INITIAL STUDY

- AND -

DRAFT MITIGATED NEGATIVE DECLARATION

ANZAR ROAD AT SAN JUAN CREEK BRIDGE REPLACEMENT

BRIDGE NUMBER 43C-0039

SAN BENITO COUNTY PUBLIC WORKS DEPARTMENT

OCTOBER 2020

Mitigated Negative Declaration

Pursuant to: Division 13, Public Resources Code

Project Description

The San Benito County Public Works Department (the "County") proposes to replace the existing Anzar Road at San Juan Creek Bridge. The project is located in an unincorporated area of San Benito County, approximately 2.4 miles northwest of the City of San Juan Bautista.

Determination

This proposed Mitigated Negative Declaration (MND) is included to give notice to interested agencies and the public that it is the County's intent to adopt a MND for this project. This does not mean that the County's decision regarding the project is final. This MND is subject to modification based on comments received by interested agencies and the public.

The County has prepared an Initial Study for this project, and pending public review, expects to determine from this study that the proposed project would not have a significant effect on the environment for the following reasons:

The proposed project would have no effect on aesthetics, energy, geology, greenhouse gases, land use, mineral resources, population and housing, public services, recreation, transportation, tribal cultural resources, wildfires, and utilities and services.

In addition, the proposed project would have no significant effect on agricultural resources, air quality, and noise.

The proposed project would have no significant adverse effect on biological resources, cultural resources, hazardous materials, and hydrology because the following mitigation measures would reduce potential effects to insignificance:

California Red-legged Frog (CRLF)

MM BIO-1.1: Only USFWS-approved biologists will participate in activities associated with the capture, handling, and monitoring of CRLFs. Biologists authorized under the USFWS' Programmatic Biological Opinion (PBO) do not need to resubmit their qualifications for subsequent projects conducted pursuant to the PBO, unless the USFWS has revoked their approval at any time during the life of the PBO.

MM BIO-1.2: Ground disturbance will not begin until written approval is received from the USFWS that the biologist is qualified to conduct the work, unless the individual(s) has/have been approved previously and the USFWS has not revoked that approval.

MM BIO-1.3: A USFWS-approved biologist will survey the project site no more than 48 hours before the onset of work activities. If any life stage of the CRLF is found and these individuals are likely to be killed or injured by work activities, the approved biologist will be allowed sufficient time to move them from the site before work begins. The USFWS-approved biologist will relocate the CRLFs the shortest distance possible to a location that contains suitable habitat and that will not be affected by activities associated with the proposed project.

The relocation site should be in the same drainage to the extent practicable. The County will coordinate with the USWFS on the relocation site prior to the capture of any CRLFs.

MM BIO-1.4: Before any activities begin on a project, a USFWS-approved biologist will conduct a training session for all construction personnel. At a minimum, the training will include a description of the CRLF and its habitat, the specific measures that are being implemented to conserve the CRLF for the current project, and the boundaries within which the project may be accomplished. Brochures, books, and briefings may be used in the training session, provided that a qualified person is on hand to answer any questions.

MM BIO-1.5: A USFWS-approved biologist will be present at the work site until all CRLFs have been relocated out of harm's way, workers have been instructed, and disturbance of habitat has been completed. After this time, the State or local sponsoring agency will designate a person to monitor on-site compliance with all minimization measures. The USFWS approved biologist will ensure that this monitor receives the training outlined in MM BIO-1.4 above and in the identification of CRLFs. If the monitor or the USFWS-approved biologist recommends that work be stopped because CRLFs would be affected in a manner not anticipated by the County and the USFWS during review of the proposed action, they will notify the resident engineer (the engineer that is directly overseeing and in command of construction activities) immediately. The resident engineer will either resolve the situation by eliminating the adverse effect immediately or require that all actions causing these effects be halted. If work is stopped, the USFWS will be notified as soon as possible.

MM BIO-1.6: During project activities, all trash that may attract predators will be properly contained, removed from the work site, and disposed of regularly. Following construction, all trash and construction debris will be removed from work areas.

MM BIO-1.7: All refueling, maintenance, and staging of equipment and vehicles will occur at least 60 feet from riparian habitat or water bodies and in a location from where a spill would not drain directly toward aquatic habitat (e.g., on a slope that drains away from the water). The monitor will ensure contamination of habitat does not occur during such operations. Prior to the onset of work, the County will ensure that a plan is in place for prompt and effective response to any accidental spills. All workers will be informed of the importance of preventing spills and of the appropriate measures to take should a spill occur.

MM BIO-1.8: Habitat contours will be returned to their original configuration at the end of project activities. This measure will be implemented in all areas disturbed by activities associated with the project, unless the USFWS and the County determine that it is not feasible or modification of original contours would benefit the CRLF.

MM BIO-1.9: The number of access routes, size of staging areas, and the total area of the activity will be limited to the minimum necessary to achieve the project goals. Environmentally Sensitive Areas will be delineated to confirm access routes and construction areas to the minimum area necessary to complete construction, and minimize the impact to CRLF habitat; this goal includes locating access routes and construction areas outside of wetlands and riparian areas to the maximum extent practicable.

MM BIO-1.10: The County will attempt to schedule work activities for times of the year when impacts to the CRLF would be minimal. For example, work that would affect large pools that may support breeding would be avoided, to the maximum degree practicable, during the breeding season (November through May). Isolated pools that are important to maintain CRLFs through the driest portions of the year would be avoided, to the maximum degree practicable, during the late summer and early fall. Habitat assessments, surveys, and coordination between the County and the USFWS during project planning will be used to assist in scheduling work activities to avoid sensitive habitats during key times of the year.

MM BIO-1.11: To control sedimentation during and after project implementation, the County will implement best management practices outlined in any authorizations or permits issued under the authorities of the Clean Water Act that it receives for the project. If best management practices are ineffective, the County will attempt to remedy the situation immediately, in coordination with the USFWS.

MM BIO-1.12: If a work site is to be temporarily dewatered by pumping, intakes will be completely screened with wire mesh not larger than 0.2 inch to prevent CRLFs from entering the pump system. Water will be released or pumped downstream at an appropriate rate to maintain downstream flows during construction. Upon completion of construction activities, any diversions or barriers to flow will be removed in a manner that would allow flow to resume with the least disturbance to the substrate. Alteration of the stream bed will be minimized to the maximum extent possible; any imported material will be removed from the stream bed upon completion of the project.

MM BIO-1.13: Unless approved by the USFWS, water will not be impounded in a manner that may attract CRLFs.

MM BIO-1.14: A USFWS-approved biologist will permanently remove any individuals of non-native species, such as bullfrogs, signal and red swamp crayfish, and centrarchid fishes from the project area, to the maximum extent possible. The USFWS-approved biologist will be responsible for ensuring his or her activities are in compliance with the California Fish and Game Code.

MM BIO-1.15: If the County demonstrates that disturbed areas have been restored to conditions that allow them to function as habitat for the CRLF, these areas will not be included in the amount of total habitat permanently disturbed.

MM BIO-1.16: To ensure that diseases are not conveyed between work sites by the USFWS-approved biologist, the fieldwork code of practice developed by the Declining Amphibian Populations Task Force will be followed at all times. To avoid harassment, injury, or mortality of CRLFs by dogs or cats, no canine or feline pets shall be permitted in the project area.

MM BIO-1.17: Project sites will be revegetated with an assemblage of native riparian, wetland, and upland vegetation suitable for the area. Locally collected plant materials will be used to the extent practicable. Invasive, exotic plants will be controlled to the maximum extent practicable. This measure will be implemented in all areas disturbed by activities associated with the project, unless the USFWS and the County determine that it is not feasible or practical.

MM BIO-1.18: The County will not use herbicides as the primary method used to control invasive, exotic plants. However, if The County determines the use of herbicides is the only feasible method for controlling invasive plants at a specific project site, it will implement the following additional protective measures for the CRLF: a) The County will not use herbicides during the breeding season for the CRLF; b) The County will conduct surveys for the CRLF immediately prior to the start of any herbicide use. If found, CRLFs will be relocated to suitable habitat far enough from the project area that no direct contact with herbicides would occur; c) Giant reed and other invasive plants will be cut and hauled out by hand and the stems painted with glyphosate or glyphosate-based products, such as Aquamaster® or Rodeo®; d) Licensed and experienced County staff or a licensed and experienced contractor will use a hand-held sprayer for foliar application of Aquamaster® or Rodeo® where large monoculture stands occur at an individual project site; e) All precautions will be taken to ensure that no herbicide is applied to native vegetation; f) Herbicides will not be applied on or near open water surfaces (no closer than 60 feet from open water).; g) Foliar applications of herbicide will not occur when wind speeds are in excess of 3 miles per hour. H) No herbicides will be applied within 24 hours of forecasted rain; i) Application of all herbicides will be done by a qualified County staff or contractors to ensure that overspray is minimized, that all application is made in accordance with label recommendations, and with implementation of all required and reasonable safety measures. A safe dye will be added to the mixture to visually denote treated sites. Application of herbicides will be consistent with the U.S. EPA's Office of Pesticide Programs, Endangered Species Protection Program county bulletins; j) All herbicides, fuels, lubricants, and equipment will be stored, poured, or refilled at least 60 feet from riparian habitat or water bodies in a location where a spill would not drain directly toward aquatic habitat. The County will ensure that contamination of habitat does not occur during such operations. Prior to the onset of work, the County will ensure that a plan is in place for a prompt and effective response to accidental spills. All workers will be informed of the importance of preventing spills and of the appropriate measures to take should a spill occur.

California Tiger Salamander (CTS)

MM BIO-2.1: The implementation of MM BIO-1.1 through MM-BIO-1.18 will also minimize and avoid impacts to the CTS.

MM BIO-2.2: The County will provide mitigation at a 2:1 ratio, on an acreage basis, for all permanent and temporary project impacts to potential CTS habitat (i.e., 1.46 acres of impact). This mitigation ratio has been determined to reflect the need to compensate for lost habitat functions and values, and potential loss of individuals, resulting from project activities. Thus, based upon the area of impact (i.e., 1.46 acres), 2.92 acres of CTS habitat will be preserved and managed to compensate for project impacts. Compensatory mitigation will be carried out via the purchase of credits at a CDFW-approved CTS conservation bank whose service area includes the project site (e.g., the Sparling Ranch Conservation Bank).

Western Pond Turtle

MM BIO-3.1: During pre-construction surveys and construction monitoring for the CRLF and the CTS, a qualified biologist will look for western pond turtles within the Project's impact areas. If any pond turtles are detected during these surveys or during construction monitoring in an area where they could be impacted, they will be relocated to a suitable location upstream or downstream of the BSA, as determined by the qualified biologist and in consultation with the County and CDFW.

Breeding Special Status Bird Species and Migratory Birds

MM BIO-4.1: During pre-construction Because it is not feasible to schedule construction during the non-breeding season (i.e., September 1st and January 31st), pre-construction surveys for nesting birds will be conducted by a qualified ornithologist to ensure that no nests will be disturbed during Project implementation. These surveys will be conducted no more than seven days prior to the initiation of construction activities. During these surveys, the ornithologist will inspect all trees, shrubs, and other potential nesting habitats (including the bridge itself) in and immediately adjacent to the BSA for nests. If an active nest is found sufficiently close to work areas to be disturbed by these activities, the ornithologist, in consultation with the CDFW, will determine the extent of a buffer zone to be established around the nest, typically 250 feet for raptors and 50 feet for other birds, to ensure that no nests of species protected by the MBTA or the California Fish and Game Code will be disturbed during Project implementation.

Because the BSA is already subject to disturbance by vehicles to some extent, activities that will be prohibited from occurring within the buffer zone around a nest will be determined on a case-by-case basis. In general, activities prohibited within such a buffer while a nest is active will be limited to new construction-related activities (i.e., activities that were not ongoing when the nest was constructed) involving significantly greater noise, human presence, or vibrations than were present prior to nest initiation.

Alternatively, nest starts may be removed on a regular basis (e.g., every second or third day), starting in late January or early February, or measures such as exclusion netting may be placed over the existing bridge to prevent active nests from becoming established. Any exclusion netting or other measures used to deter nesting must be carefully maintained and regularly inspected to ensure that it is functioning properly without risk of injury or mortality of birds (e.g., due to entanglement in netting).

Wetlands

MM BIO-6.1: Permanent impacts to the wetland habitats and removal of the tree within these wetlands will require off-site compensatory mitigation. Wetlands will be created at a 2:1 (created wetlands:impacted wetlands) ratio. This will require the creation of 0.06 acre of wetlands. This mitigation will be supplied at the Wildlands Pajaro River Mitigation Bank, located approximately 9 miles from the BSA. As the minimum wetland unit available at Wildlands Pajaro River Mitigation Bank is 0.05 acre, 0.10 acre credit will be used to satisfy the requirement of 0.06 acre, resulting in a final compensatory mitigation ration of approximately 3.3:1 (created wetlands:impacted wetlands).

Fisheries

MM BIO-7.1: Dewatering or diversion and any other work requiring access within the low-flow channel will occur during the dry season only (15 June to 15 October, with the potential for extensions beyond this period, in consultation with Caltrans, CDFW, and NMFS, if dry weather permits). During this time, creek flows are expected to be at annual lows, and steelhead are expected to be absent from the BSA.

MM BIO-7.2: If flow is present in the San Juan Creek channel within the BSA when in-water construction is scheduled to occur, a qualified biologist will be present to monitor all activities involving the placement of fill (e.g., for cofferdams) in the creek. The biologist will inspect the area where the cofferdam will be constructed prior to construction and will ensure that any fish have vacated the cofferdam area before in-water work begins. During initiation of work within the creek channel, qualified fisheries biologists will stake a net across the creek at the upstream limits of dewatering. Then, holding a second net upright between them, the biologists will walk downstream to the lower end of the dewatering area to ensure that all fish have moved out of the dewatering zone; this second net will be anchored at the downstream end of the dewatering zone to prevent fish from entering the zone. The coffer dam constructed for dewatering would then be constructed within the area delimited by the two nets. A qualified fisheries biologist will monitor dewatering activities to ensure that no native fish are entrapped, and will relocate native fish as necessary. No steelhead will be moved without authorization of the NMFS in consultation with Caltrans.

MM BIO-7.3: During demolition and construction activities, netting and other structures will be installed under the bridge to prevent debris from entering the channel, as such debris could degrade water quality and potentially injure steelhead, if present in the San Juan Creek channel (e.g., when work on the bridge deck is occurring during the wet season).

MM BIO-7.4: A construction personnel education program will be given by a qualified biologist before the commencement of construction to explain to construction personnel how best to avoid the accidental take of steelhead. The approved biologist will conduct a training session that will be scheduled as a mandatory informational field meeting for contractors and all construction personnel. The field meeting will include topics on species identification, life history, descriptions of habitat requirements during various life stages, review of habitat sensitivity, required practices before the start of construction and a discussion of general measures that are being implemented to conserve the species as they relate to the Project, penalties for noncompliance, and boundaries of the construction area. Emphasis will be placed on the importance of the habitat and life stage requirements within the context of Project avoidance and minimization measures. Handouts, illustrations, photographs, and/or Project mapping showing areas where minimization and avoidance measures are being implemented will be included as part of this education program. Upon completion of training, employees will sign a form stating that they attended the training and understand all the conservation and protection measures.

MM BIO-7.5: To avoid and minimize impacts to fish resulting from pressure waves created during pile driving, the following measures will be implemented: 1) Pile driving work will be limited to the period of June 15th to October 15th; 2) there will be no pile installation within the creek below top-of-bank; 3) low-impact pile driving equipment such as vibratory hammers or hydraulic casing oscillators, which minimize underwater sound pressure levels, or press-in pile installation will be used instead of impact hammers to the greatest extent practicable; and 4) steel piles will be avoided to the greatest extent practicable.

Archaeological Resources

MM CUL-2.1: In the event that construction unearths any archaeological or paleontological site indicators (as described below), work shall be halted within 200 feet of the discovery until a qualified archaeologist has been retained to inspect it. If the project archaeologist determines that a potentially significant resource will be impacted by additional activities, a plan for evaluative testing shall be submitted to the Director of Planning, County of San Benito to demonstrate that the project area contains a resource eligible for inclusion on the California Register of Historic Resources (CRHR).

MM CUL-2.2: If testing (normally limited hand excavation) demonstrates that the resource is historically or culturally significant, or a unique paleontological resource, a plan for mitigation of impacts shall be submitted to the San Benito County Public Works Department for approval before work can recommence inside the zone described as archaeologically-sensitive. Mitigation can include limited data retrieval through additional hand excavation coupled with archaeological monitoring of soils removal from the zone of archaeological sensitivity in order to insure that significant archaeological materials and data are retrieved for analysis. If any indicators found are of Native American origin, the Native American Heritage Commission (NAHC) shall be contacted.

MM CUL-2.3: In the event that human remains are encountered, work shall be stopped within a zone around the discovery determined by the project archaeologist until the San Benito County Coroner's Office and the NAHC have been contacted. It is the responsibility of the NAHC to name a Most Likely Descendant (MLD), who will be responsible for advising the project sponsor regarding the method of exposure, removal and reburial of any human remains and/or associated grave goods discovered during construction. (Pursuant to Section 7050.5 of the Health and Safety Code and Section 5097.94 of the Public Resources Code of the State of California).

Hazardous Materials

MM HAZ-1.1: Prior to demolition or any construction related activates, surface soils located within the project area shall be tested and analyzed for hazardous levels of pesticides, herbicides, and arsenic by a qualified hazardous materials consultant. A report describing the sampling locations, analytical methods, results, and recommendations, shall be submitted to the San Benito County Public Works Department prior to commencing demolition or construction related actives. Any contaminated soil identified shall be abated and disposed of by certified contractors in accordance with state and federal regulations.

MM HAZ-1.2: Per Caltrans' requirements, the contractor(s) shall prepare a project-specific Health and Safety Plan (HSP) to prevent or minimize worker exposure to soil. The HSP shall include protocols for environmental and personnel monitoring, requirements for personal protective equipment, and other health and safety protocols and procedures required for handling of contaminated soil.

MM HAZ-1.3: All contaminated soil identified on the project site shall be abated and disposed of by certified contractors in accordance with state and federal regulations. This includes lead-containing soils and soils sampled soils that may be restricted based on herbicide, pesticide, and/or arsenic content.

MM HAZ-1.4: All demolition activities and construction activities shall be undertaken in accordance with Cal/OSHA standards contained in Title 8 of CCR, *Section 1529*, to protect workers from exposure to asbestos.

MM HAZ-1.5: A registered asbestos abatement contractor shall be retained to remove and dispose of ACMs identified in the asbestos survey performed for the site in accordance with the standards stated above.

MM HAZ-1.6: All demolition and construction related activates shall be undertaken in accordance with Cal/OSHA standards and Title 8 of CCR, *Section 1532.1*, to protect workers from exposure to lead-containing paint. Written notification to the nearest Cal/OSHA district office is required at least 24 hours prior to certain lead-related work.

MM HAZ-1.7: Yellow traffic striping and paints classified as California hazardous wastes will be removed and disposed of prior to renovation, demolition, or other activities that would disturb the paint. The contractor shall be required to use personnel who have lead-related construction certification as supervisors or workers, as appropriate, from the California Department of Public Health for lead-containing paint removal work. Yellow striping and loose and peeling/flaking paints with hazardous lead levels require removal prior to demolition for waste segregation purposes: to separate potentially hazardous waste

(Category III concentrated lead such as loose paint, paint sludge, vacuum debris, and vacuum filters) from non-hazardous demolition debris (Category II intact lead-painted architectural components such as doors, windows, framework, cladding, and trim). Category I waste is low lead waste (typically non-hazardous) such as construction materials, filtered wash water, and plastic sheeting.

Contractors will be responsible for informing the landfill of the contractor's intent to dispose of RCRA waste, California hazardous waste, and/or architectural components containing intact lead-based paint Some landfills may require additional waste characterization. Contractors are responsible for segregating and characterizing waste streams prior to disposal.

MM HAZ-1.8: Written notification to the Monterey Bay Unified Air Pollution Control District shall be provided ten working days prior to commencement of any demolition activity.

MM HAZ-1.9: The San Benito County Office of the Agricultural Commissioner shall be contacted prior to commencement of construction activities to identify properties that have recently applied pesticides. Areas where pesticides have been applied with restrictions of re-entry shall be identified and all restrictions shall be complied with.

Hydrology/Water Quality

MM HYDRO-1.1: The project applicant will implement the following Best Management Practices (BMPs) as described under in the Caltrans Construction Manual and as contained within Caltrans Construction Site BMPs. Implementation of the measures described below will reduce potential effects from degradation of water quality.

- No equipment will be operated in the live stream channel;
- Standard erosion control and slope stabilization measures will be required for work performed in any area where erosion could lead to sedimentation of a waterbody;
- Silt fencing will be installed between any activities conducted within, or just above the edge of, the top-of-bank and the edge of the creek to prevent dirt or other materials from entering the channel;
- No debris, soil, silt, sand, bark, slash, sawdust, cement, concrete, washings, petroleum products or other organic or earthen material will be allowed to enter into or be placed where it may be washed by rainfall or runoff into waters of the U.S./State or aquatic habitat;
- Machinery will be refueled at least 60 ft from any aquatic habitat, and a spill prevention and response plan will be implemented;
- Water from dewatering of the work areas will not be pumped or allowed to flow into the creek until the water is clear. The method will be the responsibility of the contractor but will be a standard practice such as using sediment basins outside of the channel or portable settling bins, and must successfully filter the water until clear; and
- Post-construction BMPs will be implemented as necessary to prevent a long-term increase in runoff and road-based contamination, as well as to prevent hydrological

modification of San Juan Creek following Project construction, as required by the General Construction Permit (GCP) and the Project's Section 401 Water Quality Certification permit. These may include the use of bioswales and/or velocity reducing structures to treat and slow runoff from increased hardscape as needed, and measures to ensure runoff and road debris from the bridge is not allowed to enter directly into the creek. Volume that cannot be addressed using nonstructural practices shall be captured in structural practices and approved by the Central Coast RWQCB. All post-construction BMPs shall be implemented and functioning prior to completion of the Project.

MM HYDRO-1.2: A Stormwater Pollution Prevention Program (SWPP) shall be prepared in conformance with RWQCB requirements. The SWPP shall include post-construction water quality BMP's, as appropriate. BMP's shall be designed in accordance with the engineering criteria in the Caltrans Strom Water Quality Handbook-Project Planning and Design Guide or other accepted guidance. BMP designs shall be reviewed and approved by the San Benito County Department of Public Works prior to issuance of a grading permits.

___________________________________ __________________

San Benito County Public Works Department Date

TABLE OF CONTENTS

Figures

Appendices

SECTION 1.0 INTRODUCTION AND PURPOSE

1.1 PURPOSE OF THE INITIAL STUDY

The County of San Benito Public Works Department (the "County"), as the Lead Agency, has prepared this Initial Study for the Anzar Road Bridge Replacement Project in compliance with the California Environmental Quality Act (CEQA), the CEQA Guidelines (California Code of Regulations §15000 et. seq.) and the regulations and policies of the County of San Benito, California.

The project proposes to replace the existing Anzar Road Bridge over San Juan Creek with a new bridge at the same location. This Initial Study evaluates the environmental impacts that might reasonably be anticipated to result from implementation of the proposed project.

1.2 PUBLIC REVIEW PERIOD

Publication of this Initial Study marks the beginning of a 30-day public review and comment period. During this period, the Initial Study will be available to local, state, and federal agencies and to interested organizations and individuals for review. Written comments concerning the environmental review contained in this Initial Study during the 30-day public review period should be sent to:

Deems Katada
San Benito County Public Works Department
2301 Technology Parkway
Hollister, CA 95023
DKatada@cosb.us

1.3 CONSIDERATION OF THE INITIAL STUDY AND PROJECT

Following the conclusion of the public review period, San Benito County Board of Supervisors will consider the adoption of the Initial Study/Mitigated Negative Declaration (MND) for the project at a regularly scheduled meeting. The County shall consider the Initial Study/MND together with any comments received during the public review process. Upon adoption of the MND, the County may proceed with project approval actions.

1.4 NOTICE OF DETERMINATION

If the project is approved, the County will file a Notice of Determination (NOD), which will be available for public inspection and posted within 24 hours of receipt at the County Clerk's Office for 30 days. The filing of the NOD starts a 30-day statute of limitations on court challenges to the approval under CEQA (CEQA Guidelines Section 15075(g)).

SECTION 2.0 PROJECT DESCRIPTION

The County of San Benito Public Works Department (the "County"), in cooperation with Caltrans, proposes to replace the existing Anzar Road Bridge over San Juan Creek.[1] As shown on Figures 1-3, the project site is located on Anzar Road between U.S. Highway 101 and San Juan Highway, approximately 2.4 miles northwest of the City of San Juan Bautista in unincorporated San Benito County.

The existing bridge is an approximately 22 feet wide and 40 feet long, two-span, reinforced concrete slab structure with reinforced concrete wall piers and abutments that was built in 1935. The existing bridge does not meet current design or seismic safety standards and is considered functionally obsolete.

The replacement bridge would be located along the same alignment as the existing bridge. The existing bridge would be removed and a new bridge would be constructed in its place. The new bridge would consist of a single cast-in-place, post-tensioned concrete slab, supported on concrete abutment walls at each end. The new bridge would be 32 feet in width to accommodate two 12-feet wide lanes and two 4-feet wide shoulders. The new bridge would be approximately 56 feet in length and would have a road profile approximately two feet higher than that of the existing bridge. See Figure 4 for the plans for the proposed replacement bridge.

On an approximately 390 feet segment of Anzar Road leading to each end of the bridge, the existing roadway surface and road base would be removed and replaced with new materials. The site would be excavated to a depth of approximately 15 feet for the bridge abutments, approximately six feet for relocation of an existing irrigation line, and approximately three feet elsewhere within the roadway limits of work.

Approximately six or seven driven precast concrete piles or drilled (cast-in-drilled-hole or CIDH) piles would be installed at each abutment adjacent to the creek. There would be no pile installation within the top of creek banks. The removal of existing piers, access, and recontouring would require the use of a temporary cofferdam and water diversion system to prevent debris from entering the creek and protect water quality within the watershed. Construction equipment used would include scrapers, dozers, loaders, excavators, a pile driver, flatbed trucks, concrete trucks, graders, a sheep foot, rollers, and an asphalt paver. All pile driving activities and work within the channel would be completed during the dry season from June 15 to October 15.

Due to scour and sediment deposition issues surrounding the abutments of the current bridge, the San Juan Creek channel would be recontoured at the bridge site to stabilize the channel. In addition, a scour hole near the western abutment and a sediment deposit supporting successional riparian scrub vegetation would both be removed. Additionally, the existing channel would be widened slightly so that there would be a small net increase (approximately 0.2 acres) in aquatic habitat under and adjacent to the bridge.

[1] Caltrans Bridge Number 43C-0039.

Utility Relocation

The project would require relocation of some existing utilities and irrigation lines to accommodate the replacement bridge. There is an 8-inch water main that is mounted to the north face of the bridge. This line would be temporality relocated during construction and re-attached to the new north face of the bridge. There are also two irrigation pipelines to the north of the bridge. The first line is an abandoned 10-inch pipe that would be removed during construction. The second line to the north of the abandoned line is an active 6-inch pipe that would be protected in place during construction. The south side of the bridge has two AT&T lines, which are expected to be attached to the new bridge.

The existing bridge also has a stream gauge located on the west abutment and is powered by a solar panel mounted on the north face of the bridge near mid-span. In addition, there are high voltage power lines crossing Anzar Road approximately 50 yards to the east of the creek crossing. These lines are not in conflict with the work to be undertaken as part of the project.

Construction Detour

The construction phase of the project would require the temporary closure of Anzar Road between San Juan Highway on the east and McAlpine Lake and Park on the west. The proposed 2-mile vehicular detour is shown on Figure 5 and is described as follows, beginning at the Anzar Road/San Juan Highway intersection:

- North on San Juan Highway to Highway 129/Chittenden Road;
- West on Highway 129/Chittenden Road to Searle Road;
- Southwest on Searle Road to Anzar Road;
- East on Anzar Road.

Project Funding and Schedule

The proposed project is being funded by the Federal Highway Bridge Program and the County.

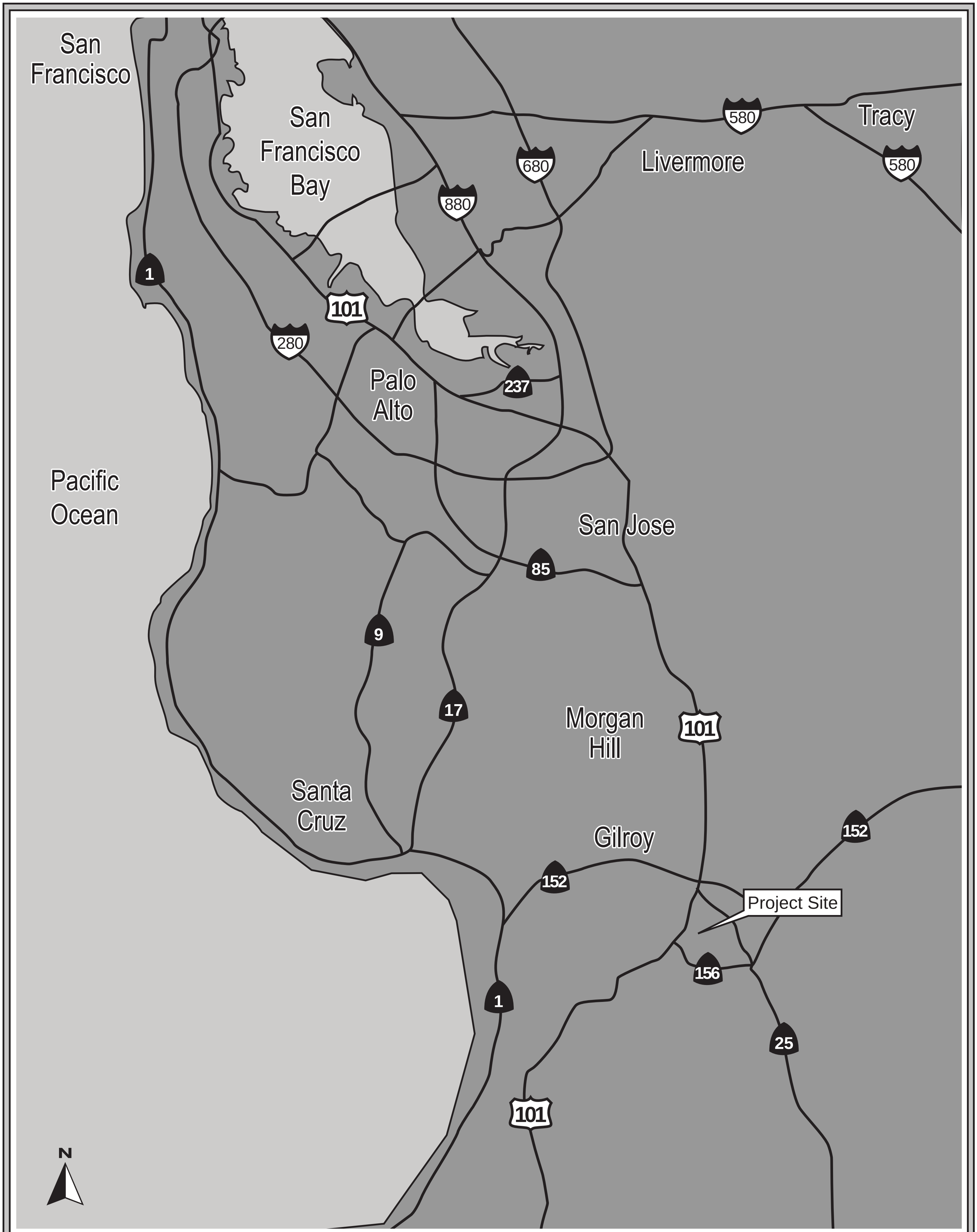
The proposed project is expected to be completed in one stage and total construction time would be approximately six months or less. Construction activities would generally occur from Monday through Friday between the hours 7:00 am and 7:00 pm.

Right-of-Way Requirements

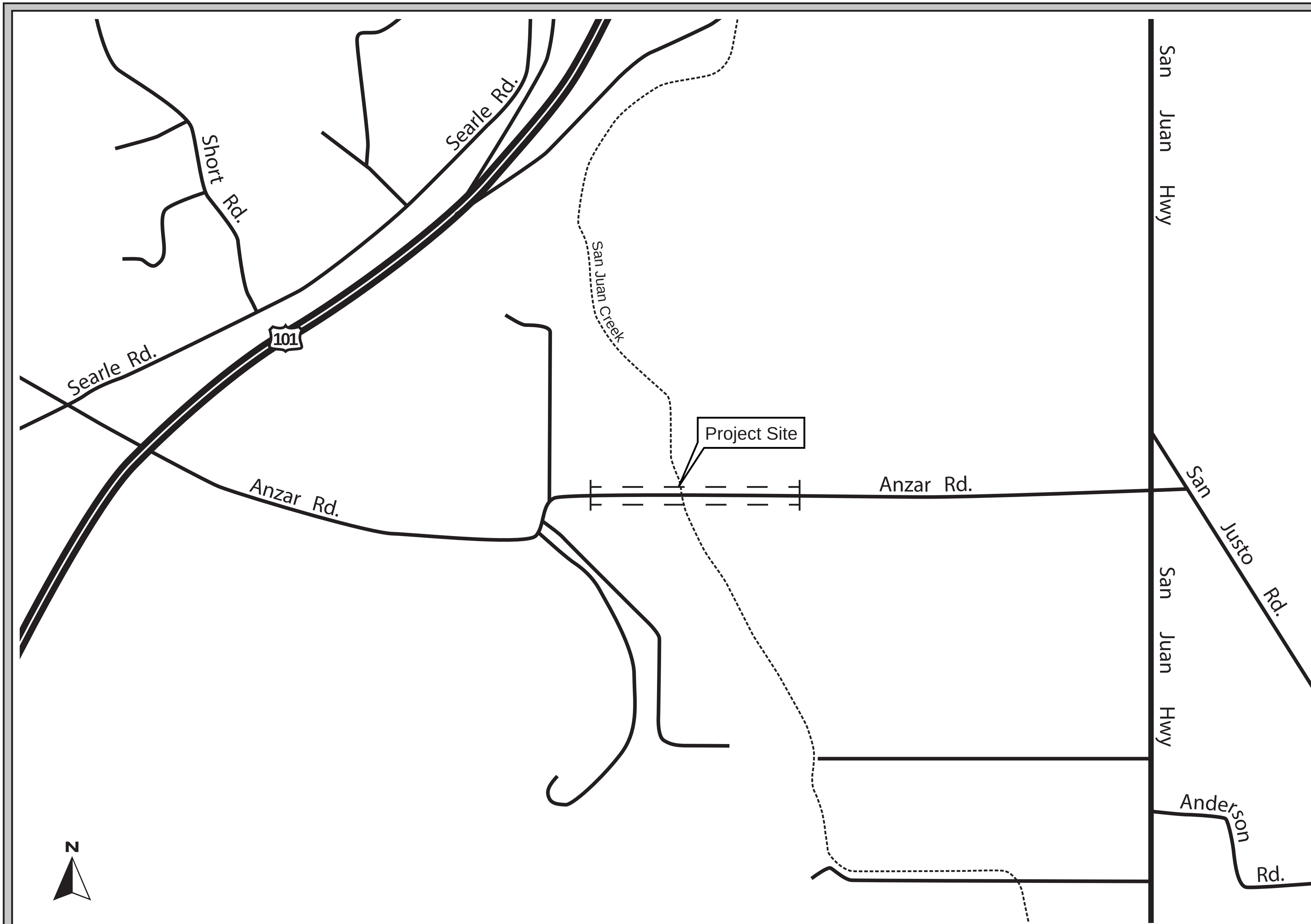
The project would require minor easements from the adjacent parcels for utilities and roadway slopes. Temporary construction easements are also anticipated. No structures would be impacted.

Project Objectives

The objective of the project is to provide a safe vehicular crossing of San Juan Creek on Anzar Road. As used in this context, "safe" means a crossing that meets current design and seismic safety criteria. The current bridge, which was constructed in 1935, does not meet current design or seismic safety standards and is considered functionally obsolete.



REGIONAL MAP FIGURE 1

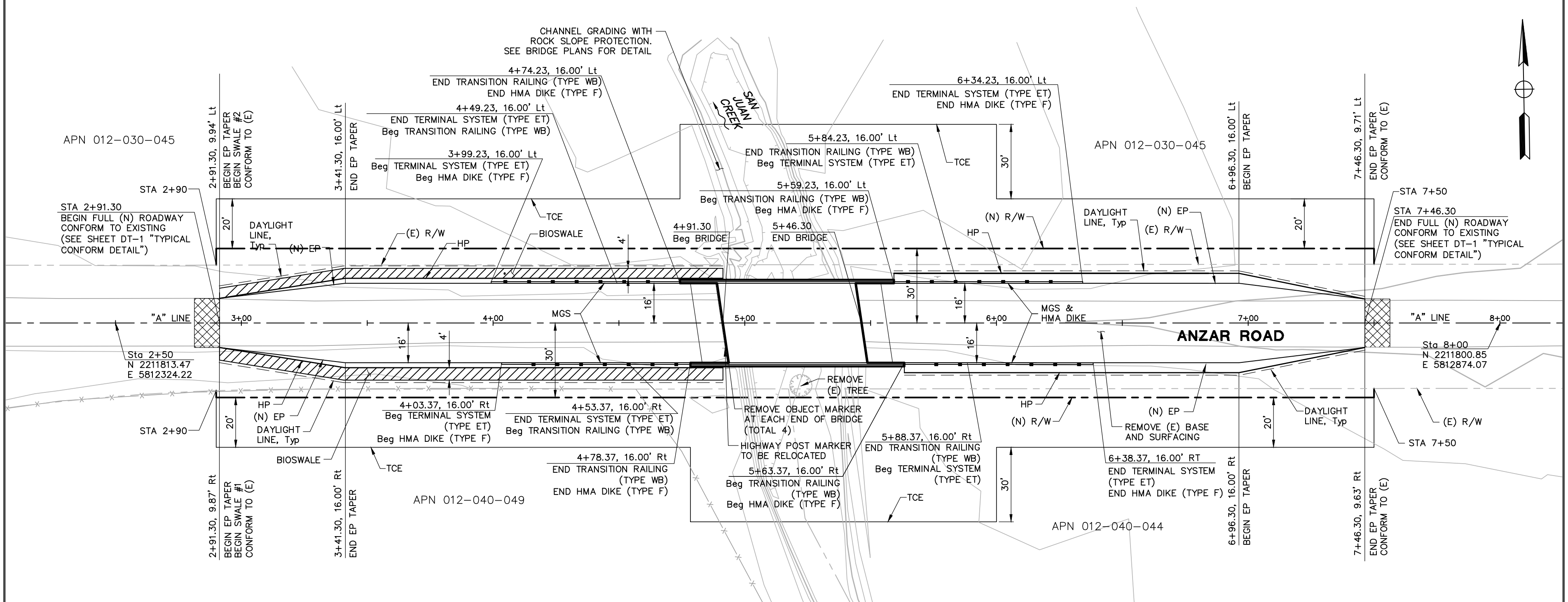


VICINITY MAP

FIGURE 2

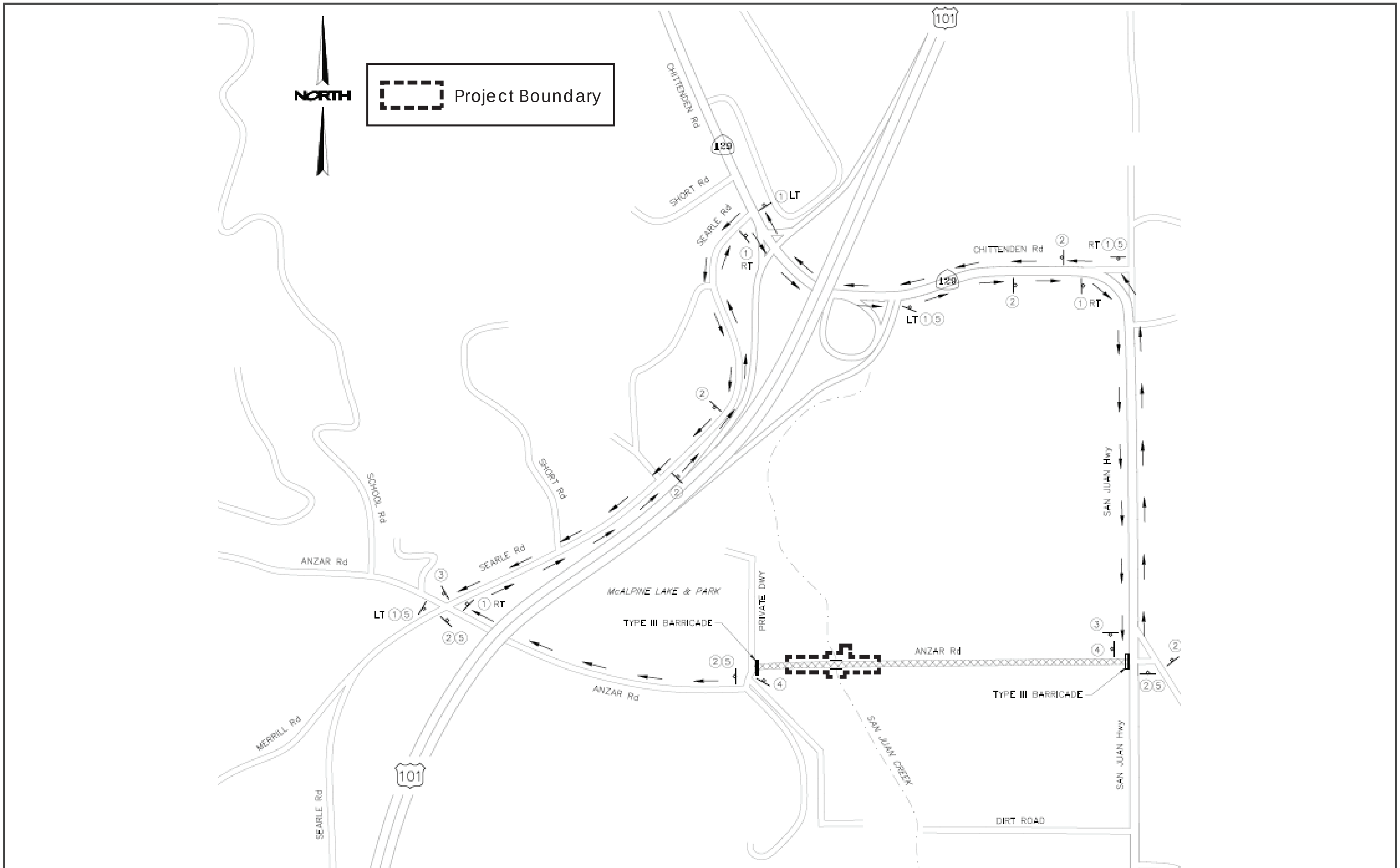
AERIAL PHOTOGRAPH

FIGURE 3



PROJECT PLANS

FIGURE 4



PROPOSED DETOUR DURING CONSTRUCTION

FIGURE 5

SECTION 3.0 ENVIRONMENTAL SETTING, CHECKLIST, AND IMPACT DISCUSSION

This section presents the discussion of impacts related to the following environmental subjects in their respective subsections:

4.1	Aesthetics	4.12	Mineral Resources
4.2	Agriculture and Forestry Resources	4.13	Noise
4.3	Air Quality	4.14	Population and Housing
4.4	Biological Resources	4.15	Public Services
4.5	Cultural Resources	4.16	Recreation
4.6	Energy	4.17	Transportation
4.7	Geology and Soils	4.18	Tribal Cultural Resources
4.8	Greenhouse Gas Emissions	4.19	Utilities and Service Systems
4.9	Hazards and Hazardous Materials	4.20	Wildfire
4.10	Hydrology and Water Quality	4.21	Mandatory Findings of Significance
4.11	Land Use and Planning		

The discussion for each environmental subject includes the following subsections:

- **Environmental Setting** – This subsection 1) provides a brief overview of relevant plans, policies, and regulations that compose the regulatory framework for the project and 2) describes the existing, physical environmental conditions at the project site and in the surrounding area, as relevant.

- **Impact Discussion** – This subsection 1) includes the recommended checklist questions from Appendix G of the CEQA Guidelines to assess impacts and 2) discusses the project's impact on the environmental subject as related to the checklist questions. For significant impacts, feasible mitigation measures are identified. "Mitigation measures" are measures that will minimize, avoid, or eliminate a significant impact (CEQA Guidelines Section 15370). Each impact is numbered to correspond to the checklist question being answered. For example, Impact BIO-1 answers the first checklist question in the Biological Resources section. Mitigation measures are also numbered to correspond to the impact they address. For example, MM BIO-1.3 refers to the third mitigation measure for the first impact in the Biological Resources section.

3.1 AESTHETICS

3.1.1 Environmental Setting

The existing bridge, which is shown in the photo below, is a small, nondescript, structure located in a rural/agricultural area of San Benito County.

Photo Courtesy of Google Maps

3.1.2 Impact Discussion

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Except as provided in Public Resources Code Section 21099, would the project:				
1) Have a substantial adverse effect on a scenic vista?	☐	☐	☐	☒
2) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	☒
3) In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings?[2] If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	☐	☐	☐	☒
4) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☐	☒

[2] Public views are those that are experienced from publicly accessible vantage points.

Impact AES-1:	The project would not have an adverse effect on a scenic vista. **(No Impact)**

The project would replace an existing bridge with a new bridge of similar size and function at the same location. No scenic vistas would be blocked.

Impact AES-2:	The project would not substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway. **(No Impact)**

The project is not located within a state scenic highway. No scenic resources would be damaged as the project is limited to the replacement of an existing bridge with a new bridge of similar size and function at the same location.

Impact AES-3:	The project would not degrade the existing visual character or quality of public views of the site and its surroundings. The project is not in an urbanized area. **(No Impact)**

The project would not alter the existing visual character of the site. The existing bridge would be replaced with a bridge of similar size at the same location.

Impact AES-4:	The project would not create a new source of substantial light or glare which would adversely affect day or nighttime views in the area. **(No Impact)**

The project would not create any new source(s) of light or glare. It is limited to the replacement of an existing bridge with a new bridge of similar size and function on the same alignment.

3.2 AGRICULTURE AND FORESTRY RESOURCES

The analysis in this section is based in part on the "Farmland Conversion Impact Assessment Memo," prepared in March 2013 by David J. Powers & Associates. This assessment is included as Appendix A in this Initial Study.

3.2.1 Environmental Setting

The majority of the project area has been designated as "Prime Farmland" by the California Department of Conservation on the San Benito County Important Farmlands Map 2010 (October 2011). Prime Farmland is defined as "having the best combination of physical and chemical features to sustain long-term agricultural production. This land has the soil quality, growing season, and moisture supply needed to produce sustained high yields." The southwestern portion of the project site is mapped as "Grazing Land", defined as "land on which the existing vegetation is suited for the grazing of livestock." Based on the review of aerial photographs, the properties surrounding Anzar Road Bridge were in agricultural use since the 1920's.

3.2.2 Impact Discussion

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project:				
1) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☒	☐
2) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒
3) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))?	☐	☐	☐	☒
4) Result in a loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒
5) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	☒

Impact AG-1:	The project would convert 0.17 acres of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use. **(Less than Significant Impact)**

The project proposes to remove and replace the existing 22-feet wide and 40-feet long functionally obsolete bridge with a new 32-feet wide and 42-feet long structure along the same road alignment. The new Anzar Road Bridge would be approximately 10-feet wider than the existing bridge in order to accommodate two 12-feet wide lanes and two 4-feet wide shoulders. The project would require approximately 0.17 acres of additional permanent right-of-way along Anzar Road to replace the bridge and complete the project. The additional right-of-way would be obtained from adjacent properties and require conversion of approximately 0.17 acres of "prime farmland" to non-agricultural use.

A Farmland Conversation Assessment, including Form AD 1006, was completed in accordance with provisions of the Farmland Protection Policy Act (7 CFR 658). Parcels surrounding the project site support on-going agricultural and farming operations. The project need for additional right-of-way would require conversion of approximately 0.17-acres of "prime farmland" into "non-agricultural" use. The minimal conversion would not require the removal of fruit trees, barns, or other agricultural support structures and would not significantly reduce the agricultural production or jeopardize the continued existence of agricultural use on parcels surrounding Anzar Road Bridge. The proposed project is compatible with existing agricultural uses and would likely improve the mobility and transferability of agricultural goods and equipment since the replacement bridge would be wider and designed to current standards.

The conversion of 0.17-acres of "prime farmland" into non-agricultural use would have a less than significant impact on prime farmland resources.

Impact AG-2:	The project would not conflict with existing zoning for agricultural use, or a Williamson Act contract. **(No Impact)**

The project is limited to the replacement of an existing bridge on the same alignment. Parcels surrounding Anzar Road Bridge are zoned *Agricultural Productive (AP)* District. The project site and adjacent properties are not under a Williamson Act contract.[3] Replacement of the existing bridge would not conflict with existing zoning or preclude continued agricultural uses on surrounding properties.

[3] San Benito County. GIS Web Application. Accessed August 2014. http://www.lynxgis.com/sanbenitoco/index2.cfm

Impact AG-3:	The project would not conflict with existing zoning for, or cause rezoning of, forest land, timberland, or timberland zoned Timberland Production. **(No Impact)**

There are no forest lands or timberlands within the project footprint. The project is limited to the replacement of an existing bridge on the same alignment.

Impact AG-4:	The project would not result in a loss of forest land or conversion of forest land to non-forest use. **(No Impact)**

There are no forest lands or timberlands within the project footprint. The project is limited to the replacement of an existing bridge on the same alignment.

Impact AG-5:	The project would not involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use. **(No Impact)**

The project would require a small amount (approximately 0.17 acres) of farmland to be converted to non-agricultural uses for additional permanent right-of-way in order to remove and replace the Anzar Road Bridge. No other impacts to designated farmland are anticipated. The project is not growth inducing and does not include widening or adding additional vehicle capacity to Anzar Road. Therefore, the replacement of the bridge would not result in other changes to the environment that could, in turn, result in an impact on agricultural resources.

3.3 AIR QUALITY

3.3.1 <u>Environmental Setting</u>

San Benito County is under the jurisdiction of the Monterey Bay Unified Air Pollution Control District (MBUAPCD) and the project site is located in the North Central Coast Air Basin (NCCAB), which is comprised of Monterey, Santa Cruz, and San Benito Counties.

The NCCAB is currently classified as a "nonattainment" area for the state standards for ozone and for particulate matter less than 10 microns in diameter (PM_{10}). San Benito County is designated as "attainment" or "unclassified" for federal and state standards for all other pollutants.[4]

The MBUAPCD *Triennial Plan Revision 2009-2011* is the currently adopted Air Quality Management Plan (AQMP) for the region and describes how the State Ambient Air Quality Standard (AAQS) for ozone would be met. This revision is an update to elements in the *2008 AQMP* based on the review of the time period 2009-2011 and shows that the region continues to make progress toward meeting the state ozone standard. The District's focus continues to be on achieving the eight-hour component of the ozone standard since the region has attained the one-hour standard. The primary elements from the *2008 AQMP* updated in this revision include air quality trends analysis, emission inventory, and mobile source programs.[5]

Existing sources of emissions in the project area include vehicular traffic on nearby roads and surrounding agricultural activities, which are known to generate particulate emissions.

3.3.2 <u>Impact Discussion</u>

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project:				
1) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☐	☒
2) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?	☐	☐	☐	☒
3) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐

[4] Monterey Bay Unified Air Pollution Control District, NCCAB Area Designations and Attainment Status. January 2013. Available at: http://mbuapcd.org/pdf/Attainment_Status_January_2013_2%20(1).pdf Accessed August 12, 2014.

[5] Monterey Bay Unified Air Pollution Control District. Triennial Plan Revision 2009-2011. Available at: http://mbuapcd.org/pdf/Final_Triennial_Plan_Revision_041913.pdf Accessed August 12, 2014.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project: 4) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	☐	☐	☐	☒

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

Impact AIR-1: The project would not conflict with or obstruct implementation of the applicable air quality plan. **(No Impact)**

The project is limited to the replacement of an existing 2-lane bridge with a new 2-lane bridge at the same location. The project would not increase traffic or result in any growth that might conflict with the implementation of an air quality plan.

Impact AIR-2: The project would not result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard. **(No Impact)**

The project is limited to the replacement of an existing 2-lane bridge with a new 2-lane bridge at the same location. The operational phase of the project would not increase traffic or result in any growth that would generate pollutants that might be considered cumulatively considerable.

Pollutants generated during the construction phase of the project are addressed in the next subsection under Impact AIR-3.

Impact AIR-3: The project would not expose sensitive receptors to substantial pollutant concentrations**. (Less than Significant Impact)**

Construction equipment at the project site may include scrapers, dozers, loaders, excavators, a pile driver, flatbed trucks, concrete trucks, graders, a sheep foot, rollers, and an asphalt paver. This equipment would emit quantities of particulate matter (PM_{10}) and exhaust during construction, which would be temporary in nature.

The MBUAPCD CEQA *Air Quality Guidelines*[6] identify thresholds of significance for potentially significant construction projects as 2.2 acres per day of earthmoving (grading and/or excavation), or

[6] Monterey Bay Unified Air Pollution Control District. CEQA Air Quality Guidelines. Available at: http://mbuapcd.org/pdf/CEQA_full%20(1).pdf Accessed August 12, 2014.

82 pounds of particulates per day of PM_{10} emissions. The proposed project would disturb approximately two total acres total during project implementation, which is anticipated to be completed within six months.

Although the project would not exceed the threshold of significance for construction activities, the following dust-control measures are included in the project to further reduce possible PM_{10} impacts related to construction and grading activities.

- Water all active construction areas at least twice daily. Frequency should be based on the type of operation, soil, and wind exposure.
- Prohibit all grading activities during periods of high wind (over 15 mph).
- Apply chemical soil stabilizers on inactive construction areas (disturbed lands within construction projects that are unused for at least four consecutive days).
- Apply non-toxic binders (e.g., latex acrylic copolymer) to exposed areas after cut and fill operations and hydroseed area.
- Haul trucks shall maintain at least two feet of freeboard.
- Cover all trucks hauling dirt, sand, or loose materials.
- Plant vegetative ground cover in disturbed areas as soon as possible.
- Cover inactive storage piles.
- Install wheel washers at the entrance to construction sites for all exiting trucks.
- Sweep streets if visible soil material is carried out from the construction site.
- Post a publicly visible sign which specifies the telephone number and person to contact regarding dust complaints. This person shall respond to complaints and take corrective action within 48 hours. The phone number of the MBUAPCD shall be visible to ensure compliance with Rule 402 (Nuisance).
- Limit the area under construction at any one time.

Impact AIR-4:	The project would not result in other emissions (such as those leading to odors) adversely affecting a substantial number of people. **(No Impact)**

If any odors are created by construction activities, such odors would not affect a substantial number of people as the project is located in a remote area where there are no adjacent populations.

There would be no long-term odors created by the project as it is limited to the replacement of an existing bridge with a new bridge of similar capacity and function at the same location.

3.4 BIOLOGICAL RESOURCES

The analysis in this section is based primarily on the following biological reports that were prepared for this project by HT Harvey & Associates: Natural Environment Study and Biological Assessment. These two reports comprise Appendix B and Appendix C of this Initial Study, respectively.

3.4.1 <u>Environmental Setting</u>

3.4.1.1 *Existing Habitats*

Six habitat types are present within the biological study area (BSA) at the project site. These are shown on Figure 6 and are described below.

Scrub/Shrub Riparian Wetland Habitat

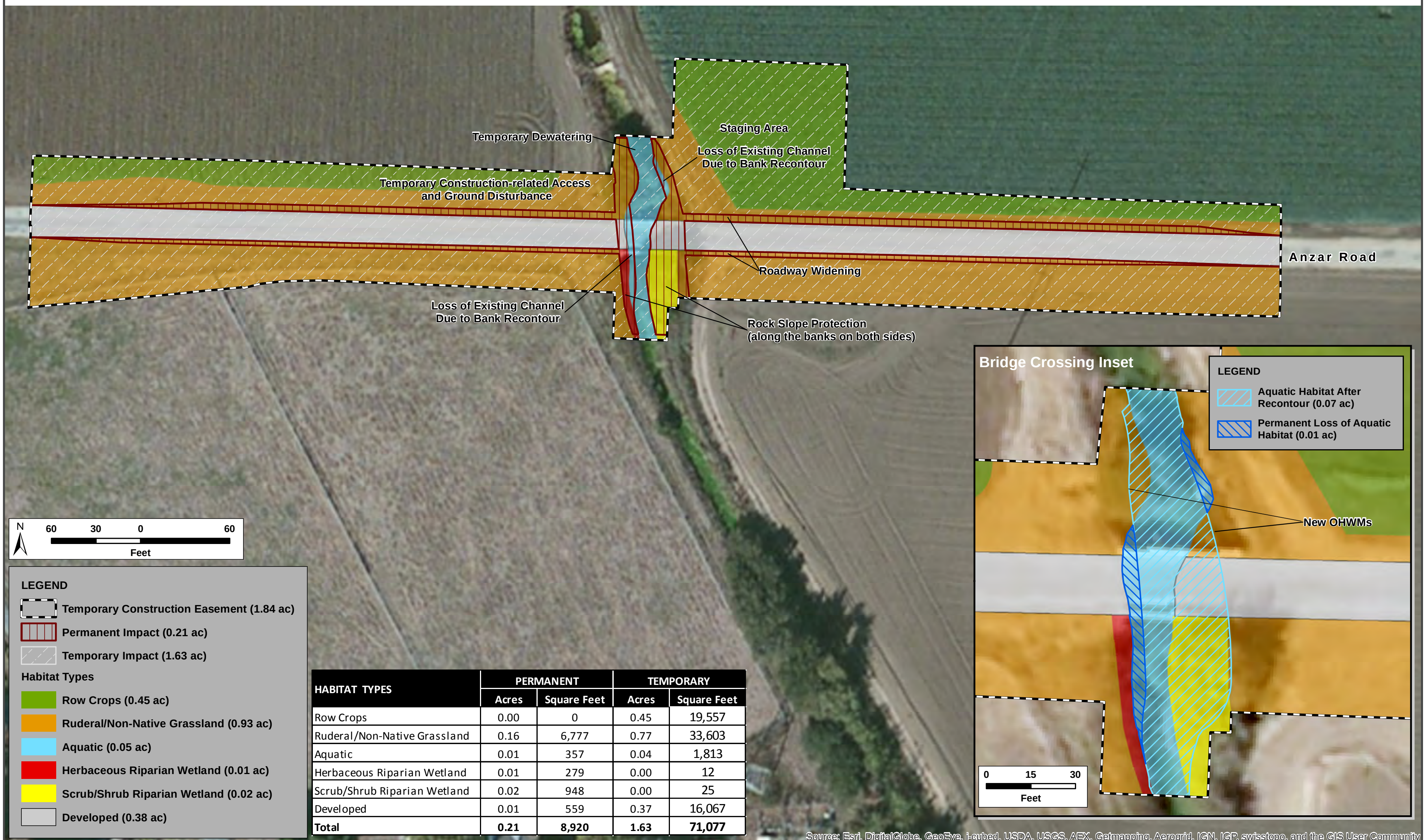
Scrub/shrub riparian wetland covers 0.02 acres in the BSA. This wetland is located on a low-lying terrace adjacent to the eastern OHW mark of San Juan Creek, and to the south of Anzar Road. The terrace is likely inundated for much of the wet season, during periods of high flow in San Juan Creek, and is likely seep fed during the dry season. Woody plant species including willow saplings and shrubs are the dominant vegetation. Only one willow is tree sized, with a dbh (diameter at breast height) of approximately 8-10 inches. The herbaceous understory is composed primarily of obligate and facultative wetland species including water smartweed, fat-hen, and poison hemloc.

Typically, riparian habitats in California are exceptionally productive habitats, offering high habitat value for a wide array of wildlife species and contributing disproportionately to landscape-level biodiversity. The presence of water and abundant invertebrate fauna provide foraging opportunities for many species. However, the low growing and relatively sparse stringer of riparian habitat along San Juan Creek in the BSA lacks the diverse habitat structure that typically provides cover and nesting opportunities for riparian associated birds. Song sparrows and red-winged blackbirds may nest in the sparse riparian habitat on the site, and a variety of birds nesting in nearby trees may forage on the site, but the absence of larger, denser trees precludes the presence of a diverse nesting bird community. During migration and in winter, white-crowned sparrows, golden-crowned sparrows, and Lincoln's sparrows forage in this habitat.

Low-growing shrubs and forbs and sticks, logs, and other plant debris left behind by the receding stream in spring and summer provide refugia for slender salamanders, western toads, and Pacific chorus frogs. The riparian corridor also provides suitable habitat for a variety of mammalian species. Medium and large-sized mammals such as raccoons, striped skunks, and gray fox forage in and disperse through the riparian zone.

