The growth inducing impacts of potential purveyors' acceptance of supplemental water supplies from the NWP could be potentially significant and adverse depending on how project supplies are used. Where water project supplies are in excess of water demand and are not used to reduce projected groundwater overdraft, the potential growth-inducing impacts may be adverse and significant. Implementation of the NWP could result in additional growth or rate of growth in areas now subject to water resource constraints. Recently approved/updated General Plans have acknowledged that future growth will have significant, cumulative impacts. In areas where forecasted water supplies exceed future demand, NWP water could be used to foster growth outside existing service area boundaries. Private water companies in areas located outside of Urban Service Lines (USL) or in agriculturally-designated areas would be able to prove a source of water in applying for general plan amendments to change the land use designations to accommodate projects with residential or other uses.

Increased growth may involve a number of adverse effects to steelhead and designated critical habitat, including new sources of sedimentation, depletion of ground water resources, and increased run-off from non-permeable surfaces.

In order to mitigate the potential for growth inducement, the EIR (p.7-27) provides the following mitigation:

> "The governing body of each water purveyor accepting NWP water shall include in their water management plans and programs, the goal of reducing groundwater basin overdraft in the long-term, with measurable objectives to accomplish this goal."

4.4.3 Cumulative Effects

Cumulative effects include potential impacts of future State, tribal, local, or private actions reasonably certain to occur within the watershed(s). Future Federal actions unrelated to the proposed project are not considered in this section because they require separate agency consultation pursuant to Section 7 of the Federal Endangered Species Act. The Monterey County Water Agency's proposed Salinas Valley Water Project (SVWP) is a Federal action with the U.S. Army Corps of Engineers as the lead agency. Section 7 consultation for the SVWP is ongoing and is therefore not considered in this cumulative effects analysis.

The cumulative effects the proposed action would largely be associated with increased growth (i.e., urban development) discussed above. These effects include new sources of sedimentation, depletion of ground water resources, and increased run-off from non-permeable surfaces.

CHAPTER 5
Determination

This BA identifies a total of 11 sites where the proposed pipeline alignment crosses drainages that are known or assumed to support S-CCC steelhead and/or designated critical habitat for the species. The project will minimize the likelihood of direct impacts to the species at six of these locations (Nacimiento River, three Salinas River locations, and two Santa Margarita Creek locations) through the use of underground pipeline construction methods (horizontal directional drilling and auger boring). Furthermore, the potential for direct impacts to the species is low at one site (Stenner Creek North) proposed for above-ground (suspension) pipeline crossing construction. At the four remaining sites (San Marcos Creek, Yerba Buena Creek, Stenner Creek Middle, and Stenner Creek South), direct impacts to steelhead and designated critical habitat are likely due to the use of open trench construction methods. Potential affects to S-CCC steelhead and critical habitat at all of the crossing locations will be minimized through the implementation of reasonable and prudent measures described in **Section 4.2** of this BA. Capture-and-relocation activities associated with open trench crossings at Stenner Creek Middle and Stenner Creek South are expected to result in the mortality of approximately one juvenile S-CCC steelhead.

With implementation of reasonable and prudent measures proposed as part of the NWP, the project "may affect, but is not likely to adversely affect" south-central California coast steelhead or critical habitat designated for this Distinct Population Segment.

CHAPTER 6
References and Report Preparation

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APPENDIX A
Aerials of the Proposed Action

Please refer to Appendix A of Appendix D of this document for aerials of the proposed action.

Appendix D
Jurisdictional Wetland Delineation

NACIMIENTO WATER PROJECT

Jurisdictional Wetland Delineation

September 30, 2005

NWP NACIMIENTO WATER PROJECT

San Luis Obispo County Flood Control & Water Conservation District

Preliminary Report

NACIMIENTO WATER PROJECT

Jurisdictional Wetland Delineation

Prepared for: September 30, 2005
San Luis Obispo County Flood Control and Water Conservation District

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NWP NACIMIENTO WATER PROJECT
San Luis Obispo County Flood Control & Water Conservation District

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Nacimiento Water Project
Jurisdictional Wetland Delineation

CHAPTER 1
Introduction

1.1 Objective

This report was prepared to document the extent of jurisdictional waters of the United States within the area of potential effect for the Nacimiento Water Project, located in San Luis Obispo County, California. The field delineation was conducted in accordance with the 1987 Corps of Engineers Wetland Delineation Manual (Environmental Laboratory, 1987).

1.2 Responsible Party

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1.3 Project Description

The study area is a 45-mile linear corridor located in San Luis Obispo County, reaching from Lake Nacimiento to the existing water treatment facility in the City of San Luis Obispo (**Figures 1-1 through 1-3**). The study area is typically a 200-foot wide corridor centered on the preliminary pipeline alignment. In a few locations, the study area boundary was expanded to accommodate potential revisions to the alignment that may result from refinements during the engineering and design phase of the project. The total study area is approximately 1,520 acres.

The main objective of the Nacimiento Water Project is to provide a reliable supplemental water source for a variety of uses within San Luis Obispo County by supplementing the local ground and surface water supplies with a new surface water source. Other objectives are to increase reliability of water deliveries, to improve water quality and to reduce the extent of future ground water pumping to supply existing residents and provide sufficient supplies to support planning objectives in various communities of San Luis Obispo County. The overall objective of the proposed project is, therefore, to ensure better management of water resources throughout the County.

The proposed project would consist of constructing a water pipeline, storage reservoirs, booster pump stations, distribution pumps, associated connecting pipelines, and other facilities. Water treatment facilities are not proposed as part of the project. Most of the pipeline would be located in existing roadways, but several segments would cross undeveloped land.

1.4 Definitions

Wetlands and other water resources (e.g., rivers, streams and natural ponds) are a subset of "waters of the United States" and receive protection under Section 404 of the Clean Water Act (CWA). The Corps has primary federal responsibility for administering regulations that concern waters and wetlands. In this regard, the Corps acts under two statutory authorities, the Rivers and Harbors Act (Sections 9 and 10), which governs specified activities in "navigable waters," and the Clean Water Act (Section 404), which governs specified activities in "waters of the United States," including wetlands. Navigable waters of the United States are defined as those waters that are subject to the ebb and flow of the tide or are presently used, or have been used in the past, were so designated, or may be susceptible for use to transport interstate or foreign commerce. A determination of navigability, once made, applies laterally over the entire surface of the water body, and is not superseded by later actions or events that impede or destroy navigable capacity (33 CFR 329.4).

The Corps and the Environmental Protection Agency (EPA) define wetlands as, "Those areas that are saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas."

The Code of Federal Regulations (33 CFR 328.3[a]; 40 CFR 230.3[s]) defines waters of the United States[1] as: (1) All waters which are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide; (2) All interstate waters including interstate wetlands; (3) All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mud flats, sand flats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation, or destruction of which could affect interstate or foreign commerce including any such waters which are or could be used by interstate or foreign travelers for recreational or other purposes; or from which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or which are used or could be used for industrial purposes by industries in interstate commerce; (4) All impoundments of waters otherwise defined as waters of the United States under the definition; (5) Tributaries of waters identified in items (1) through (4); (6) Territorial

[1] Based on the Supreme Court ruling in *Solid Waste Agency for Northern Cook County v. U. S. Army Corps of Engineers* (SWANCC) concerning the Clean Water Act jurisdiction over isolated waters (January 9, 2001), non-navigable, isolated, intrastate waters based solely on the use of such waters by migratory birds are no longer defined as waters of the United States. Jurisdiction of non-navigable, isolated, intrastate waters may be possible if their use, degradation, or destruction could affect other waters of the Unites States, or interstate or foreign commerce. Jurisdiction over such other waters should be analyzed on a case-by-case basis. Impoundments of waters, tributaries of waters, and wetlands adjacent to waters should be analyzed on a case-by-case basis.

seas; and (7) Wetlands adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs (1) through (6). The term “other waters of the United States” is used to characterize water bodies, such as streams, that do not meet the full criteria for wetland designation.

CHAPTER 2
Setting

2.1 Vegetation

A total of 10 wetland associated and eight upland vegetative communities occur along the proposed project pipeline alignment. The vegetation system used in this report is influenced by the classification system of Holland (1986) as defined in *Preliminary Descriptions of the Terrestrial Natural Communities of California* as well as the series classification system outlined in *A Manual of California Vegetation* (Sawyer and Keeler-Wolf, 1995).

Wetland Communities

A variety of wetland communities were found along the project alignment, including vernal pools, seasonal wetlands, and riparian woodlands. These communities are described in detail below.

Vernal Pool

Vernal pools are seasonal wetlands that generally occur in grasslands and are typically located in slight depressions that form over bedrock or hardpan soils that allow water to pool during winter and spring rains. Although vernal pools occur naturally in grassland and woodland settings, they may also occupy disturbed locations where the underlying soil conditions remain intact or where disturbance has resulted in soil compaction. Vernal pools are considered unique habitat and often support endemic plant and invertebrate species. Vernal pool communities provide seasonal aquatic habitat for invertebrates, tree frogs, and are a temporary water source for birds and terrestrial wildlife.

Vernal pools occur along the pipeline alignment as it crosses Camp Roberts. A number of these pools appear to have been created as a result of disturbance occurring, for example, along tank tracks and fire breaks. Plant species characteristic of vernal pools at the northern end of the Camp Roberts alignment include popcornflower (*Plagiobothrys stipitatus*), which was often a dominant species, Mediterranean barley (*Hordeum marinum* ssp. *gussoneanum*), annual hairgrass (*Deschampsia danthonioides*), nit grass (*Gastridium ventricosum*), toad rush (*Juncus bufonius*), pygmy-weed (*Crassula connata*), rabbitfoot grass (*Polypogon monspeliensis*), wooly-marbles (*Psilocarphus* sp.), and annual bluegrass (*Poa annua*). Vernal pools at the southern end of the Camp Roberts alignment were also often dominated by popcornflower but, along with some of the species just mentioned, also supported a slightly different set of associates such as *Eryngium*

sp., low barley (*Hordeum depressum*), water-starwort (*Callitriche* sp.), veronica (*Veronica* sp.), and grass-poly (*Lythrum hyssopifolium*).

Seasonal Wetland

Seasonal wetlands occur along the pipeline alignment along El Camino Real between Atascadero and Santa Margarita, where they are formed in part by the railroad blocking the numerous small swales that dissect the gently rolling topography in that area. Seasonal wetlands were also noted along the alignment prior to the Highway 101 crossing in the vicinity of the Santa Margarita booster pump station. Again, these wetlands appeared to have formed in response to blockage of swales and drainages by road installation.

Common species found in seasonal wetlands along the project alignment include iris-leaf rush (*Juncus xiphioides*), popcornflower, toad rush, common spikerush (*Eleocharis macrostachya*), curly dock (*Rumex crispus*), grass-poly, Italian ryegrass (*Lolium multiflorum*), veronica, *Juncus balticus*, occasional willow (*Salix sp.*), and fiddle dock (*Rumex pulcher*).

Vernal swale

These seasonally wet features feed the seasonal wetlands that occur along El Camino Real described above. While water does not appear to pond in these features, the swale soils appear to hold water for longer periods than adjacent uplands and wetland species are dominant within the swales. Wetland plant species noted for these vernal swales are basically identical to those listed above as occurring in seasonal wetlands.

Instream wetland

Instream wetlands are dominated by herbaceous species and occur as borders along perennial and intermittent rivers and streams and on instream gravel bars of the larger rivers and streams in the project area. These wetlands are seasonally inundated and generally remain fairly close to the water table throughout the dry season. Species noted as occurring in this wetland type along the pipeline alignment include a mix of native and non-native species such as horsetail (*Equisetum* sp.), mugwort (*Artemisia douglasiana*), curly dock, horseweed (*Conyza canadensis*), English plantain (*Plantago lanceolata*), mulefat (*Baccharis salicifolia*), arroyo willow (*Salix lasiolepis*), giant reed (*Arundo donax*), seep monkeyflower (*Mimulus guttatus*), poison hemlock, and willow herb (*Epilobium* sp.) common tule (*Scirpus acutus* var. *occidentalis*), three-square (*Scirpus americanus*), cattail (*Typha latifolia*), rabbitfoot grass, curly dock, watercress (*Rorippa nasturtium-aquaticum*), and iris-leaf rush.

Freshwater marsh

Similar to the instream wetlands just described, freshwater marsh vegetation can occur as borders along perennial and intermittent rivers and streams or in areas where water ponds for most of the year, on smaller drainages as well as bordering larger ponds. Unlike instream wetlands, freshwater marsh vegetation is dominated by perennial species and generally requires perennial or

near-perennial inundation. Species noted as occurring in this wetland type along the pipeline alignment include common tule (*Scirpus acutus* var. *occidentalis*), three-square, seep monkeyflower, cattail (*Typha latifolia*), narrow leaved cattail (*Typha angustifolia*), watercress, and iris-leaf rush.

Freshwater seep

Freshwater seep vegetation occurs where there is a perennial or nearly perennial source of water with minimal flow and saturated to moist soils year-round. Freshwater seeps occur in several locations along the pipeline alignment including along North River Road where mulefat, cottonwood (*Populus fremontii*), and beardless wildrye (*Leymus triticoides*) grow. Other seeps on the alignment support a variety of rushes, such as *Juncus effusus*, and sedges, including San Luis Obispo sedge (*Carex obispoensis*) and occur on the slopes above Highway 101 just north of the east portal and in the upper Stenner Creek watershed.

Riparian woodland and scrub

Riparian woodlands occur along rivers and streams throughout the project area. There are four basic overstory types, as described below. Riparian scrub communities are also found throughout the project area in association with woodland communities and are described below.

Sycamore woodland

Sycamore woodland in the project area occurs along the Nacimiento River, as well as the Salinas River. This riparian woodland generally has a fairly open overstory and the canopy is dominated by western Sycamore (*Platanus racemosa*). Associated tree species can include coast live oak (*Quercus agrifolia*), Fremont cottonwood (*Populus fremontii*), walnut (*Juglans* sp.), gray pine (*Pinus sabiniana*), and, on north or east facing slopes, big-leaf maple (*Acer macrophyllum*).

Sycamore woodland understory varies along the pipeline alignment. For example, at the northern end of Camp Roberts ripgut brome (*Bromus diandrus*), blue dicks (*Dichelostemma capitatum* ssp. *capitatum*), California melic (*Melica californica*), California fuchsia (*Epilobium canum*), poison oak (*Toxicodendron diversilobum*), and fiesta flower (*Pholistoma* sp.) were noted as making up the understory. Along the Salinas River floodplain California rose (*Rosa californica*), willow, and blue elderberry (*Sambucus mexicana*) were often dominant in the understory.

Coast live oak riparian woodland

This woodland type is most commonly found as the pipeline alignment approaches the coast and the southern portion of the alignment and the average temperatures moderate somewhat from those found further north and inland. Coast live oak riparian woodland generally occurs with a dense canopy that includes coast live oak with valley oak (*Quercus lobata*), sycamore, and big-leaf maple as associates. Non-native grasses, poison oak, and hedge nettle (*Stachys* sp.) are common understory associates. Coast live oak riparian woodland can also occur with California

bay (*Umbellularia californica*) as a co-dominant, as it does along the headwaters of Stenner Creek.

Valley oak riparian woodland

This generally open canopied woodland occurs along the Salinas River on terraces and floodplains. This woodland type can also occasionally be found along smaller drainages, such as those in the Templeton area as well as along Trout Creek between Atascadero and Santa Margarita. Valley oak is the dominant in the overstory, with sycamore and cottonwood occurring as associates. The understory is often dominated by non-native grasses and other ruderal species but a native shrub component including blue elderberry, California rose, and coyote brush (*Baccharis pilularis*) is fairly common as well.

Riparian scrub

Riparian scrub occurs on large gravel bars and along the banks of the larger rivers in the project area, as well as on numerous smaller drainages. Mulefat riparian scrub can be dominated nearly exclusively by mulefat but can occur with a variety of willows and cottonwood as codominant associates. Willow riparian scrub in the project area can be dominated by one, or consist of a mix of, the following willow species: Brewer's willow (*Salix breweri*), red willow (*S. laevigata*), and arroyo willow. Other shrub species commonly found as part of this community along the pipeline alignment include coyote brush, blue elderberry, California rose, California blackberry (*Rubus ursinus*), mugwort, and poison oak.

Riparian scrub in the project area often contains a weedy herbaceous component, particularly where rivers and streams pass through urban and semi-rural areas. At the San Marcos Creek crossing for example, ruderal species such as sourclover (*Melilotus indica*), Italian thistle (*Carduus pycnocephalus*), wild mustard (*Brassica nigra*), cocklebur (*Xanthium strumarium*), and non-native grasses dominate the creek banks.

Upland Communities

Upland plant communities occurring within the project area include central coast scrub, northern mixed chaparral, annual and perennial grasslands, oak woodland, eucalyptus woodland, ruderal vegetation, agriculture, and developed lands. A brief description of these upland communities is provided below.

Central coast scrub

Central coast scrub occurs in few places along the pipeline alignment, most notably on rock outcrops at the northern end of Camp Roberts and on the slopes above the east and west portals, as well as along Stenner Creek. Characteristic plant species include black sage (*Salvia mellifera*), sticky monkeyflower (*Mimulus aurantiacus*), California sagebrush (*Artemisia californica*), poison oak, coyote bush, and California coffeeberry (*Rhamnus californica*). Other species noted in this community at the east portal include *Eriogonum* sp., golden yarrow (*Eriophyllum*

confertiflorum), melic grass (*Melica imperfecta*), and manzanita (*Arctostaphylos* sp.). Associated species noted along Stenner Creek include clarkia (*Clarkia affinis* and *C. unguiculata*) and club-haired mariposa lily (*Calochortus clavatus* ssp. *clavatus*).

Northern mixed chaparral

Northern mixed chaparral tends to occur on north-facing slopes. Typical species include chamise (*Adenostoma fasciculatum*), scrub oak (*Quercus dumosa*), several species of manzanita (*Arctostaphylos* spp.), and wild lilac (*Ceanothus* spp.). The understory component may include mariposa lily (*Calochortus* spp.), and soap plant (*Chlorogalum* spp.), among others.

Annual and perennial grassland

Grasslands occur along the full length of the project alignment and range from the perennial purple needlegrass grasslands and the non-native annual grasslands that still support a high native herbaceous component found at Camp Roberts and in the upper Stenner Creek watershed to the highly disturbed non-native annual grasslands with primarily ruderal associates that dominate the middle portions of the alignment. Purple needlegrass grasslands are dominated by purple needlegrass (*Nassella pulchra*). Non-native annual grasses common to all of these grasslands include wild oat (*Avena fatua* and *A. barbata*), soft chess, red brome (*Bromus madritensis* ssp. *rubens*), and Italian rye grass. Herbaceous associates commonly found in less disturbed areas include a variety of lupines (*Lupinus* sp.), clarkias (*Clarkia affinis* and others), Parry's larkspur (*Delphinuim parryi*), purple owl's clover (*Castilleja exserta*), and *Calochortus venustus*. Non-native herbaceous associates commonly found in areas that have undergone greater disturbance include red-stem filaree (*Erodium cicutarium*), bur clover (*Medicago polymorpha*), Italian thistle, bull thistle (*Cirsium vulgare*), scarlet pimpernel (*Anagallis arvensis*) and yellow star thistle (*Centaurea solstitialis*).

Oak woodland

Oak woodlands are present along all portions of the project alignment. At the northern, most interior end of the alignment blue oak (*Quercus douglasii*) is dominant and at the southern end of the alignment, closer to the coast, coast live oak becomes more prevalent. Valley oak woodlands are predominantly found on flatter terrain in the river valleys along the middle portions of the alignment. These woodlands can range from an open canopy oak savanna on the rolling hills found throughout the project area to much denser canopied woodlands found on north facing slopes and in canyons. All of these oak species can occur as associates in each of the oak woodland types described, along with gray pine (*Pinus sabinana*), and California buckeye (*Aesculus californica*). Typical understories for upland oak woodlands in the project area consist of a variety of native and non-native grasses, such as purple needlegrass, ripgut brome and wild oats, and other herbaceous species. Native herbaceous species, including hound's tongue (*Cynoglossum grande*) and blue wildrye (*Elymus glaucus*) are found in less disturbed areas, such as Camp Roberts and near the eastern portal and non-native and ruderal species, including Italian thistle and milk thistle are more commonly found mixed with non-native grasses throughout the middle portions of the project alignment.

Eucalyptus woodland

This community typically consists of dense stands of blue gum eucalyptus trees (*Eucalyptus globulus*). Little to no understory vegetation occurs within these stands due to the allelopathic oils contained in the leaves of the eucalyptus and the thick layers of leaves and bark that build up within the stands. Eucalyptus woodland occurs along a portion of upper Stenner Creek.

Ruderal vegetation

Ruderal vegetation occurs in areas where soils and native vegetation have been significantly disturbed by grading, plowing, construction, or other land-clearing activities. This vegetation type occurs primarily throughout the middle portions of the pipeline alignment and is particularly prevalent along road margins and railroads, as well as in semi-rural, low density residential and agricultural areas, such as those found along the Templeton and Atascadero portions of the alignment. Typical ruderal plant species found along the pipeline alignment include Russian-thistle (*Salsola tragus*), short-pod mustard (*Hirschfeldia incana*), fennel (*Foeniculum vulgare*), a variety of non-native grasses, including Bermuda grass (*Cynodon dactylon*) and wild oats, poison hemlock, wild radish (*Raphanus sativa*), and yellow star-thistle.

Agricultural

Agricultural land includes actively cultivated lands. Agricultural production along the pipeline alignment includes vineyards, found primarily in the vicinity of, and to the north and west of, Paso Robles, as well as a variety of crops grown in the floodplain of the Salinas River including dry-farmed oats. Ruderal species, such as those named above, can occur at the margins of vineyards and actively cultivated fields and generally dominate fallow fields.

Developed areas

These areas generally support no native vegetation and land cover is dominated by roads, buildings, other manmade structures, and landscaping. The level of vegetation and soil disturbance is so high in most developed areas that, in the absence of landscaping, only ruderal vegetation would be expected to occur in areas not paved or covered with buildings. Developed areas along the pipeline alignment include the town of Santa Margarita.

2.2 Soils

The Natural Resource Conservation Service (NRCS; formerly the Soil Conservation Service) maps over 50 separate soil mapping units within the project area (USDA 1983, 1984). Only one of the mapping units is listed as hydric according to the state (SCS, 1995), while the County hydric soil list includes the majority of the same soils (see Appendix D).

Soils were sampled at 31 representative locations, including wetlands and paired upland points. Many of the soils sampled in seasonal wetlands and vernal pools did not exhibit hydric soils indicators. The first table in Appendix D summarizes the 36 soil mapping units within the study

area that coincide with locations where wetlands or other waters of the U.S. were documented. This is followed by two additional tables that summarize hydric soils within the county as recognized by the local NRCS Service Center.

Hydrology

The study area lies primarily within the Salinas River Basin, and includes the larger drainages of Lake Nacimiento and the Nacimiento River, Rocky Canyon, Santa Margarita Creek, Trout Creek, Yerba Buena Creek, and a number of smaller un-named tributaries to these drainages and to the Salinas River. A smaller portion of the project is located in the coastal watershed of Stenner Creek, near San Luis Obispo. There are no tidal waters within the study area.

Lake Nacimiento

Lake Nacimiento is a large recreational and water supply reservoir operated by the Monterey County Water Resources Agency (MCWRA). The study area encompasses a portion of the lake near the dam. The watershed for Lake Nacimiento encompasses approximately 330 square miles, about half of which is located in San Luis Obispo County and half in Monterey County. Water levels in the lake rise and fall with the seasons and depending on operational releases from the dam. The limit of Corps jurisdiction was inferred from the high water mark, indicated by the absence of vegetation and soil on the lakeshore.

Nacimiento River

The Nacimiento River originates upstream of Lake Nacimiento, and continues below Nacimiento Dam, for approximately 11 miles to its confluence with the Salinas River near Bradley. The study area parallels the river for about five miles, and includes one crossing of the river. Hydrology of the river is altered by operation of the dam. Historically, flow in the Nacimiento River was intermittent, but MCWRA presently operates Lake Nacimiento in part to maintain a minimum downstream flow requirement based on a 1985 Memorandum of Agreement (MOA) with the California Department of Fish and Game (CDFG). In addition, MCWRA seeks to maintain conservation releases from Lake Nacimiento to recharge the Salinas Valley groundwater basins and mitigate seawater intrusion.

Water levels in the Nacimiento River fluctuate depending on the season and dam operations. Ordinary high water was mapped according to the limit of scour, vegetation debris, and mineral deposits on the shoreline, and the abrupt transition from riverbed deposits to soil with upland vegetation.

Salinas River

The Salinas River is the principal river system in the central portion of the county. It originates in the La Panza Range and flows northwestward into Santa Margarita Lake. Downstream of the lake, the Salinas River continues northwestward to Atascadero, then turns north near Templeton, and continues north past Paso Robles. The Salinas River discharges into the Pacific Ocean at

Monterey Bay. The river is a broad sandy arroyo within the study area, and flows are intermittent. By midsummer the river bed is dry. Ordinary high water was mapped according to the limit of scour, vegetation debris, and the abrupt transition from riverbed deposits to soil with upland vegetation.

Perennial Drainages

Perennial creeks exhibit year-round flow, and typically support more fully developed and stratified riparian vegetation than intermittent or ephemeral streams. Instream wetlands may also occur within the limits of ordinary high water at the margins or on low, frequently flooded sand or gravel bars within the channel. Within the study area, the perennial creeks are the Nacimiento River (due to controlled releases from the dam, but not historically a perennial drainage), San Marcos Creek, Trout Creek, Santa Margarita Creek, and lower Stenner Creek. The margins of perennial creeks are readily determined by the limits of scour, debris, and an abrupt shift from hydrophytic to upland vegetation.

Intermittent Drainages

Approximately 33 intermittent drainages occur within the study area. These are low to medium-order incised drainages, fed by a combination of groundwater and runoff that flow during the rainy season and generally cease flowing during the dry season. They range in size from one to 575 feet wide at OHW. These drainages support poorly to moderately well-developed riparian vegetation and often, but not always, support in-channel wetland vegetation.

Ephemeral Drainages

Approximately 35 small ephemeral drainages occur within the study area. These are low-order incised drainages that only flow during and immediately after precipitation events large enough to generate runoff and are otherwise dry. They range in size from one to 35 feet wide at OHW. Typically, these drainages do not support riparian vegetation, and may have no in-channel wetland vegetation due to the brief episodic flows these drainages convey. Where present, vegetation within the channel is typically indistinguishable from the adjacent upland.

Blue Line Streams

All streams that appear on the USGS 7.5-minute quadrangle base maps within the study area were field checked. Only those streams that are incised, with a discernible bed and bank and evidence of scouring by water flow are included in the list of potentially jurisdictional other waters of the U.S., and were further classified as perennial, intermittent or ephemeral. Blue-line streams that did not exhibit these characteristics were not mapped and are not included in this report.

Seasonal Wetlands

Seasonal wetlands include vernal pools, vernal swales, and other shallow features in natural depressions with subsurface soil horizons that prevent percolation. Ponding and saturation of the surface soil horizon lasts from a few weeks to a few months, and may occur intermittently or continuously throughout the rainy season. Within the study area, vernal pools and seasonal wetlands occur most frequently in Camp Roberts and along El Camino Real north of Santa Margarita.

Freshwater Seeps

Freshwater seeps occur in several locations where groundwater discharges to the surface, typically on steep hillsides with shallow or exposed bedrock. The seeps are small in size, usually only a few hundred square feet. They may be perennial or seasonal, but cause localized saturated soils during the growing season, and support hydrophytic vegetation.

CHAPTER 3
Methods

ESA conducted the following tasks in support of this wetland delineation report: (1) a review of literature, maps, and aerial photos to determine existing conditions of the site before the site visit; and, (2) a delineation of wetlands and other waters of the United States on the site between April and June, 2005. Field verification and final determination has not yet been conducted by the Corps.

3.1 Review of Background Information

ESA reviewed the following reports for information relevant to this delineation:

- Aerial photographs of the project site and vicinity
- Soil Surveys of San Luis Obispo County, Paso Robles Area and Coastal Area (SCS, 1983; 1984)
- Standard biological references and field guides including the Jepson Manual (Hickman, 1996).
- Nacimiento Water Project EIR (MRS 2003)
- Preliminary Design Report (Carollo Engineers)

3.2 Field Survey and Delineation

A routine delineation of wetlands and other waters of the U.S. within the study area was conducted in accordance with the 1987 Corps of Engineers Manual on the following dates: April 18-22; May 12-16; and June 27-29, 2005. Locations of vegetation, soils, and hydrology observations were recorded in the field on digital aerial imagery[2] using a portable GIS digitizing tablet computer that allowed the scale to be manipulated to facilitate digitizing. Discreet wetlands, such as vernal pools and other seasonal wetlands, were mapped in the field with a GPS linked to the GIS tablet. Streams and the extent of riparian canopies were mapped in the field or based on photographic signatures. Dimensions of streams (*i.e.*, the width of ordinary high water or top of bank) were rectified on the maps based on measurements made in the field. All GPS data were differentially corrected, and the maps were inspected by the field delineation staff to

[2] Aerial imagery source: GlobeXplorer, LLC. (www.globexplorer.com), August, 2003; resolution: 5ft per pixel.

ensure the mapped jurisdictional boundaries accurately conformed to field observations. The area of wetlands and other waters and the length of stream channels within the study area was calculated using ArcGis 9.1.

Thirty-one data points represent locations of field sampling in potentially jurisdictional wetlands and adjacent uplands, and are indicated on the wetland delineation maps (see Appendix A). The paired data points are representative of potentially jurisdictional features in the same location, occurring in comparable landscape conditions with similar vegetation and subject to similar hydrological conditions. Results were extrapolated to nearby wetlands with similar conditions, vegetation, etc. Site conditions were recorded on standard wetland delineation data forms (see Appendix B).

At each data point, vegetation was evaluated within an approximate five foot radius for herbaceous and shrub species and within a 30 foot radius for trees. Dominant and co-dominant plant species were recorded on the data sheets. The indicator status of each species was confirmed with the *National List of Plant Species That Occur in Wetlands: California* (USFWS, 1988). For species with no assigned indicator status, taxonomic literature and professional experience was used to determine if the species could be reliably associated with wetland or non-wetland conditions.

Assessment of the hydrologic criterion was based on direct and indirect indicators. Direct indicators used included observations of inundation, saturation, or flowing or standing water. If the data point was situated above the level of inundation or saturation, the criterion was not met; conversely, if it was situated below the elevation of seasonal inundation or saturation the criterion was considered met. Indirect indicators identified included ordinary high water marks (OHWM), wetland drainage patterns, drift deposits, water marks, and sediment deposits.

Hydric soils within major stream channels (*i.e.*, the Salinas River, the Nacimiento River, Santa Margarita Creek, and Stenner Creek) were presumed present based on the perennial flows in these drainages, but did not include observations of soil profiles at representative wetland and upland locations. Instead, it was assumed that the soils met the technical criteria for hydric soils on the basis of frequent flooding resulting in a water table less than one foot from the surface for a significant portion of the growing season. The in-channel sites are located within the regularly inundated and saturated zone of the drainages. In addition, and in accordance with the Corps Manual (Environmental Laboratory, 1987), wetland hydrology is evident throughout the project area on the basis of plant communities dominated by obligate and facultative wetland plant species. This leads to the presumption of hydric soils supporting hydrophytic vegetation.

CHAPTER 4
Results

4.1 Summary of Jurisdictional Areas

The field delineation documented approximately 164 potentially jurisdictional features (wetlands and other waters of the U.S.) within the study area boundary[3]. Appendix A shows the locations of each feature and Appendix C lists all of the delineated features and their characteristics (location along the pipeline route, vegetation, width and length, etc.). As detailed in Table 4-1, the total area under potential Corps jurisdiction within the study area boundary is approximately 60.5 acres. Of this total, 56.99 acres (40, 740 linear feet) are other waters of the U.S., including 0.93 acre (7,090 linear feet) of ephemeral drainages; 47.10 acres (19, 305 linear feet) of intermittent drainages; 7.07 acres (14, 345 linear feet) of perennial drainages; and 1.89 acres of open water, including a portion of Lake Nacimiento. All results are preliminary and subject to revision pending review and final verification by the Corps.

TABLE 4-1
JURISDICTIONAL WETLANDS AND OTHER WATERS IN THE PROJECT AREA

Feature Type	Square Feet	Acres
Wetlands		
Instream wetland	25,439	0.584
Freshwater marsh	26,591	0.610
Freshwater seep	12,813	0.294
Seasonal wetland	36,581	0.839
Vernal pool	974	0.022
Vernal swale	48,459	1.112
Sub-Total Jurisdictional Wetlands	**150,857**	**3.461**
Other Waters of the U.S.		
Open water (includes part of Lake Nacimiento)	82,355	1.890
Ephemeral drainage	40,684	0.934
Intermittent drainage	2,051,796	47.102
Perennial drainage	308,077	7.072
Sub-Total Jurisdictional Other Waters	**2,482,912**	**56.998**
Total Jurisdictional Area	**2,633,769**	**60.459**

SOURCE: ESA, 2005

[3] The number of drainages is slightly overestimated. The GIS counts some small drainages as two separate features: an upstream and downstream segment separated by a culvert.

4.2 Non-Jurisdictional Wetlands

Twenty-two vernal pools and seasonal wetlands were presumed to be non-jurisdictional because they are isolated. The areas of these features are summarized in Table 4-2. Many of these wetlands are located on Camp Roberts (see Figures 5, 6, 7, 11, and 17-21 in Appendix A, and data points 4 through 8 in Appendix B, including several upland grassland locations). These wetlands include natural and man-made features. In many cases, prior disturbance of the soil has left small depressions, often along roadsides where the road itself functions as part of the impoundment. These features are isolated from navigable waters of the U.S., from tributaries to navigable waters, or from culverts, ditches or canals that connect with navigable waters. They lack a natural drainage outlet or direct hydrological connection through normal overflow or via connecting ditches or swales, and are not adjacent to navigable or other jurisdictional waters. This is in contrast to the seasonal wetlands that are located east of El Camino Real that have hydrological connection to tributaries of Santa Margarita Creek and are therefore considered jurisdictional; (see Figures 62 through 65 in Appendix A, and data points 16 through 23 in Appendix B). Wetlands that are not regulated under Section 404 of the Clean Water Act by virtue of their isolation may be regulated by the State under the Porter-Cologne Act.

TABLE 4-2
NON-JURISDICTIONAL WETLANDS IN THE PROJECT AREA

Feature Type	Square Feet	Acres
Vernal pool (Isolated)	2,286	0.052
Seasonal wetland (Isolated)	23,466	0.538
Total Non-Jurisdictional Area	**25,752**	**0.590**

SOURCE: ESA, 2005

CHAPTER 5
References

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APPENDIX A
Wetland Delineation Maps

APPENDIX B
Wetland Delineation Data Sheets

DATA FORM
ROUTINE WETLAND DELINEATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Nacimiento Water Project	Date: April 19, 2005
Applicant/Owner: SLO Co. Flood Control & Water Conservation District	County: San Luis Obispo
Investigator: Environmental Science Associates, (510) 839-5066	State: California
Do normal circumstances exist on the site? Yes	Community ID: instream wetland
Is the site significantly disturbed (Atypical Situation)? Yes	Feature/Fig: 0111a/5
Is the area a potential Problem Area? No	Plot ID: DP 01

VEGETATION

Dominant Species Present	%Cover	Stratum	Indicator
1. *Baccharis salicifolia*		shrub	FACW
2. *Equisetum telmateia*		herb	OBL
3. *Salix lasiolepis*		tree	FACW
4. *Artemisia douglasiana*		herb	FACW
5.			
6.			
7.			
8.			

Subdominant Species Present	%Cover	Stratum	Indicator
1. *Cyperus eragrostis*		herb	FACW
2. *Rumex crispus*		herb	FACW-
3. *Baccharis pilularis*		shrub	NL
4.			
5.			
6.			
7.			
8.			

Percent of Dominant Species that are OBL, FACW or FAC: 100 **%**

Remarks: Species with an indicator status of NL are not listed on the *National List of Vascular Plant Species that Occur in Wetlands* (USFWS, 1988). Habitat for these species was checked in the *Jepson Manual* (Hickman et al., 1993). These species are nearly always upland species

HYDROLOGY

___ Recorded data (describe in remarks)
X No recorded data available

Field Observations:

Depth of surface water: none (inches)
Depth to free water in pit: 10" (inches)
Depth to saturated soil: 8" (inches)

Wetland Hydrology Indicators
Primary Indicators:
___ inundated
X saturated in upper 12 inches
___ water marks
X drift lines
X sediment deposits
X drainage pattern in wetlands

Secondary Indicators:
___ oxidized root channels in upper 12 inches
X water stained leaves
___ local survey data
___ FAC neutral test
___ other (see below)

Remarks: This is an instream wetland on the Nacimiento River, a perennial stream with artificially augmented flows. The site itself was not inundated but was situated slightly above the level of flow at the time of the delineation.

Map Unit Name: Xerofluvents-Riverwash Association Drainage Class: n/l
Series and Phase: Xerofluvents Soil type confirmed in field? Yes
Taxonomy (Subgroup): n/l

Profile Description

Depth (inches)	Horizon	Matrix color Munsell-moist	Mottle color Munsell-moist	Mottle (abundance, size, contrast)	Soil texture, concretions, structure, etc.

Hydric Soil Indicators

___	histosol	___	concretions
___	histic epipedon	___	high organic content in suface layer in sandy soils
___	sulfidic odor	___	organic streaking in sandy soils
X	aquic moisture regime (see below)	X	listed on local hydric soils list (see below)
___	reducing conditions	___	listed on national hydric soils list
___	gleyed or low chroma	___	other (see below)

Remarks: Soil samples not taken as instream gravel bas\rs are assumed to be hydric. These soils are inundated for a long enough pot\rtion of the year to be considered hydric under the Corps criteria. IN addition these soils support obligate wetland indicator species.

WETLAND DETERMINATION

Hydrophytic vegetation present? Yes
Wetland hydrology present? Yes
Hydric soils present? Yes

Is this sampling point within a wetland? Yes
Is this sampling point a Waters of the U.S? No

Remarks: This sampling point is a wetland associated with a Waters of the U.S.

DATA FORM
ROUTINE WETLAND DELINEATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Nacimiento Water Project	Date: May 13, 2005
Applicant/Owner: SLO Co. Flood Control & Water Conservation District	County: San Luis Obispo
Investigator: Environmental Science Associates, (510) 839-5066	State: California
Do normal circumstances exist on the site? Yes	Community ID: vernal pool
Is the site significantly disturbed (Atypical Situation)? Yes	Feature/Fig: 0115a/ 5
Is the area a potential Problem Area? No	Plot ID: DP 02

VEGETATION

Dominant Species Present	%Cover	Stratum	Indicator
1. *Plagiobothrys stipitatus*		herb	OBL
2. *Epilobium ciliatum*		herb	FACW
3.			
4.			
5.			
6.			
7.			
8.			

Subdominant Species Present	%Cover	Stratum	Indicator
1. *Deschampsia danthonioides*		herb	FACW
2. *Hordeum marinum ssp. guss.*		herb	FAC
3.			
4.			
5.			
6.			
7.			
8.			

Percent of Dominant Species that are OBL, FACW or FAC: 100 **%**

Remarks:

HYDROLOGY

___ Recorded data (describe in remarks)
X No recorded data available

Field Observations:

Depth of surface water: none (inches)
Depth to free water in pit: none (inches)
Depth to saturated soil: none (inches)

Wetland Hydrology Indicators
Primary Indicators:
___ inundated
___ saturated in upper 12 inches
X water marks
___ drift lines
___ sediment deposits
X drainage pattern in wetlands

Secondary Indicators:
___ oxidized root channels in upper 12 inches
___ water stained leaves
___ local survey data
___ FAC neutral test
___ other (see below)

Remarks: Pool located on river terrace subject to annual flooding. Pool is located in a topographic depression in road, likely created by vehicle movement through unconsolidated alluvial deposits.

Map Unit Name: Metz loamy sand
Series and Phase: 0 to 5 percent slopes
Taxonomy (Subgroup): Typic Xerofluvents

Drainage Class: very deep, somewhat excessively drained
Soil type confirmed in field?

Profile Description

Depth (inches)	Horizon	Matrix color Munsell-moist	Mottle color Munsell-moist	Mottle (abundance, size, contrast)	Soil texture, concretions, structure, etc.
0-10"		7.5 YR 4/4	none	n/a	uniform mix of sand and cobbles

Hydric Soil Indicators

___	histosol	___	concretions
___	histic epipedon	___	high organic content in suface layer in sandy soils
___	sulfidic odor	___	organic streaking in sandy soils
___	aquic moisture regime (see below)	X	listed on local hydric soils list (see below)
___	reducing conditions	___	listed on national hydric soils list
___	gleyed or low chroma	___	other (see below)

Remarks: Soils here are unconsolidated alluvial deposits.

WETLAND DETERMINATION

Hydrophytic vegetation present? Yes
Wetland hydrology present? Yes
Hydric soils present? Yes

Is this sampling point within a wetland? Yes
Is this sampling point a Waters of the U.S? No

Remarks: This pool occurs on unconsolidated alluvial soils along a floodplain terrace of the Nacimiento River.

DATA FORM
ROUTINE WETLAND DELINEATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Nacimiento Water Project	Date: May 13, 2005
Applicant/Owner: SLO Co. Flood Control & Water Conservation District	County: San Luis Obispo
Investigator: Environmental Science Associates, (510) 839-5066	State: California
Do normal circumstances exist on the site? Yes	Community ID: riparian scrub?
Is the site significantly disturbed (Atypical Situation)? Yes	Feature/Fig: 0115a
Is the area a potential Problem Area? No	Plot ID: DP 03

VEGETATION

Dominant Species Present	%Cover	Stratum	Indicator
1. *Erodium cicutarium*		herb	NL
2. *Plantago lanceolata*		herb	FAC-
3.			
4.			
5.			
6.			
7.			
8.			

Subdominant Species Present	%Cover	Stratum	Indicator
1. *Conyza canadensis*		herb	FAC
2. *Baccharis pilularis*		shrub	NL
3.			
4.			
5.			
6.			
7.			
8.			

Percent of Dominant Species that are OBL, FACW or FAC: 0 **%**

Remarks:

HYDROLOGY

___ Recorded data (describe in remarks)
X No recorded data available

Field Observations:

Depth of surface water: none (inches)
Depth to free water in pit: none (inches)
Depth to saturated soil: none (inches)

Wetland Hydrology Indicators
Primary Indicators:
___ inundated
___ saturated in upper 12 inches
___ water marks
___ drift lines
___ sediment deposits
___ drainage pattern in wetlands
Secondary Indicators:
___ oxidized root channels in upper 12 inches
___ water stained leaves
___ local survey data
___ FAC neutral test
___ other (see below)

Remarks: There is no wetland hydrology at this point

Map Unit Name: Metz loamy sands
Drainage Class: very deep, somewhat excessively drained
Series and Phase: 0 to 5 percent slopes
Soil type confirmed in field? No
Taxonomy (Subgroup): Typic Xerofluvents

Profile Description

Depth (inches)	Horizon	Matrix color Munsell-moist	Mottle color Munsell-moist	Mottle (abundance, size, contrast)	Soil texture, concretions, structure, etc.
0-10		7.5YR 4/4	none	n/a	unifrom mix of sand and cobbles

Hydric Soil Indicators

___	histosol	___	concretions
___	histic epipedon	___	high organic content in suface layer in sandy soils
___	sulfidic odor	___	organic streaking in sandy soils
___	aquic moisture regime (see below)	X	listed on local hydric soils list (see below)
___	reducing conditions	___	listed on national hydric soils list
___	gleyed or low chroma	___	other (see below)

Remarks:

WETLAND DETERMINATION

Hydrophytic vegetation present? No
Wetland hydrology present? No
Hydric soils present? Yes

Is this sampling point within a wetland? No
Is this sampling point a Waters of the U.S? No

Remarks: This sampling point occurs on a floodplain terrace of the Nacimiento River. Although this sampling point occurs in soils listed locally as hydric, there is not suffficient hydrology here to support a preponderance of wetland vegetation. This is the upland paired point for DP 02.

DATA FORM
ROUTINE WETLAND DELINEATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Nacimiento Water Project	Date: May 14, 2005
Applicant/Owner: SLO Co. Flood Control & Water Conservation District	County: San Luis Obispo
Investigator: Environmental Science Associates, (510) 839-5066	State: California
Do normal circumstances exist on the site? Yes	Community ID: vernal pool
Is the site significantly disturbed (Atypical Situation)? Yes	Feature/Fig: 0493a/17
Is the area a potential Problem Area? No	Plot ID: DP 04

VEGETATION

Dominant Species Present	%Cover	Stratum	Indicator
1. *Plagiobothrys stipitatus*		herb	OBL
2. *Juncus bufonius*		herb	FACW+
3.			
4.			
5.			
6.			
7.			
8.			

Subdominant Species Present	%Cover	Stratum	Indicator
1. *Poa annua*		herb	FACW-
2. *Veronica peregrina*		herb	OBL
3.			
4.			
5.			
6.			
7.			
8.			

Percent of Dominant Species that are OBL, FACW or FAC: 100 **%**

Remarks:

HYDROLOGY

___ Recorded data (describe in remarks)
X No recorded data available

Field Observations:

Depth of surface water: 6 (inches)
Depth to free water in pit: 0 (inches)
Depth to saturated soil: 0 (inches)

Wetland Hydrology Indicators
Primary Indicators:
X inundated
X saturated in upper 12 inches
___ water marks
___ drift lines
___ sediment deposits
___ drainage pattern in wetlands

Secondary Indicators:
___ oxidized root channels in upper 12 inches
___ water stained leaves
___ local survey data
___ FAC neutral test
___ other (see below)

Remarks: Pool was inundated during the April 2005 site visit, depth of surface water is from that date. Other indicators were sampled in May 2005.

Map Unit Name: Arbuckle-Positas
Drainage Class: moderately well-drained to well-drained
Series and Phase: 15 to 30 percent slopes
Soil type confirmed in field? No
Taxonomy (Subgroup): Typic Haploxeralfs

Profile Description

Depth (inches)	Horizon	Matrix color Munsell-moist	Mottle color Munsell-moist	Mottle (abundance, size, contrast)	Soil texture, concretions, structure, etc.
0-16		5YR 3/2	5YR 5/8	few, medium, high	dense clay

Hydric Soil Indicators

___	histosol	___	concretions
___	histic epipedon	___	high organic content in suface layer in sandy soils
___	sulfidic odor	___	organic streaking in sandy soils
___	aquic moisture regime (see below)	___	listed on local hydric soils list (see below)
___	reducing conditions	___	listed on national hydric soils list
X	gleyed or low chroma	___	other (see below)

Remarks:

WETLAND DETERMINATION

Hydrophytic vegetation present? Yes
Wetland hydrology present? Yes
Hydric soils present? Yes

Is this sampling point within a wetland? Yes
Is this sampling point a Waters of the U.S? No

Remarks: Although this wetland exhibits all three Corps parameters it is likely not considered jurisdictional due to its isolation from navigable waters.

DATA FORM
ROUTINE WETLAND DELINEATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Nacimiento Water Project	Date: May 14, 2005
Applicant/Owner: SLO Co. Flood Control & Water Conservation District	County: San Luis Obispo
Investigator: Environmental Science Associates, (510) 839-5066	State: California
Do normal circumstances exist on the site? Yes	Community ID: non-native grassland
Is the site significantly disturbed (Atypical Situation)? Yes	Feature/Fig: 0493a/17
Is the area a potential Problem Area? No	Plot ID: DP 05

VEGETATION

Dominant Species Present	%Cover	Stratum	Indicator
1. *Avena barbata*		herb	UPL
2. *Bromus madritensis ssp. rubens*		herb	NI
3. *Hypochaeris glabra*		herb	NL
4.			
5.			
6.			
7.			
8.			

Subdominant Species Present	%Cover	Stratum	Indicator
1. *Medicago polymorpha*		herb	NL
2. *Bromus hordeaceus*		herb	FACU-
3.			
4.			
5.			
6.			
7.			
8.			

Percent of Dominant Species that are OBL, FACW or FAC: 0 **%**

Remarks:

HYDROLOGY

___ Recorded data (describe in remarks)
___ No recorded data available

Field Observations:

Depth of surface water: _____ (inches)
Depth to free water in pit: _____ (inches)
Depth to saturated soil: _____ (inches)

Wetland Hydrology Indicators
Primary Indicators:
___ inundated
___ saturated in upper 12 inches
___ water marks
___ drift lines
___ sediment deposits
___ drainage pattern in wetlands
Secondary Indicators:
___ oxidized root channels in upper 12 inches
___ water stained leaves
___ local survey data
___ FAC neutral test
___ other (see below)

Remarks: There are no indicators of wetland hydrology at this sample point.

Map Unit Name: Arbuckle-Positas
Drainage Class: moderately well-drained to well-drained
Series and Phase: 15 to 30 percent slopes
Soil type confirmed in field? No
Taxonomy (Subgroup): Typic Haploxeralfs

Profile Description

Depth (inches)	Horizon	Matrix color Munsell-moist	Mottle color Munsell-moist	Mottle (abundance, size, contrast)	Soil texture, concretions, structure, etc.
0-10		7.5YR 3/3	none	none	sandy clay loam

Hydric Soil Indicators

___ histosol
___ histic epipedon
___ sulfidic odor
___ aquic moisture regime (see below)
___ reducing conditions
___ gleyed or low chroma
___ concretions
___ high organic content in suface layer in sandy soils
___ organic streaking in sandy soils
___ listed on local hydric soils list (see below)
___ listed on national hydric soils list
___ other (see below)

Remarks:

WETLAND DETERMINATION

Hydrophytic vegetation present? No
Wetland hydrology present? No
Hydric soils present? No

Is this sampling point within a wetland? No
Is this sampling point a Waters of the U.S? No

Remarks: This is the upland paired point for DP 04.

DATA FORM
ROUTINE WETLAND DELINEATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Nacimiento Water Project	Date: May 14, 2005
Applicant/Owner: SLO Co. Flood Control & Water Conservation District	County: San Luis Obispo
Investigator: Environmental Science Associates, (510) 839-5066	State: California
Do normal circumstances exist on the site? Yes	Community ID: vernal pool
Is the site significantly disturbed (Atypical Situation)? Yes	Feature/Fig: 0538a / 19
Is the area a potential Problem Area? No	Plot ID: DP 06

VEGETATION

Dominant Species Present	%Cover	Stratum	Indicator
1. *Plagiobothrys stipitatus*		herb	OBL
2. *Callitriche sp.*		herb	OBL
3. *Veronica peregrina*		herb	OBL
4. *Lythrum hyssopifolia*		herb	FACW
5.			
6.			
7.			
8.			

Subdominant Species Present	%Cover	Stratum	Indicator
1. *Juncus bufonius*		herb	FACW+
2. *Hordeum marinum ssp. guss.*		herb	FAC
3.			
4.			
5.			
6.			
7.			
8.			

Percent of Dominant Species that are OBL, FACW or FAC: 100 **%**

Remarks:

HYDROLOGY

___ Recorded data (describe in remarks)
X No recorded data available

Field Observations:

Depth of surface water: _____ (inches)
Depth to free water in pit: _____ (inches)
Depth to saturated soil: _____ (inches)

Wetland Hydrology Indicators
Primary Indicators:
___ inundated
___ saturated in upper 12 inches
___ water marks
___ drift lines
___ sediment deposits
X drainage pattern in wetlands

Secondary Indicators:
X oxidized root channels in upper 12 inches
___ water stained leaves
___ local survey data
___ FAC neutral test
___ other (see below)

Remarks: This was a topographic depression that had just recently dried at the time of the April site visit and was dry during the May and June visits. However, given the dominance of obligate plant species we suspect that the feature exhibits wetland hydrology.

Map Unit Name: Nacimiento-Los Osos complex
Drainage Class: moderately deep, well-drained soils
Series and Phase: 9 to 30 percent slopes
Soil type confirmed in field? No
Taxonomy (Subgroup): Calcic Haploxerolls

Profile Description

Depth (inches)	Horizon	Matrix color Munsell-moist	Mottle color Munsell-moist	Mottle (abundance, size, contrast)	Soil texture, concretions, structure, etc.
10		7.5YR 3/2	none	n/a	clay loam

Hydric Soil Indicators

___	histosol	___	concretions
___	histic epipedon	___	high organic content in suface layer in sandy soils
___	sulfidic odor	___	organic streaking in sandy soils
___	aquic moisture regime (see below)	___	listed on local hydric soils list (see below)
___	reducing conditions	___	listed on national hydric soils list
X	gleyed or low chroma	___	other (see below)

Remarks: While this soil exhibits a low chroma of 2, there is no mottling present, therefore soil color does not indicate that this is a hydric soil.

WETLAND DETERMINATION

Hydrophytic vegetation present? Yes
Wetland hydrology present? Yes
Hydric soils present? No

Is this sampling point within a wetland? No
Is this sampling point a Waters of the U.S? ___

Remarks:

DATA FORM
ROUTINE WETLAND DELINEATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Nacimiento Water Project	Date: May 14, 2005
Applicant/Owner: SLO Co. Flood Control & Water Conservation District	County: San Luis Obispo
Investigator: Environmental Science Associates, (510) 839-5066	State: California
Do normal circumstances exist on the site? Yes	Community ID: non-native grassland
Is the site significantly disturbed (Atypical Situation)? Yes	Feature/Fig: Sit0538a / 19
Is the area a potential Problem Area? No	Plot ID: DP 07

VEGETATION

Dominant Species Present	%Cover	Stratum	Indicator
1. *Avena barbata*		herb	UPL
2. *Vulpia myuros*		herb	FACU
3. *Gilia clivorum*		herb	NL
4.			
5.			
6.			
7.			
8.			

Subdominant Species Present	%Cover	Stratum	Indicator
1.			
2. *Hypochaeris radicata*		herb	NL
3.			
4.			
5.			
6.			
7.			
8.			

Percent of Dominant Species that are OBL, FACW or FAC: 0 **%**

Remarks:

HYDROLOGY

___ Recorded data (describe in remarks)
___ No recorded data available

Field Observations:

Depth of surface water: _____ (inches)
Depth to free water in pit: _____ (inches)
Depth to saturated soil: _____ (inches)

Wetland Hydrology Indicators
Primary Indicators:
___ inundated
___ saturated in upper 12 inches
___ water marks
___ drift lines
___ sediment deposits
___ drainage pattern in wetlands
Secondary Indicators:
___ oxidized root channels in upper 12 inches
___ water stained leaves
___ local survey data
___ FAC neutral test
___ other (see below)

Remarks: There are no indicators of wetland hydrology at this sample point.

Map Unit Name: Nacimiento-Los Osos complex
Drainage Class: moderately deep, well-drained soils
Series and Phase: 9 to 30 percent slopes
Soil type confirmed in field? No
Taxonomy (Subgroup): Calcic Haploxerolls

Profile Description

Depth (inches)	Horizon	Matrix color Munsell-moist	Mottle color Munsell-moist	Mottle (abundance, size, contrast)	Soil texture, concretions, structure, etc.
10		10YR 3/3	none	n/a	clay loam

Hydric Soil Indicators

___ histosol
___ histic epipedon
___ sulfidic odor
___ aquic moisture regime (see below)
___ reducing conditions
___ gleyed or low chroma
___ concretions
___ high organic content in suface layer in sandy soils
___ organic streaking in sandy soils
___ listed on local hydric soils list (see below)
___ listed on national hydric soils list
___ other (see below)

Remarks: There are no hydric soil indicators at this sample point

WETLAND DETERMINATION

Hydrophytic vegetation present? No
Wetland hydrology present? No
Hydric soils present? No

Is this sampling point within a wetland? No
Is this sampling point a Waters of the U.S? No

Remarks: This is the upland paired point for DP 06.

DATA FORM
ROUTINE WETLAND DELINEATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Nacimiento Water Project	Date: April 19, 2005
Applicant/Owner: SLO Co. Flood Control & Water Conservation District	County: San Luis Obispo
Investigator: Environmental Science Associates, (510) 839-5066	State: California
Do normal circumstances exist on the site? Yes	Community ID: vernal pool
Is the site significantly disturbed (Atypical Situation)? Yes	Feature/Fig: 0548a / 21
Is the area a potential Problem Area? No	Plot ID: DP 08

VEGETATION

Dominant Species Present	%Cover	Stratum	Indicator
1. *Callitriche sp.*		herb	OBL
2. *Veronica peregrina*		herb	OBL
3. *Plagiobothrys stipitatus*		herb	OBL
4. *Juncus bufonius*		herb	FACW+
5.			
6.			
7.			
8.			

Subdominant Species Present	%Cover	Stratum	Indicator
1. *Anagallis arvensis*		herb	FAC
2. *Lythrum hyssopifolia*		herb	FACW
3. *Eryngium vaseyi*		herb	FACW
4.			
5.			
6.			
7.			
8.			

Percent of Dominant Species that are OBL, FACW or FAC: 100 **%**

Remarks:

HYDROLOGY

___ Recorded data (describe in remarks)
X No recorded data available

Field Observations:

Depth of surface water: none (inches)
Depth to free water in pit: none (inches)
Depth to saturated soil: none (inches)

Wetland Hydrology Indicators
Primary Indicators:
___ inundated
___ saturated in upper 12 inches
___ water marks
___ drift lines
___ sediment deposits
X drainage pattern in wetlands

Secondary Indicators:
___ oxidized root channels in upper 12 inches
___ water stained leaves
___ local survey data
___ FAC neutral test
___ other (see below)

Remarks: This was a topographic depression that had just recently dried at the time of the April site visit and soils would have been moist but not saturated at that time. Given the dominance of obligate plant species we suspect that the feature exhibits wetland hydrology.

Map Unit Name: Nacimiento-Los Osos complex
Drainage Class: moderately deep, well-drained soils
Series and Phase: 9 to 30 percent slopes
Soil type confirmed in field? No
Taxonomy (Subgroup): Calcic Haploxerolls

Profile Description

Depth (inches)	Horizon	Matrix color Munsell-moist	Mottle color Munsell-moist	Mottle (abundance, size, contrast)	Soil texture, concretions, structure, etc.
12"		5YR 3/2	5YR 5/8	moderate,medium,diffuse	clay loam

Hydric Soil Indicators

___	histosol	___	concretions
___	histic epipedon	___	high organic content in suface layer in sandy soils
___	sulfidic odor	___	organic streaking in sandy soils
___	aquic moisture regime (see below)	___	listed on local hydric soils list (see below)
___	reducing conditions	___	listed on national hydric soils list
X	gleyed or low chroma	___	other (see below)

Remarks:

WETLAND DETERMINATION

Hydrophytic vegetation present? Yes
Wetland hydrology present? Yes
Hydric soils present? Yes

Is this sampling point within a wetland? ___
Is this sampling point a Waters of the U.S? ___

Remarks: Although this wetland exhibits all three Corps parameters it is likely not considered jurisdictional due to its isolation from navigable waters.

DATA FORM
ROUTINE WETLAND DELINEATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Nacimiento Water Project	Date: April 19, 2005
Applicant/Owner: SLO Co. Flood Control & Water Conservation District	County: San Luis Obispo
Investigator: Environmental Science Associates, (510) 839-5066	State: California
Do normal circumstances exist on the site? Yes	Community ID: non-native grassland
Is the site significantly disturbed (Atypical Situation)? Yes	Feature/Fig: 0548a / 21
Is the area a potential Problem Area? No	Plot ID: DP 09

VEGETATION

Dominant Species Present	%Cover	Stratum	Indicator
1. *Vulpia myuros*		herb	FACU
2. *Avena barbata*		herb	UPL
3. *Bromus madritensis ssp. rubens*		herb	NI
4. *Gilia clivorum*		herb	NL
5.			
6.			
7.			
8.			

Subdominant Species Present	%Cover	Stratum	Indicator
1. *Medicago polymorpha*		herb	NL
2. *Hypochaeris glabra*		herb	NL
3. *Hordeum murinum ssp. leporinum*		herb	NI
4. *Amsinckia tesselata var. tesselata*		herb	NL
5.			
6.			
7.			
8.			

Percent of Dominant Species that are OBL, FACW or FAC: 0 **%**

Remarks:

HYDROLOGY

___ Recorded data (describe in remarks)
___ No recorded data available

Field Observations:

Depth of surface water: _____ (inches)
Depth to free water in pit: _____ (inches)
Depth to saturated soil: _____ (inches)

Wetland Hydrology Indicators
Primary Indicators:
___ inundated
___ saturated in upper 12 inches
___ water marks
___ drift lines
___ sediment deposits
___ drainage pattern in wetlands

Secondary Indicators:
___ oxidized root channels in upper 12 inches
___ water stained leaves
___ local survey data
___ FAC neutral test
___ other (see below)

Remarks: There are no indicators of wetland hydrology at this sample point.

Map Unit Name: Nacimiento-Los Osos comples
Drainage Class: moderately deep, well-drained soils
Series and Phase: 9 to 30 percent slopes
Soil type confirmed in field? No
Taxonomy (Subgroup): Calcic Haploxerolls

Profile Description

Depth (inches)	Horizon	Matrix color Munsell-moist	Mottle color Munsell-moist	Mottle (abundance, size, contrast)	Soil texture, concretions, structure, etc.
10		10YR 3/2	none	n/a	sandy clay loam

Hydric Soil Indicators

___ histosol
___ histic epipedon
___ sulfidic odor
___ aquic moisture regime (see below)
___ reducing conditions
___ gleyed or low chroma
___ concretions
___ high organic content in suface layer in sandy soils
___ organic streaking in sandy soils
___ listed on local hydric soils list (see below)
___ listed on national hydric soils list
___ other (see below)

Remarks:

WETLAND DETERMINATION

Hydrophytic vegetation present? No
Wetland hydrology present? No
Hydric soils present? No

Is this sampling point within a wetland? No
Is this sampling point a Waters of the U.S? No

Remarks: This is the upland paired point for DP 08.

DATA FORM
ROUTINE WETLAND DELINEATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Nacimiento Water Project	Date: May 14, 2005
Applicant/Owner: SLO Co. Flood Control & Water Conservation District	County: San Luis Obispo
Investigator: Environmental Science Associates, (510) 839-5066	State: California
Do normal circumstances exist on the site? Yes	Community ID: vernal pool
Is the site significantly disturbed (Atypical Situation)? Yes	Feature/Fig: 0557a / 21
Is the area a potential Problem Area? No	Plot ID: DP 10

VEGETATION

Dominant Species Present	%Cover	Stratum	Indicator
1. *Plagiobothrys stipitatus*		herb	OBL
2. *Juncus bufonius*		herb	FACW+
3. *Callitriche sp.*		herb	OBL
4.			
5.			
6.			
7.			
8.			

Subdominant Species Present	%Cover	Stratum	Indicator
1. *Eryngium vaseyi*		herb	FACW
2. *Lythrum hyssopifolia*		herb	FACW
3. *Hordeum marinum ssp. guss.*		herb	FAC
4. *Veronica peregrina*		herb	OBL
5.			
6.			
7.			
8.			

Percent of Dominant Species that are OBL, FACW or FAC: 100 **%**

Remarks:

HYDROLOGY

___ Recorded data (describe in remarks)
X No recorded data available

Field Observations:

Depth of surface water: _____ (inches)
Depth to free water in pit: _____ (inches)
Depth to saturated soil: _____ (inches)

Wetland Hydrology Indicators
Primary Indicators:
___ inundated
___ saturated in upper 12 inches
___ water marks
___ drift lines
___ sediment deposits
X drainage pattern in wetlands

Secondary Indicators:
___ oxidized root channels in upper 12 inches
___ water stained leaves
___ local survey data
___ FAC neutral test
___ other (see below)

Remarks: This was a topographic depression that had just recently dried at the time of the April site visit and soils would have been moist but not saturated at that time. Given the dominance of obligate plant species we suspect that the feature exhibits wetland hydrology.

Map Unit Name: Nacimiento-Los Osos complex
Drainage Class: moderately deep, well-drained soils
Series and Phase: 9 to 30 percent slopes
Soil type confirmed in field? No
Taxonomy (Subgroup): Calcic Haploxerolls

Profile Description

Depth (inches)	Horizon	Matrix color Munsell-moist	Mottle color Munsell-moist	Mottle (abundance, size, contrast)	Soil texture, concretions, structure, etc.
14		10YR 3/3	none	n/a	clay loam

Hydric Soil Indicators

___ histosol
___ histic epipedon
___ sulfidic odor
___ aquic moisture regime (see below)
___ reducing conditions
___ gleyed or low chroma
___ concretions
___ high organic content in suface layer in sandy soils
___ organic streaking in sandy soils
___ listed on local hydric soils list (see below)
___ listed on national hydric soils list
___ other (see below)

Remarks: There were no hydric soil indicators at this sample point.

WETLAND DETERMINATION

Hydrophytic vegetation present? Yes
Wetland hydrology present? Yes
Hydric soils present? No

Is this sampling point within a wetland? No
Is this sampling point a Waters of the U.S? No

Remarks: Despite the presence of wetland vegetation and hydrology, soils do not exhibit hydric characteristics. Therefore, this is not a Corps jurisdictional wetland.

DATA FORM
ROUTINE WETLAND DELINEATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Nacimiento Water Project	Date: May 14, 2005
Applicant/Owner: SLO Co. Flood Control & Water Conservation District	County: San Luis Obispo
Investigator: Environmental Science Associates, (510) 839-5066	State: California
Do normal circumstances exist on the site? Yes	Community ID: non-native grassland
Is the site significantly disturbed (Atypical Situation)? Yes	Feature/Fig: 0557a / 21
Is the area a potential Problem Area? No	Plot ID: DP 11

VEGETATION

Dominant Species Present	%Cover	Stratum	Indicator
1. *Vulpia myuros*		herb	FACU
2. *Gilia clivorum*		herb	NL
3. *Avena barbata*		herb	UPL
4. *Bromus hordeaceus*		herb	FACU-
5.			
6.			
7.			
8.			

Subdominant Species Present	%Cover	Stratum	Indicator
1. *Nassella pulchra*		herb	NL
2. *Castilleja attenuata*		herb	NL
3. *Anagallis arvensis*		herb	FAC
4.			
5.			
6.			
7.			
8.			

Percent of Dominant Species that are OBL, FACW or FAC: 0 **%**

Remarks:

HYDROLOGY

___ Recorded data (describe in remarks)
___ No recorded data available

Field Observations:

Depth of surface water: _____ (inches)
Depth to free water in pit: _____ (inches)
Depth to saturated soil: _____ (inches)

Wetland Hydrology Indicators
Primary Indicators:
___ inundated
___ saturated in upper 12 inches
___ water marks
___ drift lines
___ sediment deposits
___ drainage pattern in wetlands
Secondary Indicators:
___ oxidized root channels in upper 12 inches
___ water stained leaves
___ local survey data
___ FAC neutral test
___ other (see below)

Remarks: There are no indicators of wetland hydrology at this sample point.

Map Unit Name: Nacimiento-Los Osos complex
Drainage Class: moderately deep, well-drained soils
Series and Phase: 9 to 30 percent slopes
Soil type confirmed in field? No
Taxonomy (Subgroup): Calcic Haploxerolls

Profile Description

Depth (inches)	Horizon	Matrix color Munsell-moist	Mottle color Munsell-moist	Mottle (abundance, size, contrast)	Soil texture, concretions, structure, etc.
12		2.5YR 3/2	none	n/a	

Hydric Soil Indicators

___ histosol	___ concretions
___ histic epipedon	___ high organic content in suface layer in sandy soils
___ sulfidic odor	___ organic streaking in sandy soils
___ aquic moisture regime (see below)	___ listed on local hydric soils list (see below)
___ reducing conditions	___ listed on national hydric soils list
___ gleyed or low chroma	___ other (see below)

Remarks: There are no hydric soils indicators at this sampling point.

WETLAND DETERMINATION

Hydrophytic vegetation present? No
Wetland hydrology present? No
Hydric soils present? No

Is this sampling point within a wetland? No
Is this sampling point a Waters of the U.S? No

Remarks: This is the upland paired point for DP 10.

DATA FORM
ROUTINE WETLAND DELINEATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Nacimiento Water Project	Date: May 14, 2005
Applicant/Owner: SLO Co. Flood Control & Water Conservation District	County: San Luis Obispo
Investigator: Environmental Science Associates, (510) 839-5066	State: California
Do normal circumstances exist on the site? Yes	Community ID: vernal pool
Is the site significantly disturbed (Atypical Situation)? Yes	Feature/Fig: 0560acc_a / 21
Is the area a potential Problem Area? No	Plot ID: DP 12

VEGETATION

Dominant Species Present	%Cover	Stratum	Indicator
1. *Plagiobothrys stipitatus*		herb	OBL
2. *Juncus bufonius*		herb	FACW+
3. *Veronica peregrina*		herb	OBL
4. *Lythrum hyssopifolia*		herb	FACW
5.			
6.			
7.			
8.			

Subdominant Species Present	%Cover	Stratum	Indicator
1. *Eryngium vaseyi*		herb	FACW
2. *Anagallis arvensis*		herb	FAC
3. *Poa annua*		herb	FACW-
4. *Hordeum depressum*		herb	NI
5.			
6.			
7.			
8.			

Percent of Dominant Species that are OBL, FACW or FAC: 100 **%**

Remarks:

HYDROLOGY

___ Recorded data (describe in remarks)
X No recorded data available

Field Observations:

Depth of surface water: none (inches)
Depth to free water in pit: none (inches)
Depth to saturated soil: none (inches)

Wetland Hydrology Indicators
Primary Indicators:
___ inundated
___ saturated in upper 12 inches
___ water marks
___ drift lines
___ sediment deposits
X drainage pattern in wetlands

Secondary Indicators:
___ oxidized root channels in upper 12 inches
___ water stained leaves
___ local survey data
___ FAC neutral test
___ other (see below)

Remarks: This was a topographic depression that had just recently dried at the time of the April site visit and soils would have been moist but not saturated at that time. Given the dominance of obligate plant species we suspect that the feature exhibits wetland hydrology.

Map Unit Name: Nacimiento-Los Osos complex
Drainage Class: moderately deep, well-drained soils
Series and Phase: 9 to 30 percent slopes
Soil type confirmed in field? No
Taxonomy (Subgroup): Calcic Haploxerolls

Profile Description

Depth (inches)	Horizon	Matrix color Munsell-moist	Mottle color Munsell-moist	Mottle (abundance, size, contrast)	Soil texture, concretions, structure, etc.
0-10		7.5YR 3/2	none	n/a	clay loam

Hydric Soil Indicators

___	histosol	___	concretions
___	histic epipedon	___	high organic content in suface layer in sandy soils
___	sulfidic odor	___	organic streaking in sandy soils
___	aquic moisture regime (see below)	___	listed on local hydric soils list (see below)
___	reducing conditions	___	listed on national hydric soils list
X	gleyed or low chroma	___	other (see below)

Remarks: While this soil exhibits a low chroma of 2, there is no mottling present, therefore soil color does not indicate that this is a hydric soil.

WETLAND DETERMINATION

Hydrophytic vegetation present? Yes
Wetland hydrology present? Yes
Hydric soils present? No

Is this sampling point within a wetland? No
Is this sampling point a Waters of the U.S? No

Remarks: Despite the presence of wetland vegetation and hydrology, soils do not exhibit hydric characteristics. Therefore, this is not a Corps jurisdictional wetland.

DATA FORM
ROUTINE WETLAND DELINEATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Nacimiento Water Project	Date: May 14, 2005
Applicant/Owner: SLO Co. Flood Control & Water Conservation District	County: San Luis Obispo
Investigator: Environmental Science Associates, (510) 839-5066	State: California
Do normal circumstances exist on the site? Yes	Community ID: non-native grassland
Is the site significantly disturbed (Atypical Situation)? Yes	Feature/Fig: 0560acc_a / 21
Is the area a potential Problem Area? No	Plot ID: DP 13

VEGETATION

Dominant Species Present	%Cover	Stratum	Indicator
1. *Avena barbata*		herb	UPL
2. *Bromus madritensis ssp. rubens*		herb	NI
3. *Vulpia myuros*		herb	FACU
4.			
5.			
6.			
7.			
8.			

Subdominant Species Present	%Cover	Stratum	Indicator
1. *Nassella pulchra*		herb	NL
2. *Gilia clivorum*		herb	NL
3. *Medicago polymorpha*		herb	NL
4. *Hypochaeris glabra*		herb	NL
5.			
6.			
7.			
8.			

Percent of Dominant Species that are OBL, FACW or FAC: 0 **%**

Remarks:

HYDROLOGY

___ Recorded data (describe in remarks)
___ No recorded data available

Field Observations:

Depth of surface water: _____ (inches)
Depth to free water in pit: _____ (inches)
Depth to saturated soil: _____ (inches)

Wetland Hydrology Indicators
Primary Indicators:
___ inundated
___ saturated in upper 12 inches
___ water marks
___ drift lines
___ sediment deposits
___ drainage pattern in wetlands
Secondary Indicators:
___ oxidized root channels in upper 12 inches
___ water stained leaves
___ local survey data
___ FAC neutral test
___ other (see below)

Remarks: There are no indicators of wetland hydrology at this sample point.

Map Unit Name: Nacimiento-Los Osos complex
Drainage Class: moderately deep, well-drained soils
Series and Phase: 9 to 30 percent slopes
Soil type confirmed in field? No
Taxonomy (Subgroup): Calcic Haploxerolls

Profile Description

Depth (inches)	Horizon	Matrix color Munsell-moist	Mottle color Munsell-moist	Mottle (abundance, size, contrast)	Soil texture, concretions, structure, etc.
12		7.5YR 4/4	none	n/a	clay loam

Hydric Soil Indicators

___ histosol
___ histic epipedon
___ sulfidic odor
___ aquic moisture regime (see below)
___ reducing conditions
___ gleyed or low chroma
___ concretions
___ high organic content in suface layer in sandy soils
___ organic streaking in sandy soils
___ listed on local hydric soils list (see below)
___ listed on national hydric soils list
___ other (see below)

Remarks: Soils at this sample point do not exhibit hydric characteristics.

WETLAND DETERMINATION

Hydrophytic vegetation present? No
Wetland hydrology present? No
Hydric soils present? No

Is this sampling point within a wetland? No
Is this sampling point a Waters of the U.S? No

Remarks: This is the upland paired point for DP 12.

DATA FORM
ROUTINE WETLAND DELINEATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Nacimiento Water Project	Date: April 19, 2005
Applicant/Owner: SLO Co. Flood Control & Water Conservation District	County: San Luis Obispo
Investigator: Environmental Science Associates, (510) 839-5066	State: California
Do normal circumstances exist on the site? Yes	Community ID: instream wetland
Is the site significantly disturbed (Atypical Situation)? Yes	Feature/Fig: 0883a / 28
Is the area a potential Problem Area? No	Plot ID: DP 14

VEGETATION

Dominant Species Present	%Cover	Stratum	Indicator
1. *Scirpus americanus*		herb	FAC+
2. *Typha latifolia*		herb	OBL
3. *Arundo donax*		herb	FACW
4.			
5.			
6.			
7.			
8.			

Subdominant Species Present	%Cover	Stratum	Indicator
1. *Salix lasiolepis*		tree	FACW
2. *Populus fremontii*		tree	FACW
3. *Conium maculatum*		herb	FACW
4. *Mimulus guttatus*		herb	OBL
5.			
6.			
7.			
8.			

Percent of Dominant Species that are OBL, FACW or FAC: 100 **%**

Remarks:

HYDROLOGY

___ Recorded data (describe in remarks)
X No recorded data available

Field Observations:

Depth of surface water: _____ (inches)
Depth to free water in pit: _____ (inches)
Depth to saturated soil: _____ (inches)

Wetland Hydrology Indicators
Primary Indicators:
___ inundated
___ saturated in upper 12 inches
X water marks
X drift lines
X sediment deposits
X drainage pattern in wetlands

Secondary Indicators:
___ oxidized root channels in upper 12 inches
___ water stained leaves
___ local survey data
___ FAC neutral test
___ other (see below)

Remarks:

Map Unit Name: Xerofluvents-Riverwash association Drainage Class: N/L
Series and Phase: Xerofluvents Soil type confirmed in field? Yes
Taxonomy (Subgroup): N/L

Profile Description

Depth (inches)	Horizon	Matrix color Munsell-moist	Mottle color Munsell-moist	Mottle (abundance, size, contrast)	Soil texture, concretions, structure, etc.