Herbaceous Riparian Wetland Habitat

Herbaceous riparian wetland covers 0.01 ac in the BSA. This wetland is located on the western bank of San Juan Creek, to the south of Anzar Road. Topography in this wetland slopes steeply down from the top of bank, before leveling off near the OHW mark. Most of this area is never inundated, due to the steep slopes and relatively high elevations, but is instead seep fed. Vegetation in this wetland is composed of a diverse community of herbaceous hydrophytic plants. Species composition



HABITAT TYPES	PERMANENT		TEMPORARY	
	Acres	Square Feet	Acres	Square Feet
Row Crops	0.00	0	0.45	19,557
Ruderal/Non-Native Grassland	0.16	6,777	0.77	33,603
Aquatic	0.01	357	0.04	1,813
Herbaceous Riparian Wetland	0.01	279	0.00	12
Scrub/Shrub Riparian Wetland	0.02	948	0.00	25
Developed	0.01	559	0.37	16,067
Total	**0.21**	**8,920**	**1.63**	**71,077**

EXISTING HABITATS AT THE PROJECT SITE

FIGURE 6

was arranged roughly in parallel bands corresponding to moisture gradients. Immediately adjacent to the creek, water smart weed, fat-hen, and willow herb were dominant. Further up-slope, facultative species including wild licorice and stinging nettle became more abundant.

The small patches of herbaceous riparian wetland within the BSA may support amphibian species like those in the scrub/shrub riparian wetland described above. The vegetation is too short and limited to host most nesting birds, although song sparrows may nest in this vegetation, and birds nesting elsewhere in the Project area may forage in this habitat on occasion. Small mammals may forage on the freshwater vegetation as well.

Aquatic Habitat

Approximately 0.05 acres of aquatic habitat occurs in the BSA. The creek was flowing during the time of surveys, prior to any winter rains occurring, indicating the creek's hydrology is supported by groundwater. This habitat is sparsely vegetated with aquatic plants including watercress and ditch grass. The creek is mud-bottomed in this reach.

The low-gradient, turbid water of San Juan Creek in the BSA may support native fish species such as the hitch and Sacramento blackfish, and introduced species such as the mosquitofish. Central California Coast steelhead are not known from this creek; however, the aquatic habitat within the Project is suitable for dispersal during months and years when flows are sufficient. Mammals such as the raccoon, striped skunk, gray fox, and nonnative opossum that use other habitats within the riparian corridor may forage in the aquatic habitat within the BSA. Mallards, great blue herons, and great egrets forage in this reach of creek on occasion.

Row Crops Habitat

Approximately 0.45 acres of intensively managed row crops are present in the BSA.

The row crop habitat within the BSA has limited habitat value to wildlife because of regular disking and disturbance to the soil and the monoculture of plants. A variety of birds may occasionally forage in these fields, and terrestrial animals such as mammals, reptiles, and amphibians may move through these habitats, but the row crops on the site are not expected to be used heavily by any wildlife.

Non-Native/Ruderal Grassland Habitat

Approximately 0.93 acres of developed/ruderal grassland habitat occurs in the BSA. The dominant species within this habitat are almost all non-native, invasive species and include fennel, bristly ox-tongue, wild radish, wild oats, and short-podded mustard.

Most of the wildlife species found in the ruderal grassland habitat in the BSA are common, widespread species associated with disturbed habitats. This habitat may support reptiles such as western fence lizards, gopher snakes, and common garter snakes. Raptor species such as the white-tailed kite and red-tailed hawk and songbirds such as the house finch and lesser goldfinch forage in ruderal grassland habitat. Mammalian species that use these habitats include the deer mouse, California mouse, and broad-footed mole.

Developed Habitat

Developed areas in the BSA include the roadway and bridge structure. These areas are paved and support no vegetation.

The paved roadway within the BSA serves as wildlife habitat only in a very limited capacity. The road is likely to be used by wildlife during movements back and forth across the road, and reptiles such as western fence lizards and gopher snakes may bask on the road surface in order to raise their body temperature. The existing bridge within the BSA offers some structure for nesting birds such as black phoebes and cliff swallows, and evidence of old nests of both species were observed on the bridge during the site visit. The concrete on the underside of the bridge is devoid of cracks and crevices, rendering it unsuitable for daytime roosting by bats.

3.4.1.2 *Existing Special Status Plant Species*

Several special-status plant species are known to occur in the region. However, many of these plants are associated only with conditions (i.e., habitat types, climates, elevations, and soil types) that do not occur within the BSA. For example, many of these species occur only in chaparral, scrub, or prairie habitats with maritime/coastal climates. Other species can be found inland but require specific site conditions (e.g., serpentine soils) not present in the BSA. In addition, the BSA has been heavily impacted by adjacent agricultural land uses and most of the area supports only sparse, ruderal vegetation cover. Thus, no special status plant species have the potential to occur.

3.4.1.3 *Existing Special Status Animal Species*

Several of the special-status animal species present in the region (i.e., in southern Santa Clara County/northern San Benito County) do not occur in the BSA because the Project site lacks suitable habitat and/or is outside the range of the species. Such species include the bay checkerspot butterfly, Least Bell's vireo, and San Joaquin kit fox, among others. Several other special-status wildlife species may occur within the BSA only as uncommon or rare visitors, migrants, or transients, and are not expected to reside or breed on the site. These include species such as the tricolored blackbird, grasshopper sparrow, yellowbreasted chat, and olive-sided flycatcher.

Potentially suitable habitat exists within the BSA for a number of other special-status wildlife species that may reside in or breed on the site, or may occur on the site as transients but in ways that may subject individuals to Project impacts (e.g., by occurrence in burrows or in the stream channel). These species are described below.

South Central California Coast Steelhead

The National Marine Fisheries Service published a final rule to list the South Central California Coast (SCCC) steelhead Distinct Population Segment (DPS) as threatened under the Federal Endangered Species Act on August 18, 1997; threatened status was reaffirmed on January 5, 2006. The SCCC steelhead DPS encompasses all naturally spawned steelhead below impassable barriers from the Pajaro River south to (but not including) the Santa Maria River.

There are no known records of steelhead occurring in San Juan Creek. Additionally, San Juan Creek was not included as critical habitat despite the inclusion of nearby streams (NMFS 2005).

Much of San Juan Creek is dry much of the year, although the reach within the BSA appears to be perennially wet or nearly so. When water is present in the channel, aquatic habitat within the portion of San Juan Creek in the BSA is not suitable for spawning and rearing due to the warm turbid water, silt substrate, likely eutrophic condition, and lack of structural complexity. Water quality within this creek is low due to nutrient inputs from agricultural sources upstream. Therefore, San Juan Creek is not expected to support a breeding population, and steelhead would not regularly be moving through the site (as might be expected if the species spawned upstream). However, there are no absolute barriers to fish entering the stream and the Project site is only 1.2 miles from the confluence with the San Benito River, which is designated as critical habitat for this species. As a result, there is some potential (albeit a low probability) that steelhead may disperse upstream into the BSA. This probability is highest during the winter and spring months when the water is cooler and flows are higher and is lower during the summer months when water temperatures increase, flows decrease, and the spawning season comes to a close.

Monterey Roach

The California Department of Fish & Wildlife (CDFW) classifies the Monterey roach as a California Species of Special Concern (CSSC).

No targeted surveys for these fish were conducted for the Project and they were not specifically observed in the BSA. However, based on previous records, the Monterey roach is fairly widespread in the Pajaro River drainages watershed and inhabits calm unshaded pools like those in the BSA. The water quality in San Juan Creek is low due to runoff from surrounding agricultural fields, which may preclude the Monterey roach from maintaining populations in the creek, but individuals from the Pajaro River and San Benito River downstream may disperse to the site. Therefore, Monterey roach may be present.

California Red-legged Frog

The United States Fish & Wildlife Service (USFWS) listed the California red-legged frog (CRLF) as threatened in 1996 due to continued habitat degradation throughout the species' range and population declines and critical habitat was most recently designated in 2010. No portion of the BSA is within designated critical habitat.

The CRLF has not been recorded within the BSA itself. However, there are several CNDDB records of CRLFs within 5 miles of the BSA and two records within 2 miles of the BSA. The closest known records are from perennial stock ponds 1.2 and 1.8 miles from the BSA, respectively, in the hills to the northeast of the BSA.

No CRLFs or red-legged frog breeding habitat were observed during the reconnaissance-level survey of the BSA. San Juan Creek, where it flows through the BSA, is not suitable breeding habitat because of high amounts of nonpoint pollution from adjacent agricultural fields. The pollutants include excess nutrients from agricultural runoff and organic matter, which results in inadequate dissolved oxygen levels for eggs and tadpoles. The creek is also channelized and does not have any off-channel pools or slow-moving water with emergent vegetation required for breeding red-legged frogs. Thus, the BSA does not constitute suitable breeding habitat for red-legged frogs. However, a survey of aerial photographs for aquatic habitat provides an overview of potential breeding sites in the immediate vicinity of the project area. The ponds distributed throughout the annual grassland and oak woodland south of the BSA are likely to provide suitable breeding habitat for CRLFs. The closest potential breeding habitats are ponds approximately 0.45 mile to the south and 0.65 mile to the southwest of the BSA.

Whether or not reproduction is successful in a particular pond largely depends upon the duration the pool remains wet (i.e., the pond must remain inundated long enough for tadpoles to successfully metamorphose, typically through July) and whether or not introduced predators, such as bullfrogs and fish, are present. More extensive on-the-ground surveys of individual ponds would be needed in order to determine whether or not these ponds actually support CRLFs. Therefore, in the absence of focused surveys for breeding red-legged frogs, it was assumed that the ponds surrounding the BSA having suitable hydroperiods could potentially provide breeding habitat for red-legged frogs.

While the high pollution levels in San Juan Creek may inhibit breeding, juvenile and adult red-legged frogs, which breathe air rather than through gills, are less susceptible to the effects of low dissolved oxygen and could use the creek channel for foraging. Thus, foraging habitat exists within the BSA and in the general Project vicinity, including San Juan Creek, the San Benito River, several intermittent tributaries to the east of the San Benito River, small ponds and surrounding moist areas and depressional wetlands south of the BSA. The BSA does provide suitable, albeit low quality non-breeding habitat for CRLFs dispersing between breeding sites, or between breeding and non-breeding aquatic habitats. As a perennial or near perennial creek that could contain water when other waterbodies in the region are dry or drying, the creek may attract foraging and dispersing frogs during summer months, and no barriers to dispersal are presented by the low earthen banks or the surrounding agricultural fields.

Essentially, all non-developed habitat, including the non-native ruderal grassland and agricultural land within the BSA, has the potential to be used by CRLFs, at least for upland dispersal between aquatic habitats. Dispersal between the western and eastern sides of U.S. 101 is impeded by heavy traffic and concrete median barriers that separate south- and northbound traffic along much of the project alignment. However, the riparian habitat along the San Benito River represents a potential dispersal route for CRLFs between established breeding ponds west of U.S. 101 and breeding ponds east of U.S. 101.

Due to the absence of known occurrence records in close proximity to the Project site, the poor water quality in San Juan Creek, and the predominance of agricultural land uses in the Project vicinity (which may impede dispersal owing to lack of suitable refugia in upland areas), there is a low probability that CRLFs occur at all regularly, or in numbers, in the BSA. However, the potential for occurrence of dispersing CRLFs cannot be ruled out.

In summary, no focused surveys for CRLFs were conducted for this Project. Rather, presence in the BSA was inferred because it is within dispersal distance of suitable breeding ponds. Information about the potential occurrence of CRLFs as potential dispersers or foragers within the BSA that might be obtained from more focused surveys or at a time of year more conducive for detecting

CRLFs would not have altered the determinations regarding potential presence or absence of this species for this Project.

California Tiger Salamander

The USFWS listed the California tiger salamander (CTS) as threatened throughout its range in 2004. Critical habitat for the species was designated in 2005. No portion of the Project BSA is within designated critical habitat for this species. The CTS was listed by the CDFW as threatened under the California Endangered Species Act in 2010.

The CTS has not been recorded within the BSA itself. However, there are several California Natural Diversity Data Base (CNDDB) records of the CTS within 5 miles of the BSA and three records within 1.24 miles of the BSA. The closest known record is from a stock pond 0.7 mile north-northwest of the BSA in 2003. In 1993, larvae were surveyed in a drainage east of the San Benito River and the San Juan Valley, 1.1 miles in the hills northeast of the BSA. The species was also observed in 1973 along San Justo Road, 1.1 mi southeast of the BSA, although it appears that this area is now completely developed.

No CTS or tiger salamander breeding habitat were observed during the reconnaissance-level survey of the BSA. The only aquatic feature in the BSA, the San Juan Creek channel, is not suitable breeding habitat for tiger salamanders like most creeks in the area, because their eggs or larvae are susceptible to wash away during high flows and are also vulnerable to predators that reside within the creek. While there is no breeding habitat within the BSA, inspection of aerial photographs for aquatic habitat provided an overview of potential breeding sites in the immediate vicinity of the project area. There are several ponds distributed throughout the annual grassland and oak woodland south of the BSA, which could potentially provide suitable breeding habitat for CTS. The closest of these potential breeding habitats are perennial ponds approximately 0.45 mile to the south and 0.65 mile to the southwest of the BSA. It is likely that these perennial ponds contain introduced predators, such as fish and bullfrogs, which would limit the likelihood of them supporting populations of breeding salamanders. Seasonal ponds nestled within annual grassland 1.0-1.1 miles to the south and southwest may provide more suitable breeding habitat. Whether or not reproduction is successful in these ponds largely depends upon the duration the pool remains wet (i.e., the pond must remain inundated long enough for juveniles to successfully metamorphose). More extensive on-the-ground surveys of individual ponds would be needed to determine whether or not these ponds actually support California tiger salamanders. In the absence of focused surveys for breeding tiger salamanders, it was assumed that the ponds surrounding the BSA having suitable hydroperiods could potentially provide breeding habitat for tiger salamanders.

Approximately one quarter of the land area within a 1.2-mile radius circle of the BSA represents habitat suitable for dispersing CTS within reach of the BSA. The remainder of the surrounding area is either unsuitable or functionally isolated from the BSA due to significant impediments to dispersal. For example, suitable grassland habitat with known breeding locations west of U.S. 101 is isolated from the BSA by heavy traffic and median barriers. Regular disking and plowing in agricultural fields and the San Benito River make dispersal from the grasslands east of the San Juan Valley into the BSA unlikely for tiger salamanders. However, there is a known CTS breeding site within 3.1 miles to the south of the BSA with high quality upland habitat and potential breeding sites in between. Thus, much of the habitat to the south-southwest of the BSA has the potential to be used by dispersing CTS, and, as a result, salamanders may disperse into the BSA. Once in the BSA, it is possible that salamanders could use the few burrows present there as upland refugia. Although the potential for occurrence of CTS in the BSA cannot be ruled out, the probability of occurrence or number of individuals that could be impacted is very low owing to the distance between potential breeding ponds and the site and the unsuitability of habitat in most of the Project vicinity due to intensive cultivation.

Western Pond Turtle

The CDFW classifies the western pond turtle as a CSSC.

No western pond turtles were detected during the project's wildlife reconnaissance-level survey. However, western pond turtles have been recorded in several locations in the vicinity of the BSA and are likely residents in nearby perennial ponds on private property that have not been surveyed for this species. The habitat in the BSA has low suitability for western pond turtles because of the low water quality in San Juan Creek and the general lack or sparseness of aquatic and streamside vegetation. The large amounts of row crops in and upstream of the BSA will limit turtle numbers upstream of the BSA and therefore also reduce the number of individuals that may disperse from upstream areas, and periodic disking of the fields immediately adjacent to the bridge reduces habitat suitability for nesting turtles. However, due to the presence of pond turtles in other portions of the watershed in the Project vicinity, turtles may occasionally disperse through the BSA. It is unlikely that these turtles will linger on or near the Project site due to the levels of disturbance and also because there are no deep pools with good basking sites in the immediate vicinity of the BSA.

Least Bell's Vireo

The least Bell's vireo is a small migratory songbird that breeds in riparian habitats. It is listed as endangered under both the Federal and California Endangered Species Acts.

The riparian habitat in and adjacent to the BSA is inconsistent with habitat in which this species has been recently recorded in northern California. It lacks the vertical complexity of the riparian vegetation that this species uses, and it does not provide sufficiently dense vegetation in the lower strata to be used by this species. As a result, there is no expectation that the species would use this habitat. Therefore, no species-specific surveys are necessary because habitat within and adjacent to the BSA is not suitable for vireos.

Breeding Special Status Bird Species

Habitat assessments in the BSA and vicinity were conducted for the yellow warbler, loggerhead shrike, and white-tailed kite. The purpose of the surveys was to document potential nesting habitat within, and adjacent to, the BSA as well as assess potential impacts of the Project on the aforementioned species. Each of these bird species is known to occur in the general Project vicinity during the nesting season. The Project site offers one large tree that provides potentially suitable nesting habitat for a single pair of white-tailed kites. No suitable nesting habitat for the loggerhead shrike or yellow warbler are present on the site itself, but up to one pair of each of these species could potentially nest in riparian habitat just upstream from the BSA.

3.4.2 Impact Discussion

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

3.4.2.1 *Impacts to Special Status or Protected Species*

Impacts to the California Red-legged Frog

Impact BIO-1: With the mitigation included, the project would not have a substantial adverse effect, either directly or through habitat modifications, on the California red-legged frog. **(Less than Significant Impact with Mitigation Incorporated)**

As noted previously, the BSA and surrounding area contain breeding, foraging, and dispersal habitat for the CRLF. Although no frogs were determined to be present during the surveys undertaken for this project, individual frogs could be present at the time of construction. Approximately 0.20 acres of potential red-legged frog dispersal habitat would be permanently lost due to the construction of pavement and installation of rock slope protection in areas that currently provide natural habitat that may be used by red-legged frogs. Approximately 1.26 acres of potential red-legged frog habitat, including aquatic habitat for foraging and upland/riparian habitat for cover and dispersal, would be used for the temporary detour, construction access, and staging while the Project is being constructed or would be impacted by grading (cut/fill) activities as part of the Project.

On 4 May 2011, the USFWS issued a Programmatic Biological Opinion (PBO) to Caltrans for projects funded under the FHWA's Federal Aid Program (8-8-10-F-58) and that are likely to adversely affect the CRLF and its designated critical habitat, within the Ventura Fish and Wildlife Office's area of responsibility in San Benito, Santa Cruz, Monterey, San Luis Obispo, and Santa Barbara Counties. The Anzar Road Bridge Replacement Project is included in the list of such projects and therefore would implement the following provisions of the PBO to avoid/minimize impacts to the CRLF:

MM BIO-1.1: Only USFWS-approved biologists will participate in activities associated with the capture, handling, and monitoring of CRLFs. Biologists authorized under the PBO do not need to resubmit their qualifications for subsequent projects conducted pursuant to the PBO, unless the USFWS has revoked their approval at any time during the life of the PBO.

MM BIO-1.2: Ground disturbance will not begin until written approval is received from the USFWS that the biologist is qualified to conduct the work, unless the individual(s) has/have been approved previously and the USFWS has not revoked that approval.

MM BIO-1.3: A USFWS-approved biologist will survey the project site no more than 48 hours before the onset of work activities. If any life stage of the CRLF is found and these individuals are likely to be killed or injured by work activities, the approved biologist will be allowed sufficient time to move them from the site before work begins. The USFWS-approved biologist will relocate the CRLFs the shortest distance possible to a location that contains suitable habitat and that will not be affected by activities associated with the proposed project. The relocation site should be in the same drainage to the extent practicable. The County will coordinate with the USWFS on the relocation site prior to the capture of any CRLFs.

MM BIO-1.4: Before any activities begin on a project, a USFWS-approved biologist will conduct a training session for all construction personnel. At a minimum, the training will include a description of the CRLF and its habitat, the specific measures that are being implemented to conserve the CRLF for the current project, and the boundaries within which the project may be accomplished.

Brochures, books, and briefings may be used in the training session, provided that a qualified person is on hand to answer any questions.

MM BIO-1.5: A USFWS-approved biologist will be present at the work site until all CRLFs have been relocated out of harm's way, workers have been instructed, and disturbance of habitat has been completed. After this time, the State or local sponsoring agency will designate a person to monitor on-site compliance with all minimization measures. The USFWS approved biologist will ensure that this monitor receives the training outlined in MM BIO-1.4 above and in the identification of CRLFs. If the monitor or the USFWS-approved biologist recommends that work be stopped because CRLFs would be affected in a manner not anticipated by the County and the USFWS during review of the proposed action, they will notify the resident engineer (the engineer that is directly overseeing and in command of construction activities) immediately. The resident engineer will either resolve the situation by eliminating the adverse effect immediately or require that all actions causing these effects be halted. If work is stopped, the USFWS will be notified as soon as possible.

MM BIO-1.6: During project activities, all trash that may attract predators will be properly contained, removed from the work site, and disposed of regularly. Following construction, all trash and construction debris will be removed from work areas.

MM BIO-1.7: All refueling, maintenance, and staging of equipment and vehicles will occur at least 60 feet from riparian habitat or water bodies and in a location from where a spill would not drain directly toward aquatic habitat (e.g., on a slope that drains away from the water). The monitor will ensure contamination of habitat does not occur during such operations. Prior to the onset of work, the County will ensure that a plan is in place for prompt and effective response to any accidental spills. All workers will be informed of the importance of preventing spills and of the appropriate measures to take should a spill occur.

MM BIO-1.8: Habitat contours will be returned to their original configuration at the end of project activities. This measure will be implemented in all areas disturbed by activities associated with the project, unless the USFWS and the County determine that it is not feasible or modification of original contours would benefit the CRLF.

MM BIO-1.9: The number of access routes, size of staging areas, and the total area of the activity will be limited to the minimum necessary to achieve the project goals. Environmentally Sensitive Areas will be delineated to confirm access routes and construction areas to the minimum area necessary to complete construction, and minimize the impact to CRLF habitat; this goal includes locating access routes and construction areas outside of wetlands and riparian areas to the maximum extent practicable.

MM BIO-1.10: The County will attempt to schedule work activities for times of the year when impacts to the CRLF would be minimal. For example, work that would affect large pools that may support breeding would be avoided, to the maximum degree practicable, during the breeding season (November through May). Isolated pools that are important to maintain CRLFs through the driest portions of the year would be avoided, to the maximum degree practicable, during the late summer and early fall. Habitat assessments, surveys, and coordination between the County and the USFWS during project planning will be used to assist in scheduling work activities to avoid sensitive habitats during key times of the year.

MM BIO-1.11: To control sedimentation during and after project implementation, the County will implement best management practices outlined in any authorizations or permits issued under the authorities of the Clean Water Act that it receives for the project. If best management practices are ineffective, the County will attempt to remedy the situation immediately, in coordination with the USFWS.

MM BIO-1.12: If a work site is to be temporarily dewatered by pumping, intakes will be completely screened with wire mesh not larger than 0.2 inch to prevent CRLFs from entering the pump system. Water will be released or pumped downstream at an appropriate rate to maintain downstream flows during construction. Upon completion of construction activities, any diversions or barriers to flow will be removed in a manner that would allow flow to resume with the least disturbance to the substrate. Alteration of the stream bed will be minimized to the maximum extent possible; any imported material will be removed from the stream bed upon completion of the project.

MM BIO-1.13: Unless approved by the USFWS, water will not be impounded in a manner that may attract CRLFs.

MM BIO-1.14: A USFWS-approved biologist will permanently remove any individuals of non-native species, such as bullfrogs, signal and red swamp crayfish, and centrarchid fishes from the project area, to the maximum extent possible. The USFWS-approved biologist will be responsible for ensuring his or her activities are in compliance with the California Fish and Game Code.

MM BIO-1.15: If the County demonstrates that disturbed areas have been restored to conditions that allow them to function as habitat for the CRLF, these areas will not be included in the amount of total habitat permanently disturbed.

MM BIO-1.16: To ensure that diseases are not conveyed between work sites by the USFWS-approved biologist, the fieldwork code of practice developed by the Declining Amphibian Populations Task Force will be followed at all times. To avoid harassment, injury, or mortality of CRLFs by dogs or cats, no canine or feline pets shall be permitted in the project area.

MM BIO-1.17: Project sites will be revegetated with an assemblage of native riparian, wetland, and upland vegetation suitable for the area. Locally collected plant materials will be used to the extent practicable. Invasive, exotic plants will be controlled to the maximum extent practicable. This measure will be implemented in all areas disturbed by activities associated with the project, unless the USFWS and the County determine that it is not feasible or practical.

MM BIO-1.18: The County will not use herbicides as the primary method used to control invasive, exotic plants. However, if The County determines the use of herbicides is the only feasible method for controlling invasive plants at a specific project site, it will implement the following additional protective measures for the CRLF: a) The County will not use herbicides during the breeding season for the CRLF; b) The County will conduct surveys for the CRLF immediately prior to the start of any herbicide use. If found, CRLFs will be relocated to suitable habitat far enough from the project area that no direct contact with herbicides would occur; c) Giant reed and other invasive plants will be cut and hauled out by hand and the stems painted with glyphosate or glyphosate-based products, such as Aquamaster® or Rodeo®; d) Licensed and experienced County staff or a licensed and experienced contractor will use a hand-held sprayer for foliar application of Aquamaster® or Rodeo® where large monoculture stands occur at an individual project site; e) All precautions will be taken to ensure that no herbicide is applied to native vegetation; f) Herbicides will not be applied on or near open water surfaces (no closer than 60 feet from open water).; g) Foliar applications of herbicide will not occur when wind speeds are in excess of 3 miles per hour. H) No herbicides will be applied within 24 hours of forecasted rain; i) Application of all herbicides will be done by a qualified County staff or contractors to ensure that overspray is minimized, that all application is made in accordance with label recommendations, and with implementation of all required and reasonable safety measures. A safe dye will be added to the mixture to visually denote treated sites. Application of herbicides will be consistent with the U.S. EPA's Office of Pesticide Programs, Endangered Species Protection Program county bulletins; j) All herbicides, fuels, lubricants, and equipment will be stored, poured, or refilled at least 60 feet from riparian habitat or water bodies in a location where a spill would not drain directly toward aquatic habitat. The County will ensure that contamination of habitat does not occur during such operations. Prior to the onset of work, the County will ensure that a plan is in place for a prompt and effective response to accidental spills. All workers will be informed of the importance of preventing spills and of the appropriate measures to take should a spill occur.

Impacts to the California Tiger Salamander

Impact BIO-2: With the mitigation included, the project would not have a substantial adverse effect, either directly or through habitat modifications, on the California tiger salamander. **(Less than Significant Impact with Mitigation Incorporated)**

Small numbers of CTS may occasionally use the BSA for dispersal between established populations and for summer refugial habitat. Thus, the Project could affect individual CTS as a result of:

- Direct mortality during construction as a result of trampling by construction personnel or equipment;
- Increased mortality due to roadkill caused by the construction and vehicular use in and around the vicinity of the Project;
- Potential reduction in dispersal to and from nearby breeding ponds due to the physical impediment posed by construction materials or parked vehicles;
- Direct mortality from the collapse of occupied burrows, resulting from soil compaction;
- Direct mortality or loss of suitable habitat resulting from the loss of dispersal habitat and refugia.

No known or potential CTS breeding habitat will be directly or indirectly impacted by the Project's construction activities, as no breeding habitat is present in or very close to the BSA.

Approximately 0.20 acres of potential CTS refugial/dispersal habitat would be permanently lost due to the construction of pavement and installation of rock slope protection in areas that currently provide natural habitat that may be used by CTS.

Approximately 1.26 acres of potential CTS habitat would be temporarily impacted when it is used for construction access and staging while the Project is being constructed or would be impacted by grading (cut/fill) activities as part of the Project. Areas that would be temporarily impacted by grading would not be paved, and instead would be revegetated following the completion of construction; such areas are expected to provide habitat of similar quality to the existing habitat that would be impacted, from the perspective of CTS, within approximately one year after the completion of construction.

The following mitigation and avoidance measures are included in the project to reduce CTS impacts to a less than significant level:

MM BIO-2.1: The implementation of MM BIO-1.1 through MM-BIO-1.18 will also minimize and avoid impacts to the CTS.

MM BIO-2.2: The County will provide mitigation at a 2:1 ratio, on an acreage basis, for all permanent and temporary project impacts to potential CTS habitat (i.e., 1.46 acres of impact). This mitigation ratio has been determined to reflect the need to compensate for lost habitat functions and values, and potential loss of individuals, resulting from project activities. Thus, based upon the area of impact (i.e., 1.46 acres), 2.92 acres of CTS habitat will be preserved and managed to compensate for project impacts. Compensatory mitigation will be carried out via the purchase of credits at a CDFW-approved CTS conservation bank whose service area includes the project site (e.g., the Sparling Ranch Conservation Bank).

Impacts to the Western Pond Turtle

Impact BIO-3:	With the mitigation included, the project would not have a substantial adverse effect, either directly or through habitat modifications, on the western pond turtle. **(Less than Significant Impact with Mitigation Incorporated)**

There is a low probability that individual western pond turtles or their nests will be directly impacted by this Project because the BSA contains only marginal breeding habitat for western pond turtles and their presence in the reach of San Juan Creek in the BSA will be temporary. Nevertheless, there is some potential for turtles or eggs to rushed by personnel or equipment during Project work.

Implementation of the following measure is included in the project and will reduce impacts to the western pond turtle to a less-than-significant level.

MM BIO-3.1: During pre-construction surveys and construction monitoring for the CRLF and the CTS, a qualified biologist will look for western pond turtles within the Project's impact areas. If any pond turtles are detected during these surveys or during construction monitoring in an area where they could be impacted, they will be relocated to a suitable location upstream or downstream of the BSA, as determined by the qualified biologist and in consultation with the County and CDFW.

Impacts to Breeding Special Status Bird Species and Migratory Birds

Impact BIO-4:	With the mitigation included, the project would not have a substantial adverse effect, either directly or through habitat modifications, on breeding special status bird species. **(Less than Significant Impact with Mitigation Incorporated)**

Activities associated with the construction phase of the project have the potential to cause the death or injury of special status bird species, including white-tailed kites, loggerhead shrikes, and yellow warblers, or their active nests, eggs, or young.

In addition to the above-listed special status bird species, several species of birds protected by the Migratory Bird Treaty Act (MBTA) and the California Fish and Wildlife Code may nest within or adjacent to the BSA. Bird species covered by the MBTA that were observed during the reconnaissance survey that may nest in trees, shrubs, and other habitats within and adjacent to the BSA are the song sparrow, red-winged blackbird, western scrub-jay, black phoebe, Bewick's wren, Anna's hummingbird, California towhee, and house finch. In addition, approximately 130 inactive cliff swallow nests from previous years were observed on the underside of the existing bridge structure. Activities associated with the construction phase of the project could adversely affect nesting birds of these species.

In addition, the Project will impact 1.25 acres of habitat that may be used as foraging or perching habitat by these species. Mitigation for the loss of this habitat is not warranted because the habitat is abundant regionally. The following measure will, however, be implemented to avoid/minimize potential impacts to nesting birds.

MM BIO-4.1: During pre-construction Because it is not feasible to schedule construction during the non-breeding season (i.e., September 1st and January 31st), pre-construction surveys for nesting birds will be conducted by a qualified ornithologist to ensure that no nests will be disturbed during Project implementation. These surveys will be conducted no more than seven days prior to the initiation of construction activities. During these surveys, the ornithologist will inspect all trees, shrubs, and other potential nesting habitats (including the bridge itself) in and immediately adjacent to the BSA for nests. If an active nest is found sufficiently close to work areas to be disturbed by these activities, the ornithologist, in consultation with the CDFW, will determine the extent of a buffer zone to be established around the nest, typically 250 feet for raptors and 50 feet for other birds, to ensure that no nests of species protected by the MBTA or the California Fish and Game Code will be disturbed during Project implementation.

Because the BSA is already subject to disturbance by vehicles to some extent, activities that will be prohibited from occurring within the buffer zone around a nest will be determined on a case-by-case basis. In general, activities prohibited within such a buffer while a nest is active will be limited to new construction-related activities (i.e., activities that were not ongoing when the nest was constructed) involving significantly greater noise, human presence, or vibrations than were present prior to nest initiation.

Alternatively, nest starts may be removed on a regular basis (e.g., every second or third day), starting in late January or early February, or measures such as exclusion netting may be placed over the existing bridge to prevent active nests from becoming established. Any exclusion netting or other measures used to deter nesting must be carefully maintained and regularly inspected to ensure that it is functioning properly without risk of injury or mortality of birds (e.g., due to entanglement in netting).

3.4.2.2 *Impacts on Riparian Habitat and Sensitive Natural Communities*

Impact BIO-5:	The project would not have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the CDFW or USFWS. **(Less than Significant Impact)**

Temporary and permanent impacts to biotic habitats will occur from Project actions, including construction access and placement of the new bridge structure, recontouring of the existing creek channel to reduce scour, installation of the new bridge abutments and roadway, construction of the approaches to the bridge, and above-bank construction staging. Permanent impacts to sensitive habitats include the loss of 0.03 acre of riparian wetland habitats, including the removal of one riparian tree and several shrubs due to required channel stabilization measures that include recontouring the channel to remove the sediment deposit this wetland has developed on and the placement of rock slope protection on the creek banks.

The Project will also result in the permanent placement of fill (rock slope protection) in approximately 0.01 acre of aquatic habitat; however, this fill will be offset by the permanent creation of approximately 0.03 acre of additional aquatic habitat due to channel widening that will occur with the recontouring, thus resulting in a net increase in aquatic habitat.

The new bridge will be approximately 12 feet wider than the existing bridge, resulting in a small amount of additional shading to aquatic and riparian habitat; however, the areas adjacent to the existing bridge are already heavily degraded by agricultural activities. Thus, additional shading is not expected to substantially reduce the quality of aquatic habitat within the BSA. While all riparian wetland vegetation will be avoided to the extent feasible, we have assumed a worst-case scenario and have planned (and prescribed mitigation) for the loss of nearly all riparian wetland vegetation within the BSA. Included in permanent riparian impacts is the installation of 132 linear feet of rock slope protection along both banks which will lead to the permanent loss of approximately 0.03 acre of herbaceous and scrub/shrub riparian wetland habitat along both sides of the channel, but will also protect water quality, provide long-term stability for the structure, and will protect the bank topography from catastrophic erosion. The placement of approximately 0.01 acre of rock slope protection in the existing creek channel is also considered a permanent impact, although any impact of fill will be offset by the creation of 0.03 acre of aquatic habitat on site from channel widening.

Project effects that are considered to be temporary include the utilization of areas of ruderal grassland above top-of-bank as staging areas, and construction and decommissioning of a cofferdam and/or temporary culvert system used to temporarily dewater and/or bridge a portion of the active channel of the creek during construction. From a biological perspective, the relatively small permanent and temporary effects to the riparian wetland habitat and the loss of one tree-sized willow adjacent to the existing bridge are not expected to substantially affect the functions or values of the riparian corridor. The areas of Project effects are relatively small compared to the abundance of this habitat that is available within the San Juan Creek channel as a whole. There is also a lack of any substantial change in shading to aquatic habitat because the old bridge which currently shades the channel will be removed.

3.4.2.3 *Impacts to Wetlands*

Impact BIO-6:	With mitigation included, the project would not have a substantial adverse effect on state or federally protected wetlands through direct removal, filling, hydrological interruption, or other means. **(Less than Significant Impact with Mitigation Incorporated)**

Permanent impacts to 0.03 acre of wetlands will occur due to the placement of rock slope protection on both banks of San Juan Creek. The placement of rock slope protection would affect all of the herbaceous riparian wetlands and a small portion of the scrub/shrub riparian wetlands and is necessary to reduce erosion, increase bank stability, and improve water quality in San Juan Creek (resulting in the loss of approximately 0.01 acre of wetlands). Approximately 0.02 acre of scrub/shrub riparian wetlands will be permanently removed through excavation during the channel recontour. Included with the loss of these wetlands is the loss of one willow.

MM BIO-6.1: Permanent impacts to the wetland habitats and removal of the tree within these wetlands will require off-site compensatory mitigation. Wetlands will be created at a 2:1 (created wetlands:impacted wetlands) ratio. This will require the creation of 0.06 acre of wetlands. This mitigation will be supplied at the Wildlands Pajaro River Mitigation Bank, located approximately 9 miles from the BSA. As the minimum wetland unit available at Wildlands Pajaro River Mitigation Bank is 0.05 acre, 0.10 acre credit will be used to satisfy the requirement of 0.06 acre, resulting in a final compensatory mitigation ration of approximately 3.3:1 (created wetlands:impacted wetlands).

3.4.2.4 *Impacts to Fisheries and Wildlife Movement*

Impact BIO-7: With mitigation included, the project would not interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites. **(Less than Significant Impact with Mitigation Incorporated)**

The proposed replacement bridge will be a clear-span structure and will not block fish passage along San Juan Creek. In addition, the replacement structure would not create a barrier within a wildlife migration corridor.

During the construction phase of the project, in-channel work may block fish passage. Construction activities, including piledriving, could also harm individual fish if they are present. To prevent these impacts, the following mitigation measures are included as part of the project.

MM BIO-7.1: Dewatering or diversion and any other work requiring access within the low-flow channel will occur during the dry season only (15 June to 15 October, with the potential for extensions beyond this period, in consultation with Caltrans, CDFW, and NMFS, if dry weather permits). During this time, creek flows are expected to be at annual lows, and steelhead are expected to be absent from the BSA.

MM BIO-7.2: If flow is present in the San Juan Creek channel within the BSA when in-water construction is scheduled to occur, a qualified biologist will be present to monitor all activities involving the placement of fill (e.g., for cofferdams) in the creek. The biologist will inspect the area where the cofferdam will be constructed prior to construction and will ensure that any fish have vacated the cofferdam area before in-water work begins. During initiation of work within the creek channel, qualified fisheries biologists will stake a net across the creek at the upstream limits of dewatering. Then, holding a second net upright between them, the biologists will walk downstream to the lower end of the dewatering area to ensure that all fish have moved out of the dewatering zone; this second net will be anchored at the downstream end of the dewatering zone to prevent fish from entering the zone. The coffer dam constructed for dewatering would then be constructed within the area delimited by the two nets. A qualified fisheries biologist will monitor dewatering activities to ensure that no native fish are entrapped, and will relocate native fish as necessary. No steelhead will be moved without authorization of the NMFS in consultation with Caltrans.

MM BIO-7.3: During demolition and construction activities, netting and other structures will be installed under the bridge to prevent debris from entering the channel, as such debris could degrade water quality and potentially injure steelhead, if present in the San Juan Creek channel (e.g., when work on the bridge deck is occurring during the wet season).

MM BIO-7.4: A construction personnel education program will be given by a qualified biologist before the commencement of construction to explain to construction personnel how best to avoid the accidental take of steelhead. The approved biologist will conduct a training session that will be scheduled as a mandatory informational field meeting for contractors and all construction personnel. The field meeting will include topics on species identification, life history, descriptions of habitat requirements during various life stages, review of habitat sensitivity, required practices before the start of construction and a discussion of general measures that are being implemented to conserve the species as they relate to the Project, penalties for noncompliance, and boundaries of the construction area. Emphasis will be placed on the importance of the habitat and life stage requirements within the context of Project avoidance and minimization measures. Handouts, illustrations, photographs, and/or Project mapping showing areas where minimization and avoidance measures are being implemented will be included as part of this education program. Upon completion of training, employees will sign a form stating that they attended the training and understand all the conservation and protection measures.

MM BIO-7.5: To avoid and minimize impacts to fish resulting from pressure waves created during pile driving, the following measures will be implemented: 1) Pile driving work will be limited to the period of June 15th to October 15th; 2) there will be no pile installation within the creek below top-of-bank; 3) low-impact pile driving equipment such as vibratory hammers or hydraulic casing oscillators, which minimize underwater sound pressure levels, or press-in pile installation will be used instead of impact hammers to the greatest extent practicable; and 4) steel piles will be avoided to the greatest extent practicable.

3.4.2.5 *Conflicts with Local Plans and Policies that Protect Biological Resources*

Impact BIO-8:	The project would not conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance. **(No Impact)**

The creek parcels within the BSA primarily support grassland habitats and are not subject to the San Benito County Woodland Retention Ordinance based on the 1993 Baseline Canopy coverage values. Only one isolated tree would be removed by the Project.

3.4.2.6 *Conflicts with Habitat Conservation Plans*

Impact BIO-9:	The project would not conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan. **(No Impact)**

The project site is not located within the boundaries of a Habitat Conservation Plan and/or Natural Communities Conservation Plan.

3.5 CULTURAL RESOURCES

The discussion in this section is based in part on a "Historic Property Survey Report (HPSR)" and an "Archaeological Survey Report (ASR)" prepared by Holman & Associates in November 2013. These reports are available for review by qualified personnel at the San Benito County Public Works Department.

3.5.1 Environmental Setting

The Area of Potential Effects (APE) for the proposed project encompasses all areas where work associated with the project would occur. Based on cultural resources studies completed by Caltrans in compliance with Section 106 of the National Historic Preservation Act, the existing bridge was constructed in 1935 and is considered "Category 5", meaning it does not meet any of the criteria for National Register or California Register eligibility. In addition, the HPSR did not identify any potentially eligible historic resources in the area, including the existing bridge.

A records search and literature review identified no known archeological sites within the project's APE. Approximately 35% of the project footprint has been previously surveyed, and the entire area was included as part of a large records search area with an accompanying survey that was restricted to state routes.

Native American consultation consisted of contacting the Native American Heritage Commission. Their response included a list of seven individuals/groups that were also contacted. Of the two who responded, neither identified any Native American sites within or adjacent to the project footprint. A field survey of the project footprint did not find indications of buried cultural deposits and the project APE is considered has a low potential for historic-era cultural deposits.

3.5.2 Impact Discussion

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project:				
1) Cause a substantial adverse change in the significance of a historical resource pursuant to CEQA Guidelines Section 15064.5?	☐	☐	☐	☒
2) Cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines Section 15064.5?	☐	☒	☐	☐
3) Disturb any human remains, including those interred outside of dedicated cemeteries?	☐	☒	☐	☐

Impact CUL-1: The project would not cause a substantial adverse change in the significance of a historical resource pursuant to CEQA Guidelines Section 15064.5. **(No Impact)**

As noted above, there are no historic resources located within the project's APE.

Impact CUL-2:	With mitigation included, the project would not cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines Section 15064.5. With mitigation included, the project would not disturb any human remains, including those interred outside of dedicated cemeteries. **(Less than Significant Impact with Mitigation Incorporated)**

While it is not likely that there are archaeological deposits present on the project site, there is always the possibility that construction and excavation may uncover buried cultural materials or human remains. The project, therefore, includes the following standard construction measures to avoid potential impacts to unknown subsurface archaeological or prehistoric resources.

MM CUL-2.1: In the event that construction unearths any archaeological or paleontological site indicators (as described below), work shall be halted within 200 feet of the discovery until a qualified archaeologist has been retained to inspect it. If the project archaeologist determines that a potentially significant resource will be impacted by additional activities, a plan for evaluative testing shall be submitted to the Director of Planning, County of San Benito to demonstrate that the project area contains a resource eligible for inclusion on the California Register of Historic Resources (CRHR).

MM CUL-2.2: If testing (normally limited hand excavation) demonstrates that the resource is historically or culturally significant, or a unique paleontological resource, a plan for mitigation of impacts shall be submitted to the San Benito County Public Works Department for approval before work can recommence inside the zone described as archaeologically-sensitive. Mitigation can include limited data retrieval through additional hand excavation coupled with archaeological monitoring of soils removal from the zone of archaeological sensitivity in order to insure that significant archaeological materials and data are retrieved for analysis. If any indicators found are of Native American origin, the Native American Heritage Commission (NAHC) shall be contacted.

MM CUL-2.3: In the event that human remains are encountered, work shall be stopped within a zone around the discovery determined by the project archaeologist until the San Benito County Coroner's Office and the NAHC have been contacted. It is the responsibility of the NAHC to name a Most Likely Descendant (MLD), who will be responsible for advising the project sponsor regarding the method of exposure, removal and reburial of any human remains and/or associated grave goods discovered during construction. (Pursuant to Section 7050.5 of the Health and Safety Code and Section 5097.94 of the Public Resources Code of the State of California).

3.6 ENERGY

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project:				
1) Result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	☐	☐	☐	☒
2) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	☐	☐	☐	☒

Impact EN-1: The project would not result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation. **(No Impact)**

Impact EN-2: The project would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency. **(No Impact)**

The proposed project is limited to the replacement of an existing 2-lane bridge in rural San Benito County with a new 2-lane bridge at the same location. Other than the energy needed to demolish the existing bridge and construct the replacement, the project would not consume energy.

3.7 GEOLOGY AND SOILS

3.7.1 Environmental Setting

The project site is not located in an Alquist-Priolo Earthquake Fault Zone, however it is located approximately 0.25 miles northeast of the mapped fault zone for the San Andreas Fault and approximately two miles southwest of the mapped fault zone for the Sargent Fault.[7]

The project is located in a topographically flat valley floor used for row crop agriculture and is not located along or within steep slopes or canyons. Therefore, there is no potential for landslides at the project site.

3.7.2 Impact Discussion

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project:				
1) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:				
- Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault (refer to Division of Mines and Geology Special Publication 42)?	☐	☐	☐	☒
- Strong seismic ground shaking?	☐	☐	☐	☒
- Seismic-related ground failure, including liquefaction?	☐	☐	☐	☒
- Landslides?	☐	☐	☐	☒
2) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☐	☒
3) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?	☐	☐	☐	☒
4) Be located on expansive soil, as defined in the current California Building Code, creating substantial direct or indirect risks to life or property?	☐	☐	☐	☒

[7] State of California, The Resources Agency, Department of Conservation. *Special Studies Zones – Chittenden Quadrangle, California, 7.5 Minute Series.* Effective January 1, 1982. Available at: http://www.quake.ca.gov/gmaps/WH/regulatorymaps.htm

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project:				
5) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	☐	☐	☐	☒
6) Directly or indirectly destroy a unique paleontological resource or site or unique geological feature?	☐	☐	☐	☒

Impact GEO-1: The project would not directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault; strong seismic ground shaking; seismic-related ground failure, including liquefaction; or landslides. **(No Impact)**

Impact GEO-2: The project would not result in soil erosion or the loss of topsoil. **(No Impact)**

Impact GEO-3: The project would not be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in landslide, lateral spreading, subsidence, liquefaction, or collapse. **(No Impact)**

Impact GEO-4: The project would not be located on expansive soil, as defined in the current California Building Code, creating substantial direct or indirect risks to life or property. **(No Impact)**

Impact GEO-5: The project would not have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater. **(No Impact)**

Impact GEO-6: The project would not directly or indirectly destroy a unique paleontological resource or site or unique geological feature. **(No Impact)**

The proposed project is limited to the replacement of an existing 2-lane bridge in rural San Benito County with a new 2-lane bridge at the same location. Unlike the existing bridge, the replacement bridge would comply with existing design and seismic safety criteria. Therefore, when compared to existing/no project conditions, risks to property and life associated with geologic/seismic conditions would be lessened with the proposed project in place.

3.8 GREENHOUSE GAS EMISSIONS

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project:				
1) Generate greenhouse gas (GHG) emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☐	☒
2) Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs?	☐	☐	☐	☒

Impact GHG-1: The project would not generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment. **(No Impact)**

Impact GHG-2: The project would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs. **(No Impact)**

The proposed project is limited to the replacement of an existing 2-lane bridge in rural San Benito County with a new 2-lane bridge at the same location. The replacement bridge would not affect the volume of traffic that utilizes Anzar Road and would not foster new/greater development in the area.

Therefore, other than the GHGs produced by equipment needed to demolish the existing bridge and construct the replacement, the project would not result in an increase in GHGs.

3.9 HAZARDS AND HAZARDOUS MATERIALS

The discussion in this section is based in part on a "Phase I Initial Site Assessment" prepared by *Parikh Consultants, Inc.* and an "Asbestos and Lead-Containing Paint Survey" prepared by *Geocon Consultants, Inc.* in August 2013. These reports are included in this Initial Study as Appendix D.

3.9.1 Environmental Setting

There are no known underground storage tanks, hazardous material cleanup sites, land disposal sites, or other sites known to contain hazardous waste in the project area.

The Anzar Road Bridge was originally constructed in 1935. Due to its age there is a potential for the presence of asbestos containing materials (ACM) and lead based paint in bridge materials. Anzar Road has supported vehicular traffic since the 1930's and soils along the road shoulder and below the bridge have been contaminated with aerial deposited lead (ADL) from the exhaust of cars burning leaded gasoline. Soils in the shoulder of Anzar Road and below the bridge may have also been impacted with hazardous levels of pesticides and herbicides from surrounding agricultural operations.

Small quantities of chrysotile asbestos were detected in the asphalt coating used on iron pipes attached to the north side of the bridge, which would be removed during the demolition. No asbestos was detected in samples of the remaining bridge materials or soil. National Emissions Standards for Hazardous Air Pollutants (NESHAP) do not require that nonfriable asphalt coating (a Category I nonfriable/nonhazardous material) identified during the survey be removed prior to demolition or be treated as a hazardous waste. However, disturbance of the material during construction is still covered by the California Occupational Safety and Health Admiration (Cal/OSHA) asbestos standard (Title 8, CCR Section 1529).

Small quantities of lead were detected in yellow traffic striping on Anzar Road and would be considered a California hazardous waste. White paint and soil samples collected during the survey would not be considered a California or Federal hazardous waste based on lead content. Paints and soils associated with the project site would be treated as lead-containing for the purpose of determining the applicability of the Cal/OSHA lead standard during construction.

Based on the survey's findings, these materials would require disposal as California or federal hazardous waste, and additional procedures would be required to protect workers and the environment during removal and disposal activities.

3.9.2 Impact Discussion

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project:				
1) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☒	☐

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

Impact HAZ-1: The project would not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials. **(Less than Significant Impact)**

The proposed bridge replacement project would not involve the use, storage, or disposal of hazardous materials following construction. Therefore, no long-term impacts involving the release of hazardous materials into the environment would occur as a result of project implementation.

Project construction would require the temporary use of heavy equipment. Construction would also require the use of hazardous materials including petroleum products, lubricants, cleaners, paints, and solvents. These materials would be used in accordance with all federal, state, and local laws and regulations. If used properly, these materials would not pose a hazard to workers or persons in the vicinity.

Impact HAZ-2:	With mitigation included, the project would not create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment. **(Less than Significant Impact with Mitigation Incorporated)**

As described above, pesticides, herbicides, and aerially-deposited lead may be present in the soils at the project site. Lead-based paint and asbestos-containing materials may also be present, as well as lead in the thermoplastic striping on Anzar Road. Exposure to these hazardous substances at levels exceeding regulatory levels by construction workers could lead to adverse health effects. To reduce this potential impact to a less-than-significant level, the following measures are included in the project.

MM HAZ-1.1: Prior to demolition or any construction related activates, surface soils located within the project area shall be tested and analyzed for hazardous levels of pesticides, herbicides, and arsenic by a qualified hazardous materials consultant. A report describing the sampling locations, analytical methods, results, and recommendations, shall be submitted to the San Benito County Public Works Department prior to commencing demolition or construction related actives. Any contaminated soil identified shall be abated and disposed of by certified contractors in accordance with state and federal regulations.

MM HAZ-1.2: Per Caltrans' requirements, the contractor(s) shall prepare a project-specific Health and Safety Plan (HSP) to prevent or minimize worker exposure to soil. The HSP shall include protocols for environmental and personnel monitoring, requirements for personal protective equipment, and other health and safety protocols and procedures required for handling of contaminated soil.

MM HAZ-1.3: All contaminated soil identified on the project site shall be abated and disposed of by certified contractors in accordance with state and federal regulations. This includes lead-containing soils and soils sampled soils that may be restricted based on herbicide, pesticide, and/or arsenic content.

MM HAZ-1.4: All demolition activities and construction activities shall be undertaken in accordance with Cal/OSHA standards contained in Title 8 of CCR, *Section 1529*, to protect workers from exposure to asbestos.

MM HAZ-1.5: A registered asbestos abatement contractor shall be retained to remove and dispose of ACMs identified in the asbestos survey performed for the site in accordance with the standards stated above.

MM HAZ-1.6: All demolition and construction related activates shall be undertaken in accordance with Cal/OSHA standards and Title 8 of CCR, *Section 1532.1*, to protect workers from exposure to lead-containing paint. Written notification to the nearest Cal/OSHA district office is required at least 24 hours prior to certain lead-related work.

MM HAZ-1.7: Yellow traffic striping and paints classified as California hazardous wastes will be removed and disposed of prior to renovation, demolition, or other activities that would disturb the paint. The contractor shall be required to use personnel who have lead-related construction certification as supervisors or workers, as appropriate, from the California Department of Public Health for lead-containing paint removal work. Yellow striping and loose and peeling/flaking paints with hazardous lead levels require removal prior to demolition for waste segregation purposes: to separate potentially hazardous waste (Category III concentrated lead such as loose paint, paint sludge, vacuum debris, and vacuum filters) from non-hazardous demolition debris (Category II intact lead-painted architectural components such as doors, windows, framework, cladding, and trim). Category I waste is low lead waste (typically non-hazardous) such as construction materials, filtered wash water, and plastic sheeting.

Contractors will be responsible for informing the landfill of the contractor's intent to dispose of RCRA waste, California hazardous waste, and/or architectural components containing intact lead-based paint Some landfills may require additional waste characterization. Contractors are responsible for segregating and characterizing waste streams prior to disposal.

MM HAZ-1.8: Written notification to the Monterey Bay Unified Air Pollution Control District shall be provided ten working days prior to commencement of any demolition activity.

MM HAZ-1.9: The San Benito County Office of the Agricultural Commissioner shall be contacted prior to commencement of construction activities to identify properties that have recently applied pesticides. Areas where pesticides have been applied with restrictions of re-entry shall be identified and all restrictions shall be complied with.

Impact HAZ-3: The project would not emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school. **(No Impact)**

There are no schools within one-quarter mile of the project site, and no hazardous materials would be associated with the project in operation. The closest public school to the project site is Anzar High School, located approximately 0.55 miles northeast.

Impact HAZ-4: The project would not be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, create a significant hazard to the public or the environment. **(No Impact)**

There are no sites of potential concern in the project area that are included on a list compiled pursuant to Government Code Section 65962.5.

Impact HAZ-5:	The project would not be located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport. The project would not result in a safety hazard or excessive noise for people residing or working in the project area. **(No Impact)**

The project site is not located within an airport land use plan and there are no airports within two miles of the project site.

Impact HAZ-6:	The project would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan. **(No Impact)**

The project would be built in one phase and would require complete closure of Anzar Road, from San Juan Highway west to McAlpine Lake and Park, during construction. Total construction time would not exceed 6 months.

Bridge closure would be temporary and would not interfere with an emergency response plan. Anzar Road connects to Highway 101 to the west and San Juan Highway to the east, and temporary closure would not render any properties or residences inaccessible or hinder emergency access.

There would be no long-term effects on emergency access or evacuation plans since the project is limited to the replacement of a 2-lane bridge with a new 2-lane bridge. To the extent that the replacement bridge would fare better in a major earthquake than the existing structure, the likelihood that Anzar Road would be open post-earthquake would be improved by the project.

Impact HAZ-7:	The project would not expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires. **(No Impact)**

The project site is not located in a mapped wildland fire hazard severity zone.[8] The San Benito County WebGIS maps the project area in the Non-Wildland/Non-Urban fire hazard area.[9] The risk of loss, injury or death involving wildland fires would be the same under no project and project conditions because constructed would be limited to a replacement bridge at the same location.

---

[8] California Department of Forestry and Fire Protection. *Fire Hazard Severity Zones in SRA – San Benito County.* Adopted November 7, 2007. Map. Available at: http://frap.fire.ca.gov/webdata/maps/san_benito/fhszs_map.35.pdf
[9] County of San Benito, County Government Website. 2014. Accessed August 7, 2014. Available at: http://www.lynxgis.com/sanbenitoco/index2.cfm

3.10 HYDROLOGY AND WATER QUALITY

The discussion in this section is based in part on a location hydrologic report prepared for the proposed project by NV5. The report is Appendix E of this Initial Study.

3.10.1 Environmental Setting

The existing Anzar Road bridge crosses San Juan Creek, which is located in the lower portion of the San Benito River Watershed and delivers runoff to the Pajaro River that eventually joins the Monterey Bay. The drainage area at Anzar Road is 35.2 square miles. Land use within the immediate and surrounding area is primarily agricultural with residential units interspersed.

The project site is located in a 100-year flood hazard area and is mapped in Zone A of the Federal Emergency Management Agency Flood Insurance Map for the area.[10] No base flood elevations have been determined for Zone A. There are no known flooding events that have affected the roadway or bridge.

The existing conditions model results indicate that both San Juan Creek and Anzar Road Bridge can convey a 2-year storm event without overtopping. However, a storm with a larger recurrence interval (5-year, 10-year, 25-year, 50-year, or 100-year) would result in overtopping the existing creek banks. However, the Creek cannot convey a 5-year storm discharge without being overtopped, almost everywhere in the model reach. The Creek would require significant excavation to be upgraded to a 10-year capacity. Additionally, the model indicates that both San Juan Creek and Anzar Road Bridge are not adequate to pass both the 50-year storm and the 100-year storm. Upgrading the Anzar Road Bridge to convey a 50-year or 100-year storm event would also involve significant excavation to the existing creek to increase capacity.

3.10.2 Impact Discussion

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project:				
1) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?	☐	☒	☐	☐
2) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	☐	☐	☐	☒

[10] Federal Emergency Management Agency, *Flood Insurance Rate Map No. 06069C0045D, San Benito County California and Incorporated Areas*, April 16, 2009.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project:				
3) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:	☐	☐	☒	☐
- result in substantial erosion or siltation on- or off-site;	☐	☐	☒	☐
- substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site;	☐	☐	☒	☐
- create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or	☐	☐	☒	☐
- impede or redirect flood flows?	☐	☐	☒	☐
4) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	☐	☐	☐	☒
5) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	☐	☐	☐	☒

Impact HYD-1: With mitigation included in the project, the project would not violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality. **(Less than Significant Impact with Mitigation Incorporated)**

Construction activities on the banks of the creek or other areas of the project site during the rainy season could affect water quality in the creek. To reduce these potential impacts to water quality to a less-than-significant level, the following mitigation measures are included in the project.

MM HYDRO-1.1: The project applicant will implement the following Best Management Practices (BMPs) as described under in the Caltrans Construction Manual and as contained within Caltrans Construction Site BMPs. Implementation of the measures described below will reduce potential effects from degradation of water quality.

- No equipment will be operated in the live stream channel;

- Standard erosion control and slope stabilization measures will be required for work performed in any area where erosion could lead to sedimentation of a waterbody;

- Silt fencing will be installed between any activities conducted within, or just above the edge of, the top-of-bank and the edge of the creek to prevent dirt or other materials from entering the channel;

- No debris, soil, silt, sand, bark, slash, sawdust, cement, concrete, washings, petroleum products or other organic or earthen material will be allowed to enter into or be placed where it may be washed by rainfall or runoff into waters of the U.S./State or aquatic habitat;

- Machinery will be refueled at least 60 ft from any aquatic habitat, and a spill prevention and response plan will be implemented;

- Water from dewatering of the work areas will not be pumped or allowed to flow into the creek until the water is clear. The method will be the responsibility of the contractor but will be a standard practice such as using sediment basins outside of the channel or portable settling bins, and must successfully filter the water until clear; and

- Post-construction BMPs will be implemented as necessary to prevent a long-term increase in runoff and road-based contamination, as well as to prevent hydrological modification of San Juan Creek following Project construction, as required by the General Construction Permit (GCP) and the Project's Section 401 Water Quality Certification permit. These may include the use of bioswales and/or velocity reducing structures to treat and slow runoff from increased hardscape as needed, and measures to ensure runoff and road debris from the bridge is not allowed to enter directly into the creek. Volume that cannot be addressed using nonstructural practices shall be captured in structural practices and approved by the Central Coast RWQCB. All post-construction BMPs shall be implemented and functioning prior to completion of the Project.

MM HYDRO-1.2: A Stormwater Pollution Prevention Program (SWPP) shall be prepared in conformance with RWQCB requirements. The SWPP shall include post-construction water quality BMP's, as appropriate. BMP's shall be designed in accordance with the engineering criteria in the Caltrans Strom Water Quality Handbook-Project Planning and Design Guide or other accepted guidance. BMP designs shall be reviewed and approved by the San Benito County Department of Public Works prior to issuance of a grading permits.

Impact HYD-2:	The project would not substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin. **(No Impact)**

The proposed project is limited to the replacement of an existing 2-lane bridge in rural San Benito County with a new 2-lane bridge at the same location. The replacement would have no effect on groundwater resources or groundwater usage.

Impact HYD-3:	The project would not substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would result in substantial erosion or siltation on- or off-site; substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site; create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or impede or redirect flood flows. **(Less than Significant Impact)**

The proposed bridge structure would pass a 5-year storm event and improve the existing conditions. Some overtopping of the existing creek would occur on the banks. However, upgrading the bridge to pass a storm event with a larger recurrence interval (10-year, 25-year, 50-year, or 100-year) would involve significant excavation of the existing creek or addition of floodwalls to improve San Juan Creek capacity.