Hydric Soil Indicators

___ histosol	___ concretions
___ histic epipedon	___ high organic content in suface layer in sandy soils
___ sulfidic odor	___ organic streaking in sandy soils
___ aquic moisture regime (see below)	X listed on local hydric soils list (see below)
___ reducing conditions	___ listed on national hydric soils list
___ gleyed or low chroma	___ other (see below)

Remarks: No soil pits were excavated here as this is classified locally as a hydric soil and obligate plants are present.

WETLAND DETERMINATION

Hydrophytic vegetation present? Yes
Wetland hydrology present? Yes
Hydric soils present? Yes

Is this sampling point within a wetland? Yes
Is this sampling point a Waters of the U.S? Yes

Remarks: This is an instream wetland within a waters of the U.S.

DATA FORM
ROUTINE WETLAND DELINEATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Nacimiento Water Project	Date: April 19, 2005
Applicant/Owner: SLO Co. Flood Control & Water Conservation District	County: San Luis Obispo
Investigator: Environmental Science Associates, (510) 839-5066	State: California
Do normal circumstances exist on the site? Yes	Community ID: riparian scrub?
Is the site significantly disturbed (Atypical Situation)? Yes	Feature/Fig: 0883a / 28
Is the area a potential Problem Area? No	Plot ID: DP 15

VEGETATION

Dominant Species Present	%Cover	Stratum	Indicator
1. *Bromus madritensis ssp. rubens*		herb	NI
2. *Conium maculatum*		herb	FACW
3. *Bromus hordeaceus*		herb	FACU-
4. *Carduus pycnocephalus*		herb	NL
5.			
6.			
7.			
8.			

Subdominant Species Present	%Cover	Stratum	Indicator
1. *Populus fremontii*		tree	FACW
2. *Sambucus mexicana*		shrub	FAC
3. *Salix lasiolepis*		tree	FACW
4.			
5.			
6.			
7.			
8.			

Percent of Dominant Species that are OBL, FACW or FAC: 25 **%**

Remarks:

HYDROLOGY

___ Recorded data (describe in remarks)
X No recorded data available

Field Observations:

Depth of surface water: none (inches)
Depth to free water in pit: none (inches)
Depth to saturated soil: none (inches)

Wetland Hydrology Indicators
Primary Indicators:
___ inundated
___ saturated in upper 12 inches
___ water marks
X drift lines
X sediment deposits
___ drainage pattern in wetlands

Secondary Indicators:
___ oxidized root channels in upper 12 inches
___ water stained leaves
___ local survey data
___ FAC neutral test
___ other (see below)

Remarks: This is a point on the floodplain terrace of the Salinas river. While this point may flood occasionally, it is not expected to exhibit wetland hydrology the majority of the time.

Map Unit Name: Xerofluvents-Riverwash association Drainage Class: N/L
Series and Phase: Xeroflvents Soil type confirmed in field? No
Taxonomy (Subgroup): N/L

Profile Description

Depth (inches)	Horizon	Matrix color Munsell-moist	Mottle color Munsell-moist	Mottle (abundance, size, contrast)	Soil texture, concretions, structure, etc.

Hydric Soil Indicators

___ histosol	___ concretions
___ histic epipedon	___ high organic content in suface layer in sandy soils
___ sulfidic odor	___ organic streaking in sandy soils
___ aquic moisture regime (see below)	X listed on local hydric soils list (see below)
___ reducing conditions	___ listed on national hydric soils list
___ gleyed or low chroma	___ other (see below)

Remarks: No soil pit dug. This is a floodplain terrrace with a mix of sand and cobbles and the mapped soil type is listed as locally hydric.

WETLAND DETERMINATION

Hydrophytic vegetation present? No
Wetland hydrology present? No
Hydric soils present? No

Is this sampling point within a wetland? No
Is this sampling point a Waters of the U.S? Yes

Remarks: This is the upland paired point for DP 14. However, this point also lies within the floodplain of the Salinas River and would likely be considered jurisdictional as other waters of the U.S,

DATA FORM
ROUTINE WETLAND DELINEATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Nacimiento Water Project	Date: May 14, 2005
Applicant/Owner: SLO Co. Flood Control & Water Conservation District	County: San Luis Obispo
Investigator: Environmental Science Associates, (510) 839-5066	State: California
Do normal circumstances exist on the site? Yes	Community ID: seasonal wetland
Is the site significantly disturbed (Atypical Situation)? Yes	Feature/Fig: 2043a / 62
Is the area a potential Problem Area? No	Plot ID: DP 16

VEGETATION

Dominant Species Present	%Cover	Stratum	Indicator
1. *Eleocharis macrostachya*		herb	OBL
2. *Lythrum hyssopifolia*		herb	FACW
3. *Plagiobothrys stipitatus*		herb	OBL
4.			
5.			
6.			
7.			
8.			

Subdominant Species Present	%Cover	Stratum	Indicator
1. *Rumex crispus*		herb	FACW-
2. *Lilaea scilloides*		herb	OBL
3.			
4.			
5.			
6.			
7.			
8.			

Percent of Dominant Species that are OBL, FACW or FAC: 100 **%**

Remarks:

HYDROLOGY

___ Recorded data (describe in remarks)
___ No recorded data available

Field Observations:

Depth of surface water: none (inches)
Depth to free water in pit: none (inches)
Depth to saturated soil: none (inches)

Wetland Hydrology Indicators
Primary Indicators:
___ inundated
___ saturated in upper 12 inches
___ water marks
___ drift lines
___ sediment deposits
X drainage pattern in wetlands

Secondary Indicators:
___ oxidized root channels in upper 12 inches
X water stained leaves
___ local survey data
___ FAC neutral test
___ other (see below)

Remarks: This is a topographic depression located along a road that parallels the railroad berm. There is also a berm between this feature and a much larger wetland to the east that remained ponded throughout the delination period. Therre may be a hydrologic connection between the two features when they are both fully inundated.

Map Unit Name: San Andreas-Arujo complex
Drainage Class: well-drained, moderately deep soils
Series and Phase: 9 to 15 percent slopes
Soil type confirmed in field? No
Taxonomy (Subgroup): Typic Haploxerolls

Profile Description

Depth (inches)	Horizon	Matrix color Munsell-moist	Mottle color Munsell-moist	Mottle (abundance, size, contrast)	Soil texture, concretions, structure, etc.
14		5YR 2.5/1	10YR 3/6	abundant, medium, diffuse diffuse	clay

Hydric Soil Indicators

___	histosol	X	concretions
___	histic epipedon	___	high organic content in suface layer in sandy soils
___	sulfidic odor	___	organic streaking in sandy soils
___	aquic moisture regime (see below)	X	listed on local hydric soils list (see below)
___	reducing conditions	___	listed on national hydric soils list
X	gleyed or low chroma	___	other (see below)

Remarks: Abundant manganese concretions found in soil sample.

WETLAND DETERMINATION

Hydrophytic vegetation present? Yes
Wetland hydrology present? Yes
Hydric soils present? Yes

Is this sampling point within a wetland? Yes
Is this sampling point a Waters of the U.S? No

Remarks:

DATA FORM
ROUTINE WETLAND DELINEATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Nacimiento Water Project	Date: May 14, 2005
Applicant/Owner: SLO Co. Flood Control & Water Conservation District	County: San Luis Obispo
Investigator: Environmental Science Associates, (510) 839-5066	State: California
Do normal circumstances exist on the site? Yes	Community ID: non-native grassland
Is the site significantly disturbed (Atypical Situation)? Yes	Feature/Fig: 2043a / 62
Is the area a potential Problem Area? No	Plot ID: DP 17

VEGETATION

Dominant Species Present	%Cover	Stratum	Indicator
1. *Conium maculatum*		herb	FACW
2. *Cemtaurea solstitialis*		herb	NL
3. *Avena barbata*		herb	UPL
4. *Bromus diandrus*		herb	NL
5.			
6.			
7.			
8.			

Subdominant Species Present	%Cover	Stratum	Indicator
1. *Xanthium strumarium*		herb	FAC+
2. *Rumex crispus*		herb	FACW-
3.			
4.			
5.			
6.			
7.			
8.			

Percent of Dominant Species that are OBL, FACW or FAC: 25 **%**

Remarks:

HYDROLOGY

___ Recorded data (describe in remarks)
___ No recorded data available

Field Observations:

Depth of surface water: none (inches)
Depth to free water in pit: none (inches)
Depth to saturated soil: none (inches)

Wetland Hydrology Indicators
Primary Indicators:
___ inundated
___ saturated in upper 12 inches
___ water marks
___ drift lines
___ sediment deposits
___ drainage pattern in wetlands

Secondary Indicators:
___ oxidized root channels in upper 12 inches
___ water stained leaves
___ local survey data
___ FAC neutral test
___ other (see below)

Remarks: This point is located on the railroad berm to the west of DP 16, there are no hydologic indicators here.

Map Unit Name: San Andreas-Arujo complex
Drainage Class: well-drained, moderately deep
Series and Phase: 9 to 15 percent slopes
Soil type confirmed in field? No
Taxonomy (Subgroup): Typic Haploxerolls

Profile Description

Depth (inches)	Horizon	Matrix color Munsell-moist	Mottle color Munsell-moist	Mottle (abundance, size, contrast)	Soil texture, concretions, structure, etc.
0-10		5YR 2.5/1	none	n/a	sandy clay loam

Hydric Soil Indicators

___	histosol	___	concretions
___	histic epipedon	___	high organic content in suface layer in sandy soils
___	sulfidic odor	___	organic streaking in sandy soils
___	aquic moisture regime (see below)	X	listed on local hydric soils list (see below)
___	reducing conditions	___	listed on national hydric soils list
X	gleyed or low chroma	___	other (see below)

Remarks: While this soil has a low chroma it is fill, which may account for the color being identical to the soil at DP 16.

WETLAND DETERMINATION

Hydrophytic vegetation present? No
Wetland hydrology present? No
Hydric soils present? No

Is this sampling point within a wetland? No
Is this sampling point a Waters of the U.S? No

Remarks: This is the upland paired point for DP 16.

DATA FORM
ROUTINE WETLAND DELINEATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Nacimiento Water Project	Date: May 15, 2005
Applicant/Owner: SLO Co. Flood Control & Water Conservation District	County: San Luis Obispo
Investigator: Environmental Science Associates, (510) 839-5066	State: California
Do normal circumstances exist on the site? Yes	Community ID: seasonal wetland
Is the site significantly disturbed (Atypical Situation)? Yes	Feature/Fig: 2043b / 62
Is the area a potential Problem Area? No	Plot ID: DP 18

VEGETATION

Dominant Species Present	%Cover	Stratum	Indicator
1. *Eleocharis macrostachya*		herb	OBL
2. *Lythrum hyssopifolia*		herb	FACW
3.			
4.			
5.			
6.			
7.			
8.			

Subdominant Species Present	%Cover	Stratum	Indicator
1. *Rumex crispus*		herb	FACW-
2. *Lilaea scilloides*		herb	OBL
3.			
4.			
5.			
6.			
7.			
8.			

Percent of Dominant Species that are OBL, FACW or FAC: 100 **%**

Remarks:

HYDROLOGY

___ Recorded data (describe in remarks)
X No recorded data available

Field Observations:

Depth of surface water: 3 (inches)
Depth to free water in pit: 0 (inches)
Depth to saturated soil: 0 (inches)

Wetland Hydrology Indicators
Primary Indicators:
X inundated
X saturated in upper 12 inches
___ water marks
___ drift lines
___ sediment deposits
___ drainage pattern in wetlands

Secondary Indicators:
X oxidized root channels in upper 12 inches
X water stained leaves
___ local survey data
___ FAC neutral test
___ other (see below)

Remarks: This feature remained inundated throughout the delineation period and has a maximum depth of approximately 3 feet at its fullest. The sample point was at the edge of the pond. There is a berm between this feature and a smaller wetland to the west (See DP 16). Therre may be a hydrologic connection between the two features when they are both fully inundated.

Map Unit Name: San Andreas-Arujo complex
Drainage Class: well-drained, moderately deep
Series and Phase: 9 to 15 percent slopes
Soil type confirmed in field? No
Taxonomy (Subgroup): Typic Haploxerolls

Profile Description

Depth (inches)	Horizon	Matrix color Munsell-moist	Mottle color Munsell-moist	Mottle (abundance, size, contrast)	Soil texture, concretions, structure, etc.
0-14		5YR 2.5/1	10R 3/6	many, large, diffuse	clay

Hydric Soil Indicators

___	histosol	___	concretions
___	histic epipedon	___	high organic content in suface layer in sandy soils
___	sulfidic odor	___	organic streaking in sandy soils
___	aquic moisture regime (see below)	X	listed on local hydric soils list (see below)
___	reducing conditions	___	listed on national hydric soils list
X	gleyed or low chroma	___	other (see below)

Remarks:

WETLAND DETERMINATION

Hydrophytic vegetation present? Yes
Wetland hydrology present? Yes
Hydric soils present? Yes

Is this sampling point within a wetland? Yes
Is this sampling point a Waters of the U.S? No

Remarks:

DATA FORM
ROUTINE WETLAND DELINEATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Nacimiento Water Project	Date: May 15, 2005
Applicant/Owner: SLO Co. Flood Control & Water Conservation District	County: San Luis Obispo
Investigator: Environmental Science Associates, (510) 839-5066	State: California
Do normal circumstances exist on the site? Yes	Community ID: non-native grassland
Is the site significantly disturbed (Atypical Situation)? Yes	Feature/Fig: 2043b / 62
Is the area a potential Problem Area? No	Plot ID: DP 19

VEGETATION

Dominant Species Present	%Cover	Stratum	Indicator
1. *Cynodon dactylon*		herb	FAC
2. *Lolium multiflorum*		herb	FAC*
3. *Bromus diandrus*		herb	NL
4. *Avena barbata*		herb	UPL
5.			
6.			
7.			
8.			

Subdominant Species Present	%Cover	Stratum	Indicator
1. *Erodium cicutarium*		herb	NL
2.			
3.			
4.			
5.			
6.			
7.			
8.			

Percent of Dominant Species that are OBL, FACW or FAC: 50 **%**

Remarks:

HYDROLOGY

___ Recorded data (describe in remarks)
X No recorded data available

Field Observations:

Depth of surface water: none (inches)
Depth to free water in pit: none (inches)
Depth to saturated soil: none (inches)

Wetland Hydrology Indicators
Primary Indicators:
___ inundated
___ saturated in upper 12 inches
___ water marks
___ drift lines
___ sediment deposits
___ drainage pattern in wetlands

Secondary Indicators:
___ oxidized root channels in upper 12 inches
___ water stained leaves
___ local survey data
___ FAC neutral test
___ other (see below)

Remarks:

Map Unit Name: San Andreas-Arujo complex
Drainage Class: well-drained, moderately deep
Series and Phase: 9 to 15 percent slopes
Soil type confirmed in field? No
Taxonomy (Subgroup): Typic Haploxerolls

Profile Description

Depth (inches)	Horizon	Matrix color Munsell-moist	Mottle color Munsell-moist	Mottle (abundance, size, contrast)	Soil texture, concretions, structure, etc.
0-16		5YR 2.5/1	none	n/a	sandy clay loam

Hydric Soil Indicators

___	histosol	___	concretions
___	histic epipedon	___	high organic content in suface layer in sandy soils
___	sulfidic odor	___	organic streaking in sandy soils
___	aquic moisture regime (see below)	X	listed on local hydric soils list (see below)
___	reducing conditions	___	listed on national hydric soils list
X	gleyed or low chroma	___	other (see below)

Remarks: Soil is likely a mollisol, which would account for the low chroma. It is not considered to be hydric in this case.

WETLAND DETERMINATION

Hydrophytic vegetation present? No
Wetland hydrology present? No
Hydric soils present? No

Is this sampling point within a wetland? No
Is this sampling point a Waters of the U.S? No

Remarks: This is the upland paired point for DP 18.

DATA FORM
ROUTINE WETLAND DELINEATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Nacimiento Water Project	Date: May 15, 2005
Applicant/Owner: SLO Co. Flood Control & Water Conservation District	County: San Luis Obispo
Investigator: Environmental Science Associates, (510) 839-5066	State: California
Do normal circumstances exist on the site? Yes	Community ID: vernal swale
Is the site significantly disturbed (Atypical Situation)? Yes	Feature/Fig: 2082a / 64
Is the area a potential Problem Area? No	Plot ID: DP 20

VEGETATION

Dominant Species Present	%Cover	Stratum	Indicator
1. *Lythrum hyssopifolia*		herb	FACW
2. *Plagiobothrys stipitatus*		herb	OBL
3. *Juncus bufonius*		herb	FACW+
4. *Eleocharis macrostachya*		herb	OBL
5.			
6.			
7.			
8.			

Subdominant Species Present	%Cover	Stratum	Indicator
1. *Rumex crispus*		herb	FACW-
2. *Rumex pulcher*		herb	FACW
3. *Salix sp.*		tree	FACW*
4. *Bromus hordeaceus*		herb	FACU-
5.			
6.			
7.			
8.			

Percent of Dominant Species that are OBL, FACW or FAC: 100 **%**

Remarks:

HYDROLOGY

___ Recorded data (describe in remarks)
X No recorded data available

Field Observations:

Depth of surface water: none (inches)
Depth to free water in pit: none (inches)
Depth to saturated soil: none (inches)

Wetland Hydrology Indicators
Primary Indicators:
___ inundated
___ saturated in upper 12 inches
___ water marks
___ drift lines
___ sediment deposits
X drainage pattern in wetlands

Secondary Indicators:
___ oxidized root channels in upper 12 inches
___ water stained leaves
___ local survey data
___ FAC neutral test
___ other (see below)

Remarks: This is a topographic depression and vegetated swale that have been cut off by the railroad tracks. Water ponds in low spots for long enough periods to support obligate plant species and promote the formation of mildly hydric soils.

Map Unit Name: San Andreas-Arujo complex
Drainage Class: well-drained, moderately deep
Series and Phase: 9 to 15 percent slopes
Soil type confirmed in field? No
Taxonomy (Subgroup): Typic Haploxerolls

Profile Description

Depth (inches)	Horizon	Matrix color Munsell-moist	Mottle color Munsell-moist	Mottle (abundance, size, contrast)	Soil texture, concretions, structure, etc.
10		7.5YR 2.5/1	10R 3/6		clay loam

Hydric Soil Indicators

___	histosol	___	concretions
___	histic epipedon	___	high organic content in suface layer in sandy soils
___	sulfidic odor	___	organic streaking in sandy soils
___	aquic moisture regime (see below)	X	listed on local hydric soils list (see below)
___	reducing conditions	___	listed on national hydric soils list
X	gleyed or low chroma	___	other (see below)

Remarks: Soils with low chroma and mottles are generally consdiered to be hydric.

WETLAND DETERMINATION

Hydrophytic vegetation present? Yes
Wetland hydrology present? Yes
Hydric soils present? Yes

Is this sampling point within a wetland? Yes
Is this sampling point a Waters of the U.S? No

Remarks:

DATA FORM
ROUTINE WETLAND DELINEATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Nacimiento Water Project	Date: May 15, 2005
Applicant/Owner: SLO Co. Flood Control & Water Conservation District	County: San Luis Obispo
Investigator: Environmental Science Associates, (510) 839-5066	State: California
Do normal circumstances exist on the site? Yes	Community ID: non-native grassland
Is the site significantly disturbed (Atypical Situation)? Yes	Feature/Fig: 2082a / 64
Is the area a potential Problem Area? No	Plot ID: DP 21

VEGETATION

Dominant Species Present	%Cover	Stratum	Indicator
1. *Avena barbata*		herb	UPL
2. *Bromus diandrus*		herb	NL
3. *Lolium multiflorum*		herb	FAC*
4. *Erodium cicutarium*		herb	NL
5.			
6.			
7.			
8.			

Subdominant Species Present	%Cover	Stratum	Indicator
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			

Percent of Dominant Species that are OBL, FACW or FAC: 100 **%**

Remarks:

HYDROLOGY

___ Recorded data (describe in remarks)
X No recorded data available

Field Observations:

Depth of surface water: none (inches)
Depth to free water in pit: none (inches)
Depth to saturated soil: none (inches)

Wetland Hydrology Indicators
Primary Indicators:
___ inundated
___ saturated in upper 12 inches
___ water marks
___ drift lines
___ sediment deposits
___ drainage pattern in wetlands

Secondary Indicators:
___ oxidized root channels in upper 12 inches
___ water stained leaves
___ local survey data
___ FAC neutral test
___ other (see below)

Remarks: There are no hydrology indicators at this sample point

Map Unit Name: San Andreas-Arujo complex
Drainage Class: well-drained, moderately deep
Series and Phase: 9 to 15 percent slopes
Soil type confirmed in field? No
Taxonomy (Subgroup): Typic Haploxerolls

Profile Description

Depth (inches)	Horizon	Matrix color Munsell-moist	Mottle color Munsell-moist	Mottle (abundance, size, contrast)	Soil texture, concretions, structure, etc.
12		7.5YR 2.5/1	none	n/a	sandy clay loam

Hydric Soil Indicators

___	histosol	___	concretions
___	histic epipedon	___	high organic content in suface layer in sandy soils
___	sulfidic odor	___	organic streaking in sandy soils
___	aquic moisture regime (see below)	X	listed on local hydric soils list (see below)
___	reducing conditions	___	listed on national hydric soils list
X	gleyed or low chroma	___	other (see below)

Remarks: Soil is likely a mollisol, which would account for the low chroma. It is not considered to be hydric in this case.

WETLAND DETERMINATION

Hydrophytic vegetation present? No
Wetland hydrology present? No
Hydric soils present? No

Is this sampling point within a wetland? No
Is this sampling point a Waters of the U.S? No

Remarks: This is the upland paired point for DP 20.

DATA FORM
ROUTINE WETLAND DELINEATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Nacimiento Water Project	Date: May 15, 2005
Applicant/Owner: SLO Co. Flood Control & Water Conservation District	County: San Luis Obispo
Investigator: Environmental Science Associates, (510) 839-5066	State: California
Do normal circumstances exist on the site? Yes	Community ID: vernal swale
Is the site significantly disturbed (Atypical Situation)? Yes	Feature/Fig: 2108a / 65
Is the area a potential Problem Area? No	Plot ID: DP 22

VEGETATION

Dominant Species Present	%Cover	Stratum	Indicator
1. *Juncus balticus*		herb	OBL
2. *Lolium multiflorum*		herb	FAC*
3.			
4.			
5.			
6.			
7.			
8.			

Subdominant Species Present	%Cover	Stratum	Indicator
1. *Lythrum hyssopifolia*		herb	FACW
2. *Hordeum marinum ssp. guss.*		herb	FAC
3. *Bromus hordeaceus*		herb	FACU-
4. *Plagiobothrys stipitatus*		herb	OBL
5.			
6.			
7.			
8.			

Percent of Dominant Species that are OBL, FACW or FAC: 100 **%**

Remarks:

HYDROLOGY

___ Recorded data (describe in remarks)
X No recorded data available

Field Observations:

Depth of surface water: None (inches)
Depth to free water in pit: None (inches)
Depth to saturated soil: None (inches)

Wetland Hydrology Indicators
Primary Indicators:
___ inundated
___ saturated in upper 12 inches
___ water marks
___ drift lines
___ sediment deposits
X drainage pattern in wetlands

Secondary Indicators:
___ oxidized root channels in upper 12 inches
___ water stained leaves
___ local survey data
___ FAC neutral test
___ other (see below)

Remarks: This feature is a swale that likely ponds against the railroad berm in the wet season. Soils moist but not saturated at a depth of 1". Source of summer moisture may be a leaky pipe.

Map Unit Name: Still clay loam
Drainage Class: deep, well-drained soils
Series and Phase: 0 to 2 percent slopes
Soil type confirmed in field? No
Taxonomy (Subgroup): Cumulic Haploxerolls

Profile Description

Depth (inches)	Horizon	Matrix color Munsell-moist	Mottle color Munsell-moist	Mottle (abundance, size, contrast)	Soil texture, concretions, structure, etc.
12		7.5YR 2.5/1	none	n/a	clay loam

Hydric Soil Indicators

___	histosol	___	concretions
___	histic epipedon	___	high organic content in suface layer in sandy soils
___	sulfidic odor	___	organic streaking in sandy soils
___	aquic moisture regime (see below)	X	listed on local hydric soils list (see below)
___	reducing conditions	___	listed on national hydric soils list
X	gleyed or low chroma	___	other (see below)

Remarks: Soil is likely a mollisol, which would account for the low chroma. In the absence of mottles or other signs of reducing conditions it is probably not hydric in this case.

WETLAND DETERMINATION

Hydrophytic vegetation present? Yes
Wetland hydrology present? Yes
Hydric soils present? No

Is this sampling point within a wetland? No
Is this sampling point a Waters of the U.S? No

Remarks:

DATA FORM
ROUTINE WETLAND DELINEATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Nacimiento Water Project	Date: May 15, 2005
Applicant/Owner: SLO Co. Flood Control & Water Conservation District	County: San Luis Obispo
Investigator: Environmental Science Associates, (510) 839-5066	State: California
Do normal circumstances exist on the site? Yes	Community ID: non-native grassland
Is the site significantly disturbed (Atypical Situation)? Yes	Feature/Fig: 2108a / 65
Is the area a potential Problem Area? No	Plot ID: DP 23

VEGETATION

Dominant Species Present	%Cover	Stratum	Indicator
1. *Lolium multiflorum*		herb	FAC*
2. *Avena barbata*		herb	UPL
3. *Bromus hordeaceus*		herb	FACU-
4.			
5.			
6.			
7.			
8.			

Subdominant Species Present	%Cover	Stratum	Indicator
1. *Erodium cicutarium*		herb	NL
2. *Geranium dissectum*		herb	NL
3.			
4.			
5.			
6.			
7.			
8.			

Percent of Dominant Species that are OBL, FACW or FAC: 33 **%**

Remarks:

HYDROLOGY

___ Recorded data (describe in remarks)
X No recorded data available

Field Observations:

Depth of surface water: _____ (inches)
Depth to free water in pit: _____ (inches)
Depth to saturated soil: _____ (inches)

Wetland Hydrology Indicators
Primary Indicators:
___ inundated
___ saturated in upper 12 inches
___ water marks
___ drift lines
___ sediment deposits
X drainage pattern in wetlands

Secondary Indicators:
___ oxidized root channels in upper 12 inches
___ water stained leaves
___ local survey data
___ FAC neutral test
___ other (see below)

Remarks: Soils moist but not satruated at a depth of 1".

Map Unit Name: Still clay loam
Drainage Class: deep, well-drained soils
Series and Phase: 0 to 2 percent slopes
Soil type confirmed in field? No
Taxonomy (Subgroup): Cumulic Haploxerolls

Profile Description

Depth (inches)	Horizon	Matrix color Munsell-moist	Mottle color Munsell-moist	Mottle (abundance, size, contrast)	Soil texture, concretions, structure, etc.
14	7.5YR 2.5/1				

Hydric Soil Indicators

___	histosol	___	concretions
___	histic epipedon	___	high organic content in suface layer in sandy soils
___	sulfidic odor	___	organic streaking in sandy soils
___	aquic moisture regime (see below)	X	listed on local hydric soils list (see below)
___	reducing conditions	___	listed on national hydric soils list
X	gleyed or low chroma	___	other (see below)

Remarks: Soil is likely a mollisol, which would account for the low chroma. In the absence of mottles or other signs of reducing conditions it is probably not hydric in this case.

WETLAND DETERMINATION

Hydrophytic vegetation present? No
Wetland hydrology present? No
Hydric soils present? No

Is this sampling point within a wetland? No
Is this sampling point a Waters of the U.S? No

Remarks: This is the upland paired point for DP 22.

DATA FORM
ROUTINE WETLAND DELINEATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Nacimiento Water Project	Date: May 16, 2005
Applicant/Owner: SLO Co. Flood Control & Water Conservation District	County: San Luis Obispo
Investigator: Environmental Science Associates, (510) 839-5066	State: California
Do normal circumstances exist on the site? Yes	Community ID: freshwater marsh
Is the site significantly disturbed (Atypical Situation)? Yes	Feature/Fig: 2122b / 66
Is the area a potential Problem Area? No	Plot ID: DP 24

VEGETATION

Dominant Species Present	%Cover	Stratum	Indicator	Subdominant Species Present	%Cover	Stratum	Indicator
1. *Typha latifolia*		herb	OBL	1.			
2. *Scirpus americanus*		herb	FAC+	2.			
3. *Salix sp.*		tree	FACW*	3.			
4.				4.			
5.				5.			
6.				6.			
7.				7.			
8.				8.			

Percent of Dominant Species that are OBL, FACW or FAC: 100 **%**

Remarks:

HYDROLOGY

___ Recorded data (describe in remarks)
X No recorded data available

Field Observations:

Depth of surface water: none (inches)
Depth to free water in pit: 6 (inches)
Depth to saturated soil: 4 (inches)

Wetland Hydrology Indicators
Primary Indicators:
___ inundated
X saturated in upper 12 inches
X water marks
X drift lines
X sediment deposits
___ drainage pattern in wetlands

Secondary Indicators:
___ oxidized root channels in upper 12 inches
___ water stained leaves
___ local survey data
___ FAC neutral test
___ other (see below)

Remarks: This is an instream wetland on gravel bars in Yerba Buena Creek. Soil pits were not excavated so depth to saturated soil was estimated based on elevational relationship between sample point and open water in the creek.

Map Unit Name: 208 -Still clay loam
Drainage Class: deep, well-drained soils
Series and Phase: 0 to 2 percent slopes
Soil type confirmed in field? No
Taxonomy (Subgroup): Cumulic Haploxerolls

Profile Description

Depth (inches)	Horizon	Matrix color Munsell-moist	Mottle color Munsell-moist	Mottle (abundance, size, contrast)	Soil texture, concretions, structure, etc.

Hydric Soil Indicators

___	histosol	___	concretions
___	histic epipedon	___	high organic content in suface layer in sandy soils
___	sulfidic odor	___	organic streaking in sandy soils
___	aquic moisture regime (see below)	X	listed on local hydric soils list (see below)
___	reducing conditions	___	listed on national hydric soils list
___	gleyed or low chroma	___	other (see below)

Remarks: Mapped soil type is listed on local hydric soils list and supports obligate plant species, therefore it was assumed to be hydric and no pit was excavated.

WETLAND DETERMINATION

Hydrophytic vegetation present? Yes
Wetland hydrology present? Yes
Hydric soils present? Yes

Is this sampling point within a wetland? Yes
Is this sampling point a Waters of the U.S? No

Remarks: This sample point is an instream wetland located within an other waters of the U.S.

DATA FORM
ROUTINE WETLAND DELINEATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Nacimiento Water Project	Date: May 16, 2005
Applicant/Owner: SLO Co. Flood Control & Water Conservation District	County: San Luis Obispo
Investigator: Environmental Science Associates, (510) 839-5066	State: California
Do normal circumstances exist on the site? Yes	Community ID: non-native grassland
Is the site significantly disturbed (Atypical Situation)? Yes	Feature/Fig: 2122b / 66
Is the area a potential Problem Area? No	Plot ID: DP 25

VEGETATION

Dominant Species Present	%Cover	Stratum	Indicator
1. *Foeniculum vulgare*		herb	FACU
2. *Conium maculatum*		herb	FACW
3. *Bromus diandrus*		herb	NL
4.			
5.			
6.			
7.			
8.			

Subdominant Species Present	%Cover	Stratum	Indicator
1. *Avena barbata*		herb	UPL
2. *Rumex crispus*		herb	FACW-
3. *Salix sp.*		tree	FACW*
4.			
5.			
6.			
7.			
8.			

Percent of Dominant Species that are OBL, FACW or FAC: 33 **%**

Remarks:

HYDROLOGY

___ Recorded data (describe in remarks)
___ No recorded data available

Field Observations:

Depth of surface water: none (inches)
Depth to free water in pit: none (inches)
Depth to saturated soil: none (inches)

Wetland Hydrology Indicators
Primary Indicators:
___ inundated
___ saturated in upper 12 inches
___ water marks
___ drift lines
___ sediment deposits
___ drainage pattern in wetlands

Secondary Indicators:
___ oxidized root channels in upper 12 inches
___ water stained leaves
___ local survey data
___ FAC neutral test
___ other (see below)

Remarks: This sample point was taken on the banks of Yerba Buena creek above the ordinary high water mark. While it is located within the creek banks, it would only be intermittently inundated during flood events.

Map Unit Name: Still clay loam
Drainage Class: deep, well-drained soils
Series and Phase: 0 to 2 percent slopes
Soil type confirmed in field? No
Taxonomy (Subgroup): Cumulic Haploxerolls

Profile Description

Depth (inches)	Horizon	Matrix color Munsell-moist	Mottle color Munsell-moist	Mottle (abundance, size, contrast)	Soil texture, concretions, structure, etc.

Hydric Soil Indicators

___	histosol	___	concretions
___	histic epipedon	___	high organic content in suface layer in sandy soils
___	sulfidic odor	___	organic streaking in sandy soils
___	aquic moisture regime (see below)	X	listed on local hydric soils list (see below)
___	reducing conditions	___	listed on national hydric soils list
___	gleyed or low chroma	___	other (see below)

Remarks: No soil pit was excavated here as the sample point did not support a preponderance of wetland species or exhibit wetland hydrology of sufficient duration to locally support the formation of hydric soils.

WETLAND DETERMINATION

Hydrophytic vegetation present? No
Wetland hydrology present? No
Hydric soils present? No

Is this sampling point within a wetland? No
Is this sampling point a Waters of the U.S? No

Remarks: This is the upland paired point for DP 24.

DATA FORM
ROUTINE WETLAND DELINEATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Nacimiento Water Project	Date: May 16, 2005
Applicant/Owner: SLO Co. Flood Control & Water Conservation District	County: San Luis Obispo
Investigator: Environmental Science Associates, (510) 839-5066	State: California
Do normal circumstances exist on the site? Yes	Community ID: freshwater marsh
Is the site significantly disturbed (Atypical Situation)? Yes	Feature/Fig: 2236b / 68
Is the area a potential Problem Area? No	Plot ID: DP 26

VEGETATION

Dominant Species Present	%Cover	Stratum	Indicator
1. *Juncus effusus*		herb	OBL
2. *Rubus ursinus*		shrub	FAC+
3. *Quercus lobata*		tree	FAC*
4.			
5.			
6.			
7.			
8.			

Subdominant Species Present	%Cover	Stratum	Indicator
1. *Conium maculatum*		herb	FACW
2. *Epilobium ciliatum*		herb	FACW
3. *Salix sp.*		tree	FACW*
4.			
5.			
6.			
7.			
8.			

Percent of Dominant Species that are OBL, FACW or FAC: 100 **%**

Remarks:

HYDROLOGY

___ Recorded data (describe in remarks)
X No recorded data available

Field Observations:

Depth of surface water: none (inches)
Depth to free water in pit: none (inches)
Depth to saturated soil: none (inches)

Wetland Hydrology Indicators
Primary Indicators:
___ inundated
___ saturated in upper 12 inches
X water marks
X drift lines
X sediment deposits
X drainage pattern in wetlands

Secondary Indicators:
___ oxidized root channels in upper 12 inches
___ water stained leaves
___ local survey data
___ FAC neutral test
___ other (see below)

Remarks: This was a wetland within an intermittent drainage. OHW averaged 3 feet wide throughout the wetland.

Map Unit Name: 208 -Still clay loam
Series and Phase: 0 to 2 percent slopes
Taxonomy (Subgroup): Cumulic Haploxerolls
Drainage Class: deep, well-drained soils
Soil type confirmed in field? No

Profile Description

Depth (inches)	Horizon	Matrix color Munsell-moist	Mottle color Munsell-moist	Mottle (abundance, size, contrast)	Soil texture, concretions, structure, etc.

Hydric Soil Indicators

___ histosol	___ concretions
___ histic epipedon	___ high organic content in suface layer in sandy soils
___ sulfidic odor	___ organic streaking in sandy soils
___ aquic moisture regime (see below)	X listed on local hydric soils list (see below)
___ reducing conditions	___ listed on national hydric soils list
___ gleyed or low chroma	___ other (see below)

Remarks: No soil sample was taken here. Soils were presumed to be hydric due to the obligate species supported as well as the fact that mapped unit here is classified as a hydric soil on the county list.

WETLAND DETERMINATION

Hydrophytic vegetation present? Yes
Wetland hydrology present? Yes
Hydric soils present? Yes

Is this sampling point within a wetland? Yes
Is this sampling point a Waters of the U.S? No

Remarks: This is a wetland associated with other waters of the U.S.

DATA FORM
ROUTINE WETLAND DELINEATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Nacimiento Water Project	Date: May 16, 2005
Applicant/Owner: SLO Co. Flood Control & Water Conservation District	County: San Luis Obispo
Investigator: Environmental Science Associates, (510) 839-5066	State: California
Do normal circumstances exist on the site? Yes	Community ID: valley oak woodland
Is the site significantly disturbed (Atypical Situation)? Yes	Feature/Fig: 2236b / 68
Is the area a potential Problem Area? No	Plot ID: DP 27

VEGETATION

Dominant Species Present	%Cover	Stratum	Indicator
1. *Hordeum murinum ssp. leporinum*		herb	NI
2. *Bromus diandrus*		herb	NL
3. *Stachys ajugoides*		herb	NL
4. *Quercus lobata*		tree	FAC*
5.			
6.			
7.			
8.			

Subdominant Species Present	%Cover	Stratum	Indicator
1. *Avena barbata*		herb	UPL
2. *Plantago lanceolata*		herb	FAC-
3. *Trifolium hirtum*		herb	NL
4.			
5.			
6.			
7.			
8.			

Percent of Dominant Species that are OBL, FACW or FAC: 25 **%**

Remarks:

HYDROLOGY

___ Recorded data (describe in remarks)
X No recorded data available

Field Observations:

Depth of surface water: none (inches)
Depth to free water in pit: none (inches)
Depth to saturated soil: none (inches)

Wetland Hydrology Indicators
Primary Indicators:
___ inundated
___ saturated in upper 12 inches
___ water marks
___ drift lines
___ sediment deposits
___ drainage pattern in wetlands

Secondary Indicators:
___ oxidized root channels in upper 12 inches
___ water stained leaves
___ local survey data
___ FAC neutral test
___ other (see below)

Remarks: No hydrology indicators found at the sample point.