Based on the hydraulic modeling undertaken for the project, the replacement bridge would result in a minimal change in water surface elevation. This conclusion supports the finding that the proposed change to the bridge deck elevation would not significantly impact the existing Creek hydraulics resulting in scouring. Other improvements in the proposed project include channel bed grading by filling the scour hole in the creek located underneath of the existing bridge, addition of sloping abutment with a side slope of 2:1 (H:V), and installation of rock slope protection (RSP) in the vicinity of the project. Therefore, the proposed bridge and channel improvement would not negatively impact the floodplain.

Impact HYD-4:	The project would not risk release of pollutants due to project inundation in flood hazard, tsunami, or seiche zones. **(No Impact)**

The proposed project would not be subject to inundation or tsunami and would have the same low probability of being exposed to mudflow as the existing bridge.

Impact HYD-5:	The project would not conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan. **(No Impact)**

The proposed project is limited to the replacement of an existing 2-lane bridge in rural San Benito County with a new 2-lane bridge at the same location. The replacement would have no effect on groundwater resources or groundwater usage. In addition, the project would not conflict with any water quality control plans.

3.11 LAND USE AND PLANNING

3.11.1 Environmental Setting

The existing bridge is located in a rural/agricultural area of unincorporated San Benito County.

3.11.2 Impact Discussion

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project:				
1) Physically divide an established community?	☐	☐	☐	☒
2) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☐	☒

Impact LU-1: The project would not physically divide an established community. **(No Impact)**

The proposed project is the replacement of an existing bridge in the same location and would not physically divide an established community. Bridge closures during construction would be temporary, and access would be available during non-construction hours. The project would require minor easements from the adjacent parcels for utilities, temporary access, staging, and roadway slopes. Temporary construction easements are also anticipated. No structures aside from the existing bridge would be impacted.

Impact LU-2: The project would not cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect. **(No Impact)**

The proposed project would replace the existing Anzar Road Bridge over San Juan Creek with a new bridge constructed in the same location. The project would include erosion control best management practices (BMPs) and would improve the hydraulic capacity of the creek by lengthening the bridge structure and modifying the creek channel to remove existing scour. The proposed project would not result in any significant environmental impacts and would not conflict with any plans or policies adopted for the purpose of avoiding or mitigating an environmental effect.

3.12 MINERAL RESOURCES

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

Impact MIN-1: The project would not result in the loss of availability of a known mineral resource that would be of value to the region and residents of the state. **(No Impact)**

The proposed bridge replacement would be constructed in the same location as the existing bridge and would not impact any known mineral resources.

Impact MIN-2: The project would not result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan. **(No Impact)**

The project is limited to the replacement of an existing 2-lane bridge. It would not make any mineral resources unavailable.

3.13 NOISE

The discussion in this section is based in part on a construction noise report prepared for the proposed project. The report is Appendix F of this Initial Study.

3.13.1 Environmental Setting

The existing bridge is located on Anzar Road in a rural/agricultural area of unincorporated San Benito County. Existing noise levels are primarily associated with vehicles on 2-lane Anzar Road as well as farm machinery operating in the nearby fields.

The closest sensitive noise receptor is a residence located approximately 500 feet from the bridge.

3.13.2 Impact Discussion

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project result in:				
1) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☐	☒	☐
2) Generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☒	☐
3) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒

Impact NOI-1: The project would not result in generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies. **(Less than Significant Impact)**

There are no sensitive noise receptors (e.g., residences) located on or adjacent to the project site. As a result, construction noise, although audible above background noise, would not result in a significant impact. Temporary, construction-related noise impacts will be further reduced by the project's implementation of the following standard measures:

- Noise-generating construction activities will be restricted to the hours of 7:00 A.M. to 7:00 P.M. daily, except Sundays and federal holidays. If work is necessary outside of these hours, the County will require the contractor to implement a construction noise monitoring program and, if feasible, provide additional mitigation as necessary (in the form of noise control blankets or other temporary noise barriers, etc.) for affected receptors.
- All internal combustion engine driven equipment will be equipped with intake and exhaust mufflers that are in good condition and appropriate for the equipment.
- Unnecessary idling of internal combustion engines will be strictly prohibited.
- "Quiet" air compressors and other "quiet" equipment will be utilized where such technology exists.
- All construction equipment will conform to Section 14-8.02, Noise Control, of the latest Caltrans Standard Specifications.
- The contractor will prepare a detailed construction plan identifying the schedule for major noise-generating construction activities and distribute this plan to adjacent noise-sensitive receptors. The construction plan will also list these construction noise reduction measures.

There would be no long-term increases in noise resulting from the project because 1) the replacement bridge would have the same capacity and be at the same location as the existing bridge, and 2) the project would not affect the volume or type of traffic using Anzar Road.

Impact NOI-2:	The project would not result in generation of excessive groundborne vibration or groundborne noise levels. **(Less than Significant Impact)**

There are no persons living or working within 500 feet of the bridge site. Therefore, impacts associated with vibration caused by construction activities would not interfere with human activities.

There would be no long-term increases in vibration resulting from the project because 1) the replacement bridge would have the same capacity and be at the same location as the existing bridge, and 2) the project would not affect the volume or type of traffic using Anzar Road.

Impact NOI-3:	The project would not be located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport. The project would not expose people residing or working in the project area to excessive noise levels. **(No Impact)**

The project site is not located within an airport land use plan or within two miles of a public airport.

3.14 POPULATION AND HOUSING

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

Impact POP-1: The project would not induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure). **(No Impact)**

Impact POP-2: The project would not displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere. **(No Impact)**

The proposed project is limited to the replacement of an existing 2-lane bridge in rural San Benito County with a new 2-lane bridge at the same location. The replacement bridge would not affect the volume of traffic that utilizes Anzar Road and would not foster new/greater development in the area. Therefore, the project would not induce population growth.

The construction of a replacement bridge on the same site as the existing bridge would not displace people or housing.

3.15 PUBLIC SERVICES

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:				
1) Fire Protection?	☐	☐	☐	☒
2) Police Protection?	☐	☐	☐	☒
3) Schools?	☐	☐	☐	☒
4) Parks?	☐	☐	☐	☒
5) Other Public Facilities?	☐	☐	☐	☒

Impact PS-1: The project would not result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for fire protection services. **(No Impact)**

Impact PS-2: The project would not result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for police protection services. **(No Impact)**

Impact PS-3: The project would not result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for schools. **(No Impact)**

Impact PS-4:	The project would not result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for parks. **(No Impact)**

Impact PS-5:	The project would not result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for other public facilities. **(No Impact)**

The proposed project is limited to the replacement of an existing 2-lane bridge in rural San Benito County with a new 2-lane bridge at the same location. The replacement bridge would not affect existing or future development. Therefore, calls-for-service for police or fire personnel would be unaffected. Response times by emergency service vehicles would be unchanged because the project would not modify the roadway network. Similarly, the need for parks, schools, and other public facilities in the area would be unaffected by the project.

3.16 RECREATION

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

Impact REC-1:	The project would not increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated. **(No Impact)**

Impact REC-2:	The project does not include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment. **(No Impact)**

The proposed project is limited to the replacement of an existing 2-lane bridge in rural San Benito County with a new 2-lane bridge at the same location. The replacement bridge would not affect existing or future development. As such, the project would not increase the use of any park or recreation facility nor would it include the construction of new or expanded recreational facilities.

3.17 TRANSPORTATION

The discussion in this section is based in part on a construction detour report prepared for the proposed project. The report is Appendix G of this Initial Study.

3.17.1 Environmental Setting

As shown on Figure 2, the project site is located on Anzar Road between U.S. Highway 101 and San Juan Highway, approximately 2.4 miles northwest of the City of San Juan Bautista in unincorporated San Benito County. Anzar Road is a 2-lane facility with an average daily traffic (ADT) volume of approximately 1,900 vehicles.

3.17.2 Impact Discussion

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project:				
1) Conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadways, bicycle lanes, and pedestrian facilities?	☐	☐	☐	☒
2) Conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b)?	☐	☐	☐	☒
3) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☐	☒
4) Result in inadequate emergency access?	☐	☐	☐	☒

Impact TRN-1: The project would not conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadways, bicycle lanes, and pedestrian facilities. **(No Impact)**

Short-Term Construction Impacts

The construction phase of the project would require the temporary closure of Anzar Road between San Juan Highway on the east and McAlpine Lake and Park on the west. The proposed 2-mile vehicular detour is shown on Figure 5 and is described as follows, beginning at the Anzar Road/San Juan Highway intersection:

- North on San Juan Highway to Highway 129/Chittenden Road;
- West on Highway 129/Chittenden Road to Searle Road;

- Southwest on Searle Road to Anzar Road;
- East on Anzar Road.

This detour would maintain access in the project area during construction. For details regarding signage and public notification of the detour, please see Appendix G.

Long-Term Operational Impacts

The proposed project is limited to the replacement of an existing 2-lane bridge in rural San Benito County with a new 2-lane bridge at the same location. The project would not alter the highway network, transit network, or bicycle/pedestrian facilities in the area. The replacement bridge would be approximately 10 feet wider than the existing bridge and would include shoulders, which would improve conditions for bicyclists.

Impact TRN-2:	The project would not conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b). **(No Impact)**

CEQA Guidelines 15064.3 pertains to assessment of traffic impacts using a metric known as vehicle-miles-traveled (VMT). The project would have no effect on VMT because it is limited to the replacement of an existing 2-lane bridge with a new 2-lane bridge at the same location. A project of this type does not generate traffic or result in new roadways that might alter traffic circulation.

Impact TRN-3:	The project would not substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment). **(No Impact)**

The design of the new bridge will comply with all current design and seismic safety criteria, which would be a benefit when compared to existing conditions.

Impact TRN-4:	The project would not result in inadequate emergency access. **(No Impact)**

The project would not sever access to the area by emergency vehicles either during construction or over the long-term. As described in Appendix J, the County would notify police, fire, and other emergency responders in advance of the construction detour.

3.18 TRIBAL CULTURAL RESOURCES

3.18.1 Environmental Setting

As part of the environmental compliance process for this project, letters were sent via email or regular mail to seven Native American individuals/organizations noted on the Native American Heritage Commission's Contact List. Of the two who responded, neither identified any Native American sites within or adjacent to the project footprint.

3.18.2 Impact Discussion

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:				
1) Listed or eligible for listing in the CRHR, or in a local register of historical resources as defined in PRC Section 5020.1(k)?	☐	☐	☐	☒
2) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1? In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	☐	☐	☐	☒

Impact TCR-1: The project would not cause a substantial adverse change in the significance of a tribal cultural resource that is listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in PRC Section 5020.1(k). **(No Impact)**

Impact TCR-2: The project would not cause a substantial adverse change in the significance of a tribal cultural resource that is determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of PRC Section 5024.1. **(No Impact)**

There are no known tribal cultural resources located within or adjacent to the project site.

3.19 UTILITIES AND SERVICE SYSTEMS

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project:				
1) Require or result in the relocation or construction of new or expanded water, wastewater treatment or stormwater drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	☐	☐	☐	☒
2) Have insufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?	☐	☐	☐	☒
3) Result in a determination by the wastewater treatment provider which serves or may serve the project that it does not have adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☐	☒
4) Generate solid waste in excess of state or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	☐	☐	☐	☒
5) Be noncompliant with federal, state, or local management and reduction statutes and regulations related to solid waste?	☐	☐	☐	☒

Impact UTL-1:	The project would not require or result in the relocation or construction of new or expanded water, wastewater treatment or stormwater drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects. **(No Impact)**

Impact UTL-2:	The project would not have insufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years. **(No Impact)**

Impact UTL-3:	The project would not result in a determination by the wastewater treatment provider which serves or may serve the project that it does not have adequate capacity to serve the project's projected demand in addition to the provider's existing commitments. **(No Impact)**

Impact UTL-4:	The project would not generate solid waste in excess of state or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals. **(No Impact)**

Impact UTL-5:	The project would not be noncompliant with federal, state, or local management and reduction statutes and regulations related to solid waste. **(No Impact)**

The proposed project is limited to the replacement of an existing 2-lane bridge in rural San Benito County with a new 2-lane bridge at the same location. Existing and future land uses would be unaffected by the project. Therefore, the project would not increase demand for utilities such as electricity, gas, water, and telecommunications.

The operational phase of the project would not generate wastewater or solid waste. Solid waste generated from the demolition of the existing bridge will be recycled in accordance with County policies and procedures.

Existing utility lines at the project site would be relocated, as necessary, to accommodate the replacement bridge.

3.20 WILDFIRE

3.20.1 Environmental Setting

The project site is not located in a mapped wildland fire hazard severity zone.[11] The San Benito County WebGIS maps the project area in the Non-Wildland/Non-Urban fire hazard area.[12]

3.20.2 Impact Discussion

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:				
1) Substantially impair an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒
2) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	☐	☐	☐	☒
3) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines, or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	☐	☐	☐	☒
4) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	☐	☐	☐	☒

The project site is not located in or near state responsibility areas or lands classified as very high fire hazard severity zones; therefore, the project would not result in wildfire impacts. **(No Impact)**

[11] California Department of Forestry and Fire Protection. *Fire Hazard Severity Zones in SRA – San Benito County.* Adopted November 7, 2007. Map. Available at: http://frap.fire.ca.gov/webdata/maps/san_benito/fhszs_map.35.pdf
[12] County of San Benito, County Government Website. 2014. Accessed August 7, 2014. Available at: http://www.lynxgis.com/sanbenitoco/index2.cfm

3.21 MANDATORY FINDINGS OF SIGNIFICANCE

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

Impact MFS-1: With mitigation included, the project does not have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory. **(Less than Significant Impact with Mitigation Incorporated)**

As described in ***Section 3.4, Biological Resources*** of this Initial Study, the proposed project has the potential to impact biological resources. As a result, avoidance and mitigation measures have been incorporated as part of the project, which would ensure that the project has no significant impacts to these resources.

Impact MFS-2: The project does not have impacts that are individually limited, but cumulatively considerable. **(Less than Significant Impact)**

There are no other projects occurring or expected to occur in the area that would have environmental impacts to which the proposed project would contribute. The proposed bridge replacement would improve river scour concerns, and bank erosion over existing conditions. Impacts to riparian habitat and special-status species would be mitigated to a less than significant level, and the project would not increase air quality, noise, traffic, or greenhouse gas emissions over the long-term. Therefore, the proposed project would not contribute to a cumulatively significant environmental impact.

Impact MFS-3:	The project does not have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly. **(No Impact)**

Based on the analysis contained in this Initial Study, the proposed project does not have the potential to cause substantial adverse effects on human beings.

SECTION 4.0 REFERENCES

The analysis in this Initial Study is based on the professional judgement and expertise of the environmental specialists preparing this document, based upon review of the site, surrounding conditions, site plans, and the following references:

Federal Emergency Management Agency, Flood Insurance Rate Map for San Benito County, Panel 45 of 955, April 2009.

Geocon Consultants, Asbestos and Lead-Containing Paint Survey Report for the Anzar Road Bridge over San Juan Creek Project, August 2013.

Holman & Associates, Historic Properties Survey Report with Archaeological Survey Report for the Anzar Road Bridge over San Juan Creek Project, 2013.

HT Harvey & Associates, Natural Environment Study for the Anzar Road Bridge over San Juan Creek Project, May 2014.

HT Harvey & Associates, Biological Assessment for the Anzar Road Bridge over San Juan Creek Project, July 2014.

Illingworth & Rodkin, Construction Noise and Vibration Assessment for the Anzar Road Bridge over San Juan Creek Project, September 2013.

NV5, Location Hydraulic Study Report for the Anzar Road Bridge over San Juan Creek Project, September 2013.

NV5, Traffic Control Technical Memo for the Anzar Road Bridge over San Juan Creek Project, September 2013.

Parikh Consultants, Initial Site Assessment for the Anzar Road Bridge over San Juan Creek Project, August 2013.

United States Fish & Wildlife Service, Programmatic Biological Opinion for Projects Funded or Approved under the Federal Highway Administration's Federal Aid Program (8-8-10-F-58), May 2011.

United States Fish & Wildlife Service, Biological Opinion for the Anzar Road Bridge Replacement Project, San Benito County, California (8-8-15-F-15), April 2015.

SECTION 5.0 LEAD AGENCY AND CONSULTANTS

5.1 LEAD AGENCY

San Benito County Department of Public Works

5.2 CONSULTANTS

David J. Powers & Associates, Inc. (Initial Study Preparation)
San José, CA

Holman & Associates (Cultural Resources)
San Francisco, CA

H.T. Harvey & Associates (Biological Resources)
Los Gatos, CA

Geocon Consultants (Hazardous Materials)
Livermore, CA

NV5 (Project Design, Traffic, Hydraulics)
Sacramento, CA

Illingworth & Rodkin, Inc. (Noise)
Cotati, CA

Parikh Consultants, Inc. (Hazardous Materials)
San Jose, CA

Appendix A

****

Farmland Conversion Assessment

Farmland Conversion Impact Assessment Memo
Anzar Road Bridge Replacement at San Juan Creek
Caltrans District 5, San Benito County
Federal Aid Project Number: 5943(062)

Date: March 10, 2013

Prepared by: ______________________
Judy Fenerty, Project Manager
David J. Powers & Associates, Inc.

Reviewed by: ______________________
California Department of Transportation

Purpose

The purpose of this memorandum is to evaluate the potential for the project to convert farmlands to non-farmland uses, as defined in the Farmland Protection Policy Act (FPPA). This evaluation includes a completed Natural Resource Conservation Service (NRCS) Farmland Conversion Impact Rating form (Form AD-1006), and a discussion of the site assessment criteria used to make the findings.

Project Information

The proposed Anzar Road Bridge Replacement project site is approximately 1.1-acres (Figure 1). Approximately 0.167-acres of additional permanent right-of-way (ROW) take will be needed in order to replace the bridge (Figure 2).

The following soils and farmland information related to the project site was obtained from the San Benito County WebGIS.

- The entire project area is mapped as Prime Farmland, and Grade 1 soils.
- No Williamson Act Lands located in the project area.
- The project are is zoned *Agricultural Productive (AP)* District.
- The project site is mapped as SrA Sorrento silty clay loam soil.

Farmland Conversion Site Assessment Discussion

The Farmlands Decision Tree directs the Lead Agency to complete Parts I, III, & VI of the NRCS Form AD 1006 in order to evaluate project effects on farmlands. Part VI has been completed in accordance with Site Assessment Criteria in 7 CFR 658.5b. The following is a discussion of the findings for each value for Part VI of the form:

1.) Area In Non-urban Use = **15 points**
The area surrounding the project site is dominated by existing agricultural fields. It is estimated that more than 90% of land within a one mile radius is in non-urban use (15 points). Surrounding land uses include agricultural production, single-family residences/ranches, McAlpine Park, Anzar High School, and Wills Construction Inc. The closest urban environment, approximately 2.0 miles to the southeast, is the City of San Juan Bautista. This number could potential be reduced if the school and construction company are considered "urban use", however for this assessment the approach was conservative and estimates that 90% of the land within one mile is non-urban.

2.) Perimeter in Non-urban Use = **10 points**
The north and south side of Anzar Road is directly bordered by active agriculture. More than 90% of the perimeter of the project site borders land in non-urban use (10 points).

3.) Percent of Site Being Farmed = **0 points**
The Anzar Road Bridge and existing right-of-way has functioned as an existing road for more than 10 years. No active farming or timber activity has occurred with the existing bridge or road since its construction. The project will require approximately 0.167-acres of additional right-of-way from adjacent property bordering the road in order to construct the new bridge and improve the road. Less than 20% of the project site has been farmed more than five of the last 10 years (0 points).

4.) Protection Provided by State and Local Government = **20 points**
The existing Anzar Road Bridge and road are not subject to State or unit of local government policies or programs to protect farmland or covered by private programs to protect farmland. Existing agricultural fields directly adjacent to the project area are mapped in Grade 1 soils, zoned *Agricultural Productive (AP)*, and designated as Prime Farmland on the State of California San Benito County Important Farmlands Map (2010). For this assessment, if additional right-of-way is needed, the right-of-way lands (adjacent agricultural fields) are considered protected under this definition (20 points).

5.) Distance from Urban Built-up Area = **15 points**
The closest urban built-up area to the Anzar Road Bridge project site is the City of San Juan Bautista, which is located approximately 2.0 miles to the southeast, estimated using GoogleEarth. Points may be able to be reduced to 10 if a different measurement tool confirms that the distance to the built area is less than 2.0 miles.

6.) Distance to Urban Support Service = **10 points**
The project site is located in the San Benito County Water District (SBCWD) Zone 6 Service Area according to District maps and the San Benito County WebGIS. Preliminary engineered construction

site plans indicate an existing eight-inch water line running along the north side of Anzar Road and along the existing Anzar Road Bridge. No sewer service is available at the immediate project site.

7.) Size of Present Farm Unit Compared to Average = **10 points**
This assessment question is related to average farm size unit in the County. Based on the overall size of the parcels located adjacent to the project site, we are assuming that they are at least average, based on the NRCS criteria. This is only based on the visual scale of the farm and its size compared to other agriculture property in the area (10 points). We did not contact the NRCS field office for this question and took the conservative estimate. Points may be reduced if agricultural parcels associated with additional right-of-way are below average.

8.) Creation of Non-farmable Farmland = **0 points**
The Anzar Road Bridge project would require a small amount of additional right-of-way for completion, and only a small percentage of the existing protected agricultural lands will become non-farmable. This acreage is equal to less than 5% of the acres directly converted by the project (0 points).

9.) Availability of Farm Support Services = **5 points**
The project site is set in a rural agricultural setting. Agricultural support services including markets, suppliers, and processing is located throughout San Benito County. True Leaf Farms, an agricultural processing facility, is located less than a mile to the east.

10.) On-Farm Investments: = **20 points**
The agricultural parcels located within the needed right-of-way of the project site support on-going farming operations. Field terraces, drainage, irrigation, and other moderate amounts of on-farm investments are present (15 points). No fruit trees are located on site, but a barn is located to the east (0.3 miles) which is assumed to increase the points to the maximum value of 20 points.

11.) Effects on Conversion On Farm Support Services = **0 points**
The project and associated need for a minimal amount of additional right-of-way would not significantly reduce the demand for farm support services as to jeopardize the continued existence of these support services in the area. A minimal amount of existing agriculture will be converted to non-agricultural use, and no barns or agricultural support structures will be removed. One existing irrigation pipe will be relocated but will remain in existence.

12.) Compatibility With Existing Agricultural Use = **0 points**
The proposed project is fully compatible with existing agricultural use of surrounding farmland and will likely improve the mobility and transferability of agricultural equipment and goods in the area as the bridge is obsolete and must be replaced. The project would only require a minimal amount of new right-of-way and (approximately 0.167-acres) land use conversion to accommodate the needed right-of way (0 points).

Summary

Based on the Site Assessment Criteria, the total site assessment points equal 105. Minor changes to the project or the site assessment could increase this number by approximately 20 points, however, the total would not reach the threshold of 160 points which would require Lead Agency submittal of the AD-1006 form to the NRCS. Based on the current point value (105 points), the Farmland Decision Tree indicates that the AD 1006 form need not be submitted to the NRCS field office. The completed form should be placed in the Project Description of the NEPA documents, in accordance with FHWA Draft NEPA Checklist. Being that this project will require a CEQA Categorical Exemption, the same discussion would apply.

FARMLANDS DECISION TREE

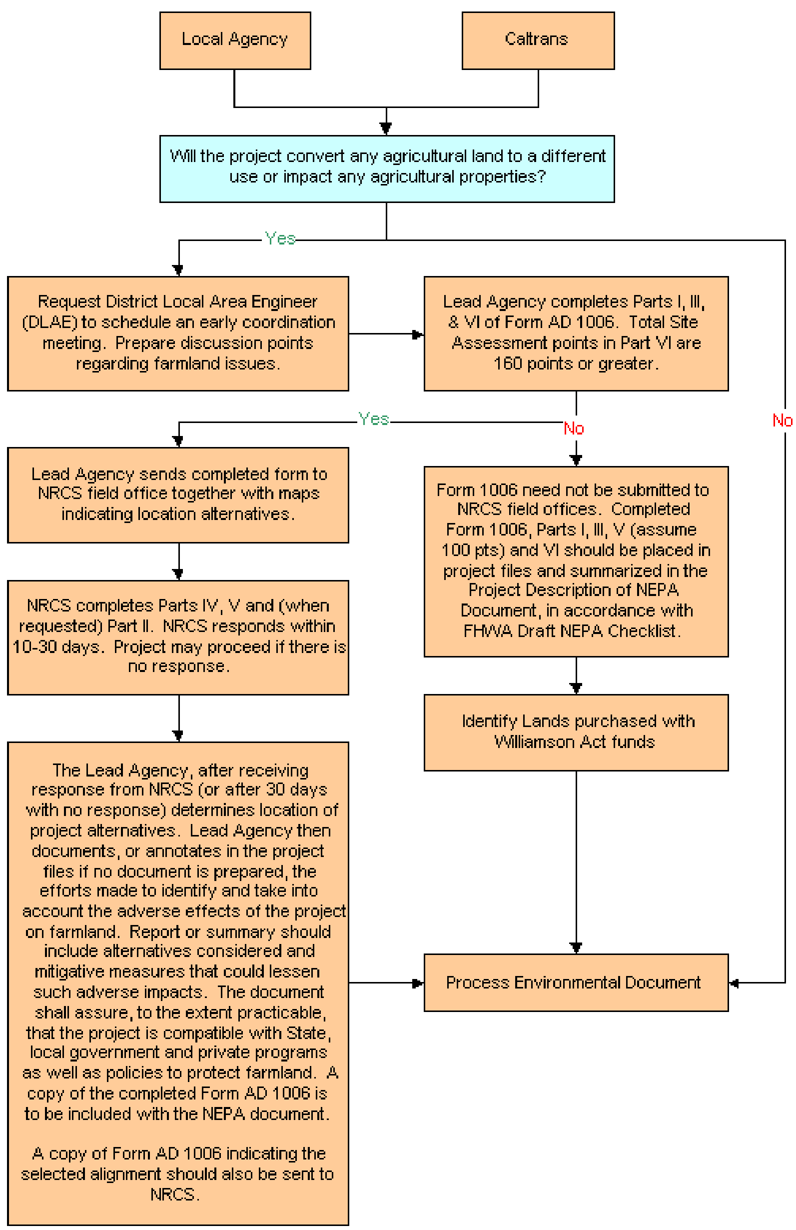


Figure1: Anzar Road Bridge Project Site - (1.1-acres)

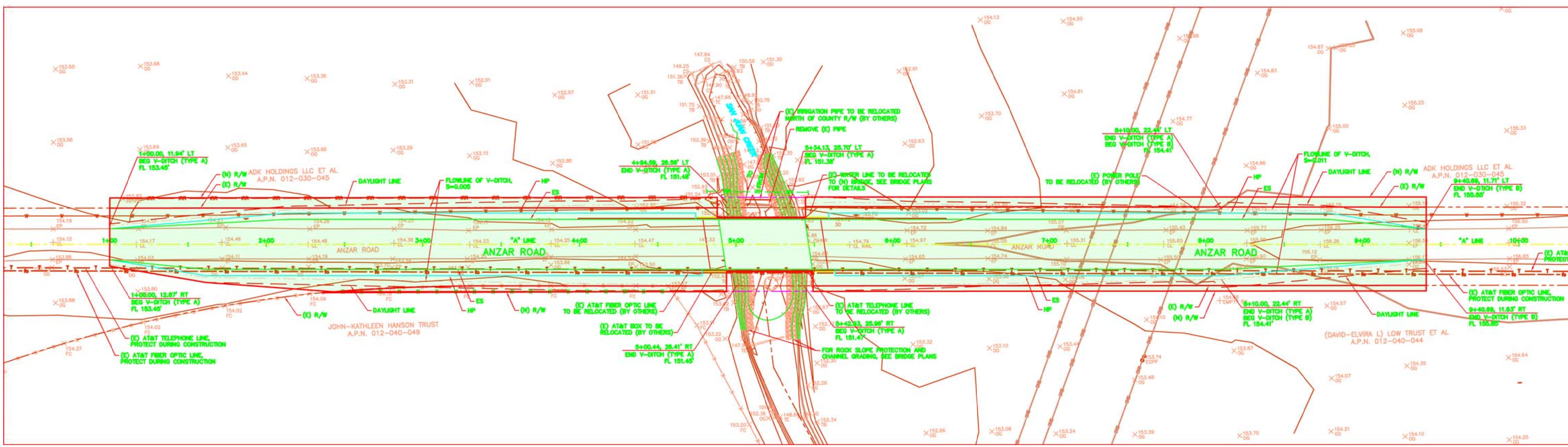
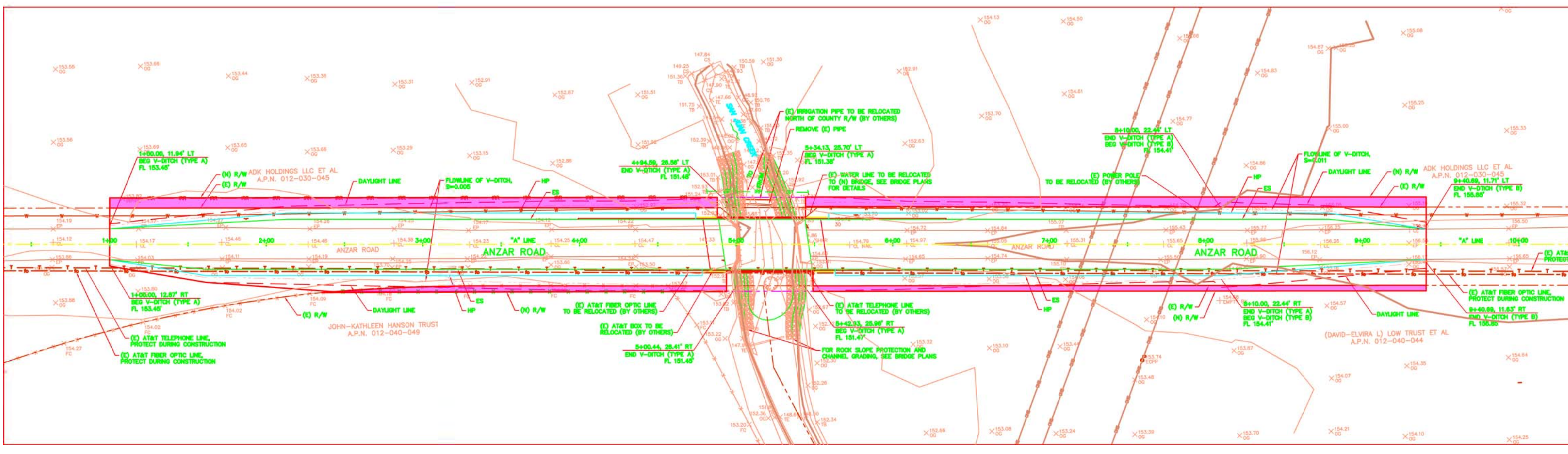


Figure 2: Anzar Road Bridge Additional
Permanent Right-of-Way Needed (0.167 acres)



Appendix B

****

Natural Environment Study

Natural Environment Study

Near San Juan Bautista, San Benito County, California

(Existing Bridge No. 43C-0039)

Caltrans District 05

Federal Aid Number: BRLS-5943(062)

May 2014

CALIFORNIA DEPARTMENT OF TRANSPORTATION

For individuals with sensory disabilities, this document is available in Braille, large print, on audiocassette, or computer disk. To obtain a copy in one of these alternate formats, please call or write to Caltrans, Attn: Randy LaVack, Senior Environmental Planner, Environmental Stewardship Branch, 50 Higuera Street, San Luis Obispo, CA 93401; Phone: (805) 549-3182 Voice, or use the California Relay Service TTY number, 1 (800) 735-2929.

Natural Environment Study

Anzar Road Bridge over San Juan Creek Project

Near San Juan Bautista, San Benito County, California

(Existing Bridge No. 43C-0039)

Caltrans District 05

Federal Aid Number: BRLS-5943(062)

STATE OF CALIFORNIA
Department of Transportation

Prepared By: ____________________________ Date: ____________
Patrick Boursier, Principal
H. T. Harvey & Associates
Los Gatos, California
(408) 458-3204

Approved By: ____________________________ Date: ____________
Arman Nazemi, Assistant Director
San Benito County Public Works Department
Hollister, California
(831) 636-4170

Approved By: ____________________________ Date: ____________
Randy LaVack, Senior Environmental Planner
Caltrans District 5 Environmental Stewardship Branch
San Luis Obispo, California
(805) 594-6188

Summary

The County of San Benito is reconstructing the Anzar Road Bridge (existing bridge No. 43C-0039) over San Juan Creek in unincorporated San Benito County, California. The existing Anzar Road Bridge is a functionally obsolete two-lane structure that is scheduled for rehabilitation under the Highway Bridge Program (HBP). Anzar Road is designated as a rural major collector (1464 ADT) and runs east/west under U.S. Highway 101. The new bridge will include two 12-foot (ft) lanes, each with a minimum 4-ft shoulder. During construction, Anzar Road will be closed from McAlpine Lake & Park to San Juan Highway. East/west traffic will be temporarily diverted to Chittenden Road during this time.

This Project is funded by the Federal Highway Administration (FHWA) and administered by the California Department of Transportation (Caltrans); this Natural Environment Study (NES) has been prepared following Caltrans' procedures. Caltrans has assumed FHWA responsibility for environmental review, consultation, and coordination on this project, as assigned by FHWA pursuant to 23 USC 326. Caltrans will act as the lead federal agency for Section 7 of the federal Endangered Species Act. Reconnaissance-level surveys were conducted within the Biological Study Area (BSA) by H. T. Harvey & Associates ecologists in October 2012 and January 2013.

Project Effects on Sensitive Biotic Habitats

Six biotic habitats were identified within the 1.84-acre (ac) BSA: scrub/shrub riparian wetland (0.02 ac), herbaceous riparian wetland (0.01 ac), aquatic (0.05 ac), row crops (0.45 ac), non-native/ruderal grassland (0.93 ac), and developed (0.38 ac). Temporary and permanent impacts to biotic habitats will occur from Project actions, including construction access and placement of the new bridge structure, recontouring of the existing creek channel to reduce scour, installation of the new bridge abutments and roadway, construction of the approaches to the bridge, and above-bank construction staging. Permanent impacts to sensitive habitats include the loss of 0.03 acres of riparian wetland habitats, including the removal of one riparian tree and several shrubs due to required channel stabilization measures that include recontouring the channel to remove the sediment deposit this wetland has developed on and the placement of rock slope protection on the creek banks. The Project will also result in the permanent placement of fill (rock slope protection) in approximately 0.01 ac of aquatic habitat; however, this fill will be offset by the permanent creation of

approximately 0.03 ac of additional aquatic habitat due to channel widening that will occur with the recontouring, thus resulting in a net increase in aquatic habitat. The new bridge will be approximately 12.5 ft wider than the existing bridge, resulting in a small amount of additional shading to aquatic and riparian habitat; however, the areas adjacent to the existing bridge are already heavily degraded by agricultural activities. Thus, additional shading is not expected to substantially reduce the quality of aquatic habitat within the BSA. While all riparian wetland vegetation will be avoided to the extent feasible, we have assumed a worst-case scenario and have planned (and prescribed mitigation) for the loss of nearly all riparian wetland vegetation within the BSA. Included in permanent riparian impacts is the installation of 132 linear ft of Rock Slope Protection (RSP) along both banks which will lead to the permanent loss of approximately 0.03 ac of herbaceous and scrub/shrub riparian wetland habitat along both sides of the channel, but will also protect water quality, provide long-term stability for the structure, and will protect the bank topography from catastrophic erosion. The placement of approximately 0.01 ac of rock slope protection in the existing creek channel is also considered a permanent impact, although any impact of fill will be offset by the creation of 0.03 ac of aquatic habitat on site from channel widening.

Project effects that are considered to be temporary include the utilization of areas of ruderal grassland above top-of-bank as staging areas, and construction and decommissioning of a cofferdam and/or temporary culvert system used to temporarily dewater and/or bridge a portion of the active channel of the creek during construction.

From a biological perspective, the relatively small permanent and temporary effects to the riparian wetland habitat and the loss of one tree-sized willow adjacent to the existing bridge are not expected to substantially affect the functions or values of the riparian corridor. The areas of Project effects are relatively small compared to the abundance of this habitat that is available within the San Juan Creek channel as a whole. There is also a lack of any substantial change in shading to aquatic habitat because the old bridge which currently shades the channel will be removed. Following the installation and maturation of compensatory riparian mitigation, it is not expected that there will be a long-term substantial loss of habitat available for wildlife species in this area. However, because there has been a substantial loss or degradation of these habitat types at this bridge site (due to intense agricultural activities) and at other bridge locations on the San Juan Creek, as well as within San Benito County and statewide, Project effects contribute to substantial cumulative effects to these habitats.

Mitigation for the Project's permanent and temporary contributions to such effects will include restoring the temporarily impacted areas with a native seed mixture and mitigating for the permanent loss of wetlands by creating wetlands at a ratio of 2:1 (created wetlands:impacted wetlands), resulting in the creation of 0.06 ac of new wetland habitat. With implementation of these mitigation measures, the permanent and temporary construction effects to the currently disturbed riparian habitat within the permanent impact area, much of which currently only supports ruderal herbaceous vegetation, will be fully mitigated.

Project construction will result in mostly temporary disturbance to the creek bed during bridge construction. Temporary access and dewatering will be required for equipment to cross the creek and also protect water quality, resulting in the placement of cofferdams and a temporary culvert. The channel will be temporarily disturbed during the grading associated with recontouring the channel to address scour issues. Temporary falsework will also be installed in the channel to support construction of the new structure. Because all temporary structures will be removed from the active aquatic channel following construction and no permanent structures will be placed in the active channel, it is fully anticipated that the creek bed following construction will provide habitat with functions and values that are similar to existing conditions. A small amount (0.01 ac) of permanent fill will be placed in the creek bed. Although this fill is considered to be a permanent impact from a regulatory standpoint, the project will be self-mitigating since it will result in a net increase of approximately 0.02 ac of aquatic habitat, and the loss of wetlands from this channel recontouring will be mitigated at 2:1 off-site as described above. Therefore, these effects are not considered to be substantial and no compensatory aquatic habitat mitigation is recommended.

Special-status Plant Species

Several special-status plant species are known to occur in the region. However, many of these plants are associated only with conditions (i.e., habitat types, climates, elevations, and soil types) that do not occur within the BSA. For example, many of these species occur only in chaparral, scrub, or prairie habitats with maritime/coastal climates. Other species can be found inland but require specific site conditions (e.g., serpentine soils) not present in the BSA. In addition, the BSA has been heavily impacted by adjacent agricultural land uses and most of the area supports only sparse, ruderal vegetation cover. Thus, no special status plant species have the potential to occur.

Special-status Animal Species

Several of the special-status animal species present in the region (i.e., in southern Santa Clara County/northern San Benito County) do not occur in the BSA because the Project site lacks suitable habitat and/or is outside the range of the species. Such species include the bay checkerspot butterfly (*Euphydryas editha bayensis*), Least Bell's vireo (*Vireo bellii pusillus*), and San Joaquin kit fox (*Vulpes macrotis mutica*), among others. Several other special-status wildlife species may occur within the BSA only as uncommon or rare visitors, migrants, or transients, and are not expected to reside or breed on the site. These include species such as the tricolored blackbird (*Agelaius tricolor*), grasshopper sparrow (*Ammodramus savannarum*), yellow-breasted chat (*Icteria virens*), and olive-sided flycatcher (*Contopus cooperi*).

Potentially suitable habitat exists within the BSA for a number of other special-status wildlife species that may reside in or breed on the site, or may occur on the site as transients but in ways that may subject individuals to Project impacts (e.g., by occurrence in burrows or in the stream channel). These species include the South-Central California Coast (SCCC) steelhead (*Oncorhynchus mykiss*), Monterey roach (*Lavinia symmetricus subditus*), California red-legged frog (*Rana draytonii*), California tiger salamander (*Ambystoma californiense*), and western pond turtle (*Actinemys marmorata*). The white-tailed kite (*Elanus leucurus*), loggerhead shrike (*Lanius ludovicianus*), and yellow warbler (*Dendroica petechia*) may nest in riparian habitat adjacent to the BSA. Avoidance and minimization measures will be implemented before and during construction of the new bridge to reduce impacts to these species, and habitat mitigation proposed in this NES will compensate for the minor, and predominantly temporary, impacts on these species' habitats. The Project may affect, but is not likely to adversely affect the South-Central California Coast steelhead, and may affect, and is likely to adversely affect, the California red-legged frog and California tiger salamander.

Permits Required

Activities conducted within the aquatic habitat and/or wetlands will require a Clean Water Act Section 404 permit (the Project likely qualifies for a Nationwide Permit) from the U.S. Army Corps of Engineers, a Section 401 water quality certification from the Regional Water Quality Control Board, and a Streambed Alteration Agreement from the California Department of Fish and Wildlife.

Presence of Invasive Non-native Plant Species

Several non-native, invasive species occur on the site, including fennel (*Foeniculum vulgare*), bristly ox-tongue (*Helminthotheca echioides*), short-podded mustard (*Hirschfeldia incana*), bull thistle (*Cirsium vulgare*), and poison hemlock (*Conium maculatum*). While the proposed Project is unlikely to introduce new weeds, the spread of existing weeds will be avoided by implementing specific weed control measures. In any areas that will be cleared or disturbed for temporary use, including the banks of the creek, all non-native plant material will be destroyed, taking care to eliminate any method of seed dispersal. In addition, an erosion-control seed mix will be planted in all temporarily disturbed areas.

Table of Contents

List of Figures

List of Tables

List of Abbreviated Terms

ac	acre(s)
ADT	Average daily traffic
BMPs	best management practices
BSA	biological study area
CAD	computer aided design
Caltrans	California Department of Transportation
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CIDH	Cast-in-drilled-hole
CFR	Code of Federal Regulations
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
DPS	Distinct Population Segment
EFH	Essential Fish Habitat
ESU	Evolutionarily Significant Unit
FESA	Federal Endangered Species Act
FMP	Fishery Management Plan
Ft	foot/feet
GIS	geographic information system
HBP	Highway Bridge Program
MBTA	Migratory Bird Treaty Act
mi	mile(s)
NEPA	National Environmental Policy Act
NES	Natural Environment Study
NGVD	National Geodetic Vertical Datum
NMFS	National Marine Fisheries Service
NWI	National Wetland Inventory
NWP	Nationwide Permit
OHW	ordinary high water
RWQCB	Regional Water Quality Control Board
Sq.ft.	Square feet
USACE	United States Army Corps of Engineers
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey

Chapter 1. Introduction

The Project site is located on Anzar Road, between U.S. Highway 101 and San Juan Highway, 2.4 miles (mi) northwest of the City of San Juan Bautista in San Benito County, California. H. T. Harvey & Associates conducted a background review and field surveys for the Anzar Road Bridge over San Juan Creek Project ("Project") from October 2012 to January 2013. On the basis of these studies, H. T. Harvey & Associates drafted this Natural Environment Study (NES). All documents were compiled according to template guidelines prepared by the California Department of Transportation (Caltrans) (Caltrans 2002, 2009).

1.1. Project History and Purpose and Need

The Project entails the replacement of an existing 78-year-old, functionally obsolete, one-lane structure with a new two-lane bridge. In a routine Bridge Inspection Report prepared by Caltrans, numerous deficiencies in the Anzar Road Bridge were documented including: several spalls (i.e. chips, fragments or flakes from concrete) along the lower edges of the deck on both sides in both spans, a spall with exposed rebar on the north end of Pier 2, and a crack with an incipient spall and rust stain in the midspan soffit of Span 2. As part of a major collector roadway (1900 average daily traffic [ADT]), the bridge is important for local transportation. A new bridge will better serve the needs of the local community. The new bridge will include two 12-foot (ft) lanes, each with a minimum 4-ft shoulder. The addition of a second lane with wider shoulders will also help to improve traffic safety. The Project will be performed under the Highway Bridge Program using federal funds along with a required local match portion provided by the County of San Benito.

1.2. Project Description

1.2.1. Project Location

The Anzar Road Bridge (existing bridge # 43C-0039) crosses over San Juan Creek between U.S. Highway 101 and San Juan Highway, 2.4 mi northwest of the City of San Juan Bautista in San Benito County, California. The existing Anzar Road Bridge is a 22-ft-wide by 40-ft-long, two-span, reinforced concrete slab structure with reinforced concrete wall piers and abutments. The bridge serves as a rural major collector (1464 ADT), connecting the east and west sides of U.S. Highway 101 (Figure 1). For purposes of this report, the Biological Study Area (BSA) extends approximately 830 ft along and adjacent to Anzar Road, across San Juan Creek (Figure 2).

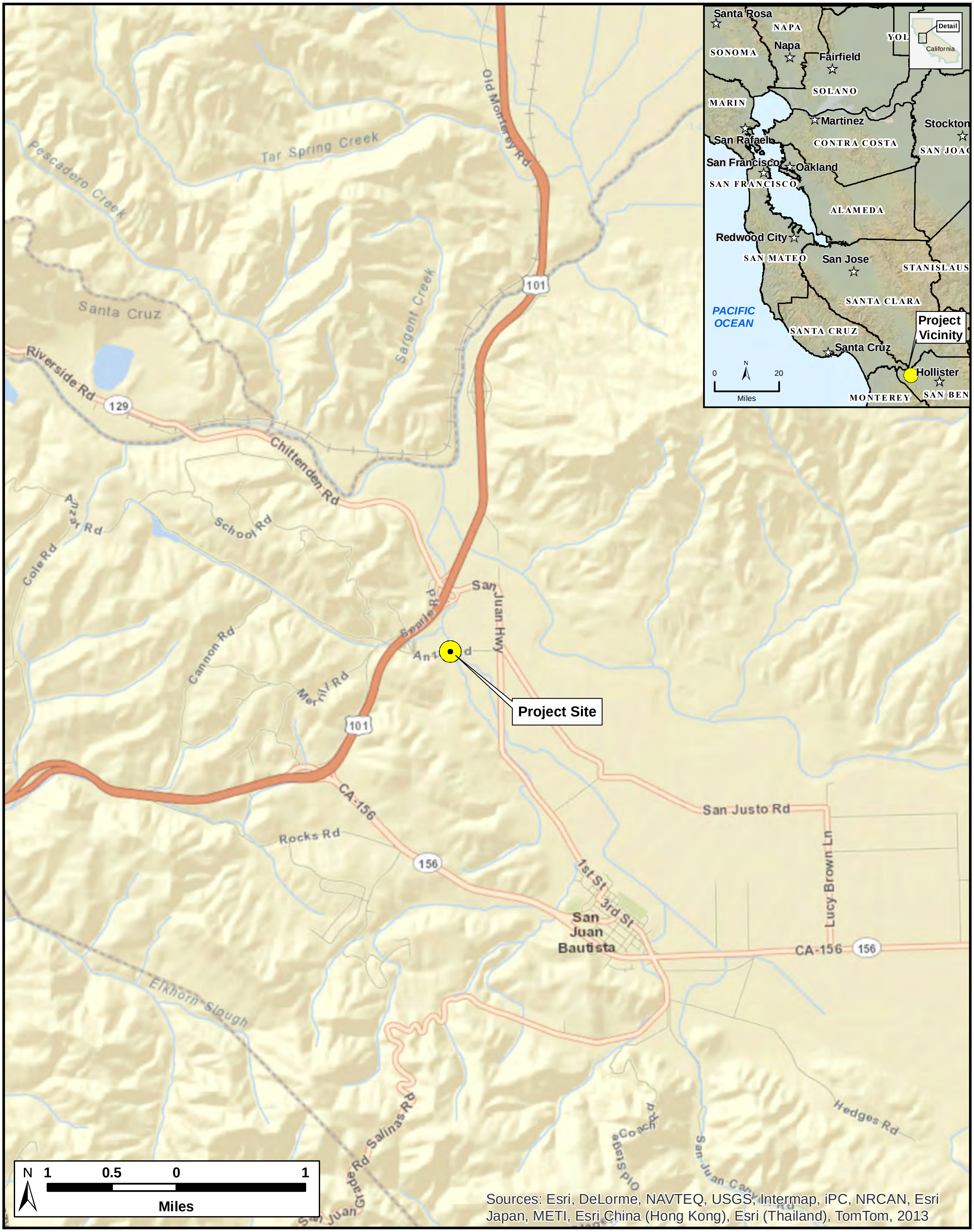
1.2.2. Project Components

The County of San Benito Public Works Department, in cooperation with Caltrans, proposes to replace the existing Anzar Road Bridge, with a new, two-lane structure. The bridge replacement will include the following project elements:

1) The existing functionally obsolete bridge will be replaced with a new bridge. The new bridge will consist of a single cast-in-place post-tensioned concrete slab, or a pre-cast pre-stressed voided slab superstructure supported on concrete abutment walls at each end. The new bridge will have a 32-ft clear width to accommodate two 12-ft-wide lanes and two 4-ft-wide shoulders. The new bridge will be approximately 42 ft in length and will have a road profile approximately 2 ft higher than that of the existing bridge.
2) The Project will also include approximately 390 ft of approach work on either side of the bridge, for a total of approximately 780 ft of roadway work. The existing roadway surface and road base will be removed and replaced with new materials.
3) The project will require relocation of some existing utilities and irrigation lines. The site will be excavated to a depth of approximately 15 feet for the bridge abutments, approximately six feet for relocation of an existing irrigation line, and three feet elsewhere within the roadway limits of work.
4) Due to scour and sediment deposition issues surrounding the abutments of the current bridge, the existing channel will be recontoured to stabilize the channel. In this process a scour hole near the western abutment and a sediment deposit supporting successional riparian scrub vegetation will both be removed. Additionally, the existing channel will be widened slightly so that there will be a small net increase in aquatic habitat under and adjacent to the bridge (Figure 2).

1.3. Project Construction

The Project will take place in one stage and will require complete closure of Anzar Road, from San Juan Highway west to McAlpine Lake and Park, during construction. Total construction time will not exceed 6 months. Approximately 6–7 driven precast concrete piles or drilled (cast-in-drilled-hole or CIDH) piles will be installed at each abutment adjacent to the creek. Pile depths will be less than 100 ft. There will be no pile installation within the top of creek banks and pile installation will take a total of

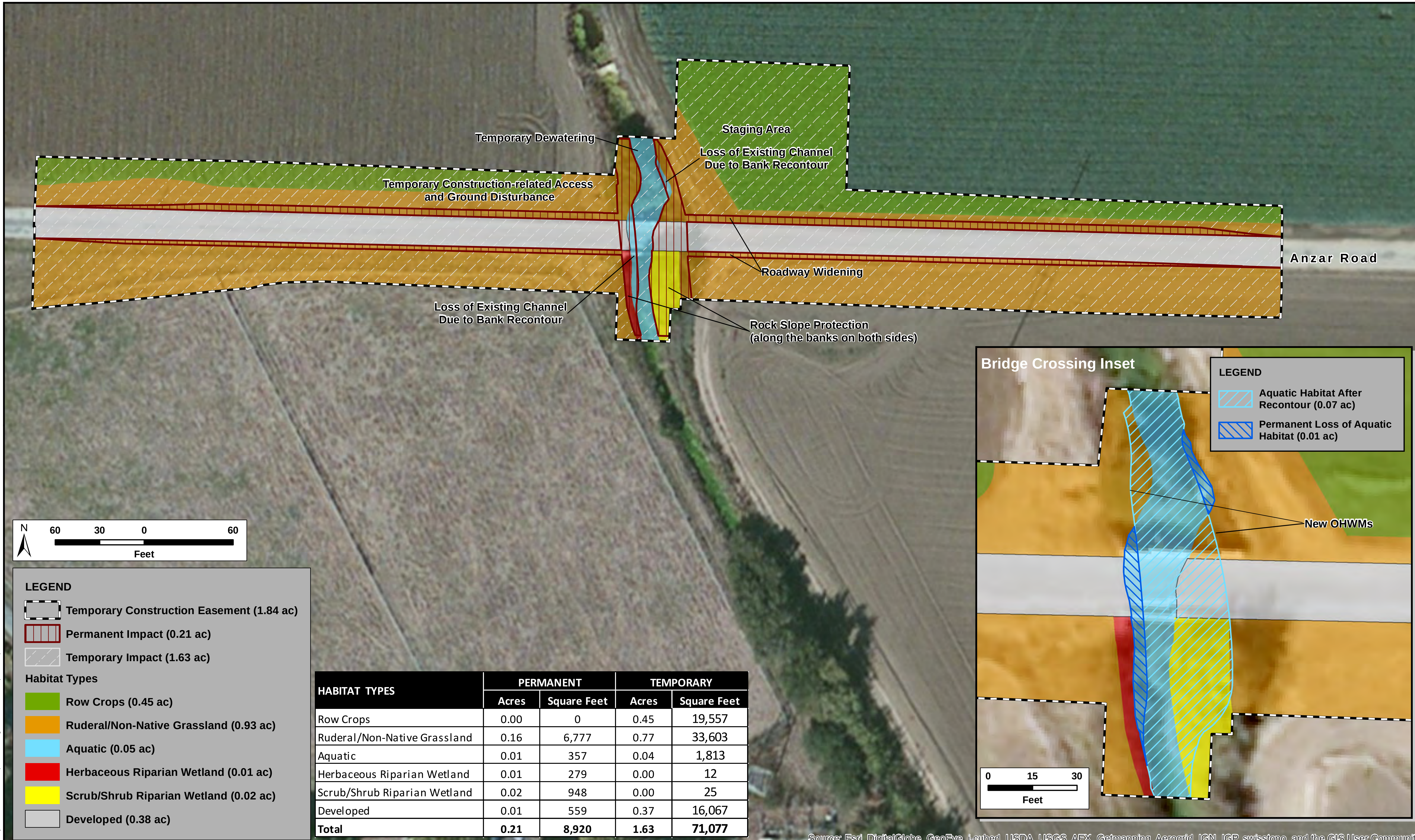


N:\Projects3300\3399-01\Reports\NES\Fig 1 Vicinity Map.mxd

H.T. HARVEY & ASSOCIATES
Ecological Consultants

Figure 1: Vicinity Map

Anzar Road Bridge Over San Juan Creek Project (3399-01)
May 2014



HABITAT TYPES	PERMANENT		TEMPORARY	
	Acres	Square Feet	Acres	Square Feet
Row Crops	0.00	0	0.45	19,557
Ruderal/Non-Native Grassland	0.16	6,777	0.77	33,603
Aquatic	0.01	357	0.04	1,813
Herbaceous Riparian Wetland	0.01	279	0.00	12
Scrub/Shrub Riparian Wetland	0.02	948	0.00	25
Developed	0.01	559	0.37	16,067
Total	**0.21**	**8,920**	**1.63**	**71,077**

H.T. HARVEY & ASSOCIATES
Ecological Consultants

Figure 2: Habitats and Impacts Map
Anzar Road Bridge Over San Juan Creek Project (3399-01)
May 2014

one week to complete. The removal of existing piers, access, and recontouring will require the use of a temporary cofferdam and water diversion system to prevent debris from entering the creek and protect water quality within the watershed. Construction equipment used will include scrapers, dozers, loaders, excavators, a pile driver, flatbed trucks, concrete trucks, graders, a sheep foot, rollers, and an asphalt paver. All piledriving activities and work within the channel will be completed during the dry season from June 15 to October 15.

1.4. Project Funding and Schedule

The Project is funded by the Federal Highway Bridge Program using Highway Bridge Repair and Replacement Program Funds in cooperation with the San Benito County Public Works Department. The Project will take a maximum of 6 months to complete and is scheduled to begin in 2015. All work within the channel will be completed during the dry season from June 15 to October 15.

Chapter 2. Study Methods

2.1. Regulatory Requirements

The Project engineers (NV5) and Project planners (David J. Powers & Associates) provided H. T. Harvey & Associates with plans showing the proposed Project limits of work and a written description of Project actions. The BSA corresponds to the area of anticipated direct temporary and permanent construction effects for the Project (Figure 2). Based on the anticipated work activities, there are numerous regulatory requirements that would potentially affect the Project. Additional areas upstream and downstream of the BSA were inspected by Project biologists for habitat for wildlife species. For clarification, the entire BSA footprint may not ultimately be affected by the Project but for purposes of this report we reviewed potential impacts within the entire BSA. Biological resources that may occur within the BSA are regulated by the following:

2.1.1. Federal Endangered Species Act

The federal Endangered Species Act (FESA) protects listed wildlife species from harm or "take" which is broadly defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in any such conduct. Take can also include habitat modification or degradation that directly results in death or injury to a listed wildlife species. An activity can be defined as "take" even if it is unintentional or accidental. Listed plant species are provided less protection than listed wildlife species. Listed plant species are legally protected from take under FESA if they occur on federal lands or if the Project requires a federal action, such as a Clean Water Act Section 404 fill permit from the U.S. Army Corps of Engineers (USACE).

The U.S. Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS) have jurisdiction over federally listed, threatened and endangered species under the FESA. The USFWS also maintains lists of proposed and candidate species. Species on these lists are not legally protected under the FESA, but may become listed in the near future and are often included in their review of a Project.

Project Applicability: There is a very low probability that any federally listed animals occur within the BSA. However, the potential for occurrence of the federally threatened California tiger salamander (*Ambystoma californiense*) and California red-legged frog (*Rana draytonii*) cannot be ruled out. Likewise, although spawning habitat is not present and the creek would likely not present suitable habitat for the entire year, the federally threatened South-Central California Coast (SCCC) steelhead (*Oncorhynchus mykiss*) could occur in San Juan Creek. The habitat in the BSA is not suitable for the federally endangered least Bell's vireo (*Vireo bellii pusillus*), and thus this species is not expected to occur on the Project site. It is likely that incidental take approval from the USFWS will be needed due to the potential for the Project to result in take of the California tiger salamander and California red-legged frog. However, avoidance measures such as restricting any pile driving and work within the creek channel to the dry season from 15 June to 15 October is expected to avoid take of SCCC steelhead. Caltrans, with its delegated National Environmental Protection Act (NEPA) authority, is the lead federal agency for Section 7 consultation.

Seven federally listed plant species occur in the Project vicinity. However, many of these species only occur in chaparral, scrub, or prairie habitats with maritime/coastal climates. Other potentially occurring species can be found inland, but require specific site conditions (e.g. serpentine soils) not present in the BSA. Therefore, all federally listed plant species were determined to be absent from the BSA based on a lack of suitable habitat, soils, and/or elevations.

2.1.2. California Endangered Species Act

The California Endangered Species Act (CESA), California Fish and Game Code, Chapter 1.5, §§ 2050-2116, prohibits the take of any plant or animal listed or proposed for listing as rare (plants only), threatened, or endangered. In accordance with the CESA, the California Department of Fish and Wildlife (CDFW) has jurisdiction over state-listed species (Fish and Game Code § 2070). The CDFW regulates activities that may result in "take" of individuals listed under the Act (i.e., "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill"). Habitat degradation or modification is not expressly included in the definition of "take" under the Fish and Game Code. The CDFW, however, has interpreted "take" to include the "killing of a member of a species which is the proximate result of habitat modification."

Project Applicability: As discussed above, the potential for occurrence of the California tiger salamander, a state threatened species, on the Project site cannot be ruled out. It is therefore likely that incidental take approval from the CDFW would be needed due to the potential for the Project to result in take of this species. No other state listed wildlife species are expected to occur in the BSA.

Only one state listed plant species, Santa Cruz tarplant (*Holocarpha macradenia*), occurs in the Project vicinity. However, Santa Cruz tarplant occurs in coastal areas with sandy or sandy clay soil and has never been found in San Benito County. Therefore, it is presumed absent from the BSA.

2.1.3. Magnuson-Stevens Fishery Conservation and Management Act

The Magnuson-Stevens Fishery Conservation and Management Act governs all fishery management activities that occur in federal waters within the United States 200 nautical mi limit. The Act establishes eight Regional Fishery Management Councils responsible for the preparation of fishery management plans to achieve the optimum yield from U.S. fisheries in their regions. These councils, with assistance from the NMFS, establish Essential Fish Habitat (EFH) in fishery management plans for all managed species. Federal agencies that fund, permit, or implement activities that may adversely affect EFH are required to consult with NMFS regarding potential adverse effects of their actions on EFH, and respond in writing to recommendations by NMFS.

Project Applicability: No fish regulated by any fishery management plan are present in the Project reach of San Juan Creek. Therefore, no EFH is present within the BSA.

2.1.4. Clean Water Act and California Water Quality Laws

Under Section 404 of the Clean Water Act, the USACE is responsible for regulating the discharge of fill material into waters of the United States. Waters of the U.S. and their lateral limits are defined in 33 Code of Federal Regulations (CFR) Part 328.3 (a) and include streams that are tributary to navigable waters up to the ordinary high water (OHW) mark and their adjacent wetlands. Wetlands that are not adjacent to waters of the U.S. are termed “isolated wetlands” and, depending on the circumstances, may also be subject to USACE jurisdiction. In tidal waters, USACE jurisdiction under Section 404 extends landward to the upper limit of coastal wetland vegetation or the high tide line (HTL), whichever is greater.

Under the Porter-Cologne Water Quality Control Act, the State Water Resources Control Board has the ultimate authority over State water rights and water quality policy. However, Porter-Cologne also establishes nine Regional Water Quality Control Boards (RWQCB) to oversee water quality on a day-to-day basis.