Map Unit Name: 208 - Still clay loam
Drainage Class: deep, well-drained soils
Series and Phase: 0 to 2 percent slopes
Soil type confirmed in field? No
Taxonomy (Subgroup): Cumulic Haploxerolls

Profile Description

Depth (inches)	Horizon	Matrix color Munsell-moist	Mottle color Munsell-moist	Mottle (abundance, size, contrast)	Soil texture, concretions, structure, etc.

Hydric Soil Indicators

___	histosol	___	concretions
___	histic epipedon	___	high organic content in suface layer in sandy soils
___	sulfidic odor	___	organic streaking in sandy soils
___	aquic moisture regime (see below)	X	listed on local hydric soils list (see below)
___	reducing conditions	___	listed on national hydric soils list
___	gleyed or low chroma	___	other (see below)

Remarks:

WETLAND DETERMINATION

Hydrophytic vegetation present? No
Wetland hydrology present? No
Hydric soils present? Yes

Is this sampling point within a wetland? No
Is this sampling point a Waters of the U.S? No

Remarks: This is the upland paired point for DP 26, located upslope from DP 26 at the point where there was a distinct change in vegetation.

DATA FORM
ROUTINE WETLAND DELINEATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Nacimiento Water Project	Date: May 16, 2005
Applicant/Owner: SLO Co. Flood Control & Water Conservation District	County: San Luis Obispo
Investigator: Environmental Science Associates, (510) 839-5066	State: California
Do normal circumstances exist on the site? Yes	Community ID: freshwater seep
Is the site significantly disturbed (Atypical Situation)? Yes	Feature/Fig: 2271a / 69-70
Is the area a potential Problem Area? No	Plot ID: DP 28

VEGETATION

Dominant Species Present	%Cover	Stratum	Indicator
1. *Juncus effusus*		herb	OBL
2. *Rumex crispus*		herb	FACW-
3. *Polypogon monspeliensis*		herb	FACW+
4.			
5.			
6.			
7.			
8.			

Subdominant Species Present	%Cover	Stratum	Indicator
1. *Lolium multiflorum*		herb	FAC*
2.			
3.			
4.			
5.			
6.			
7.			
8.			

Percent of Dominant Species that are OBL, FACW or FAC: 100 **%**

Remarks:

HYDROLOGY

___ Recorded data (describe in remarks)
X No recorded data available

Field Observations:

Depth of surface water: 0.5 (inches)
Depth to free water in pit: 6 (inches)
Depth to saturated soil: 2 (inches)

Wetland Hydrology Indicators
Primary Indicators:
X inundated
X saturated in upper 12 inches
___ water marks
___ drift lines
___ sediment deposits
X drainage pattern in wetlands

Secondary Indicators:
___ oxidized root channels in upper 12 inches
___ water stained leaves
___ local survey data
___ FAC neutral test
___ other (see below)

Remarks: This appears to be a perennial seep.

Map Unit Name: Shimmon-Dibble association
Drainage Class: Moderately deep, well-drained soils
Series and Phase: steep
Soil type confirmed in field? No
Taxonomy (Subgroup): Typic Argixerolls

Profile Description

Depth (inches)	Horizon	Matrix color Munsell-moist	Mottle color Munsell-moist	Mottle (abundance, size, contrast)	Soil texture, concretions, structure, etc.

Hydric Soil Indicators

___ histosol
___ histic epipedon
___ sulfidic odor
___ aquic moisture regime (see below)
___ reducing conditions
___ gleyed or low chroma
___ concretions
___ high organic content in suface layer in sandy soils
___ organic streaking in sandy soils
___ listed on local hydric soils list (see below)
___ listed on national hydric soils list
___ other (see below)

Remarks: Soil sample was not taken here as the wetland was supporting a preponderance of obligate vegetation and soils were saturated and inundated throughout the period of the delineation. Soils were assumed to be hydric.

WETLAND DETERMINATION

Hydrophytic vegetation present? Yes
Wetland hydrology present? Yes
Hydric soils present? Yes

Is this sampling point within a wetland? Yes
Is this sampling point a Waters of the U.S? No

Remarks:

DATA FORM
ROUTINE WETLAND DELINEATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Nacimiento Water Project	Date: May 16, 2005
Applicant/Owner: SLO Co. Flood Control & Water Conservation District	County: San Luis Obispo
Investigator: Environmental Science Associates, (510) 839-5066	State: California
Do normal circumstances exist on the site? Yes	Community ID: oak woodland
Is the site significantly disturbed (Atypical Situation)? Yes	Feature/Fig: 2271a / 69-70
Is the area a potential Problem Area? No	Plot ID: DP 29

VEGETATION

Dominant Species Present	%Cover	Stratum	Indicator
1. *Elymus glaucus*		herb	FACU
2. *Avena barbata*		herb	UPL
3. *Geranium dissectum*		herb	NL
4.			
5.			
6.			
7.			
8.			

Subdominant Species Present	%Cover	Stratum	Indicator
1. *Bromus hordeaceus*		herb	FACU-
2. *Stachys ajugoides*		herb	NL
3. *Quercus agrifolia*		tree	NL
4.			
5.			
6.			
7.			
8.			

Percent of Dominant Species that are OBL, FACW or FAC: 0 **%**

Remarks:

HYDROLOGY

___ Recorded data (describe in remarks)
X No recorded data available

Field Observations:

Depth of surface water: _____ (inches)
Depth to free water in pit: _____ (inches)
Depth to saturated soil: _____ (inches)

Wetland Hydrology Indicators
Primary Indicators:
___ inundated
___ saturated in upper 12 inches
___ water marks
___ drift lines
___ sediment deposits
___ drainage pattern in wetlands

Secondary Indicators:
___ oxidized root channels in upper 12 inches
___ water stained leaves
___ local survey data
___ FAC neutral test
___ other (see below)

Remarks: No indicators of hydrology found at the sample point, point was upslope from DP 28.

Map Unit Name: Shimmon-Dibble association
Drainage Class: Moderately deep, well-drained soils
Series and Phase: steep
Soil type confirmed in field? No
Taxonomy (Subgroup): Typic Argixerolls

Profile Description

Depth (inches)	Horizon	Matrix color Munsell-moist	Mottle color Munsell-moist	Mottle (abundance, size, contrast)	Soil texture, concretions, structure, etc.

Hydric Soil Indicators

___ histosol
___ histic epipedon
___ sulfidic odor
___ aquic moisture regime (see below)
___ reducing conditions
___ gleyed or low chroma
___ concretions
___ high organic content in suface layer in sandy soils
___ organic streaking in sandy soils
___ listed on local hydric soils list (see below)
___ listed on national hydric soils list
___ other (see below)

Remarks: Soils were not examined as the sample point did no support hydrophytic vegetation and there was no evidence of hydrology.

WETLAND DETERMINATION

Hydrophytic vegetation present? No
Wetland hydrology present? No
Hydric soils present? No

Is this sampling point within a wetland? No
Is this sampling point a Waters of the U.S? No

Remarks: This is the upland paired point for DP 28.

DATA FORM
ROUTINE WETLAND DELINEATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Nacimiento Water Project	Date: May 13, 2005
Applicant/Owner: SLO Co. Flood Control & Water Conservation District	County: San Luis Obispo
Investigator: Environmental Science Associates, (510) 839-5066	State: California
Do normal circumstances exist on the site? Yes	Community ID: freshwater marsh
Is the site significantly disturbed (Atypical Situation)? Yes	Feature/Fig: 2465a / 82
Is the area a potential Problem Area? No	Plot ID: DP 30

VEGETATION

Dominant Species Present	%Cover	Stratum	Indicator
1. *Scirpus robustus*		herb	OBL
2. *Eleocharis macrostachya*		herb	OBL
3. *Rorippa nasturtium-aquatica*		herb	OBL
4. *Juncus xiphioides*		herb	OBL
5.			
6.			
7.			
8.			

Subdominant Species Present	%Cover	Stratum	Indicator
1. *Polypogon monspeliensis*		herb	FACW+
2. *Lolium multiflorum*		herb	FAC*
3.			
4.			
5.			
6.			
7.			
8.			

Percent of Dominant Species that are OBL, FACW or FAC: 100 **%**

Remarks:

HYDROLOGY

___ Recorded data (describe in remarks)
X No recorded data available

Field Observations:

Depth of surface water: 3 (inches)
Depth to free water in pit: _____ (inches)
Depth to saturated soil: _____ (inches)

Wetland Hydrology Indicators
Primary Indicators:
X inundated
X saturated in upper 12 inches
X water marks
___ drift lines
___ sediment deposits
X drainage pattern in wetlands

Secondary Indicators:
___ oxidized root channels in upper 12 inches
___ water stained leaves
___ local survey data
___ FAC neutral test
___ other (see below)

Remarks:

Map Unit Name: 130 - Diablo and Cibo clays
Drainage Class: moderately deep, well-drained soils
Series and Phase: 9 to 15 percent slopes
Soil type confirmed in field? No
Taxonomy (Subgroup): Chromic Pelloxererts

Profile Description

Depth (inches)	Horizon	Matrix color Munsell-moist	Mottle color Munsell-moist	Mottle (abundance, size, contrast)	Soil texture, concretions, structure, etc.

Hydric Soil Indicators

___	histosol	___	concretions
___	histic epipedon	___	high organic content in suface layer in sandy soils
___	sulfidic odor	___	organic streaking in sandy soils
___	aquic moisture regime (see below)	X	listed on local hydric soils list (see below)
___	reducing conditions	___	listed on national hydric soils list
___	gleyed or low chroma	___	other (see below)

Remarks: Soils were not examined in the field as they supported a preponderance of wetland vegetation, were saturated in May 2005 and were listed as hydric on the county list.

WETLAND DETERMINATION

Hydrophytic vegetation present? Yes
Wetland hydrology present? Yes
Hydric soils present? Yes

Is this sampling point within a wetland? Yes
Is this sampling point a Waters of the U.S? No

Remarks: This is a wetland created by impoundmetns on a small stream.

DATA FORM
ROUTINE WETLAND DELINEATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Nacimiento Water Project	Date: May 13, 2005
Applicant/Owner: SLO Co. Flood Control & Water Conservation District	County: San Luis Obispo
Investigator: Environmental Science Associates, (510) 839-5066	State: California
Do normal circumstances exist on the site? Yes	Community ID: non-native grassland
Is the site significantly disturbed (Atypical Situation)? Yes	Feature/Fig: 2465a / 82
Is the area a potential Problem Area? No	Plot ID: DP 31

VEGETATION

Dominant Species Present	%Cover	Stratum	Indicator
1. *Avena barbata*		herb	UPL
2. *Lolium multiflorum*		herb	FAC*
3. *Cemtaurea solstitialis*		herb	NL
4. *Erodium cicutarium*		herb	NL
5.			
6.			
7.			
8.			

Subdominant Species Present	%Cover	Stratum	Indicator
1. *Cirsium vulgare*		herb	FACU
2. *Anagallis arvensis*		herb	FAC
3. *Geranium dissectum*		herb	NL
4.			
5.			
6.			
7.			
8.			

Percent of Dominant Species that are OBL, FACW or FAC: 0 **%**

Remarks:

HYDROLOGY

___ Recorded data (describe in remarks)
X No recorded data available

Field Observations:

Depth of surface water: _____ (inches)
Depth to free water in pit: _____ (inches)
Depth to saturated soil: _____ (inches)

Wetland Hydrology Indicators
Primary Indicators:
___ inundated
___ saturated in upper 12 inches
___ water marks
___ drift lines
___ sediment deposits
___ drainage pattern in wetlands

Secondary Indicators:
___ oxidized root channels in upper 12 inches
___ water stained leaves
___ local survey data
___ FAC neutral test
___ other (see below)

Remarks: This sample point was located upslope from DP 30 at the point where there was a distinct change in vegetation.

Map Unit Name: 130 - 130 - Diablo and Cibo clays
Drainage Class: moderately deep, well-drained soils
Series and Phase: 9 to 15 percent slopes
Soil type confirmed in field? No
Taxonomy (Subgroup): Chromic Pelloxererts

Profile Description

Depth (inches)	Horizon	Matrix color Munsell-moist	Mottle color Munsell-moist	Mottle (abundance, size, contrast)	Soil texture, concretions, structure, etc.

Hydric Soil Indicators

___ histosol	___ concretions
___ histic epipedon	___ high organic content in suface layer in sandy soils
___ sulfidic odor	___ organic streaking in sandy soils
___ aquic moisture regime (see below)	X listed on local hydric soils list (see below)
___ reducing conditions	___ listed on national hydric soils list
___ gleyed or low chroma	___ other (see below)

Remarks: Soils were not examined as the sample point did no support hydrophytic vegetation and there was no evidence of hydrology.

WETLAND DETERMINATION

Hydrophytic vegetation present? No
Wetland hydrology present? No
Hydric soils present? Yes

Is this sampling point within a wetland? No
Is this sampling point a Waters of the U.S? No

Remarks: This is the upland paired point for DP 30.

DATA FORM
ROUTINE WETLAND DELINEATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Applicant/Owner: Investigator:	Date: County: State:
Do normal circumstances exist on the site? ____ Is the site significantly disturbed (Atypical Situation)? ____ Is the area a potential Problem Area? ____	Community ID: Feature/Fig: Plot ID:

VEGETATION

Dominant Species Present	%Cover	Stratum	Indicator	Subdominant Species Present	%Cover	Stratum	Indicator
1.				1.			
2.				2.			
3.				3.			
4.				4.			
5.				5.			
6.				6.			
7.				7.			
8.				8.			

Percent of Dominant Species that are OBL, FACW or FAC: _____ **%**

Remarks:

HYDROLOGY

___ Recorded data (describe in remarks)
___ No recorded data available

Field Observations:

Depth of surface water: _____ (inches)
Depth to free water in pit: _____ (inches)
Depth to saturated soil: _____ (inches)

Wetland Hydrology Indicators

Primary Indicators:

___ inundated
___ saturated in upper 12 inches
___ water marks
___ drift lines
___ sediment deposits
___ drainage pattern in wetlands

Secondary Indicators:

___ oxidized root channels in upper 12 inches
___ water stained leaves
___ local survey data
___ FAC neutral test
___ other (see below)

Remarks:

SOILS

Map Unit Name: Drainage Class:
Series and Phase: Soil type confirmed in field?
Taxonomy (Subgroup):

Profile Description

Depth (inches)	Horizon	Matrix color Munsell-moist	Mottle color Munsell-moist	Mottle (abundance, size, contrast)	Soil texture, concretions, structure, etc.

Hydric Soil Indicators

___ histosol
___ histic epipedon
___ sulfidic odor
___ aquic moisture regime (see below)
___ reducing conditions
___ gleyed or low chroma
___ concretions
___ high organic content in suface layer in sandy soils
___ organic streaking in sandy soils
___ listed on local hydric soils list (see below)
___ listed on national hydric soils list
___ other (see below)

Remarks:

WETLAND DETERMINATION

Hydrophytic vegetation present? _____
Wetland hydrology present? _____
Hydric soils present? _____

Is this sampling point within a wetland? ___
Is this sampling point a Waters of the U.S? ___

Remarks:

DATA FORM
ROUTINE WETLAND DELINEATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Applicant/Owner: Investigator:	Date: County: State:
Do normal circumstances exist on the site? ____ Is the site significantly disturbed (Atypical Situation)? ____ Is the area a potential Problem Area? ____	Community ID: Feature/Fig: Plot ID:

VEGETATION

Dominant Species Present	%Cover	Stratum	Indicator	Subdominant Species Present	%Cover	Stratum	Indicator
1.				1.			
2.				2.			
3.				3.			
4.				4.			
5.				5.			
6.				6.			
7.				7.			
8.				8.			

Percent of Dominant Species that are OBL, FACW or FAC: _____ **%**

Remarks:

HYDROLOGY

___ Recorded data (describe in remarks)
___ No recorded data available

Field Observations:

Depth of surface water: _____ (inches)
Depth to free water in pit: _____ (inches)
Depth to saturated soil: _____ (inches)

Wetland Hydrology Indicators

Primary Indicators:

___ inundated
___ saturated in upper 12 inches
___ water marks
___ drift lines
___ sediment deposits
___ drainage pattern in wetlands

Secondary Indicators:

___ oxidized root channels in upper 12 inches
___ water stained leaves
___ local survey data
___ FAC neutral test
___ other (see below)

Remarks:

SOILS

Map Unit Name: Drainage Class:
Series and Phase: Soil type confirmed in field?
Taxonomy (Subgroup):

Profile Description

Depth (inches)	Horizon	Matrix color Munsell-moist	Mottle color Munsell-moist	Mottle (abundance, size, contrast)	Soil texture, concretions, structure, etc.

Hydric Soil Indicators

___ histosol
___ histic epipedon
___ sulfidic odor
___ aquic moisture regime (see below)
___ reducing conditions
___ gleyed or low chroma
___ concretions
___ high organic content in suface layer in sandy soils
___ organic streaking in sandy soils
___ listed on local hydric soils list (see below)
___ listed on national hydric soils list
___ other (see below)

Remarks:

WETLAND DETERMINATION

Hydrophytic vegetation present? _____
Wetland hydrology present? _____
Hydric soils present? _____

Is this sampling point within a wetland? ___
Is this sampling point a Waters of the U.S? ___

Remarks:

APPENDIX C

Wetlands and Other Waters of the U.S. in the Study Area

Table C-1
Wetlands and Other Waters of the U.S. in the Study Area

Figure #	Feature Name	Description	Additional Habitat Information	Data Point	OHW (ft)	Length (ft)	Wetlands and Other Waters		CDFG Juris. (acres)
							Wetlands and Other Waters	Non-Juris Isolated	
1	open water	Lake Nacimiento	Open water and lake shore		n/a	n/a	1.688		1.688
2 - 4	perennial drainage	Open water and instream wetlands, Nacimiento River			55	1040	1.274		1.274
3 - 4	riparian scrub	Riparian vegetation, Nacimiento River	Intermittant riparian scrub		n/a	n/a			0.888
2 - 4	perennial drainage	Open water and instream wetlands, Nacimiento River			45	1025	1.094		1.094
3 - 4	riparian scrub	Riparian vegetation, Nacimiento River	Intermittant riparian scrub		n/a	n/a			0.746
5	perennial drainage	Open water and instream wetlands at Nacimiento River crossing		1	100	450	1.095		1.095
5	riparian woodland	Riparian vegetation at Nacimiento River crossing	Sycamore woodland		n/a	n/a			0.390
5	perennial drainage	Bank at Nacimiento River crossing	Non-riparian TOB, upstream Sycamore woodland and riparian scrub		n/a	n/a			0.130
5	vernal pool	Nacimiento River terrrace, in dirt road		2, 3	n/a	n/a	0.017		
6	vernal pool	Roadside			n/a	n/a		0.0116	
6	vernal pool	Roadside			n/a	n/a			
7	vernal pool	Roadside			n/a	n/a	0.004		
8	ephemeral drainage	Un-named tributary to Nacimiento River			4	70	0.006		0.006
9	perennial drainage	Open water, Nacimiento River			25	440	0.247		0.247
9	riparian scrub	Bank vegetation, Nacimiento River			n/a	n/a			0.575
10	intermittent drainage	Dry creek crossing, tributary to Nacimiento River			60	230	0.317		0.794
11	vernal pool	East of paved road			n/a	n/a		0.0263	
11	intermittent drainage	Dry creek crossing, tributary to Nacimiento River			25	200	0.120		0.335
11	intermittent drainage	Dry creek crossing, tributary to Nacimiento River			n/a	n/a			0.044
11	vernal pool	West of paved road			n/a	n/a		0.0196	
11	intermittent drainage	Un-named tributary to Nacimiento River			n/a	n/a			0.068
13	ephemeral drainage	Un-named tributary to Nacimiento River			3	50	0.003		0.043
13	ephemeral drainage	Un-named tributary to Nacimiento River			3	75	0.005		0.067
14	intermittent drainage	Un-named tributary to Nacimiento River			25	910	0.465		1.097
14	intermittent drainage	Un-named tributary to Nacimiento River			35	150	0.107		0.107
14	intermittent drainage	Un-named tributary to Nacimiento River			n/a	n/a			0.089
15	intermittent drainage	Un-named tributary to Nacimiento River			8	130	0.025		0.076
15	intermittent drainage	Un-named tributary to Nacimiento River			8	390	0.074		0.247
15 - 16	intermittent drainage	Un-named tributary to Nacimiento River			13	70	0.022		0.049
15 - 16	intermittent drainage	Un-named tributary to Nacimiento River			15	325	0.103		0.242
15 - 16	intermittent drainage	Un-named tributary to Nacimiento River			15	670	0.223		0.502
15 - 16	intermittent drainage	Un-named tributary to Nacimiento River			7	120	0.017		0.082
15 - 16	intermittent drainage	Un-named tributary to Nacimiento River			6	105	0.015		0.065
15 - 16	intermittent drainage	Un-named tributary to Nacimiento River			6	1150	0.159		0.383
16	open water	Stock pond			n/a	n/a	0.141		0.141
17	vernal pool	Roadside			n/a	n/a	0.001		
17	vernal pool	North of paved road			n/a	n/a	0.032		
17	vernal pool	North of paved road		4, 5	n/a	n/a		0.0261	
17	vernal pool	Roadside			n/a	n/a		0.0148	

Table C-1
Wetlands and Other Waters of the U.S. in the Study Area

Figure #	Feature Name	Description	Additional Habitat Information	Data Point	OHW (ft)	Length (ft)	Wetlands and Other Waters		CDFG Juris. (acres)
							Wetlands and Other Waters	Non-Juris Isolated	
18	vernal pool	Roadside			n/a	n/a		0.2232	
18	vernal pool	Along Camp Roberts boundary			n/a	n/a		0.0086	
19	vernal pool	Along Camp Roberts boundary		6, 7	n/a	n/a		0.0335	
19	vernal pool	Along Camp Roberts boundary, and access road to Generals Road			n/a	n/a		0.0189	
19	vernal pool	Along Camp Roberts boundary, and access road to Generals Road		8, 9	n/a	n/a		0.0344	
19	vernal pool	Along Camp Roberts boundary, and access road to Generals Road			n/a	n/a		0.0046	
19	vernal pool	Along Camp Roberts boundary, and access road to Generals Road			n/a	n/a		0.0105	
20	vernal pool	Along Camp Roberts boundary, and access road to Generals Road		10, 11	n/a	n/a		0.0489	
20	vernal pool	Along Camp Roberts boundary, and access road to Generals Road			n/a	n/a		0.0089	
20	vernal pool	Along Camp Roberts boundary, and access road to Generals Road		12, 13	n/a	n/a		0.0027	
20	seasonal wetland	Along Camp Roberts boundary, and access road to Generals Road			n/a	n/a		0.0029	
20	vernal pool	Along Camp Roberts boundary, and access road to Generals Road			n/a	n/a		0.0082	
20	vernal swale	Along Camp Roberts boundary, and access road to Generals Road			20	100	0.036		
20	vernal pool	Along Camp Roberts boundary, and access road to Generals Road			n/a	n/a		0.0022	
21	intermittent drainage	Un-named tributaries to San Marcos Creek					0.035		0.064
21	intermittent drainage	Un-named tributaries to San Marcos Creek					0.018		0.030
21	intermittent drainage	Un-named tributaries to San Marcos Creek					0.003		0.003
21	intermittent drainage	Un-named tributaries to San Marcos Creek					0.013		0.013
21	vernal pool	Along access road to Generals Road			n/a	n/a		0.0049	
21	vernal pool	Along access road to Generals Road			n/a	n/a		0.0050	
21	vernal pool	Along access road to Generals Road			n/a	n/a		0.0020	
21	vernal pool	Along access road to Generals Road			n/a	n/a		0.0161	
21	vernal pool	Along access road to Generals Road			n/a	n/a		0.0080	
22	ephemeral drainage	Un-named tributary to San Marcos Creek	Adjacent: nonnative grassland, blue oak, manzanita, a few coast live oak		10	255	0.050		0.049
22	intermittent drainage	Un-named tributary to San Marcos Creek			10	135	0.031		0.073
22	intermittent drainage	Un-named tributary to San Marcos Creek			12	900	0.244		0.648
23	intermittent drainage	Un-named tributary to San Marcos Creek	Adjacent: Blue oak, a few coast live oak; upland understory		6	75	0.010		0.044
23	intermittent drainage	Un-named tributary to San Marcos Creek	Adjacent: Blue oak, a few coast live oak; upland understory		5	140	0.015		0.137
23	intermittent drainage	Un-named tributary to San Marcos Creek	Adjacent: Blue oak, a few coast live oak; upland understory		5	130	0.014		0.088
23	intermittent drainage	Un-named tributary to San Marcos Creek	Adjacent: Blue oak, a few coast live oak; upland understory		5	60	0.006		0.012
23	ephemeral drainage	Un-named tributary to San Marcos Creek			3	30	0.002		0.004
23	ephemeral drainage	Un-named tributary to San Marcos Creek			5	200	0.023		0.023
23	ephemeral drainage	Un-named tributary to San Marcos Creek			3	125	0.010		0.070

Table C-1
Wetlands and Other Waters of the U.S. in the Study Area

Figure #	Feature Name	Description	Additional Habitat Information	Data Point	OHW (ft)	Length (ft)	Wetlands and Other Waters		CDFG Juris. (acres)
							Wetlands and Other Waters	Non-Juris Isolated	
24	ephemeral drainage	Un-named tributary to San Marcos Creek			3	85	0.006		0.006
24	ephemeral drainage	Un-named tributary to San Marcos Creek			3	120	0.008		0.008
26	intermittent drainage	Un-named tributary to San Marcos Creek			4	85	0.007		0.006
25	intermittent drainage	Un-named tributary to San Marcos Creek			3	260	0.037		0.020
25-26	intermittent drainage	Un-named tributary to San Marcos Creek			3	520	0.020		0.037
25	riparian woodland	Riparian vegetation, un-named tributary to San Marcos Creek			n/a	n/a			1.798
26	intermittent drainage	San Marcos Creek and tributary	Scattered mulefat; adjacent cottonwood, sycamore		17	1460	0.527		1.195
27	ephemeral drainage	Un-named tributary to Salinas River			2	215	0.010		0.010
27	ephemeral drainage	Un-named tributary to Salinas River			2	30	0.001		0.001
27	ephemeral drainage	Un-named tributary to Salinas River			12	80	0.023		0.023
28-29	intermittent drainage	Salinas River		14, 15	325	1710	11.344		11.344
28-29	riparian woodland	Riparian vegetation, Salinas River	Willow-Cottonwood; riparian scrub		n/a	n/a			16.164
28-31	riparian woodland	Riparian vegetation, Salinas River			n/a	n/a			3.378
32-33	riparian woodland	Riparian vegetation, Salinas River			n/a	n/a			6.639
35	riparian woodland	Riparian vegetation, Salinas River			n/a	n/a			0.014
35	riparian woodland	Riparian vegetation, Salinas River			n/a	n/a			0.052
31	intermittent drainage	Un-named tributary to Salinas River			5	50	0.006		0.006
31	riparian woodland	Riparian vegetation, un-named tributary to Salinas River			n/a	n/a			0.055
31	intermittent drainage	Un-named tributary to Salinas River			7	160	0.024		0.041
31	riparian woodland	Riparian vegetation, un-named tributary to Salinas River			n/a	n/a			0.288
35	intermittent drainage	Un-named tributary to Salinas River			20	20	0.010		0.010
35-37	riparian woodland	Riparian vegetation, Salinas River	Cottonwood-Willow; riparian scrub		n/a	n/a			1.931
37	riparian woodland	Riparian vegetation, Salinas River	Cottonwood-Willow; riparian scrub		n/a	n/a			0.193
37	ephemeral drainage	Un-named tributary to Salinas River			2	160	0.007		0.037
37	intermittent drainage	Un-named tributary to Salinas River			6	140	0.020		0.020
37	intermittent drainage	Un-named tributary to Salinas River			9	18	0.004		0.004
38	intermittent drainage	Un-named tributary to Salinas River			4	170	0.016		0.016
38	intermittent drainage	Un-named tributary to Salinas River			4	16	0.001		0.001
39	intermittent drainage	Un-named tributary to Salinas River			6	45	0.006		0.006
39	riparian woodland	Riparian vegetation, un-named tributary to Salinas River	Nonnative walnut and locust		n/a	n/a			0.119
39	intermittent drainage	Un-named tributary to Salinas River			9	40	0.008		0.008
39	riparian woodland	Riparian vegetation, Salinas River	Cottonwood-Willow; riparian scrub		n/a	n/a			0.163
39	riparian woodland	Riparian vegetation, Salinas River	Cottonwood-Willow; riparian scrub		n/a	n/a			0.050
39	riparian woodland	Riparian vegetation, Salinas River	Cottonwood-Willow; riparian scrub		n/a	n/a			0.002
39-40	riparian woodland	Riparian vegetation, Salinas River	Cottonwood-Willow; riparian scrub		n/a	n/a			1.244
39	riparian woodland	Riparian vegetation, Salinas River	Cottonwood-Willow; riparian scrub		n/a	n/a			0.059
39	riparian woodland	Riparian vegetation, Salinas River	Cottonwood-Willow; riparian scrub		n/a	n/a			0.051
41	perennial drainage	Un-named tributary to Salinas River			15	220	0.075		0.075
41	riparian woodland	Riparian vegetation, un-named tributary to Salinas River			n/a	n/a			0.114
43	intermittent drainage	Un-named tributary to Salinas River			2	95	0.005		0.005
42 - 44	intermittent drainage	Salinas River			575	2090	27.612		27.612

Table C-1
Wetlands and Other Waters of the U.S. in the Study Area

Figure #	Feature Name	Description	Additional Habitat Information	Data Point	OHW (ft)	Length (ft)	Wetlands and Other Waters		CDFG Juris. (acres)
							Wetlands and Other Waters	Non-Juris Isolated	
42 - 44	riparian woodland	Riparian vegetation, Salinas River			n/a	n/a			9.924
45	ephemeral drainage	Un-named tributary to Salinas River			8	160	0.029		0.086
45	ephemeral drainage	Un-named tributary to Salinas River			35	20	0.017		0.017
46	riparian woodland	Riparian vegetation, Salinas River			n/a	n/a			0.397
46	riparian woodland	Riparian vegetation, Salinas River			n/a	n/a			0.004
45-46	riparian woodland	Riparian vegetation, Salinas River			n/a	n/a			0.504
45	riparian woodland	Riparian vegetation, Salinas River			n/a	n/a			0.539
47	ephemeral drainage	Un-named tributary to Salinas River			2	115	0.005		0.011
47	ephemeral drainage	Un-named tributary to Salinas River			6	135	0.019		0.031
47	riparian woodland	Riparian vegetation, un-named tributary to Salinas River	Oak riparian		n/a	n/a			0.118
47	ephemeral drainage	Un-named tributary to Salinas River			15	35	0.012		
48	ephemeral drainage	Un-named tributary to Salinas River			2	30	0.001		0.001
49	ephemeral drainage	Un-named tributary to Salinas River			2	160	0.007		0.022
49	ephemeral drainage	Un-named tributary to Salinas River			4	125	0.012		0.038
50	ephemeral drainage	Un-named tributary to Salinas River			2	80	0.004		0.007
51	ephemeral drainage	Un-named tributary to Salinas River			6	130	0.004		0.004
52	ephemeral drainage	Un-named tributary to Salinas River			6	18	0.003		0.006
52	ephemeral drainage	Un-named tributary to Salinas River			15	120	0.042		0.042
53	ephemeral drainage	Un-named tributary to Salinas River	Roadside ditch, re-alignment of former drainage		4	225	0.021		0.026
54	ephemeral drainage	Un-named tributary to Salinas River			3	95	0.008		0.013
56	ephemeral drainage	Un-named tributary to Salinas River			5	140	0.016		0.016
56	riparian woodland	Riparian vegetation, un-named tributary to Salinas River			n/a	n/a			0.145
56	ephemeral drainage	Salinas River			11	240	0.059		0.059
56	riparian woodland	Riparian vegetation, Salinas River	Willow-Cottonwood-Valley Oak		n/a	n/a			0.483
56	riparian woodland	Riparian vegetation, Salinas River	Willow-Cottonwood-Valley Oak		n/a	n/a			0.258
55	riparian woodland	Riparian vegetation, Salinas River	Willow-Cottonwood-Valley Oak		n/a	n/a			0.493
55	riparian woodland	Riparian vegetation, Salinas River	Willow-Cottonwood-Valley Oak		n/a	n/a			0.048
57	ephemeral drainage	Un-named tributary to Salinas River			1	90	0.002		0.007
57	riparian scrub	Riparian vegetation, un-named tributary to Salinas River	Willow individuals		n/a	n/a			0.017
57	ephemeral drainage	Un-named tributary to Salinas River	Riparian scrub		3	55	0.003		0.006
58	riparian woodland	Riparian vegetation, Salinas River	Sycamore woodland; some riparian scrub		n/a	n/a			0.322
58	riparian woodland	Riparian vegetation, Salinas River	Sycamore woodland; some riparian scrub		n/a	n/a			0.001
58	ephemeral drainage	Un-named tributary to Salinas River	Mulefat scrub		15	465	0.163		0.163
58	riparian woodland	Riparian vegetation, un-named tributary to Salinas River			n/a	n/a			0.555
59	intermittent drainage	Salinas River crossing			220	800	4.039		4.039
59	riparian woodland	Riparian vegetation, Salinas River	Sycamore woodland; some riparian scrub		n/a	n/a			1.934
60	perennial drainage	Santa Margarita Creek at confluence with Trout Creek			25	265	0.165		0.165
60	riparian woodland	Riparian vegetation, Santa Margarita Creek	Coast live oak riparian and riparian scrub		n/a	n/a			0.644
60	riparian woodland	Riparian vegetation, Santa Margarita and Trout Creeks	Coast live oak riparian and riparian scrub		n/a	n/a			0.446

Table C-1
Wetlands and Other Waters of the U.S. in the Study Area

Figure #	Feature Name	Description	Additional Habitat Information	Data Point	OHW (ft)	Length (ft)	Wetlands and Other Waters		CDFG Juris. (acres)
							Wetlands and Other Waters	Non-Juris Isolated	
61	perennial drainage	Trout Creek			3	55	0.071		0.071
61	riparian woodland	Riparian vegetation, Trout Creek	Coast live oak riparian and riparian scrub		n/a	n/a			0.150
61	perennial drainage	Trout Creek			10	305	0.004		0.004
61	riparian woodland	Riparian vegetation, Trout Creek	Coast live oak riparian and riparian scrub		n/a	n/a			0.709
61	riparian woodland	Riparian vegetation, Trout Creek	Coast live oak riparian and riparian scrub		n/a	n/a			0.151
62	seasonal wetland	East of El Camino Real, impounded by railroad		18, 19	n/a	n/a	0.440		
62	seasonal wetland	East of El Camino Real, impounded by railroad		16, 17	n/a	n/a	0.205		
63	ephemeral drainage	Un-named tributary to Yerba Buena Creek			2	330	0.015		0.015
64	seasonal wetland	East of El Camino Real, impounded by railroad			n/a	n/a	0.004		
64	vernal swale	East of El Camino Real, impounded by railroad		20, 21	n/a	n/a	0.092		
64	vernal swale	East of El Camino Real, impounded by railroad			n/a	n/a	0.129		
64	vernal swale	East of El Camino Real, impounded by railroad			n/a	n/a	0.120		
65	vernal swale	East of El Camino Real, impounded by railroad			n/a	n/a	0.021		
65	vernal swale	East of El Camino Real, impounded by railroad			n/a	n/a	0.133		
65	vernal swale	East of El Camino Real, impounded by railroad		22, 23	n/a	n/a	0.582		
66	freshwater marsh	Yerba Buena Creek, Santa Margarita		24, 25	0	0	0.015		0.015
66	perennial drainage	Yerba Buena Creek, Santa Margarita			22	70	0.018		0.018
66	riparian scrub	Riparian vegetation, Yerba Buena Creek	Riparian scrub and woodland		n/a	n/a			0.023
66	freshwater marsh	Yerba Buena Creek, Santa Margarita			0	0	0.010		0.010
66	perennial drainage	Yerba Buena Creek, Santa Margarita			22	45	0.013		0.013
66	riparian woodland	Riparian vegetation, Yerba Buena Creek	Riparian scrub and woodland		n/a	n/a			0.043
66	riparian woodland	Riparian vegetation, Yerba Buena Creek	Riparian scrub and woodland		n/a	n/a			0.011
67	ephemeral drainage	Un-named tributary to Santa Margarita Creek			13	20	0.006		0.006
67	ephemeral drainage	Un-named tributary to Santa Margarita Creek			10	150	0.034		0.034
68	seasonal wetland	To side of frontage road			n/a	n/a		0.0272	
68	seasonal wetland	To side of frontage road			n/a	n/a		0.0224	
68	seasonal wetland	Un-named tributary to Santa Margarita Creek			n/a	n/a	0.036		
68	intermittent drainage	Un-named tributary to Santa Margarita Creek			4	90	0.008		0.021
68	riparian woodland	Riparian vegetation, un-named tributary to Santa Margarita Creek			n/a	n/a			0.165
68	intermittent drainage	Un-named tributary to Santa Margarita Creek			7	36	0.005		0.005
68	freshwater marsh	Un-named tributary to Santa Margarita Creek			n/a	n/a	0.049		0.049
68	perennial drainage	Un-named tributary to Santa Margarita Creek			5	140	0.016		0.016
68	riparian woodland	Riparian vegetation, un-named tributary to Santa Margarita Creek	Valley oak riparian; riparian scrub		n/a	n/a			0.292
68	freshwater marsh	Un-named tributary to Santa Margarita Creek		26, 27	n/a	n/a	0.073		0.073
68	perennial drainage	Un-named tributary to Santa Margarita Creek			3	70	0.005		0.005
68	riparian woodland	Riparian vegetation, un-named tributary to Santa Margarita Creek	Valley oak riparian; riparian scrub		n/a	n/a			0.150
69	perennial drainage	Santa Margarita Creek			6	1025	0.141		0.141
69	riparian woodland	Riparian vegetation, Santa Margarita Creek	Coast live oak riparian and riparian scrub		n/a	n/a			1.366
69 - 70	perennial drainage	Santa Margarita Creek			6	870	0.125		0.125
69 - 70	riparian woodland	Riparian vegetation, Santa Margarita Creek	Coast live oak riparian and riparian scrub		n/a	n/a			1.433