Pursuant to Section 401 of the federal Clean Water Act, projects that are regulated by the USACE must obtain water quality certification from the RWQCB. This certification ensures that the Project will uphold state water quality standards. The RWQCB may impose mitigation requirements even if the USACE does not.

Project Applicability: Jurisdiction of the USACE and RWQCB includes San Juan Creek, up to the OHW mark on each bank, and extends laterally to include adjacent wetlands on both banks of the creek (Figure 2). The OHW mark and adjacent wetland boundaries were delineated in the field based on USACE guidelines. The OHW mark was identified by drift deposits, changes in vegetation cover, and changes in slope. The wetland boundaries were delineated using the standard USACE three parameter approach that includes vegetation, soils, and hydrology (see Appendix A for additional details). It is likely that Project effects will be covered under one or more USACE Section 404 Nationwide Permits (NWPs) such as NWP 14 (Linear Transportation Crossings). Notification to the USACE for a NWP will be required, as will an application for 401 Certification from the RWQCB.

2.1.5. Federal Migratory Bird Treaty Act

The federal Migratory Bird Treaty Act (MBTA), 16 U.S.C. § 703, prohibits killing, possessing, or trading of migratory birds except in accordance with regulations prescribed by the Secretary of the Interior. This act encompasses whole birds, parts of birds, and bird nests and eggs. Most native bird species are covered by this Act. In addition, Title 50 CFR Part 10 protects nesting birds.

Project Applicability: All native bird species within the BSA are covered by this Act. As described in Section 4.3, the Project incorporates measures to avoid effects on nesting birds to comply with the MBTA and 50 CFR Part 10.

2.1.6. California Fish and Game Code

The California Fish and Game Code includes regulations governing the use of, or impacts on, many of the state's fish, wildlife, and sensitive habitats. The CDFW exerts jurisdiction over the bed and banks of rivers, lakes, and streams according to provisions of §§1601 - 1603 of the Fish and Game Code. The Fish and Game Code requires a Streambed Alteration Agreement for the fill or removal of material within the bed and banks of a watercourse or waterbody and for the removal of riparian vegetation.

Certain sections of the Fish and Game Code describe regulations pertaining to protection of certain wildlife species. For example, Fish and Game Code §2000 prohibits take of any bird, mammal, fish, reptile, or amphibian except as provided by other sections of the code. Fish and Game Code §§ 3503, 3513, and 3800 (and other sections and subsections) protects native birds, including their nests and eggs, from all forms of take. Disturbance that causes nest abandonment and/or loss of reproductive effort is considered "take" by the CDFW. Raptors (i.e., eagles, hawks, and owls) and their nests are specifically protected in California under the Fish and Game Code §3503.5. Section 3503.5 states that it is "unlawful to take, possess, or destroy any birds in the order Falconiformes or Strigiformes (birds of prey) or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by this code or any regulation adopted pursuant thereto."

Bats and other non-game mammals are protected by Fish and Game Code § 4150, which states that all non-game mammals or parts thereof may not be taken or possessed except as provided otherwise in the code or in accordance with regulations adopted by the commission. Activities resulting in mortality of non-game mammals (e.g., destruction of an occupied non-breeding bat roost, resulting in the death of bats) or disturbance that causes the loss of a maternity colony of bats (resulting in the death of young) may be considered "take" by the CDFW.

Project Applicability: Any work within the stream channel of San Juan Creek, including areas within the bed and banks of San Juan Creek and adjacent wetlands, will require a Streambed Alteration Agreement from the CDFW per §1602 of the California Fish and Game Code. In addition, most native birds, mammals, reptiles, and amphibians in the Project area are protected by the Fish and Game Code. Chapter 4 describes measures that will be taken to avoid and minimize impacts to animals protected by the California Fish and Game Code.

2.1.7. California Streets and Highway Code (Barriers to Fish Passage)

California Streets and Highway Code § 156-156.4 requires that Caltrans complete an assessment of potential barriers to anadromous fish passage prior to commencing Project design, "for any Project using state or federal transportation funds programmed after 1 January 2006 if that Project affects a stream crossing on a stream where anadromous fish are, or historically were found".

Project Applicability: Although the Project crosses over a creek where anadromous fish may occur, the Project will not create a barrier to fish passage from its implementation, as it will not block or otherwise alter the low-flow channel. Rather, by raising the height of the bridge deck by 2 ft, the Project will improve the ability of the bridge to accommodate high flows, thereby improving conditions for fish passage.

2.1.8. State Senate Concurrent Resolution No. 17 — Oak Woodland Protection

State Senate Concurrent Resolution No. 17 requires that all state agencies having land use planning duties assess and determine the effects of their land use decisions or actions within any oak woodland containing blue, Engelmann, valley or coast live oak that may be affected by their decisions or actions. For purposes of this measure, the term “oak woodlands” means a 5-acre (ac) circular area containing five or more oak trees per acre. The state agencies are required to preserve and protect native oak woodlands to the maximum extent feasible or provide replacement plantings where any of the oak trees listed above are removed from oak woodlands.

Project Applicability: Oak woodlands as defined by State Senate Resolution No. 17 do not occur within or adjacent to the Project site.

2.1.9. San Benito County Woodland Habitat Retention Ordinance

The San Benito County provides for the protection of woodland habitat based on a system of canopy retention (San Benito County Code, Chapter 32, Ordinance 757 §32.1-16). The reference standard for determining ordinance applicability and canopy retention standards required for a given parcel is the Baseline Retention Canopy Survey, a 1993 aerial photograph taken by the U.S. Department of Agriculture. The ordinance applies to all parcels covered by at least 10% woodland vegetation as of the 1993 photo and to parcels that currently or historically supported woody vegetation but were farmed at the time of the 1993 photo. Canopy levels will be determined using baseline canopy cover levels set from the 1993 photo. Canopy retention standards can be judged against either current canopy levels or levels set from the 1993 photo, whichever results in a higher final canopy cover percentage. Additional protection is granted to trees growing on slopes greater than or equal to 30%. “Trees” include all native, non-native, and orchard species. However, cultivated trees, such as nursery stock or Christmas trees, are specifically exempt from this ordinance as long as their cultivated status is retained. The canopy retention standards will be applied in a manner that maximizes undisturbed woodlands in preference to retention of individual trees.

Project Applicability: The creek parcels within the BSA primarily support grassland habitats and are not subject to the woodland ordinance based on the 1993 Baseline Canopy coverage values. Only one isolated tree will be removed by the Project.

2.1.10. National Invasive Species Council Executive Order

On 3 Feb 1999, Executive Order 13112 was signed establishing the National Invasive Species Council. The Executive Order requires that a Council of Departments dealing with invasive species be created. It states:

“By the authority vested in me as President by the Constitution and the laws of the United States of America, including the NEPA of 1969, as amended (42 U.S.C. 4321 et seq.), Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990, as amended (16 U.S.C. 4701 et seq.), Lacey Act, as amended (18 U.S.C. 42), Federal Plant Pest Act (7 U.S.C. 150aa et seq.), Federal Noxious Weed Act of 1974, as amended (7 U.S.C. 2801 et seq.), Endangered Species Act of 1973, as amended (16 U.S.C. 1531 et seq.), and other pertinent statutes, to prevent the introduction of invasive species and provide for their control and to minimize the economic, ecological, and human health effects that invasive species cause.”

Project Applicability: Several non-native, invasive species occur in the BSA. Of these, fennel (*Foeniculum vulgare*) is the most abundant, and is rated as having severe ecological impact by the California Invasive Plant Council. While the proposed Project is unlikely to introduce new weeds, the spread of existing weeds will be avoided by implementing specific weed control measures further discussed in *Section 5.5 Invasive Species*. In any areas that will be cleared or disturbed for temporary use, including the banks of the creek, all non-native plant material will be destroyed, taking care to eliminate any method of seed dispersal (including entry into the creek). Additionally, all machinery will be washed prior to leaving the Project area.

2.1.11. Executive Order 11988, Floodplain Management

Executive Order 11988, dated 24 May 1977, "Floodplain Management", establishes a national policy "to avoid to the extent possible the long and short term adverse impacts associated with the occupancy and modification of floodplains and to avoid direct or indirect support of floodplain development wherever there is a practicable alternative." The order further provides that each agency shall provide leadership and shall take action to reduce the risk of flood loss, to minimize the impact of floods on human safety, health and welfare, and to restore and preserve the natural and beneficial values served by floodplains in carrying out the agency's responsibilities for (1) acquiring, managing, and disposing of federal lands and facilities, (2) providing federally undertaken, financed, or assisted construction and improvements, and (3) conducting federal activities and programs affecting land use, including but not limited to water and related land resources planning, regulating, and licensing activities. Executive Order 11988 applies to federally funded projects occurring within the 100-year floodplain or critical actions within the 500-year floodplain. “Critical actions” are defined as activities for which even a slight chance of flooding is too great a risk.

Project Applicability: The entire BSA lies within the 25-year floodplain, as defined by the Federal Emergency Management Agency (FEMA 2009). Hydraulic modeling indicates that the existing Anzar Road Bridge can pass a 2-year storm event with a freeboard of 0.7 ft (NV5 2012). Upgrading the Anzar Road Bridge to convey a 50-year or 100-year storm event would require substantial excavation (NV5 2012). Although this type of excavation is not feasible, the new Anzar Road Bridge has been designed to improve existing conditions without excavation by modifying the existing bridge geometry. The new bridge will have a soffit elevation that is approximately 2 ft higher than the existing bridge and will be able to accommodate a 5-year storm event. As repairs to existing bridge structures, the Project is not expected to represent a critical action as defined by the Order. While a small amount of supporting rock slope protection (RSP) will be placed within the 100-year floodplain with each abutment, this fill and RSP has been designed to withstand expected channel scour, to not affect scour of the channel in other areas, to not affect water levels within the floodplain, and to prevent erosion of the banks. Further, the proposed bridge has been designed to minimize floodplain impacts to the greatest extent feasible. Therefore, the proposed Project will not result in the substantial or adverse modification of any floodplain. Similarly, the Project does not directly or indirectly support further development within this floodplain.

2.2. Studies Required

For the purposes of this report, the BSA was delineated as an area that includes all areas and features that may be affected by the Project, defined as per the plans provided by David J. Powers & Associates and NV5 (February 2013). The BSA includes approximately 1.84 ac.

2.2.1. Survey and Mapping Methods

H. T. Harvey & Associates biologists surveyed the BSA and adjacent areas to describe biotic habitats within the Project boundaries, to identify plants and animals found or likely found on the site, and to survey for suitable habitat for special-status plant and animal species.

All biotic habitats were mapped within the BSA onto an aerial photograph base (Figure 2). Where appropriate, plant communities were named according to Holland's system of classification (1986) or Sawyer et al (2008). Habitat acreages were calculated for all habitat types within the BSA using computer-aided design (CAD) mapping and geographic information systems (GIS).

Habitats may be considered to be sensitive if they are limited in distribution, are regulated (i.e., by the Clean Water Act), or provide habitat for a sensitive species in this region. Reconnaissance-level surveys were deemed adequate to assess the effects of the Project on biological resources for the purposes of this NES.

2.2.2. Resources Reviewed

To develop a list of species and habitats of concern that may occur in the Project region, H. T. Harvey & Associates biologists collected and reviewed information concerning special-status species and habitats of concern from several sources. These sources included Rarefind data (California Natural Diversity Database [CNDDB] 2012) for the *Chittenden* U.S. Geological Survey (USGS) 7.5-minute quadrangle map in which the Project area occurs and the surrounding eight quadrangles including *Mt. Madonna, Gilroy, Gilroy Hot Springs, Watsonville East, San Felipe, Prunedale, San Juan Bautista,* and *Hollister*. Records within the Project vicinity for special-status plants and animals, as well as communities of concern tracked by CNDDB, are shown in Figure 3. Other information reviewed included California Wildlife Habitat Relationships, as well as various technical publications available through the USFWS, the CDFW, and other sources.

2.2.2.1. CALIFORNIA ENVIRONMENTAL QUALITY ACT

Section 15380(b) of the California Environmental Quality Act (CEQA) Guidelines provides that a species not listed on the federal or state lists of protected species may be considered rare if the species can be shown to meet certain specified criteria. These criteria have been modeled after the definitions in FESA and CESA and the sections of the state Fish and Game Code dealing with rare or endangered plants or animals. This section was included in the guidelines primarily to deal with situations in which a public agency is reviewing a project that may have a substantial effect on a species that has not yet been listed by either the USFWS or the CDFW or species that are locally or regionally rare.

The CDFW has produced three lists (amphibians and reptiles, birds, and mammals) of "species of special concern" that serve as "watch lists." Species on these lists either are of limited distribution or the extent of their habitats has been reduced substantially, such that threat to their populations may be imminent. Thus, their populations will be monitored. They may receive special attention during environmental review as potential rare species, but do not have specific statutory protection.

All potentially rare or sensitive species, or habitats capable of supporting rare species, were considered for environmental review in this NES as per CEQA § 15380(b) (see Chapters 3 and 4).

2.2.2.2. USFWS Species List

H. T. Harvey & Associates biologists generated a list of special-status species potentially occurring in the *Chittenden* USGS 7.5-minute quadrangle (386A) via the internet (http://www.fws.gov/sacramento/es/spp_list.htm) using information from the Sacramento USFWS office on 7 May 2014 (Appendix B).

2.2.2.3. California Native Plant Society

The California Native Plant Society (CNPS), a non-governmental conservation organization, has developed lists of plant species of concern in California. Vascular plants included on these lists are defined as follows:

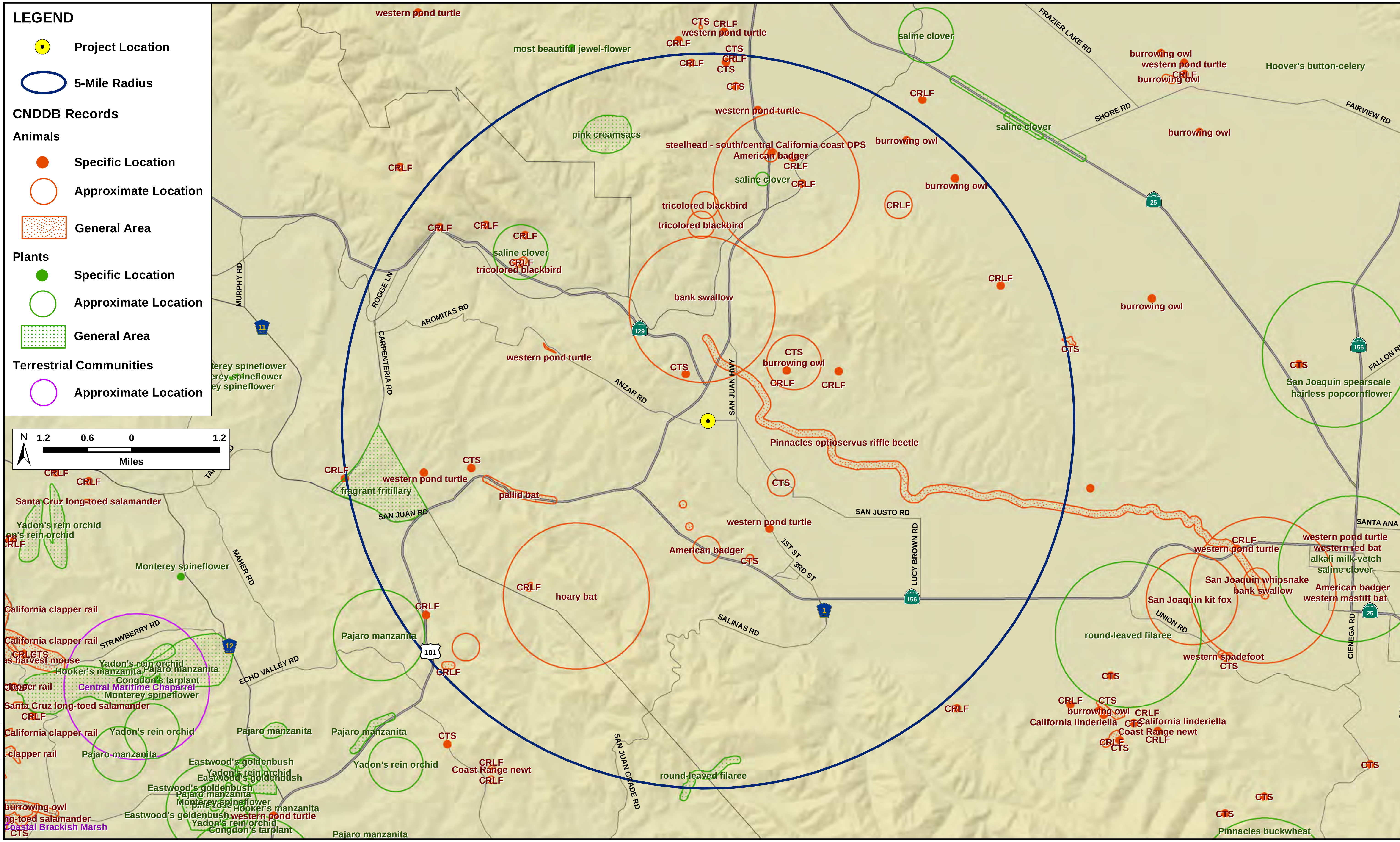
Rank 1A Plants considered extinct.
Rank 1B Plants rare, threatened, or endangered in California and elsewhere.
Rank 2A Plants considered extinct in California and elsewhere.

Rank 2B Plants rare, threatened, or endangered in California but more common elsewhere.
Rank 3 Plants about which more information is needed - review list.
Rank 4 Plants of limited distribution - watch list.

These CNPS rankings are further described by the following threat code extensions:

.1—seriously endangered in California.
.2—fairly endangered in California.
.3—not very endangered in California.

Although the CNPS is not a regulatory agency and plants on these lists have no formal regulatory protection, plants appearing on CNPS lists are, in general, considered to meet CEQA's § 15380 criteria (see Section 2.2.2.1 above), and adverse effects to these species may be considered substantial.



H.T. HARVEY & ASSOCIATES
Ecological Consultants

Figure 3: CNDDB Records

Anzar Road Bridge Over San Juan Creek Project (3399-01)
May 2014

The *Jepson Manual, Second Edition* (Baldwin *et al.* 2012) also supplied information regarding the distribution and habitats of CNPS Ranks of category 1A, 1B, 2A, 2B, 3, and 4 vascular plants in the *Chittenden* USGS 7.5-minute quadrangle, the eight surrounding quadrangles, and San Benito County in general.

All CNPS lists (http://cnps.web.aplus.net/cgi-bin/inv/inventory.cgi; accessed 28 June 2012 and other dates) and applicable records were consulted to determine the probability of occurrence for all special-status plant species within the Project BSA. These lists were combined with the USFWS lists, the CNDDB records from within the nine-quadrangle area, and all other sources to create an initial list of potentially occurring special-status plant species within the BSA.

2.3. Personnel and Survey Dates

This report was prepared by the following personnel at H. T. Harvey & Associates:

Patrick Boursier, Ph.D., Principal, Senior Plant Ecologist
Steve Rottenborn, Ph.D., Division Head, Senior Wildlife Ecologist
Kelly Hardwicke, Ph.D., Project Manager, Senior Plant Ecologist/Wetland Specialist
Matthew Timmer, M.S., Wildlife Ecologist
Chris Gurney, M.S., Plant Ecologist

2.3.1. Reconnaissance-level Surveys

P. Boursier, Ph.D., conducted a visit to the Project site on 16 May 2012. C. Gurney, M.S., conducted reconnaissance-level surveys of the BSA on 4 and 17 October 2012. In addition, M. Timmer, M.S., conducted a reconnaissance-level survey of the BSA on 8 January 2013. The purpose of these surveys was to: 1) assess existing biotic habitats, 2) assess the area for its potential to support special-status species and their habitats, 3) identify potential jurisdictional habitats, including Waters of the U.S., and 4) provide information for the initial Project impact assessment.

2.3.2. Waters of the U.S. and State Surveys

C. Gurney performed a jurisdictional delineation on the Project site on 4 October 2012 (Appendix A). Surveys determined that San Juan Creek, up to the OHW mark, is jurisdictional “other waters” habitat under Section 404 of the Clean Water Act. The OHW mark was determined using field indicators such as drift deposits, changes in vegetation cover, and changes in bank slope.

Additionally, two wetlands were identified adjacent to San Juan Creek, along the channel banks. For each wetland, data were recorded at a pair of sampling points, with one point located in the wetland and one point in the adjacent upland habitat. The wetland boundary line was delineated according to USACE guidelines using the three parameter approach based on the presence/absence of hydric vegetation, hydric soil indicators, and hydrology indicators. The presence of all three indicators is required for a positive wetland determination. Details regarding the wetland delineation can be found in the Preliminary Determination of Wetlands and Other Waters Report provided here as Appendix A.

2.3.3. Rare Plant Survey

Although Gairdner's yampah (*Perideridia gairdneri* ssp. *gairdneri*; CNPS Rank 4.2) is considered unlikely to occur on the Project site due to a history of intensive agricultural use in the vicinity, we could not confirm its absence based on lack of habitat suitability alone. However, this species blooms late in the year (June-October; CNPS 2013) and should have been identifiable in October. Therefore, we were able to conduct a focused survey for Gairdner's yampah on 17 October 2012. No evidence of Gairdner's yampah was observed and the species was confirmed absent from the Project site.

2.4. Agency Coordination and Professional Contacts

On 7 February 2013, H. T. Harvey & Associates principal wildlife ecologist Steve Rottenborn, Ph.D., contacted Joel Casagrande of NMFS to discuss the potential for steelhead to occur within San Juan Creek. NMFS knows of no records of steelhead within San Juan Creek, but concluded presence cannot be ruled out, and especially in a wet year steelhead may wander upstream from the San Benito River into the Project area.

2.5. Limitations That May Influence Results

With the exception of surveys for Gairdner's yampah, focused or presence/absence protocol-level surveys were not conducted for special-status plant and animal species for the preparation of this NES. Instead, reconnaissance-level surveys were conducted. In particular, only surveys of this level could be conducted for most special-status plant species as the October surveys were conducted outside of the blooming period of many special-status plant species that occur within the region. Therefore, results are based on assessments of habitat suitability for plant and wildlife species on and in the vicinity of the Project site. However, additional focused, species-specific surveys or surveys conducted during different times of year were not necessary to make determinations regarding potential presence or absence of special-status species given the conditions of this particular project and project site.

Chapter 3. Results: Environmental Setting

3.1. Description of the Existing Biological and Physical Conditions

3.1.1. Study Area

The Project site is located on the *Chittenden* U.S. Geological Survey (USGS) 7.5-minute quadrangle in San Benito County (Figure 1). The BSA shown in Figure 2 encompasses all areas and features that may be temporarily or permanently affected by the Project.

The BSA comprises approximately 1.84 ac along Anzar Road, 0.5 mi east of U.S. Highway 101 and 2 mi northwest of downtown San Juan Bautista. The BSA is surrounded on all four sides by agricultural fields in various stages of production. Fields to the north are planted in row crops and are intensively managed, while fields to the south are fallow and are dominated by weedy annual grasses and forbs.

3.1.2. Physical Conditions

Elevations in the BSA range from approximately 145 ft National Geodetic Vertical Datum (NGVD) in San Juan Creek to 154 ft NGVD on the adjacent banks. Topography on the site is flat, with the exception of the steeply sloping creek banks. The site has an estimated mean annual temperature of 59°F) and an estimated mean annual precipitation of 19.86 inches (PRISM Climate Group 2012).

Only one soil type, Sorrento silty clay loam (0 to 2 percent, %, slopes), underlies the BSA. This soil type is classified as a hydric soil on the National List of Hydric Soils (NRCS 2012). It is well-drained, has an available water holding capacity of about 10 to 12 inches, and has moderately slow permeability (SCS 1969).

The USFWS, as part of the National Wetland Inventory Program (NWI), has mapped aquatic resources for the study area and surrounding regions. Although no features are mapped within the BSA, two wetland types have been mapped in the immediate vicinity of the site, approximately 200 ft south of Anzar Road. These two freshwater wetland types include: (1) palustrine emergent permanently flooded and excavated wetlands, and (2) palustrine scrub-shrub permanently flooded and excavated wetlands.

3.1.3. Biological Conditions in the Biological Study Area

We identified six biotic habitats within the approximately 1.84-ac BSA (Figure 2): scrub/shrub riparian wetland (0.02 ac), herbaceous riparian wetland (0.01 ac), aquatic (0.05 ac), row crops (0.45 ac), non-native/ruderal grassland (0.93 ac), and developed (0.38 ac). Appendix B provides a list of all plant species identified within or directly adjacent to the BSA.

3.1.3.1. Scrub/shrub Riparian Wetland

Vegetation. Scrub/shrub riparian wetland covers 0.02 ac in the BSA (Photo 1). This wetland is located on a low-lying terrace adjacent to the eastern OHW mark of San Juan Creek, and to the south of Anzar Road. The terrace is likely inundated for much of the wet season, during periods of high flow in San Juan Creek, and is likely seep fed during the dry season. Woody plant species including willow (*Salix* spp.) saplings and shrubs are the dominant vegetation. Only one willow is tree sized, with a dbh (diameter at breast height) of approximately 8-10 inches. The herbaceous understory is composed primarily of obligate and facultative wetland species including water smartweed (*Persicaria amphibia*), fat-hen (*Atriplex prostrata*), and poison hemlock (*Conium maculatum*).

Wildlife. Typically, riparian habitats in California are exceptionally productive habitats, offering high habitat value for a wide array of wildlife species and contributing disproportionately to landscape-level biodiversity. The presence of water and abundant invertebrate fauna provide foraging opportunities for many species. However, the low growing and relatively sparse stringer of riparian habitat along San Juan Creek in the BSA lacks the diverse habitat structure that typically provides cover and nesting opportunities for riparian associated birds. Song sparrows (*Melospiza melodia*) and red-winged

Photo 1. Scrub/shrub riparian wetland habitat (left bank) and herbaceous riparian wetland habitat (right bank); view looking south from Anzar Road Bridge.

blackbirds (*Agelaius phoeniceus*) may nest in the sparse riparian habitat on the site, and a variety of birds nesting in nearby trees may forage on the site, but the absence of larger, denser trees precludes the presence of a diverse nesting bird community. During migration and in winter, white-crowned sparrows (*Zonotrichia leucophrys*), golden-crowned sparrows (*Zonotrichia atricapilla*), and Lincoln's sparrows (*Melospiza lincolnii*) forage in this habitat.

Low-growing shrubs and forbs and sticks, logs, and other plant debris left behind by the receding stream in spring and summer provide refugia for slender salamanders (*Batrachoseps spp.*), western toads (*Anaxyrus boreas*), and Pacific chorus frogs (*Pseudacris regilla*). The riparian corridor also provides suitable habitat for a variety of mammalian species. Medium and large-sized mammals such as raccoons (*Procyon lotor*), striped skunks (*Mephitis mephitis*), and gray fox (*Urocyon cinereoargenteus*) forage in and disperse through the riparian zone.

3.1.3.2. Herbaceous Riparian Wetland

Vegetation. Herbaceous riparian wetland covers 0.01 ac in the BSA (Photo 1). This wetland is located on the western bank of San Juan Creek, to the south of Anzar Road. Topography in this wetland slopes steeply down from the top of bank, before leveling off near the OHW mark. Most of this area is never inundated, due to the steep slopes and relatively high elevations, but is instead seep fed. Vegetation in this wetland is composed of a diverse community of herbaceous hydrophytic plants. Species composition was arranged roughly in parallel bands corresponding to moisture gradients. Immediately adjacent to the creek, water smart weed, fat-hen, and willowherb (*Epilobium ciliatum*) were dominant. Further up-slope, facultative species including wild licorice (*Glycyrrhiza lepidota*) and stinging nettle (*Urtica dioica*) became more abundant.

Wildlife. The small patches of herbaceous riparian wetland within the BSA may support amphibian species like those in the scrub/shrub riparian wetland described above in Section 3.1.3.1. The vegetation is too short and limited to host most nesting birds, although song sparrows may nest in this vegetation, and birds nesting elsewhere in the Project area may forage in this habitat on occasion. Small mammals may forage on the freshwater vegetation as well.

3.1.3.3. Aquatic

Photo 2. Disturbed aquatic habitat located to the north of Anzar Road Bridge.

Vegetation. Approximately 0.05 ac of aquatic habitat occurs in the BSA (Photo 2). The creek was flowing during the time of surveys in early October 2012, prior to any winter rains occurring, indicating the creek's hydrology is supported by groundwater. This habitat is sparsely vegetated with aquatic plants including watercress (*Nasturtium officinale*) and ditch grass (*Ruppia cirrhosa*). The creek is mud-bottomed in this reach.

Wildlife. The low-gradient, turbid water of San Juan Creek in the BSA may support native fish species such as the hitch (*Lavinia exilicauda*) and Sacramento blackfish (*Orthodon microlepidotus*), and introduced species such as the mosquitofish (*Gambusia affinis*). Central California Coast steelhead are not known from this creek; however, the aquatic habitat within the Project is suitable for dispersal during months and years when flows are sufficient. Mammals such as the raccoon, striped skunk, gray fox, and nonnative opossum that use other habitats within the riparian corridor may forage in the aquatic habitat within the BSA. Mallards (*Anas platyrhynchos*), great blue herons (*Ardea herodias*), and great egrets (*Ardea alba*) forage in this reach of creek on occasion.

3.1.3.4. Row Crops

Photo 3. Row crop habitat on both sides of San Juan Creek to the north of Anzar Road Bridge.

Vegetation. Approximately 0.45 ac of intensively managed row crops are present in the BSA (Photo 3).

Wildlife. The row crop habitat within the BSA has limited habitat value to wildlife because of regular disking and disturbance to the soil and the monoculture of plants. A variety of birds may occasionally forage in these fields, and terrestrial animals such as mammals, reptiles, and amphibians may move through these habitats, but the row crops on the site are not expected to be used heavily by any wildlife.

3.1.3.5. NON-NATIVE/RUDERAL GRASSLAND

Vegetation. Approximately 0.93 ac of developed/ruderal grassland habitat occurs in the BSA (Photo 4). The dominant species within this habitat are almost all non-native, invasive species and include fennel (*Foeniculum vulgare*), bristly ox-tongue (*Helminthotheca echioides*), wild radish (*Raphanus sativus*), wild oats (*Avena fatua*), and short-podded mustard (*Hirschfeldia incana*).

Photo 4. Non-native/ruderal grassland habitat to the southeast of Anzar Road Bridge.

Wildlife. Most of the wildlife species found in the ruderal grassland habitat in the BSA are common, widespread species associated with disturbed habitats. This habitat may support reptiles such as western fence lizards (*Sceloporus occidentalis*), gopher snakes (*Pituophis melanoleucus*), and common garter snakes (*Thamnophis sirtalis*). Raptor species such as the white-tailed kite (*Elanus leucurus*) and red-tailed hawk (*Buteo jamaicensis*) and songbirds such as the house finch (*Carpodacus mexicanus*) and lesser goldfinch (*Carduelis psaltria*) forage in ruderal grassland habitat. Mammalian species that use these habitats include the deer mouse (*Peromyscus maniculatus*), California mouse (*Peromyscus californicus*), and broad-footed mole (*Scapanus latimanus*).

3.1.3.6. DEVELOPED

Vegetation. Developed areas in the BSA include the roadway and bridge structure (Photo 5). These areas are paved and support no vegetation.

Wildlife. The paved roadway within the BSA serves as wildlife habitat only in a very limited capacity. The road is likely to be used by wildlife during movements back and forth across the road, and reptiles such as western fence lizards and gopher snakes

Photo 5. Developed habitat in the BSA includes the existing roadway and bridge.

may bask on the road surface in order to raise their body temperature. The existing bridge within the BSA offers some structure for nesting birds such as black phoebes (*Sayornis nigricans*) and cliff swallows (*Petrochelidon pyrrhonota*), and evidence of old nests of both species were observed on the bridge during the site visit. The concrete on the underside of the bridge is devoid of cracks and crevices, rendering it unsuitable for daytime roosting by bats.

3.2. Regional Species and Habitats of Concern

3.2.1. Overview and Methods

The BSA is dominated by developed, non-native/ruderal grassland, and row crop habitats that support few sensitive resources. However, it also includes a small portion of San Juan Creek and associated riparian and wetland habitats (Figure 2). Effects to sensitive riparian wetlands and aquatic habitats are undesirable, and as such, Project plans and Best Management Practices (BMPs) have been carefully developed to minimize direct and indirect effects on these habitat types within the BSA.

Special-status plant and wildlife species that occur in the Project region are presented in Table 2. Those species for which potential habitat is present in the BSA are noted and are discussed in further detail in Sections 4.2 and 4.3. Natural communities of special concern are discussed in Section 4.1.

3.2.2. Special-status Plant Species

As mentioned above, special-status plants considered for occurrence within the BSA are listed in Table 1. CNDDB records of special-status plants within the vicinity of the BSA are shown in Figure 3.

Many of the special-status plant species that occur in the region are associated with habitats, soils, or climatic conditions that do not occur within the BSA. For example, many special status plant species occur only in chaparral, woodland, or forest

Table 1: Potential for Special-status Species and Critical Habitat to Occur in the BSA.

Common Name	Scientific Name	Status	General Habitat Description	Habitat/ Species Present/ Absent	Rationale
Federal or State Endangered or Threatened Species					
Monterey spineflower	*Chorizanthe pungens* var. *pungens*	FT, CNPS Rank 1B.2	Chaparral (maritime), cismontane woodland, coastal dunes, coastal scrub, valley and foothill grassland/sandy; 10-1500ft.	A	No suitable coastal habitat with sandy soils present; presumed absent from San Benito County (CNPS 2013).
Robust spineflower	*Chorizanthe robusta* var*. robusta*	FE, CNPS Rank 1B.1	Chaparral (maritime), cismontane woodland (openings), coastal dunes, coastal scrub/sandy or gravelly; 10-1000ft.	A	No suitable chaparral, woodland, dune or scrub habitat present; presumed absent from San Benito County (CNPS 2013).
Santa Clara Valley dudleya	*Dudleya abramsii* ssp*. setchellii*	FE, CNPS Rank 1B.1	Cismontane woodland, valley and foothill grassland/serpentinite, rocky; 200-1500ft.	A	Lack of serpentine soils; out of elevation range; presumed absent from San Benito County (CNPS 2013).
Santa Cruz tarplant	*Holocarpha macradenia*	FT, SE, CNPS Rank 1B.1	Coastal prairie, coastal scrub, valley and foothill grassland/often clay, sandy; 30-700ft.	A	No suitable coastal habitat with sandy soils present; presumed absent from San Benito County (CNPS 2013).
Yadon's rein orchid	*Piperia yadonii*	FE, CNPS Rank 1B.1	Coastal bluff scrub, closed-cone coniferous forest, chaparral (maritime)/sandy; 30-1700ft.	A	No suitable coastal scrub, forest, or chaparral habitat present; presumed absent from San Benito County (CNPS 2013).
Metcalf Canyon jewel-flower	*Streptanthus albidus* ssp*. albidus*	FE, CNPS Rank 1B.1	Valley and foothill grassland (serpentinite); 150-2600ft.	A	Lack of serpentine soils; presumed absent from San Benito County (CNPS 2013).
Two-fork clover	*Trifolium amoenum*	FE, CNPS Rank 1B.1	Coastal bluff scrub, valley and foothill grassland(sometimes serpentinite); 20-1400ft.	A	No suitable coastal scrub or grassland habitat present; presumed extirpated south of SF Bay (CNPS 2013).
Bay checkerspot butterfly	*Euphydryas editha bayensis*	FT	Serpentine grasslands in the San Francisco Bay area where host plant (Plantago erecta) is present.	A	No suitable habitat on-site; no serpentine soils present. Out of range; not recorded south of San Martin, CA.
South-Central California Coast steelhea	*Oncorhynchus mykiss*	FT	Cool streams that reach the ocean and that have shallow, partially shaded pools, riffles, and runs	HP (no CH)	Steelhead are not known to occur in San Juan Creek, but there are no barriers to their movement into the BSA; San Juan Creek is not within critical habitat for this species (NMFS 2005), but critical habitat is designated in the San Benito and Pajaro Rivers approximately 1 mi downstream of the BSA.

Common Name	Scientific Name	Status	General Habitat Description	Habitat/ Species Present/ Absent	Rationale
California tiger salamander	*Ambystoma californiense*	FT, ST	Vernal or temporary pools in annual grasslands or open woodlands	HP (no CH)	Several CNDDB (2013) records in the vicinity of the BSA, with the closest record approximately 0.70 mi away to the northwest, indicate presence in the vicinity; a seasonal stock pond 1.1 mi to the south of the BSA provides potentially suitable breeding habitat. Very low numbers of individuals may occur in the BSA owing to distance from suitable breeding habitat, disturbance associated with agricultural land uses, and the very low abundance of upland refugia in the BSA, but occasional occurrence by small numbers of dispersants cannot be ruled out.
California red-legged frog	*Rana draytonii*	FT, CSSC	Slow-moving streams, freshwater pools and ponds with overhanging vegetation	HP (no CH)	Known to occur in the vicinity; closest CNDDB (2013) record is 1.3 mi to the northeast; there are no pools with emergent vegetation or other egg-mass attachment sites in or immediately adjacent to the BSA. Occurrence in the BSA is unlikely owing to distance from suitable habitat and disturbance (including water-quality impacts in San Juan Creek) associated with agricultural land uses, but occasional occurrence by small numbers of dispersants cannot be ruled out.
Marbled murrelet	*Brachyramphus marmoratus*	FT, SE	Requires dense, mature forests of redwood and Douglas-fir for breeding.	A	No suitable habitat present within the BSA; outside of known range; determined to be absent.
California least tern	*Sterna antillarum browni*	FE, SE, SP	Nests along the coast on bare or sparsely vegetated, flat substrates. In S.F. Bay, nests in salt pannes and on an old airport runway. Forages for fish in open waters.	A	No suitable habitat present within the BSA; outside of known range; determined to be absent.
Bank swallow	*Riparia riparia*	ST	Nests in burrows in steep stream banks or similar earth cliffs.	A	Found nesting near Chittenden Pass along the Pajaro River northwest of the BSA in 1931; long since extirpated as a breeding species from the area. May occur as an occasional migrant.

Common Name	**Scientific Name**	**Status**	**General Habitat Description**	**Habitat/ Species Present/ Absent**	**Rationale**
Least Bell's vireo	*Vireo bellii pusillus*	FE, SE	Dense, well-developed willow and cottonwood- dominated riparian habitat, primarily in low, flat valleys.	A	No suitable breeding habitat due to the lack of vertical complexity of the riparian vegetation and lack of dense vegetation in the lower strata in many areas; Project site is at the edge of historical range; determined to be absent.
Willow flycatcher	*Empidonax traillii*	SE	Breeds in riparian habitats in Central Valley and mountains	A	Uncommon migrant in riparian habitats; any migrant willow flycatchers occurring on the site are likely from breeding populations outside the state, and thus would not be considered representatives from the state or federally listed California populations.
San Joaquin kit fox	*Vulpes macrotis mutica*	FE, ST	Flat or gently sloping grasslands on the margins of the San Joaquin Valley and adjacent valleys.	A	No suitable habitat present; outside of known range; determined to be absent.
CNPS-listed Plant Species					
Santa Clara thorn-mint	*Acanthomintha lanceolata*	CNPS Rank 4.2	Chaparral (often serpentinite), cismontane woodland, coastal scrub/rocky; 260-3900 ft.	A	No suitable chaparral, woodland, or scrub habitat present; lack of serpentine soils; out of elevation range.
San Benito thorn-mint	*Acanthomintha obovata* ssp. *obovata*	CNPS Rank 4.2	Chaparral, cismontane woodland, valley and foothill grassland/heavy clay, alkaline, serpentinite; 1300-4900 ft.	A	Lack of serpentine or heavy clay soils; out of elevation range.
Douglas' fiddleneck	*Amsinckia douglasiana*	CNPS Rank 4.2	Cismontane woodland, valley and foothill grassland/Monterey shale, dry; 0-6400 ft.	A	No suitable woodland or grassland habitat present.
Forked fiddleneck	*Amsinckia furcata*	CNPS Rank 4.2	Cismontane woodland, valley and foothill grassland; 170-3300 ft.	A	No suitable woodland or grassland habitat present; out of elevation range.
California androsace	*Androsace elongata* ssp. *acuta*	CNPS Rank 4.2	Chaparral, cismontane woodland, coastal scrub, meadows and seeps, pinyon and juniper woodland, valley and foothill grassland; 490-3900 ft.	A	Out of elevation range.
Oval-leaved snapdragon	*Antirrhinum ovatum*	CNPS Rank 4.2	Chaparral, cismontane woodland, pinyon and juniper woodland, valley and foothill grassland/clay or gypsum, often alkaline; 660-3300 ft.	A	Lack of suitable clay or gypsum soils; out of elevation range.

Common Name	Scientific Name	Status	General Habitat Description	Habitat/ Species Present/ Absent	Rationale
Anderson's manzanita	*Arctostaphylos andersonii*	CNPS Rank 1B.2	Broadleafed upland forest, chaparral, north coast coniferous forest/openings, edges; 200-2500 ft.	A	No suitable forest or chaparral habitat present; out of elevation range.
Hooker's manzanita	*Arctostaphylos hookeri* ssp. *hookeri*	CNPS Rank 1B.2	Closed-cone coniferous forest, chaparral, cismontane woodland, coastal scrub/sandy; 280-1800 ft.	A	No suitable forest, chaparral, woodland, or coastal scrub habitat present; out of elevation range.
Pajaro manzanita	*Arctostaphylos pajaroensis*	CNPS Rank 1B.1	Chaparral (sandy); 100-2500 ft.	A	No suitable chaparral habitat present.
Kings Mountain manzanita	*Arctostaphylos regismontana*	CNPS Rank 1B.2	Broadleafed upland forest, chaparral, north coast coniferous forest/granitic or sandstone; 1000-2400 ft.	A	No suitable forest or chaparral habitat present; lack of suitable granitic or sandstone soils; out of elevation range.
Carlotta Hall's lace fern	*Aspidotis carlotta-halliae*	CNPS Rank 4.2	Chaparral, cismontane woodland/generally serpentinite; 330-4600 ft.	A	No suitable chaparral or woodland habitat present; lack of serpentine soils; out of elevation range.
Cleveland's milk-vetch	*Astragalus clevelandii*	CNPS Rank 4.3	Chaparral, cismontane woodland, riparian forest/serpentinite seeps; 660-4900 ft.	A	No suitable chaparral, woodland, or forest habitat present; lack of serpentine soils; out of elevation range.
Salinas milk-vetch	*Astragalus macrodon*	CNPS Rank 4.3	Chaparral (openings), cismontane woodland, valley and foothill grassland/sandstone, shale, or serpentinite; 820-3100 ft.	A	No suitable sandstone, shale, or serpentine soils; out of elevation range.
Alkali milk-vetch	*Astragalus tener* var. *tener*	CNPS Rank 1B.2	Playas, valley and foothill grassland (adobe clay), vernal pools/alkaline; 0-200 ft.	A	No suitable playa, grassland, or vernal pool habitat with strongly alkaline soils is present.
San Joaquin spearscale	*Atriplex joaquiniana*	CNPS Rank 1B.2	Chenopod scrub, meadows and seeps, playas, valley and foothill grassland/alkaline; 0-2700 ft.	A	No suitable scrub, meadow, playa, or grassland habitat with strongly alkaline soils is present.
Big-scale balsamroot	*Balsamorhiza macrolepis*	CNPS Rank 1B.2	Chaparral, cismontane woodland, valley and foothill grassland/sometimes serpentinite; 300-5100 ft.	A	No suitable chaparral or woodland habitat present; lack of serpentine soils; out of elevation range.
Western lessingia	*Benitoa occidentalis*	CNPS Rank 4.3	Chaparral, cismontane woodland, coastal scrub, valley and foothill grassland/clay or serpentinite; 1480-3500 ft.	A	No suitable chaparral or woodland habitat present; lack of serpentine soils; out of elevation range.

Common Name	**Scientific Name**	**Status**	**General Habitat Description**	**Habitat/ Species Present/ Absent**	**Rationale**
Round-leaved filaree	*California macrophylla*	CNPS Rank 1B.1	Cismontane woodland, valley and foothill grassland/clay; 50-3900 ft.	A	No suitable habitat is present. Soils are not heavy clays and grassland habitat is in a ruderal state due to routine disturbance from agricultural activities.
Club-haired mariposa lily	*Calochortus clavatus* var. *clavatus*	CNPS Rank 4.3	Chaparral, cismontane woodland, coastal scrub, valley and foothill grassland/usually serpentinite, clay, rocky; 250-4300 ft.	A	No suitable chaparral or woodland habitat present; lack of serpentine soils; out of elevation range.
Mt. Saint Helena morning-glory	*Calystegia collina* ssp. *oxyphylla*	CNPS Rank 4.2	Chaparral, lower montane coniferous forest, valley and foothill grassland/serpentinite; 920-3300 ft.	A	No suitable chaparral or forest habitat present; lack of serpentine soils; out of elevation range.
South Coast Range morning-glory	*Calystegia collina* ssp. *venusta*	CNPS Rank 4.3	Chaparral, cismontane woodland, valley and foothill grassland/serpentinite or sedimentary; 1390-4900 ft.	A	No suitable chaparral or woodland habitat present; lack of serpentine soils; out of elevation range.
Chaparral harebell	*Campanula exigua*	CNPS Rank 1B.2	Chaparral (rocky, usually serpentinite); 900-4100 ft.	A	No suitable chaparral habitat present; ack of serpentine or rocky soils; out of elevation range.
Pink creamsacs	*Castilleja rubicundula* ssp. *rubicundula*	CNPS Rank 1B.2	Chaparral (openings), cismontane woodland, meadows and seeps, valley and foothill grassland/serpentinite; 70-3000 ft.	A	No suitable chaparral or woodland habitat present; lack of serpentine soils.
Congdon's tarplant	*Centromadia parryi* ssp. *congdonii*	CNPS Rank 1B.2	Valley and foothill grassland (alkaline); 0-800 ft.	A	No suitable grassland habitat with strongly alkaline soils is present.
Hernandez spineflower	*Chorizanthe biloba* var. *immemora*	CNPS Rank 1B.2	Chaparral, cismontane woodland; 1970-2600 ft.	A	No suitable chaparral or woodland habitat present; out of elevation range.
Douglas' spineflower	*Chorizanthe douglasii*	CNPS Rank 4.3	Chaparral, cismontane woodland, coastal scrub, lower montane coniferous forest/sandy or gravelly; 180-5200 ft.	A	No suitable chaparral, woodland, scrub, or forest habitat present; out of elevation range.
Palmer's spineflower	*Chorizanthe palmeri*	CNPS Rank 4.2	Chaparral, cismontane woodland, valley and foothill grassland/rocky, serpentinite; 200-2300 ft.	A	No suitable chaparral or woodland habitat present; lack of serpentine and rocky soils; out of elevation range.
Potbellied spineflower	*Chorizanthe ventricosa*	CNPS Rank 4.3	Cismontane woodland, valley and foothill grassland/serpentinite; 210-4100 ft.	A	No suitable chaparral or woodland habitat present; lack of serpentine soils; out of elevation range.

Common Name	Scientific Name	Status	General Habitat Description	Habitat/ Species Present/ Absent	Rationale
Brewer's clarkia	*Clarkia breweri*	CNPS Rank 4.2	Chaparral, cismontane woodland, coastal scrub/often serpentinite; 710-3700 ft.	A	No suitable chaparral or woodland habitat present; lack of serpentine soils; out of elevation range.
Lewis' clarkia	*Clarkia lewisii*	CNPS Rank 4.3	Broadleafed upland forest, closed-cone coniferous forest, chaparral, cismontane woodland, coastal scrub; 100-2000 ft.	A	No suitable forest, chaparral, woodland, or scrub habitat present.
Small-flowered morning-glory	*Convolvulus simulans*	CNPS Rank 4.2	Chaparral (openings), coastal scrub, valley and foothill grassland/clay, serpentinite seeps; 100-2300 ft.	A	No suitable chaparral or coastal scrub habitat present; lack of serpentine soils.
Rattan's cryptantha	*Cryptantha rattanii*	CNPS Rank 4.3	Cismontane woodland, riparian woodland, valley and foothill grassland; 800-3000 ft.	A	No suitable woodland or grassland habitat present; out of elevation range.
Hoover's eriastrum	*Eriastrum hooveri*	CNPS Rank 4.2	Chenopod scrub, pinyon and juniper woodland, valley and foothill grassland/sometimes gravelly; 170-3000 ft.	A	No suitable scrub, woodland, or grassland habitat present; out of elevation range.
Virgate eriastrum	*Eriastrum virgatum*	CNPS Rank 4.3	Coastal bluff scrub, chaparral, coastal dunes, coastal scrub/sandy; 150-2300 ft.	A	No suitable scrub, chaparral, dune, or coastal scrub habitat present.
Eastwood's goldenbush	*Ericameria fasciculata*	CNPS Rank 1B.1	Closed-cone coniferous forest, chaparral (maritime), coastal dunes, coastal scrub/sandy, openings; 100-900 ft.	A	No suitable forest, chaparral, dune, or coastal scrub habitat present.
Clay buckwheat	*Eriogonum argillosum*	CNPS Rank 4.3	Cismontane woodland(serpentinite or clay); 490-2600 ft.	A	No suitable woodland habitat present; lack of serpentine soils; out of elevation range.
Elegant wild buckwheat	*Eriogonum elegans*	CNPS Rank 4.3	Cismontane woodland, valley and foothill grassland/usually sandy or gravelly, often washes, sometimes roadsides; 660-5000 ft.	A	Lack of sandy or gravelly soils; out of elevation range.
Western Heermann's buckwheat	*Eriogonum heermannii var. occidentale*	CNPS Rank 4.2	Cismontane woodland (clay or shale); 1970-3300 ft.	A	No suitable woodland habitat present; out of elevation range.

Common Name	Scientific Name	Status	General Habitat Description	Habitat/ Species Present/ Absent	Rationale
Pinnacles buckwheat	*Eriogonum nortonii*	CNPS Rank 1B.3	Chaparral, valley and foothill grassland/sandy, often on recent burns; 980-3200 ft.	A	No suitable chaparral or grassland habitat with sandy soils present; out of elevation range.
Protruding buckwheat	*Eriogonum nudum* var. *indictum*	CNPS Rank 4.2	Chaparral, chenopod scrub, cismontane woodland/clay, serpentinite; 490-4800 ft.	A	No suitable chaparral, scrub, or woodland habitat present; out of elevation range.
Bay buckwheat	*Eriogonum umbellatum* var. *bahiiforme*	CNPS Rank 4.2	Cismontane woodland, lower montane coniferous forest/rocky, often serpentinite; 2300-7200 ft.	A	No suitable woodland or forest habitat present; lack of serpentine soils; out of elevation range.
Idria buckwheat	*Eriogonum vestitum*	CNPS Rank 4.3	Valley and foothill grassland; 770-3000 ft.	A	Out of elevation range.
Jepson's woolly sunflower	*Eriophyllum jepsonii*	CNPS Rank 4.3	Chaparral, cismontane woodland, coastal scrub/sometimes serpentinite; 660-3400 ft.	A	No suitable chaparral, woodland, or scrub habitat present; lack of serpentine soils; out of elevation range.
Hoover's button-celery	*Eryngium aristulatum* var. *hooveri*	CNPS Rank 1B.1	Vernal pools; 10-150 ft.	A	No suitable vernal pool habitat present.
San Benito poppy	*Eschscholzia hypecoides*	CNPS Rank 4.3	Chaparral, cismontane woodland, valley and foothill grassland/serpentinite clay; 660-4900 ft.	A	No suitable chaparral or woodland habitat present; lack of serpentine soils; out of elevation range.
Stinkbells	*Fritillaria agrestis*	CNPS Rank 4.2	Chaparral, cismontane woodland, pinyon and juniper woodland, valley and foothill grassland/clay, sometimes serpentinite; 30-5100 ft.	A	No suitable chaparral, woodland, or grassland habitat present; lack of serpentine soils.
Fragrant fritillary	*Fritillaria liliacea*	CNPS Rank 1B.2	Cismontane woodland, coastal prairie, coastal scrub, valley and foothill grassland/often serpentinite; 10-1300 ft.	A	No suitable woodland, prairie, coastal scrub, or grassland habitat with serpentine soils present.
Phlox-leaf serpentine bedstraw	*Galium andrewsii* ssp. *gatense*	CNPS Rank 4.2	Chaparral, cismontane woodland, lower montane coniferous forest/serpentinite, rocky; 490-4800 ft.	A	No suitable chaparral, woodland, or forest habitat present; lack of serpentine soils; out of elevation range.
Loma Prieta hoita	*Hoita strobilina*	CNPS Rank 1B.1	Chaparral, cismontane woodland, riparian woodland/usually serpentinite, mesic; 100-2800 ft.	A	No suitable chaparral or woodland habitat present; lack of serpentine soils.

Common Name	Scientific Name	Status	General Habitat Description	Habitat/ Species Present/ Absent	Rationale
Kellogg's horkelia	*Horkelia cuneata* var. *sericea*	CNPS Rank 1B.1	Closed-cone coniferous forest, chaparral(maritime), coastal dunes, coastal scrub/sandy or gravelly, openings; 30-700 ft.	A	No suitable forest, chaparral, dune, or coastal scrub habitat present.
Harlequin lotus	*Hosackia gracilis*	CNPS Rank 4.2	Broadleafed upland forest, coastal bluff scrub, closed-cone coniferous forest, cismontane woodland, coastal prairie, coastal scrub, meadows and seeps, marshes and swamps, north coast coniferous forest, valley and foothill grassland/wetlands, roadsides; 0-2300 ft.	A	No verifiable records exist from San Benito County (CCH 2013); all known occurrences are restricted to locations very close to the coast, with maritime climates. The Project site is separated from the ocean by the Hollister Hills and has an inland climate.
Coast iris	*Iris longipetala*	CNPS Rank 4.2	Coastal prairie, lower montane coniferous forest, meadows and seeps/mesic; 0-2000 ft.	A	No suitable prairie, forest, or meadow/seep habitat present.
Satan's goldenbush	*Isocoma menziesii* var. *diabolica*	CNPS Rank 4.2	Cismontane woodland; 50-1300 ft.	A	No suitable woodland habitat present.
Ferris' goldfields	*Lasthenia ferrisiae*	CNPS Rank 4.2	Vernal pools(alkaline, clay); 70-2300 ft.	A	No suitable vernal pool habitat present.
Legenere	*Legenere limosa*	CNPS Rank 1B.1	Vernal pools; 0-2900 ft.	A	No suitable vernal pool habitat present.
Serpentine leptosiphon	*Leptosiphon ambiguus*	CNPS Rank 4.2	Cismontane woodland, coastal scrub, valley and foothill grassland/usually serpentinite; 390-3700 ft.	A	No suitable chaparral, coastal scrub, or grassland habitat present; lack of serpentine soils; out of elevation range.
Woolly-headed lessingia	*Lessingia hololeuca*	CNPS Rank 3	Broadleafed upland forest, coastal scrub, lower montane coniferous forest, valley and foothill grassland/clay, serpentinite; 50-1000 ft.	A	No suitable forest, coastal scrub, or grassland habitat present; lack of serpentine soils.
Smooth lessingia	*Lessingia micradenia* var. *glabrata*	CNPS Rank 1B.2	Chaparral, cismontane woodland/serpentinite, often roadsides; 390-1400 ft.	A	No suitable chaparral or woodland habitat present; lack of serpentine soils; out of elevation range.
Spring lessingia	*Lessingia tenuis*	CNPS Rank 4.3	Chaparral, cismontane woodland, lower montane coniferous forest/openings; 980-7100 ft.	A	No suitable chaparral, woodland, or forest habitat present; out of elevation range.

Common Name	Scientific Name	Status	General Habitat Description	Habitat/ Species Present/ Absent	Rationale
Indian Valley bush-mallow	*Malacothamnus aboriginum*	CNPS Rank 1B.2	Chaparral, cismontane woodland/rocky, granitic, often in burned areas; 490-5600 ft.	A	No suitable chaparral or woodland habitat present; out of elevation range.
Arcuate bush-mallow	*Malacothamnus arcuatus*	CNPS Rank 1B.2	Chaparral, cismontane woodland; 50-1200 ft.	A	No suitable chaparral or woodland habitat present.
Hall's bush-mallow	*Malacothamnus hallii*	CNPS Rank 1B.2	Chaparral, coastal scrub; 30-2500 ft.	A	No suitable chaparral or coastal scrub habitat present.
Sylvan microseris	*Microseris sylvatica*	CNPS Rank 4.2	Chaparral, cismontane woodland, great basin scrub, pinyon and juniper woodland, valley and foothill grassland(serpentinite); 150-4900 ft.	A	No suitable chaparral, woodland, scrub, or grassland habitat present; lack of serpentine soils.
One-sided monkeyflower	*Mimulus subsecundus*	CNPS Rank 4.3	Lower montane coniferous forest; 1480-3000 ft.	A	No suitable forest habitat present; out of elevation range.
San Antonio Hills monardella	*Monardella antonina* ssp. *antonina*	CNPS Rank 3	Chaparral, cismontane woodland; 1640-3300 ft.	A	No suitable chaparral or woodland habitat present; out of elevation range.
San Benito monardella	*Monardella antonina* ssp. *benitensis*	CNPS Rank 4.3	Chaparral, cismontane woodland, lower montane coniferous forest, valley and foothill grassland/usually serpentinite; 1640-5100 ft.	A	No suitable chaparral, woodland, forest, or grassland habitat present; lack of serpentine soils; out of elevation range.
Woodland woolythreads	*Monolopia gracilens*	CNPS Rank 1B.2	Broadleafed upland forest (openings), chaparral (openings), cismontane woodland, north coast coniferous forest (openings), valley and foothill grassland/serpentine; 330-3900 ft.	A	No suitable forest, chaparral, woodland, or grassland habitat present; lack of serpentine soils; out of elevation range.
Cotula navarretia	*Navarretia cotulifolia*	CNPS Rank 4.2	Chaparral, cismontane woodland, valley and foothill grassland/adobe; 10-6000 ft.	A	No suitable chaparral, woodland, or grassland habitat with adobe soils present.
Prostrate vernal pool navarretia	*Navarretia prostrata*	CNPS Rank 1B.1	Coastal scrub, meadows and seeps, valley and foothill grassland (alkaline), vernal pools/mesic; 50-4000 ft.	A	No suitable coastal scrub, meadow/seep, grassland, or vernal pool habitat with strongly alkaline soils present.
Santa Cruz Mountains beardtongue	*Penstemon rattanii* var. *kleei*	CNPS Rank 1B.2	Chaparral, lower montane coniferous forest, north coast coniferous forest; 1310-3600 ft.	A	No suitable chaparral or forest habitat present; out of elevation range.

Common Name	Scientific Name	Status	General Habitat Description	Habitat/ Species Present/ Absent	Rationale
Gairdner's yampah	*Perideridia gairdneri* ssp. *gairdneri*	CNPS Rank 4.2	Broadleafed upland forest, chaparral, coastal prairie, valley and foothill grassland, vernal pools/vernally mesic; 0-2000 ft.	A	CCH (2013) includes a specimen record from less than 1 mile south of the project site. However, this species blooms late in the season (through October) and would have been detectable at the time the surveys were completed.
Monterey pine	*Pinus radiata*	CNPS Rank 1B.1	Closed-cone coniferous forest, cismontane woodland; 80-600 ft.	A	Only three native stands exist in California, at Año Nuevo, Cambria, and the Monterey Peninsula. This species has been widely introduced elsewhere, but is genetically distinct from the native stands.
Narrow-petaled rein orchid	*Piperia leptopetala*	CNPS Rank 4.3	Cismontane woodland, lower montane coniferous forest, upper montane coniferous forest; 1250-7300 ft.	A	No suitable woodland or forest habitat present; out of elevation range.
Michael's rein orchid	*Piperia michaelii*	CNPS Rank 4.2	Coastal bluff scrub, closed-cone coniferous forest, chaparral, cismontane woodland, coastal scrub, lower montane coniferous forest; 10-3000 ft.	A	No suitable coastal scrub, forest, chaparral, or woodland habitat present.
Hickman's popcorn-flower	*Plagiobothrys chorisianus* var. *hickmanii*	CNPS Rank 4.2	Closed-cone coniferous forest, chaparral, coastal scrub, marshes and swamps, vernal pools; 50-600 ft.	A	No suitable forest, chaparral, coastal scrub, marsh/swamp, or vernal pool habitat present.
Hairless popcorn-flower	*Plagiobothrys glaber*	CNPS Rank 1A	Meadows and seeps (alkaline), marshes and swamps (coastal salt); 50-600 ft.	A	No suitable alkaline meadow/seep or saltwater marsh/swamp habitat present.
Pine rose	*Rosa pinetorum*	CNPS Rank 1B.2	Closed-cone coniferous forest; 10-1000 ft.	A	No suitable forest habitat present.
Guirado's goldenrod	*Solidago guiradonis*	CNPS Rank 4.2	Cismontane woodland, valley and foothill grassland/serpentinite seeps; 1970-4500 ft.	A	No suitable forest, chaparral, woodland, or grassland habitat present; lack of serpentine soils; out of elevation range.
Most beautiful jewel-flower	*Streptanthus albidus* ssp. *peramoenus*	CNPS Rank 1B.2	Chaparral, cismontane woodland, valley and foothill grassland/serpentinite; 310-330 0ft.	A	No suitable forest, chaparral, woodland, or grassland habitat present; lack of serpentine soils; out of elevation range.

Common Name	Scientific Name	Status	General Habitat Description	Habitat/ Species Present/ Absent	Rationale
Marsh zigadenus	*Toxicoscordion fontanum*	CNPS Rank 4.2	Chaparral, cismontane woodland, lower montane coniferous forest, meadows and seeps, marshes and swamps/vernally mesic, often serpentinite; 50-3300 ft.	A	No suitable chaparral, woodland, forest, meadow/seep, or mars/swamp habitat present; lack of serpentine soils.
Hernandez bluecurls	*Trichostema rubisepalum*	CNPS Rank 4.3	Broadleafed upland forest, chaparral, cismontane woodland, lower montane coniferous forest, vernal pools/volcanic or serpentinite, gravelly; 980-4700 ft.	A	No suitable forest, chaparral, woodland, or vernal pool habitat present; lack of serpentine soils; out of elevation range.
Saline clover	*Trifolium hydrophilum*	CNPS Rank 1B.2	Marshes and swamps, valley and foothill grassland (mesic, alkaline), vernal pools; 0-1000 ft.	A	No suitable alkaline/saline habitat present.
Dark-mouthed triteleia	*Triteleia lugens*	CNPS Rank 4.3	Broadleafed upland forest, chaparral, coastal scrub, lower montane coniferous forest; 330-3300 ft.	A	No suitable forest, chaparral, or coastal scrub habitat present; out of elevation range.
California Species of Special Concern					
Monterey roach	*Lavinia symmetricus subditus*	CSSC	Fairly warm streams and rivers flowing into Monterey Bay.	P	Known to occur in the Pajaro River and its tributaries, such as Tar, Carnadero, and San Juan Creeks and the San Benito River.
Foothill yellow-legged frog	*Rana boylii*	CSSC	Streams, usually with relatively little riparian vegetation and a cobble substrate.	A	No CNDDB (2013) records within 10 mi of the BSA. Valley-floor streams such as those in the BSA lack the typical cobble substrate of this species' habitat.
Western spadefoot	*Spea hammondii*	CSSC	Breeds in temporary rain pools; spends much of life in burrows or cracks in hard soil.	A	No CNDDB (2013) records from Project vicinity; project site is likely outside of species' range; determined to be absent.
Western pond turtle	*Actinemys marmorata*	CSSC	Creeks, ponds and other aquatic habitat. Needs upland heavy soils to breed.	HP	Several CNDDB (2013) records occur in the vicinity of the BSA and the species may also inhabit permanent ponds near the BSA. It is unlikely to reside in the BSA due to shallow nature of low-flow channel in this reach and lack of pools with high-quality basking sites; only marginal breeding habitat is present in most of the BSA due to periodic disking of the fields adjacent to the BSA; may occasionally disperse through BSA.

Common Name	Scientific Name	Status	General Habitat Description	Habitat/ Species Present/ Absent	Rationale
Coast horned lizard	*Phrynosoma coronatum frontale*	CSSC	Sandy soils, usually in dry creek channels or coastal dunes.	A	No CNDDB (2013) records from project vicinity; habitat within the BSA is not consistent with the dry, sandy habitat in which this species typically occurs; determined to be absent.
San Joaquin whipsnake	*Masticophis flagellum ruddocki*	CSSC	Flatlands, salt flats, and low foothills with scattered brush and sparse vegetation with squirrel burrows	A	No CNDDB (2013) records within the project vicinity, outside of this species' known range; determined to be absent.
Long-eared owl	*Asio otus*	CSSC (nesting)	Riparian bottomland with tall, dense willows and cottonwood stands (also dense live oak and California Bay along upland streams); forages primarily in adjacent open areas.	A	The BSA lacks the dense riparian vegetation that this species prefers for nesting; may occur in or upstream of the BSA during the non-breeding season.
Burrowing owl	*Athene cunicularia*	CSSC (burrows)	Grasslands and ruderal habitats where ground squirrel or other burrows are present.	A	One record of the species exists in the vicinity of the BSA (CNDDB 2013) in the grasslands east of the San Benito River; however, no suitable habitat exists within the BSA due to the absence of burrows.
Olive-sided flycatcher	*Contopus cooperi*	CSSC (nesting)	Breeds in mature forests with open canopies, along forest edges in more densely vegetated areas, in recently burned forest habitats, and in selectively harvested landscapes.	A	The BSA lacks the vegetative composition and structure that is suitable for nesting, and is at a lower elevation than typical breeding locations in the region; may occur as a non-breeding forager during migration.
Loggerhead shrike	*Lanius ludovicianus*	CSSC (nesting)	Nests in tall shrubs and dense trees, forages in grasslands, marshes, and ruderal habitats.	HP	Though not observed in the BSA during surveys, patchy shrubs and trees near the BSA may provide suitable nesting sites, and ruderal habitats in the BSA provide foraging habitat; up to one pair may nest near, and forage in, the BSA.
Yellow warbler	*Dendroica petechia*	CSSC (nesting)	Nests in dense stands of willow and other riparian habitat	HP	Confirmed breeding in the vicinity of the BSA (Bousman 2007a). Habitat within the BSA is unsuitable for nesting owing to the lack of larger/denser trees, but up to one pair may nest and forage in riparian habitat adjacent to the BSA.

Common Name	Scientific Name	Status	General Habitat Description	Habitat/ Species Present/ Absent	Rationale
Yellow-breasted chat	*Icteria virens*	CSSC (nesting)	Breeds in dense thickets in riparian woodlands.	A	Chats have been confirmed to breed in the vicinity of the BSA (Bousman 2007b); however, the BSA and vicinity lack the dense riparian vegetation that is suitable for nesting habitat for this species; may occur as a non-breeding forager during migration.
Grasshopper sparrow	*Ammodramus savannarum*	CSSC (nesting)	Breeds and forages in meadows, fallow fields, and pastures.	A	Nests to the northeast of the BSA near Lomerias Muertas; not expected to nest in valley-floor areas such as the BSA; may occur as an occasional non-breeding transient.
Tricolored blackbird	*Agelaius tricolor*	CSSC (nesting)	Nests colonially in cattails or other emergent vegetation around freshwater ponds.	A	No suitable breeding habitat present; may occur as an occasional non-breeding forager.
Pallid bat	*Antrozous pallidus*	CSSC	Forages mostly in or over open habitats; requires rocky crevices, tree cavities, mines, caves or buildings for maternity roosts; night roosts occur in/on buildings, trees, or rocky areas.	A	The existing bridge contains no cavities or crevices that could serve as day-roosting sites for bats and there were no large trees with cavities capable of supporting roosting bats.
Western red bat	*Lasiurus blossevillii*	CSSC	Forages over open habitats and habitat edges and roosts in trees.	A	The BSA has no suitable roosting habitat, and the species does not breed in the vicinity of the site.
San Francisco dusky-footed woodrat	*Neotoma fuscipes annectens*	CSSC	Builds large stick nests in a variety of habitats, including riparian areas, oak woodlands, and scrub.	A	Riparian vegetation too sparse and open to provide high-quality habitat for this species; no nests observed in the BSA.
American badger	*Taxidea taxus*	CSSC	Establishes burrows in open grasslands.	A	Recorded 1.75 mi south of the BSA (CNDDB 2012); no suitable denning habitat in the BSA, but may disperse through the BSA.
California Fully protected Species or State Rare Plants					
Golden eagle	*Aquila chrysaetos*	SP	Nests in large trees and occasionally on electrical transmission towers, forages in a variety of open and scrub habitats.	A	No suitable nesting sites present; may occasionally forage in ruderal and agricultural habitats in the BSA.
White-tailed kite	*Elanus leucurus*	SP	Nests in tall shrubs and trees, forages in grasslands, marshes, and ruderal habitats.	HP	One individual detected near the BSA during Project surveys. The grassy habitats near the BSA represent suitable foraging habitat; large cottonwoods and willows upstream of the BSA provide suitable nesting habitat.

Key to Table 1 Abbreviations:

Present [P] – species is present. Absent [A] - no habitat present and no further work needed. Habitat Present/Species Absent [HP/SA] - site conditions consistent with suitable habitat, but for other reasons (e.g., range or habitat quality), the species is not expected to occur. Habitat Present [HP] -habitat is, or may be present. The species may be present. Critical Habitat [CH] – Critical habitat for the species is mapped within the Project study area by USFWS. Status: Federal Endangered (FE); Federal Threatened (FT); State Endangered (SE); State Threatened (ST); State Fully Protected (SP); California Species of Special Concern (CSSC); California Native Plant Society (CNPS).

CNPS Rank 1A = Plants considered extinct

CNPS Rank 1B = Plants rare, threatened, or endangered in California and elsewhere

CNPS Rank 2A = Plants considered extinct in California, but more common elsewhere

CNPS Rank 2B = Plants rare, threatened, or endangered in California, but more common elsewhere

CNPS Rank 3 = Plants about which information is needed-a review list

CNPS Rank 4 = Plants of limited distribution-a watch list

.1 = seriously endangered in California

.2 = fairly endangered in California

.3 = not very endangered in California

habitats; other species occur only on serpentine soils, or only in maritime climates. Additionally, many of the plant species that potentially occur in the Project region only occur at much higher elevations than those of the BSA. An initial list of 89 extant or historical records of special-status plant species that occur within the Project vicinity in a wide variety of different habitat types (defined by the nine-quadrangle and the San Benito County CNDDB [2012] search areas) was subsequently reduced down to one species after a comparison of each species requirements with conditions present in the Project's BSA (Table 1). Eighty-eight plant species were dismissed due to a lack of suitable habitats (e.g., chaparral, woodland, forest, etc.), climatic conditions (e.g., maritime), elevations, and/or soils (e.g., serpentine, sandy, alkaline, etc.) within the BSA (Table 1). The remaining special-status plant species, Gairdner's yampah (*Perideridia gairdneri* ssp. *gairdneri*), was further considered for potential occurrence due to the presence of potentially suitable habitat conditions in the BSA. However, Gairdner's yampah blooms late into the season and would have been detectable at the time of the surveys in early October. It was thus confirmed absent from the BSA.Special-status Animal Species

H. T. Harvey & Associates biologists evaluated the list of special-status animal species that occur in the region, developed from the resources described in Section 2.2.2, for their potential to occur within the BSA (Table 1). A number of special-status animal species are known to occur in the Project vicinity (i.e., southern Santa Clara County/northwestern San Benito County) but are not expected to occur in the BSA due to the lack of suitable habitat or because the BSA is outside of the known range of the species. However, these species are included in Table 1 to indicate the rationale for considering them absent from the BSA.

Several other special-status species that occur in the region may occur in the BSA only as uncommon to rare visitors, migrants, or transients, but are not expected to reside or breed on the site, to occur in large numbers, or otherwise to make heavy use of the site. Still other species may breed on the site. Species in both of these groups for which habitat is present within the Project's BSA, as well as species that require additional discussion (e.g., steelhead, least Bell's vireo, and San Joaquin kit fox) are discussed in Table 1 and in further detail in Section 4.2. CNDDB (2013) records of special-status animals within the vicinity of the BSA are shown on Figure 3.

Chapter 4. Results: Biological Resources, Discussion of Impacts and Mitigation

The BSA contains a mix of highly degraded upland habitat and semi-natural sensitive habitats including jurisdictional wetlands and other waters. The upland habitat in the BSA is dominated by weedy, invasive species including fennel, bristly ox-tongue, short-podded mustard, wild oats and bull thistle. In contrast, the wetlands contain mostly native plant species including willows, wild licorice, water smartweed, willowherb, marsh baccharis (*Baccharis glutinosa*), and western goldenrod (*Euthamia occidentalis*). The following sections describe the existing conditions of, and potential impacts to, natural communities and species of particular concern for this Project.

4.1. Natural Communities of Special Concern

A query of sensitive habitats in Rarefind (CNDDB 2012) was performed for the *Chittenden* USGS 7.5-minute quadrangle and all eight surrounding quadrangles (Mt. Madonna, Gilroy, Gilroy Hot Springs, Watsonville East, San Felipe, Prunedale, San Juan Bautista, and Hollister). The CNDDB (2013) identified four sensitive habitats as occurring within the Project region: Northern Coastal Marsh, Coastal Brackish Marsh, Sycamore Alluvial Woodland, and Central Maritime Chaparral. However, the project site is heavily impacted by agriculture and does not support any of the above natural communities.

In addition to tracking sensitive plant communities, the CDFW ranks sensitive vegetation alliances and associations based on their global, national, and subnational rarity levels through NatureServe. The CDFW provides the Vegetation Classification and Mapping Program's currently accepted list of vegetation alliances and associations (CDFG 2007). The rarity ranking provided generally has a Global and State Rank provided for sensitive associations/alliances. Any habitat type dominated by a species listed with a ranking lower than G4S4 (Global ranking of apparently secure, state ranking of apparently secure) is considered to be sensitive by the CDFW. There are no sensitive vegetation alliances and associates within the BSA.

The BSA contains approximately 0.05 ac of aquatic habitat within the OHW marks of San Juan Creek and a total of approximately 0.03 ac of wetlands associated with the riparian banks. These habitat types have been cumulatively affected by regional development, may support special-status wildlife species, and are regulated by federal and state agencies. As a result, effects on sensitive aquatic/ wetland habitat types will be avoided and minimized to the extent practicable.

Project effects on natural habitats are summarized on Figure 2. These impacts include a total of 0.21 ac of permanent impacts to aquatic habitat, wetlands, and developed and ruderal/non-native grassland; and a total of 1.63 ac of temporary impacts to row crops, ruderal/non-native grassland, aquatic, and developed habitats. No other sensitive communities occur in the BSA.

4.1.1. Discussion of Aquatic Habitat and Wetland Habitat Within/Adjacent to San Juan Creek

Throughout California, the quality and quantity of aquatic/wetland habitats has dramatically declined due to the construction of dams, dikes, and levees, as well as due to water diversions and the filling of aquatic habitat for development. Additionally, there has been an overall degradation of water quality in many watersheds due to inputs of runoff from agricultural and urban development. Aquatic habitats are important to numerous aquatic wildlife species and provide a source of water for terrestrial species. Wetlands also provide high functions and values for wildlife and contribute to maintaining water quality within larger watershed systems. As a result, effects to aquatic/wetland habitats will be avoided and minimized to the extent practicable as described in Section 4.1.1.2 Avoidance and Minimization Efforts.

4.1.1.1. Survey Results

The BSA contains approximately 0.05 ac of aquatic habitat that occurs within the OHW marks of the San Juan Creek low flow channel (Figure 2). In addition, approximately 0.03 ac of seasonal wetland habitat occurs along the banks of the creek (Figure 2). Within the study area, San Juan Creek is a perennial or near-perennial creek. At the time of the site visit (October 2012) water was still flowing in the creek (water depth was approximately 6–12 inches), following a period of 4 months with almost no rain in the region (PRISM Climate Group 2012). When the Anzar Road Bridge was first constructed, the San Juan Creek channel was likely wider than it is today, with water flowing under the bridge on both sides of a center support pier. Over time sediment has collected under the eastern half of the bridge, restricting ordinary flows to the western side of the center support pier (Photo 6). The narrowing of the channel has resulted in substantial scour of the channel bed on the western side of the center support pier.

Conditions on the northern and southern sides of the bridge are also very different. To the south of the bridge, the creek provides moderate quality wetland-riparian habitat on both banks and supports a number of native plant species, including one tree-sized willow (approximately 8-inch diameter at breast height) on the southeast side of the bridge. However, on the north side of the bridge, where agricultural activities are currently more intensive, the creek is significantly degraded. On the north side, the creek banks have been heavily eroded and support only sparse cover of non-native weeds. The creek's hydrology is also affected by adjacent agricultural land uses. At the time of the site visit, several leaking irrigation pipes were observed running across San Juan Creek (Photo 6), and runoff from sprinkler systems was observed flowing into the creek (Photo 7).

Photo 6. View looking south from the north side of Anzar Road Bridge. Note sediment accumulation under eastern span of bridge and leaking irrigation pipe on the north side of the bridge.

Photo 7. Highly disturbed segment of San Juan Creek, just north of Anzar Road Bridge, with artificial water inputs from adjacent sprinklers and agricultural irrigation.

4.1.1.2. AVOIDANCE AND MINIMIZATION EFFORTS

The Project has been designed to minimize temporary and permanent effects to aquatic and wetland habitat (Figure 2). In addition, Caltrans standard BMPs have been incorporated into the Project to protect water quality during construction. However, indirect effects on water quality of the perennial aquatic habitat could occur through Project implementation, specifically during the construction phase. As such, construction within the aquatic habitat will be limited to the dry season (15 June to 15 October), when the creek flows are lowest and dewatering activities will be least impactful. The following measures will be implemented to minimize any potential Project effects on aquatic habitat and water quality:

Minimization of Effects on Water Quality. The Project applicant intends to implement BMPs as described under Section 7-1.01G ("Water Pollution" of the Caltrans Construction Manual (Caltrans 2001)) and as contained within Caltrans Construction Site BMPs (Caltrans 2003). Implementation of the measures described below will reduce potential effects on aquatic species from degradation of water quality.

The following standard recommendations by the CDFW must be followed regardless of whether the watercourse on the site is dewatered or not in order to comply with proper mitigation measures:

- No equipment will be operated in the live stream channel;
- Standard erosion control and slope stabilization measures will be required for work performed in any area where erosion could lead to sedimentation of a waterbody;
- Silt fencing will be installed between any activities conducted within, or just above the edge of, the top-of-bank and the edge of the creek to prevent dirt or other materials from entering the channel;
- No debris, soil, silt, sand, bark, slash, sawdust, cement, concrete, washings, petroleum products or other organic or earthen material will be allowed to enter into or be placed where it may be washed by rainfall or runoff into waters of the U.S./State or aquatic habitat;
- Machinery will be refueled at least 60 ft from any aquatic habitat, and a spill prevention and response plan will be implemented;
- Water from dewatering of the work areas will not be pumped or allowed to flow into the creek until the water is clear. The method will be the responsibility of the contractor but will be a standard practice such as using sediment basins outside of the channel or portable settling bins, and must successfully filter the water until clear; and
- Post-construction BMPs will be implemented as necessary to prevent a long-term increase in runoff and road-based contamination, as well as to prevent hydrological modification of San Juan Creek following Project construction, as required by the General Construction Permit (GCP) and the Project's Section 401 Water Quality Certification permit. These may include the use of bioswales and/or velocity reducing structures to treat and slow runoff from increased hardscape as needed, and measures to ensure runoff and road debris from the bridge is not allowed to enter directly into the creek. Volume that cannot be addressed using nonstructural practices shall be captured in

structural practices and approved by the Central Coast RWQCB. All post-construction BMPs shall be implemented and functioning prior to completion of the Project.

Limiting Temporary Construction Areas. Temporary effects to aquatic habitat will be avoided to the maximum extent feasible during construction by implementing the following measures:

- Construction areas (e.g., for access, staging, equipment set-up, etc.) will be limited to the minimum necessary to perform the proposed work; and
- Temporary staging areas will be located in row crop habitat, away from aquatic habitats.

In addition, measures will be taken to prevent any materials from falling into the San Juan Creek during bridge demolition and construction, including dewatering and diverting the creek within a culvert if the stream is still flowing during the dry season, and the erection of barriers and netting, as needed. Most work will be completed from above the top of bank, and pile installation will not take place outside of the period from 15 June to 15 October or within the banks of San Juan Creek.

4.1.1.3. PROJECT IMPACTS

Implementation of the proposed improvements related to the replacement of the bridge will result in both temporary and permanent impacts to aquatic habitat as well as permanent impacts to wetland habitat within the BSA. Up to 0.05 ac of aquatic habitat and 0.03 ac of wetland habitat will be impacted by construction activities.

Temporary impacts to aquatic habitat will occur due to the temporary dewatering around existing bridge piers and temporary construction-related access (Figure 2). All fills placed to set up the dewatering system (cofferdams, etc.) will be temporary in nature and will be fully removed from the channel within one season. Aquatic habitat similar to the existing habitat is expected to rapidly re-establish after the dewatering measures are removed and water is returned to the area around the columns.

Permanent impacts to San Juan Creek will occur due to the recontouring of part of the channel to create a wider channel with a more uniform and stable bed. The existing center support pier will be removed along with sediment from under the eastern half of the bridge (where the surface elevation is currently above OHW). This will improve both water quality and aquatic wildlife movement relative to existing conditions by creating an additional 0.03 ac of aquatic habitat in San Juan Creek

(Figure 2 inset), or a net increase of 0.02 ac due to the loss of small areas of channel due to RSP placement (Figure 2). The existing depression will be filled with RSP where shown on Figure 2 to address the currently steep banks, and in the remainder of the channel will be recontoured using existing channel soils removed from the eastern side of the channel to create a more uniform channel bed. A total of approximately 0.01 ac of RSP-based fill will be permanently placed in aquatic habitat. Although this fill is considered to be a permanent impact from a regulatory standpoint, this impact is considered self-mitigating since recontouring will result in a small net increase of approximately 0.02 ac of aquatic habitat (Figure 2 inset). The new, slightly wider bridge (32 ft for the new bridge vs. 22 ft for the old bridge) will also result in a small amount of additional permanent shading to San Juan Creek (approximately 400 sq. ft.). However, the small amount of additional shading is not expected to substantially reduce the quality of aquatic habitat in San Juan Creek.

Permanent impacts to 0.03 ac of wetlands will occur due to the placement of rock slope protection on both banks of San Juan Creek (Figure 2). The placement of rock slope protection would affect all of the herbaceous riparian wetlands and a small portion of the scrub/shrub riparian wetlands and is necessary to reduce erosion, increase bank stability, and improve water quality in San Juan Creek (resulting in the loss of approximately 0.01 ac of wetlands). Approximately 0.02 ac of scrub/shrub riparian wetlands will be permanently removed through excavation during the channel recontour. Included with the loss of these wetlands is the loss of one, tree-sized willow.

Water quality within the creek has the potential to be impacted during construction through erosion from upland staging areas, and from improper dewatering in work areas. These impacts will be minimized and avoided through use of standard water quality BMPs for working adjacent to or over watercourses (see Section 4.1.1.2).

From a biological perspective, the relatively minor temporary and permanent impacts to the aquatic habitat and permanent impacts to wetland habitat located adjacent to the existing bridge are not expected to substantially affect the functions or values of this portion of San Juan Creek. Not only is the disturbance area relatively small, but the affected area represents a very small fraction of these habitats within the total watershed. The site is also already heavily disturbed by agricultural activities. The Project will not result in a substantial loss of riparian woodland or forest habitat, and only one tree will be removed. Since the Project will result in a net increase of aquatic habitat, no off-site mitigation is proposed for impacts to aquatic habitat. However, the

Project contributes to a cumulative loss of wetland habitats within the region due to similar in-channel developments and slope protection (see Section 4.1.1.5), and as such, compensatory mitigation for the loss of these wetlands is warranted.

4.1.1.4. COMPENSATORY MITIGATION

Permanent impacts to the wetland habitats and removal of the tree within these wetlands will require off-site compensatory mitigation. Wetlands will be created at a 2:1 (created wetlands:impacted wetlands) ratio. This will require the creation of 0.06 ac of wetlands. This mitigation will be supplied at the Wildlands Pajaro River Mitigation Bank, located approximately 9 mi from the BSA. As the minimum wetland unit available at Wildlands Pajaro River Mitigation Bank is 0.05 ac, 0.10 ac credit will be used to satisfy the requirement of 0.06 ac, resulting in a final compensatory mitigation ration of approximately 3.3:1 (created wetlands:impacted wetlands).

4.1.1.5. CUMULATIVE IMPACTS

Cumulative impacts to wetland and aquatic habitats result from past, current, and reasonably foreseeable future projects in the region, including periodic maintenance and replacement of bridges, and associated installation of hardscape and erosion protection measures such as rock slope placement along banks, throughout unincorporated San Benito County. These projects will all undergo (or have undergone) separate CEQA review, and will require separate environmental permitting from regulatory agencies. Ecological impacts determined to be significant during CEQA review for these individual projects will be mitigated to less-than-significant levels. Thus, providing that this Project successfully incorporates the conservation, compensatory mitigation for wetlands, avoidance, and minimization measures described in this NES, the Project will not contribute to substantial cumulative effects on wetland and aquatic habitat types.

4.2. Special-status Animal Species

Reconnaissance-level surveys were conducted on the Project site in January 2013 by walking the entire BSA and noting special-status species and habitats potentially suitable for these species. Particular attention was paid to the suitability of habitat for special-status species known or expected to occur in the general vicinity of the site, defined for the purposes of this report as areas within a 5-mi radius of the BSA (Figure 3).

Special-status wildlife species known to occur in the region are indicated in Table 1. A number of these species were rejected for potential occurrence in the BSA because of a lack of suitable habitat and/or because the BSA is outside of the range of the species. In addition, several bird species of special concern, including the long-eared owl (*Asio otus*), olive-sided flycatcher (*Contopus cooperi*), willow flycatcher (*Empidonax traillii*), yellow-breasted chat (*Icteria virens*), grasshopper sparrow (*Ammodramus savannarum*), and tricolored blackbird (*Agelaius tricolor*) are expected to occur only as foraging birds during the non-breeding season but are not expected to nest in the BSA; these species are only species of special concern during the nesting season and thus will not be impacted by Project activities.

The following sections discuss the remaining special-status animal species which have the potential to breed on the site and/or regularly use it, have the potential to be substantially impacted by the Project (e.g., due to their rarity), and/or are of particular concern to resource agencies and require additional discussion.

4.2.1. South-Central California Coast Steelhead

The steelhead is an anadromous form of rainbow trout that migrates upstream from the ocean to spawn in late fall or early winter, when flows are sufficient to allow them to reach suitable habitat in far upstream areas. In the Pajaro River system, spawning occurs between December and June. Steelhead usually spawn in clear, cool, perennial sections of relatively undisturbed streams. Preferred streams typically support dense canopy cover that provides shade, woody debris, and organic matter. Streams in which spawning occurs are usually free of rooted or aquatic vegetation. Gravel substrates are the optimum spawning habitat. Steelhead usually cannot survive long in pools or streams with water temperatures above 70° F. Despite their general requirement for cool water, steelhead can use warmer habitats if adequate food supply is available.

Steelhead populations have declined due to degradation of spawning and rearing habitat, introduction of barriers to upstream migration, over-harvesting by recreational fisheries, and reduction in winter flows due to damming and spring flows due to water diversion.

The NMFS published a final rule to list the SCCC steelhead Distinct Population Segment (DPS) as threatened under the FESA on August 18, 1997; threatened status was reaffirmed on January 5, 2006 (NMFS 2006). The SCCC steelhead DPS encompasses all naturally spawned steelhead below impassable barriers from the Pajaro River south to (but not including) the Santa Maria River.

4.2.1.1. SURVEY RESULTS

There are no known records of steelhead occurring in San Juan Creek. Smith (1982) did not sample in San Juan Creek during his survey of fishes of the Pajaro River system. Additionally, San Juan Creek was not included as critical habitat despite the inclusion of nearby streams (NMFS 2005).

Much of San Juan Creek is dry much of the year, although the reach within the BSA appears to be perennially wet or nearly so. When water is present in the channel, aquatic habitat within the portion of San Juan Creek in the BSA is not suitable for spawning and rearing due to the warm turbid water, silt substrate, likely eutrophic condition, and lack of structural complexity. Water quality within this creek is low due to nutrient inputs from agricultural sources upstream. Therefore, San Juan Creek is not expected to support a breeding population, and steelhead would not regularly be moving through the site (as might be expected if the species spawned upstream). However, there are no absolute barriers to fish entering the stream and the Project site is only 1.2 mi from the confluence with the San Benito River, which is designated as critical habitat for this species. As a result, there is some potential (albeit a low probability) that steelhead may disperse upstream into the BSA. This probability is highest during the winter and spring months when the water is cooler and flows are higher, and is lower during the summer months when water temperatures increase, flows decrease, and the spawning season comes to a close.

4.2.1.2. AVOIDANCE AND MINIMIZATION EFFORTS

Project-related impacts to aquatic habitats have been avoided to the maximum extent feasible. Construction activities within riparian and aquatic habitats will occur during the dry season to minimize the potential for impacts to aquatic species, such as steelhead, that are most likely to occur in the BSA during the wet season. BMPs described above in Section 4.1.1.2 will be implemented to protect water quality during construction. In addition, the following additional, species-specific measures will be implemented to avoid and minimize impacts to individuals of this species.

- If activities in a flowing stream are unavoidable, the work area will be dewatered (e.g., using coffer dams), and any stream flow will be diverted around the work area by a barrier, temporary culvert, or a new channel capable of permitting upstream and downstream fish movement. Construction of the barrier or the new channel shall normally begin in the downstream area and continue in an upstream direction and the flow shall be diverted only when construction of the diversion is completed.

- Dewatering or diversion and any other work requiring access within the low-flow channel will occur during the dry season only (15 June to 15 October, with the potential for extensions beyond this period, in consultation with Caltrans, CDFW, and NMFS, if dry weather permits). During this time, creek flows are expected to be at annual lows, and steelhead are expected to be absent from the BSA (J. Casagrande pers. comm.).
- If flow is present in the San Juan Creek channel within the BSA when in-water construction is scheduled to occur, a qualified biologist will be present to monitor all activities involving the placement of fill (e.g., for cofferdams) in the creek. The biologist will inspect the area where the cofferdam will be constructed prior to construction and will ensure that any fish have vacated the cofferdam area before in-water work begins. During initiation of work within the creek channel, qualified fisheries biologists will stake a net across the creek at the upstream limits of dewatering. Then, holding a second net upright between them, the biologists will walk downstream to the lower end of the dewatering area to ensure that all fish have moved out of the dewatering zone; this second net will be anchored at the downstream end of the dewatering zone to prevent fish from entering the zone. The coffer dam constructed for dewatering would then be constructed within the area delimited by the two nets. A qualified fisheries biologist will monitor dewatering activities to ensure that no native fish are entrapped, and will relocate native fish as necessary. No steelhead will be moved without authorization of the NMFS in consultation with Caltrans.
- During demolition and construction activities, netting and other structures will be installed under the bridge to prevent debris from entering the channel, as such debris could degrade water quality and potentially injure steelhead, if present in the San Juan Creek channel (e.g., when work on the bridge deck is occurring during the wet season).
- A construction personnel education program will be given by a qualified biologist before the commencement of construction to explain to construction personnel how best to avoid the accidental take of steelhead. The approved biologist will conduct a training session that will be scheduled as a mandatory informational field meeting for contractors and all construction personnel. The field meeting will include topics on species identification, life history, descriptions of habitat requirements during various life stages, review of habitat sensitivity, required practices before the start of construction and a discussion of

general measures that are being implemented to conserve the species as they relate to the Project, penalties for noncompliance, and boundaries of the construction area. Emphasis will be placed on the importance of the habitat and life stage requirements within the context of Project avoidance and minimization measures. Handouts, illustrations, photographs, and/or Project mapping showing areas where minimization and avoidance measures are being implemented will be included as part of this education program. Upon completion of training, employees will sign a form stating that they attended the training and understand all the conservation and protection measures.

- To avoid and minimize impacts to fish resulting from pressure waves created during pile driving, the following measures will be implemented:
    - Pile driving work will be limited to the period 15 June to 15 October as described above.
    - There will be no pile installation within the creek below top-of-bank.
    - Low-impact pile driving equipment such as vibratory hammers or hydraulic casing oscillators, which minimize underwater sound pressure levels, or press-in pile installation will be used instead of impact hammers to the greatest extent practicable.
    - Steel piles will be avoided to the greatest extent practicable.
- If at any time an individual steelhead appears to be at risk of injury or mortality due to Project-related activities, all work will stop until Caltrans has consulted with NMFS to determine a means of avoiding impacts on the individual(s).

4.2.1.3. PROJECT IMPACTS

Due to the low quality (i.e., the shallow, warm, agriculturally-affected, and turbid condition of the water) of steelhead habitat within the BSA, we do not expect steelhead to be present in any numbers. In particular, restriction of work in the low-flow channel to the dry season may avoid impacts on steelhead entirely, as there may be little or no water in the channel during in-channel activities, thus avoiding the potential for take of individual steelhead. Further, restriction of pile driving to the dry season will avoid impacts on steelhead as a result of this activity, as steelhead are not expected to be present in or near the BSA during the dry season (J. Casagrande pers comm). The loss of a small amount of aquatic habitat will not represent a loss of aquatic habitat for fish, because the recontouring will allow for an overall net increase in aquatic habitat under and adjacent to the bridge. Following channel recontouring, although the channel will be widened to its original width, existing flows upstream and downstream of the bridge indicate the recontoured channel will be sufficiently deep during ordinary wet-season flows that fish movement will not be impeded through this area (Photos 6 and 7).

Steelhead may experience reduced foraging success due to Project-related turbidity, and may be adversely affected by percussion associated with any work on the bridge pilings within the creekbed. Construction activities adjacent to the waterway could disturb soils and cause sediment to be transported into and through the channel, which would result in temporary increases in turbidity and sedimentation downstream of construction sites. Periods of localized, high suspended sediment concentrations and turbidity owing to channel disturbance can result in a reduction of feeding opportunities for sight-feeding fish and clogging and abrasion of gill filaments. Increased sediment loading can degrade food-producing habitat downstream of project areas. Finally, sediment can interfere with photosynthesis of aquatic flora and result in the displacement of aquatic fauna. Other potential impacts could occur if fuel and concrete were allowed to spill into the waterway during construction. Various contaminants, such as fuel oils, grease, and other petroleum products used in construction activities, could be introduced into the system either directly or through surface runoff. Contaminants may be lethal or sub-lethally toxic to fish and other aquatic organisms, or may change the rate at which oxygen is diffused; as a result, they may reduce the survival and growth rates of aquatic species. However, implementation of the avoidance and minimization measures described above will minimize these potentially adverse effects. In addition, as described under *Avoidance and Minimization Efforts* above, in the unlikely event that steelhead are present in aquatic habitat within the Project site during construction, all work within or immediately adjacent to aquatic habitat shall stop immediately. The County shall contact Caltrans, which will then contact NMFS to request approval to capture and move the steelhead to suitable habitat downstream, both to avoid Project-related impacts and to avoid mortality due to desiccation as the pool dries up. No steelhead shall be moved without prior approval from NMFS, and no work that could result in impacts on steelhead will occur as long as individuals are present in the BSA.

Further, because pile driving and direct impacts to aquatic habitat will only occur during the dry season, when the potential for occurrence movement by steelhead through the site will be minimal, and when such movement is expected to occur only in the downstream direction, the presence of a culvert for this crossing will not impede the downstream movement of steelhead. Therefore, the Project will not preclude steelhead use of the channel as a migratory corridor during construction, and will have no long-term effects on dispersal habitat for the species within the BSA.

In conclusion, if this reach of San Juan Creek contains water during the construction period, there is some potential for steelhead to suffer injury or mortality during relocation if dewatering is necessary in the construction of the new bridge or due to other Project-related impacts. However, this potential is very low and has been further minimized through the incorporation of BMPs in the Project as discussed above. Project activities may affect, but are not likely to adversely affect steelhead.

4.2.1.4. COMPENSATORY MITIGATION

The reach of San Juan Creek within the BSA is of low habitat quality for steelhead and the Project will not result in any permanent loss of habitat. Additionally, individual steelhead are not expected to be injured or killed as a result of Project activities given the Avoidance and Minimization Efforts described above in 4.2.1.2. Therefore, no compensatory mitigation is proposed.

4.2.1.5. CUMULATIVE EFFECTS

Cumulative impacts to SCCC steelhead result from past, current, and reasonably foreseeable future projects in the region. Although such projects may result in impacts to this species, it is expected that most current and future projects that impact their habitat will have to mitigate impacts through the CEQA, Section 1600, or Section 404/401 permitting process, as well as through the FESA Section 7 consultation process. As a result, most projects in the region will mitigate their impacts to steelhead, minimizing cumulative impacts to this species. With implementation of avoidance minimization efforts, this Project will not make a considerable contribution to cumulative effects on SCCC steelhead.

4.2.2. Discussion of the Monterey Roach

The Monterey roach (*Lavinia symmetricus subditis*), one of several subspecies of the widespread California roach, occurs in tributaries of Monterey Bay, including the Pajaro, Salinas, and San Lorenzo River drainages (Smith 1982). It is a small minnow (averaging 50 mm in length) that forages primarily on algae. These small fish occur primarily in smaller, often intermittent, and relatively warm streams, where they spawn in shallow areas of streams with gravel or cobbly substrate in spring and early summer. However, the species as a whole is a habitat generalist, occurring in a wide variety of aquatic habitats and tolerating human-altered streams.

4.2.2.1. SURVEY RESULTS

No targeted surveys for these fish were conducted for the Project and they were not specifically observed in the BSA. However, based on previous records, the Monterey roach is fairly widespread in the Pajaro River drainages watershed and inhabits calm, unshaded pools like those in the BSA (Smith 1982). The water quality in San Juan Creek is low due to runoff from surrounding agricultural fields, which may preclude the Monterey roach from maintaining populations in the creek, but individuals from the Pajaro River and San Benito River downstream may disperse to the site. Therefore, Monterey roach may be present.

4.2.2.2. Avoidance and Minimization Efforts

Project-related impacts to aquatic habitats will be avoided to the maximum extent feasible. The bridge improvement has been designed so that no new structures will be placed in the low-flow channel of the creek supporting these fish.

The Project will incorporate preconstruction, construction site, and postconstruction BMPs, as described in Section 4.1.1.2, in all wetland and riparian areas to prevent impacts related to the degradation of water quality in downstream habitats. In addition, Project-specific impact avoidance and minimization measures described above in 4.2.1.2 for steelhead will also avoid and minimize impacts to the Monterey roach.

4.2.2.3. Project Impacts

If this reach of San Juan Creek contains water during the construction period, there is some potential for Monterey roaches to be killed or injured if dewatering is necessary in the construction of the new bridge or recontouring activities. This may occur during construction of coffer dams. Construction activities adjacent to and within the creek could disturb soils and cause sediment to be transported into and through the channel, which would result in temporary increases in turbidity and sedimentation downstream of construction sites. Increased sediment loading can degrade food-producing habitat downstream of project areas. Finally, sediment can interfere with photosynthesis of aquatic flora and result in the displacement of aquatic fauna.

Other potential impacts could occur if fuel and concrete were allowed to spill into the waterway during construction. Various contaminants originating from construction activities, which may be lethal or sub-lethally toxic to fish, could be introduced into the system either directly or through surface runoff. However, implementation of the avoidance and minimization measures described above will minimize these potentially adverse effects.

All impacts to the Monterey roach habitat resulting from this Project will be temporary, and although a small amount of aquatic habitat in San Juan Creek will be permanently lost due to the installation of RSP and the new bridge, overall there will be a net increase in aquatic habitat after Project implementation. New structures and RSP will not impede fish movement, nor will the new channel depth impede fish movement. On the scale of the Pajaro River watershed, or even on the scale of San Juan Creek itself, the overall impact of the Project will have minimal effects on this species.

4.2.2.4. COMPENSATORY MITIGATION

Because the Project will have no effect on the regional abundance of the Monterey roach, and thus no substantial effects on this species or its habitat, no compensatory mitigation is warranted.

4.2.2.5. CUMULATIVE EFFECTS

Cumulative impacts to the Monterey roach result from past, current, and reasonably foreseeable future projects in the region. Although such Projects may result in impacts to this species, it is expected that most current and future Projects that impact these habitats will have to mitigate these impacts through the CEQA, Section 1600, or Section 404/401 permitting process, as well as through the FESA Section 7 consultation process for federally listed species such as steelhead that may be impacted by the same Projects. As a result, most Projects in the region will mitigate their impacts to the Monterey roach, minimizing cumulative impacts to this species. Because impacts to this species and its habitats will be minimized, the Project will mitigate its contribution to cumulative impacts to the Monterey roach.

4.2.3. Discussion of the California Red-legged Frog

The California red-legged frog is California's largest native frog. The species is generally restricted to riparian and lacustrine habitats in California and northern Baja California. Red-legged frogs prefer deep, calm pools (usually more than 2 ft deep) in creeks, rivers, or lakes below 5000 ft in elevation (Jennings and Hayes 1994). Breeding habitat requirements include freshwater emergent or dense riparian vegetation, such as willows adjacent to shorelines. Red-legged frogs can survive in seasonal bodies of water that are dry for short periods if a permanent water body or dense vegetation stands are nearby.

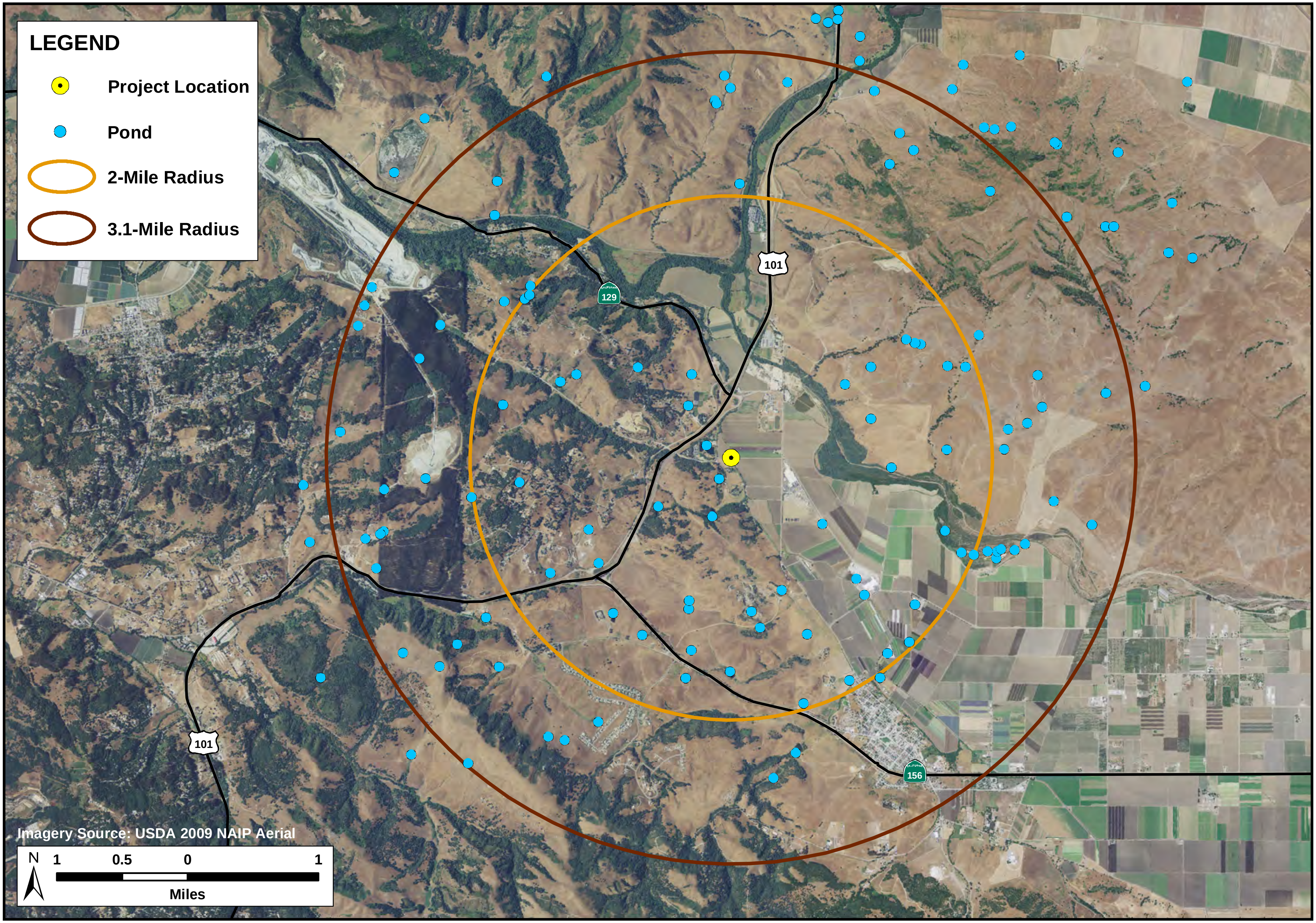
Adult red-legged frogs are normally active at night and breed in still water during the late winter or early spring after waters recede. Females attach eggs in a single cluster to vegetation just under the surface of the water. The eggs hatch in approximately one week and larvae feed on plant and animal material. It takes a minimum of approximately 4 months for the larvae to metamorphose into juvenile frogs. On rare occasions larvae over winter. Red-legged frogs can move considerable distances overland. Dispersal often occurs within creek drainages, but movements of more than a mile over upland habitats have been reported (Bulger et al. 2003). Red-legged frogs are often found in summer months in habitat that would not be suitable for breeding; these individuals presumably move seasonally between summer foraging habitat and winter breeding habitat.

The USFWS listed the California red-legged frog as threatened in 1996 (USFWS 1996) due to continued habitat degradation throughout the species' range and population declines and critical habitat was most recently designated in 2010 (USFWS 2010). No portion of the BSA is within designated critical habitat.

4.2.3.1. SURVEY RESULTS

H.T. Harvey and Associates performed a field survey and habitat assessment, and reviewed background information on known occurrences in the vicinity, to provide all the information requested for a California red-legged frog site assessment by the USFWS (2005a).

Wildlife Ecologist M. Timmer, M.S., conducted a reconnaissance-level survey and habitat assessment of the BSA and vicinity on 8 January 2013. The purpose of the survey was to document potential amphibian habitat within, and adjacent to, the BSA as well as assess potential impacts of the Project on California red-legged frogs. Prior to this site visit, the CNDDB (2013) was queried for information on the distribution of California red-legged frogs within the Project vicinity. CNDDB localities of California red-legged frogs within 2.0 mi of the project area were plotted on a GIS map based on USFWS Site Assessment criteria (Figure 4). The BSA and surrounding areas were surveyed on foot and by driving along (adjacent) access roads and stopping at locations selected to document habitats capable of supporting California red-legged frogs, as allowed by safety considerations and access permission from landowners. Otherwise, a review of aerial photographs was conducted using general knowledge of, and previous experience with, the habitat and ecology of California red-legged frogs to assess land-use conditions, potential barriers, and potential aquatic breeding sites (e.g., areas that pond water), both within the project area and all areas within 3.1 mi of the project boundary. Field observations and examination of aerial photographs were supplemented by utilizing an earlier California red-legged frog habitat assessment conducted for the U.S. 101 Widening Project (H.T. Harvey and Associates 2008). The southern reach of the U.S. 101 Widening Project extends just south of the U.S. 101/State Route (SR) 129 interchange, 0.4 mi north of the Project detailed in this NES. An extensive review of aerial images and field surveys for the



H.T. HARVEY & ASSOCIATES
Ecological Consultants

Figure 4: Ponds within Vicinity of Project Area

Anzar Road Bridge Over San Juan Creek Project (3399-01)

May 2014

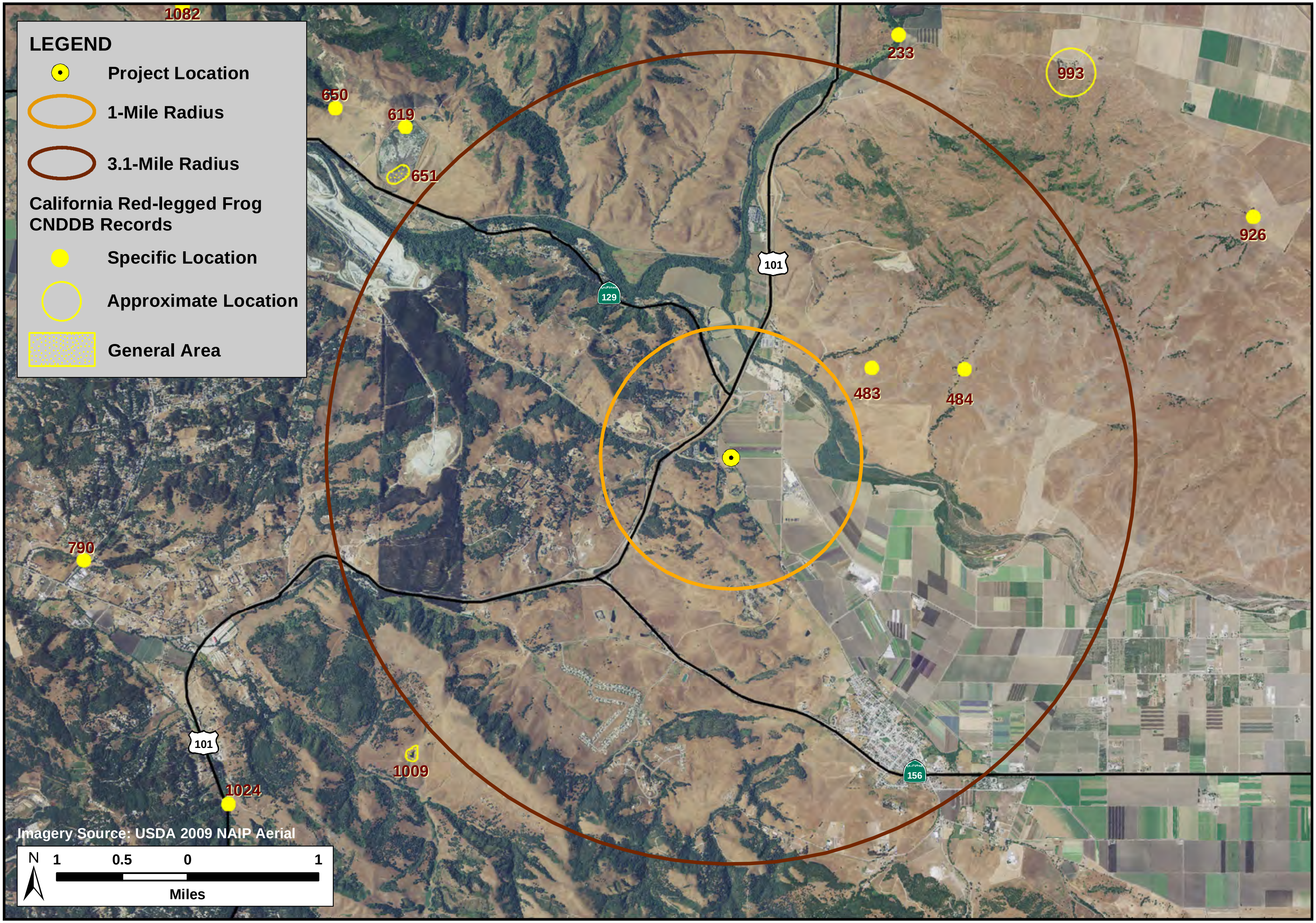
2008 habitat assessment revealed numerous areas that were either ponded or showed signs of ponding in the recent past (e.g., non-uniform soil coloration in depressional areas or presence of lush vegetation indicative of wetland plants) within 3.1 mi of the BSA. Ponds were originally digitized using ArcGIS 9.1 and this data layer was projected onto a United States Department of Agriculture (USDA) 2009 NAIP aerial map (Figure 5).

The California red-legged frog has not been recorded within the BSA itself. However, there are several CNDDB records of California red-legged frogs within 5 mi of the BSA (Figure 3) and two records within 2 mi of the BSA (Figure 5). The closest known records (#483 and #484) are from perennial stock ponds 1.2 and 1.8 mi from the BSA, respectively, in the hills to the northeast of the BSA (Figure 5).

Breeding Habitat. California red-legged frogs are known to breed in a wide variety of habitats ranging from isolated stock ponds to backwater pools in large riverine systems (Fellers 2005). However, due to the channelization of riverine habitats, reduced flows, and introduction of numerous non-native predators, California red-legged frogs are now largely restricted to breeding in isolated water bodies that are devoid of introduced predators. Thus, breeding now primarily occurs in stock ponds, depressional wetlands, marshes, long-lived temporary pools, and other areas that pond water during the spring and summer months. Breeding occasionally occurs in backwaters of lowland riparian corridors; however, these sites are now generally considered to be poor breeding habitat for California red-legged frogs due to high predator loads.

No California red-legged frogs or red-legged frog breeding habitat were observed during the reconnaissance-level survey of the BSA. San Juan Creek, where it flows through the BSA, is not suitable breeding habitat because of high amounts of non-point pollution from adjacent agricultural fields. The pollutants include excess nutrients from agricultural runoff and organic matter, which results in inadequate dissolved oxygen levels for eggs and tadpoles. The creek is also channelized and does not have any off-channel pools or slow moving water with emergent vegetation required for breeding red-legged frogs. Thus, the BSA does not constitute suitable breeding habitat for red-legged frogs. However, a survey of aerial photographs for aquatic habitat provides an overview of potential breeding sites in the immediate vicinity of the project area. The ponds distributed throughout the annual grassland and oak woodland south of the BSA are likely to provide suitable breeding habitat for California red-legged frogs (Figure 5). The closest potential breeding habitats are ponds approximately 0.45 mi to the south and 0.65 mi to the southwest of the BSA. Whether or not reproduction is successful in a particular pond largely depends upon the duration the pool remains wet (i.e., the pond must remain inundated long enough for tadpoles to successfully metamorphose, typically through July) and whether or not introduced predators, such as bullfrogs and fish, are present. More extensive on-the-ground surveys of individual ponds would be needed in order to determine whether or not these ponds actually support California red-legged frogs. Therefore, in the absence of focused surveys for breeding red-legged frogs, it was assumed that the ponds surrounding the BSA having suitable hydroperiods could potentially provide breeding habitat for red-legged frogs.

Foraging and Dispersal Habitat. California red-legged frogs feed on a wide variety of organisms including other frogs, salamanders, and even fish; however, their diet primarily consists of invertebrates (Hayes and Tennant 1985, Fellers 2005). While the high pollution levels in San Juan Creek may inhibit breeding, juvenile and adult red-legged frogs, which breathe air rather than through gills, are less susceptible to the effects of low dissolved oxygen and could use the creek channel for foraging. Thus, foraging habitat exists within the BSA and in the general Project vicinity, including San Juan Creek, the San Benito River, several intermittent tributaries to the east of the San Benito River (Figure 2), small ponds and surrounding moist areas and depressional wetlands south of the BSA. The BSA does provide suitable, albeit low quality non-breeding habitat for red-legged frogs dispersing between breeding sites, or between breeding and non-breeding aquatic habitats. As a perennial or near perennial creek that could contain water when other waterbodies in the region are dry or drying, the creek may attract foraging and dispersing frogs during summer months, and no barriers to dispersal are presented by the low earthen banks or the surrounding agricultural fields. Adult California red-legged frogs are known to move 1.8 mi or more across a wide variety of habitats (Bulger et al. 2003) and will remain in nearly any area that remains cool and moist (Fellers 2005). California red-legged frogs utilize a wide variety of habitats during dispersal events. Bulger et al. (2003) found that most dispersing adult California red-legged frogs took a direct route to their breeding ponds rather than following tributaries and riparian corridors; habitats within their dispersal routes included agricultural fields, shrub lands, forests, and grasslands. In the same study, California red-legged frogs were found to traverse steep cliffs and only seemed to be deterred by vertical rock. The high density of ponds and numerous rivers, creeks, and intermittent drainages that occur throughout the project vicinity provides suitable dispersal habitat for California red-legged frogs. Essentially, all non-developed habitat, including the non-native ruderal grassland and agricultural



N:\Projects3300\3399-01\Reports\NES\Fig 5 CRLF CNDDB Records.mxd

H.T. HARVEY & ASSOCIATES
Ecological Consultants

Figure 5: California Red-legged Frog CNDDB Records
Anzar Road Bridge Over San Juan Creek Project (3399-01)
May 2014

land within the BSA, has the potential to be used by California red-legged frogs, at least for upland dispersal between aquatic habitats. Dispersal between the western and eastern sides of U.S. 101 is impeded by heavy traffic and concrete median barriers that separate south- and northbound traffic along much of the project alignment. However, the riparian habitat along the San Benito River represents a potential dispersal route for California red-legged frogs between established breeding ponds west of U.S. 101 and breeding ponds east of U.S. 101.

Due to the absence of known occurrence records in close proximity to the Project site, the poor water quality in San Juan Creek, and the predominance of agricultural land uses in the Project vicinity (which may impede dispersal owing to lack of suitable refugia in upland areas), there is a low probability that red-legged frogs occur at all regularly, or in numbers, in the BSA. However, the potential for occurrence of dispersing red-legged frogs cannot be ruled out.

In summary, no focused surveys for California red-legged frogs were conducted for this Project. Rather, presence in the BSA was inferred because it is within dispersal distance of suitable breeding ponds. Information about the potential occurrence of California red-legged frogs as potential dispersers or foragers within the BSA that might be obtained from more focused surveys or at a time of year more conducive for detecting California red-legged frogs would not have altered the determinations regarding potential presence or absence of this species for this Project.

4.2.3.2. AVOIDANCE AND MINIMIZATION EFFORTS

On 4 May 2011, the USFWS (2011) issued a Programmatic Biological Opinion (PBO) to the California Department of Transportation for projects funded under the FHWA’s Federal Aid Program (8-8-10-F-58) and that are likely to adversely affect the California red-legged frog and its designated critical habitat, within the Ventura Fish and Wildlife Office’s area of responsibility in San Benito, Santa Cruz, Monterey, San Luis Obispo, and Santa Barbara counties. The project is consistent with activities covered by the PBO as follows:

Criteria 1: The project, bridge replacement, is included in the PBO’s list of actions that are likely to result in adverse effects on the California red-legged frog, but that would not affect the long-term viability of the population in the action area.

Criteria 2: The measures listed in the PBO to reduce or avoid adverse effects on the California red-legged frog and its critical habitat will be implemented (see below).

Criteria 3: The project is not part of a larger action or associated with other development project.

Criteria 4: The project is located in San Benito County, which is not an area where populations of California red-legged frogs are so isolated that even the small effects described in the PBO may have a substantial impact.

As described previously, project-related impacts to riparian, wetland, and aquatic habitats, where red-legged frogs concentrate their activities, have been avoided to the maximum extent feasible. The Project will incorporate preconstruction, construction site, and postconstruction BMPs, as described in Section 4.1.1.2, in all wetland and riparian areas to prevent impacts related to the degradation of water quality in downstream habitats. Further, implementation of the following measures from the PBO will avoid or minimize any impacts on individuals that may occur as a result of Project activities.

1. Only Service-approved biologists will participate in activities associated with the capture, handling, and monitoring of California red-legged frogs. Biologists authorized under this biological opinion do not need to re-submit their qualifications for subsequent projects conducted pursuant to this biological opinion, unless we have revoked their approval at any time during the life of this biological opinion.
2. Ground disturbance will not begin until written approval is received from the Service that the biologist is qualified to conduct the work, unless the individual(s) has/have been approved previously and the Service has not revoked that approval.
3. A Service-approved biologist will survey the project site no more than 48 hours before the onset of work activities. If any life stage of the California red-legged frog is found and these individuals are likely to be killed or injured by work activities, the approved biologist will be allowed sufficient time to move them from the site before work begins. The Service-approved biologist will relocate the California red-legged frogs the shortest distance possible to a location that contains suitable habitat and that will not be affected by activities associated with the proposed project. The relocation site should be in the same drainage to the extent practicable. Caltrans will coordinate with the Service on the relocation site prior to the capture of any California red-legged frogs.
4. Before any activities begin on a project, a Service-approved biologist will conduct a training session for all construction personnel. At a

minimum, the training will include a description of the California red-legged frog and its habitat, the specific measures that are being implemented to conserve the California red-legged frog for the current project, and the boundaries within which the project may be accomplished. Brochures, books, and briefings may be used in the training session, provided that a qualified person is on hand to answer any questions.

5. A Service-approved biologist will be present at the work site until all California red- legged frogs have been relocated out of harm's way, workers have been instructed, and disturbance of habitat has been completed. After this time, the State or local sponsoring agency will designate a person to monitor on-site compliance with all minimization measures. The Service-approved biologist will ensure that this monitor receives the training outlined in measure 4 above and in the identification of California red-legged frogs. If the monitor or the Service-approved biologist recommends that work be stopped because California red-legged frogs would be affected in a manner not anticipated by Caltrans and the Service during review of the proposed action, they will notify the resident engineer (the engineer that is directly overseeing and in command of construction activities) immediately. The resident engineer will either resolve the situation by eliminating the adverse effect immediately or require that all actions causing these effects be halted. If work is stopped, the Service will be notified as soon as possible.
6. During project activities, all trash that may attract predators will be properly contained, removed from the work site, and disposed of regularly. Following construction, all trash and construction debris will be removed from work areas.
7. All refueling, maintenance, and staging of equipment and vehicles will occur at least 60 feet from riparian habitat or water bodies and in a location from where a spill would not drain directly toward aquatic habitat (e.g., on a slope that drains away from the water). The monitor will ensure contamination of habitat does not occur during such operations. Prior to the onset of work, Caltrans will ensure that a plan is in place for prompt and effective response to any accidental spills. All workers will be informed of the importance of preventing spills and of the appropriate measures to take should a spill occur.
8. Habitat contours will be returned to their original configuration at the end of project activities. This measure will be implemented in all areas disturbed by activities associated with the project, unless the Service and

Caltrans determine that it is not feasible or modification of original contours would benefit the California red-legged frog.