Table C-1
Wetlands and Other Waters of the U.S. in the Study Area

Figure #	Feature Name	Description	Additional Habitat Information	Data Point	OHW (ft)	Length (ft)	Wetlands and Other Waters		CDFG Juris. (acres)
							Wetlands and Other Waters	Non-Juris Isolated	
70	intermittent drainage	Un-named tributary to Santa Margarita Creek			2	100	0.005		
70	seep	Adjacent to un-named tributary to Santa Margarita Creek			n/a	n/a	0.012		0.010
	seep	Adjacent to un-named tributary to Santa Margarita Creek			n/a	n/a	0.010		0.012
70	seep	Adjacent to un-named tributary to Santa Margarita Creek		28, 29	n/a	n/a	0.058		
70	seep	In vicinity of Santa Margarita Creek	freshwater seep		n/a	n/a	0.014		
70	intermittent drainage	Un-named tributary to Santa Margarita Creek			6	145	0.019		0.019
70	riparian woodland	Riparian vegetation, un-named tributary to Santa Margarita Creek	Coast live oak-Valley oak-Bay riparian and riparian scrub		n/a	n/a			0.103
71	seep		freshwater seep		n/a	n/a	0.068		
71	ephemeral drainage	Un-named tributary to Santa Margarita Creek			2	60	0.003		0.003
71	riparian woodland	Riparian vegetation, un-named tributary to Santa Margarita Creek	Sycamore woodland and riparian scrub		n/a	n/a			0.104
71	ephemeral drainage	Un-named tributary to Santa Margarita Creek			2	43	0.002		0.002
71	riparian woodland	Riparian vegetation, un-named tributary to Santa Margarita Creek	Sycamore woodland and riparian scrub		n/a	n/a			0.115
72	ephemeral drainage	Un-named tributary to Santa Margarita Creek			2	55	0.002		0.002
72	riparian woodland	Riparian vegetation, un-named tributary to Santa Margarita Creek	Coast live oak riparian and riparian scrub		n/a	n/a			0.087
72	ephemeral drainage	Un-named tributary to Santa Margarita Creek			2	104	0.005		0.005
72	perennial drainage	Un-named tributary to Santa Margarita Creek			15	640	0.222		0.222
72	riparian woodland	Riparian vegetation, un-named tributary to Santa Margarita Creek	Sycamore woodland and riparian scrub		n/a	n/a			0.872
72	open water	pond			n/a	n/a	0.062		0.062
72	ephemeral drainage	Un-named tributary to Santa Margarita Creek			6	40	0.006		0.006
72	perennial drainage	Un-named tributary to Santa Margarita Creek			8	45	0.009		0.009
72	riparian woodland	Riparian vegetation, un-named tributary to Santa Margarita Creek	Coast live oak-Bay riparian and riparian scrub		n/a	n/a			0.071
72	perennial drainage	Un-named tributary to Santa Margarita Creek			8	235	0.043		0.043
72	riparian woodland	Riparian vegetation, un-named tributary to Santa Margarita Creek	Coast live oak-Bay riparian and riparian scrub		n/a	n/a			0.261
73	intermittent drainage	Headwaters of Stenner Creek			4	205	0.019		0.019
	riparian woodland	Riparian vegetation, Stenner Creek	Coast live oak riparian and riparian scrub		n/a	n/a			0.081
73	ephemeral drainage	Headwaters of Stenner Creek			4	60	0.005		0.005
73	ephemeral drainage	Headwaters of Stenner Creek			5	45	0.005		0.005
73	perennial drainage	Headwaters of Stenner Creek			10	275	0.068		0.068
73	riparian woodland	Riparian vegetation, Stenner Creek			n/a	n/a			0.742
74	seep	In vicinity of Stenner Creek	freshwater seep		n/a	n/a	0.065		
74	intermittent drainage	Headwaters of Stenner Creek			4	560	0.056		0.056
74	riparian woodland	Riparian vegetation, Stenner Creek			n/a	n/a			1.233
75	intermittent drainage	Stenner Creek			8	115	0.020		0.020
75	instream wetland	Stenner Creek			n/a	n/a	0.016		0.016
75	riparian woodland	Riparian vegetation, Stenner Creek			n/a	n/a			0.273
75	riparian woodland	Riparian vegetation, Stenner Creek			n/a	n/a			0.156
75-77	intermittent drainage	Stenner Creek			13	3780	1.022		1.022
75-77	riparian woodland	Riparian vegetation, Stenner Creek	Coast live oak-Bay riparian		n/a	n/a			7.845

Table C-1
Wetlands and Other Waters of the U.S. in the Study Area

Figure #	Feature Name	Description	Additional Habitat Information	Data Point	OHW (ft)	Length (ft)	Wetlands and Other Waters		CDFG Juris. (acres)
							Wetlands and Other Waters	Non-Juris Isolated	
78, 79	intermittent drainage	Stenner Creek			12	200	0.059		0.059
78-79	riparian woodland	Riparian vegetation, Stenner Creek	Coast live oak-Bay riparian		n/a	n/a			1.673
79	perennial drainage	Stenner Creek			12	925	0.267		0.267
78	riparian woodland	Riparian vegetation, Stenner Creek	Coast live oak-Bay riparian		n/a	n/a			0.355
75	intermittent drainage	Stenner Creek			0	0	0.013		0.013
75	ephemeral drainage	Stenner Creek			5	310	0.036		0.036
75	riparian woodland	Riparian vegetation, Stenner Creek			n/a	n/a			0.327
75	ephemeral drainage	Stenner Creek			4	115	0.010		0.010
75	riparian scrub	Riparian vegetation, Stenner Creek			n/a	n/a			0.076
75	seep	Stenner Creek			n/a	n/a	0.066		0.066
76	ephemeral drainage	Un-named tributary to Stenner Creek			9	260	0.055		0.055
76	riparian woodland	Riparian vegetation, un-named tributary to Stenner Creek	Coast live oak riparian		n/a	n/a			0.254
76	ephemeral drainage	Un-named tributary to Stenner Creek			8	865	0.130		0.130
76	riparian scrub	Riparian vegetation, un-named tributary to Stenner Creek			n/a	n/a			0.484
76	seasonal wetland	Un-named tributary to Stenner Creek			n/a	n/a	0.067		0.067
80	ephemeral drainage	Un-named tributary to Stenner Creek			2	265	0.012		0.012
80	riparian woodland	Riparian vegetation, un-named tributary to Stenner Creek	Coast live oak riparian		n/a	n/a			0.096
80	seasonal wetland	Un-named tributary to Stenner Creek			n/a	n/a	0.088		
81	perennial drainage	Un-named tributary to Stenner Creek			6	325	0.046		0.046
81	riparian scrub	Riparian vegetation, un-named tributary to Stenner Creek			n/a	n/a			0.360
81	perennial drainage	Un-named tributary to Stenner Creek	Riparian scrub		6	275	0.039		0.039
81	instream wetland	Un-named tributary to Stenner Creek			n/a	n/a	0.336		0.336
81	perennial drainage	Un-named tributary to Stenner Creek			2	330	0.013		0.013
81	instream wetland	Un-named tributary to Stenner Creek			n/a	n/a	0.021		0.021
81	perennial drainage	Un-named tributary to Stenner Creek	Riparian scrub		5	230	0.022		0.022
81	riparian scrub	Riparian vegetation, un-named tributary to Stenner Creek			n/a	n/a			0.351
82	instream wetland	Un-named tributary to Stenner Creek			n/a	n/a	0.210		0.210
82	perennial drainage	Un-named tributary to Stenner Creek			2	400	0.016		0.016
82	perennial drainage	Un-named tributary to Stenner Creek			5	20	0.002		0.002
82	freshwater marsh	Un-named tributary to Stenner Creek		30, 31	n/a	n/a	0.464		0.464
82	perennial drainage	Un-named tributary to Stenner Creek	Riparian scrub		4	85	0.008		0.033
82	intermittent drainage	Un-named tributary to Stenner Creek	Riparian scrub		9	40	0.008		0.008
82	perennial drainage	Un-named tributary to Stenner Creek	Riparian scrub		8	830	0.151		0.154
82	riparian scrub	Riparian vegetation, un-named tributary to Stenner Creek			n/a	n/a			1.036
82	intermittent drainage	Un-named tributary to Stenner Creek			5	160	0.018		0.018
82	riparian scrub	Riparian vegetation, un-named tributary to Stenner Creek			n/a	n/a			0.058
82	riparian scrub	Riparian vegetation, un-named tributary to Stenner Creek			n/a	n/a			0.030
83	intermittent drainage	Stenner Creek			10	45	0.011		0.011
83	perennial drainage	Stenner Creek			20	1720	0.751		0.751

Table C-1
Wetlands and Other Waters of the U.S. in the Study Area

Figure #	Feature Name	Description	Additional Habitat Information	Data Point	OHW (ft)	Length (ft)	Wetlands and Other Waters		CDFG Juris. (acres)
							Wetlands and Other Waters	Non-Juris Isolated	
83	riparian woodland	Riparian vegetation, Stenner Creek	Sycamore woodland; Oak-Bay riparian		n/a	n/a			3.120
83	intermittent drainage	Stenner Creek			10	80	0.018		0.018
83	intermittent drainage	Stenner Creek			10	100	0.022		0.022
83	intermittent drainage	Stenner Creek			10	80	0.018		0.018
85	perennial drainage	Stenner Creek			17	500	0.211		0.211
84-85	riparian woodland	Riparian vegetation, Stenner Creek	Sycamore woodland; Oak-Bay riparian		n/a	n/a			2.673
84-85	perennial drainage	Riparian vegetation, Stenner Creek			18	1690	0.771		0.771
85	ephemeral drainage	Un-named tributary to Stenner Creek			14	175	0.070		0.070
85	riparian woodland	Riparian vegetation, un-named tributary to Stenner Creek	Sycamore woodland; Oak riparian		n/a	n/a			0.360
85	ephemeral drainage	Un-named tributary to Stenner Creek			3	260	0.017		0.017
85	perennial drainage	Stenner Creek			10	235	0.060		0.060
85	riparian woodland	Riparian vegetation, Stenner Creek	Sycamore woodland; Oak-Bay riparian		n/a	n/a			0.260
85	perennial drainage	Stenner Creek			5	50	0.006		0.006
85	riparian woodland	Riparian vegetation, Stenner Creek	Sycamore woodland; Oak-Bay riparian		n/a	n/a			0.089
85	perennial drainage	Stenner Creek			15	65	0.026		0.026
85	riparian woodland	Riparian vegetation, Stenner Creek	Sycamore woodland; Oak-Bay riparian		n/a	n/a			0.160

APPENDIX D

Information on Soils in the Study Area

TABLE D-1
SOILS IN THE STUDY AREA THAT SUPPORT WETLANDS OR OTHER WATERS OF THE U.S.

Soil Number	Soil Type	Classification	Drainage Class	Occurrence in Project Area
Paso Robles				
100	**Arbuckle** fine sandy loam, 0 to 2 percent slopes	Typic Haploxeralfs	well drained	alluvium on low terraces
102	**Arbuckle**-Positas complex, 9 to 15 percent slopes	Typic Haploxeralfs	moderately well drained to well drained	gravelly alluvium on stream terraces
103	**Arbuckle**-Positas, 15 to 30 percent slopes	Typic Haploxeralfs	moderately well drained to well drained	gravelly alluvium on stream terraces
104	**Arbuckle**-Positas complex, 30 to 50 percent slopes	Typic Haploxeralfs	moderately well drained to well drained	gravelly alluvium on stream terraces
104	**Arbuckle**-Positas complex, 30 to 50 percent slopes	Typic Haploxeralfs	moderately well drained to well drained	gravelly alluvium on stream terraces
105	**Arbuckle**-Positas complex, 50 to 75 percent slopes	Typic Haploxeralfs	moderately well drained to well drained	gravelly alluvium on stream terraces
106	**Arbuckle**-San Ysidro complex, 2 to 9 percent slopes	Typic Haploxeralfs	well drained	alluvium on low terraces
106	**Arbuckle** San Ysidro complex, 2 to 9 percent slopes	Typic Haploxeralfs	well drained	alluvium on low terraces
113	**Balcom**-Calleguas complex, 50 to 75 percent slopes	Calcixerollic Xerochrepts	well drained; from very shallow, to shallow, to moderately deep	On uplands, hills and mountains in material weathered from sedimentary rocks.
116	**Botella** sandy loam, 2 to 9 percent slopes	Pachic Argixerolls	very deep, well drained soils.	in valley bottoms and on alluvial fans; formed in alluvium derived from stream terraces and dark colored upland soils formed in residuum from sedimentary rocks
134	**Dibble** clay loam 9 to 15 percent slopes	Typic Haploxeralfs	Well drained	weathered shale and sandstone on uplands
140	**Elder** loam, 0 to 5 percent slopes, flooded (from book)	Cumulic Haploxerolls	very deep and deep, well drained soils	on alluvial fans and in flood plains; formed in alluvial material derived from mixed rock sources
148	**Hanford** and Greenfield soils, 2 to 9 percent slopes (from book)	Typic Xerorthents	very deep, well drained soils	stream bottoms, floodplains, alluvial fans and terraces; formed in moderately coarse textured alluvium dominantly from granite and other quartz bearing rocks of similar texture

TABLE D-1 (continued)
SOILS IN THE STUDY AREA THAT SUPPORT WETLANDS OR OTHER WATERS OF THE U.S.

Soil Number	Soil Type	Classification	Drainage Class	Occurrence in Project Area
153	**Linne**-Calodo complex, 30 to 50 percent slopes	Pachic Haploxerolls (Linne)	moderately deep to shallow, well drained soils	on foothills, uplands or mountainous uplands; formed in material weathered from fairly soft shale and sandstone or calcareous shale and sandstone
154	**Linne-**Calodo, 50 to 75 percent slopes	Pachic Haploxerolls (Linne)	moderately deep to shallow, well drained soils	on foothills, uplands or mountainous uplands; formed in material weathered from fairly soft shale and sandstone or calcareous shale and sandstone
158	**Lockwood** shaly loam, 2 to 9 percent slopes	Pachic Argixerolls	deep, well drained soils	on alluvial fans and bench terraces ; formed in alluvial material from dominantly siliceous shales
159	**Lockwood**-Concepcion complex, 2 to 9 percent slopes	Pachic Argixerolls	deep, well or moderately well drained soils	on alluvial fans and bench terraces ; OR on terraces adjacent to and within 1 to 2 miles of the Pacific Ocean. Formed in alluvial material from dominantly siliceous shales 0R formed in weakly consolidated stratified alluvium or wind-deposited sandy material
160	**Lockwood**-Concepcion, 9 to 15 percent slopes	Pachic Argixerolls	deep, well or moderately well drained soils	on alluvial fans and bench terraces ; OR on terraces adjacent to and within 1 to 2 miles of the Pacific Ocean. Formed in alluvial material from dominantly siliceous shales 0R formed in weakly consolidated stratified alluvium or wind-deposited sandy material
166	**Metz** loamy sand, 0 to 5 percent slopes	Typic Xerofluvents	very deep, somewhat excessively drained soils	on floodplains and alluvial fans; formed in alluvial material from mixed, but dominantly sedimentary rocks
167	**Metz**-Tujunga complex, occasionally flooded, 0 to 5 percent slopes	Typic Xerofluvents	very deep, somewhat excessively drained soils	on floodplains and alluvial fans Formed in alluvial material from granitic sources and/or mixed, but dominantly sedimentary rocks
173	**Mocho** clay loam, 0 to 2 percent slopes	Fluventic Haploxerolls	very deep, well drained soils	on alluvial fans; formed in alluvium derived mostly from sandstone and shale rock sources

TABLE D-1 (continued)
SOILS IN THE STUDY AREA THAT SUPPORT WETLANDS OR OTHER WATERS OF THE U.S.

Soil Number	Soil Type	Classification	Drainage Class	Occurrence in Project Area
179	**Nacimiento**-Los Osos complex, 9 to 30 percent slopes	Calcic Haploxerolls	moderately deep, well drained soils	on rolling uplands; formed in material weathered from calcareous shale and sandstone
180	**Nacimiento**-Los Osos complex, 30 to 50 percent slopes	Calcic Haploxerolls	moderately deep, well drained soils	on rolling uplands; formed in material weathered from calcareous shale and sandstone
193	**San Andreas**-Arujo complex, 9 to 15 percent slopes	Typic Haploxerolls	well-drained moderately deep soils	on hills and mountainous uplands; formed in material weathered from soft sandstone OR in material weathered from igneous and metamorphic rock.
194	**San Emigdio** fine sandy loam, 0 to 2 percent slopes	Typic Xerofluvents	very deep, well drained soils	on fans and floodplains; formed in dominantly sedimentary alluvium
203	**Shimmon**-Dibble association, steep	Typic Argixerolls	moderately deep well-drained soils	on hills and mountains or uplands; formed in material weathered from sandstone or shale
205	**Sorrento** clay loam, 0 to 2 percent slopes	Calcic Haploxerolls	very deep, well drained soils	on alluvial fans and stabilized floodplains; formed in alluvium mostly from sedimentary rocks
207	**Still** gravelly loam, 0 to 2 percent slopes	Cumulic Haploxerolls	deep, well drained soils	on flood plains and alluvial fans; formed in alluvial material from sedimentary rocks
208	**Still** clay loam, 0 to 2 percent slopes	Cumulic Haploxerolls	deep, well drained soils	on flood plains and alluvial fans; formed in alluvial material from sedimentary rocks
209	**Still** clay loam, 2 to 9 percent slopes	Cumulic Haploxerolls	deep, well drained soils	on flood plains and alluvial fans; formed in alluvial material from sedimentary rocks
212	**Xerofluvents**-Riverwash association	n/a	very well drained soils	on floodplains and in larger stream and river channels

TABLE D-1 (continued)
SOILS IN THE STUDY AREA THAT SUPPORT WETLANDS OR OTHER WATERS OF THE U.S.

Soil Number	Soil Type	Classification	Drainage Class	Occurrence in Project Area
Coastal				
130	**Diablo** and Cibo clays, 9 to 15 percent slopes	Chromic Pelloxererts	moderately deep, well drained soils	on complex undulating, rolling to steep uplands OR foothills and mountainous uplands; formed in material weathered from basic igneous rocks
131	**Diablo** and Cibo clays, 15 to 30 percent slopes	Chromic Pelloxererts	moderately deep, well drained soils	on complex undulating, rolling to steep uplands OR foothills and mountainous uplands; formed in material weathered from basic igneous rocks
165	**Los Osos**-Diablo complex, 30 to 50 percent slopes	Typic Argixerolls;	moderately deep, well drained soils	on uplands or complex undulating, rolling to steep uplands; formed in material weathered from sandstone and shale
183	**Obispo**-Rock outcrop complex, 15 to 75percent slopes	Lithic Haploxerolls	shallow, well drained soils	on uplands; formed in material weathered from serpentinite rock
194	**Riverwash**	n/a	very well drained soils	in river channels and floodplains

Notes:
[a] Soil subgroups in **bold** are listed on either the national (NTCHS, 1991) or county (NRCS, 200X) hydric soils list.

Hydric Soils

San Luis Obispo County, California, Coastal Part

[This report lists only those map unit components that are rated as hydric. Dashes (---) in any column indicate that the data were not included in the database. Definitions of hydric criteria codes are included at the end of the report]

Map symbol and map unit name	Component	Percent of map unit	Landform	Hydric rating	Hydric criteria
101:					
Aquolls, saline	Aquolls	85	Tidal flat	Yes	2B3
107:					
Beaches	Beaches	90	Beach	Yes	4
111:					
Camarillo sandy loam	Camarillo	85	Alluvial fan	Yes	2A
112:					
Camarillo loam, drained	Camarillo	85	Alluvial fan	Yes	2A
	Camarillo sandy loam	3	---	Yes	2A
124:					
Corralitos sand, 0 to 2 percent slopes	Unnamed	1	---	Yes	4
125:					
Corralitos sand, 2 to 15 percent slopes	Unnamed	1	---	Yes	2A
126:					
Corralitos variant loamy sand	Camarillo sandy loam	3	Alluvial fan	Yes	2A
127:					
Cropley clay, 0 to 2 percent slopes	Unnamed	2	---	Yes	2B3
134:					
Dune land	Beaches	3	Beach	Yes	4
135:					
Elder sandy loam, 2 to 5 percent slopes	Unnamed	1	---	Yes	4
138:					
Elder sandy loam, occasionally flooded, 0 to 2 percent slopes	Unnamed	3	---	Yes	4
139:					
Elder sandy loam, occasionally flooded, 2 to 9 percent slopes	Unnamed	1	---	Yes	4
169:					
Marimel sandy clay loam, occasionally flooded	Camarillo sandy loam	3	Alluvial flat	Yes	2A
	Tujunga, frequently flooded	3	Flood plain	Yes	4
	Unnamed	2	---	Yes	2A

Hydric Soils

San Luis Obispo County, California, Coastal Part

Map symbol and map unit name	Component	Percent of map unit	Landform	Hydric rating	Hydric criteria
170:					
Marimel silty clay loam, drained	Unnamed	2	---	Yes	4
171:					
Millsap loam, 15 to 50 percent slopes	Unnamed	2	---	Yes	4
173:					
Mocho fine sandy loam	Unnamed	2	---	Yes	4
174:					
Mocho loam	Camarillo	2	Alluvial flat	Yes	2A
	Unnamed	1	---	Yes	2A
175:					
Mocho silty clay loam	Camarillo, drained	2	Alluvial flat	Yes	2A
176:					
Mocho variant fine sandy loam	Unnamed	2	---	Yes	2A, 4
192:					
Psamments and Fluvents, occasionally flooded	Riverwash	2	---	Yes	4
	Unnamed	2	---	Yes	2A
	Unnamed	2	---	Yes	4
193:					
Psamments and Fluvents, wet	Fluvents	45	Basin floor	Yes	2B2
	Psamments	45	Basin floor	Yes	2B1, 2B2
194:					
Riverwash	Riverwash	90	Channel	Yes	4
196:					
Salinas loam, 0 to 2 percent slopes	Camarillo, drained	2	Depression	Yes	2A
197:					
Salinas silty clay loam, 0 to 2 percent slopes	Camarillo, drained	2	Depression	Yes	2A

Hydric Soils

San Luis Obispo County, California, Coastal Part

Map symbol and map unit name	Component	Percent of map unit	Landform	Hydric rating	Hydric criteria
219:					
Tujunga loamy sand, 0 to 2 percent slopes	Unnamed	5	---	Yes	4
	Camarillo, drained	2	Alluvial flat	Yes	2A
220:					
Tujunga loamy sand, frequently flooded, 2 to 9 percent slopes	Unnamed	3	---	Yes	4
221:					
Xererts-Xerolls-Urban land complex, 0 to 15 percent slopes	Unnamed	2	---	Yes	2A

Explanation of hydric criteria codes:

1. All Histels except for Folistels, and Histosols except for Folists.
2. Soils in Aquic suborders, great groups, or subgroups, Albolls suborder, Historthels great group, Histoturbels great group, Pachic subgroups, or Cumulic subgroups that:
   A. are somewhat poorly drained and have a water table at the surface (0.0 feet) during the growing season, or
   B. are poorly drained or very poorly drained and have either:
      1.) a water table at the surface (0.0 feet) during the growing season if textures are coarse sand, sand, or fine sand in all layers within a depth of 20 inches, or
      2.) a water table at a depth of 0.5 foot or less during the growing season if permeability is equal to or greater than 6.0 in/hr in all layers within a depth of 20 inches, or
      3.) a water table at a depth of 1.0 foot or less during the growing season if permeability is less than 6.0 in/hr in any layer within a depth of 20 inches.
3. Soils that are frequently ponded for long or very long duration during the growing season.
4. Soils that are frequently flooded for long or very long duration during the growing season.

Hydric Soils

San Luis Obispo County, California, Paso Robles Area

[This report lists only those map unit components that are rated as hydric. Dashes (---) in any column indicate that the data were not included in the database. Definitions of hydric criteria codes are included at the end of the report]

Map symbol and map unit name	Component	Percent of map unit	Landform	Hydric rating	Hydric criteria
106:					
Arbuckle-San Ysidro complex, 2 to 9 percent slopes	UNNAMED	1	---	Yes	2B3
116:					
Botella sandy loam, 2 to 9 percent slopes	UNNAMED	1	---	Yes	2B3
118:					
Camarillo sandy loam, frequently flooded	Camarillo	65	Flood plain	Yes	2B3
	UNNAMED	1	---	Yes	2B3
119:					
Camarillo silty clay loam, partially drained	Camarillo	70	Flood plain	Yes	2B3
	UNNAMED	1	---	Yes	2B3
122:					
Capay silty clay	CAMARILLO SILTY CLAY LOAM	3	Alluvial flat	Yes	2B3
	CLEAR LAKE CLAY	3	---	Yes	2B3
123:					
Capay silty clay, occasionally flooded	CAMARILLO SILTY CLAY LOAM	4	Alluvial flat	Yes	2B3
129:					
Clear Lake clay	Clear Lake	75	Basin floor	Yes	2B3
	CAMARILLO SILTY CLAY LOAM	5	Alluvial flat	Yes	2B3
130:					
Clear Lake clay, drained	Clear Lake	85	Basin floor	Yes	2B3
132:					
Cropley clay, 0 to 2 percent slopes	CLEAR LAKE	5	---	Yes	2B3
134:					
Dibble clay loam, 9 to 15 percent slopes	XEROFLUVENT	1	---	Yes	4
138:					
Elder loam, 0 to 2 percent slopes	UNNAMED	1	---	Yes	2B2, 3
139:					
Elder loam, 2 to 9 percent slopes	UNNAMED	1	---	Yes	2B2, 3

Hydric Soils

San Luis Obispo County, California, Paso Robles Area

Map symbol and map unit name	Component	Percent of map unit	Landform	Hydric rating	Hydric criteria
158:					
Lockwood shaly loam, 2 to 9 percent slopes	UNNAMED	1	---	Yes	2B2, 3
166:					
Metz loamy sand, 0 to 5 percent slopes	Xerofluvents	1	---	Yes	4
167:					
Metz-Tujunga complex, occasionally flooded, 0 to 5 percent slopes	Xerofluvents	20	Drainageway	Yes	4
196:					
San Ysidro sandy loam, 2 to 9 percent slopes	UNNAMED	1	---	Yes	3
197:					
San Ysidro loam, 0 to 2 percent slopes	UNNAMED	1	---	Yes	3
207:					
Still gravelly loam, 0 to 2 percent slopes	Clear Lake clay	5	---	Yes	2B3
	Riverwash	2	---	Yes	2B1, 4
208:					
Still clay loam, 0 to 2 percent slopes	Unnamed	1	---	Yes	2B3
209:					
Still clay loam, 2 to 9 percent slopes	Unnamed	1	---	Yes	2B2, 3
212:					
Xerofluvents-Riverwash association	Xerofluvents	50	Flood plain	Yes	2B1, 2B2
	RIVERWASH	30	Channel	Yes	2B1, 4

Explanation of hydric criteria codes:

1. All Histels except for Folistels, and Histosols except for Folists.
2. Soils in Aquic suborders, great groups, or subgroups, Albolls suborder, Historthels great group, Histoturbels great group, Pachic subgroups, or Cumulic subgroups that:
   A. are somewhat poorly drained and have a water table at the surface (0.0 feet) during the growing season, or
   B. are poorly drained or very poorly drained and have either:
      1.) a water table at the surface (0.0 feet) during the growing season if textures are coarse sand, sand, or fine sand in all layers within a depth of 20 inches, or
      2.) a water table at a depth of 0.5 foot or less during the growing season if permeability is equal to or greater than 6.0 in/hr in all layers within a depth of 20 inches, or
      3.) a water table at a depth of 1.0 foot or less during the growing season if permeability is less than 6.0 in/hr in any layer within a depth of 20 inches.
3. Soils that are frequently ponded for long or very long duration during the growing season.

4. Soils that are frequently flooded for long or very long duration during the growing season.

APPENDIX E
List of Parcels

APPENDIX E
PARCELS THAT INTERSECT THE STUDY AREA BOUNDARY

MAP #	PARCEL NUMBER(S)							
1	080-091-001	080-091-002						
2	012-371-004	080-091-001	080-091-019	080-091-020				
3	012-371-003	012-371-004	080-091-014	080-091-015	080-091-019			
4	012-371-003	080-091-015						
5	080-091-009							
6	080-041-003	080-091-009						
7	080-091-009							
8	027-391-014							
9	027-391-014	027-391-015						
10	027-391-015							
11	027-391-015							
12	027-391-015	027-401-017						
13	027-401-017							
14	027-401-017							
15	027-401-017	027-401-023	027-401-024					
16	027-401-023	027-401-024						
17	027-401-031							
18	026-021-010	027-401-031						
19	026-021-010	027-401-035						
20	026-021-010	026-021-071	027-401-035					
21	026-021-010	026-021-071						
22	026-021-065	026-021-066	027-401-014	027-401-015				
23	026-021-066	027-401-015						
24	026-104-001	027-145-022						
25	026-104-001	027-145-022	027-145-023					
26	026-104-001	026-104-002	026-104-003	026-104-009	027-145-023			
27	026-104-031	026-104-034	026-104-036	027-321-011	027-321-014	027-321-022	027-321-023	
28	026-141-017	026-141-019	026-141-021	026-141-029	026-141-049	026-141-050		
29	020-311-003	020-311-004	020-311-010	020-311-019	020-311-023	020-311-024	020-311-026	026-141-019
29 (cont)	026-141-050	026-151-005						
30	020-311-006	020-311-014	020-311-015	020-311-016	020-311-017	020-311-018	020-311-019	
31	020-311-014	020-311-016	020-311-017	020-311-022	020-311-033			

APPENDIX E
PARCELS THAT INTERSECT THE STUDY AREA BOUNDARY

MAP #	PARCEL NUMBER(S)							
32	020-311-033	025-390-003						
33	025-390-003	025-541-001	025-541-009	UNK				
34	025-541-001	025-541-009	UNK	UNK				
35	008-051-004	025-391-003	025-392-011	025-392-012	025-541-001	025-541-009	UNK	
36	025-392-001	025-392-002	025-392-003	025-392-005	025-392-010	025-392-011	025-392-012	
37	025-392-001	025-392-003	025-392-005	025-501-001	025-501-002	025-501-003	025-520-018	025-520-019
37 (cont)	025-520-020	025-520-021	025-520-022	025-520-023	025-520-046	025-523-066		
38	009-401-018	009-401-042	009-511-001	009-521-001	025-501-006	025-501-007	025-501-008	025-501-009
38 (cont)	025-501-010	025-501-011	025-501-012	025-501-013	025-501-014	025-501-015	025-501-016	025-511-013
38 (cont)	025-511-014	025-511-015	025-511-016	025-511-034	025-512-001	025-512-002		
39	009-511-002	009-511-003	009-511-011	009-511-016	009-511-027	009-511-028	009-513-051	009-531-005
39 (cont)	009-531-027	009-611-001						
40	009-513-010	009-513-011	009-513-012	009-513-013	009-513-014	009-513-015	009-513-016	009-513-017
40 (cont)	009-513-018	009-513-051	009-514-001	009-514-002	009-514-003	009-514-004	009-514-005	009-514-006
40 (cont)	009-514-007	009-514-029	009-514-030	009-514-031	009-611-001	009-611-042		
41	020-241-086	020-241-087	020-281-017	020-281-021	020-281-022	020-281-024	020-281-037	020-281-038
41 (cont)	020-282-006	020-283-012	020-351-037					
42	020-282-004	020-282-006	020-285-048	020-285-049	040-143-031			
43	020-282-006	020-285-031	020-285-032	033-191-015	040-143-031	040-143-045	040-151-010	
44	033-191-015	033-231-034	040-143-045	040-151-010				
45	033-231-010	033-231-013	033-231-014	033-231-016	033-231-025	033-231-026		
46	033-231-010	033-231-025	034-011-013	034-061-022				
47	034-011-013	034-061-005	034-061-008	034-061-010	034-061-014	034-061-015	034-061-018	034-061-022
48	034-011-016	034-011-017	034-011-018	034-131-001	034-131-034			
49	034-011-016	034-131-027	034-131-028	034-131-058				
50	034-131-039	034-131-040	034-131-057	034-131-058				
51	034-071-006	034-071-044	034-131-023	034-131-037	034-131-038	034-131-041	034-131-042	034-131-047
52	034-071-006	034-071-040	034-071-044	034-071-045				
53	034-071-007	034-421-022	034-421-023	034-421-034				
54	034-421-003	034-421-004	034-421-008	034-421-009	034-421-015	034-421-028	034-421-032	034-421-038
54 (cont)	034-421-039	034-421-040	034-421-042					

APPENDIX E
PARCELS THAT INTERSECT THE STUDY AREA BOUNDARY

MAP NO	PARCEL NUMBER(S)							
55	034-551-012	034-551-013	034-551-015	034-551-026	034-551-029			
56	034-401-001	034-441-011	034-551-013	034-551-017	034-551-021	034-551-025	034-551-026	034-551-036
57	034-401-014	034-401-017	034-401-018	034-401-023	034-401-024	034-401-027	034-431-002	034-431-003
58	034-401-019	034-401-020	034-431-003	034-434-001	034-434-016			
59	034-432-009	034-432-010	034-434-017	059-111-008	059-111-009	059-111-019	059-192-001	
60	059-181-043	059-531-002	059-541-001	059-561-004	059-561-006	059-591-014	059-591-015	059-591-016
60 (cont)	059-591-UNK							
61	059-481-UNK	059-482-014	059-482-017	059-482-018	059-482-019	059-491-005	059-501-006	059-501-007
61 (cont)	059-501-008	059-501-UNK	070-091-038					
62	059-472-019	059-473-009	059-473-010	059-481-UNK	070-091-037			
63	059-481-UNK	070-091-031	070-091-036	070-091-037				
64	059-481-UNK	070-091-032	070-091-036	070-091-037				
65	059-481-UNK	069-044-005	069-073-001	070-091-037				
66	069-036-007	069-036-008	069-036-009	069-036-010	069-036-011	069-036-012	069-042-021	069-042-022
66 (cont)	069-042-023	069-042-024	069-043-001	069-044-004	069-044-005	069-072-001	069-073-001	069-073-004
66 (cont)	069-0810002	069-082-003						
67	069-012-009	069-012-011	069-012-013	069-012-014	069-012-018	069-051-001	069-051-002	070-091-036
67 (cont)	070-094-001							
68	070-094-001	070-094-002						
69	070-071-024	070-093-009	070-094-002					
70	070-061-036	070-061-037	070-071-024	070-093-009				
71	070-061-036	070-061-037	070-061-038	070-061-039	070-501-010	070-501-011		
72	070-061-022	070-501-010						
73	073-321-002	073-321-003						
74	073-291-002	073-291-003	073-291-004	073-321-003				
75	073-261-008	073-261-009	073-291-002	073-291-003	073-291-004			
76	073-261-008	073-261-009	073-291-002	073-291-004				
77	073-261-009	073-291-002						
78	073-261-009	073-291-002	073-291-005					
79	073-261-009	073-261-010	073-291-004	073-291-006	073-291-007	073-291-009	073-301-005	

APPENDIX E
PARCELS THAT INTERSECT THE STUDY AREA BOUNDARY

MAP #	PARCEL NUMBER(S)							
80	073-261-008	073-261-009	073-291-002	073-291-004				
81	073-261-008	073-261-009	073-261-010	072-291-004				
82	073-261-009	073-261-010	073-281-004	073-281-006	073-281-007	073-281-009		
83	073-261-008	073-261-010	073-281-004	073-281-006	073-281-011	073-281-012		
84	073-261-008	073-271-001	073-281-003	073-281-011				
85	073-271-001	073-271-001	073-281-001	073-281-001	073-281-003	073-281-011	073-341-023	UNK

Notes:
[a] UNK indicates parcel numbers not known or incomplete.
Parcel number data provided by San Luis Obispo County Assessor's Office. Data were current as of 4th quarter 2004.

Appendix E

Map Atlas: Camp Roberts Easement and NWP Infrastructure

ESA

FD137522

PLAN
SCALE: 1" = 50'

MATCHLINE - STA 126+00

FIGURE 1	
SPEC	
NWP PROJECT NO.	
BV PROJECT NO.	
DATE:	
APPROVED:	
CHECKED:	
DETAILED:	
DESIGNED:	

NWP NACIMIENTO WATER PROJECT
San Luis Obispo County Flood Control & Water Conservation District

PIPELINE
CAMP ROBERTS
STA 85.00 TO 126.00

BLACK & VEATCH
building a world of difference™
ENERGY WATER INFORMATION GOVERNMENT

BOYLE
ENGINEERING CORPORATION

DATE	REVISIONS AND RECORD OF ISSUE	NO.	BY	CK	APP

CYGNET ID:		XREF1:
WF:		XREF2:
SAVED:		XREF3:
PLOTTED:		XREF4:
USER:	DWG VER:	XREF5:

PLAN
SCALE: 1" = 50'

NO.	BY	CK	APP

DATE:
REVISIONS AND RECORD OF ISSUE
CYDNET ID:
SAVED:
PLOTTED:
USER:
XREF1:
XREF2:
XREF3:
XREF4:
XREF5:
DWG. VER:

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ENERGY WATER INFORMATION GOVERNMENT

BOYLE
ENGINEERING CORPORATION

NWP NACIMIENTO WATER PROJECT

PIPELINE
CAMP ROBERTS
STA 126.00 TO 168.00

DESIGNED:
DETAILED:
CHECKED:
APPROVED:
DATE:

BV PROJECT NO.

NWP PROJECT NO.

SPEC

FIGURE 2

F0137522

FD137522

MATCHLINE - STA 168+00

MATCHLINE - STA 211+00

PLAN
SCALE: 1" = 50'

FIGURE 3

SPEC

NWP PROJECT NO.

BV PROJECT NO.