9. The number of access routes, size of staging areas, and the total area of the activity will be limited to the minimum necessary to achieve the project goals. Environmentally Sensitive Areas will be delineated to confirm access routes and construction areas to the minimum area necessary to complete construction, and minimize the impact to California red-legged frog habitat; this goal includes locating access routes and construction areas outside of wetlands and riparian areas to the maximum extent practicable.
10. Caltrans will attempt to schedule work activities for times of the year when impacts to the California red-legged frog would be minimal. For example, work that would affect large pools that may support breeding would be avoided, to the maximum degree practicable, during the breeding season (November through May). Isolated pools that are important to maintain California red-legged frogs through the driest portions of the year would be avoided, to the maximum degree practicable, during the late summer and early fall. Habitat assessments, surveys, and coordination between Caltrans and the Service during project planning will be used to assist in scheduling work activities to avoid sensitive habitats during key times of the year.
11. To control sedimentation during and after project implementation, Caltrans, and the sponsoring agency will implement best management practices outlined in any authorizations or permits issued under the authorities of the Clean Water Act that it receives for the specific project. If best management practices are ineffective, Caltrans will attempt to remedy the situation immediately, in coordination with the Service.
12. If a work site is to be temporarily dewatered by pumping, intakes will be completely screened with wire mesh not larger than 0.2 inch to prevent California red-legged frogs from entering the pump system. Water will be released or pumped downstream at an appropriate rate to maintain downstream flows during construction. Upon completion of construction activities, any diversions or barriers to flow will be removed in a manner that would allow flow to resume with the least disturbance to the ·substrate. Alteration of the stream bed will be minimized to the maximum extent possible; any imported material will be removed from the stream bed upon completion of the project.
13. Unless approved by the Service, water will not be impounded in a manner that may attract California red-legged frogs.

14. A Service-approved biologist will permanently remove any individuals of non-native species, such as bullfrogs (*Rana catesbeianus*), signal and red swamp crayfish (*Pacifastacus leniusculus*; *Procambarus clarkii*), and centrarchid fishes from the project area, to the maximum extent possible. The Service-approved biologist will be responsible for ensuring his or her activities are in compliance with the California Fish and Game Code.
15. If Caltrans demonstrates that disturbed areas have been restored to conditions that allow them to function as habitat for the California red-legged frog, these areas will · not be included in the amount of total habitat permanently disturbed.
16. To ensure that diseases are not conveyed between work sites by the Service-approved biologist, the fieldwork code of practice developed by the Declining Amphibian Populations Task Force will be followed at all times. A copy of the code of practice is enclosed. To avoid harassment, injury, or mortality of California red-legged frogs by dogs or cats, no canine or feline pets shall be permitted in the project area.
17. Project sites will be re-vegetated with an assemblage of native riparian, wetland, and upland vegetation suitable for the area. Locally collected plant materials will be used to the extent practicable. Invasive, exotic plants will be controlled to the maximum extent practicable. This measure will be implemented in all areas disturbed by activities associated with the project, unless the Service and Caltrans determine that it is not feasible or practical.
18. Caltrans will not use herbicides as the primary method used to control invasive, exotic plants. However, if Caltrans determines the use of herbicides is the only feasible method for controlling invasive plants at a specific project site, it will implement the following additional protective measures for the California red-legged frog:
    a. Caltrans will not use herbicides during the breeding season for the California red-legged frog;
    b. Caltrans will conduct surveys for the California red-legged frog immediately prior to the start of any herbicide use. If found, California red-legged frogs will be relocated to suitable habitat far enough from the project area that no direct contact with herbicides would occur;
    c. Giant reed and other invasive plants will be cut and hauled out by hand and the stems painted with glyphosate or glyphosate-based products, such as Aquamaster® or Rodeo®;
    d. Licensed and experienced Caltrans staff or a licensed and experienced contractor will use a hand-held sprayer for foliar application of

Aquamaster® or Rodeo® where large monoculture stands occur at an individual project site;

e. All precautions will be taken to ensure that no herbicide is applied to native vegetation.
f. Herbicides will not be applied on or near open water surfaces (no closer than 60 feet from open water).
g. Foliar applications of herbicide will not occur when wind speeds are in excess of 3 miles per hour.
h. No herbicides will be applied within 24 hours of forecasted rain.
i. Application of all herbicides will be done by a qualified Caltrans staff or contractors to ensure that overspray is minimized, that all application is made in accordance with label recommendations, and with implementation of all required and reasonable safety measures. A safe dye will be added to the mixture to visually denote treated sites. Application of herbicides will be consistent with the U.S. Environmental Protection Agency's Office of Pesticide Programs, Endangered Species Protection Program county bulletins.
j. All herbicides, fuels, lubricants, and equipment will be stored, poured, or refilled at least 60 feet from riparian habitat or water bodies in a location where a spill would not drain directly toward aquatic habitat. Caltrans will ensure that contamination of habitat does not occur during such operations. Prior to the onset of work, Caltrans will ensure that a plan is in place for a prompt and effective response to accidental spills. All workers will be informed of the importance of preventing spills and of the appropriate measures to take should a spill occur.

19. Upon completion of any project for which this programmatic consultation is used Caltrans will ensure that a Project Completion Report is completed and provided to the Ventura Fish and Wildlife Office. A copy of the form is enclosed. Caltrans should include recommended modifications of the protective measures if alternative measures would facilitate compliance with the provisions of this consultation. In addition, Caltrans will reinitiate formal consultation in the event any of the following thresholds are reached as a result of projects conducted under the provisions of this consultation:
    a. 10 California red-legged frog adults or juveniles have been killed or injured in any given year. (For this and all other standards, an egg mass is considered to be one California red-legged frog.);
    b. 50 California red-legged frogs have been killed or injured in total;

c. 20 acres of critical habitat for the California red-legged frog that include the primary constituent elements of aquatic breeding and non-breeding aquatic habitat and upland and dispersal habitat have been permanently lost in any given year;
d. 100 acres of critical habitat for the California red-legged frog that include the primary constituent elements of aquatic breeding and non-breeding aquatic habitat and upland and dispersal habitat have been permanently lost in total;
e. 100 acres of critical habitat for the California red-legged frog that include the primary constituent elements of aquatic breeding and non-breeding aquatic habitat and upland and dispersal habitat have been temporarily disturbed in any given year; or
f. 500 acres of critical habitat for the California red-legged frog that include the primary constituent elements of aquatic breeding and non-breeding aquatic habitat and upland and dispersal habitat have been temporarily disturbed in total.

4.2.3.3. PROJECT IMPACTS

Red-legged frogs may occasionally use the BSA for dispersal between established populations. Thus, in the absence of avoidance and minimization measures, the Project could affect individual red-legged frogs as a result of:

- Direct mortality during construction as a result of trampling by construction personnel or equipment;
- Increased mortality due to roadkill caused by the construction and vehicular use in and around the vicinity of the Project;
- Potential reduction in dispersal to and from ponds up and downstream of the BSA due to the physical impediment posed by construction materials or parked vehicles;
- Direct mortality from the collapse of underground burrows (which may be used as refugia in upland areas by red-legged frogs), resulting from soil compaction;
- Substrate vibrations may cause individuals to move out of refugia, exposing them to a greater risk of depredation or desiccation, may interfere with predator detection, and may result in a decrease in time spent foraging;
- Individuals that are found during pre-activity surveys and relocated to suitable habitat outside of the BSA may be subjected to physiological stress and greater risk of predation, or may undergo increased competition with frogs already present in the area to which they are relocated.

- Loss of suitable dispersal and foraging habitat resulting from the fill of wetland and aquatic habitats and removal of riparian vegetation; and
- Loss/degradation of potential breeding pools in San Juan Creek downstream of the BSA as a result of increased sedimentation/erosion due to construction activities.

The avoidance and minimization measures described above and the implementation of BMPs described in Section 4.1.1.2 will minimize impacts on individuals and their habitat during construction.

In all, the Project could impact up to 1.46 ac of potential red-legged frog foraging and dispersal habitat (i.e., scrub/shrub riparian wetland, herbaceous riparian wetland, aquatic, row crops, and non-native/ruderal grassland).

Because it was assumed that red-legged frogs could occur virtually anywhere in the BSA, all impacted natural habitats (i.e., areas that were not already paved or otherwise developed) were considered impacted red-legged frog habitat. Two categories of habitat impacts were identified:

- <u>Permanent Impacts</u>. Approximately 0.20 ac of potential red-legged frog dispersal habitat would be permanently lost due to the construction of pavement and installation of rock slope protection in areas that currently provide natural habitat that may be used by red-legged frogs.
- <u>Temporary Impacts</u>. Approximately 1.26 ac of potential red-legged frog habitat, including aquatic habitat for foraging and upland/riparian habitat for cover and dispersal, would be used for the temporary detour, construction access, and staging while the Project is being constructed or would be impacted by grading (cut/fill) activities as part of the Project. Areas used for construction access, and staging would not be paved or otherwise permanently altered. These areas are expected to provide habitat of similar quality to existing conditions shortly (i.e., in less than one year) after the completion of construction. Areas that would be temporarily impacted by grading would be revegetated following the completion of construction; such areas are expected to provide habitat of similar quality to the existing habitat that would be impacted, from the perspective of California red-legged frogs, within approximately one year after the completion of construction.

4.2.3.4. Compensatory Mitigation

The Project would result in permanent impacts on 0.20 ac of habitats that could potentially be used by red-legged frogs during foraging or dispersal. However, with implementation of the avoidance and minimization measures listed above, take of individuals will be minimized and project activities are not expected to result in a substantial permanent effect on habitat for California red-legged frogs. Therefore, per the PBO, no compensatory mitigation is warranted.

4.2.3.5. Cumulative Effects

The historic distribution of the California red-legged frog extended from the city of Redding in the Central Valley and Point Reyes National Seashore along the coast, south to Baja California, Mexico. However, the species' current distribution is much reduced. It has been extirpated from 70 percent of its former range and now is found primarily in coastal drainages of central California, from Marin County, California, south to northern Baja California, Mexico, and in isolated drainages in the Sierra Nevada, northern Coast, and northern Transverse Ranges (USFWS 1996). The California red-legged frog is threatened within its remaining range, by a wide variety of human impacts to its habitat, including urban encroachment, construction of reservoirs and water diversions, contaminants, agriculture, and livestock grazing (USFWS 2002). The California red-legged frog was listed as threatened throughout its entire range on 23 May 1996 by the USFWS.

Cumulative impacts to California red-legged frogs result from past, current, and reasonably foreseeable future projects in the region. Although such projects may result in impacts to this species, it is expected that most current and future projects that impact these habitats will have to mitigate impacts through the CEQA, Section 1600, or Section 404/401 permitting process, as well as through the FESA Section 7 consultation process. As a result, most projects in the region will mitigate their impacts to California red-legged frogs, minimizing cumulative impacts to this species. With implementation of avoidance and mitigation measures, this Project will not make a considerable contribution to cumulative effects on California red-legged frogs.

4.2.4. Discussion of the California Tiger Salamander

The California tiger salamander occurs in areas of the Central Valley and California Coast Ranges where temporary ponded environments (e.g., vernal pools or human-made ponds providing water for at least 3 months) are surrounded by uplands that support small mammal burrows. Breeding pools are usually ephemeral pools (e.g., vernal pools), but they must retain water long enough for metamorphosis to occur. Permanent ponds are also used for breeding, but larger ponds often contain predators that consume eggs and larvae, and prevent successful breeding.

During summer months, California tiger salamanders occur in subterranean refuge sites, usually in small mammal burrows, but also in crevices in the soil. These sites are typically referred to as “aestivation” sites, although the exact behavior of tiger salamanders in refuge sites is not fully understood. After winter rains have moistened the ground, the salamanders emerge from their refugia and migrate to breeding pools. Females deposit one, or occasionally up to four, eggs in the water and attach them to submerged vegetation or debris. Females may lay eggs twice in a single season (USFWS 2004). Lifetime reproductive success of females is fairly low; females in one study bred an average of 1.4 times in their lives, producing about 11 young each (Trenham et al. 2000). Adults may live more than 10 years, but do not reproduce until they are 4 to 5 years old (Trenham et al. 2000). Eggs take 10 to 14 days to hatch. Aquatic juveniles usually complete metamorphosis after 3 to 6 months. Generally, ephemeral breeding ponds dry up during summer months, but over-summering larvae have been observed (Shaffer et al. 1993). Following metamorphosis, juveniles spend a few days at the pond margin, and then migrate to refuge sites. Overland migration may extend up to 1.2 mi, but most California tiger salamanders remain within 0.4 mi of their breeding ponds (USFWS 2004).

The USFWS listed the California tiger salamander as threatened throughout its range in 2004 (USFWS 2004). Critical habitat for the species was designated in 2005 (USFWS 2005b). No portion of the Project BSA is within designated critical habitat for this species. The California tiger salamander was listed as threatened under the California Endangered Species Act in 2010.

4.2.4.1. SURVEY RESULTS

H. T. Harvey and Associates performed a field survey and habitat assessment, and reviewed background information on known occurrences in the vicinity, to provide all the information requested for a California tiger salamander site assessment by the USFWS (USFWS 2003b).

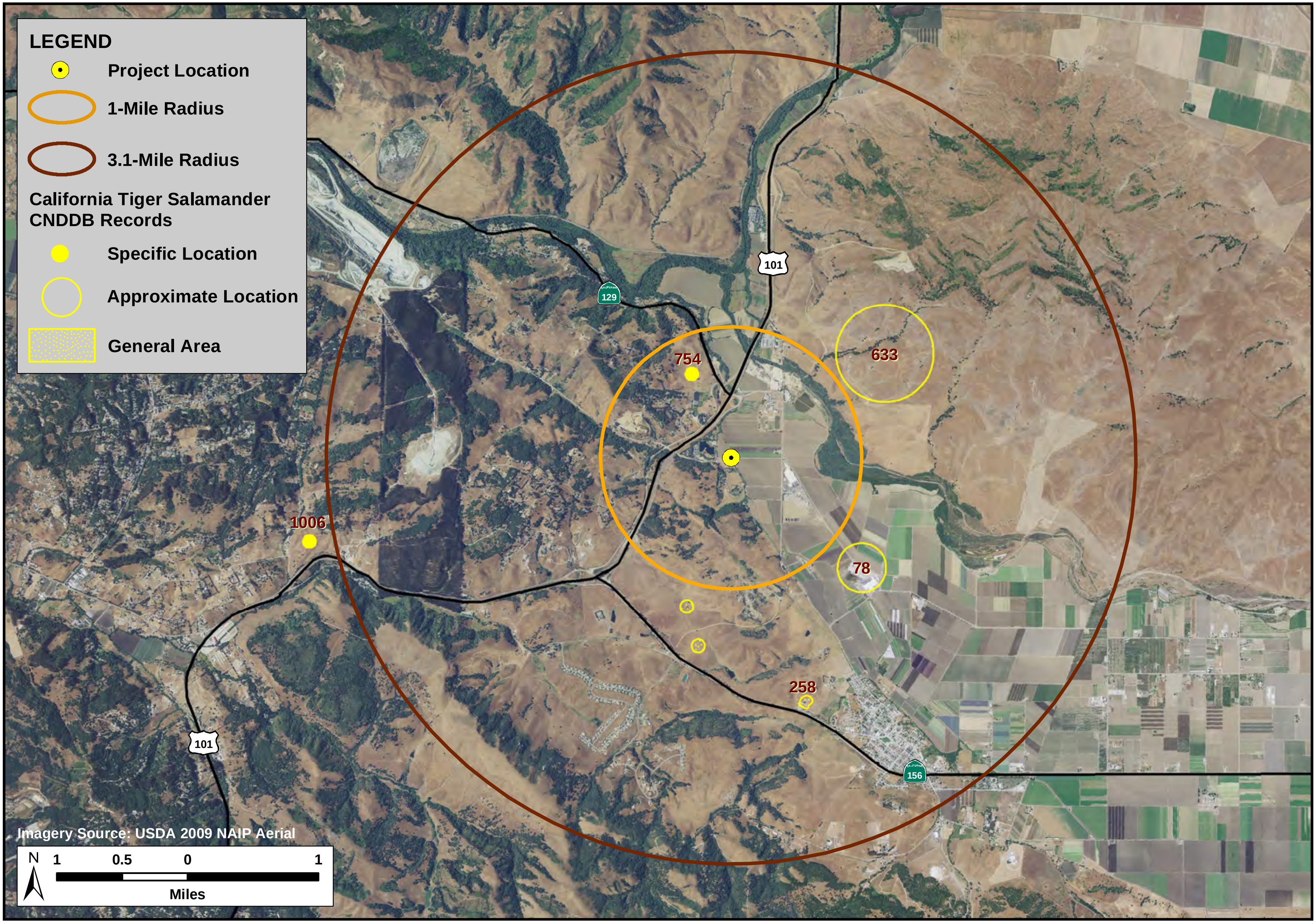
Wildlife Ecologist M. Timmer, M.S., conducted a reconnaissance-level survey and habitat assessment of the BSA and vicinity on 8 January 2013. The purpose of the survey was to document potential amphibian habitat within, and adjacent to, the BSA as well as to assess potential impacts of the Project on California tiger salamanders. Prior to this site visit, the CNDDB (2013) was queried for information on the known distribution of California tiger salamanders within the Project vicinity. CNDDB localities of California tiger salamanders within 1.24 mi of the project area were plotted on a GIS map based on USFWS Site Assessment criteria (Figure 6). The BSA and surrounding areas were surveyed on foot and by driving along (adjacent) access roads and stopping at locations selected to document habitats capable of supporting California tiger salamanders, as allowed by safety considerations and access permission from landowners. Otherwise, a review of aerial photographs was conducted using general knowledge of, and previous experience with, the habitat and ecology of California tiger salamanders to assess land-use conditions, potential barriers, and potential aquatic breeding sites (e.g., areas that pond water), both within the project area and all areas within 3.1 mi of the project boundary. Field observations and examination of aerial photographs were supplemented by utilizing an earlier California tiger salamander Habitat Assessment conducted for the U.S. 101 Widening Project (H.T. Harvey and Associates 2008). The southern reach of the U.S. 101 Widening Project extended just south of the U.S. 101/State Route (SR) 129 interchange, 0.4 mi north of the Project detailed in this NES. An extensive review of aerial images and field surveys for the 2008 Habitat Assessment revealed numerous areas that were either ponded or showed signs of ponding in the recent past (e.g., non-uniform soil coloration in depressional areas or presence of lush vegetation indicative of wetland plants) within 3.1 mi of the BSA. Ponds were originally digitized using ArcGIS 9.1 and this data layer was projected onto a United States Department of Agriculture (USDA) 2009 NAIP aerial map (Figure 4).

The California tiger salamander has not been recorded within the BSA itself. However, there are several CNDDB records of California tiger salamanders within 5 mi of the BSA (Figure 3) and three records within 1.24 mi of the BSA (Figure 6). The closest known record (#754) is from a stock pond 0.7 mi north-northwest of the BSA in 2003. In 1993, larvae were surveyed in a drainage east of the San Benito River and the San Juan Valley (#633), 1.1 mi in the hills northeast of the BSA (Figure 6). CNDDB occurrence #78 was an observation from 1973 along San Justo Road, 1.1 mi southeast of the BSA, although it appears that this area is now completely developed.

Breeding Habitat. As mentioned above, California tiger salamanders breed in pond environments that persist for a minimum of 3-4 months during winter and spring. Examples of such environments include temporary, rain-fed pools and human-made ponds surrounded by uplands that contain small mammal burrows. Breeding typically occurs from early December through mid-March, with metamorphosis and migration from ponds occurring in late May through late July (Storer 1925). Juveniles leave the ponds en masse during a one to two-week period and take several years to reach maturity.

No California tiger salamanders or tiger salamander breeding habitat were observed during the reconnaissance-level survey of the BSA. The only aquatic feature in the BSA, the San Juan Creek channel, is not suitable breeding habitat for tiger salamanders like most creeks in the area, because their eggs or larvae are susceptible to wash away during high flows and are also vulnerable to predators that reside within the creek. While there is no breeding habitat within the BSA, inspection of aerial photographs for aquatic habitat provided an overview of potential breeding sites in the immediate vicinity of the project area (Figure 4). There are several ponds distributed throughout the annual grassland and oak woodland south of the BSA, which could potentially provide suitable breeding habitat for California tiger salamanders. The closest of these potential breeding habitats are perennial ponds approximately 0.45 mi to the south and 0.65 mi to the southwest of the BSA. It is likely that these perennial ponds contain introduced predators, such as fish and bullfrogs, which would limit the likelihood of them supporting populations of breeding salamanders. Seasonal ponds nestled within annual grassland 1.0-1.1 mi to the south and southwest may provide more suitable breeding habitat. Whether or not reproduction is successful in these ponds largely depends upon the duration the pool remains wet (i.e., the pond must remain inundated long enough for juveniles to successfully metamorphose). More extensive on-the-ground surveys of individual ponds would be needed in order to determine whether or not these ponds actually support California tiger salamanders. In the absence of focused surveys for breeding tiger salamanders, it was assumed that the ponds surrounding the BSA having suitable hydroperiods could potentially provide breeding habitat for tiger salamanders.

Upland Habitat. Small mammal burrows and fissures in the ground may provide refugial habitat for juvenile and adult California tiger salamanders. Adults occupy burrows most of the year with the exception of the breeding season when they migrate to breeding ponds. Newly metamorphosed juveniles from the previous summer that have not reached sexual maturity by the breeding season presumably remain in burrows instead of migrating to ponds. The upland portion of the BSA is composed of non-native ruderal grassland (46%), row crops (28%), and developed land (20%), and is highly disturbed by agricultural activities. The fallow fields consisting of non-native grasses south of Anzar Rd, both on the southern side of the BSA and to the south of this area, were observed to have only a few small mammal



N:\Projects3300\3399-01\Reports\NES\Fig 6 CTS CNDDB Records.mxd

H.T. HARVEY & ASSOCIATES
Ecological Consultants

Figure 6: California Tiger Salamander CNDDB Records
Anzar Road Bridge Over San Juan Creek Project (3399-01)
May 2014

burrows that could provide refugia for tiger salamanders during the non-breeding season. The intensively cultivated agricultural fields north of Anzar Rd, both on the northern side of the BSA and to the north of this area, are unsuitable refugial habitat due to frequent disturbance and lack of small mammal burrows. The annual grasslands surrounding the BSA and the greater San Juan Valley provide suitable upland habitat for tiger salamanders, some of which is within 0.10 mi of the BSA.

California tiger salamanders primarily use open grassland and areas with scattered trees as dispersal habitats, and very rarely utilize riparian habitat (Trenham 2001). Trenham and Shaffer (2005) suggest that a buffer of at least 870 ft is necessary around California tiger salamander breeding ponds in order to protect critical upland habitat for adults and juvenile salamanders. Other research has documented California tiger salamanders using animal burrows and migrating through upland habitat greater distances from breeding ponds (Pittman 2005, Orloff 2007). Orloff (2007) suggested that California tiger salamanders may move up to 1.3 mi from suitable aquatic habitat. Migration distance is likely dependent upon the quantity and quality of suitable dispersal habitat and the density of refuge sites in a particular area.

Approximately one quarter of the land area within a 1.2 mi radius circle of the BSA represents habitat suitable for dispersing California tiger salamanders within reach of the BSA. The remainder of the surrounding area is either unsuitable or functionally isolated from the BSA due to significant impediments to dispersal. For example, suitable grassland habitat with known breeding locations west of U.S. 101 is isolated from the BSA by heavy traffic and median barriers. Regular disking and plowing in agricultural fields and the San Benito River make dispersal from the grasslands east of the San Juan Valley into the BSA unlikely for tiger salamanders. However, there is a known California tiger salamander breeding site within 3.1 mi to the south of the BSA with high quality upland habitat and potential breeding sites in between (Figure 7). Thus, much of the habitat to the south-southwest of the BSA has the potential to be used by dispersing California tiger salamanders, and, as a result, salamanders may disperse into the BSA. Once in the BSA, it is possible that salamanders could use the few burrows present there as upland refugia. Although the potential for occurrence of California tiger salamanders in the BSA cannot be ruled out, the probability of occurrence or number of individuals that could be impacted is very low owing to the distance between potential breeding ponds and the site and the unsuitability of habitat in most of the Project vicinity due to intensive cultivation.

In summary, no focused surveys for California tiger salamanders were conducted for this Project. Rather, potential for occurrence was inferred because: 1) the BSA is within dispersal distance of suitable breeding ponds; 2) potential dispersal habitat exists between these suitable breeding ponds and the BSA; and 3) there are no barriers to dispersal between these potential breeding ponds and the BSA. However, assuming that that the majority of construction of the new bridge and roadway approaches happens during the dry season (summer/fall), the likelihood of tiger salamanders occurring in the BSA during that time is very low because there are few burrows which salamanders could use for refugia, and there will likely be no individuals dispersing across the site during the dry season. Information about the potential occurrence of California tiger salamanders within the BSA that might be obtained from more focused surveys or at a time of year more conducive for detecting California tiger salamanders would not have altered the determinations regarding potential presence or absence of this species for this Project.

4.2.4.2. AVOIDANCE AND MINIMIZATION EFFORTS

The Project will incorporate preconstruction, construction site, and postconstruction BMPs, as described in Section 4.1.1.2 to prevent the degradation of habitat. In addition, all avoidance and minimization measures described above for the California red-legged frog in Section 4.2.3.2 will be implemented for the California tiger salamander, with the caveat that any agency consultation that occurs due to discovery of a salamander must involve CDFW and Caltrans as well as USFWS.

4.2.4.3. PROJECT IMPACTS

Small numbers of California tiger salamanders may occasionally use the BSA for dispersal between established populations and for summer refugial habitat. Thus, in the absence of avoidance and minimization measures, the Project could affect individual tiger salamanders as a result of:

- Direct mortality during construction as a result of trampling by construction personnel or equipment;
- Increased mortality due to roadkill caused by the construction and vehicular use in and around the vicinity of the Project;
- Potential reduction in dispersal to and from nearby breeding ponds due to the physical impediment posed by construction materials or parked vehicles;
- Direct mortality from the collapse of occupied burrows, resulting from soil compaction; and

- Direct mortality or loss of suitable habitat resulting from the loss of dispersal habitat and refugia.

The avoidance and minimization measures described above will minimize impacts on individuals during construction. No known or potential tiger salamander breeding habitat will be directly or indirectly impacted by the Project's construction activities, as no breeding habitat is present in or very close to the BSA.

The removal of the old bridge and construction of a new bridge could result in impacts on as much as 1.46 ac of dispersal and refugial habitat that is occasionally used by small numbers of California tiger salamanders. Two categories of habitat impacts were identified:

- Permanent Impacts. Approximately 0.20 ac of potential tiger salamander refugial/dispersal habitat would be permanently lost due to the construction of pavement and installation of rock slope protection in areas that currently provide natural habitat that may be used by tiger salamanders.
- Temporary Impacts. Approximately 1.26 ac of potential tiger salamander habitat would be used for construction access and staging while the Project is being constructed or would be impacted by grading (cut/fill) activities as part of the Project. Areas that would be temporarily impacted by grading would not be paved, and instead would be revegetated following the completion of construction; such areas are expected to provide habitat of similar quality to the existing habitat that would be impacted, from the perspective of California tiger salamanders, within approximately one year after the completion of construction.

4.2.4.4. COMPENSATORY MITIGATION

Project activities are not expected to result in a substantial effect on habitat for, or populations of, the California tiger salamander; due to the distance between the site and potential breeding ponds, coupled with the very small number of burrows on the Project site and the expectation that salamanders would not be dispersing during the dry season when work is being performed, the number of individuals that could use the site, and thus the number that may be impacted, would be very low. As a result, the Project will not have a substantial impact on California tiger salamander populations, and no compensatory mitigation is warranted for the purpose of environmental review.

However, regulatory protection of the California tiger salamander is expected to result in the need for compensatory mitigation. Because the species is State and federally listed, incidental take approval must be obtained before any individuals can be taken, and the CESA has a requirement that all take be fully mitigated. Therefore, it is expected that the CDFW will require compensatory mitigation as a condition of any Incidental Take Permit issued for the Project.

In anticipation of this regulatory mitigation requirement, the County will mitigate any long-term loss of California tiger salamander dispersal or upland refugial habitat at a 2:1 ratio (mitigation:impact), on an acreage basis for all permanent impacts, and 0.5:1 for all temporary impacts. This mitigation ratio has been determined to reflect the need to compensate for lost habitat functions and values, and potential loss of individuals, resulting from Project activities. Thus, based upon the estimated area of impact (i.e., 0.20 ac permanent and 1.26 ac temporary) this would result in approximately 1.03 ac of habitat to be preserved. Compensatory mitigation may be carried out through purchasing credits at a conservation bank and/or one or both of the following methods, in order of preference:

- The preservation and management of high-quality habitat that is already occupied by California tiger salamanders
- The restoration or enhancement of degraded habitat or habitat that is unsuitable for use by California tiger salamanders, but that (a) is in close proximity to areas of known occurrence and (b) could be made more suitable for use via construction of one or more breeding ponds, enhancement of breeding and nonbreeding aquatic habitat via improvements to emergent vegetation or other cover, or management to improve the quality of upland habitat

If high quality habitat is preserved or degraded habitat restored/enhanced, the Project proponent will develop a Habitat Mitigation & Monitoring Plan describing the measures that will be taken to manage the property and to monitor the effects of management on the California tiger salamander. That plan will include, at a minimum, the following:

- A description of the location and boundaries of the mitigation site and description of existing site conditions
- A description of measures to be undertaken if necessary to enhance (e.g., through focused management) the mitigation site for California tiger salamanders
- Proposed management activities, such as managed grazing and management of invasive plants, to maintain high-quality habitat conditions for California tiger salamanders

- A description of habitat and species monitoring measures on the mitigation site, including specific, goals and objectives, performance indicators, success criteria, monitoring methods, data analysis, reporting requirements, and monitoring schedule
- A description of the management plan's adaptive component, including potential contingency measures for mitigation elements that do not meet performance criteria
- A description of the funding mechanism to ensure the long-term maintenance and monitoring of the mitigation lands

4.2.4.5. CUMULATIVE EFFECTS

The California tiger salamander is widely distributed in the relatively xeric central California valleys and foothills. This region was originally composed of several million hectares of perennial grasslands intermixed with annual grasses, forbs, and open oak woodlands (Heady 1988). Today, introduced grasses dominate grassland habitats, and an estimated 75 percent of vernal pool habitat has been destroyed (Holland 1998; Ricketts et al. 1999). The primary cause of the decline of California tiger salamander populations is the loss and fragmentation of habitat from human activities and the encroachment of nonnative predators. Federal, State, and local laws have not prevented past and ongoing losses of habitat (USFWS 2009). The California tiger salamander was listed as threatened throughout its entire range on 4 August 2004 by the USFWS.

Cumulative impacts to California tiger salamanders result from past, current, and reasonably foreseeable future Projects in the region, including periodic maintenance and replacement of bridges throughout San Benito County. Although such projects will result in impacts to this species, it is expected that most current and future projects that impact these habitats will have to mitigate these impacts through the CEQA, Section 1600, or Section 404/401 permitting process, as well as through the FESA Section 7 consultation process. As a result, most projects in the region will mitigate their impacts to tiger salamanders, minimizing cumulative impacts to this species. Due to the very low probability that the California tiger salamander will be impacted by the Project, and with implementation of avoidance and mitigation measures, this Project will not make a considerable contribution to cumulative effects on the California tiger salamander.

4.2.5. Discussion of the Western Pond Turtle

The western pond turtle occurs in ponds, streams, and other aquatic habitats in the Pacific Slope drainages of California and northern Baja California, Mexico. Ponds or slack-water pools with suitable basking sites (such as logs) are an important habitat component. Nesting season typically occurs from April through July with the peak occurring in late May to early July. Females lay eggs in upland habitats, typically in clay or silty soils in unshaded (often south-facing) areas within a few hundred meters of aquatic habitat. Nesting sites typically consist of open habitat with full sun exposure and are typically located along stream or pond margins, but if no suitable habitat is available, adults have been documented making considerable overland journeys and nesting as far as 1300 ft (0.25 mi) from the water (Jennings and Hayes 1994, Bury and Germano 2008). Juveniles feed and grow in shallow aquatic habitats (often creeks) with emergent vegetation and ample invertebrate prey. Although degradation of aquatic habitats due to development, introduction of non-native predators, and water diversions all impact western pond turtles, destruction of non-aquatic habitat (e.g., basking areas and nesting habitats) is equally detrimental to their long-term persistence.

4.2.5.1. Survey Results

No western pond turtles were detected during the 8 January 2013 wildlife reconnaissance-level survey. However, western pond turtles have been recorded in several locations in the vicinity of the BSA and are likely residents in nearby perennial ponds on private property that have not been surveyed for this species. The habitat in the BSA has low suitability for western pond turtles because of the low water quality in San Juan Creek and the general lack or sparseness of aquatic and streamside vegetation. The large amounts of row crops in and upstream of the BSA will limit turtle numbers upstream of the BSA and therefore also reduce the number of individuals that may disperse from upstream areas, and periodic disking of the fields immediately adjacent to the bridge reduces habitat suitability for nesting turtles. However, due to the presence of pond turtles in other portions of the watershed in the Project vicinity, turtles may occasionally disperse through the BSA. It is unlikely that these turtles will linger on or near the Project site due to the levels of disturbance and also because there are no deep pools with good basking sites in the immediate vicinity of the BSA.

4.2.5.2. Avoidance and Minimization Efforts

All Project activities affecting the channel will take place during the dry season, when the likelihood of pond turtles occurring in the BSA is very low. Additionally, BMPs implemented as described above in order to protect water quality, as well as compliance with standard CDFW permit conditions, will avoid potential deleterious effects on western pond turtles downstream of the Project site. In addition, during pre-construction surveys and construction monitoring for California red-legged frogs and California tiger salamanders, a qualified biologist will look for western pond turtles within the Project's impact areas. If any pond turtles are detected during these surveys or during construction monitoring in an area where they could be impacted, they will be relocated to a suitable location upstream or downstream of the BSA, as determined by the qualified biologist and in consultation with Caltrans and CDFW.

4.2.5.3. PROJECT IMPACTS

There is a low probability that individual western pond turtles or their nests will be directly impacted by this Project because the BSA contains only marginal breeding habitat for western pond turtles and their presence in the reach of San Juan Creek in the BSA will be temporary. Nevertheless, there is some potential for turtles or eggs to be crushed by personnel or equipment during Project work. Implementation of the measures indicated above, including relocation of any western pond turtles detected during site surveys and monitoring, will minimize impacts to individuals of this species.

4.2.5.4. COMPENSATORY MITIGATION

Due to the limited nature of Project impacts on western pond turtles, no compensatory mitigation is warranted for this species.

4.2.5.5. CUMULATIVE IMPACTS

Cumulative impacts to western pond turtles result from past, current, and reasonably foreseeable future projects in the region. Although such projects will result in impacts to this species, it is expected that at least some current and future projects that impact these habitats will have to mitigate these impacts through the CEQA or Section 1600 process. As a result, many projects in the region will mitigate their impacts to western pond turtles or to other aquatic species (such as red-legged frogs or steelhead), reducing cumulative impacts to this species.

Due to the very low probability that the Project will impact western pond turtles, the Project is not expected to contribute substantially to cumulative impacts on this species.

4.2.6. Discussion of the Least Bell's Vireo

The least Bell's vireo is a small migratory songbird that breeds in riparian habitats. Prior to 1920, the California population of least Bell's vireo was common and considered abundant in dense riparian thickets. Its coastal range (i.e., west of the Central Valley) extended north through the Salinas River valley, but apparently ended in extreme southern Santa Clara County, where the only record prior to 1997 was of a nest collected at Sargent Creek along the Pajaro River (on the Santa Clara/San Benito County line near the current location of U.S. 101) in 1932 (Unglish 1937).

By 1930, declines were widespread, mostly due to parasitism by brown-headed cowbirds (*Molothrus ater*). The least Bell's vireo was thought to be extirpated from northern California by 1970. Isolated and infrequent sightings of singing males in northern and central California have suggested that the species may eventually recolonize historic habitat in northern California. In 1972, and again in 1982, lone singing males were found in riparian habitat in Pinnacles National Monument, in San Benito County (Roberson 2002). In 1983, three singing males were found on the Salinas River in southern Monterey County, and a female was observed building a nest.

Aside from sporadic sightings of single individuals from southern Monterey County, there have been only four records from the Pajaro River watershed north in recent years. One was observed along the lower Pajaro River, along the Monterey/Santa Cruz County border, on 29-30 May 1996. In southern Santa Clara County, a pair was present in May 1997, and two singing males were reported on 17 May 2001 (CNDDB 2012); both of these records were from lower Llagas Creek between SR 152 and the confluence with the Pajaro River, just east of Gilroy. On 20 June 2006, a singing male was heard along Coyote Creek near the Coyote Creek Golf Course (H. T. Harvey & Associates, unpublished); this individual was looked for but not relocated subsequently. In 2005 and again in 2006, a pair of least Bell's vireos nested at the San Joaquin River National Wildlife Refuge, near Modesto in the San Joaquin Valley. This represented the first nesting record for the species in the California's Central Valley in 60 years. These recent records in central California indicate that the species is beginning to recolonize formerly occupied habitat in central and northern California.

4.2.6.1. SURVEY RESULTS

In areas where least Bell's vireos have been re-occupying their former range in northern California, individuals seem to prefer well-developed, structurally heterogeneous willow/cottonwood-dominated riparian habitat, usually in a flat valley. In the Pajaro River watershed, the willow-dominated riparian habitat along streams such as Llagas Creek, the Pajaro River, and the San Benito River provides potentially suitable breeding habitat for least Bell's vireos. The abundance of brown-headed cowbirds throughout the region may prevent the colonization of the study area by successfully breeding least Bell's vireos, unless a cowbird control program is initiated. Furthermore, because there is no historical evidence of a widespread breeding population in the Pajaro River watershed even before the species' decline in the 20th century, it is possible that some other factors limit the potential for this species to become established in the study area.

The riparian habitat in and adjacent to the BSA is inconsistent with habitat in which this species has been recently recorded in northern California. It lacks the vertical complexity of the riparian vegetation that this species uses, and it does not provide sufficiently dense vegetation in the lower strata to be used by this species. As a result, there is no expectation that the species would use this habitat. Therefore, no species-specific surveys are necessary because habitat within and adjacent to the BSA is not suitable for vireos.

4.2.6.2. Avoidance and Minimization Efforts

The least Bell's vireo is not expected to occur within or near the BSA, and thus no avoidance or minimization efforts are needed.

4.2.6.3. Project Impacts

The Project will not impact least Bell's vireo habitat or individual vireos or vireo populations during or as a result of construction activities.

4.2.6.4. Compensatory Mitigation

Due to the absence of the Least Bell's vireo from the BSA, no compensatory mitigation is proposed.

4.2.6.5. Cumulative Impacts

Because this Project will have no effects on the Least Bell's vireo, it will not contribute to cumulative effects to the species.

4.2.7. Discussion of Breeding Special-status Bird Species

In California, white-tailed kites can be found in the Central Valley and along the coast, in grasslands, agricultural fields, cismontane woodlands, and other open habitats (Polite et al. 1990, Dunk 1995, Erichsen et al. 1996). Although the species rallied impressively after marked reductions during the early 20th century, populations may be exhibiting new declines resulting from recent increases in habitat loss and disturbance (Dunk 1995, Erichsen et al. 1996). White-tailed kites are year-round residents of the state, establishing breeding territories that encompass open areas with healthy prey populations, and snags, shrubs, trees, or other nesting substrates (Dunk 1995). Non-breeding birds typically remain in the same area over the winter, although some movements do occur (Polite et al. 1990). The presence of white-tailed kites is closely tied to the presence of prey species, particularly voles, and prey base may be the most important factor in determining habitat quality for white-tailed kites (Dunk and Cooper 1994, Skonieczny and Dunk 1997).

The loggerhead shrike is distributed throughout much of California, except in higher-elevation and heavily forested areas including the Coast Ranges, the Sierra Nevada, the southern Cascades, the Klamath and Siskiyou ranges, and the highest parts of the Transverse Ranges (Humple 2008). While the species range in California has remained stable over time, populations have declined steadily (Cade and Woods 1997, Humple 2008). Loggerhead shrikes establish breeding territories in open habitats with relatively short vegetation that allows for visibility of prey; they can be found in grasslands, scrub habitats, riparian areas, other open woodlands, ruderal habitats, and developed areas including golf courses and agricultural fields (Yosef 1996). They require the presence of structures for impaling their prey; these most often take the form of thorny or sharp-stemmed shrubs, or barbed wire (Humple 2008). Ideal nesting habitat for loggerhead shrikes is comprised of short grass habitat with many perches, shrubs, or trees for nesting, and sharp branches or barbed wire fences for impaling prey (Yosef 1996). Shrikes nest earlier than most other passerines, especially in the west where populations are sedentary (Yosef 1996). The breeding season may begin as early as late February, and lasts through July (Yosef 1996). Nests are typically established in shrubs and low trees including sagebrush, willow, and mesquite, through brush piles may also be used when shrubs are not available (Yosef 1996, Humple 2008). Loss and degradation of nesting habitat, as well as possible negative impacts of pesticides, are considered to be the major contributors to the population declines exhibited by this species (Cade and Woods 1997, Humple 2008).

The yellow warbler (*Setophaga petechia*) is a widespread neotropical migrant that inhabits wet deciduous forests throughout North America (Lowther et al. 1999). In California, yellow warblers can be found occupying riparian habitats along the entire coast, on both eastern and western slopes of the Sierra Nevada up to approximately

1700 ft, and throughout the northern portion of the state. Both the historical and current range excludes the southwestern desert region of the state, and yellow warblers have been largely extirpated from the Central Valley (Heath 2008). Their range has remained relatively stable over time, but their populations have declined substantially in many localities due to habitat loss (Cain et al. 2003). Yellow warblers breed from early May through early August in wet, early-successional, or recently disturbed habitats dominated by willow thickets, where they construct cup nests approximately 3 to 40 ft off the ground in upright forks of shrubs or trees in dense willow thickets or in other dense vegetation.

4.2.7.1. SURVEY RESULTS

Habitat assessments in the BSA and vicinity were conducted on 8 January 2013. The purpose of the surveys was to document potential nesting habitat within, and adjacent to, the BSA as well as assess potential impacts of the Project on the aforementioned species. Each of these bird species is known to occur in the general Project vicinity during the nesting season (Bousman 2007a, Bousman 2007b, Mammoser 2007). The Project site offers one large tree that provides potentially suitable nesting habitat for a single pair of white-tailed kites. No suitable nesting habitat for the loggerhead shrike or yellow warbler are present on the site itself, but up to one pair of each of these species could potentially nest in riparian habitat just upstream from the BSA.

4.2.7.2. AVOIDANCE AND MINIMIZATION EFFORTS

These species, along with other native bird species in the vicinity of the BSA, are protected by both the MBTA and the California Fish and Game Code, which prohibit the take of migratory birds and their nests. This Project will implement measures to avoid and minimize effects (described in Section 4.3 below) on active nests of all birds protected under these regulations. In the event that white-tailed kites, loggerhead shrikes, or yellow warblers nest in or near the BSA, these measures will result in the avoidance of effects on these species.

4.2.7.3. PROJECT IMPACTS

With implementation of the conservation measures described in Section 4.3.2 below, the Project will avoid the potential to cause the death or injury of any migratory bird species, including white-tailed kites, loggerhead shrikes, and yellow warblers, or their active nests, eggs, or young. The Project will impact 1.25 ac of habitat that may be used as foraging or perching habitat by these species.

4.2.7.4. COMPENSATORY MITIGATION

The Project will have no substantial effect on the regional abundance of white-tailed kites, loggerhead shrikes, or yellow warblers, and thus no substantial effects on these species or their habitats. As a result, no compensatory mitigation is warranted.

4.2.7.5. CUMULATIVE IMPACTS

Cumulative impacts to white-tailed kites, loggerhead shrikes, and yellow warblers result from past, current, and reasonably foreseeable future projects in the region. The Project will result in the temporary loss of only a very small fraction of potential (and relatively low-quality) habitat available to these species regionally, and impacts to white-tailed kite, loggerhead shrike, and yellow warbler habitat and to individuals during construction thus will not contribute appreciably to cumulative impacts to the these bird species.

4.2.8. Discussion of the American Badger

American badgers (*Taxidea taxus*) are stocky, burrowing mammals that occur in grassland habitats throughout the western United States. Badgers can have large territories, up to 2100 ac in size, but territory size varies by sex and season. Badgers are strong diggers, and feed primarily on other burrowing mammals, such as ground squirrels. Burrows are used for dens, escape, and predation. Badgers are primarily nocturnal, but are often active during the day. They breed during late summer to early autumn, and females give birth to a litter of young the following spring in March to early April. Coyotes and golden eagles have been known to depredate badgers, but the primary known sources of mortality are automobiles and hunting (i.e., guns, traps, and poison).

4.2.8.1. SURVEY RESULTS

CNDDB (2013) searches revealed two records of the American badger within the vicinity of the BSA. The closest record was in 1995, when a road-killed juvenile was found on SR 156, 1.7 mi to the south of the BSA. The only other record in the Project vicinity is a record of a road-killed adult badger found 3.7 mi north of the BSA on U.S.101 in 2007.

H. T. Harvey & Associates ecologists looked for suitable badger habitat and potential badger dens in the BSA during reconnaissance-level surveys. No badgers or potential dens were observed in the BSA. Based on the frequency of disturbance of the BSA by agricultural activities and the species' affinity for grassland habitats, badger activity apart from dispersal (i.e., denning or foraging) is not expected in the BSA.

4.2.8.2. AVOIDANCE AND MINIMIZATION EFFORTS

American badgers are not expected to den within the BSA and thus will not be impacted by Project activities. Therefore, no avoidance or minimization efforts are needed.

4.2.8.3. PROJECT IMPACTS

American badgers are not expected to den in the BSA and will not be injured or killed as a result of Project activities or be at a higher risk of road mortality. Although badgers may occasionally disperse through the BSA, the Project will not result in the loss of badger dispersal habitat, nor will it impede the movement of badgers through the area.

4.2.8.4. COMPENSATORY MITIGATION

The project will only temporarily affect a very small proportion of regionally available dispersal habitat for American badgers, which are not expected to den in BSA, and thus will affect only a very small proportion of regional badger populations, if at all. Thus, no compensatory mitigation for impacts to badgers is necessary.

4.2.8.5. CUMULATIVE EFFECTS

Because the Project will not result in the loss of badger habitat or injury or mortality of individuals, it will not contribute appreciably to cumulative impacts to the American badger.

4.2.9. Discussion of the San Joaquin Kit Fox

The federally endangered and state threatened San Joaquin kit fox is a California endemic, currently restricted to the San Joaquin Valley and the interior central and southern Coast Ranges (Spiegel et al. 1994). Kit foxes are found primarily in large annual grasslands or other open, grassy habitats where shrub cover is sparse and scattered and where mammalian prey is abundant (Ahlborn 1990 [updated 2000], Spiegel et al. 1994). Kit foxes dig multiple complex, multi-chambered dens where soils are friable and easily moved; or may exploit small mammal burrows or manmade structures such as culverts where the soil is harder and more difficult to dig (Spiegel et al. 1994, Koopman et al. 1998). Pups are born and reared in these dens, and both kits and adults use the dens throughout the year to minimize heat stress in summer and cool temperatures in winter, and to avoid predators such as coyotes (Koopman et al. 1998). Thus, the availability of dens is a critical component of suitable kit fox habitat (Spiegel et al. 1994, Koopman et al. 1998). The pupping season begins in February and continues through April, and pups begin dispersing in late June with peak dispersal occurring in July (Koopman et al. 2000). Adults remain on their territories year-round, maintaining home ranges that range from 170 hectares (ha) to 1500 ha (Spiegel et al. 1994). Kit foxes are nocturnal predators, primarily preying on small mammals, although they will also eat carrion, insects, reptiles, and birds (Spiegel et al. 1994).

Habitat loss in the Central Valley, and increasingly in the interior Coast Ranges, has been a primary cause of kit fox declines; competition with and predation by larger canids including coyotes and nonnative invasive red foxes (*Vulpes vulpes*) (Ralls and White 1995), and automobile collisions (Spiegel et al. 1994) also pose significant threats to the persistence of the species.

The San Joaquin kit fox was listed as endangered by the U.S. Department of the Interior (USFWS 1967) in 1967 and was listed as threatened by the State of California in 1971.

4.2.9.1. SURVEY RESULTS

Although the majority of the kit fox population occurs in the southern San Joaquin Valley, satellite populations and individuals occur on the western edge of the San Joaquin Valley extending north nearly to Antioch in Contra Costa County, and in the Salinas Valley (Bell 1994). A small population occurred historically southeast of the town of Hollister, in San Benito County (USFWS 1998), but the current status of this population is poorly known. San Joaquin kit foxes were infrequently sighted in San Benito County and southern Santa Clara County in the early 1970s. Morrell (1975) reported four sightings prior to 1972, and seven sightings between 1972 and 1975 within this region. These reports are not precise with respect to date or location, but provide information obtained from interviews with resource staff members familiar with the area, and from limited ground surveys of the region. These reports include nine sightings in San Benito County, near Hollister, and two sightings in Santa Clara County between Pacheco Pass and San Felipe Lake. The reliability of these sightings is unknown, as kit fox reports occasionally turn out to be based on unidentified individuals of other canid species. CNDDB (2013) searches revealed one record located 7 mi to the southeast, where juveniles were observed in 1992 after their mother was reported to have died.

While there have historically been a number of sightings of kit fox east and southeast of the BSA, mostly in the Hollister area, numerous San Joaquin kit foxes surveys conducted in the 1980s and 1990s in northern San Benito County and Santa Clara County produced negative results (e.g., Weslar 1987, H. T. Harvey & Associates

1987, Schauss 1990, Biosystems Analysis, Inc. 1992, H. T. Harvey & Associates 1992, McGinnis 1993, H. T. Harvey & Associates 1997, Young 2000). In 2003, an extensive survey with scent dogs was conducted along SR 25, a possible corridor for kit fox between Hollister and U.S. 101 near Gilroy; this survey also produced negative results (ESRP 2003). Since 1975, there has been only one CNDDB report of a San Joaquin kit fox in Santa Clara County. One adult was reported near Bell Station in an outlying portion of Henry Coe State Park in 2002 (CNDDB 2012).

The source populations for the San Benito and southern Santa Clara County sightings appear to be the well-known populations that occur along the east side of the Diablo Range in San Joaquin, Stanislaus, and Fresno counties. Various low mountain passes (e.g., Pacheco Pass) may provide avenues for occasional (but very infrequent) westward dispersal by kit foxes. However, there is no evidence that San Joaquin kit foxes currently occur in, or any historical records from, the immediate vicinity of the Project, and this species is considered absent from the project site.

4.2.9.2. AVOIDANCE AND MINIMIZATION EFFORTS

San Joaquin kit fox are not expected to occur within or near the BSA and thus no avoidance or minimization efforts are needed.

4.2.9.3. PROJECT IMPACTS

As described above, San Joaquin kit fox are not expected to occur within or near the BSA; therefore, there will be no project impacts to the species.

4.2.9.4. COMPENSATORY MITIGATION

Project activities are not expected to result in a substantial effect on kit fox individuals, populations, or high-quality habitat for this species. Therefore, no compensatory mitigation is warranted.

4.2.9.5. CUMULATIVE EFFECTS

Cumulative impacts to kit foxes result from past, current, and reasonably foreseeable future projects in the region. Kit fox populations in north San Benito County have historically been sparse, but much of the existing kit fox habitat in the county is under threat from numerous development projects. It is expected that most current and future projects that impact these habitats will have to mitigate these impacts through the CEQA process and/or the State and Federal Endangered Species Act consultation process. As a result, most projects in the region will mitigate their impacts to San Joaquin kit foxes, minimizing any additional cumulative impacts to this species.

Because the Project will not result in a permanent net loss of kit fox habitat, the Project is not expected to contribute to cumulative impacts on the San Joaquin kit fox.

4.3 Migratory Birds

The MBTA and California Fish and Game Code protect migratory birds, including their eggs, nests, and young. Most of the migratory birds that have the potential to breed within the BSA are not special-status species and are regionally common. We have further determined that the Project will not substantially affect certain special-status avian species potentially present in the BSA (Sections 4.2.6 and 4.2.7). Nevertheless, the Project will implement measures to avoid and minimize effects on active nests of migratory birds to comply with the MBTA and Fish and Wildlife Code.

4.3.1 Survey Results

Several species of birds protected by the MBTA and the California Fish and Wildlife Code may nest within or adjacent to the BSA. Bird species covered by the MBTA that were observed during the reconnaissance survey that may nest in trees, shrubs, and other habitats within and adjacent to the BSA are the song sparrow, red-winged blackbird, western scrub-jay (*Aphelocoma californica*), black phoebe, Bewick's wren (*Thryomanes bewickii*), Anna's hummingbird (*Calypte anna*), California towhee (*Melozone crissalis*), and house finch (*Haemorhous mexicanus*). In addition, approximately 130 inactive cliff swallow nests from previous years were observed on the underside of the existing bridge structure.

4.3.2 Avoidance and Minimization Efforts

Because construction disturbance during the breeding season could result in the destruction of active nests, the incidental loss of fertile eggs or nestlings, or the abandonment of nests of protected bird species, measures will be implemented to reduce the risk of a violation of the MBTA and the CDFG Code.

If vegetation is to be removed by the Project, potential nesting substrate (e.g., bushes, trees, snags, grass, and suitable artificial surfaces) that will be disturbed should be removed during the non-breeding season (i.e., they should be removed between 1 September and 31 January), if feasible, to help preclude nesting.

Because it is not feasible to schedule construction during the non-breeding season, pre-construction surveys for nesting birds will be conducted by a qualified ornithologist to ensure that no nests will be disturbed during Project implementation.

These surveys will be conducted no more than seven days prior to the initiation of construction activities. During these surveys, the ornithologist will inspect all trees, shrubs, and other potential nesting habitats (including the bridge itself) in and immediately adjacent to the BSA for nests. If an active nest is found sufficiently close to work areas to be disturbed by these activities, the ornithologist, in consultation with the CDFW, will determine the extent of a buffer zone to be established around the nest, typically 250 ft for raptors and 50 ft for other birds, to ensure that no nests of species protected by the MBTA or the California Fish and Game Code will be disturbed during Project implementation. Because the BSA is already subject to disturbance by vehicles to some extent, activities that will be prohibited from occurring within the buffer zone around a nest will be determined on a case-by-case basis. In general, activities prohibited within such a buffer while a nest is active will be limited to new construction-related activities (i.e., activities that were not ongoing when the nest was constructed) involving significantly greater noise, human presence, or vibrations than were present prior to nest initiation.

Alternatively, nest starts may be removed on a regular basis (e.g., every second or third day), starting in late January or early February, or measures such as exclusion netting may be placed over the existing bridge to prevent active nests from becoming established. Any exclusion netting or other measures used to deter nesting must be carefully maintained and regularly inspected to ensure that it is functioning properly without risk of injury or mortality of birds (e.g., due to entanglement in netting).

4.3.3 Project Impacts

With implementation of the above avoidance and minimization measures, the Project has a low likelihood of resulting in the death or injury of migratory birds or their active nests, eggs, or young. The Project will affect a very small amount of potential nesting habitat for migratory birds and will have no measurable effect on regional populations of these species because the impacted habitat represents such a small proportion of regionally available habitat.

4.3.4 Compensatory Mitigation

Because the Project will have a limited impact on migratory bird species and their habitats, no compensatory mitigation is warranted.

4.3.5 Cumulative Effects

With implementation of the avoidance and minimization measures described above, the Project will make no measurable contribution to cumulative effects on populations, or habitat, of migratory bird species.

4.4 Fish Passage

Current California state guidelines (CDFG 2010) for stream crossings aim to provide unimpeded passage for both adult and juvenile salmonids and other anadromous fish, should they occur in the stream. The Project crosses over a reach of stream where anadromous fish are not currently known to occur, and there are also no records of historic occurrence. However, there are no barriers preventing anadromous fish entering San Juan Creek; therefore, an assessment of fish passage is needed.

The aforementioned state guidelines describe four primary factors that determine the extent to which fish passage will be impacted by the construction of a crossing:

- The degree of constriction the crossing has on the stream channel;
- The degree to which the streambed is allowed to adjust vertically;
- The length of stream channel impacted by the crossing;
- The degree to which stream velocity has been increased by the crossing.

No formal fish passage evaluation is needed for the current Project because the new bridge will clearly allow fish passage at least as easily as under current conditions. Each of the factors that determine the extent to which fish passage will be impacted is addressed below.

4.4.1 Survey Results

Site surveys of the existing bridge were conducted to determine if there are current barriers to fish passage and whether the proposed bridge replacement would negatively or positively impact fish passage. The existing bridge contains a center structural pier, but the channel of the creek only flows under half the bridge at normal rates; however, the deposition of sand under the other half of the bridge indicates that during high flows it is feasible that the stream channel would expand horizontally. As a result, there is no indication that fish passage is inhibited. The streambed consists of natural materials rather than concrete, helping to maintain the velocity of the stream under the bridge and allowing the stream to adjust vertically in response to dynamic flow rates.

In comparison, the new bridge will have a longer span and will reduce the risk of constricted stream flows. Although RSP will be placed in some areas providing aquatic habitat currently, recontouring of the channel will allow for a net increase in aquatic habitat. The Project will not place fill within the new low flow channel, only adjust sediment deposits, hence allowing the channel bed to continue to adjust vertically beneath the new bridge. The flow capacity under the new bridge will also be greater than the existing due to both the widening and a 2-ft raise in the bridge deck height. Although there will be a net increase of approximately 0.02 ac of aquatic habitat after the Project, this will simply restore the channel to its original configuration before disturbed by scour issues and sediment accumulation, and channel depths will match the existing depths up- and downstream of the existing bridge (see Photos 6 and 7 for views of the restricted eastern side of the channel under the bridge and the channel width north of the bridge, see also Figure 2). The length of the stream channel that will be covered by the bridge is greater; however, the increased width of the new bridge will not introduce any new impediments to fish passage. The Project will not add piers or other structures to the channel, and in fact will remove the existing central pier for the bridge. The installation and presence of the new bridge will not alter bed and bank roughness, thereby keeping it similar to the upstream and downstream channels in order to maintain stream velocities.

In all, the vertical and lateral stability of the stream channel will not be negatively impacted by the Project, nor will there be any new barriers introduced that will impede the movement of fish. Rather, the ability of the bridge to accommodate high flows (and therefore accommodate fish movement) will be improved by the Project. As a result, it was deemed that no formal protocol-level fish passage evaluation is needed.

4.4.2 Avoidance and Minimization Efforts

Project-related impacts to aquatic habitats will be avoided to the maximum extent feasible, as described in Section 4.1.1.2. These measures will help to ensure that there is no adverse effect of the Project on fish passage.

Because the proposed Project will not introduce any impediments to fish movement through the site, and fish will be able to move through the site at least as easily after Project construction as currently occurs, no other avoidance and minimization measures related to fish passage are needed.

4.4.3 Project Impacts

The bridge improvements have been designed so that no new structures will be permanently placed in the low-flow channel of the creek and one structure will be permanently removed. The new bridge spans will be longer than the current span, allowing room for new abutments to be placed further back from the channel than the existing abutments. As a result, the new bridge will reduce the constriction of flows. The proposed bridge will sufficiently span the stream and allow for long-term dynamic channel stability, particularly after recontouring of the channel to address current scour and sediment deposition issues (Photo 6). Temporary impacts related to dewatering will be minor as these will occur in the dry season, when fish passage is expected to be minimal. Because the proposed Project will not introduce any impediments to fish movement through the site, but rather has the potential to facilitate movement through the site due to an increased span, the Project will not result in impacts to fish passage.

4.4.4 Compensatory Mitigation

Because the proposed Project will not introduce any substantial or permanent impediments to fish movement through the site, but rather has the potential to facilitate movement through the site due to an increased span, no compensatory mitigation related to fish passage is needed.

4.4.5 Cumulative Effects

Because the proposed Project will not introduce any impediments to fish movement through the site, the Project will not contribute to any cumulative effects to fish passage.

4.5. Summary of Regulatory Impact Determinations

Table 2 provides a summary of our determination of effects under FESA. The species protected under FESA that potentially occur on the Project site are the South-Central California Coast steelhead, the California tiger salamander, and the California red-legged frog. The Project may affect, but is not likely to adversely affect the South-Central California Coast steelhead. The Project may affect, and is likely to adversely affect, the California red-legged frog and the California tiger salamander.

Table 2: Summary of Potential Project Impacts to Listed, Proposed, or other Special-Status Species or Critical Habitat for these Species in Relation to FESA and CESA.