DATE:

CHECKED:

APPROVED:

DETAILED:

DESIGNED:

NWP NACIMIENTO WATER PROJECT
San Luis Obispo County Flood Control & Water Conservation District

PIPELINE
CAMP ROBERTS
STA 168.00 TO 211.00

BLACK & VEATCH
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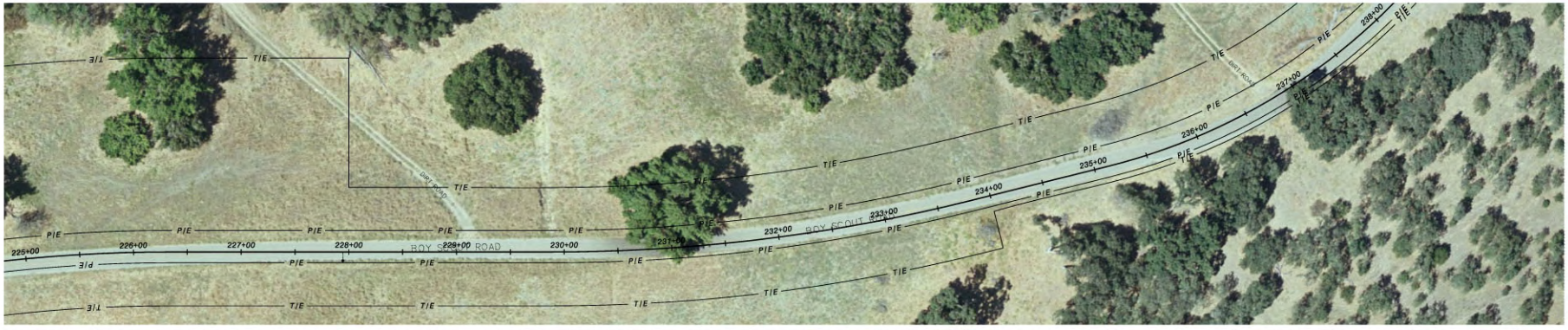
ENERGY WATER INFORMATION GOVERNMENT

BOYLE
ENGINEERING CORPORATION

DATE	REVISIONS AND RECORD OF ISSUE	NO.	BY	CK	APP
CYGNET ID:		XREF1:			
WF:		XREF2:			
SAVED:		XREF3:			
PLOTTED:		XREF4:			
USER:	DWG VER:	XREF5:			

MATCHLINE - STA 211+00



MATCHLINE - STA 253+00

PLAN
SCALE: 1" = 50'

NO.	BY	CK	APP

DATE:
REVISIONS AND RECORD OF ISSUE
CYONET ID:
PREF1:
XREF2:
SAVED:
XREF3:
PLOTTED:
XREF4:
USER:
DWG VER:
PREF5:

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ENERGY WATER INFORMATION GOVERNMENT

BOYLE
ENGINEERING CORPORATION

NWP NACIMIENTO WATER PROJECT

PIPELINE
CAMP ROBERTS
STA 211.00 TO 253.00

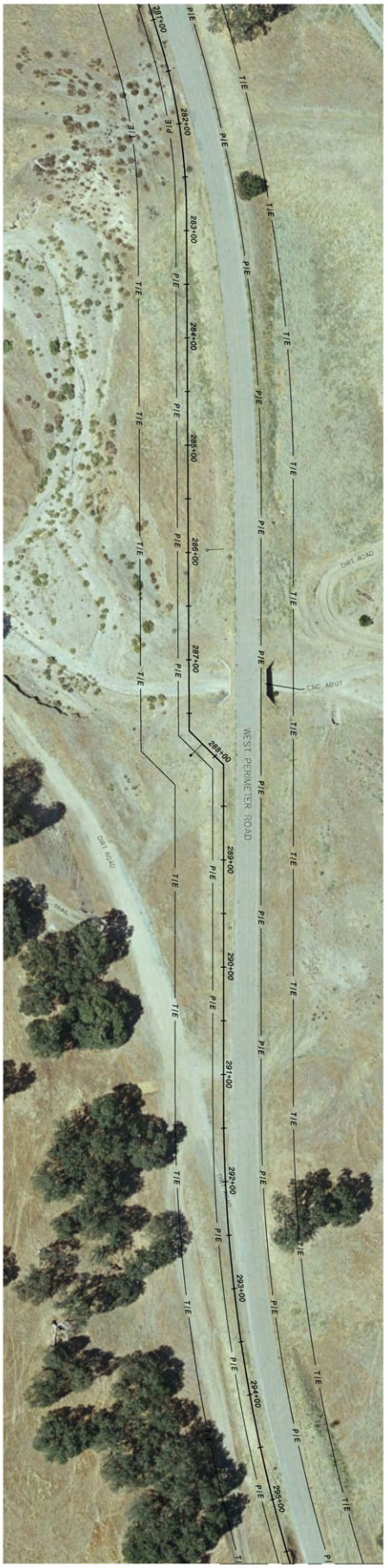
DESIGNED:
DETAILED:
CHECKED:
APPROVED:
DATE:
BV PROJECT NO.
NWP PROJECT NO.
SPEC

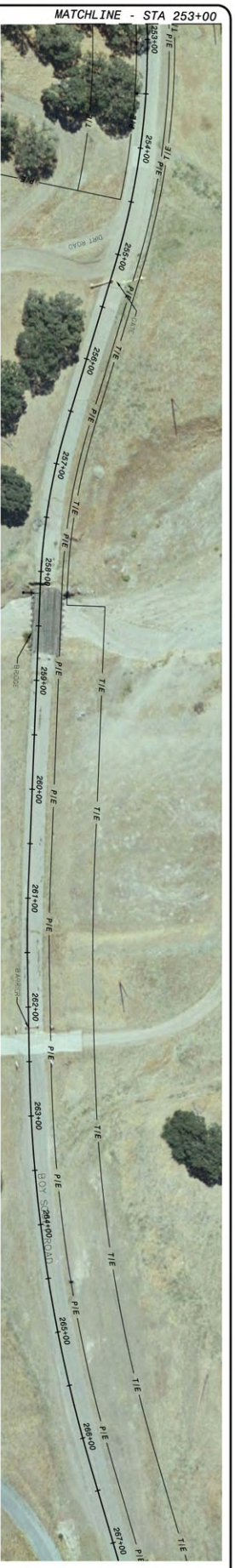
FIGURE 4

F0137522

FD137522

MATCHLINE - STA 253+00





MATCHLINE - STA 295+00

PLAN
SCALE: 1" = 50'

FIGURE 5

SPEC

NWP PROJECT NO.

BY PROJECT NO.

DATE:

APPROVED:

CHECKED:

DETAILED:

DESIGNED:

NWP NACIMIENTO WATER PROJECT
San Luis Obispo County Flood Control & Water Conservation District

PIPELINE
CAMP ROBERTS
STA 253.00 TO 295.00

BLACK & VEATCH
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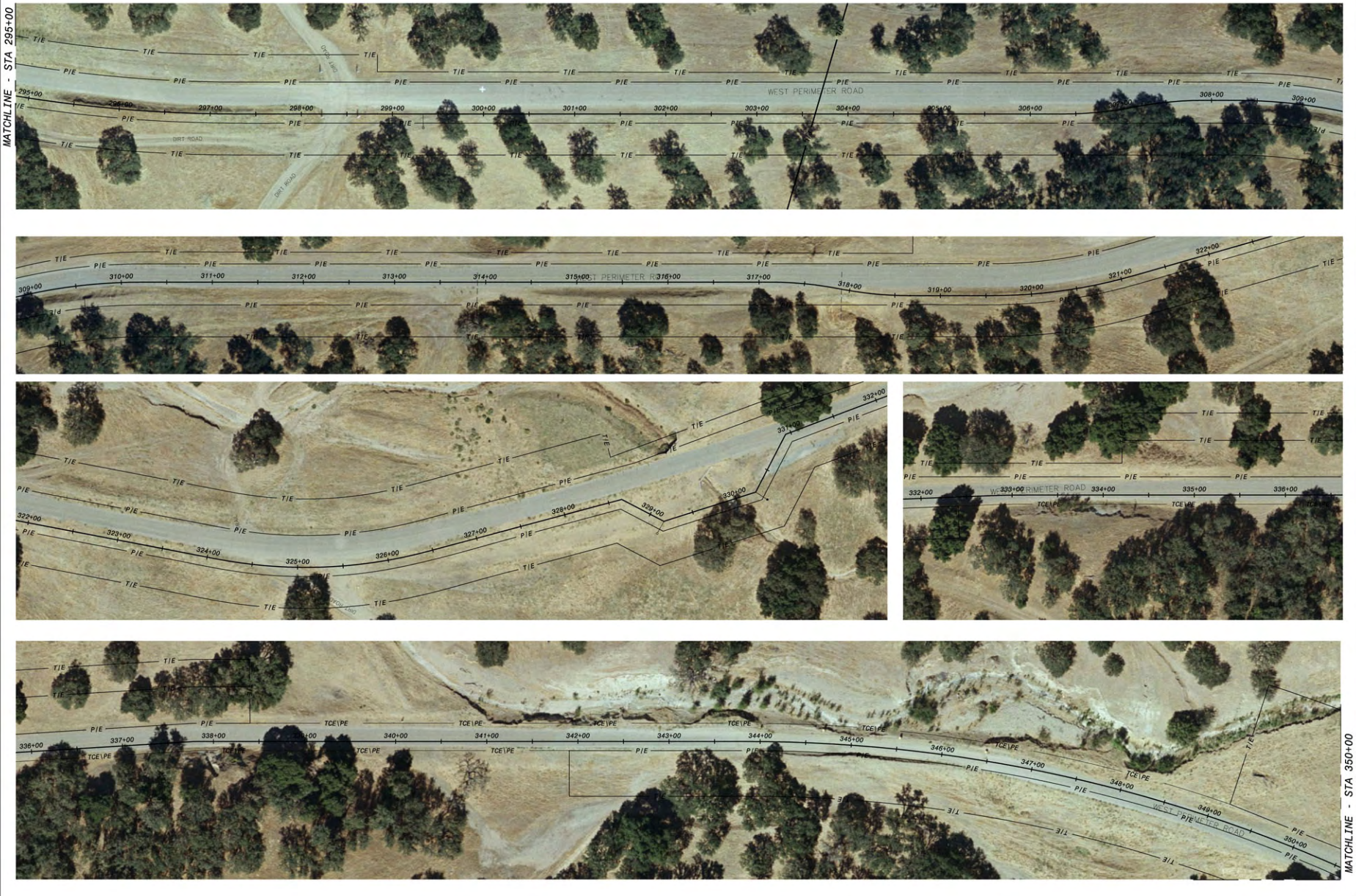
ENERGY WATER INFORMATION GOVERNMENT

BOYLE
ENGINEERING CORPORATION

DATE	REVISIONS AND RECORD OF ISSUE	NO.	BY	CK	APP
CYGNET ID:		XREF1:			
WF:		XREF2:			
SAVED:		XREF3:			
PLOTTED:		XREF4:			
USER:	DWG VER:	XREF5:			



PLAN
SCALE: 1" = 50'

NO.	BY	CK	APP

DATE:
REVISIONS AND RECORD OF ISSUE
CYDNET ID:
XREF1:
XREF2:
XREF3:
XREF4:
SAVED:
PLOTTED:
USER:
DWG VER:
XREF5:

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BOYLE ENGINEERING CORPORATION

NWP NACIMIENTO WATER PROJECT

PIPELINE
CAMP ROBERTS
STA 295.00 TO 350.00

DESIGNED:
DETAILED:
CHECKED:
APPROVED:
DATE:

BV PROJECT NO.

NWP PROJECT NO.

SPEC

FIGURE 6

F0137522

FD137522

PLAN
SCALE: 1" = 50'

FIGURE 7

SPEC

NMP PROJECT NO.

BV PROJECT NO.

DATE:

APPROVED:

CHECKED:

DETAILED:

DESIGNED:

NWP NACIMIENTO WATER PROJECT
San Luis Obispo County Flood Control & Water Conservation District

PIPELINE
CAMP ROBERTS
STA 350.00 TO 406.00

BLACK & VEATCH
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ENERGY WATER INFORMATION GOVERNMENT

BOYLE
ENGINEERING CORPORATION

DATE	REVISIONS AND RECORD OF ISSUE	NO.	BY	CK	APP

CYGNET ID:	XREF1:
WF:	XREF2:
SAVED:	XREF3:
PLOTTED:	XREF4:
USER: DWG VER:	XREF5:

F0137522

FIGURE 8

SPEC

NWP PROJECT NO.

BV PROJECT NO.

DESIGNED :
DETAILED :
CHECKED :
APPROVED :
DATE :

PIPELINE
CAMP ROBERTS
STA 406.00 TO 449.00

BLACK & VEATCH
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ENERGY WATER INFORMATION GOVERNMENT

BOYLE
ENGINEERING CORPORATION

DATE	REVISIONS AND RECORD OF ISSUE	NO.	BY	CK	APP

CYGNET ID :
RF :
SAVED :
PLOTTED :
USER : DWG VER :
XREF1 :
XREF2 :
XREF3 :
XREF4 :
XREF5 :

PLAN
SCALE: 1" = 50'

NO.	BY	CK	APP

DATE:
REVISIONS AND RECORD OF ISSUE
CYDNET ID:
SAVED:
PLOTTED:
USER:
XREF1:
XREF2:
XREF3:
XREF4:
XREF5:
DWG VER:

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BOYLE
ENGINEERING CORPORATION

NWP Nacimiento Water Project

PIPELINE
CAMP ROBERTS
STA 449.00 TO 492.00

DESIGNED:
DETAILED:
CHECKED:
APPROVED:
DATE:

BV PROJECT NO.

NWP PROJECT NO.

SPEC

FIGURE 9

F0137522

FB197522

PLAN
SCALE: 1" = 80'

FIGURE 10

PIPELINE
CAMP ROBERTS
STA 492.00 TO 527.00

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BOYLE
ENGINEERING CORPORATION

DATE	REVISIONS AND RECORD OF ISSUE	NO.	BY	CK	APP

CYGNET ID:		XREF1:	
BY:		XREF2:	
SAVED:		XREF3:	
PLOTTED:		XREF4:	
USER:	DRG VER:	XREF5:	

DESIGNED:
DETAILED:
CHECKED:
APPROVED:
DATE:
BV PROJECT NO.
WMP PROJECT NO.
SHEET

MATCHLINE - STA 527+00

PLAN
SCALE: 1" = 80'

DESIGNED :	
DETAILED :	
CHECKED :	
APPROVED :	
DATE :	
BV PROJECT NO.	
NWP PROJECT NO.	
SPEC	

PIPELINE
CAMP ROBERTS
STA 527.00 TO THE END

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ENERGY WATER INFORMATION GOVERNMENT

BOYLE ENGINEERING CORPORATION

DATE	REVISIONS AND RECORD OF ISSUE	NO	BY	CK	APP

CYGNET ID :	XREF1 :
RF :	XREF2 :
SAVED :	XREF3 :
PLOTTED :	XREF4 :
USER : DWG VER :	XREF5 :

FIGURE 11

F0137522

Appendix F
Air Emissions Calculations

ESA

URBEMIS 2002 For Windows 8.7.0

File Name: G:\204xxx\204453 Nacimiento\NEPA EA\Resources\Air Quality\combined construction emissions_3.u
Project Name: Nacimiento Camp Roberts EA
Project Location: San Luis Obispo County
On-Road Motor Vehicle Emissions Based on EMFAC2002 version 2.2

SUMMARY REPORT
(Pounds/Day - Summer)

CONSTRUCTION EMISSION ESTIMATES

*** 2007 ***	ROG	NOx	CO	SO2	PM10 TOTAL	PM10 EXHAUST	PM10 DUST
TOTALS (lbs/day,unmitigated)	27.01	181.04	222.63	0.01	31.03	7.29	23.74
TOTALS (lbs/day, mitigated)	27.01	181.04	222.63	0.01	14.37	7.29	7.08

*** 2008 ***	ROG	NOx	CO	SO2	PM10 TOTAL	PM10 EXHAUST	PM10 DUST
TOTALS (lbs/day,unmitigated)	27.00	175.20	225.72	0.01	30.41	6.67	23.74
TOTALS (lbs/day, mitigated)	27.00	175.20	225.72	0.01	13.75	6.67	7.08

URBEMIS 2002 For Windows 8.7.0

File Name: G:\204xxx\204453 Nacimiento\NEPA EA\Resources\Air Quality\combined construction emissions_3.u
Project Name: Nacimiento Camp Roberts EA
Project Location: San Luis Obispo County
On-Road Motor Vehicle Emissions Based on EMFAC2002 version 2.2

DETAIL REPORT
(Pounds/Day - Summer)

Construction Start Month and Year: June, 2007
Construction Duration: 12
Total Land Use Area to be Developed: 1 acres
Maximum Acreage Disturbed Per Day: 1 acres
Single Family Units: 0 Multi-Family Units: 0
Retail/Office/Institutional/Industrial Square Footage: 0

CONSTRUCTION EMISSION ESTIMATES UNMITIGATED (lbs/day)

Source	ROG	NOx	CO	SO2	PM10 TOTAL	PM10 EXHAUST	PM10 DUST
*** 2007***							
Phase 1 - Demolition Emissions							
Fugitive Dust	-	-	-	-	0.00	-	0.00
Off-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
On-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum lbs/day	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Phase 2 - Site Grading Emissions							
Fugitive Dust	-	-	-	-	23.71	-	23.71
Off-Road Diesel	26.62	180.24	213.24	-	7.28	7.28	0.00
On-Road Diesel	0.01	0.25	0.04	0.00	0.00	0.00	0.00
Worker Trips	0.38	0.55	9.35	0.01	0.04	0.01	0.03
Maximum lbs/day	27.01	181.04	222.63	0.01	31.03	7.29	23.74
Phase 3 - Building Construction							
Bldg Const Off-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
Bldg Const Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Arch Coatings Off-Gas	0.00	-	-	-	-	-	-
Arch Coatings Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Asphalt Off-Gas	0.00	-	-	-	-	-	-
Asphalt Off-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
Asphalt On-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Asphalt Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum lbs/day	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Max lbs/day all phases	27.01	181.04	222.63	0.01	31.03	7.29	23.74
*** 2008***							
Phase 1 - Demolition Emissions							
Fugitive Dust	-	-	-	-	0.00	-	0.00
Off-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
On-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum lbs/day	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Phase 2 - Site Grading Emissions							
Fugitive Dust	-	-	-	-	23.71	-	23.71
Off-Road Diesel	26.62	174.42	216.43	-	6.66	6.66	0.00
On-Road Diesel	0.01	0.23	0.04	0.00	0.00	0.00	0.00
Worker Trips	0.37	0.55	9.25	0.01	0.04	0.01	0.03
Maximum lbs/day	27.00	175.20	225.72	0.01	30.41	6.67	23.74
Phase 3 - Building Construction							
Bldg Const Off-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
Bldg Const Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Arch Coatings Off-Gas	0.00	-	-	-	-	-	-
Arch Coatings Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Asphalt Off-Gas	0.00	-	-	-	-	-	-
Asphalt Off-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
Asphalt On-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Asphalt Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum lbs/day	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Max lbs/day all phases	27.00	175.20	225.72	0.01	30.41	6.67	23.74

Phase 3 - Building Construction Assumptions: Phase Turned OFF

Phase 2 - Site Grading Assumptions
Start Month/Year for Phase 2: Jun '07
Phase 2 Duration: 12 months
On-Road Truck Travel (VMT): 10
Off-Road Equipment

No.	Type	Horsepower	Load Factor	Hours/Day
1	Bore/Drill Rigs	218	0.750	5.0
1	Cranes	190	0.430	5.0
2	Graders	174	0.575	7.0
4	Off Highway Trucks	417	0.490	5.0
2	Other Equipment	190	0.620	5.0
2	Rubber Tired Dozers	352	0.590	7.0
5	Tractor/Loaders/Backhoes	79	0.465	7.0

Changes made to the default values for Land Use Trip Percentages

Changes made to the default values for Construction

Site Grading Fugitive Dust Option changed from Level 1 to Level 2
Site Grading Truck Haul Capacity (yds3) changed from 20 to 10
Site Grading Miles/Round Trip changed from 20 to 25
Phase 2 mitigation measure Soil Disturbance: Apply soil stabilizers to inactive areas
has been changed from off to on.
Phase 2 mitigation measure Soil Disturbance: Replace ground cover in disturbed areas quickly
has been changed from off to on.
Phase 2 mitigation measure Soil Disturbance: Water exposed surfaces - 3x daily
has been changed from off to on.

URBEMIS 2002 For Windows 8.7.0

File Name: G:\204xxx\204453 Nacimiento\NEPA EA\Resources\Air Quality\pipeline construction emissions_3.u
Project Name: Nacimiento Pipeline Construction EA
Project Location: San Luis Obispo County
On-Road Motor Vehicle Emissions Based on EMFAC2002 version 2.2

SUMMARY REPORT
(Pounds/Day - Summer)

CONSTRUCTION EMISSION ESTIMATES

*** 2007 ***	ROG	NOx	CO	SO2	PM10 TOTAL	PM10 EXHAUST	PM10 DUST
TOTALS (lbs/day,unmitigated)	17.04	113.11	140.90	0.00	28.22	4.49	23.73

*** 2008 ***	ROG	NOx	CO	SO2	PM10 TOTAL	PM10 EXHAUST	PM10 DUST
TOTALS (lbs/day,unmitigated)	17.03	109.68	142.66	0.00	27.85	4.12	23.73

URBEMIS 2002 For Windows 8.7.0

File Name: G:\204xxx\204453 Nacimiento\NEPA EA\Resources\Air Quality\pipeline construction emissions_3.u
Project Name: Nacimiento Pipeline Construction EA
Project Location: San Luis Obispo County
On-Road Motor Vehicle Emissions Based on EMFAC2002 version 2.2

DETAIL REPORT
(Pounds/Day - Summer)

Construction Start Month and Year: June, 2007
Construction Duration: 12
Total Land Use Area to be Developed: 0 acres
Maximum Acreage Disturbed Per Day: 1 acres
Single Family Units: 0 Multi-Family Units: 0
Retail/Office/Institutional/Industrial Square Footage: 0

CONSTRUCTION EMISSION ESTIMATES UNMITIGATED (lbs/day)

Source	ROG	NOx	CO	SO2	PM10 TOTAL	PM10 EXHAUST	PM10 DUST
*** 2007***							
Phase 1 - Demolition Emissions							
Fugitive Dust	-	-	-	-	0.00	-	0.00
Off-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
On-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum lbs/day	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Phase 2 - Site Grading Emissions							
Fugitive Dust	-	-	-	-	23.71	-	23.71
Off-Road Diesel	16.81	112.54	135.51	-	4.48	4.48	0.00
On-Road Diesel	0.01	0.25	0.04	0.00	0.00	0.00	0.00
Worker Trips	0.22	0.32	5.35	0.00	0.03	0.01	0.02
Maximum lbs/day	17.04	113.11	140.90	0.00	28.22	4.49	23.73
Phase 3 - Building Construction							
Bldg Const Off-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
Bldg Const Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Arch Coatings Off-Gas	0.00	-	-	-	-	-	-
Arch Coatings Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Asphalt Off-Gas	0.00	-	-	-	-	-	-
Asphalt Off-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
Asphalt On-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Asphalt Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum lbs/day	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Max lbs/day all phases	17.04	113.11	140.90	0.00	28.22	4.49	23.73
*** 2008***							
Phase 1 - Demolition Emissions							
Fugitive Dust	-	-	-	-	0.00	-	0.00
Off-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
On-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum lbs/day	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Phase 2 - Site Grading Emissions							
Fugitive Dust	-	-	-	-	23.71	-	23.71
Off-Road Diesel	16.81	109.14	137.33	-	4.11	4.11	0.00
On-Road Diesel	0.01	0.23	0.04	0.00	0.00	0.00	0.00
Worker Trips	0.21	0.31	5.29	0.00	0.03	0.01	0.02
Maximum lbs/day	17.03	109.68	142.66	0.00	27.85	4.12	23.73
Phase 3 - Building Construction							
Bldg Const Off-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
Bldg Const Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Arch Coatings Off-Gas	0.00	-	-	-	-	-	-
Arch Coatings Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Asphalt Off-Gas	0.00	-	-	-	-	-	-
Asphalt Off-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
Asphalt On-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Asphalt Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum lbs/day	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Max lbs/day all phases	17.03	109.68	142.66	0.00	27.85	4.12	23.73

Phase 3 - Building Construction Assumptions: Phase Turned OFF

Phase 2 - Site Grading Assumptions
Start Month/Year for Phase 2: Jun '07
Phase 2 Duration: 12 months
On-Road Truck Travel (VMT): 10
Off-Road Equipment

No.	Type	Horsepower	Load Factor	Hours/Day
1	Bore/Drill Rigs	218	0.750	5.0
1	Graders	174	0.575	7.0
3	Off Highway Trucks	417	0.490	5.0
1	Other Equipment	190	0.620	7.0
1	Rubber Tired Dozers	352	0.590	7.0
3	Tractor/Loaders/Backhoes	79	0.465	7.0

Changes made to the default values for Land Use Trip Percentages

Changes made to the default values for Construction

Site Grading Fugitive Dust Option changed from Level 1 to Level 2
Site Grading Truck Haul Capacity (yds3) changed from 20 to 10
Site Grading Miles/Round Trip changed from 20 to 25

URBEMIS 2002 For Windows 8.7.0

File Name: G:\204xxx\204453 Nacimiento\NEPA EA\Resources\Air Quality\storage reservoir construction emis
Project Name: Nacimiento storage reservoir emissions
Project Location: San Luis Obispo County
On-Road Motor Vehicle Emissions Based on EMFAC2002 version 2.2

SUMMARY REPORT
(Pounds/Day - Summer)

CONSTRUCTION EMISSION ESTIMATES

*** 2007 ***	ROG	NOx	CO	SO2	PM10 TOTAL	PM10 EXHAUST	PM10 DUST
TOTALS (lbs/day,unmitigated)	10.49	72.15	85.62	0.00	26.71	2.99	23.72

*** 2008 ***	ROG	NOx	CO	SO2	PM10 TOTAL	PM10 EXHAUST	PM10 DUST
TOTALS (lbs/day,unmitigated)	10.49	69.52	87.10	0.00	26.44	2.72	23.72

URBEMIS 2002 For Windows 8.7.0

File Name: G:\204xxx\204453 Nacimiento\NEPA EA\Resources\Air Quality\storage reservoir construction emis
Project Name: Nacimiento storage reservoir emissions
Project Location: San Luis Obispo County
On-Road Motor Vehicle Emissions Based on EMFAC2002 version 2.2

DETAIL REPORT
(Pounds/Day - Summer)

Construction Start Month and Year: June, 2007
Construction Duration: 12
Total Land Use Area to be Developed: 0 acres
Maximum Acreage Disturbed Per Day: 1 acres
Single Family Units: 0 Multi-Family Units: 0
Retail/Office/Institutional/Industrial Square Footage: 0

CONSTRUCTION EMISSION ESTIMATES UNMITIGATED (lbs/day)

Source	ROG	NOx	CO	SO2	PM10 TOTAL	PM10 EXHAUST	PM10 DUST
*** 2007***							
Phase 1 - Demolition Emissions							
Fugitive Dust	-	-	-	-	0.00	-	0.00
Off-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
On-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum lbs/day	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Phase 2 - Site Grading Emissions							
Fugitive Dust	-	-	-	-	23.71	-	23.71
Off-Road Diesel	10.32	71.66	81.57	-	2.98	2.98	0.00
On-Road Diesel	0.01	0.25	0.04	0.00	0.00	0.00	0.00
Worker Trips	0.16	0.24	4.01	0.00	0.02	0.01	0.01
Maximum lbs/day	10.49	72.15	85.62	0.00	26.71	2.99	23.72
Phase 3 - Building Construction							
Bldg Const Off-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
Bldg Const Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Arch Coatings Off-Gas	0.00	-	-	-	-	-	-
Arch Coatings Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Asphalt Off-Gas	0.00	-	-	-	-	-	-
Asphalt Off-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
Asphalt On-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Asphalt Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum lbs/day	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Max lbs/day all phases	10.49	72.15	85.62	0.00	26.71	2.99	23.72
*** 2008***							
Phase 1 - Demolition Emissions							
Fugitive Dust	-	-	-	-	0.00	-	0.00
Off-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
On-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum lbs/day	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Phase 2 - Site Grading Emissions							
Fugitive Dust	-	-	-	-	23.71	-	23.71
Off-Road Diesel	10.32	69.05	83.09	-	2.71	2.71	0.00
On-Road Diesel	0.01	0.23	0.04	0.00	0.00	0.00	0.00
Worker Trips	0.16	0.24	3.97	0.00	0.02	0.01	0.01
Maximum lbs/day	10.49	69.52	87.10	0.00	26.44	2.72	23.72
Phase 3 - Building Construction							
Bldg Const Off-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
Bldg Const Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Arch Coatings Off-Gas	0.00	-	-	-	-	-	-
Arch Coatings Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Asphalt Off-Gas	0.00	-	-	-	-	-	-
Asphalt Off-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
Asphalt On-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Asphalt Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum lbs/day	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Max lbs/day all phases	10.49	69.52	87.10	0.00	26.44	2.72	23.72

Phase 3 - Building Construction Assumptions: Phase Turned OFF

Phase 2 - Site Grading Assumptions
Start Month/Year for Phase 2: Jun '07
Phase 2 Duration: 12 months
On-Road Truck Travel (VMT): 10
Off-Road Equipment

No.	Type	Horsepower	Load Factor	Hours/Day
1	Cranes	190	0.430	5.0
1	Graders	174	0.575	7.0
1	Off Highway Trucks	417	0.490	5.0
1	Other Equipment	190	0.620	5.0
1	Rubber Tired Dozers	352	0.590	7.0
2	Tractor/Loaders/Backhoes	79	0.465	7.0

Changes made to the default values for Land Use Trip Percentages

Changes made to the default values for Construction

Site Grading Fugitive Dust Option changed from Level 1 to Level 2
Site Grading Truck Haul Capacity (yds3) changed from 20 to 10
Site Grading Miles/Round Trip changed from 20 to 25

Appendix G
Biological Qualifications

MARTHA E. LOWE

Senior Associate I / Watershed Ecologist

Ms. Lowe's expertise is in botany, plant taxonomy, habitat assessment, watershed planning and assessment, and ecosystem restoration. Her professional experience includes assessments of general ecological conditions, aquatic and terrestrial habitat and vegetation assessment, focused rare plant and breeding bird surveys, restoration and revegetation planning, wetland delineation, mitigation monitoring, and construction monitoring. Ms. Lowe has experience in preparation of a variety of environmental documents, including Initial Studies, EIRs, wetland delineation reports, and permitting applications, as well as production of GIS based graphics for biological resource studies and wetland delineation reports.

Education

M.A., Ecosystem Restoration and Management, Sonoma State University, Rohnert Park, CA

B.A., Fine Art/Photography, Mills College, Oakland, CA

Specialized Training

Wetland Delineation Certification Training, U.S. Army Corps of Engineers

Professional Affiliations

The Wildlife Society

California Invasive Plant Council

California Native Plant Society

Society for Ecological Restoration—California Chapter

Relevant Experience

Avila Valley Lodge Biological and Wetland Permitting. *Biologist.* Conducted field work to verify results of previous studies and EIR for resort development project near San Luis Obispo. Prepared a riparian habitat enhancement and restoration plan that will guide mitigation for potential impacts on riparian habitat and wetlands resulting from project implementation.

Bayfront Canal Improvement Project Constraints Analysis. *Biologist.* Conducted field studies and prepared a Biological Resources Constraints Analysis. This document included analysis of 5 flood control options and their potential effects on special status plants, wildlife, and wetland resources in the project vicinity. The document was to be used in the decision making process for choosing the preferred flood control alternative and as a basis for a CEQA document for the project.

Beverly Springs Residential Development EIR. *Biologist.* Participated in reconnaissance field surveys and preparation of a Biological Constraints Analysis for a proposed 800 acre development project east of Palm Springs. One of the major constraints found was presence of the desert tortoise within the proposed project area; other constraints included potentially jurisdictional waters as well as the potential for occurrence of more than one special status plant species.

Buena Vista Landfill Expansion Biological Resources Analysis and Wetland Delineation. *Biologist.* Conducted field surveys for plants and wildlife as well as a wetland delineation at the project site. Prepared a biological resources analysis and wetland delineation report for the Corps and the California Coastal Commission for a landfill expansion project in Santa Cruz County. The documents were incorporated into the project EIR.

CALFED Perennial Pepperweed Study. *Biologist.* Conducted extensive focused field surveys for perennial pepperweed throughout the San Francisco Estuary and Delta using GPS technology throughout this 3-year CALFED Grant

Relevant Experience (Continued)

funded project is completed. This effort will culminate in the compilation of previously existing data together with data collected during ESA's effort and dissemination of updated distributional data for this invasive species of concern to land managers, researchers and other interested parties around the State.

Chabot Space and Science Center Pallid Manzanita Habitat Enhancement and Conservation Plan. ***Project Manager.*** Responsible for all aspects of preparation of a Habitat Enhancement and Conservation Plan for the endangered pallid manzanita at Chabot Space and Science Center in the Oakland Hills. This plan was a requirement of Chabot's 1994 EIR and is only now being produced. Responsibilities also include preparation of work scope and budget, invoice oversight, staff task assignments, and other project management duties.

City of San Leandro Shoreline Marshlands Management Plan. ***Project Manager.*** Participated in preparation of a Marsh Management Plan to guide the City of San Leandro in managing the biological resources present in the marshes. Prepared a Cordgrass Action Plan for the San Leandro Marshlands to guide control of invasive cordgrass in the marshes. Conducted a variety of field studies as part of ongoing biological services provided to the City. Responsibilities have also included preparation of annual scopes of work, invoice oversight, staff task assignments and other project management duties.

City of San Luis Obispo Water Treatment Plant Clearwell Expansion. ***Biologist.*** Conducted field surveys for biological and wetland resources. Authored the biological resources section of an Initial Study for a water treatment plant expansion project in the City of San Luis Obispo. Developed potential mitigation measures to avoid and minimize impacts to sensitive resources on the project site.

Del Valle Specific Plan. ***Biologist.*** Conducted reconnaissance field surveys for rare plants, animals, and wetlands for this proposed residential development in the Santa Clarita area. Assisted in preparation of a biological constraints analysis and report outlining potential constraints for the project.

Diablo Water District Well Utilization Project. ***Biologist.*** Conducted field surveys and authored the biological resources section of an Initial Study on improvements to the Diablo Water District, located in Contra Costa County. Developed mitigation measures to be incorporated into project design so that impacts to sensitive terrestrial and aquatic resources could be avoided and minimized.

Doyle Drive Environmental and Design EIS. ***Biologist.*** Participated in preparation and review of biological resource sections of the Doyle Drive EIS. Reviewed and revised the conceptual mitigation plan for the project.

DWR South Bay Aqueduct Improvement and Enlargement Project EIR. ***Biologist.*** Conducted rare plant surveys to identify the potential disturbance of

Relevant Experience (Continued)

habitat during the retrofitting of pipeline for the California Department of Water Resources' (DWR) South Bay Aqueduct. The studies were incorporated into CEQA documentation and permit applications. Assisted in a wetland delineation for the SBA Enlargement Project and in production of wetland delineation maps for the delineation report.

Fairfield-Suisun Sewer District (FSSD) Sewer System and Treatment Plant Master Plan EIR. ***Biologist.*** Participated in preparation of biological resources section of EIR for sewer facilities master plan. Contributed to preparation and revision of GIS-based wetland delineation maps.

Gallo Vineyards Sun Lake Ranch Vineyard Development and ECP. ***Biologist.*** Conducted review and field verification of previous biological studies for this proposed vineyard project. Prepared the biological resources section of the IS/MND for the project, as well as a wetland assessment of the entire project site. Ms. Lowe's discovery of previously unmapped wetlands is likely to result in a readjustment of the project area.

Griffith Observatory Master Plan EA. ***Biologist.*** Provided a series of technical memoranda for an EIR addendum for this project as conditions had changed since the original project EIR was written. Performed site surveys, including a focused rare plant survey, and analysis for the new proposed project, as well as revised the mitigation measures originally proposed for the project. On an extremely fast-track, worked closely with CDFG in preparing a State Incidental Take Permit for the project. The presence of an endangered plant species within the project footprint, which precipitated the need for such a permit, had been overlooked in the prior analysis of project impacts. The permitting effort included the development of a detailed Habitat Enhancement and Restoration Plan for the project. Oversaw the implementation of project mitigation planting required by the incidental take permit as well as annual mitigation monitoring efforts.

Hasley Canyon Project EIR. ***Biologist.*** Conducted the field work for a wetland delineation and prepared the delineation report and permit application documents for this project, which required a Corps Nationwide Permit, as well as a CDFG Streambed Alteration Agreement and RWQCB Section 401 Water Quality Certification. Worked closely with agency representatives in preparing the project documents, as well as the Habitat Mitigation and Monitoring Plan required by the permitting agencies. All three agencies authorized the proposed streambed activities for the project.

Hillsborough Crystal Springs Trunk Sewer Initial Study. ***Biologist.*** Participated in the preparation of the revegetation plan required under the project's Streambed Alteration Agreement. Conducted mitigation monitoring field work to assess the revegetation planting against specific performance standards and produced an annual mitigation monitoring report for the project according to guidelines promulgated by CDFG.

Relevant Experience (Continued)

Lancaster Water Reclamation Plant 2025 Facilities Plan Program EIR. ***Biologist.*** Conducted rare plant surveys for the Los Angeles County Sanitation District. Documented the occurrence of several rare plant species using GPS and GIS technology. Prepared a report according the CDFG guidelines that will be used to update the project EIR and aid in deciding where to locate new treatment ponds in the area. Conducted pre-construction field work required by the project EIR, including breeding bird surveys, rare plant surveys, and a complicated wetland delineation and produced 2005 rare plant survey report that covered portions of the project area not previously surveyed in support of the project EIR. Prepared a wetland delineation report for submittal to the RWQCB refuting an assertion that there were vernal pools on the project site. The Regional Board concurred with Ms. Lowe's findings that there were no vernal pools and that there was only one small wetland that would be impacted by the project.

Las Lomas Specific Plan EIR. ***Biologist.*** Conducted the analysis of project impacts to plant communities, special-status plant species, and wetlands and aquatic habitat. Responded to both agency and public concerns about this controversial project by revising and incorporating comments regarding biological resources into the DEIR. Also the lead biologist for a wetland delineation of the property that included leading the field effort, preparing the delineation report, and creating GIS-based delineation maps.

Lawrence Berkeley National Laboratory (LBNL) Long-Range Development Plan EIR. ***Biologist.*** Prepared the biological resources section of a program-level EIR that will govern the operations and future development of LBNL. Analyzed potential impacts to vegetation, wildlife, special status species, and wetlands that could occur as a result of Plan implementation at a sufficient level of detail so that project-level documents can be tiered from the program-level document. Developed detailed mitigations that can be used in future to minimize project-level impacts.

Marin Municipal Water District Pipeline Technical Services. ***Biologist.*** Conducted wildlife and botanical surveys as part of a sensitive plant survey and wetland confirmation for the Marin Municipal Water District. Recommended measures to avoid impacts on biological resources during the installation of a nine-mile potable water pipeline in Sonoma/Marin counties.

Merced Wild and Scenic River Revised Comprehensive Management Plan/Supplemental EIS. ***Biologist.*** Conducted surveys of sensitive resources within the El Portal segment of the Merced River corridor in support of the development of revised Outstandingly Remarkable Values (ORV) for this portion of the river. The new ORVs were used to guide protection of sensitive resources. Prepared the vegetation and wetlands sections for the EIS, analyzing potential impacts to these resources that could result from implementation of the various alternatives presented in the Management Plan.

Relevant Experience (Continued)

Nacimiento Water Project. ***Biologist.*** Conducted field work for rare plant surveys and a wetland delineation of this 40 mile long pipeline alignment. Prepared the rare plant survey report and GIS-based maps for the report. Assisted in preparation of the wetland delineation report as well as over 80 GIS-based wetland delineation maps.

Newhall Park Siltation Basins. ***Project Manager. Biologist.*** Prepared a mitigation monitoring plan consistent with CDFG guidelines for a revegetation effort implemented as a requirement of this project's Streambed Alteration Agreement. Conducted mitigation monitoring field work to assess the revegetation planting against specific performance standards and produced annual mitigation monitoring reports for the project according to guidelines promulgated by CDFG. Made recommendations to the City as to how they could ensure the success of their revegetation project. Responsibilities have also included preparation of annual scopes of work, invoice oversight, staff task assignments and other project management duties.

Novato Creek Flood Control Project EIR. ***Biologist.*** Prepared an updated biological resources EIR section and wetland delineation for flood control improvements for the Marin County Flood Control and Water Conservation District. This project had been in the planning stages for a number of years and had developed from one that would have had fairly extreme adverse impacts on the creek to a much more environmentally-friendly project. Rather than utilizing hard engineering solutions such as riprap, the project incorporated bioengineering solutions to the greatest extent feasible.

Oceano Airport Wetland Delineation. ***Biologist.*** Led the field work and prepared a preliminary wetland delineation report for an airport rehabilitation project located in California's Coastal Zone in San Luis Obispo County. The project required wetland permits from the California Coastal Commission, the Corps, CDFG, and the RWQCB.

Port of San Francisco Piers 27-31 Mixed-Use Recreation Project. ***Biologist.*** Provided biological studies and impacts analysis with respect to terrestrial and aquatic organisms, as well as waters of the U.S., as necessary to satisfy agency and public concerns for this project EIR. Addressed client concerns by incorporating comments into the document as appropriate, as well as further clarifying and revising the document when necessary based on comments.

San Leandro Water Recycling Plan. ***Biologist.*** Completed an Initial Study/Mitigated Negative Declaration for the City of San Leandro's Recycled Water Project. ESA analyzed approximately 7,000 linear feet of pipeline and two water recycling disinfection and filtration plants, one with a capacity of 2.75 million gallons per day (mgd) and another with a capacity 1.15 mgd. The Project resulted in an annual average of approximately 270 million gallons per year of recycled water used in the City. ESA analyzed biological resources, cultural resources, water quality, transportation/traffic, and public health and safety. ESA

Relevant Experience (Continued)

conducted field surveys for biological and cultural resources. ESA also prepared a mitigation summary and monitoring and reporting plan.

San Luis Obispo County Regional Airport Runway 11 Extension. ***Biologist.*** Conducted reconnaissance level field surveys in support of the preparation of an EA/EIR for this project. Conducted a wetland delineation of the project area. Prepared the biological resources and wetlands sections for the EA/EIR, analyzing potential project impacts to these resources resulting from three project alternatives. Prepared a preliminary wetland delineation report for the airport expansion project. This project will require wetland permitting from the Corps, CDFG, and the RWQCB. The project is expected to move into the wetland permitting phase shortly.

Santa Clara County Biological Services. ***Biologist.*** Providing on-call biological surveys for Santa Clara County for projects implemented by Stanford University. Surveys have included breeding bird surveys as well as rare plant surveys. Each survey has required the production of a technical memorandum detailing the survey results as well as any steps that need to be taken to avoid impacts to sensitive resources.

Sempra Telecommunications EIR. ***Biologist.*** Evaluated the potential of hundreds of species throughout California to occur along proposed telecommunications alignments. Prepared tables listing these species in support of the programmatic EIR prepared for the project. The EIR examined potential impacts from installation and operation of the program.

SFPUC Pulgas Chloramination Conversion Project. Participated in construction monitoring for a pipeline and facilities project located near the Crystal Springs Reservoirs in San Mateo County. Protected species present at the site included California red-legged frog and San Francisco garter snake, as well as breeding birds. Responsible for daily exclusion fencing checks and monitoring reporting, as well as production of detailed technical memoranda when necessary, which included recommendations for actions to be taken by project proponent to ensure continued protection of sensitive biological resources during construction.

South Cordelia Reservoir Resource Protection and Management Plan. ***Biologist.*** Conducted pre-construction plant surveys for a host plant for the Callippe silverspot butterfly for a reservoir and pipeline construction project. Carried out construction monitoring during project implementation. Protected species present at the site included California red-legged frog and burrowing owl, as well as breeding birds. Responsible for daily exclusion fencing checks and monitoring reporting, which included recommendations for actions to be taken by project proponent to ensure continued protection of sensitive biological resources during construction.

Stanford University Cogeneration Plant Expansion and Upgrade. ***Biologist.*** Conducted wildlife and botanical surveys for the preparation of a permit

Relevant Experience (Continued)

application to the Bay Area Air Quality Management District (BAAQMD). ESA provided an Initial Study for a 5 mw power generating unit for the City of Palo Alto Utilities Department. The City built the plant to use for back-up generation during anticipated Stage 3 electrical emergencies. Provided field studies of the sensitive biological community surrounding the site and prepared the biological resources section of the Initial Study for the project.

Zone 7 Altamont Creek/Arroyo Las Positas Channel Restoration. ***Biologist.*** Conducted mitigation monitoring field work to assess the revegetation planting against specific performance standards and produced annual mitigation monitoring reports for the project according to guidelines promulgated by CDFG. Developed recommendations for the project proponent as to how to meet mitigation performance standards.

Zone 7 Arroyo Mocho Diversion Project. ***Biologist.*** Conducted reconnaissance vegetation and wildlife surveys along Arroyo Mocho. Prepared the biological resources section of the IS/ MND. The environmental documentation examined potential impacts associated with construction and operation of the project, including effects on biological resources, groundwater resources, and adjacent land uses.

Zone 7 Well Master Plan EIR. ***Biologist.*** Prepared the biological resources section. The Plan identifies well facilities and groundwater management operations necessary to meet reliability goals associated with buildout of the adopted general plans within the Zone 7 service area.

BRIAN T. PITTMAN, CWB

Technical Associate I

Mr. Pittman has over ten years experience in wetlands restoration and has statewide endangered species permitting expertise. He has performed biological site assessments, interpreted federal, state and local species preservation and wetland guidelines, consulted with scientific and regulatory authorities, and prepared biological resource sections for over 50 EIRs and Negative Declarations under CEQA. Mr. Pittman has performed U.S. Fish and Wildlife Service (USFWS) protocol-level surveys for listed wildlife species throughout California. Recent survey efforts have included vernal pool branchiopods (fairy shrimp), California red-legged frog, and California tiger salamander, burrowing owl, southwestern arroyo toad, and San Joaquin kit fox, among others. Mr. Pittman holds a federal 10(a) Recovery Permit for listed vernal pool branchiopods and California tiger salamander.

Education

M.S., Environmental Studies, San Jose State University

B.A., Biology, University of California, Santa Cruz

Certifications / Registrations

Certified Wildlife Biologist - The Wildlife Society, 2004

California Scientific Collecting Permit #801090-01

Federal Recovery Permit #TE-027422-0 (fairy shrimp and California tiger salamander)

Specialized Training

Wetland Delineation Training Course, U.S. Army Corps of Engineers

Completed Desert Tortoise Survey Techniques Workshop, Desert Tortoise Council, 2000

Professional Affiliations

The Wildlife Society, San Francisco Bay Area Chapter - 2003 Chapter President

Relevant Experience

Beringer-Blass Wine Estates EIR. ***Project Manager and Lead Biologist***. Performed and directed biological surveys of the 218-acre project site and analyzed impacts to biological resources in the supporting EIR. Prepared biological and wetland permitting documentation for submittal to the U.S. Army Corps of Engineers (Corps), USFWS, and California Department of Fish and Game (CDFG) for impacts to listed species and wetlands. This project created an acre of vernal pools to support the federally threatened vernal pool fairy shrimp. Responsible for all aspects of wetland design, preserve management, and agency coordination. During 2001-2003, conducted focused surveys to locate fairy shrimp at this site.

Byron Road Bridge Improvements Project. ***Technical Specialist***. Performed a detailed habitat assessment for vernal pool fairy shrimp for a proposed bridge improvement project in Contra Costa County. Located several sensitive areas were identified where detailed fairy shrimp surveys were conducted in 2002-2003.

County of Los Angeles Parks and Recreation Mitigated Negative Declarations. Prepared numerous public services and utilities sections for LA County Parks Mitigated Negative Declarations, including the Loma Alta County Park Gymnasium, the Arrastre Canyon Staging Area and Connector Trail, and Acton County Park.

DWR South Bay Aqueduct Improvement and Enlargement Project EIR. ***Lead Wildlife Biologist.*** Examining conveyance options for the California Department of Water Resources in support of the South Bay Aqueduct improvement project. Field surveys for this project coincided with proposed Los Vaqueros Components, particularly those project improvements located near Brushy Peak.

Relevant Experience (Continued)

Hasley Canyon Project EIR. ***Amphibian Technical Specialist.*** Led a USFWS protocol-level survey effort for the federally listed arroyo toad and California red-legged frog on the Hasley Canyon project site. Surveys considered the entire 433-acre site, which was located in a mountainous area west of Valencia.

Henry W. Coe State Park. Provided federal and state permit assistance and senior biological oversight to day use improvements facilities at Henry W. Coe State Park. He prepared federal and state permit natural resource applications from federal and state agencies for redevelopment of their day-use and visitor center. Prepared mitigation plans and conducted compliance monitoring during project implementation. Developed habitat improvements intended to create breeding habitat for California red-legged frog, such as the design and development of sediment basins, improvement of existing springs, and vegetation planting.

Highway 101 Off-ramp Widening. Designed and directed special status species surveys and impact analysis for the Highway 101 Widening Project in Windsor. He was also principle investigator and author of a Caltrans Natural Environment Study and Biological Assessment for East Windsor Creek in support of the widening project. This project included coordination and consultation with personnel from U.S. Fish and Wildlife Service, California Department of Fish and Game, and the U.S. Army Corps of Engineers.

L.A. Cellular Wireless Environmental Documentation. ***Senior Project Biologist.*** Analyzed 48 unique cellular tower sites for biological constraints in Los Angeles, San Bernardino, and Riverside counties between 1997 and 1998. Led focused surveys for desert tortoise and subsequent formal consultation efforts with the U.S. Fish and Wildlife Service, Ventura Office for several sites, and negotiated a programmatic Biological Opinion for impacts to desert tortoise.

Lancaster Water Reclamation Plant 2020 Facilities Plan Program EIR. ***Lead Biologist.*** Led extensive wetland and biological surveys covering over 10 square miles in the Antelope Valley in support of the initial project screening analysis. Surveys focused on Mohave ground squirrel, desert tortoise, burrowing owl, seasonal wetlands, and numerous rare plants on lands owned by Los Angeles County, the U.S. military and private owners. Following the screening analysis, directed more focused wildlife surveys in support of the project EIR, and co-authored the Biological Resources EIR section. The water reclamation facility discharges to the Piute Ponds and Lake Rosamond on the Edwards Air Force Base in the Antelope Valley. The EIR assessed impacts of expanding the treatment plant to accommodate projected County demand.

Livermore-Amador Valley Water Management Agency (LAVWMA) Pipeline. ***Wildlife Biologist***. Designed and directed a comprehensive field review for the 21-mile LAVWMA pipeline between Livermore and San Leandro. Assessed habitat suitability for a variety of special status plants and

Relevant Experience (Continued)

wildlife, including California red-legged frog, burrowing owl, tiger salamander, fairy shrimp, and steelhead, and developed mitigation measures to reduce impacts to these species to less-than-significant. Primary author of a complicated EIR biological resources section, and prepared CDFG and USFWS permitting documents. The project analyzed historic and current endangered species distribution in the cities of Hayward, Pleasanton, and San Leandro and potential project impacts.

Los Angeles County Parks and Recreation MNDs. ***Senior Project Biologist.*** Led survey efforts for special status plant and wildlife and prepared. Senior biologist for the *Arrastre Canyon Staging Area and Connector Trail project* and the *Acton County Park project*, both located near the town of Acton, Los Angeles County.

Mai/Chardonnay Resort EIR. ***Lead Biologist.*** Completed a biological constraint analysis and delineation of wetlands and water-associated habitats, and prepared the biological resources section of the EIR in support of the development of a 46-acre resort hotel and vineyards in Napa County.

Mount Diablo State Park Habitat Conservation Plan. ***Project Manager and Principal Author.*** Responsible for preparing the Habitat Conservation Plan (HCP) for the 20,000-acre Mount Diablo State Park. The HCP is in support of long-term construction, rehabilitation, operations/maintenance, and habitat restoration projects over the next 20 years. These projects have the potential to affect populations of plant and animal species listed under the Endangered Species Act or species that might potentially become threatened or endangered during the same period.

Nacimiento Water Project Design-Phase Environmental Services. ***Senior Wildlife Biologist.*** Principal wildlife investigator and principal project liaison to the U.S. Fish and Wildlife Service, Ventura Office. The Nacimiento Water Project raw water pipeline alignment traverses northern San Luis Obispo County. Led protocol-level surveys for listed fairy shrimp (under his 10(a) Recovery permit), arroyo toad and California red-legged frog, and monitors bald eagle nesting on the Nacimiento River for this project. Prepared the project Biological Assessment and continues with a pivotal role in agency permit negotiations.

Zone 7 South Bay Aqueduct Maintenance and Improvements EIR. ***Lead Wildlife Biologist.*** Led baseline wildlife investigations, was senior author of the CEQA Biological Resources component, prepared the project Biological Assessment, and played an instrumental role during the project permitting phase. During project implementation, organized and managed special status species surveys and relocation efforts, and led ongoing coordination with federal and state resources agencies. Subsequently published his project observations of the California tiger salamander in a peer-reviewed journal.

Relevant Experience (Continued)

Zone 7 Water District Pipeline. ***Wildlife Biologist***. Prepared the biological resource constraints analysis and EIR section for Zone 7 Water District Pipeline and Deepwater Injection System. This included surveys of the tank location sites and proposed pipeline routes, consultation with resource agencies, and assessment of potential constraints and opportunities of each of the sites. Resources of special concern included burrowing owl, California red-legged frog, and steelhead.

Habitat Assessments for Threatened/Endangered Species. *Wildlife Biologist*. Performed an ecological habitat assessment and constraints analysis for California red-legged frog, California freshwater shrimp, northwestern pond turtle and other sensitive species in Windsor Creek, Sonoma County. Principle investigator and author of a Caltrans Natural Environment Study for East Windsor Creek in support of a freeway improvement project. Conducted raptor nest surveys and habitat assessments throughout California, from Los Angeles County to Sonoma County. Species include burrowing owl, Swainson's hawk, Cooper's hawk, northern harrier, loggerhead shrike, and black-shouldered kite. Principal biological resources investigator for more than 50 cellular tower investigations in the Los Angeles basin.

SELECTED PUBLICATIONS

Pittman, B. 2005. Observations of Upland Habitat Use by California Tiger Salamanders Based on Burrow Excavation. *Transactions of the Western Section of the Wildlife Society* 41:26-30; 2005.

Pittman, B.T. 1996. *A Survey of Inbenthic Macrofauna at a South San Francisco Bay Salt Marsh*. Master's thesis, San Jose State University.

MIKE PODLECH

Technical Associate I

Mr. Podlech holds over ten years of experience in the investigation of biological, physical, and chemical conditions of streams, rivers, lakes, and lagoons throughout California. He has extensive experience in the identification of sensitive aquatic resources, habitat assessments, stream restoration, impact analyses, and compliance monitoring. Mr. Podlech has conducted and managed numerous stream assessment project applying CDFG's *California Salmonid Stream Habitat Restoration Manual* and EPA's *Rapid Bioassessment Protocols for Use in Streams and Rivers*, and various NMFS and CDFG guidelines. He is also a highly experienced in all aspects of water rights applications and current guidelines for water diversion impact analyses.

Education

M.S., Aquatic Ecology, University of San Francisco

B.S., Environmental Science, University of San Francisco

Specialized Training

California Scientific Collecting Permit #801137-03

Various federal Section 10(a) Research Permits (coho salmon and steelhead)

Fish Passage Evaluations at Stream Crossings

California Stream Bioassessment Procedure

Professional Affiliations

American Fisheries Society

North American Benthological Society

Relevant Experience

Fisheries Aquatic Habitat Collaborative Effort (FAHCE) EIR/EIS. ***Aquatic Biologist.*** Currently working as the lead fisheries biologist on the preparation of an EIS/EIR for the Santa Clara Valley Water District's Fisheries and Aquatic Habitat Collaborative Effort (FAHCE) project. The project assesses the potential effects of significant changes to the release schedules and quantities at several reservoirs, downstream habitat restoration, and the removal of migration barriers to steelhead and Chinook salmon migrations. Project alternatives, such as reservoir enlargement or dam removal are also being evaluated.

Nacimiento Water Project Environmental Services. ***Aquatic Biologist.*** Currently assisting San Luis Obispo County in the design and permitting phase for the construction of a 45-mile water delivery pipeline. Lead biologist on all aspects, including Biological Assessment preparation, of formal Section 7 consultation with the National Marine Fisheries Service. Technical issues include construction in steelhead critical habitat and evaluation of instream flow effects of the project.

Reconstruction of the Furnace Creek Water Collection System EIS. ***Wildlife and Special-status Species Analyst.*** Prepared the wildlife and special-status species sections of the EIS. Guided the National Park Service through Agency consultation with the U.S. Fish and Wildlife Service pursuant to Section 7 of the federal Endangered Species Act. Developed a reasonable range of alternatives that met human-use needs in the Furnace Creek area of Death Valley National Park while protecting the park's unique natural resources. The water sources affected by the project support desert riparian habitats occupied by several water-dependent special-status species. Currently preparing an Adaptive Management Plan aimed at the conservation of endemic aquatic invertebrates within the park.

Erosion Control Plans. ***Aquatic Biologist.*** Currently preparing fisheries impacts assessments in support of CEQA documentation for Erosion Control

Relevant Experience (Continued)

Plans (ECPs) for various vineyards in Napa County, including Hudson, Saintsbury, Nicholas, and Cianciarulo.

San Vicente Pond and Creek Smolt Outmigrant Study. ***Project Manager and Lead Researcher.*** Designed and conducted an outmigrant smolt study of endangered coho salmon and threatened steelhead on San Vicente Creek in Santa Cruz County. The primary focus of the study was to provide the National Marine Fisheries Service (NMFS) with sound scientific data on the potential salmonid habitat values of a defunct agricultural pond.

Coast Dairies Long-Term Resource Protection and Use Plan. ***Aquatic Biologist.*** Prepared the fisheries portions of the Resource Protection and Use Plan. Assessed steelhead and coho salmon populations, habitat conditions, and stream restoration potentials for six watersheds in northern Santa Cruz County. The information collected during this work will be used for watershed management planning as well as future habitat restoration efforts and water rights negotiations.

Known Geothermal Resources Area (KGRA) of Sonoma and Lake Counties IS/MND. ***Aquatic Biologist.*** Prepared an Initial Study/Negative Declaration for the CDFG pertaining to the agency's proposed issuance of Section 1603 Agreements for 20 surface water diversion sites. Assessed potential site specific and cumulative impacts on steelhead and other aquatic resources based on current NMFS and CDFG guidelines, and established minimum instream flow requirements for various life stages of steelhead.

City of Watsonville Corralitos Creek Project. ***Aquatic Biologist.*** Prepared a feasibility analysis for a proposed surface water diversion on Corralitos Creek for the City of Watsonville. Assessed potential adverse impacts to steelhead habitat, established minimum bypass flows, and review of proposed fish screening alternatives.

Pescadero-Butano Watershed Assessment. ***Aquatic Biologist.*** Completed habitat assessments and preparing restoration recommendations for the Pescadero-Butano Watershed Assessment (Monterey Bay National Marine Sanctuary Foundation) and the Pescadero Marsh Restoration Assessment (Department of Parks and Recreation). Both projects involve integrated analyses of salmonids habitat conditions, sediment source and transport, and water quality leading to the identification and prioritization of habitat restoration sites.

McGrath State Beach Natural Resources Management Study. ***Aquatic Biologist.*** Conducted fisheries assessments for the Department of Parks and Recreation. The project included assessments of current estuary conditions leading to the formulation of management recommendations for several sensitive species, including steelhead and tidewater goby.

Relevant Experience (Continued)

Squaw Creek Aquatic Monitoring Project. ***Project Manager and Aquatic Biologist.*** Conducting ongoing, long-term aquatic monitoring program on Squaw Creek, Sonoma County, for Calpine Corporation. This 22-year project includes annual assessments of steelhead populations, water quality, and sediment composition.

Bear Canyon/West Ford Flat Aquatic Monitoring Project. ***Project Manager and Aquatic Biologist.*** Conducting ongoing, long-term aquatic monitoring program in the upper Putah Creek drainage, Lake County, for Calpine Corporation. This 14-year project includes annual assessments of fish and aquatic invertebrate populations, water quality, and sediment composition.

Pajaro Valley Water Management Agency's Projects. ***Aquatic Biologist.*** Prepared a Biological Assessment in support of formal Section 7 consultation with National Marine Fisheries Service for various pipeline crossings of steelhead habitat. Analyses also included evaluations of the potential impacts of decreased water flows on steelhead and other sensitive aquatic resources. Worked closely with CDFG and NMFS personnel on establishing operational withdrawal procedures to facilitate steelhead migration throughout the Pajaro River watershed.

City of Monterey's Cannery Row Project. ***Aquatic Biologist.*** Analyzed potential impacts to the marine resources of the Monterey National Marine Sanctuary from a proposed development project on the City of Monterey's historic Cannery Row. As part of this project, analyzed the potential impacts of a desalination plant.

Yosemite Falls Corridor Restoration Plan. ***Aquatic Biologist.*** Prepared instream portion of the plan for the National Park Service. Responsibilities included a feasibility study for the removal of a large boulder dam at the base of Yosemite Falls, thus restoring Yosemite Creek to its natural course and floodplain.

CPUC Divestiture Projects. ***Aquatic Biologist.*** Performed several CEQA analyses for the biological resources sections of EIRs and Initial Studies for the California Public Utilities Commission. Projects included the proposed divestitures of power generating assets by Pacific Gas & Electric and San Diego Gas & Electric. As part of these projects, Conducted detailed analyses of the potential impacts of cooling water intake and discharge, as well as potential impacts to special status species.

Bay Area Regional Water Recycling Project. ***Aquatic Biologist.*** Participated in the evaluating application rates and environmental benefits using recycled water for stream flow augmentation and wetland creation around San Francisco Bay.

JULIE REMP

Associate Biologist

Ms. Remp's expertise is in wildlife surveys, wildlife monitoring, and habitat assessment and management. She has led protocol-level survey efforts for numerous special status wildlife species, including bald eagles, California red-legged frog, burrowing owl, northern Goshawk, golden- cheeked warbler, pronghorn antelope, bats, deer and elk.

Education

B.S., Wildlife, Fish, and Conservation Biology (minor in Avian Sciences), University of California, Davis

Specialized Training

Basic Wetland Delineation Course, Wetland Training Institute March 2006.

16 hour training for Oiled Wildlife Care Network Basic Supervisor, Office of Spill Prevention and Response (OSPR)

Wolf Habitats Canadian Corridor Project Course, Wildland Studies, 2001

Professional Affiliations

The Wildlife Society

Relevant Experience

Fruitvale BART Transit Village Phase Two, Alameda County, CA. ***Biologist.*** Prepared the biological section of an Initial Study document from review of existing biological records and literature, and a field reconnaissance survey. The project proposes to construct a mixed-use development that consists primarily of residential development, some commercial development, and parking near the BART tracks.

City of Emeryville General Plan and Master EIR, Alameda County, CA. ***Biologist.*** Conducted a reconnaissance field survey to identify existing wildlife and sensitive habitats in Emeryville and authored the biological resources section for the updated Environmental Impact Report (EIR). ESA is conducting technical analyses for several environmental factors for the Emeryville General Plan and Master EIR prepared by another firm. Specific tasks include preparing input for the Existing Conditions Workbook and subsequently for the Draft EIR. ESA is evaluating the current setting of the city of Emeryville in terms of biological resources, hydrology and flooding, geology and seismicity, noise, hazardous materials and toxins, and cultural resources.

Milpitas Transit Area Specific Plan EIR, Santa Clara County, CA. ***Biologist.*** Conducting the analysis of potential project impacts to wildlife communities, special-status species, and sensitive habitats. Preparing the biological resource section, including impacts and mitigation measures, for the Environmental Impact Report (EIR). The Specific Plan establishes new land uses around an anticipated Milpitas BART station. It would change land uses to a mix of high density residential uses, with some light industrial use, a potential hotel, a business park, and retail.

Bay Point Waterfront Strategic Plan EIR, Contra Costa County, CA. ***Biologist.*** Conducted field surveys and authoring the biological resources section of an EIR. Developing mitigation measures to be incorporated into project design so that impacts to sensitive terrestrial and aquatic resources can be avoided and minimized. The Redevelopment Agency proposes to revitalize the Bay Point waterfront area by developing a full-scale marina with related commercial/support uses, medium-density housing, interconnected open space and pedestrian walkways, and natural open space.

Relevant Experience (Continued)

Zone 7 Altamont Creek/Arroyo Las Positas Channel Restoration. ***Biologist.*** Monitored California red-legged frog populations, riparian revegetation functioning, and stream sedimentation rates, and assisted in predator control measures. ESA is under contract with the Alameda County Zone 7 Water Agency to conduct a five-year mitigation monitoring program for the Altamont Creek/Arroyo Las Positas Channel Restoration Project. Because a portion of the riparian revegetation project is located within the Springtown Alkali Preserve, revegetation efforts have been impeded by the naturally high boron and salts that occur in the soil. ESA botanists are working with the Zone 7 Water Agency local experts to resolve this unique and challenging restoration obstacle, the first of its kind in the Springtown area.

EBMUD Richmond Advanced Recycled Expansion (RARE) Feasibility Project. ***Biologist.*** Conducted site visits and literary research to determine impact on biological resources and assisted in the preparation of an Environmental Constraints Analysis for a recycled water project serving the Chevron Refinery in Concord.

Newhall Park Siltation Basins Mitigation and Monitoring. ***Biologist.*** Assessed growth and survival of mitigated vegetation plots in Newhall Park as part of a five year monitoring plan to support the revegetation and habitat enhancement component of the City of Concord's Newhall Park Siltation Basins Project.

Bear Canyon Westford Flat Aquatic Monitoring, Lake County, CA. ***Biologist.*** Conducted electrofishing surveys to determine fish population size and growth in local streams for a continuing monitor project for Calpine Corporation client. Fish surveys are conducted with 3-pass electrofishing techniques, and rely on replicable stream reach data to compare year-to-year variation in fish numbers and species composition.

PG&E Lakeville-Sonoma 115kV Transmission Line Project. ***Biologist.*** Conducted literary search of scientific literature to address issues of concern regarding upgrade of transmission line. ESA is reviewing PG&E documents and preparing a CEQA document to evaluate potential impacts from the proposed project. ESA will monitor construction of the project after approval.

Nacimiento Water Project Design-Phase Environmental Services. ***Biologist.*** Conducted day and night California red-legged frog surveys and assisted in wetland soil determination for San Luis Obispo's Nacimiento Water Project. ESA is targeting the necessary environmental regulatory processes, permits and mitigation plans for the Nacimiento Water Project, a proposed regional transmission facility that will deliver water from Lake Nacimiento to communities throughout San Luis Obispo County.

Relevant Experience (Continued)

U.S. Forest Service (USFS) Eagle Lake Ranger District, Lassen National Forest, California. ***Biological Technician.*** Conducted wildlife surveys and habitat assessment/management. Performed goshawk surveys to USFS protocols; bufflehead surveys; maintenance and construction of deer and livestock ex-closures around aspen stands; bat mist netting and data entry; aspen stand delineation, condition assessments, and GPS data collection; bald eagle nest checks; collection of 1/10-acre plot data at goshawk and bald eagle nest, bat maternity roosts, and random sites; pronghorn antelope surveys; deer and elk spotlight transects; and remote camera set-up and inventories.

U.S. Forest Service North Shore Trails Environmental Assessment. ***Biologist.*** Performed protocol-level Northern Goshawk surveys in the Tahoe Basin to determine the present of nesting territories. Preparing an Environmental Assessment and Biological Assessment/Biological evaluation for the Lake Tahoe Basin Management Unit's (LTBMU) proposed trail plan for the north shore of Lake Tahoe. The project is to reduce water quality impacts of trails, as well as provide a quality recreational experience.

717 Dolores Student Housing Improvement. ***Biologist.*** Conducted a general bird survey in compliance with Breeding Bird Survey Requirements and site visit to determine impact of construction on bird species in the vicinity.

California State Long Beach Foundation/ Chula Vista Nature Center. ***Biologist.*** Observed juvenile birds in hack cages and assessed when they developed appropriate survival skills for release. The project is a captive breeding program to increase population numbers and genetic diversity of the federally endangered Light-footed clapper rail.

CHRIS ROGERS

Senior Ecologist / Project Manager

Mr. Rogers serves in both managerial and technical roles, specializing in complex permitting, regulatory compliance, wetland ecology and restoration, environmental impact assessment, and endangered species habitat restoration planning. Specific areas of expertise include management of large-scale and fast-track biological resource analyses and jurisdictional wetland delineations in support of multi-agency permits, construction compliance monitoring and reporting, preparation of accurate and defensible environmental documentation, habitat assessments and mapping and analysis, endangered species evaluations, restoration and mitigation planning, and public meeting presentations.

Education

B.S., Biology, emphasis in Botany, San Francisco State University

Graduate Studies, Ecology and Systematics, San Francisco State University

Specialized Training

Property Analysis Record, Center for Natural Lands Management, 2004

Hydrology of Constructed Wetlands, Wetland Training Institute, 2001

California Wetlands, CLE International, 2000

Federal Endangered Species Act, CLE International, 1995

Wetlands Delineation Certification Training, 1995

CEQA, U.C. Davis Extension, 1993

Wetland Impacts and Mitigation, U.C. Davis Extension, 1992

Wetlands Delineation Training, 1991

Professional Affiliations

Society of Wetland Scientists

California Invasive Plant Council

California Native Plant Society, East Bay Chapter

Relevant Experience

DWR South Bay Aqueduct Improvement and Enlargement Project EIR. ***Biologist and Permit Specialist.*** Prepared assessment of riparian, wetland and sensitive species habitat along 44-mile South Bay Aqueduct for EIR and environmental permitting. Reviewed preliminary designs and identified environmental constraints. Worked in parallel with Department of Water Resources (DWR) design engineers to refine plans to avoid or minimize environmental issues, in particular to reduce regulatory requirements. Identified land available for mitigation and developed conservation easement strategies in coordination with DWR Land and Right of Way Division. Coordinated preparation of permit applications and negotiated permit conditions with U.S. Army Corps of Engineers (Sacramento and San Francisco Districts), U.S. Fish and Wildlife Service, California Department of Fish and Game (CDFG), and the San Francisco Bay Regional Water Quality Control Board (RWQCB). Provided detailed review of Plans and Specifications to ensure CEQA and permit conditions are incorporated into final bid package.

DWR South Bay Aqueduct Maintenance and Improvements EIR. ***Biologist and Permit Specialist.*** Supervised assessment of riparian, wetland and sensitive species habitat for rehabilitation and improvement of the 44-mile South Bay Aqueduct, a project co-sponsored by Zone 7 Water Agency. Working closely with DWR engineers, assisted in refinement of design to facilitate permit acquisition in time for maintenance activities to be scheduled during planned outage of this key conveyance facility that delivers water to Zone 7 and other water providers. Prepared applications and negotiated conditions with U.S. Fish and Wildlife Service (Biological Opinion), U.S. Army Corps of Engineers (Section 404 permits), California Department of Fish and Game (Streambed Alteration Permits), and San Francisco Bay Regional Water Quality Control Board Conditional Water Quality Certification).

Fairfield-Suisun Sewer District Treatment Plant Expansion & Outfall Project EIR. ***Lead Wetlands Biologist.*** Provided technical support for Feasibility Analyses, an Environmental Impact Report, and multiple regulatory permits for a Master Plan for improvements and expansion of the FSSD

Relevant Experience (Continued)

collection system, treatment plant, and discharge facility improvements to meet ultimate demand. Conducted botanical and wetland field studies, prepared a comprehensive wetland delineation report and obtained jurisdictional determination and permits from the U.S. Army Corps of Engineers, California Department of Fish & Game, and Regional Water Quality Control Board. Facilitated consultation process with U.S. Fish and Wildlife Service and National Marine Fisheries Service under Section 7 of the Endangered Species Act. Provided technical review and input into development of Plans and Specifications in support of FSSD's bid advertisement.

Las Lomas Specific Plan EIR. ***Biologist and Wetland Specialist.*** Performed field biological surveys and wetland delineation in support of an EIR for a large scale development project in the Santa Clarita Valley, Los Angeles County. Evaluated plant communities, special-status plant species, and wetlands and aquatic habitat. Responded to agency and public concerns about this controversial project by revising and incorporating comments regarding biological resources into the DEIR.

Lancaster Water Reclamation Plant Storage Reservoir Biological Consulting Services. ***Wetland Specialist.*** Assisted the development of a remote sensing based classification model to help define wetland areas in an extremely complex and fine-grained mosaic of desert scrub and alluvial wash habitat covering approximately four square miles in the Antelope Valley. This model used ground-truthing and spectral analysis of aerial imagery to resolve vegetated scrub habitat and interstitial panes with potential jurisdictional status as seasonal wetlands. The method reduced the cost of a typical wetland delineation by over 50%, and resulted in the determination that no jurisdictional wetlands occurred on the site.

Livermore-Amador Valley Water Management Agency (LAVWMA) Export Pipeline Facilities EIR. ***Biologist and Permit Specialist.*** Prepared assessments of riparian and wetland habitats along a 16-mile wastewater export pipeline for LAVWMA in Alameda County. Prepared applications and negotiated wetland permits for multiple federal, state and local regulatory agencies, and developed the construction monitoring compliance program, wetland mitigation plans and bid specifications for mitigation of impacts to biological resources. Included significant consultation with Corps/USFWS regarding federal jurisdiction and Habitat Conservation Plan requirements.

Nacimiento Water Project Design-Phase Environmental Services. ***Lead Biologist and Wetland Specialist.*** Coordinated and supervised biological and wetland field surveys on the 45-mile proposed pipeline route in northern San Luis Obispo County, including Camp Roberts. Developed methodology for rapid acquisition of jurisdictional wetland data using GPS coupled with portable tablet computers running ARC View to display aerial photos, USGS maps, sensitive species locations, and other data layers. Coordinated with the project design engineering and geotechnical team to provide up-to-date input on

Relevant Experience (Continued)

environmental constraints to assist in preliminary design decision-making as a parallel process with biological resource data gathering. Produced several work products, including *Constraints Analysis*, *Wetland Delineation*, and *Rare Plant Survey Report*.

OCWD Santa Ana River Water Rights Application Program EIR. ***Biologist and Wetland Specialist.*** Evaluated potential impacts on biological resources for an environmental assessment of a proposed water rights application. The project involves describing existing operations and assessing potential impacts from existing and proposed projects to capture Santa Ana River water and recharge the Orange County Groundwater Basin. Mr. Rogers conducted field assessments of existing conditions, and reviewed historic habitat conditions within the watershed, focusing on effects of withdrawals on habitat and sensitive species.

Pajaro Valley Basin Management Plan 2000 EIR/EIS. ***Biologist and Permit Specialist.*** Provided technical and field support for the jurisdictional delineation and permitting for the Pajaro Valley Water Management Agency's (PVMWA's) Revised Basin Management Plan. The project proposes alternative approaches to remediating seawater intrusion and groundwater basin overdraft in the 79,000-acre Pajaro Valley service area (portions of Santa Cruz, Monterey, and San Benito Counties). The project also includes construction of a 23-mile long pipeline to import water from the Central Valley Project to PVWMA service area, which crosses numerous jurisdictional features, including habitat for several threatened/endangered species (i.e., California Red-legged frog, steelhead, California tiger salamander, and western pond turtle).

Scottsdale Marsh Enhancement Plan, Permits and Construction Monitoring. ***Biologist and Permit Specialist.*** Supervised the preparation of detailed plans and specifications and bid package, for restoration and enhancement of Scottsdale Marsh, a 40-acre freshwater wetland and flood control detention system in Novato, California. Plans included excavation of channels to improve circulation and flow-through, extensive planting, landscaping and recreational amenities, and monitoring.