Common Name	Scientific Name	Status	Potential Effect Under FESA
South-Central California Coast Steelhead	*Oncorhynchus mykiss*	FT	May Affect, not likely to adversely affect*
California Red-legged Frog	*Rana draytonii*	FT, CSSC	May Affect, likely to adversely affect*
California Tiger Salamander	*Ambystoma californiense*	FT, ST	May Affect, likely to adversely affect*
San Joaquin kit fox	*Vulpes macrotis mutica*	FE, ST	No effect
Least Bell's Vireo	*Vireo bellii pusillus*	FE, SE	No effect

Common Name	**Scientific Name**	**Status**	**Potential Effect Under FESA**
Monterey Roach	*Lavinia symmetricus subditus*	CSSC	Not applicable
Western Pond Turtle	*Actinemys marmorata*	CSSC	Not applicable
American Badger	*Taxidea taxus*	CSSC	Not applicable
White-tailed Kite	*Elanus leucurus*	SP	Not applicable

*With the proposed conservation measures discussed in this NES

Key to Table 2 Abbreviations: Status: Federal Endangered (FE); Federal Threatened (FT); State Endangered (SE); State Threatened (ST); State Fully Protected (SP); California Species of Special Concern (CSSC).

Chapter 5. Results: Permits and Technical Studies for Special Laws or Conditions

5.1. Federal Endangered Species Act Consultation Summary

Caltrans, as part of its NEPA assignment of federal responsibilities by the FHWA, effective October 1, 2012 and pursuant to 23 USC 326, will act as the lead federal agency for Section 7 of the FESA. Provisions of the FESA, as amended (16 USC 1531), protect federally listed threatened and endangered species and their habitats from unlawful take. “Take” under FESA includes activities such as “harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct.” The USFWS regulations define harm to include some types of “significant habitat modification or degradation.” The U.S. Supreme Court ruled on 29 June 1995, that “harm” may include habitat modification “...where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering.”

Three federally listed species could potentially occur within the BSA: South-Central California Coast steelhead, California red-legged frog, and California tiger salamander. However, with implementation of avoidance and minimization measures, the Project is not likely to adversely affect these species.

5.2. California Endangered Species Act Consultation Summary

Provisions of California’s Endangered Species Act (Fish and Game Code of California, Chapter 1.5, Sections 2050-2116) protect state-listed threatened and endangered species. The CDFG regulates activities that may result in “take” of individuals. Take is defined as, “hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill”.

One state-listed species could potentially occur within the BSA: the California tiger salamander. Measures to avoid, minimize, and compensate for impacts on this species are described in Sections 4.2.4.2 and 4.2.4.4 above. Nevertheless, it is likely that an ITP from the CDFW will be needed due to the potential for the Project to result in take of the California tiger salamander.

5.3. Essential Fish Habitat Consultation Summary

No EFH exists within the BSA, since no fish species subject to any fisheries management plans are present. Therefore consultation with NMFS regarding EFH is not warranted.

5.4. Wetlands and Other Waters and CDFW Riparian Jurisdictional Coordination Summary

San Juan Creek was mapped to the OHW on each opposing bank within the BSA as aquatic habitat (Figure 2). This habitat is regulated as waters of the U.S./State by the USACE and the RWQCB. The OHW represents the upper limit of "other waters" of the U.S./State under Section 404 of the Clean Water Act, but wetlands adjacent to this channel are also claimed by both agencies. Additionally, the RWQCB also regulates riparian habitat within top of bank of the San Juan Creek channel. San Juan Creek is also expected to be claimed by CDFW under section 1601 of the Fish and Wildlife Code. All work within San Juan Creek, including dewatering activities, will require permits from the USACE (Section 404), the RWQCB (401 Water Quality Certification), and the CDFW (Streambed Alteration Agreement).

To comply with the Clean Water Act, the Project proponent will notify the USACE prior to construction and apply for appropriate permits. The project will likely qualify for NWP 14, Linear Transportation Projects. In addition, the Project will apply for 401 Water Quality Certification from the RWQCB, a CDFW Streambed Alteration Agreement, and will comply with all measures required by these permits.

5.5. Floodplain Management Summary

Hydraulic modeling indicates that the existing Anzar Road Bridge can pass a 2-year storm event with a freeboard of 0.7 ft (NV5 2012). Upgrading the Anzar Road Bridge to convey a 50-year or 100-year storm event would require substantial excavation (NV5 2012). Although this type of excavation is not feasible, the new Anzar Road Bridge has been designed to improve existing conditions without excavation by modifying the existing bridge geometry. The new bridge will have a soffit elevation that is approximately 1.4 ft higher than the existing bridge and will be able to accommodate a 5-year storm event.

5.6. Invasive Species

Several invasive plant species were observed within or adjacent to the BSA, with all but poison hemlock occurring predominantly in the developed/ruderal grassland habitat (Table 3). Weed species rated as having a severe ecological impact or invasive potential are of particular concern and include Italian ryegrass and fennel. Other invaders include wild oats, bull thistle, poison hemlock, bristly ox-tongue, short-podded mustard, velvet grass (*Holcus lanatus*), wild radish, and rose clover (*Trifolium hirtum*). Soil disturbance (an effect expected from this construction Project) is often followed by an invasion of the disturbed area by these species. However, BMPs for weed control will be implemented for this Project and include the following measures:

1. Prior to access to the site, grading, or any other temporary disturbance, infested areas will be cleared of vegetation and all vegetative material will be destroyed off-site, taking care to prevent any seed dispersal during the process;
2. Following Project implementation, native seed from a local source (within the same watershed if practicable) will be planted on all disturbed ground; and
3. Project implementation is not anticipated to introduce any new infestations; however, measures must be taken to avoid increasing the existing infestations by dispersing seed or viable plant material through construction equipment use or access to the Project area through marsh habitat. Such measures include: cleaning all equipment prior to entering the site and before leaving the site; using only gravel or other materials on the site that are certified to be “weed-free”; and, should any erosion-prevention materials be required during the construction process, using only certified “weed-free” straw.

Therefore, with the implementation of these measures, Project-related effects are not expected to cause an increase in invasive species populations within the BSA.

Table 3: List of Invasive Plant Species Observed at the Project Site and the California Invasive Plant Council Ratings of Ecological Impact and Invasive Potential by Species.

Common Name	Scientific Name	Habitat Where Species Was Observed on Site	Ecological Impact*	Invasive Potential*
Wild oats	*Avena fatua*	Non-native/ruderal grassland	B	B
Bull thistle	*Cirsium vulgare*	Non-native/ruderal grassland	B	B
Poison hemlock	*Conium maculatum*	Herbaceous riparian wetland	B	B

Common Name	Scientific Name	Habitat Where Species Was Observed on Site	Ecological Impact*	Invasive Potential*
Italian ryegrass	*Festuca perennis*	Non-native/ruderal grassland	A	B
Fennel	*Foeniculum vulgare*	Non-native/ruderal grassland	A	B
Bristly ox-tongue	*Helminthotheca echioides*	Non-native/ruderal grassland	C	B
Short-podded mustard	*Hirschfeldia incana*	Non-native/ruderal grassland	B	B
Velvet grass	*Holcus lanatus*	Non-native/ruderal grassland	B	B
Wild radish	*Raphanus sativus*	Non-native/ruderal grassland	C	C
Rose clover	*Trifolium hirtum*	Non-native/ruderal grassland	C	B

* A= Severe; B = Moderate; C = Limited. These ratings were derived from the California Invasive Plant Council website: http://www.cal-ipc.org/ip/inventory/weedlist.php

Chapter 6. References

Ahlhorn, G. 1990 (updated 200). Kit Fox (Vulpes macrotis). In Zeiner, D.C., W.F. Laudenslayer, Jr., K.E. Mayer, and M. White, eds. California's Wildlife. Vol. I-III. California Department of Fish and Game, Sacramento, California.

Baldwin, B. G., D. H. Goldman, D. J. Keil, R. Patterson, T. J. Rosatti, and D. H. Wilken, editors. 2012. The Jepson manual: vascular plants of California, second edition. University of California Press, Berkeley.

Bell, H. M. 1994. Analysis of habitat characteristics of San Joaquin kit fox in its northern range. M.S. Thesis, California State University, Hayward, CA. 90 pages.

BioSystems Analysis, Inc. 1992. Biological surveys for the West Fairview Road.

Bousman, W. G. 2007a. Yellow warbler. Pages 376-377 in W. G. Bousman (ed.), Breeding bird atlas of Santa Clara County, California. Santa Clara Valley Audubon Society.

Bousman, W. G. 2007b. Yellow-breasted Chat. Pages 390-391 in W. G. Bousman (ed.), Breeding bird atlas of Santa Clara County, California. Santa Clara Valley Audubon Society.

Bulger, J. B., N. J. Scott, Jr., and R. B. Seymour. 2003. Terrestrial activity and conservation of adult California red-legged frogs *Rana aurora draytonii* in coastal forests and grasslands. Biol. Conservation. 110:85-95

Bury, R. B. and D. J. Germano. 2008. *Actinemys marmorata* (Baird and Girard 1852) - western pond turtle, Pacific pond turtle in G. J. Rhodin, C. H. Pritchard, P. P. van Dijk, R. A. Saumure, K. A. Buhlmann, and J. B. Iverson, editors. Conservation biology of freshwater turtles and tortoises: A compilation project of the IUCN/SSC Tortoise and Freshwater Turtle Specialist Group. Chelonian Research Monographs.

Cade, T. J., and C. P. Woods. 1997. Changes in distribution and abundance of the loggerhead shrike. Conservation Biol. 11(1): 21-31

Cain, J. W., M. L. Morrison, and H. L. Bombay. 2003. Predator activity and nest success of willow flycatchers and yellow warblers. Journal of Wildlife Management. 67(3): 600-610.

[Caltrans] California Department of Transportation. 2001. "Water Pollution Section" of the Caltrans Construction Manual.

[Caltrans] California Department of Transportation. 2002. Style Guide for Environmental Documents. Division of Environmental Analyses North & Central Regions, California.

[Caltrans] California Department of Transportation. 2009. Template for Natural Environment Study. The Biological Consultancy Group. Biological Studies and Technical Assistance Office, California.

[CCH] Consortium of California Herbaria. 2013. Regents of the University of California. http://ucjeps.berkeley.edu/consortium/. Accessed through October 2012 (and other dates).

[CDFG] California Department of Fish and Game. 2007. Vegetation Classification and Mapping Program List of California Vegetation Alliances and Rarity Ranking.

[CDFG] California Department of Fish and Game. 2010. California Salmonid Stream Habitat Restoration Manual, 4th Edition. Habitat Conservation Division.

[CNDDB] California Natural Diversity Database. 2013. Rarefind. California Department of Fish and Wildlife. Accessed on 28 June 2012 from http://www.dfg.ca.gov/biogeodata/cnddb/mapsanddata.asp

[CNPS] California Native Plant Society. 2013. Inventory of Rare and Endangered Plants (online edition, v7-09d). California Native Plant Society. Sacramento, California. Accessed on 28 June 2012 (and other dates) from http://www.cnps.org/inventory.

Dunk, J. R. and R. J. Cooper. 1994. Territory-size regulation in black-shouldered kites. Auk 111(3): 588-595

Dunk, J. R. 1995. White-tailed Kite (*Elanus leucurus*). *In* The Birds of North America Online (A. Poole, Ed.). Ithaca: Cornell Lab of Ornithology; Retrieved from the Birds of North America Online: http://bna.birds.cornell.edu/bna/species/178

Erichsen, E. L., S. K. Smallwood, A. M. Commandatore, B. W. Wilson, and M. D. Fry. 1996. White-tailed Kite movement and nesting patterns in an agricultural landscape. *In* Raptors in Human Landscapes, D. Bird, D. Varland, and J. Negro, Eds. San Diego, CA: Academic Press. Pp 165-175

[ESRP] Endangered Species Recovery Program. 2003. Detection Dog Surveys for the San Joaquin kit fox along State Route 25, San Benito County, California. Prepared for California Department of Transportation.

Fellers, G. M. 2005. *Rana draytonii* Baird and Firard 1852, California Red-legged Frog, Pp 552-554. In: Michael Lannoo (Ed.), Amphibian Declines: The conservation status of United States Species. Volume 2: Species Accounts. University of California Press, Berkeley, California. Xxi+1094 Pp.

[FEMA] Federal Emergency Management Agency. 2009. San Benito County, California and Incorporated Areas, Number 06069CV000A, Flood Insurance Study.

Hayes, M. P. and M. R. Tennant. 1985. Diet and feeding behavior of the California red-legged frog, *Rana aurora draytonii* (Ranidae). Southwestern Naturalist. 30:601-605.

Heady, H.F. 1988. Valley grassland. *In* Terrestrial vegetation of California, M.G. Barbour and J. Major, *eds*. California Native Plant Society.

Heath, S. K. 2008. Yellow Warbler (*Dendroica petechia*). *In* Shuford, W. D. and T. Gardali, eds. California Bird Species of Special Concern: A ranked assessment of species, subspecies, and distinct populations of birds of immediate conservation concern in

California. Studies of Western Birds 1. Western Field Ornithologists, Camarillo, California; and California Department of Fish and Game, Sacramento.

Holland, R. F. 1986. Preliminary Description of the Terrestrial Natural Communities of California. California Department of Fish & Game.

Holland, D.C. 1998. Changes in Great Valley vernal pool distribution from 1989 to 1997. Prepared for the California Department of Fish and Game. June 1998.

H. T. Harvey and Associates. 1987. Tres Pinos Kit Fox Survey. Prepared for EMC Planning Company.

H. T. Harvey & Associates. 1987. Compstock Estates kit fox survey. Prepared for Mr. John Gilchrist.

H. T. Harvey & Associates. 1992. Oak Creek Subdivision San Joaquin kit fox survey. Prepared for Ms. Stephanie Strelow.

H. T. Harvey & Associates. 1997. Hollister Wastewater Expansion Site: kit fox survey. Prepared for David J. Powers & Associates.

H. T. Harvey and Associates. 2008. California Red-legged Frog and California Tiger Salamander Habitat Assessment: U.S. Highway 101 Widening Project. Prepared for HDR Engineering Inc., URS, and David J. Powers & Associates.

Humple, D. 2008. Loggerhead Shrike (*Lanius ludovicianus*). *In* Shuford, W. D. and T. Gardali, eds. California Bird Species of Special Concern: A ranked assessment of species, subspecies, and distinct populations of birds of immediate conservation concern in California. Studies of Western Birds 1. Western Field Ornithologists, Camarillo, California; and California Department of Fish and Game, Sacramento.

Jennings, M. R., and M. P. Hayes. 1994. Amphibian and reptile species of special concern in California. California Department of Fish and Game, Inland Fisheries Division, Rancho Cordova, California. iii+255 p.

Koopman, M. E., J. H. Scrivner, and T. T. Kato. 1998. Patterns of den use by San Joaquin kit foxes. J. Wildlife Management 62(1): 373-379.

Koopman, M. E., B. L. Cypher, and J. H. Scrivner. 2000. Dispersal patterns of San Joaquin kit foxes (*Vulpes macrotis mutica*). J. Mammalogy 81(1): 213-222.

Lowther, P. E., C. Celada, N. K. Klein, C. C. Rimmer and D. A. Spector. 1999. Yellow Warbler (*Dendroica petechia*). *In* The Birds of North America Online (A. Poole, Ed.). Ithaca: Cornell Lab of Ornithology; Retrieved from the Birds of North America Online: http://bna.birds.cornell.edu/bna/species/454.

Mammoser, M. J. 2007. White-tailed kite. Pages 172-173 in W. G. Bousman (ed.), Breeding bird atlas of Santa Clara County, California. Santa Clara Valley Audubon Society.

McGinnis, S. M. 1993. The status of the San Joaquin kit fox (*Vulpes macrotis mutica*) along the proposed E-Line Route for the SR 152 Realignment Project. Prepared for the Department of Transportation Environmental Planning.

Morrell, S. 1975. Life history of the San Joaquin kit fox (*Vulpes macrotis mutica*). Calif. Fish and Game Bull. 58:162-174.

[NOAA Fisheries] National Oceanic and Atmospheric Administration Fisheries Northwest and Southwest Regions, U.S. Fish and Wildlife Service Regions 1 & 8, California/Washington/Oregon Departments of Transportation, California Department of Fish and Game, and U.S. Federal Highway Administration. 2008. Memo regarding Agreement in Principle for Interim Criteria for Injury to Fish from Pile Driving Activities.

[NRCS] Natural Resource Conservation Service. 2013. National List of Hydric Soils. http://soils.usda.gov/use/hydric/. Accessed January 2012.

[NWI] National Wetlands Inventory. 2012. Wetlands Mapper. Accessed on 28 June 2012 from http://107.20.228.18/Wetlands/WetlandsMapper.html

[NMFS] National Marine Fisheries Service. 2005. Endangered and Threatened Species; Designation of Critical Habitat for Seven Evolutionarily Significant Units of Pacific Salmon and Steelhead in California; Final Rule. Federal Register 70(170):52488-52627.

[NMFS] National Marine Fisheries Service. 2006. Endangered and Threatened Species: Final Listing Determinations for 10 Distinct Population Segments of West Coast Steelhead; Final Rule. Federal Register 71(3): 834-862.

NV5 [Nolte Vertical Five]. 2012. Anzar Bridge Replacement Project: Bridge Hydraulics, Evaluation of Existing Condition, and Proposed Condition (Draft).

Orloff, S. 2007. Migratory movements of California tiger salamander in upland habitat — a five year study Pittsburg, California. Report.

Pittman, B. T. 2005. Observations of upland habitat use by California tiger salamanders based on burrow excavations. Transactions of the Western Society of the Wildlife Society. 41:26-30.

Polite, C. 1990. Black-shouldered Kite *Elanus caeruleus*. *In* California's Wildlife, Vol II: Birds. D. C. Zeiner, W. F. Laudenslayer Jr, K.E. Mayer, and M. White, Eds. California Department of Fish and Game, California Statewide Wildlife Habitat Relationships System. Pp 120-121

Popper, A. N., T. J. Carlson, A. D. Hawkins, B. L. Southall, and R. L. Gentry. 2006. Interim Criteria for Injury of Fish Exposed to Pile Driving Operations: A White Paper.

PRISM Climate Group. 2012. PRISM Products Matrix., http://prism.oregonstate.edu. Accessed October 2012.

Ralls, K., and P. J. White. 1995. Predation on San Joaquin kit foxes by larger canids. J. Mammalogy 76(3): 723-729.

Ricketts, T.H., E. Dinerstein, D.M. Olson, C.J. Loucks, W. Eichbaum, D. DellaSala, K. Kavanagh, P. Hedao, P.T. Hurley, K.M. Carney, R. Abell, and S. Walters, *eds*. 1999. Terrestrial Ecoregions of North America. A Conservation Assessment. Washington, D.C. and Covelo, California: Island Press.

Roberson, D. 2002. Monterey Birds (2nd edition). Monterey Peninsula Audubon Society, Carmel, CA.

Sawyer, J. O., T. Keeler-Wolf and J. M. Evens. 2008. A Manual of California Vegetation. Second Edition. California Native Plant Society.

Schauss, M. 1990. Kit fox survey of Paicines Ranch Resort. Prepared for Martin, Carpenter Associates, San Carlos, CA.

Shaffer, H. B., R. N. Fisher, and S. E. Stanley. 1993. Status report: the California tiger salamander (*Ambystoma californiense*). Final report for the California Department of Fish and Game. 36 pp. + figures and tables.

[SCS] Soil Conservation Service, National Cooperative Soil Survey. 1969. Soil Survey of San Benito County, California. U.S. Department of Agriculture.

Smith, J. J. 1982. Fishes of the Pajaro River. Pages 83-257 in Moyle, Peter B., Jerry J. Smith, Robert A. Daniels, and Donald M. Baltz, editors. Distribution and ecology of stream fishes of the Sacramento-San Joaquin drainage system, California. University of California Publications in Zoology v115, Berkeley, CA.

Skonieczny, M. F., and J. R. Dunk. 1997. Hunting synchrony in White-tailed Kites. J. Raptor Res. 31(1): 79-81

Spiegel, L. K., R. Stafford, and C. Uptain. 1994. San Joaquin kit fox *Vulpes macrotis mutica*. Pp 86-89 *In* C. G. Thelander, D. C. Pearson, and G. E. Olson, eds. Life on the Edge: A guide to California's endangered natural resources. 550 pp.

Storer, T. I. 1925. A synopsis of the Amphibia of California. University of California Publications in Zoology, 27:1-1-342.

Trenham, P.C., H. B. Shaffer, W. D. Koenig, and M. R. Stromberg. 2000. Life history and demographic variation in the California tiger salamander (*Ambystoma californiense*). Copeia 2000(2):365-377.

Trenham, P. C. 2001. Terrestrial habitat use by adult California tiger salamanders. Journal of Herpetology 35:343-346.

Trenham, P. C. and B. Shaffer. 2005. Amphibian upland habitat use and its consequences for population viability. Ecological Applications 15:1158-1168.

Unglish, W. E. 1937. A few unusual records from Central California. Condor 39:39-40.

[USFWS] U.S. Fish and Wildlife Service. 1967. Native fish and wildlife. Endangered Species. Federal Register 32:4001.

[USFWS] U.S. Fish and Wildlife Service. 1996. Endangered and threatened wildlife and plants: determination of threatened status for the California red-legged frog. Federal Register 61(101):25813-25833.

[USFWS] U.S. Fish and Wildlife Service. 1998. Recovery Plan for Upland Species of the San Joaquin Valley, California. Region 1, Portland, OR. 319 p.

[USFWS] U.S. Fish and Wildlife Service. 2002. Recovery plan for the California red-legged frog (*Rana aurora draytonii*). U.S. Fish and Wildlife Service, Region 1.

[USFWS] U.S. Fish and Wildlife Service. 2003a. Programmatic Biological Opinion for Projects Funded or Approved under the Federal Aid Program (HDA-CA, File #: Section 7 with Ventura USFWS, Document # S38192) (1-8-02-F-68).

[USFWS] U.S. Fish and Wildlife Service. 2003b. Interim Guidance on Site Assessment and Field Surveys for Determining Presence or a Negative Finding of the Californian Tiger Salamander, October 22, 2003.

[USFWS] U.S. Fish and Wildlife Service. 2004. Endangered and threatened wildlife and plants; determination of threatened status for the California tiger salamander. Federal Register 69(149):47211-47248.

[USFWS] U.S. Fish and Wildlife Service. 2005a. Revised Guidance on Site Assessments and Field Surveys for the California Red-legged Frog. August 2005.

[USFWS] U.S. Fish and Wildlife Service. 2005b. Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for the California Tiger Salamander, Central Population; Final Rule. Federal Register 70(162):49380-49458.

[USFWS] U.S. Fish and Wildlife Service. 2009. Species Account California Tiger Salamander *Ambystoma californiense*. http://www.fws.gov/sacramento/es_species/Accounts/Amphibians-Reptiles/Documents/california_tiger_salamander.pdf.

[USFWS] U.S. Fish and Wildlife Service. 2010. Endangered and Threatened Wildlife and Plants: Revised Designation of Critical Habitat for California Red-legged Frog; Final Rule. Federal Register 75:12816-12959.

[USFWS] U.S. Fish and Wildlife Service. 2011. Programmatic Biological Opinion for Projects Funded or Approved under the Federal Aid Program (HDA-CA, File #: Section 7 with Ventura USFWS, Document # S38192) (8-8-10-F-58).

[USGS] United States Geological Survey. 2012. *Chittenden* 7.5 minute Quadrangle.

Weslar, H. B. 1987. The range of the San Joaquin kit fox (*Vulpes macrotis mutica*) north of Kings County, California. M.S. Thesis, California State University, Hayward, CA.

Yosef, R. 1996. Loggerhead Shrike (*Lanius ludovicianus*). In A. Poole, Ed. The Birds of North America Online. Ithaca: Cornell Lab of Ornithology; retrieved from the Birds of North America Online, http: //bna.birds.cornell.edu/bna/species/231.

Young, R. 2000. Road crossing study of the proposed Caltrans Route 152 Safety Improvement Project. Prepared for the U.S. Fish and Wildlife Service.

Appendix A Wetland Delineation Report

H.T. HARVEY & ASSOCIATES
Ecological Consultants

Anzar Road Bridge over San Juan Creek Project
Preliminary Delineation of Wetlands and Other Waters

San Benito County, California

Project #3399-01

Prepared for:

County of San Benito Public Works
2301 Technology Parkway, 2nd Floor
Hollister, CA 95023

Prepared by:

H. T. Harvey & Associates

7 May 2014

983 University Avenue, Building D • Los Gatos, CA 95032 • Ph: 408.458.3200 • F: 408.458.3210

Executive Summary

H. T. Harvey & Associates (HTH) surveyed the Biological Study Area (BSA) for the Anzar Road Bridge Replacement Project in San Benito County, California, for jurisdictional features that may be subject to regulation under the Clean Water Act (CWA), administered by the U.S. Army Corps of Engineers (USACE). Specifically, the approximately 1.84-acre (ac) BSA, located where Anzar Road crosses San Juan Creek, was surveyed for jurisdictional waters (wetlands and other waters).

Approximately 0.08 ac of potential jurisdictional waters were identified within the BSA. Such areas included 0.03 ac of Section 404 wetlands and 0.05 ac of Section 404 other waters situated below the Ordinary High Water (OHW) mark of a perennial stream (Table 1). The remaining areas within the BSA (approximately 1.76 ac) met none of the regulatory definitions of jurisdictional waters (Table 1).

The on-site determination assumed normal circumstances and the results are based upon existing conditions present at the time of the surveys. The 30-year average annual precipitation (1970-2000) for the site has been estimated at 19.86 inches, with the majority (18.92 inches) falling during the growing season from October to June (PRISM Climate Group 2012). During the 2011/2012 growing season preceding the October 2012 delineation survey, the site received only 12.96 inches of precipitation (PRISM Climate Group 2012). Although the delineation of the BSA was conducted in the summer dry season, following a period of below average precipitation, wetlands on the site were dominated by perennial species that were still green and identifiable at the time of the survey.

Summary of Potential Jurisdictional Waters

Potential Jurisdictional Waters		Acres
Section 404 Wetlands		**0.03**
Riparian Scrub/Shrub Wetlands		0.02
Riparian Herbaceous Wetlands		0.01
Section 404 Other Waters		**0.05**
Perennial Stream/San Juan Creek		0.05
	Total of Jurisdictional Waters	**0.08**
Upland		**1.76**
	Total Area of BSA	**1.84**

Table of Contents

Figures

Tables

Appendices

Preparers

Patrick J. Boursier, Ph.D., Principal-In-Charge
Kelly Hardwicke, Ph.D., Project Manager
Christopher Gurney, M.S., Plant/Wetland Ecologist

Section 1.0 Introduction

2.1. Biological Study Area Description

The Biological Study Area (BSA/study area) for the Project is an approximately 1.84 ac study area located on Anzar Road, 0.5 miles (mi) east of U.S. Highway 101 and 2 mi northwest of downtown San Juan Bautista, in San Benito County, CA (Figure 1). The BSA encompasses all areas and features that may be temporarily or permanently affected by the Project. The BSA is surrounded on all four sides by agricultural fields in various stages of production. Fields to the north are planted in row crops and are intensively managed, while fields to the south are fallow and are dominated by weedy annual grasses and forbs.

The BSA occurs on the *Chittenden* U.S. Geological Survey (USGS) 7.5-minute quadrangle (Figure 2). Elevations in the BSA range from approximately 145 feet (ft) National Geodetic Vertical Datum (NGVD) in San Juan Creek to 153 ft NGVD on the adjacent banks. Topography on the site is flat, with the exception of the steeply sloping creek banks. The site has an estimated mean annual temperature of 59° Fahrenheit and an estimated mean annual precipitation of 19.86 inches (PRISM Climate Group 2012). Habitats within the BSA include herbaceous riparian wetland (0.01 ac), scrub/shrub riparian wetland (0.02 ac), aquatic (0.05 ac), ruderal/non-native grassland (0.93 ac), row crops (0.45 ac), and developed (0.38 ac).

Only one soil type, Sorrento silty clay loam (0-2 % slopes), underlies the BSA (Figure 3). This soil type is classified as a hydric soil on the San Benito County List of Hydric Soils (NRCS 2012). It is well-drained, has an available water holding capacity of about 10 to 12 inches, and has moderately slow permeability (SCS 1969, NRCS 2014).

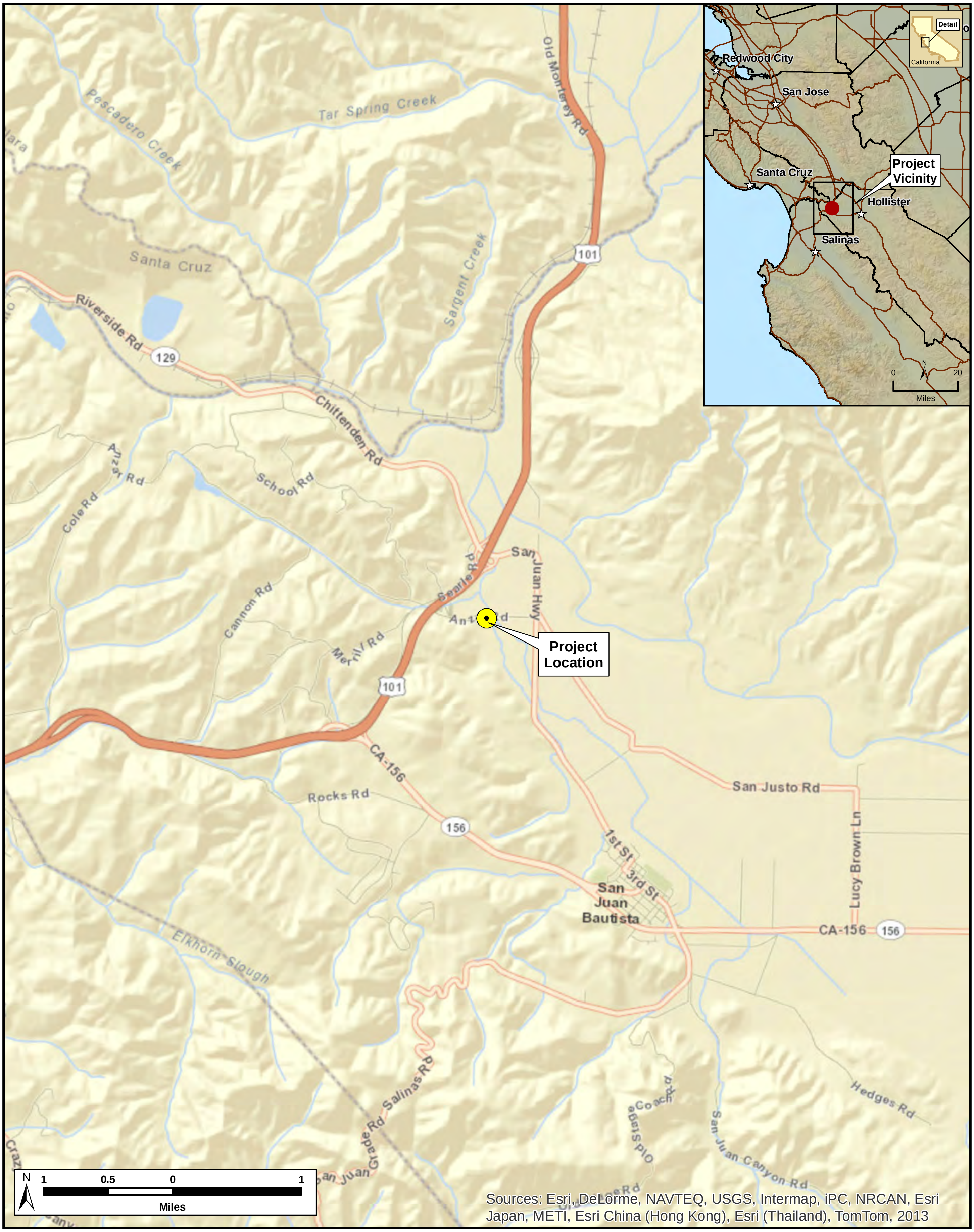
The U.S. Fish and Wildlife Service, as part of the National Wetland Inventory Program (NWI), has mapped aquatic resources for the study area and surrounding regions (Figure 4). Although no features are mapped within the BSA, two wetland types have been mapped in the immediate vicinity, approximately 200 ft south of Anzar Road. These two freshwater wetland types include: (1) palustrine emergent permanently flooded and excavated wetlands, and (2) palustrine scrub-shrub permanently flooded and excavated wetlands.

2.2. Project Description

The Project entails the replacement of an existing 78-year-old, functionally obsolete, two-lane structure with a new two-lane bridge. In a routine Bridge Inspection Report prepared by Caltrans numerous deficiencies in the Anzar Road Bridge were documented including: several spalls along the lower edges of the deck on both sides in both spans, a spall with exposed rebar on the north end of Pier 2, and a crack with an incipient spall and rust stain in the midspan soffit of Span 2. As part of a rural major collector roadway (1464 ADT), the bridge is important for local transportation, and a new bridge will better serve the needs of the local community. The new bridge will include two 12-foot (ft) lanes, each with a minimum 4-ft shoulder. The addition of a second lane and wider shoulders will also help to improve traffic safety. The project will be performed under the Highway Bridge Program using federal funds along with a required local match portion provided by the County of San Benito.

2.3. Survey Purpose

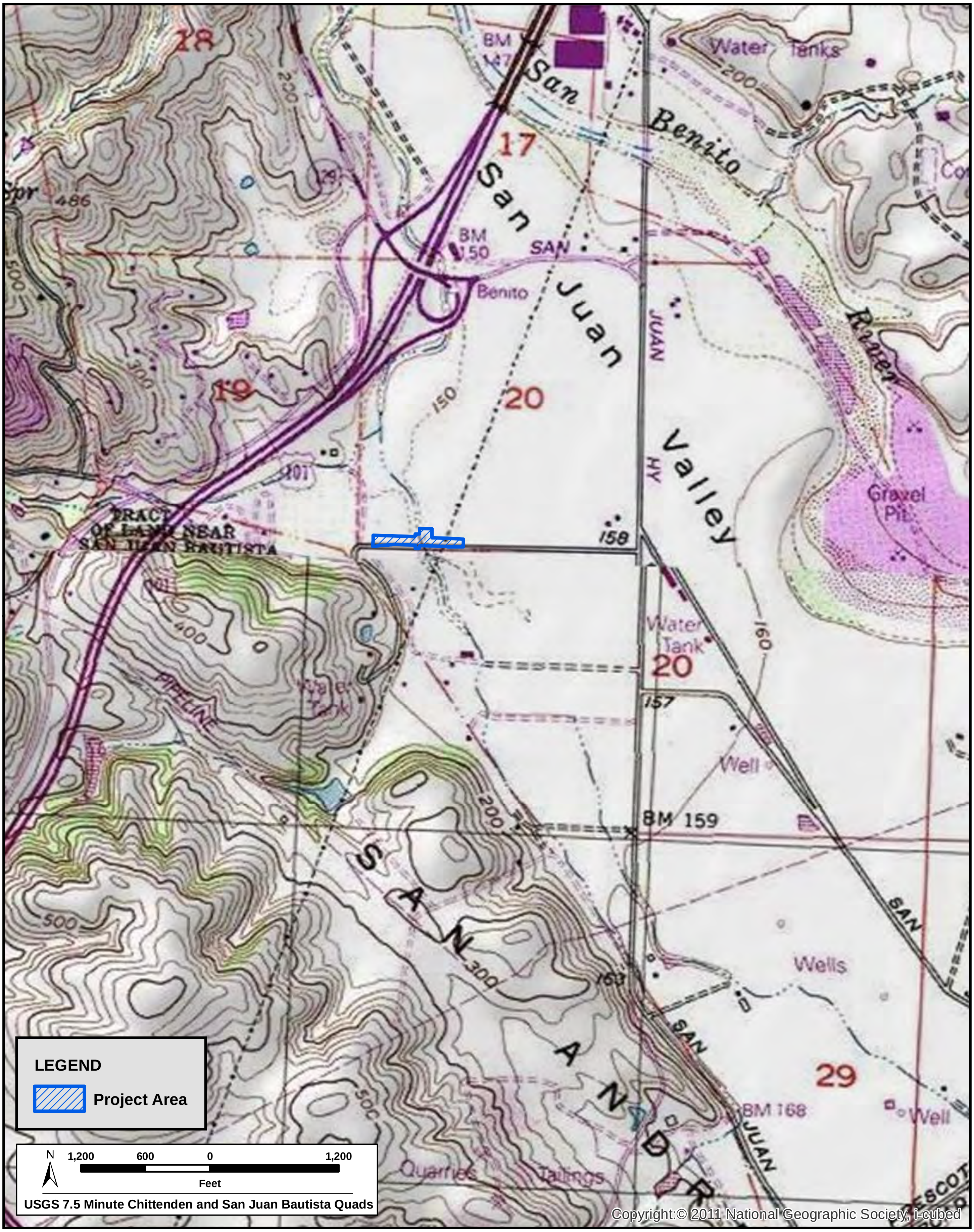
H. T. Harvey & Associates (HTH) surveyed the BSA for areas that may meet the physical criteria and regulatory definition of "Waters of the United States" (jurisdictional waters) on 4 October 2012. The purpose of the field surveys was to identify the extent and distribution of potential jurisdictional waters such as wetlands and other waters occurring within the BSA boundaries under conditions existing at the time of the survey.



N:\Projects3300\3399-01\Reports\ID of Waters\Fig 1 Vicinity Map.mxd

H.T. HARVEY & ASSOCIATES
Ecological Consultants

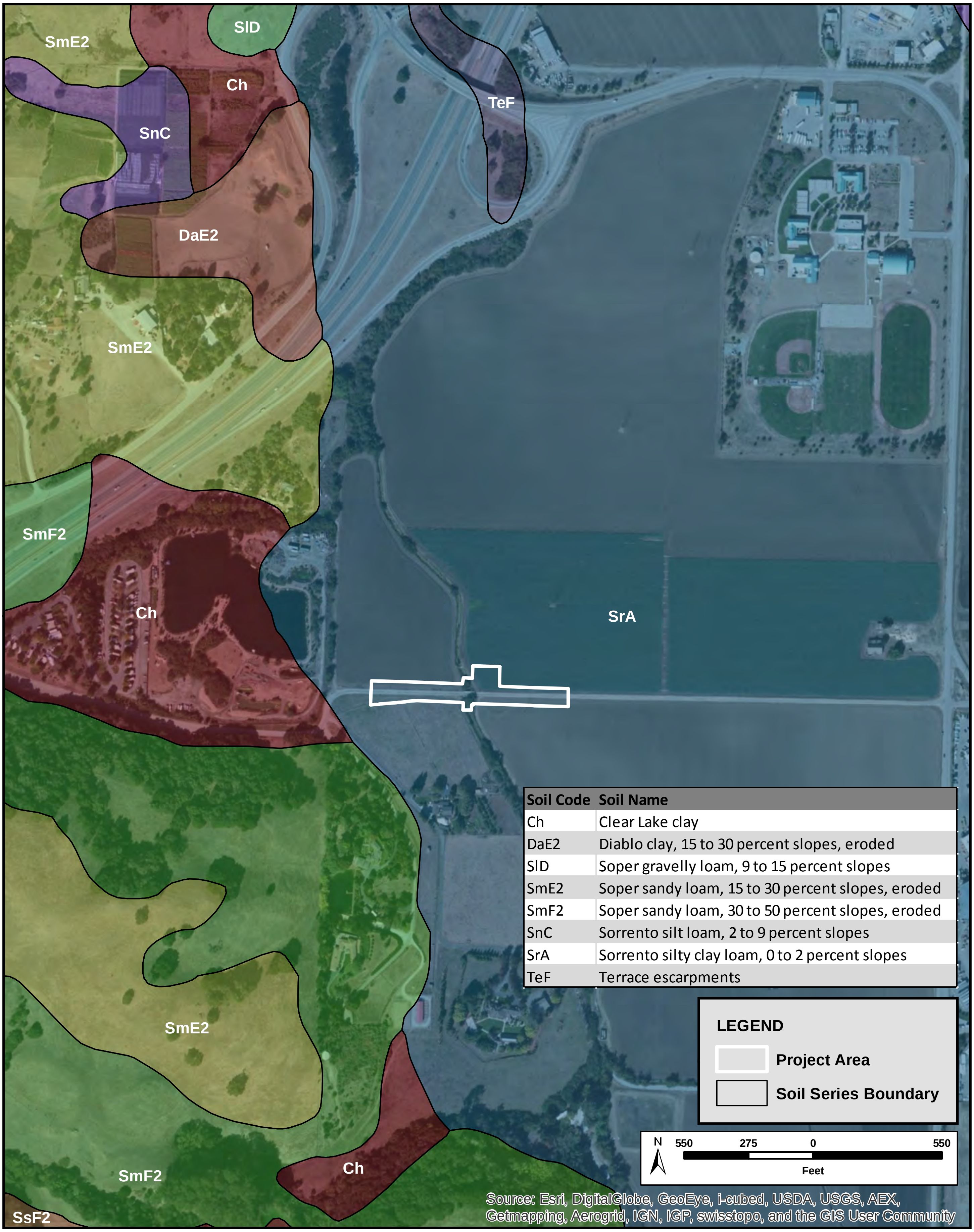
Figure 1: Vicinity Map
Anzar Road Bridge Over San Juan Creek Project (3399-01)
May 2014



N:\Projects3300\3399-01\Reports\ID of Waters\Fig 2 USGS Map.mxd

H.T. HARVEY & ASSOCIATES
Ecological Consultants

Figure 2: USGS Map
Anzar Road Bridge Over San Juan Creek Project (3399-01)
May 2014



Soil Code	Soil Name
Ch	Clear Lake clay
DaE2	Diablo clay, 15 to 30 percent slopes, eroded
SlD	Soper gravelly loam, 9 to 15 percent slopes
SmE2	Soper sandy loam, 15 to 30 percent slopes, eroded
SmF2	Soper sandy loam, 30 to 50 percent slopes, eroded
SnC	Sorrento silt loam, 2 to 9 percent slopes
SrA	Sorrento silty clay loam, 0 to 2 percent slopes
TeF	Terrace escarpments

N:\Projects3300\3399-01\Reports\ID of Waters\Fig 3 Soil Map.mxd

H.T. HARVEY & ASSOCIATES
Ecological Consultants

Figure 3: Soil Map
Anzar Road Bridge Over San Juan Creek Project (3399-01)
May 2014

Code	National Wetlands Inventory
PEMHx	Palustrine, Emergent, Permanently Flooded, Excavated
PSSC	Palustrine, Scrub-Shrub, Seasonaly Flooded
PSSCx	Palustrine, Scrub-Shrub, Seasonaly Flooded, Excavated
PSSHx	Palustrine, Scrub-Shrub, Permanently Flooded, Excavated
PUBF	Palustrine, Unconsolidated Bottom, Semipermanently Flooded
PUBHx	Palustrine, Unconsolidated Bottom, Permanently Flooded, Excavated
R4SBC	Riverine, Intermittent, Streambed, Seasonally Flooded

N:\Projects3300\3399-01\Reports\ID of Waters\Fig 4 NWI Map.mxd

H.T. HARVEY & ASSOCIATES
Ecological Consultants

Figure 4: NWI Map
Anzar Road Bridge Over San Juan Creek Project (3399-01)
May 2014

Section 2.0 Survey Methods

In order to map the extent and distribution of potential jurisdictional waters on the approximately 1.28-ac BSA, HTH plant/wetland ecologist Christopher Gurney, M.S., conducted a reconnaissance survey of the Project site on 4 October 2012.

No winter hydrology monitoring was conducted prior to the delineation. During the October survey the entire BSA was covered on foot, to find all potential features on the site, map these features using sub-meter Global Positioning System (GPS), and to detect any areas of ephemeral ponding and/or saturated soils. The site was assessed for vegetation, soils, and hydrology.

Wetland delineation field work was performed during a drier year than normal on the site. Total precipitation received in the 2011 – 2012 growing season was approximately 12.96 inches, which is below the 18.92-inch 30-year average for annual precipitation for this area as modeled by the PRISM Climate Group (PRISM Climate Group 2012).

3.1. Identification of Jurisdictional Waters

The vegetation, soils, and hydrology of the BSA were examined following the guidelines outlined in the *Routine Determination Method* in the Corps of Engineers 1987 Wetlands Delineation Manual (Environmental Laboratory 1987). In addition, the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0)* (*Regional Supplement* USACE 2008b) was followed to document site conditions relative to hydrophytic vegetation, hydric soils, and wetland hydrology. As noted in the latter report, the *Regional Supplement* is designed for use with the current version of the *Corps 1987 Manual*, except where superseded by instruction issued in the more recent and location-specific *Regional Supplement* (USACE 2008b). This report was also compiled in accordance with guidance provided in *Information Needed for Verification of Corps Jurisdiction* (USACE San Francisco District 2000), *Draft Map and Drawing Standards for the South Pacific Division Regulatory Program* (USACE 2012), and *Final Map and Drawing standards for the South Pacific Regulatory Division Regulatory Program* (USACE 2012b). These documents list information that must be submitted as part of a request for a Jurisdictional Determination. This information includes: locality map (Figure 1), USGS quad sheets (Figure 2), site map (Figure 5), aerial photo (Figure 5), data forms, written rationale for sample point choice, color photos, and a copy of applicable sections of the current soil survey report.

The BSA was examined for topographic features, drainages, alterations to site hydrology or vegetation, and areas of significant recent disturbance. A determination was then made as to whether normal environmental conditions were present at the time of the field surveys. Data were used to document which portions of the BSA were wetlands. Generally, surveys examined the vegetation, soils, and hydrology using the "Routine Determination Method, On-Site Inspection Necessary (Section D)" outlined in the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987), and using the updated data forms, vegetation sampling methods, and hydric soil and hydrology indicators developed for the *Regional Supplement* (USACE 2008b). This 3-parameter approach to identifying wetlands is based upon the presence of hydrophytic vegetation, hydric soils, and wetland hydrology. Alternatively, a 2-parameter approach to identifying wetlands is utilized in situations where vegetation, soils, or hydrology indicators are absent due to human activities or natural events (*Difficult Wetland Situations in the Western Mountains, Valleys, and Coast Region* (Chapter 5) of the Regional Supplement (2008b).

Prior to site surveys, topographic maps and aerial photographs of the BSA were obtained from several sources and reviewed. These sources included the USGS Map and National Wetlands Inventory Map for the Chittenden USGS quadrangle, and aerial photographs including Google Earth, Microsoft (2006), Bing Maps Aerial (Microsoft 2010) and NAIP (2005).

Overall, the approach used to identify wetlands included digging soil pits to sample soil from various depths, observing vegetation growing in proximity to the soil sample area, and determining current surface and subsurface hydrologic features present near the sample area. Features meeting these criteria were then mapped in the field using a Trimble GeoXT™ GPS unit capable of sub-meter accuracy (Trimble GPS unit) by delineating the boundary in the case of wetlands (and augmented by aerial interpretation).

A brief overview of the USACE methodology specifically applicable to the identification of jurisdictional waters on the site is summarized below.

3.2. Identification of Section 404 Wetlands

3.2.1. Vegetation

Plants observed at each of the sample sites were identified to species, when possible, using *The Jepson Manual, Vascular Plans of California, Second Edition* (Baldwin et al. 2012). The wetland indicator status of each species was obtained from the 2012 National Wetland Plant List (NWPL) Final Draft Ratings (Lichvar and Kartesz 2012). The recent revision of plant names within the *The Jepson Manual, Vascular Plans of California, Second Edition* (Baldwin et al. 2012) has led to several differences in nomenclature between the latest Jepson Manual and the 2012 Wetland Plant List. In these cases, synonyms recognized by Calflora (2012) were also searched for their indicator status.

A list of species for each observation area was then compiled and a visual estimate of the percent cover of plant species was made following guidance provided in the *Regional Supplement*. It was then determined which of the observation areas supported wetland vegetation using the applicable Indicator (i.e., 1-Dominance Test; 2-Prevalence Test; or, 3-Morphological Adaptations) as described in the *Regional Supplement*.

Wetland indicator species are designated according to their frequency of occurrence in wetlands. For instance, a species with a presumed frequency of occurrence of 67 to 99 percent in wetlands is designated a facultative wetland indicator species. The 5 basic levels of wetland indicator status described in the *Regional Supplement* do not include plus (+) or minus (-) indicators. The wetland indicator groups, indicator symbol, and the frequency of occurrence of species within them in wetlands are as follows:

Table 1. Wetland Indicator Status Categories for Vascular Plants

Indicator Category	Symbol	Frequency of Occurrence
Obligate	OBL	greater than 99%
Facultative Wetland	FACW	67 - 99%
Facultative	FAC	34 - 66%
Facultative Upland	FACU	1 - 33%
Upland	UPL	less than 1%

* Based upon information contained in *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987). "NOL" = not on the list; "NI" = not an indicator.

Obligate and facultative wetland indicator species are hydrophytes that occur "in areas where the frequency and duration of inundation or soil saturation produce permanently or periodically saturated soils of sufficient duration to exert a controlling influence on the plant species present" (Environmental Laboratory 1987). Facultative indicator species may be considered wetland indicator species when found growing in hydric soils that experience periodic saturation. A complete list of the vascular plants observed within the BSA, and their current indicator status has been provided in Appendix A. Plants species that are not on the regional list of wetland indicator species are upland species.

3.2.2. Soils

Where possible, the top 22 inches of the soil profile was examined for hydric soil indicators. Diagnostic features include numerous indicators defined and described by the National Technical Committee for Hydric Soils. These indicators include the presence of organic soils (Histosols, A1), histic epipedons (A2), depleted matrix (F3), redox depressions (F8), redox dark surface (F6), and mottling indicated by the presence of gleyed or bright spots of colors (in the former case, blue grays; in the latter case, orange red, or red brown) within the soil horizons observed, among other features. Mottling of soils usually indicates poor aeration and lack of good drainage. Munsell Soil Notations (Kollmorgen Instruments Corp. 1990) were recorded for the soil matrix for each soil sample. The last digit of the Munsell Soil Notation refers to the chroma of the sample. This notation consists of numbers beginning with 0 for neutral grays and increasing at equal intervals to a maximum of about 20. Soil matrix chroma values that are one (1) or less, or two (2) or less when mottling is present, are typical of soils which have developed under anaerobic conditions. The first digit of the Munsell Soil notation refers to the value of the sample, with numbers beginning from 2 for saturated colors to a maximum of about 8 for faded or light colors. Hydric soils often show low value colors when soils have accumulated sufficient organic material to indicate development under wetland conditions, but can show high value colors when iron depletion has occurred, removing color value from the soil matrix.

The Soil Survey of San Benito County, California (SCS 1969, NRCS 2014) was consulted to determine which soil types have been mapped in the BSA. All soils on the BSA are Sorrento silty clay loams. Descriptions of soil mapping units and the list of hydric soils in Monterey County is in Appendix B.

3.2.3. Hydrology

Each of the sample sites was examined for positive field indicators (primary and secondary) of wetland hydrology following the guidance provided in the *Regional Supplement*. Such indicators might include visual observation of inundation (A1) and/or soil saturation (A3), watermarks (B1), drift lines (B3), water-borne sediment deposits (B2), water-stained leaves (B9), and drainage patterns within wetlands (B10).

3.3. Identification of Section 404 Other Waters

In concert with the USACE's efforts to revise the wetland delineation manuals, making them more specific to different geographic regions of the United States, as described above, efforts have been initiated by the USACE to develop an OHW delineation manual. In particular, five relatively recent publications have attempted to further refine the definition of OHW and the delineation of the OHW mark in the arid west (including California):

- Review of Ordinary High Water Mark Indicators for Delineating Arid Streams in the Southwestern United States (USACE 2004);
- Distribution of Ordinary High Water Mark (OHWM) Indicators and Their Reliability in Identifying the Limits of "Waters of the United States" in Arid Southwestern Channels (USACE 2006);
- Review and Synopsis of Natural and Human Controls on Fluvial Channel Processes in the Arid West (USACE 2007);
- A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States: A Delineation Manual (USACE 2008a); and
- Updated Datasheet for the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States (USACE 2010).

Historically, in non-tidal waters, USACE jurisdiction extends to the OHW mark which is defined in 33 CFR Part 328.3 as "the line on the shore established by the fluctuations of water and indicated by physical characteristics, such as a clear, natural line impressed on the bank, shelving, changes in the character of the soil, destruction of terrestrial vegetation or the presence of litter and debris." This guidance is based upon the identification of the OHW mark by examining physical evidence of surface flow in the stream channel; there is no hydrologic definition of the OHW mark.

In addition, *Regulatory Guidance Letter 05-05* (dated: 7 December 2005) deals specifically with the topic of ordinary high water mark identification. That publication lists the following physical characteristics that should be considered when making an OHW mark determination: (1) natural line impressed on the bank, (2) shelving, (3) changes in the character of the soil, (4) destruction of terrestrial vegetation, (5) wracking, (6) vegetation matted down, bent, or absent, (7) sediment sorting, (8) leaf litter disturbed or washed away, (9) scour, (10) deposition, (11) multiple observed flow events, (12) bed and banks, (13) water staining, (14) and change in plant community.

Just as with the *Corps 1987 Manual*, development of the definition of the OHW mark and description of the field indicators to be used were primarily based on environmental conditions present in more temperate climates of the United States. In these areas, rain distribution and amounts are more consistent from one year to the next and the channel geomorphology has responded to develop field characteristics that reflect a system in relative equilibrium. Such "ordinary" precipitation events occurring in these temperate climates are more likely to cause the development of "ordinary" features commonly used by the USACE in identifying the OHW mark as defined under 33 CFR Part 328.3.

The difficulty with this approach is that the environmental conditions present in the arid west are very different than those encountered in temperate climates. In particular, the Mediterranean climate present throughout central California is characterized by a high degree of seasonal and interannual variability in precipitation. Occurrences of drought conditions followed by extreme discharges are more common in the arid west. Thus, much of what is observed in the field in terms of geomorphic features such as channel down-cutting, erosion, and channel formation, is not in response to "ordinary" precipitation events but to relatively high rainfall events.

For purposes of the current study, the identification of the OHW mark in the field was based upon observation of a suite of natural geomorphic field indicators that have formed during channel forming events. These features included: staining of rocks and culverts, debris deposits, exposed roots, and channel bed morphology, among other factors.

The presence of one or more of the natural geomorphic field indicators listed above, taking into consideration such factors as size of watershed, channel slope, landscape setting, elevation, gradient, land use practices, and soil type, were taken as direct evidence of an OHW mark and such channels were identified as "other waters."

Section 4.0 Survey Results

Four formal sample points were taken throughout the 1.84-ac BSA during the October sampling and delineation (Figure 5, Appendix C). Within the BSA boundaries, approximately 0.08 ac of potential jurisdictional waters were identified (Figure 5). This included roughly 0.03 ac of Section 404 wetlands composed of scrub/shrub riparian wetland and herbaceous riparian wetland. Below the OHW mark of San Juan Creek, 0.05 ac of Section 404 other waters were identified, totaling 140 linear ft (Table 2).

Table 2. Summary of Jurisdictional Waters within the BSA.

Potential Jurisdictional Waters		Acres
Section 404 Wetlands		**0.03**
Riparian Scrub/shrub Wetland		0.02
Herbaceous Riparian Wetland		0.01
Section 404 Other Waters		**0.05**
Perennial Stream/San Juan Creek		0.05
	Total of Jurisdictional Waters	**0.08**
Upland		**1.76**
	Total Area of BSA	**1.84**

Information pertinent to the identification of jurisdictional waters assembled during this investigation is presented in five appendices attached to this report.

Appendices in this report:

- Appendix A — Plant Species Observed
- Appendix B — Soils Information
- Appendix C — USACE Arid West Data Forms
- Appendix D — Photographs of BSA Conditions
- Appendix E — USACE Aquatic Resources Tables

4.1. Observations / Rationale / Assumptions

- This on-site determination assumed normal circumstances and results are based upon existing conditions present at the time of the 2012 delineation surveys. Surveys were performed using the "Routine Method of Determination" utilizing three parameters as outlined in the *1987 Corps of Engineers Wetland Delineation Manual* and the 2008 *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region.*

- Precipitation ranges indicate that climatic/hydrologic conditions for the entire rainfall period are below the long-term average. However, jurisdictional areas within the BSA were dominated by perennial plant species. As such, we do not expect that species composition would be significantly altered due to below average precipitation.
- The data points were taken in the fall after some plants had browned and stopped growing. Therefore some plants were not readily identifiable and in bloom, although as the majority of wetland species in these habitats are perennial, most plants were identifiable and a prevalence of wetland vegetation was detectable in the areas mapped as wetlands. Additionally, the BSA was not monitored throughout the rainy season. As such, the mapping of potential jurisdictional features in these areas is conservative.
- Hydrology within San Juan Creek was assumed to be perennial. At the time of the site visit (October 2012) water was still flowing in the creek (water depth was approximately 6–12 inches; Appendix D, Photograph 1), following a period of 4 months with almost no rain in the region (PRISM Climate Group 2012).
- San Juan Creek was sparsely vegetated with aquatic vegetation including watercress (*Nasturtium officinale*, OBL) and ditch grass (*Ruppia cirrhosa*, OBL), however these species do not occur at or greater than 5% cover and likely scour each year, and as such, the creek low flow channel was delineated as other waters rather than vegetated wetlands.
- The site was heavily impacted by adjacent agricultural activities, including extensive run-off from irrigation. Water from a leaking water pipe and runoff from a sprinkler system was observed flowing into the creek at the time of the survey (Appendix D, Photograph 2).
- The two wetlands were both located within the banks of San Juan Creek and are likely supported primarily by riverine hydrology. These areas are likely inundated during storm events and are likely also supported by high ground water levels adjacent to the creek. Although saturation was not observed during the survey, soils were very moist during what should have been the driest time of the year.

4.2. Areas Meeting the Regulatory Definition of Jurisdictional Waters

4.2.1. Identification of Section 404 Potential Jurisdictional Wetlands (Special Aquatic Sites)

Approximately 0.08 ac of potential wetlands were identified on the BSA (Figure 5). Three parameters identifying Section 404 wetlands were observed at two sample points: SP1, and SP3 (Figure 5; Appendix C). Wetlands that were observed within the BSA were both riparian wetlands. These wetlands are likely supported by periodic inundation and by high groundwater levels adjacent to San Juan Creek.

H.T. HARVEY & ASSOCIATES
Ecological Consultants

Figure 5: Preliminary ID of Waters

Anzar Road Bridge Over San Juan Creek Project (3399-01)

May 2014

Scrub/shrub Riparian Wetlands. Scrub/shrub riparian wetlands (SP1; Figure 5; Appendix D, Photographs 3–4) cover 0.02 ac in the BSA. These wetlands are located on a low-lying terrace adjacent to the eastern OHW mark of San Juan Creek, and to the south of Anzar Road. This terrace is likely inundated periodically during the wet season during periods of high flow in San Juan Creek, and is likely supported by a high water table for much of the year. Woody plant species including willow (*Salix* spp., FACW) saplings/shrubs are the dominant vegetation. The herbaceous understory is composed primarily of obligate and facultative wetland species including water smartweed (*Persicaria amphibia*, OBL), fat-hen (*Atriplex prostrata*, FACW), and poison hemlock (*Conium maculatum*, FACW). At the sampling point (SP 1; Figure 5), soil below 5 inches in depth was very moist (though not quite saturated) and displayed prominent redox concentrations in the matrix and pore linings, indicative of the redox dark surface (F6) hydric soil indicator. Hydrology indicators observed included oxidized rhizospheres along living roots (C3), drift deposits (B3), and the FAC-neutral test (D5).

Herbaceous Riparian Wetland. Herbaceous riparian wetlands (SP3; Figure 5; Appendix D, Photograph 5) cover 0.01 ac in the BSA. These wetlands are located on the western bank of San Juan Creek, to the south of Anzar Road. Topography in these wetlands slopes steeply down from the top of bank, before leveling off near the OHW mark. Most this area is rarely inundated, due to the steep slopes and relatively high elevations (up to approximately 4 vertical feet above ordinary high water), but is instead supported by a high water table adjacent to the creek. Vegetation in these wetlands was composed of a diverse community of herbaceous hydrophytic plants. Species composition was arranged roughly in parallel bands corresponding to moisture gradients. Immediately adjacent to the creek, water smart weed, fat-hen, and willowherb (*Epilobium ciliatum*, FACW) were dominant. Further up-slope, facultative species including wild licorice (*Glycyrrhiza lepidota,* FAC) and stinging nettle (*Urtica dioica*, FAC) became more abundant. At the sampling point (SP3; Figure 5) soils were very moist (though not quite saturated) through the entire profile (0-10 inches) and displayed prominent redox concentrations in the matrix and pore linings, indicative of the redox dark surface (F6) hydric soil indicator (Appendix D, Photograph 6). Hydrology indicators observed included oxidized rhizospheres along living roots (C3), and the FAC-neutral test (D5) (Appendix D, Photograph 7).

4.2.2. Identification of Other Waters

Only one feature in the BSA, San Juan Creek, was delineated as Section 404 other waters. Section 404 other waters in the BSA total 140 linear feet, covering 0.05 ac.

Perennial Stream. San Juan Creek is a perennial stream that flows under the Anzar Road bridge. The creek is sparsely vegetated with aquatic vegetation including watercress (*Nasturtium officinale*, OBL) and ditch grass (*Ruppia cirrhosa*, OBL), however these species do not occur at or greater than 5% cover and likely scour each year, and as such, the creek low flow channel was delineated as other waters rather than vegetated wetlands. To the north of Anzar Road, San Juan Creek has been heavily disturbed by agricultural activities, including the placement of a concrete crossing approximately 100 ft north of Anzar Road that partially blocks water flow. Additionally, the creek banks to the north of Anzar Road are barren and contain no adjacent wetlands. In contrast, to the south of Anzar Road, the creek banks are densely vegetated and contain adjacent wetlands.