SFPUC Sunol Dam and Niles Dam Removal Project. ***Biologist and Permit Specialist.*** Providing technical assistance and field support for the jurisdictional wetland delineation and permit applications for removal of two dams on Alameda Creek. Will provide analysis of impacts to mature riparian habitat from dam removal, streambed lowering, and localized water table changes, and strategies for mitigation of these effects. The Niles and Sunol dams are no longer in use as water diversions, and present impassable barriers to steelhead migration, and are an attractive nuisance liability.

South County Regional Wastewater Management Agency (SCRWA) Wetlands Facility Project. ***Wetlands Biologist.*** Prepared a wetland delineation, permitting strategy, and feasibility assessment for development of a 30-acre wastewater treatment wetland. The facility would provide effluent polishing

Relevant Experience (Continued)

prior to discharge to Llagas Creek during winter months. Facility design will incorporate habitat and recreational opportunities to provide a project with complimentary water quality and habitat benefits. Key issues included effluent quality, including thermal effects on steelhead fishery, regulatory considerations of exchanging existing low-quality agricultural wetlands for enhanced functions and values of a managed perennial wetland system, and determination of point-of-compliance issues for the discharge permit.

Town of Hillsborough Trunk Sewer Improvement Project. ***Biologist and Permit Specialist.*** Supervised environmental compliance monitoring for replacement a failing and undersized sewer line for the Town of Hillsborough, located in a highly constrained utility corridor owned by the San Francisco Public Utilities Commission (SFPUC) and parallel with San Mateo Creek. The project relied on an innovative pipe-bursting method to minimize construction impacts to high quality riparian habitat, but experienced substantial difficulties with implementation. Coordinated with SFPUC on the preparation of a restoration plan to replace high quality riparian habitat and provide erosion control.

Union Sanitary District Force Main Facility Plan Environmental Constraints & Feasibility Studies. ***Lead Wetlands Biologist.*** Conducted field studies to identify biological and wetlands permitting constraints associated with proposed improvements to access vaults, roads and other Force Main pipeline facilities. Provided emergency response coordination during accidental pipe rupture and discharge into vernal pool conservation area, including water quality sampling, observations of special status invertebrates, and strategies for remediation.

Zone 7 Arroyo Mocho Diversion Project CEQA and Permitting. ***Biologist and Permit Specialist.*** Prepared wetland delineation, habitat assessment and permit applications for planned installation of a structure to divert surplus South Bay Aqueduct water to the Chain of Lakes for groundwater recharge. Facilitated consultation with the Corps, CDFG, RWQCB and the National Oceanic and Atmospheric Administration (NOAA) Fisheries, and responded to local interest groups concerned about future steelhead resources.

Zone 7 Flood Control Master Plan. ***Biologist and Permit Specialist.*** Prepared the biological analysis, mitigation concepts and permit scenarios. Working closely with the engineering team, managed watershed level assessment of sensitive species habitat and recreational constraints and opportunities. Analysis included detailed biological assessment of individual capital projects, as well as development of maintenance program to provide for permit streamlining. Effort included coordination with regulatory agencies, including the Corps, US Fish and Wildlife Service (USFWS), CDFG, RWQCB, and National Marine Fisheries Service (NMFS) regarding resource issues, as well as local municipal agencies regarding local project issues.

Appendix H

Oak Tree Mitigation and Monitoring Plan

ESA

NACIMIENTO WATER PROJECT

Oak Tree Mitigation and Monitoring Plan

November 2006

NWP NACIMIENTO WATER PROJECT

San Luis Obispo County Flood Control & Water Conservation District

NACIMIENTO WATER PROJECT

Oak Tree Mitigation and Monitoring Plan

November 2006

Prepared for:

Environmental Programs Division
Department of Public Works
County of San Luis Obispo

NWP NACIMIENTO WATER PROJECT
San Luis Obispo County Flood Control & Water Conservation District

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NACIMIENTO WATER PROJECT

Oak Tree Mitigation & Monitoring Plan

1.0 Introduction

This Oak Tree Mitigation and Monitoring Plan (OTMMP) provides the guidelines for the implementation of mitigation and monitoring requirements as set forth in the Project's EIR (mitigation measure BR-10 in the Project EIR) for direct and indirect impacts to oak trees and oak woodlands from the implementation of the Nacimiento Water Project (NWP or Project). The San Luis Obispo County Flood Control and Water Conservation District (District) is proposing to construct a 45-mile pipeline from Lake Nacimiento to San Luis Obispo (see Figure 1), and Project activities will result in the trimming and removal of individual oak trees and oak woodland. Oak tree conservation must be considered under the California Environmental Quality Act (CEQA), as well as state law and local ordinances including the State Assembly Bill 242 (1999), San Luis Obispo County Oak Woodlands Management Plan (2003), and the City of Paso Robles Oak Tree Preservation Ordinance. This OTMMP outlines actions that will be taken by the District to protect, avoid and replace oak resources during the NWP.

1.1 Project Summary

The Nacimiento Water Project (NWP or Project) is designed to provide a reliable supplemental water source for a variety of uses within San Luis Obispo (SLO) County by supplementing the local ground and surface water supplies with a new surface water source. The SLO County Flood Control and Water Conservation District has a 17,500 afy entitlement from Lake Nacimiento per agreement executed in 1959 with Monterey County. Of this 17,500 af entitlement, 15,750 af is slated for this project, and the remaining 1,750 af is being reserved for local lakeside use. The amount of water currently contracted is 9,655 acre feet. This water will be transported south in a pipeline approximately 45 miles long with associated turnouts, pumping stations and other associated facilities. The NWP will be constructed within three broad physiographic regions: coastal mountains and valleys, interior mountains and valleys, and a coastal plain. Lake Nacimiento is located in the Santa Lucia coastal mountain range. Major water courses are the Nacimiento and Salinas rivers and Santa Margarita Creek. Major drainage basins include the Lake Nacimiento Watershed and the Salinas River.

1.2 Responsible Parties

San Luis Obispo County Flood Control and Water Conservation District
Public Works Department
County Government Center, Room 207
San Luis Obispo, CA 93408
Contact: John Hollenbeck, Project Manager
jhollenbeck@co.slo.ca.us (805) 781-1288

Nacimiento Water Project . 204453

SOURCE: County of San Luis Obispo

Figure 1
Nacimiento Water Project Location

2.0 Potential Project Impacts

Oak Woodlands are a major component of San Luis Obispo County's rural landscape. The EIR has identified valley oak, blue oak, and coast live oak species and woodlands in and immediately adjacent to the NWP (MRS, 2003). The Project's construction will encounter and impact each of these woodland types in addition to individual trees of each species. For purposes of species distinction and mitigation planting, the distinguishing characteristics of each type are discussed below.

Valley Oak (*Quercus lobata*) Woodland. This habitat occurs in a wide range of settings, but is primarily encountered on deep, well-drained alluvial soils on valley bottoms and on non-alluvial soils within the coastal range. Valley oak woodlands often act as a transition between valley oak riparian forest and valley oak savanna. Individual trees may reach over 100 feet high. Valley oak woodland mixes with valley oak riparian forest near rivers and with blue oak woodland in drier locations.

Blue Oak (*Quercus douglasii*) Woodland. Blue oak woodlands are typically associated with shallow rocky, infertile, well-drained soils. Blue oaks are well adapted to dry, hilly terrain where the water table is unavailable. Blue oak woodlands can exist within valley oak woodlands, but generally occur in drier areas on northern slopes. Blue oaks have a high drought tolerance and compete very successfully with other tree species in drier locations. This habitat varies from open savanna to dense woodland and is typically found in the valleys and foothills of the coastal ranges.

Coast Live Oak (*Quercus agrifolia*) Woodland. These woodlands are highly variable and comprise slow growing, long lived trees. They exist within 15 different soil types in San Luis Obispo County, generally occurring in moderately to well-drained soils that have low to medium fertility. On steep slopes, coastal live oaks establish themselves in small woodland patches. The under story can vary from annual grasslands to dense shrubs.

2.1 Potential Construction Impacts

- Damage to individual trees or oak woodlands during construction activities or staging of equipment and materials.
- Damage to individual trees during trimming or root pruning activities.
- Damage to tree roots during construction activities including trenching, auguring, or staging of equipment and materials.
- Removal of dead or downed oak logs during preconstruction ROW clearing.

Mitigation measures to limit the listed potential impacts are described in Section 6.0.

2.2 Pre-Construction Site Assessment

In 2003 and 2006 an inventory of oak trees and oak woodlands was conducted along the pipeline right of way (ROW) by field reconnaissance and review of aerial photographs. The oak species documented within the project areas are blue oak, coast live oak, and valley oak. Within the construction ROW and staging areas, a total of 3.72 acres of oak woodland (MRS, 2003) and 1,785 individual trees were identified. The location and potential impacts to oak woodlands are described in **Table 1**.

Where possible, the construction ROW will be restricted to a maximum width of 30 feet to avoid sensitive resources including oak trees and oak woodlands. Less than 500 trees were originally anticipated to be removed during construction; additional trees will be impacted by trimming during the NWP. For purposes of this Plan, approximately 1,700 mature oak trees were identified as having the potential to be impacted (see section 4.1). The actual number of individual trees impacted or removed by the Project will be documented during construction by the Biological Monitor (ESA, 2006) and will be replaced through mitigation plantings.

TABLE 1
POTENTIAL IMPACTS TO OAK WOODLAND BY LOCATION AND ACREAGE AREAS

Project Station Location[a]	Type of Oak Woodland	Areas Acreage	Number of Areas	Notes
165+00-170+00	Blue Oak Woodland	0.23	1	Blue oak dominate, coast live oak present
250+00	Blue Oak Woodland	0.05	1	Located at P11
W. Perimeter at CMP (P21) to fire Break Trail (P25)	Blue Oak Woodland	0.02	1	Located after P18
One-Way Tank Line	Blue Oak Woodland	0.17	1	Access road to tanks
Fire Break Trail (P25) to Camp Roberts Boundary (P29)	Blue Oak and Valley Oak Woodland	0.05	1	Located at P27
Camp Roberts Boundary (P29) to Mahoney Road (P30)	Blue Oak Woodland	0.05	1	At P30 (creek)
665+00. Mahoney Road (P30) to Texas Road Intersection (P32)	Blue Oak Woodland	0.24	2	At creek. Blue oak dominate, valley oak and coast live oak present.
Salinas River (P68)	Valley Oak Woodland	0.02	1	Microtunnels start, P66 to P69
Salinas River (P71-P73)	Coast Live Oak Woodland	0.30	4	Coast live oak dominate, valley oak present. Microtunnels end, P70 to P74
Vaquero Drive (P76) to TCSD Discharge (P78)	Valley Oak Woodland	0.17	1	Valley oak dominate, coast live oak and blue oak present. At P78, TCSD discharge area access road
TCSD Discharge area (P78-P80)	Valley Oak Woodland	1.55	2	Valley Oak dominate, coast live oak present. At P79C (Salinas River riparian)
1685+00-1690+00.	Valley Oak Woodland	.028	1	P81 to Atascadero Treated Water Connection
1760+00	Valley Oak Woodland	0.11	1	Atascadero Treated Water Connection to Halcon Road (P85). Valley oak dominate, coast live oaks present.
Rocky Canyon Storage Tank (P84)	Blue Oak Woodland	0.11	1	At tank site.
2500+00	Coast Live Oak Woodland	0.14	1	Stenner Creek Road (P111-P112).

[a] All project station numbers correspond to the original design period. Station numbers will be re-assigned during the final design phase.

SOURCE: AMEC Earth and Environmental, Draft Biological Resources Report to the Proposed Nacimiento Water Project. November 2001.

3.0 Monitoring Plan

The NWP Oak Tree Mitigation & Monitoring Program (OTMMP) described in this section is designed to ensure the protection of oak species and oak woodland habitats, document the trimming or removal of oaks by the Project, and identify guidelines for oak replacement and mitigation planting.

3.1 Preconstruction Identification and Flagging

During the final design phase many of the individual oak trees will be avoided, where possible, by reducing the construction corridor from a width of 100 feet to 30 feet. The oak trees and woodlands will be clearly marked on the engineering drawings and flagged in the field as sensitive resource zones. Prior to ground disturbing or staging activities, the Biological Monitor will identify all oak trees within the corridor to be avoided, trimmed, or removed using different colored flagging and a sequential numbering system. The location and species of each tree will be documented using engineering stationing and GPS coordinates. An accurate record of avoidance, impact, or removal activities will be completed as construction progress.

3.2 Avoidance and Monitoring During Construction

Avoidance. The construction corridor will be narrowed where possible from 100 feet to a maximum of 30 feet to avoid individual oak trees and oak woodland stands. The corridor and sensitive resource zones will be clearly marked on the engineering drawings and will be flagged in the field by the Biological Monitor or designated construction monitor. The woodland canopy and individual trees immediately adjacent to construction areas will be protected by the contractor prior to construction by erecting temporary fencing around the outside edge of the tree's drip line. Construction access roads, ROW access points, and equipment or materials staging areas will be located away from oak woodlands and shall avoid individual oak trees, as feasible. Equipment, vehicles, and materials will not be staged under an oak tree's dripline. The relocation or removal of dead or downed logs will be avoided to the extent possible during ROW clearing and site preparation.

Trimming and Pruning. Any necessary oak tree trimming will be conducted under the supervision of a certified arborist and must conform to the standards set forth by the International Society of Arboriculture. All cuts will occur at the branch collar using natural target pruning; the practice of stub cuts, topping, flush cuts, and random branch removal will be avoided. The use of a tree seal is not permitted.

Mechanical digging and blade or grading work under the drip lines of standing live or dead oak trees shall be avoided when possible. If practical, digging under the drip line of oaks will be done by hand digging, auguring, or boring. Major roots will be avoided whenever possible. If root trimming is unavoidable, all roots larger than 1 inch in diameter will be clean cut. Any damage to an oak tree's limbs or roots, which results in the mortality of the tree, will be subject to replacement planting (3:1 ratio).

Removal. The Biological Monitor must establish the current status of Sudden Oak Death (Phytophthora ramorum) at the time tree removal takes place. If SOD is present, strict guidelines will be necessary to minimize or avoid the introduction, build-up, or spread of SOD. Best Management Practices (BMPs) would include inspecting vehicles leaving the site for host plant debris (leaves, twigs, and branches), power washing stations for trucks, etc.

Construction Monitoring. An onsite monitor will use aerial maps and pre-construction documentation to identify and track the construction activities near or adjacent to individual trees and oak woodlands.

The Biological Monitor will:

- Ensure sensitive zones are protected by temporary fencing and individual trees are clearly flagged in the field prior to the start of construction activities;
- Ensure all construction personnel have received the Project's Worker Environmental Training and are aware of the protective measures related to oak trees and oak woodlands;
- Monitor construction activities to ensure fill, excavated soil, staged equipment or materials are not placed within the drip line of all oak trees;
- Monitor construction activities to ensure no fasteners are used on the trees;
- Record the actual avoidance, trimming, or removal activities for each flagged oak tree; and
- Record the trimming or removal activities of any unflagged oak trees within the ROW or those that occur immediately adjacent to the ROW. Document the tree species and location (engineering stationing and GPS coordinates).

The biological monitors function as facilitators and record-keepers. The monitors will complete a *Daily Monitoring Report* for each day spent monitoring construction on the Project, as described in ESA (2006). This form is used to document the type of construction activities monitored, the actions and observations of the monitor, and the general level of compliance.

3.3 Post Construction Monitoring

The Biological Monitor will conduct oak monitoring one year after the completion of construction. The monitoring will include reconnaissance of all trees immediately adjacent to or within the ROW and staging areas that were avoided or trimmed during construction activities.

If any oak tree died either during construction or within one year after the completion of construction, the tree shall be replaced at a 3:1 ratio. A monitoring report will be drafted to include the tree species and its location (engineering stationing and GPS coordinates) and will be included in the annual Oak Tree Mitigation and Monitoring report (see below).

3.4 Oak Tree Mitigation Monitoring

The Oak Tree Mitigation and Monitoring program provides guidelines for the implementation of the mitigation for individual oak tree and oak woodland losses that occur during the construction of the NWP.

Prior to planting, an Oak Mitigation Monitor (OMM) shall be retained by the District. This person shall be a qualified biologist, restoration ecologist or restoration consultant.

The OMM shall be responsible for:

- Supervising site preparation;
- Approving all seedlings prior to installation;
- Overseeing installation, including training and directing planting crews if necessary;
- Monitoring oak mitigation planting progress and reporting to the District and/or regulatory agencies, as necessary;
- Providing guidance and instruction to the District for ongoing maintenance to ensure the long-term successful establishment of the oak plantings. If necessary, the OMM will train maintenance crews in the methods presented in this plan;
- Guiding remedial actions as needed to replace seedlings, so that performance criteria and mitigation requirements are met; and
- Ensuring that non-native species removal complies with all state and federal requirements and training maintenance crews in proper techniques and best management practice for weed control if necessary.

Reporting Requirements. Once construction is complete, a final construction report (Oak Tree Mitigation and Monitoring Report) will be submitted to the permitting agencies, if requested. This report will identify the species and location of each oak tree trimmed or removed during construction activities. The report will include mapping of trees and photo documentation examples of trimming or tree removal activities during construction. Additional oak tree or woodland impacts not anticipated during pre-construction flagging and labeling will be identified and included in the total oak tree impact quantification.

In addition to the Final Construction Report, the District may be required to submit annual Oak Tree Mitigation and Monitoring reports to the permitting agencies by February 1 of each year for seven years or as otherwise required by permits and agreements issued for the project.

The first year's report will summarize the baseline information as well as the first year monitoring results. Thereafter, annual reports will consist of a summary of information contained

in previous reports, as well as a presentation of the current year's results and discussion of any comparisons between years or trends noted.

The monitoring reports will evaluate the success of the project against the performance criteria. Monitoring will occur twice a year in the spring and fall. The monitoring data will include:

- Recording of individual's tree tag number, height, and basal diameter;
- Qualitative information such as tree health (poor, marginal, healthy) or mortality;
- Maintenance recommendations or remedial actions; and
- Permanent photo locations will be established during baseline monitoring and identical color photographs will be taken each year during the spring monitoring period. The photos can be compared to qualitatively assess changes in general site conditions.

The annual Oak Tree Mitigation and Monitoring reports will include, at the minimum, the following information:

- Summary description of the monitoring methods, including data collection and analysis;
- An overview of the mitigation planting effort, including a general discussion of site conditions, changes since previous report, and quantitative statistics (average growth by species and survival percentages);
- Analysis of success in relation to performance standards;
- Color photographs of the planting areas taken from the established photo locations on the ground and standardized with respect to direction, lens type, etc.;
- A map of the area with relevant features;
- Copies of all data sheets employed in the data gathering; and
- A discussion of any corrective actions needed or undertaken (including weed control, protective cage maintenance, and replanting).

4.0 Mitigation Plan

4.1 Pipeline Construction and Offsite Mitigation

Outside Camp Roberts' boundaries nearly 1,200 mature oak trees were identified as having the potential to be impacted or removed by the NWP. While the ROW will be narrowed, as feasible, from 100 feet wide to 30 feet wide in sensitive resource zones to avoid individual oak trees and oak woodlands, substantial canopy and/or root trimming or removal of oaks is anticipated.

At the completion of construction, the final total of individual oak trees removed will be determined. At that time, the actual acreage for mitigation plantings will be calculated by the Project biologist.

Potential Planting Sites. Replacement planting to mitigate for these losses will occur offsite at multiple locations. A total of approximately 66 acres would be needed to accommodate the mitigation trees to be planted based on the upper estimate of potential trees to be removed; actual numbers of trees to be removed are anticipated to be substantially less. Four potential planting sites, owned by the County of San Luis Obispo, may be suitable for planting of the oak species.

- Santa Margarita Lake Regional Park has several thousand acres designated as open space which may be suitable for a percentage of the oak plantings. The planting sites at this location are limited by some areas' inaccessibility during the establishment period.

- Heilmann Regional Park in Atascadero may be most suitable for blue oak planting as blue oak woodlands exist within the park. Approximately 10 to 15 acres may be suitable for mitigation planting.

- Duveneck property in Templeton was recently donated to the County of San Luis Obispo and has valley oaks on the lower river terrace, and possibly blue oaks on the upland slopes of the property. Approximately 10-14 acres may be suitable for mitigation planting.

- A 50 acre parcel (PPN 073-291-003) owned by the City of San Luis Obispo near the Cuesta Tunnel's south portal currently supports oaks and woodland habitat. Approximately 20 to 25 acres may be suitable for mitigation planting.

Additional properties such as Big Sandy owned by California Department of Fish and Game may also be available for mitigation planting and will be identified in the future.

Replacement Ratio. All individual oak trees removed outside of woodland habitats which are greater than 6 inches in diameter at breast height (dbh) will be replaced at a ratio of 4:1. The Project EIR identified 74 individual trees to be trimmed or removed during construction activities near or within oak woodlands (AMEC Earth and Environmental 2001). Individual oak trees removed from oak woodland habitat (see Table 1) will be replaced at a 3:1 ratio.

Replacement of Mitigation Plantings on Central Coast Water Authority (CCWA) Land.

To the west of Highway 101 along the Cuesta Grade, CCWA maintains 32 acres of blue oak, coast live oak, and valley oak mitigation plantings. These oaks are mitigation for impacts associated with the installation of the Coastal Branch Aqueduct Expansion Project by the Department of Water Resources (DWR). As per CCWA's agreement with CDFG, valley oaks were mitigated at a ratio of 10:1. Blue and live oaks were mitigated at a ratio of 3:1. Any impacts or removal of individual oaks on this property will require a replacement ratio of 1:1. Additionally, the District will assume the maintenance and successful growth performance criteria for these replaced oaks, as set forth in CCWA's agreement with CDFG.

4.2 Construction on Camp Roberts and Onsite Mitigation

Of the 1,785 oak trees identified within the ROW using aerial maps in 2006, approximately one-third (~500) are located on Camp Roberts. The construction ROW is restricted primarily to established roads, therefore the majority of mature oak trees can be avoided during construction. Only a small percentage are anticipated to be trimmed or removed during the pipeline's installation.

A large number of oak seedlings and saplings grow near the edge of the roads, particularly in areas with steep sloped cuts. Seedlings and saplings, regardless of diameter at breast height (dbh), are counted as trees and require mitigation to replace their loss. Potential planting areas on Camp Roberts are described in Table 2.

TABLE 2

POTENTIAL PLANTING SITES ON CAMP ROBERTS BASE

Project Station Location [a]	Acreage	Notes
130+00-135+00	1.72	Proposed staging area and adjacent to flat areas. 250' x 150' on north side. Second area south of the alignment adjacent to flat areas.
160+00-165+00	0.86	Sloped area. 75' x 500'
230+00-235+00	2.30	Proposed flat staging area on north side. 100' x 300'. South side adjacent to corridor. 100' x 700'
355+00	1.03	Proposed staging area. 150' x 300'
405+00	2.30	Adjacent to the pipeline alignment. 100' x 700'.
410+00-415+00	2.87	Proposed staging area and area to the northeast. 250' x 500'.
450+00	1.38	Sloped area south of alignment. 600' x 100'.
485+00-490+00	0.92	Proposed staging area north of and south of the alignment. Additional area south of the road. 800' x 100.'
505+00	0.92	Proposed staging area and sloped areas adjacent to the alignment. 400' x 100' on both sides of the road.

Project Station Location [a]	Acreage	Notes
520+00	0.30	Proposed staging area and sloped areas with mature trees immediately adjacent to the alignment.
Total Acreage	14.6	

[a] All project station numbers correspond to the May 2006 design period. Station numbers may be re-assigned during the final design phase.

SOURCE: ESA. 2006.

These areas total 14.6 acres of suitable habitat located close to the pipeline, and therefore, close to the sources of oak impacts. This amount of area would accommodate approximately 1,000 mitigation trees. Although not adequate for the number of trees required according to the upper estimate of potential oaks to be removed, the actual number is anticipated to be substantially lower due to avoidance efforts. Additional planting areas will be identified in the future, if needed.

Potential Planting Locations. Several locations adjacent to the pipeline alignment may provide suitable areas for infill planting between the roads and existing oak woodlands. While one large mitigation area is preferred from the standpoint of maintenance efficiency, these multiple locations are accessible from the road. Water for irrigation is available at a central location on the base, and would be delivered to the planting areas using a tanker or "water buffalo" (trailer-mounted watering rig).

Because Camp Roberts is an active training facility, the mitigation planting locations are anticipated to be available for training exercises in the future. Any proposed planting area must meet the following conditions prior to approval by the Camp Roberts Environmental Office (CAEV-CR):

- Sloped areas are preferred over flat areas for planting. Flat areas are used heavily for training exercises and are more likely to be impacted by the exercises. The CAEV-CR's approval for flat area planting is on a site by site basis;
- Planting areas cannot be fenced to protect against browsers (deer, pigs, and elk). Fences are considered permanent by Camp Roberts and may limit the availability of training areas and exercises. The use of tree cages or planting tubes is permissible; and
- Plantings should be in close proximity to mature oak trees and at the edges of existing stands. The presence of mature oaks illustrates the area's ability to support oak tree growth in that area.

The potential planting areas shown in **Table 2** have been reviewed by CAEV-CR's staff for conflicts with training areas or potential impact to cultural resources, sensitive plants, and vernal pools. The potential planting areas currently meet CAEV-CR's conditions for planting.

Replacement Ratio. On the Camp Roberts base, all oak seedlings, saplings, and mature trees that are removed or die as a result of project construction within one year of completion of major construction activities will be replaced at a 3:1 ratio. This includes all seedlings and saplings less than 6 inches dbh and saplings greater that 6 inches dbh.

4.3 Performance Criteria and Completion of Mitigation Requirements

Performance Criteria. Oak seedlings planted to offset the impacts by the NWP at offsite locations or on Camp Roberts' property will meet the following performance criteria. These criteria are consistent with CCWA's mitigation performance criteria. The duration of the monitoring will be seven years or when the the oak plantings have:

- A basal diameter of 2 inches or a height of 6 feet;
- Survived one year without protective cages; and
- Survived two years without supplemental watering or irrigation.

Completion of Mitigation Requirements. Once the performance criteria have been met for an individual oak tree, annual monitoring for that individual will cease. The oak tree will be photographed and its tree tag and weed mat removed. Its successful completion will be documented in the annual Oak Tree Mitigation and Monitoring report.

4.4 Acorn Collection and Germination

Acorn Collection. Oak seedlings will be propagated from local acorn sources from within the Nacimiento or Salinas watersheds, preferably from within the removal and planting site's watershed. Permission of the property owner must be obtained prior to the collection of plant materials.

- The acorns from blue and valley oaks ripen earlier than coast live oak acorns. Blue and valley oak should be collected in late August until mid-October. Coast live oak acorns should be collect in early September until Mid-October;
- If acorns are not ripe, the caps will be difficult to remove from the acorn. Once picked, immature acorns cannot be ripened artificially. Acorns should be collected, sorted, and stored by species. Document the collection location (GPS coordinates);
- When possible, collect acorns directly from the branches of the trees, rather than from the ground. Tree collected acorns may have better germination rates than those collected from the ground. Do not damage the tree limbs while collecting the acorns;

- Acorns collected from the ground should be sorted using the float test method to check for viability. The float test is a simple method to identify acorns that may be immature, hollow, or damaged. Place the acorns in a bucket of water and after several hours in the water, discard any floaters;

- Coast live oak acorns require stratification prior to sowing. Soak coast live oak acorns in water for 24 hours and place in a cooler or refrigerator for 30 to 90 days before sowing;

- Prior to storing, remove the acorn's caps. Acorns should be stored in a re-sealable plastic bag in a refrigerator or cooler at temperature just above freezing (between 33.8˚ F and 37.4˚ F). Plastic bags act as moisture barriers while permitting necessary gaseous exchange, and preventing moisture accumulation;

- For greatest viability, blue and valley oak acorns should not be stored for more than 1 or 2 months before planting. If acorns start to germinate during storage, remove and plant them as soon as possible; and

- Discard any acorns whose radicles have become discolored or moldy during the storage period.

Germination and Container Seedlings.

- Acorns will be pre-germinated and outplanted when their radicles reach ¼ inch to ½ inch in length;

- Grow oak seedlings in tall and narrow containers. If necessary, transplant seedlings into deeper containers before seedlings become 'pot-bound" to prevent root circling;

- Use a coarse, well-drained, potting mix that includes organic amendments including bark products and peat, native soil, perlite, vermiculite, and sand. Soil should be kept moist, but not saturated;

- Incorporate a slow release fertilizer into the potting mix to improve seedling nutrition;

- To improve moisture and nutrient uptake, provide mycorrihizal inoculation; and

- If nursery stock is necessary, a native plant nursery with experience propagating oak seedlings will be retained by the District to provide locally collected acorns for mitigation plantings. The nursery must be approved by the Project biologist and by Camp Roberts' Environmental Office (CAEV-CR), if applicable.

4.5 Outplanting of Seedlings

Planting Schedule

- Seedlings should be less than 1 year old at planting time;
- Coast live oak acorns collected in October should be sown in containers in December, and planted no later early March; and
- Blue and valley oaks, which germinate sooner than coast live oak acorns, should be planted before the end of January to ensure the highest viability rates possible.

Planting Scheme

- Planting locations suitable to each species' long-term sustainability will be finalized by the OMM in collaboration with the District representative and a representative of Camp Roberts CAEV-CR once the sites have been identified and acquired by the District;
- Plant locations will be marked in the field by colored pin flags. Seedlings will be planted to avoid a linear arrangement;
- Seedlings will be planted in clusters of 10, spaced approximately 20 feet from each other. A distance of 50 feet will be established between each clustered grouping;
- Planting shall adhere to the minimum spacing requirements; and
- Where possible, planting locations will be accessible by a water tanker or "water buffalo" so that supplemental watering is feasible.

Site Preparation and Planting

- All existing trees in the planting areas will be retained and protected from damage during site preparation and planting;
- At each planting location, a diameter of 4 feet will be cleared of all vegetative ground cover;
- A shovel, auger, or post hole digger will be used to break up soil through the compacted zone (approximately top 12 inches of soil);
- Planting hole depth for planting trees and shrubs shall be 1½ times deeper than the depth of the tap root and will be deep enough to prevent the upturning of the taproot ("J-rooting"); and
- Prepare the hole with a combination of native soil and potting mix. Place a slow-release fertilizer tablet 3 to 4 inches below the seedling's roots. The inclusion of a polymer to increase moisture retention (TerraSorb) may be placed in the hole prior to backfilling the

hole. The use of TerraSorb or similar product may reduce plant shock associated with drought while enhancing soil aeration.

- A polypropylene landscape fabric cut into 3 foot by 3 foot squares will be placed around each seedling at the time of planting to discourage weed growth. Secure the polypropylene fabric using heavy gauge 6 inch wire staples.

- The polypropylene fabric will be covered with a 5- to 7-cm thick layer of organic mulch (waste wood chips).

Tree Tubes and Protective Cages

- To prevent damage and browsing by deer, cattle, rabbits, rodents, and insects, tree tubes and protective cages will be installed around each seedling;

- Tree tubes with UV inhibitors should be used to decrease degradation in sunlight and increase the life of the tube;

- Netting will be secured overtop of the tree tube to prevent insect or bird penetration. Netting can be removed once the seedlings height has reached the height of the tube;

- Tree tubes at least 2 feet in height will be installed with two 1x2" stakes to hold them upright and prevent seedling or sapling damage in strong winds;

- Tree tubes will be maintained and left in place for a minimum of three years after seedlings have grown out of the tops to ensure strong trunk development prior to removal;

- Protective cages to prevent browsing and damage by cattle and deer will be constructed using a 5 foot length of 4" x 2" inch galvanized fencing;

- Each cage will be secured on one side by a steel T-post and on the opposite side by a length of rebar. The T-post and rebar should be driven into the soil at a depth of at least 12 inches. The cages will be set at least 8 inches below ground; and

- The final height of the protective cage will be at least four feet above ground level.

Tree Tags

- Each tree will be identified by a tree tag attached to its base inside of the tree cage;

- The tree tags may be either metal or polyurethane and must be attached loosely to the tree in a manner that will not to incur damage to the seedling during its transition to sapling; and

- The tag's numerals should be imprinted and highly visible.

4.6 Planting Maintenance

During the first three years of implementation, the mitigation planting sites will be visited at least once a month by the planting contractor to conduct site maintenance.

Weeding

- Every spring, annual weeding will be conducted at each planting site;
- For subsequent seasons, an evaluation will be made at the time of monitoring. If it is determined that weeds are a threat to the attainment of performance standards, further weed control shall be implemented at the direction of the OMM;
- Weeds that occur in the planting area shall be removed by hand or by hand tools only (electric or gas powered weed-eaters may be used);
- No weeding shall occur outside of areas specified by the OMM; and
- All weeded plant materials shall be bagged on-site and disposed of off site in a responsible manner (i.e., at an authorized landfill or recycling-composting center). No weeded materials shall be stored on the site or allowed to spread further.

Supplemental Watering

- Provide supplemental watering in the form of infrequent, deep irrigations (at least two gallons per planting) rather than frequent, shallow irrigation. For the first three years, supplemental watering will occur at each planting location every four weeks between May through October. Dependent upon soil moisture and rainfall, supplemental watering may be necessary between November and April; and
- Irrigation shall be cut back gradually beginning in the third fall and winter season after planting to reduce and eventually eliminate the saplings' dependency on irrigation.

Protective Measure Maintenance

- For the first three years, damage to tree shelters, cages, tags, and polypropylene fabric will be documented and repaired during monthly site visits by the planting contractor.
- Upon detection, protective measures that may have been removed either by wildlife or vandals will be replaced immediately.

Site protection

- Areas that have been designated as oak mitigation planting sites will be clearly demarcated by a sign and other measures, as directed by the District, to protect the areas during the establishment phase and to prevent damage to the areas.

4.7 Release of the Planting Contractor

- Following installation, all plantings will be guaranteed by the planting contractor for a period of one year. All dead or damaged trees will be replaced by the contractor as part of the monthly site maintenance.

- At the end of the guarantee period, the planting sites will be evaluated by OMM and District representative prior to releasing the contractor of contractual obligations.

5.0 Authors and References

5.1 Report Authors

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6.0 Mitigation Measure BR-10 of the Nacimiento Water Project EIR (MRS, 2003)

Construction techniques to be implemented to protect oak trees and oak woodlands (i.e., blue oak woodland, valley oak woodland, coast live oak woodland, and digger pine oak woodland):

- In accordance with the County's guidance on oaks and Assembly Bill No. 242 to add Article 3.5 to Chapter 4 of Division 2 of the CDFG Code relating to oak woodland conservation, and with all local related polices and ordinances (e.g., City of Paso de Robles Oak Tree Preservation Ordinance, Camp Roberts Integrated Natural Resources Management Plan) the final project design shall target maximum avoidance of oak trees. If avoidance is not feasible the Applicant shall prepare an Oak Tree and Woodland Mitigation plan, which shall be prepared by a certified arborist and shall contain but not be limited to the following measures:

a) The construction ROW easement shall be narrowed to a maximum of 30 feet in width through oak woodland habitat (i.e., areas suitable for the establishment of oak woodlands). During final design, the project biologist and project engineer shall identify the most appropriate location for the narrowed corridor, taking into account the preservation of as many individual oak trees as possible with the engineering requirements of the proposed project. All areas requiring this sensitive resource zone shall be clearly shown on all construction plans, and prior to the onset of construction, flagged by the project biologist/construction monitor. If determined necessary by the County Environmental Coordinator, a preconstruction survey shall be conducted by the project biologist to accurately map oak woodlands that would be unavoidably impacted.

b) Construction machinery ingress, egress, and staging areas shall be placed away from woodlands and individual oak trees, and shall not be driven under the canopies of oak trees.

c) Disposal or storage of fill or excavated soil is prohibited within the drip line of all oak trees.

d) During construction near oak trees, no fasteners may be used on the trees.

e) All reasonable measures shall be taken to avoid moving dead or downed oak logs.

f) All oak trees immediately adjacent to construction areas shall be protected by erecting temporary fencing at the drip line of the woodland canopy or around individual trees.

g) Any necessary oak tree pruning shall conform to the standards of the International Society of Arboriculture and done under supervision of a certified arborist. Pruning shall be carried out in such a manner as to maintain a natural looking tree form upon completion of pruning; practices such as stub cuts, topping, flush cuts, and random branch removal shall be avoided. All pruning cuts shall correspond with the branch collar using natural target

pruning, and no tree seal shall be used. Pruning or cutting of roots, etc. of individual trees shall be quantified during construction and up to one year after construction.

h) Oak monitoring shall be done for one year after construction completion. If any oak trees die either during construction or within one year after construction completion, the trees shall be replaced at a 3:1 ratio.

i) Individual oak trees that cannot be avoided and must be removed within habitat types other than oak woodlands shall be replaced at a 4:1 replacement ratio in accordance with the County's mitigation policy for loss of individual oak trees.

j) For every area of oak woodland habitat that is removed, oak woodland habitat shall be restored onsite or replaced offsite at an agreed upon offsite location with an equal area (3:1 replacement ratio).

k) Offsite replacement for oak woodlands shall be at locations that currently support disturbed or nonnative habitats. Each of the four oak woodland habitat types that would be disturbed shall be replaced and restored with a similar density of oak trees by species as found in the impacted habitats. The Flood Control and Water Conservation District (FCWCD) shall prepare a detailed oak woodland restoration plan for this project. The VRRP shall contain detailed information on oak woodland restoration replacement and address any issues of concern. Areas suitable for creation of oak conservation areas for replacement offsite shall be evaluated. Feasibility of purchasing land for oak conservation shall be evaluated.

l) Specifically on Camp Roberts and Camp San Luis Obispo, compliance with the Camp Roberts Integrated Natural Resources Management Plan (INRMP) is required as follows:

- hand digging, mechanical digging, and blade work are prohibited under the drip lines of standing live or dead oak trees; if digging under the drip line of oaks is unavoidable, any damage that ensues will be subject to mitigation (replacement);

- 3:1 replacement for damaged or removed oaks;

- collection of acorns from the area of impacted oaks, planting at densities approved by CA ARNG, planting during January-February, watering if necessary;

- minimum of five (5) years of monitoring, 3:1 survivorship ratio, preparation of annual monitoring reports, and compliance with all other INRMP oak management stipulations.

m) These oak tree avoidance and monitoring procedures shall also be followed for construction in all areas in the vicinity of oak trees along the construction route.