The OHW mark of San Juan Creek was delineated in the field based on indicators including staining of rocks and culverts, debris deposits, exposed roots, and channel bed morphology.

4.3. Areas Not Meeting the Regulatory Definition of Jurisdictional Waters

The remainder of the BSA, approximately 1.76 ac, is upland habitat that does not meet the regulatory definitions of jurisdictional waters (Figure 5; Appendix D, Photographs 8–9). Information on plants, soils, and hydrology from 2 paired pits (SP2 & SP4; Figure 5) occurring in non-wetland habitats are found in data forms in Appendix C. The characteristic species within uplands were not hydrophytic and include wild oats (*Avena fatua*, NI), short podded mustard (*Hirschfeldia incana*, NI), fennel (*Foeniculum vulgare*, NI), bristly ox-tongue (*Helminthotheca echioides*, FACU), and wild radish (*Raphanus sativus*, NI). The soils observed did not contain hydric soil indicators because redox features were either absent, or were not present in high enough abundance. Upland soils within the BSA were clay loams and silty clay loams. True wetland hydrology indicators were not present. Such areas were distinct from delineated wetland features by the amount and type of vegetation cover.

Section 5.0 Discussion

As described above, several areas possessing the field characteristics generally used by the USACE in identifying jurisdictional waters, including wetlands and other waters, were observed within the BSA. These included other waters below the OHWM (delineated using field characteristics) of a perennial stream. "Other waters" likely claimed as jurisdictional by the USACE included approximately 140 linear ft /0.05 ac of perennial stream habitat (Figure 5). Additionally, several potentially jurisdictional wetlands are present within the BSA. These include two types of wetlands: scrub/shrub riparian wetlands (0.02 ac) and herbaceous riparian wetlands (0.01 ac). Together, wetlands and other waters comprised a total of 0.08 ac.

Section 6.0 Literature Cited

Baldwin, B. G., Goldman, D. H., Keil, D. J., Patterson, R., Rosatti, T. J., and Wilken, D. H. 2012. The Jepson Manual: Vascular Plants of California, Second Edition. University of California Press, Berkeley, 1568 pp.

Calflora. 2012. Website: http://www.calflora.org/index.html. Accessed October 2012.

Environmental Laboratory. 1987. U.S. Corps of Engineers Wetlands Delineation Manual. Department of the Army.

Kollmorgen Instruments Corp. 1990. Munsell Soil Color Charts. New York.

Lichvar, R. W. and Kartesz, J. T. 2012. North American Digital Flora: National Wetland Plant List, version 2.4.0 (http://rsgisias.crrel.usace.army.mil/apex/f?p=703:1:). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (Accessed October 2012)

[NRCS] Natural Resource Conservation Service, United States Department of Agriculture. 2008. Soil Survey Geographic (SSURGO) database for Publication Information: Publication_Place: Fort Worth, Texas. U.S. Department of Agriculture, Natural Resources Conservation Service. Online: http://SoilDataMart.nrcs.usda.gov/

[NRCS] Natural Resource Conservation Service, United States Department of Agriculture. 2012. National List of Hydric Soils. http://soils.usda.gov/use/hydric/. Accessed October 2012.

[NRCS] Natural Resources Conservation Service, United States Department of Agriculture. 2014. Web Soil Survey. Available online at http://websoilsurvey.nrcs.usda.gov/. Accessed through May 2014.

PRISM Climate Group. 2012. PRISM Products Matrix., http://prism.oregonstate.edu. Accessed October 2012.

[SCS] Soil Conservation Service, National Cooperative Soil Survey. 1969. Soil Survey of San Benito County, California. U.S. Department of Agriculture.

[USACE] U.S. Army Corps of Engineers. 2005. Regulatory Guidance Letter, Ordinary High Water Mark Identification (No. 05-05).

[USACE] U.S. Army Corps of Engineers. 2006. Distribution of Ordinary High Water Mark (OHWM) Indicators and Their Reliability in Identifying the Limits of "Waters of the United States" in Arid Southwestern Channels.

[USACE] U.S. Army Corps of Engineers. 2007a. Information Requested for Verification of Corps Jurisdiction, San Francisco District.

[USACE] U.S. Army Corps of Engineers. 2007b. Review and Synopsis of Natural and Human Controls on Fluvial Channel Processes in the Arid West.

[USACE] U.S. Army Corps of Engineers. 2008a. A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States. August 2008. U.S. Army Engineer Research and Development Center.

[USACE] U.S. Army Corps of Engineers. 2008b. Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0). September 2008. U.S. Army Engineer Research and Development Center.

[USACE] U.S. Army Corps of Engineers. 2008c. Regulatory Guidance Letter, Jurisdictional Determinations (No. 08-02).

[USACE] U.S. Army Corps of Engineers. 2010. Updated Datasheet for the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States. July 2010.

[USACE] U.S. Army Corps of Engineers. 2011. Ordinary High Flows and the State-Discharge Relationship in the Arid West Region. July 2011.

[USACE] U.S. Army Corps of Engineers. 2012. Special Public Notice. Final Map and Drawing Standards for the South Pacific Division Regulatory Program.

[USFWS] U.S. Fish and Wildlife Service. 2012. National Wetlands Inventory Program. Wetlands Mapper. Online. http://www.fws.gov/wetlands/data/mapper.html. May 2012.

[USGS] U.S. Geological Society. 2012. Water Resources of the U.S. Accessed online at http://water.usgs.gov/GIS/huc_name.html. . (accessed October 2012).

Appendix A. Plant Species Observed

Family	Scientific Name	Common Name	Wetland Indicator Status[1]
Apiaceae	*Conium maculatum*	poison hemlock	FACW
	Foeniculum vulgare	fennel	NI
Asteraceae	*Baccharis glutinosa*	marsh baccharis	FACW
	Cirsium vulgare	bull thistle	FACU
	Erigeron bonariensis	flax-leaved horseweed	FACU
	Erigeron canadensis	horseweed	FAC
	Euthamia occidentalis	western goldenrod	FACW
	Helminthotheca echioides	bristly ox-tongue	FACU
	Lactuca serriola	prickly lettuce	FACU
Brassicaceae	*Hirschfeldia incana*	short podded mustard	NI
	Nasturtium officinale	watercress	OBL
	Raphanus sativus	wild radish	NI
Cactaceae	*Opuntia* sp.	pricklypear cactus	NI
Chenopodiaceae	*Atriplex prostrata*	fat-hen	FACW
Convolvulaceae	*Convolvulus arvensis*	bindweed	NI
Euphorbiaceae	*Chamaesyce ocellata*	sand spurge	NI
Fabaceae	*Glycyrrhiza lepidota*	wild licorice	FAC
	Trifolium hirtum	rose clover	NI
Malvaceae	*Malva parviflora*	cheeseweed	NI
Onagraceae	*Epilobium ciliatum*	willowherb	FACW
Plantaginaceae	*Kickxia elatine*	sharpleaf cancerwort	NI
	Plantago major	common plantain	FAC
Poaceae	*Avena fatua*	wild oats	NI
	Festuca perennis	Italian ryegrass	FAC
	Holcus lanatus	velvet grass	FAC
	Phalaris sp.	canary grass	N/A
Polygonaceae	*Persicaria amphibia*	water smartweed	OBL
	Persicaria maculosa	spotted ladysthumb	FACW
	Polygonum aviculare	prostrate knotweed	FACW
Ruppiaceae	*Ruppia cirrhosa*	ditch grass	OBL
Salicaceae	*Salix exigua*	sandbar willow	FACW
	Salix laevigata	red willow	FACW
Urticaceae	*Urtica dioica*	stinging nettle	FAC
Zygophyllaceae	*Tribulus terrestris*	puncture vine	NI

The species are arranged alphabetically by family name for all vascular plants encountered during the plant survey. Plants are also listed alphabetically within each family. Species nomenclature is from Baldwin (2012).

[1] Wetland Indicator Status Key:

OBL = Obligate wetland species, occur almost always in wetlands (>99% probability).

FACW = Facultative Wetland species, usually occur in wetlands (67 to 99% probability), but occasionally found in non-wetlands.

FAC = Facultative species, equally likely to occur in wetlands or non-wetlands (34 to 66% probability).

FACU = Facultative Upland, usually occur in non-wetlands (67% to 99%), but occasionally found in wetlands.

UPL = Obligate Upland species, occur almost always in non-wetlands (>99% probability).

NI = Non Indicator, not present on list.

Appendix B. Soils Information

Issued November 1969

SOIL SURVEY
SAN BENITO COUNTY
California

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
In cooperation with
UNIVERSITY OF CALIFORNIA
AGRICULTURAL EXPERIMENT STATION

It occurs along major drainageways and slopes are dominantly 35 to 45 percent. Available water holding capacity is about 5 to 7 inches.

Included with this soil are areas of brown soils that have a gravelly sandy loam surface layer and that have less clay in the subsoil. Also included are a few severely eroded areas, a few nongravelly areas, and a few small Landslides.

This soil is used for range. Capability unit VIIe-1 (15); pasture and range site 3.

Sorrento Series

The Sorrento series consists of well-drained, loamy soils that formed in alluvium derived from calcareous sandstone and shale. These soils are nearly level to moderately sloping and are on flood plains and fans. The vegetation consists of annual grasses and forbs and a few scattered oaks. Elevations range from 120 to 1,500 feet above sea level. Annual rainfall is 12 to 16 inches. Average annual temperature is about 60° F., and the frost-free period is about 260 days. The main associated soils are the Mocho, Metz, Yolo, Clear Lake, and Pacheco.

The surface layer is grayish-brown silt loam, gravelly loam, or silty clay loam 16 to 24 inches thick. This layer ranges from brown to grayish brown in color. The next layer is light brownish-gray silt loam, gravelly loam, or silty clay loam 16 to 24 inches in thickness. This layer is underlain by a similar layer that in places contains stratified sand and gravel or clay loam. It extends to a depth of more than 5 feet.

The Sorrento soils are used for irrigated apples, pears, apricots, grapes, walnuts, prunes, sugar beets, tomatoes, beans, lettuce, other vegetables, and alfalfa and for dryland grain and incidental pasture.

Sorrento silt loam, 0 to 2 percent slopes (SnA).—This soil occurs along drainageways on valley floors.

Representative profile: Gomes Ranch, 10 yards east of Flint Road, 75 yards north of State Route 156.

Ap—0 to 12 inches, grayish-brown (2.5Y 5/2) silt loam, very dark grayish brown (2.5Y 3/2) when moist; moderate, fine, granular structure; hard when dry, friable when moist, slightly sticky and slightly plastic when wet; plentiful very fine roots; common, very fine, interstitial pores; mildly alkaline; clear, smooth boundary.

A1—12 to 18 inches, grayish-brown (2.5Y 5/2) silt loam, very dark grayish brown (2.5Y 3/2) when moist; weak, medium, subangular blocky structure; hard when dry, friable when moist, slightly sticky and slightly plastic when wet; plentiful very fine and fine roots; common, very fine and fine, tubular pores; moderately alkaline; clear, smooth boundary.

C1—18 to 34 inches, light brownish-gray (2.5Y 6/2) silt loam, dark grayish brown (2.5Y 4/2) when moist; weak, coarse, subangular blocky structure; slightly hard when dry, friable when moist, slightly sticky and slightly plastic when wet; plentiful very fine roots; many, very fine, fine, and medium, tubular pores; moderately alkaline, slightly effervescent; gradual, smooth boundary.

C2—34 to 78 inches, light brownish-gray (2.5Y 6/2) silt loam, dark grayish brown (2.5Y 4/2) when moist; weak, coarse, subangular blocky structure; slightly hard when dry, friable when moist, slightly sticky and slightly plastic when wet; plentiful very fine roots; many, very fine and fine, tubular pores; few thin strata of very fine sand; moderately alkaline, strongly effervescent; clear, smooth boundary.

Included with this soil are some small areas of Mocho, Metz, and Yolo soils and some areas of a soil that has a clay surface layer.

This fertile soil has available water holding capacity of 10 to 12 inches. Permeability is moderate, runoff is very slow, and the hazard of erosion is slight to none. The root zone is very deep.

This soil is used for irrigated fruits, nuts, grapes, sugar beets, tomatoes, vegetables, and alfalfa and for dryland grain and incidental pasture (fig. 12). Capability units I-1 (14) and IIIc-1 (15).

Sorrento silt loam, 2 to 9 percent slopes (SnC).—This soil is similar to Sorrento silt loam, 0 to 2 percent slopes, but is more sloping. It occurs in small to medium-size areas along the larger drainageways. Slopes dominantly range from 3 to 5 percent. In places this soil is subject to occasional flooding. Runoff is slow to medium, and the hazard of erosion is slight to moderate.

This soil is used for irrigated fruits and nuts, grapes, sugar beets, alfalfa, and vegetables and for dryland grain and incidental pasture. Capability units IIe-1 (14) and IIIe-1 (15).

Sorrento gravelly loam, 0 to 5 percent slopes (SoB).—This soil is similar to Sorrento silt loam, 0 to 2 percent slopes, but its texture is gravelly loam throughout the profile. It occurs along the larger drainageways on valley floors at places where drainageways come together, or it is along bends where floodwaters have swept over the bottom lands. Slopes are dominantly 1 to 3 percent. This soil is grayish-brown gravelly loam. Fine to medium gravel makes up more than 15 percent of the profile. The substratum is very gravelly in places.

Included with this soil are some small areas of Metz and Mocho soils. Also included are areas of clay loam or light clay loam.

Available water holding capacity is about 7 to 9 inches. Runoff is very slow to slow, and the hazard of erosion is none to slight.

This soil is used for irrigated fruits and nuts, grapes, and alfalfa and for dryland grain and incidental pasture. Capability unit IIs-4 (14).

Sorrento silty clay loam, 0 to 2 percent slopes (SrA).—This soil is similar to Sorrento silt loam, 0 to 2 percent slopes, but it is silty clay loam throughout the profile. It occurs on flood plains and valley floors in the larger valleys and along the larger drainageways. In color, this soil ranges from grayish brown to dark grayish brown. The substratum is stratified and in places ranges from light clay loam to loamy sand. In a few areas 10 percent of the solum, by volume, is fine and medium gravel.

Included with this soil are a few small areas of loam and silt loam and a few small areas of Pacheco and Clear Lake soils.

Available water holding capacity is about 10 to 12 inches. Permeability is moderately slow.

This soil is used for irrigated fruits and nuts, grapes, sugar beets, tomatoes, vegetables, and alfalfa and for dryland grain and incidental pasture. Capability units I-1 (14) and IIIc-1 (15).

Sorrento silty clay loam, 2 to 9 percent slopes (SrC).—This soil is similar to Sorrento silt loam, 0 to 2 percent slopes, but it is more sloping and is silty clay loam

HYDRIC SOIL LISTS

USDA - Soil Conservation Service
Davis, California (March 1992)

INTRODUCTION

Hydric soils are developed under sufficiently wet conditions to support growth and regeneration of hydrophytic vegetation. More specifically, hydric soils are ones that meet the definition and criteria developed by the National Technical Committee for Hydric Soils (NTCHS). The criteria are selected soil properties that are documented in Soil Taxonomy (Soil Survey Staff, 1975, 1990) and Soil Interpretations Records (Soil Survey Staff, 1983). The NTCHS is chaired by Soil Conservation Service (SCS). Members include representatives from the U.S. Army Corps of Engineers, U. S. Fish and Wildlife Service, Environmental Protection Agency, Agricultural Experiment Stations, U. S. Forest Service and the Bureau of Land Management.

KINDS OF LISTS OF HYDRIC SOILS

The SCS maintains three kinds of lists of hydric soils.

1. National List of Hydric Soils. This is a listing of soil series mapped in the United States that meet hydric soil criteria. This list includes soil series that may or may not have been drained. Some series, designated as hydric have phases that are not hydric depending on water table, flooding and ponding characteristics. Refer to Soil Survey Area List of Hydric Soil Map Units for specific information. The NTCHS is responsible for reviewing and approving changes to this list. It is contained in the publication "Hydric Soils of the United States, 1985". A second edition was published in December 1987 and a third edition in June 1991. This general list is maintained in a computer file and is updated annually. The most current national list from the computer file may be obtained for the cost of printing from the SCS Project Manager, Statistical Laboratory, Iowa State University, 217 Snedecor Hall, Ames, IA 50011.

2. State List of Hydric Soils. This is a subset of the National List of Hydric Soils for specific states. The California list may be obtained from the SCS State Soil Scientist, 2121-C 2nd Street, Davis, CA 95616.

3. Soil Survey Area List of Hydric Soil Map Units. SCS maintains a local list of hydric soil map units for each soil survey area in the Field Office Technical Guide. Each soil survey area encompasses all or a portion of a county. These are the most specific of the three kinds of lists. They identify the soil map units that contain or may in some delineations contain hydric soils. These lists have the advantage, when used with the local soil survey report map sheets, of indicating the geographic distribution of hydric soils within a given area. A conventional and Special Symbols Legend is attached to the list. These symbols may appear on the soil survey maps. Hydric soils may occur in areas designated by the Water Features symbols.

COLUMNS ON THE SOIL SURVEY AREA LIST OF HYDRIC SOIL MAP UNITS

Map Symbol: A soil map unit symbol is listed for every map unit in the soil survey area. The symbols on the list correspond to the symbols presented in the soil survey report and map sheets.

Map Unit Name: A soil map unit name is listed for every map unit in the soil survey area. The individual components of the soil map unit are listed directly below the map unit name, preceeded by either a "(C)" or "(I)". The "(C)" signifies a major component, which is therefore a part of the map unit name. The "(I)" signifies a component of minor extent -- an inclusion -- which is not a part of the map unit name.

Hyd?: For each component or inclusion listed, "Y" indicates, yes, the soil is hydric and "N", no, indicates the soil is not hydric.

Hydric Criteria: Codes indicating the NTCHS criteria that are met are listed. (See page 3)

Hydric Landforms: The probable landscape position within the soil map unit delineation is given for each listed hydric soil.

FSA Items: Information required for FSA implementation purposes as per National Food Security Act Manual, Section 512.12, is listed. The entires 1 through 5 signify the following: (1) hydric only because of saturation, (2) support woody vegetation under natural conditions, (3) contain potholes or playas, (4) are seasonally flooded or ponded, and (5) can be farmed under natural conditions without removing woody vegetation or other manipulation.

Footnotes: A number indicates that a footnote pertinent to the listed hydric soil is given on the last page of the hydric soil list. Some footnotes identify soils that have altered conditions, and soil characteristics indicate that hydric soil conditions existed prior to alteration of drainage or flooding. Other footnotes indicate that soil properties range across the hydric soil criteria. On-site investigation may be required.

NOTES ON USES AND LIMITATIONS OF THE LISTS

The lists have a number of agricultural and nonagricultural applications. These include assistance in land-use planning, conservation planning, and assessment of potential wildlife habitat. A combination of hydric soil, hydrophytic vegetation, and hydrology criteria defines wetlands as described in the Federal Manual for Identifying and Delineating Jurisdictional Wetlands (Federal Interagency Committee for Wetland Delineation, 1989). Therefore an area that meets hydric soil criteria must also meet hydrophytic vegetation and wetland hydrology criteria in order for it to be classified as a jurisdictional wetland.

The Soil Survey Area Lists of Hydric Soil Map Units identify hydric soil components and hydric soil inclusions. Inclusions are soil components of minor extent and may need to be located by on-site investigation.

DEFINITION OF HYDRIC SOIL (NTCHS, June, 1991)

A hydric soil is a soil that is saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions in the upper part. The following criteria reflect those soils that meet this definition.

CRITERIA FOR HYDRIC SOILS (NTCHS, June, 1991)

1. All Histosols except Folists, or

2. Soils in Aquic suborder, Aquic subgroups, Albolls suborder, Salorthids great group, Pell great groups of Vertisols, Pachic subgroups, or Cumulic subgroups that are:

a. somewhat poorly drained and have a frequently occurring water table at less than 0.5 (ft) feet from the surface for a significant period (usually more than 2 weeks) during the growing season, or

b. poorly drained or very poorly drained and have either:

(1) a frequently occurring water table at less than 0.5 feet from the surface for a significant period (usually more than 2 weeks) during the growing season if textures are coarse sand, sand, or fine sand in all layers within 20 inches (in), or for other soils

(2) a frequently occurring water table at less than 1.0 foot from the surface for a significant period (usually more than 2 weeks) during the growing season if permeability is equal to or greater than 6.0 in/hr in all layers within 20 inches, or

(3) a frequently occurring water table at less than 1.5 feet from the surface for a significant period (usually more than 2 weeks) during the growing season if permeability is less than 6.0 in/hr in any layer within 20 inches, or

3. Soils that are frequently ponded for long duration or very long duration during the growing season, or

4. Soils that are frequently flooded for long duration or very long duration during the growing season.

FIELD OFFICE OFFICIAL LIST OF HYDRIC SOIL MAP UNITS
FOR
SAN BENITO COUNTY, CALIFORNIA

Map Units are listed in alpha-numeric order by map unit symbol. The 'HYDRIC CRITERIA' column refers to criteria defined in 'Hydric Soils of the United States' (USDA Miscellaneous Publication No. 1491 June, 1991.) The 'FSA ITEMS' column contains information needed for Food Security Act determinations required by Section 512.11(h)(4) of the National Food Security Act Manual (August 1991).

March 11, 1992

Soil Survey Area No.: CA069
Soil Survey Name: SAN BENITO COUNTY, CALIFORNIA

Map Symbol	Map Unit Name (C) Component (I) Inclusion	Hyd?	Hydric Cri-teria	Hydric Landforms	FSA Items	Foot-notes
AnA	ANTIOCH LOAM, 0 TO 2 PERCENT SLOPES					
	(C) ANTIOCH	N				
AnB	ANTIOCH LOAM, 2 TO 5 PERCENT SLOPES					
	(C) ANTIOCH	N				
AnC2	ANTIOCH LOAM, 5 TO 9 PERCENT SLOPES, ERODED					
	(C) ANTIOCH	N				
AoD2	ANTIOCH CLAY LOAM, 9 TO 15 PERCENT SLOPES, ERODED					
	(C) ANTIOCH	N				
ArC	ARGUELLO LOAM, 2 TO 9 PERCENT SLOPES					
	(C) ARGUELLO	N				
	(I) RIVERWASH	Y	4	Basin Floor	4,5	
AsD	ARGUELLO SHALY LOAM, 9 TO 15 PERCENT SLOPES					
	(C) ARGUELLO	N				
AtD	ARNOLD LOAMY SAND, 9 TO 15 PERCENT SLOPES					
	(C) ARNOLD	N				
AtE2	ARNOLD LOAMY SAND, 15 TO 30 PERCENT SLOPES, ERODED					
	(C) ARNOLD	N				

Soil Survey Area No.: CA069
Soil Survey Name: SAN BENITO COUNTY, CALIFORNIA

Map Symbol	Map Unit Name (C) Component (I) Inclusion	Hyd?	Hydric Cri-teria	Hydric Landforms	FSA Items	Foot-notes
AtF3	ARNOLD LOAMY SAND, 30 TO 50 PERCENT SLOPES, SEVERELY ER ODED					
	(C) ARNOLD	N				
AuE	AUBERRY FINE SANDY LOAM, 15 TO 30 PERCENT SLOPES					
	(C) AUBERRY	N				
AuG2	AUBERRY FINE SANDY LOAM, 30 TO 75 PERCENT SLOPES, ERODE D					
	(C) AUBERRY	N				
BaG	BADLAND					
	(C) BADLAND	N				
BoA	BOTELLA LOAM, 0 TO 2 PERCENT SLOPES					
	(C) BOTELLA	N				
BoC	BOTELLA LOAM, 2 TO 9 PERCENT SLOPES					
	(C) BOTELLA	N				
CbF2	CIBO STONY CLAY, 15 TO 50 PERCENT SLOPES, ERODED					
	(C) CIBO	N				
CcG2	CIBO ROCKY CLAY, SHALLOW, 15 TO 75 PERCENT SLOPES, EROD ED					
	(C) CIBO	N				
	(C) ROCK OUTCROP	N				

Soil Survey Area No.: CA069
Soil Survey Name: SAN BENITO COUNTY, CALIFORNIA

Map Symbol	Map Unit Name (C) Component (I) Inclusion	Hyd?	Hydric Cri- teria	Hydric Landforms	FSA Items	Foot- notes
CgG2	CIENEBA GRAVELLY SANDY LOAM, 30 TO 75 PERCENT SLOPES, E RODED					
	(C) CIENEBA	N				
CgG3	CIENEBA GRAVELLY SANDY LOAM, 15 TO 75 PERCENT SLOPES, S EVERELY ERODED					
	(C) CIENEBA	N				
Ch	CLEAR LAKE CLAY					
	(C) CLEAR LAKE	Y	2B3	Basin Floor	1,5	
Ck	CLEAR LAKE CLAY, SALINE					
	(C) CLEAR LAKE	Y	2B3	Basin Floor	1,5	
Cl	CLEAR LAKE SILTY CLAY LOAM					
	(C) CLEAR LAKE	Y	2B3	Basin Floor	1,5	
CmD	CLIMARA CLAY, 9 TO 15 PERCENT SLOPES					
	(C) CLIMARA	N				
CmF2	CLIMARA CLAY, 15 TO 50 PERCENT SLOPES, ERODED					
	(C) CLIMARA	N				
CnD2	COMETA LOAM, 5 TO 15 PERCENT SLOPES, ERODED					
	(C) COMETA	N				
CoD2	COMETA SANDY LOAM, 5 TO 15 PERCENT SLOPES, ERODED					
	(C) COMETA	N				

Soil Survey Area No.: CA069
Soil Survey Name: SAN BENITO COUNTY, CALIFORNIA

Map Symbol	Map Unit Name (C) Component (I) Inclusion	Hyd?	Hydric Criteria	Hydric Landforms	FSA Items	Footnotes
CpC	CONEJO CLAY LOAM, 2 TO 9 PERCENT SLOPES					
	(C) CONEJO	N				
CuC	CORRALITOS LOAMY SAND, 2 TO 9 PERCENT SLOPES					
	(C) CORRALITOS	N				
CvC	COTATI LOAM, 2 TO 9 PERCENT SLOPES					
	(C) COTATI	N				
CvD2	COTATI LOAM, 9 TO 15 PERCENT SLOPES, ERODED					
	(C) COTATI	N				
CvE2	COTATI LOAM, 15 TO 30 PERCENT SLOPES, ERODED					
	(C) COTATI	N				
CwA	CROPLEY CLAY, 0 TO 2 PERCENT SLOPES					
	(C) CROPLEY	N				
	(I) UNNAMED	Y	3	Alluvial Fan	4,5	
CwC	CROPLEY CLAY, 2 TO 9 PERCENT SLOPES					
	(C) CROPLEY	N				
	(I) WILLOWS	Y	2B3	Basin Floor	1,5	
	(I) CLEAR LAKE	Y	2B3	Basin Floor	1,5	
CyC	CROPLEY SILTY CLAY LOAM, 2 TO 9 PERCENT SLOPES					
	(C) CROPLEY	N				
DaD	DIABLO CLAY, 9 TO 15 PERCENT SLOPES					
	(C) DIABLO	N				

Soil Survey Area No.: CA069
Soil Survey Name: SAN BENITO COUNTY, CALIFORNIA

Map Symbol	Map Unit Name (C) Component (I) Inclusion	Hyd?	Hydric Criteria	Hydric Landforms	FSA Items	Foot-notes
DaE2	DIABLO CLAY, 15 TO 30 PERCENT SLOPES, ERODED					
	(C) DIABLO	N				
DaF2	DIABLO CLAY, 30 TO 50 PERCENT SLOPES, ERODED					
	(C) DIABLO	N				
DaG3	DIABLO CLAY, 50 TO 75 PERCENT SLOPES, SEVERELY ERODED					
	(C) DIABLO	N				
DlD	DIABLO-LINNE COMPLEX, 9 TO 15 PERCENT SLOPES					
	(C) DIABLO	N				
	(C) LINNE	N				
DlE2	DIABLO-LINNE COMPLEX, 15 TO 30 PERCENT SLOPES, ERODED					
	(C) DIABLO	N				
	(C) LINNE	N				
DlF2	DIABLO-LINNE COMPLEX, 30 TO 50 PERCENT SLOPES, ERODED					
	(C) DIABLO	N				
	(C) LINNE	N				
DoA	DOCAS SILT LOAM, 0 TO 2 PERCENT SLOPES					
	(C) DOCAS	N				
DoC	DOCAS SILT LOAM, 2 TO 9 PERCENT SLOPES					
	(C) DOCAS	N				

March 11, 1992

Soil Survey Area No.: CA069
Soil Survey Name: SAN BENITO COUNTY, CALIFORNIA

Map Symbol	Map Unit Name (C) Component (I) Inclusion	Hyd?	Hydric Cri-teria	Hydric Landforms	FSA Items	Foot-notes
DsA	DOCAS CLAY LOAM, 0 TO 2 PERCENT SLOPES					
	(C) DOCAS	N				
DsC	DOCAS CLAY LOAM, 2 TO 9 PERCENT SLOPES					
	(C) DOCAS	N				
EcA	EDENVALE CLAY, 0 TO 2 PERCENT SLOPES					
	(C) EDENVALE	N				
GaE	GAVIOTA LOAM, 15 TO 30 PERCENT SLOPES					
	(C) GAVIOTA	N				
GaE2	GAVIOTA LOAM, 15 TO 30 PERCENT SLOPES, ERODED					
	(C) GAVIOTA	N				
GaF2	GAVIOTA LOAM, 30 TO 50 PERCENT SLOPES, ERODED					
	(C) GAVIOTA	N				
GrF2	GAVIOTA ROCKY LOAM, 15 TO 50 PERCENT SLOPES, ERODED					
	(C) GAVIOTA	N				
	(C) ROCK OUTCROP	N				
GsD	GAZOS SILTY CLAY LOAM, 9 TO 15 PERCENT SLOPES					
	(C) GAZOS	N				
GtE2	GAZOS CLAY LOAM, 15 TO 30 PERCENT SLOPES, ERODED					
	(C) GAZOS	N				

Soil Survey Area No.: CA069
Soil Survey Name: SAN BENITO COUNTY, CALIFORNIA

Map Symbol	Map Unit Name (C) Component (I) Inclusion	Hyd?	Hydric Cri-teria	Hydric Landforms	FSA Items	Foot-notes
GtF2	GAZOS CLAY LOAM, 30 TO 50 PERCENT SLOPES, ERODED					
	(C) GAZOS	N				
GtG3	GAZOS CLAY LOAM, 50 TO 75 PERCENT SLOPES, SEVERELY EROD ED					
	(C) GAZOS	N				
GuE	GULLIED LANDS					
	(C) GULLIED LANDS	N				
HaA	HANFORD COARSE SANDY LOAM, 0 TO 2 PERCENT SLOPES					
	(C) HANFORD	N				
HaC	HANFORD COARSE SANDY LOAM, 2 TO 9 PERCENT SLOPES					
	(C) HANFORD	N				
HfA	HANFORD LOAM, 0 TO 2 PERCENT SLOPES					
	(C) HANFORD	N				
	(I) UNNAMED	Y	2A	Alluvial Fan	1,5	
HfC	HANFORD LOAM, 2 TO 9 PERCENT SLOPES					
	(C) HANFORD	N				
	(I) UNNAMED	Y	2A	Alluvial Fan	1,5	
HnF2	HENNEKE FINE GRAVELLY LOAM, 15 TO 50 PERCENT SLOPES, ER ODED					
	(C) HENNEKE	N				

Soil Survey Area No.: CA069
Soil Survey Name: SAN BENITO COUNTY, CALIFORNIA

Map Symbol	Map Unit Name (C) Component (I) Inclusion	Hyd?	Hydric Cri-teria	Hydric Landforms	FSA Items	Foot-notes
HsG3	HENNEKE SOILS, 15 TO 75 PERCENT SLOPES, SEVERELY ERODED					
	(C) HENNEKE	N				
	(C) HENNEKE	N				
	(C) ROCK OUTCROP	N				
IgG	IGNEOUS ROCK LAND					
	(C) IGNEOUS ROCK LAND	N				
	(C) LITHIC XERORTHENTS	N				
KeD	KETTLEMAN LOAM, 5 TO 15 PERCENT SLOPES					
	(C) KETTLEMAN	N				
KeF2	KETTLEMAN LOAM, 15 TO 50 PERCENT SLOPES, ERODED					
	(C) KETTLEMAN	N				
KmF2	KETTLEMAN SOILS, 15 TO 50 PERCENT SLOPES, ERODED					
	(C) KETTLEMAN	N				
	(C) ROCK OUTCROP	N				
LaG3	LANIGER GRAVELLY SANDY LOAM, 30 TO 75 PERCENT SLOPES, S EVERELY ERODED					
	(C) LANIGER	N				
LdF	LANDSLIDES					
	(C) LANDSLIDES	N				
LnD	LINNE CLAY LOAM, 9 TO 15 PERCENT SLOPES					
	(C) LINNE	N				
LnE2	LINNE CLAY LOAM, 15 TO 30 PERCENT SLOPES, ERODED					
	(C) LINNE	N				

Soil Survey Area No.: CA069
Soil Survey Name: SAN BENITO COUNTY, CALIFORNIA

Map Symbol	Map Unit Name (C) Component (I) Inclusion	Hyd?	Hydric Cri-teria	Hydric Landforms	FSA Items	Foot-notes
LnF2	LINNE CLAY LOAM, 30 TO 50 PERCENT SLOPES, ERODED					
	(C) LINNE	N				
LnF3	LINNE CLAY LOAM, 30 TO 50 PERCENT SLOPES, SEVERELY EROD ED					
	(C) LINNE	N				
LsE2	LINNE-SHEDD COMPLEX, 15 TO 30 PERCENT SLOPES, ERODED					
	(C) LINNE	N				
	(C) SHEDD	N				
LsF2	LINNE-SHEDD COMPLEX, 30 TO 50 PERCENT SLOPES, ERODED					
	(C) LINNE	N				
	(C) SHEDD	N				
LtG2	LODO SHALY LOAM, 50 TO 75 PERCENT SLOPES, ERODED					
	(C) LODO	N				
LuC	LOS BANOS CLAY LOAM, 2 TO 9 PERCENT SLOPES					
	(C) LOS BANOS	N				
LuD2	LOS BANOS CLAY LOAM, 9 TO 15 PERCENT SLOPES, ERODED					
	(C) LOS BANOS	N				
LuF3	LOS BANOS CLAY LOAM, 15 TO 50 PERCENT SLOPES, SEVERELY ERODED					
	(C) LOS BANOS	N				

Soil Survey Area No.: CA069
Soil Survey Name: SAN BENITO COUNTY, CALIFORNIA

Map Symbol	Map Unit Name (C) Component (I) Inclusion	Hyd?	Hydric Cri- teria	Hydric Landforms	FSA Items	Foot- notes
LvE	LOS GATOS CLAY LOAM, 15 TO 30 PERCENT SLOPES					
	(C) LOS GATOS	N				
LvF2	LOS GATOS CLAY LOAM, 30 TO 50 PERCENT SLOPES, ERODED					
	(C) LOS GATOS	N				
LwF2	LOS GATOS ROCKY CLAY LOAM, 15 TO 50 PERCENT SLOPES, ERO DED					
	(C) LOS GATOS	N				
	(C) ROCK OUTCROP	N				
MeA	METZ SANDY LOAM, 0 TO 2 PERCENT SLOPES					
	(C) METZ	Y	4	Flood Plain	4,5	1
MgA	METZ GRAVELLY SANDY LOAM, 0 TO 2 PERCENT SLOPES					
	(C) METZ	Y	4	Flood Plain	4,5	1
MgC	METZ GRAVELLY SANDY LOAM, 2 TO 9 PERCENT SLOPES					
	(C) METZ	Y	4	Flood Plain	4,5	1
MhA	METZ SANDY LOAM, WET VARIANT, 0 TO 2 PERCENT SLOPES					
	(C) METZ VARIANT	Y	4	Flood Plain	4,5	
MnG	MINE PITS AND DUMPS					
	(C) DUMPS	N				
	(C) MINE PITS AND DUMPS	N				

Soil Survey Area No.: CA069
Soil Survey Name: SAN BENITO COUNTY, CALIFORNIA

Map Symbol	Map Unit Name (C) Component (I) Inclusion	Hyd?	Hydric Cri-teria	Hydric Landforms	FSA Items	Foot-notes
MoA	MOCHO SANDY LOAM, 0 TO 2 PERCENT SLOPES					
	(C) MOCHO	N				
MoC	MOCHO SANDY LOAM, 2 TO 9 PERCENT SLOPES					
	(C) MOCHO	N				
MpA	MOCHO LOAM, 0 TO 2 PERCENT SLOPES					
	(C) MOCHO	N				
MpC	MOCHO LOAM, 2 TO 9 PERCENT SLOPES					
	(C) MOCHO	N				
MrB	MOCHO GRAVELLY LOAM, 2 TO 5 PERCENT SLOPES					
	(C) MOCHO	N				
MsC	MOCHO CLAY LOAM, 2 TO 9 PERCENT SLOPES					
	(C) MOCHO	N				
MtF2	MONTARA ROCKY SILTY CLAY LOAM, 15 TO 50 PERCENT SLOPES, ERODED					
	(C) MONTARA	N				
	(C) ROCK OUTCROP	N				
NaD	NACIMIENTO CLAY LOAM, 9 TO 15 PERCENT SLOPES					
	(C) NACIMIENTO	N				
NaE	NACIMIENTO CLAY LOAM, 15 TO 30 PERCENT SLOPES					
	(C) NACIMIENTO	N				

Soil Survey Area No.: CA069
Soil Survey Name: SAN BENITO COUNTY, CALIFORNIA

Map Symbol	Map Unit Name (C) Component (I) Inclusion	Hyd?	Hydric Criteria	Hydric Landforms	FSA Items	Footnotes
NaF2	NACIMIENTO CLAY LOAM, 30 TO 50 PERCENT SLOPES, ERODED					
	(C) NACIMIENTO	N				
NaG2	NACIMIENTO CLAY LOAM, 50 TO 75 PERCENT SLOPES, ERODED					
	(C) NACIMIENTO	N				
NcG3	NACIMIENTO LOAM, 30 TO 75 PERCENT SLOPES, SEVERELY EROD ED					
	(C) NACIMIENTO	N				
Pa	PACHECO SILT LOAM					
	(C) PACHECO	Y	2A	Flood Plain	1,5	1
Pc	PACHECO LOAM					
	(C) PACHECO	Y	2A	Flood Plain	1,5	1
Pd	PACHECO CLAY LOAM OVER CLAY					
	(C) PACHECO	Y	2A	Flood Plain	1,5	1
Pe	PACHECO SILTY CLAY					
	(C) PACHECO	Y	2A	Flood Plain	1,5	1
PhC	PANHILL LOAM, 2 TO 9 PERCENT SLOPES					
	(C) PANHILL	N				
PkA	PANOCHE SANDY LOAM, 0 TO 2 PERCENT SLOPES					
	(C) PANOCHE	N				

Soil Survey Area No.: CA069
Soil Survey Name: SAN BENITO COUNTY, CALIFORNIA

Map Symbol	Map Unit Name (C) Component (I) Inclusion	Hyd?	Hydric Cri-teria	Hydric Landforms	FSA Items	Foot-notes
PkC	PANOCHE SANDY LOAM, 2 TO 9 PERCENT SLOPES					
	(C) PANOCHE	N				
PlA	PANOCHE LOAM, 0 TO 2 PERCENT SLOPES					
	(C) PANOCHE	N				
PlC	PANOCHE LOAM, 2 TO 9 PERCENT SLOPES					
	(C) PANOCHE	N				
PnE2	PINNACLES COARSE SANDY LOAM, 15 TO 30 PERCENT SLOPES, ERODED					
	(C) PINNACLES	N				
PnG3	PINNACLES COARSE SANDY LOAM, 30 TO 75 PERCENT SLOPES, SEVERELY ERODED					
	(C) PINNACLES	N				
PsE2	PINTO SANDY LOAM, 15 TO 30 PERCENT SLOPES, ERODED					
	(C) PINTO	N				
PtB	PLEASANTON LOAM, 2 TO 5 PERCENT SLOPES					
	(C) PLEASANTON	N				
PvC2	PLEASANTON GRAVELLY LOAM, 5 TO 9 PERCENT SLOPES, ERODED					
	(C) PLEASANTON	N				
ReA	REIFF SANDY LOAM, 0 TO 2 PERCENT SLOPES					
	(C) RIEFF	N				

Soil Survey Area No.: CA069
Soil Survey Name: SAN BENITO COUNTY, CALIFORNIA

Map Symbol	Map Unit Name (C) Component (I) Inclusion	Hyd?	Hydric Cri-teria	Hydric Landforms	FSA Items	Foot-notes
ReC	REIFF SANDY LOAM, 2 TO 9 PERCENT SLOPES					
	(C) REIFF	N				
RnA	RINCON LOAM, 0 TO 2 PERCENT SLOPES					
	(C) RINCON	N				
RnC	RINCON LOAM, 2 TO 9 PERCENT SLOPES					
	(C) RINCON	N				
	(C) RINCON	N				
	(C) RINCON	N				
RsC	RINCON SILTY CLAY LOAM, 2 TO 9 PERCENT SLOPES					
	(C) RINCON	N				
RsD2	RINCON SILTY CLAY LOAM, 9 TO 15 PERCENT SLOPES, ERODED					
	(C) RINCON	N				
Rw	RIVERWASH					
	(C) RIVERWASH	Y	4	Basin Floor	4,5	
SaA	SALINAS CLAY LOAM, 0 TO 2 PERCENT SLOPES					
	(C) SALINAS	N				
SaC	SALINAS CLAY LOAM, 2 TO 9 PERCENT SLOPES					
	(C) SALINAS	N				
SbD	SAN BENITO CLAY LOAM, 9 TO 15 PERCENT SLOPES					
	(C) SAN BENITO	N				

Soil Survey Area No.: CA069
Soil Survey Name: SAN BENITO COUNTY, CALIFORNIA

Map Symbol	Map Unit Name (C) Component (I) Inclusion	Hyd?	Hydric Cri-teria	Hydric Landforms	FSA Items	Foot-notes
SbE2	SAN BENITO CLAY LOAM, 15 TO 30 PERCENT SLOPES, ERODED					
	(C) SAN BENITO	N				
SbF2	SAN BENITO CLAY LOAM, 30 TO 50 PERCENT SLOPES, ERODED					
	(C) SAN BENITO	N				
SbF3	SAN BENITO CLAY LOAM, 30 TO 50 PERCENT SLOPES, SEVERELY ERODED					
	(C) SAN BENITO	N				
Sc	SANDY ALLUVIAL LAND					
	(C) SANDY ALLUVIAL LAND	Y	4	Basin Floor	4,5	
SdF2	SANTA LUCIA SHALY LOAM, 30 TO 50 PERCENT SLOPES, ERODED					
	(C) SANTA LUCIA	N				
SdG3	SANTA LUCIA SHALY LOAM, 30 TO 75 PERCENT SLOPES, SEVERE LY ERODED					
	(C) SANTA LUCIA	N				
SeG	SEDIMENTARY ROCK LAND					
	(C) LITHIC XERORTHENTS	N				
	(C) SEDIMENTARY ROCK LAN	N				
ShD	SHEDD LOAM, 9 TO 15 PERCENT SLOPES					
	(C) SHEDD	N				

Soil Survey Area No.: CA069
Soil Survey Name: SAN BENITO COUNTY, CALIFORNIA

Map Symbol	Map Unit Name (C) Component (I) Inclusion	Hyd?	Hydric Cri-teria	Hydric Landforms	FSA Items	Foot-notes
ShE2	SHEDD LOAM, 15 TO 30 PERCENT SLOPES, ERODED					
	(C) SHEDD	N				
ShF2	SHEDD LOAM, 30 TO 50 PERCENT SLOPES, ERODED					
	(C) SHEDD	N				
ShF3	SHEDD LOAM, 30 TO 50 PERCENT SLOPES, SEVERELY ERODED					
	(C) SHEDD	N				
SkD	SHERIDAN COARSE SANDY LOAM, 9 TO 15 PERCENT SLOPES					
	(C) SHERIDAN	N				
SkE	SHERIDAN COARSE SANDY LOAM, 15 TO 30 PERCENT SLOPES					
	(C) SHERIDAN	N				
SkE2	SHERIDAN COARSE SANDY LOAM, 15 TO 30 PERCENT SLOPES, ER ODED					
	(C) SHERIDAN	N				
SkG2	SHERIDAN COARSE SANDY LOAM, 30 TO 75 PERCENT SLOPES, ER ODED					
	(C) SHERIDAN	N				
SkG3	SHERIDAN COARSE SANDY LOAM, 30 TO 75 PERCENT SLOPES, SE VERELY ERODED					
	(C) SHERIDAN	N				

Soil Survey Area No.: CA069
Soil Survey Name: SAN BENITO COUNTY, CALIFORNIA

Map Symbol	Map Unit Name (C) Component (I) Inclusion	Hyd?	Hydric Cri-teria	Hydric Landforms	FSA Items	Foot-notes
SlD	SOPER GRAVELLY LOAM, 9 TO 15 PERCENT SLOPES					
	(C) SOPER	N				
SlE2	SOPER GRAVELLY LOAM, 15 TO 30 PERCENT SLOPES, ERODED					
	(C) SOPER	N				
SlF2	SOPER GRAVELLY LOAM, 30 TO 50 PERCENT SLOPES, ERODED					
	(C) SOPER	N				
SmD	SOPER SANDY LOAM, 9 TO 15 PERCENT SLOPES					
	(C) SOPER	N				
SmE2	SOPER SANDY LOAM, 15 TO 30 PERCENT SLOPES, ERODED					
	(C) SOPER	N				
SmF2	SOPER SANDY LOAM, 30 TO 50 PERCENT SLOPES, ERODED					
	(C) SOPER	N				
SnA	SORRENTO SILT LOAM, 0 TO 2 PERCENT SLOPES					
	(C) SORRENTO	N				
SnC	SORRENTO SILT LOAM, 2 TO 9 PERCENT SLOPES					
	(C) SORRENTO	N				
	(I) UNNAMED	Y	4	Depression	4,5	

Soil Survey Area No.: CA069
Soil Survey Name: SAN BENITO COUNTY, CALIFORNIA

Map Symbol	Map Unit Name (C) Component (I) Inclusion	Hyd?	Hydric Criteria	Hydric Landforms	FSA Items	Foot-notes
SoB	SORRENTO GRAVELLY LOAM, 0 TO 5 PERCENT SLOPES					
	(C) SORRENTO	N				
	(I) UNNAMED	Y	4	Depression	4,5	
SrA	SORRENTO SILTY CLAY LOAM, 0 TO 2 PERCENT SLOPES					
	(C) SORRENTO	N				
	(I) PACHECO	Y	2A	Flood Plain	1,5	
	(I) CLEAR LAKE	Y	2B3	Basin Floor	1,5	
SrC	SORRENTO SILTY CLAY LOAM, 2 TO 9 PERCENT SLOPES					
	(C) SORRENTO	N				
	(I) UNNAMED	Y	4	Depression	4,5	
SsE2	SWEEN ROCKY CLAY LOAM, 15 TO 30 PERCENT SLOPES, ERODED					
	(C) ROCK OUTCROP	N				
	(C) SWEEN	N				
SsF2	SWEEN ROCKY CLAY LOAM, 30 TO 50 PERCENT SLOPES, ERODED					
	(C) ROCK OUTCROP	N				
	(C) SWEEN	N				
StE2	SWEEN STONY CLAY LOAM, 15 TO 30 PERCENT SLOPES, ERODED					
	(C) SWEEN	N				
SwF2	SWEEN VERY STONY CLAY LOAM, 15 TO 50 PERCENT SLOPES, ER ODED					
	(C) SWEEN	N				

Soil Survey Area No.: CA069
Soil Survey Name: SAN BENITO COUNTY, CALIFORNIA

Map Symbol	Map Unit Name (C) Component (I) Inclusion	Hyd?	Hydric Criteria	Hydric Landforms	FSA Items	Footnotes
TeF	TERRACE ESCARPMENTS					
	(C) TERRACE ESCARPMENTS	N				
VaD	VALLECITOS LOAM, 9 TO 15 PERCENT SLOPES					
	(C) VALLECITOS	N				
VaE	VALLECITOS LOAM, 15 TO 30 PERCENT SLOPES					
	(C) VALLECITOS	N				
VaF	VALLECITOS LOAM, 30 TO 50 PERCENT SLOPES					
	(C) VALLECITOS	N				
VaF2	VALLECITOS LOAM, 30 TO 50 PERCENT SLOPES, ERODED					
	(C) VALLECITOS	N				
VrE2	VALLECITOS ROCKY LOAM, 9 TO 30 PERCENT SLOPES, ERODED					
	(C) ROCK OUTCROP	N				
	(C) VALLECITOS	N				
VrF2	VALLECITOS ROCKY LOAM, 30 TO 50 PERCENT SLOPES, ERODED					
	(C) ROCK OUTCROP	N				
	(C) VALLECITOS	N				
Wc	WILLOWS CLAY					
	(C) WILLOWS	Y	2B3	Basin Floor	1,5	1
Wk	WILLOWS CLAY, SALINE-ALKALI					
	(C) WILLOWS	Y	2B3	Basin Floor	1,5	

Soil Survey Area No.: CA069
Soil Survey Name: SAN BENITO COUNTY, CALIFORNIA

Map Symbol	Map Unit Name (C) Component (I) Inclusion	Hyd?	Hydric Cri-teria	Hydric Landforms	FSA Items	Foot-notes
Ws	WILLOWS SANDY LOAM					
	(C) WILLOWS	Y	2B3	Basin Floor	1,5	
Ww2	WILLOWS SOILS, ERODED					
	(C) WILLOWS	Y	2B3	Basin Floor	1,5	
YoA	YOLO LOAM, 0 TO 2 PERCENT SLOPES					
	(C) YOLO	N				
YoC	YOLO LOAM, 2 TO 9 PERCENT SLOPES					
	(C) YOLO	N				
YvB	YOLO GRAVELLY LOAM, 0 TO 5 PERCENT SLOPES					
	(C) YOLO	N				

Footnotes:

1. Hydrology has been altered in some or all areas of this map unit through drainage and/or protection from flooding. Soil characteristics indicate that hydric soil conditions existed prior to alteration.

SCS-SOILS-37A
3-75

Soil Survey Area: 069-San Benito County
State: CA

CONVENTIONAL AND SPECIAL SYMBOLS LEGEND

U.S. DEPARTMENT OF AGRICULTU
SOIL CONSERVATION SERVI

Date: 3/26/92

DESCRIPTION	SYMBOL

CULTURAL FEATURES

BOUNDARIES

- National, state, or province
- County or parish
- Minor civil division
- Reservation (national forest or park, state forest or park, and large airport)
- Land grant
- Limit of soil survey (label)
- Field sheet matchline & neatline

AD HOC BOUNDARY (label)

- Small airport, airfield, park, oilfield, cemetery, or flood pool

STATE COORDINATE TICK

1 890 000 FEET

LAND DIVISION CORNERS (sections and land grants)

ROADS

- Divided (median shown if scale permits)
- County, farm or ranch
- Trail

ROAD EMBLEMS & DESIGNATIONS

- Interstate — 95
- Federal — 287
- State — 52
- Other

RAILROAD

POWER TRANSMISSION LINE (normally not shown)

PIPE LINE (normally not shown)

FENCE (normally not shown)

LEVEES

- Without road
- With road
- With railroad

DAMS

- Large (to scale).
- Medium or small — w

PITS

- Gravel pit
- Mine or quarry

CULTURAL FEATURES (cont.)

MISCELLANEOUS CULTURAL FEATURES

- Farmstead, house (omit in urban areas)
- Church
- School
- Indian mound (label)
- Located object (label)
- Tank (label)
- Wells, oil or gas
- Windmill
- Kitchen midden

WATER FEATURES

DRAINAGE

- Perennial, double line
- Perennial, single line
- Intermittent
- Drainage end
- Canals or ditches
  - Double - line (label) — CANAL
  - Drainage and/or irrigation

LAKES, PONDS AND RESERVOIRS

- Perennial — water, w
- Intermittent — intermittent, int

MISCELLANEOUS WATER FEATURES

- Marsh or swamp
- Spring
- Well, artesian
- Well, irrigation
- Wet spot

SPECIAL SYMBOLS FOR SOIL SURVEY

SOIL DELINEATIONS AND SOIL SYMBOLS — CeA, FoB2

ESCARPMENTS

- Bedrock (points down slope)
- Other than bedrock (points down slope)

SHORT STEEP SLOPE

GULLY

DEPRESSION OR SINK

SOIL SAMPLE SITE (normally not shown) — S

MISCELLANEOUS

- Blowout
- Clay spot
- Gravelly spot
- Gumbo, slick or scabby spot (sodic)
- Dumps and other similar non soil areas
- Prominent hill or peak
- Rock outcrop (includes sandstone and shale)
- Saline spot
- Sandy spot
- Severely eroded spot
- Slide or slip (tips point upslope)
- Stony spot, very stony spot

RECOMMENDED AD HOC SOIL SYMBOLS

TABLE 7.—*Soil series classified according to the current system of classification*[1] *and the 1938 system with its later revisions*

Series	Current classification			1938 classification
	Family	Subgroup	Order	Great soil group
Antioch	Fine, montmorillonitic, thermic	Haplic Natrixeralfs	Alfisols	Soloth soils.
Arguello	Fine-loamy, mixed, thermic	Pachic Ultic Argixerolls	Mollisols	Brunizems.
Arnold	Sandy, mixed, thermic	Typic Xeropsamments	Entisols	Regosols.
Auberry	Fine-loamy, mixed, thermic	Ultic Haploxeralfs	Alfisols	Noncalcic Brown soils.
Botella	Fine-loamy, mixed, thermic	Pachic Argixerolls	Mollisols	Brunizems.
Cibo	Fine, montmorillonitic, thermic	Typical Chromoxererts	Vertisols	Grumusols.
Cieneba	Loamy, mixed, nonacid, thermic, shallow	Typic Xerorthents	Entisols	Lithosols.
Clear Lake	Fine, montmorillonitic, thermic	Typic Pelloxererts	Vertisols	Grumusols.
Climara	Fine, montmorillonitic, thermic	Chromic Pelloxererts	Vertisols	Grumusols.
Cometa	Fine, montmorillonitic, thermic	Typic Palexeralfs	Alfisols	Noncalcic Brown soils.
Conejo	Fine-loamy, mixed, thermic	Pachic Haploxerolls	Mollisols	Alluvial soils.
Corralitos	Sandy, mixed, thermic	Typic Xerpsamments	Entisols	Alluvial soils.
Cotati	Clayey, montmorillonitic, mesic	Typic Haploxerults	Ultisols	Planosols.
Cropley	Fine, montmorillonitic, thermic	Chromic Pelloxererts	Vertisols	Grumusols.
Diablo	Fine, montmorillonitic, thermic	Chromic Pelloxererts	Vertisols	Grumusols.
Docas	Fine-loamy, mixed, calcareous, thermic	Xeric Torrifluvents	Entisols	Alluvial soils.
Edenvale	Fine, montmorillonitic, thermic	Typic Pelloxererts	Vertisols	Grumusols.
Gaviota	Loamy, mixed, nonacid, thermic	Lithic Xerorthents	Entisols	Lithosols.
Gazos	Fine-loamy, mixed, thermic	Panhic Haploxerolls	Mollisols	Regosols intergrading to Brunizems.
Hanford	Coarse-loamy, mixed, nonacid, thermic	Typic Xerorthents	Entisols	Alluvial soils.
Henneke	Clayey-skeletal, serpentinitic, thermic	Lithic Argixerolls	Mollisols	Noncalcic Brown soils.
Kettleman	Fine-loamy, mixed, calcareous, thermic	Xeric Torriorthents	Entisols	Regosols.
Laniger	Ashy, thermic	Typic Vitrandepts	Inceptisols	Regosols.
Linne	Fine-loamy, mixed, thermic	Calcic Pachic Haploxerolls.	Mollisols	Regosols intergrading to Chestnut soils.
Lodo	Loamy, mixed, thermic	Lithic Haploxerolls	Mollisols	Lithosols.
Los Banos	Fine, montmorillonitic, thermic	Typic Haplargids	Aridisols	Noncalcic Brown soils.
Los Gatos	Fine-loamy, mixed, mesic	Typic Argixerolls	Mollisols	Brunizems.
Metz	Sandy, mixed, thermic	Typic Xerorthents	Entisols	Alluvial soils.
Mocho	Fine-loamy, mixed, thermic	Calcic Entic Haploxerolls.	Mollisols	Alluvial soils.
tara	Loamy, serpentinitic, thermic	Lithic Haploxerolls	Mollisols	Lithosols.
...cimiento	Fine-loamy, mixed, thermic	Calcic Entic Haploxerolls.	Mollisols	Regosols intergrading to Chestnut soils.
Pacheco	Fine-loamy, mixed, thermic	Aquic Haploxerolls	Mollisols	Humic Gley soils.
Panhill	Fine-silty, mixed, thermic	Typic Haplargids	Aridisols	Noncalcic Brown soils.
Panoche	Fine-loamy, mixed, calcareous, thermic	Xeric Torriorthents	Entisols	Alluvial soils.
Pinnacles	Fine, montmorillonitic, thermic	Ultic Palexeralfs	Alfisols	Noncalcic Brown soils.
Pinto	Fine-loamy, mixed, mesic	Argic Durixerolls	Mollisols	Noncalcic Brown soils intergrading to Yellowish-Brown Lateritic soils.
Pleasanton	Fine-loamy, mixed, thermic	Mollic Haploxeralfs	Alfisols	Noncalcic Brown soils.
Reiff	Coarse-loamy, mixed, nonacid, thermic	Typic Xerorthents	Entisols	Alluvial soils.
Rincon	Fine, montmorillonitic, thermic	Mollic Haploxeralfs	Alfisols	Noncalcic Brown soils intergrading to Brunizems.
Salinas	Fine-loamy, mixed, thermic	Calcic Pachic Haploxerolls.	Mollisols	Brunizems intergrading to Alluvial soils.
San Benito	Fine-loamy, mixed, thermic	Calcic Pachic Haploxerolls.	Mollisols	Regosols intergrading to Chestnut soils.
Santa Lucia	Clayey-skeletal, mixed, thermic	Pachic Ultic Haploxerolls.	Mollisols	Brunizems intergrading to Lithosols.
Shedd	Fine-loamy, mixed, calcareous, thermic	Xeric Torriorthents	Entisols	Regosols.
Sheridan	Coarse-loamy, mixed, mesic	Pachic Haploxerolls	Mollisols	Brunizems intergrading to Regosols.
Soper	Fine-loamy, mixed, thermic	Typic Argixerolls	Mollisols	Noncalcic Brown soils intergrading to Brunizems.
Sorrento	Fine-loamy, mixed, thermic	Calcic Entic Haploxerolls.	Mollisols	Alluvial soils.
Sween	Fine, montmorillonitic, thermic	Typic Argixerolls	Mollisols	Brunizems.
Vallecitos	Clayey, montmorillonitic, thermic	Ruptic-Lithic Mollic Palexeralfs.	Alfisols	Noncalcic Brown soils.
Willows	Fine, montmorillonitic, thermic	Chromic Pelloxererts	Vertisols	Solonchaks.
Yolo	Fine-silty, mixed, nonacid, thermic	Typic Xerocrepts	Inceptisols	Alluvial soils.

[1] Placement of some soil series in the current system of classification, particularly in families, may change as more precise information nes available.

Appendix C. USACE Arid West Data Forms

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Anzar Road Bridge City/County: San Juan Bautista, San Benito Sampling Date: 10/4/12

Applicant/Owner: County of San Benito Public Works State: CA Sampling Point: #1

Investigator(s): C. Gurney Section, Township, Range: Section 20, T12S, R4E

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

Subregion (LRR): Region C (California) Lat: 36.875370 Long: -121.56259 Datum: WGS 84

Soil Map Unit Name: Sorrento Silty Clay Loam NWI classification: near PEMHx

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

Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes √ No ___

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

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

Hydrophytic Vegetation Present?	Yes √	No ___
Hydric Soil Present?	Yes √	No ___
Wetland Hydrology Present?	Yes √	No ___

Is the Sampled Area within a Wetland? Yes √ No ___

Remarks:

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 15 ft)			
1. Salix laevigata	60	Yes	FACW
2.			
3.			
4.			
= Total Cover	60		
Sapling/Shrub Stratum (Plot size: 15 ft)			
1. Salix laevigata	40	Yes	FACW
2. Salix exigua	10	Yes	FACW
3.			
4.			
5.			
= Total Cover	50		
Herb Stratum (Plot size: 5 ft)			
1. Persicaria amphibia	25	Yes	OBL
2. Conium maculatum	5	No	FACW
3. Atriplex prostrata	5	No	FACW
4.			
5.			
6.			
7.			
8.			
= Total Cover	35		
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
= Total Cover			

% Bare Ground in Herb Stratum 65 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	25	x 1 = 25
FACW species	120	x 2 = 240
FAC species	0	x 3 = 0
FACU species	0	x 4 = 0
UPL species	0	x 5 = 0
Column Totals:	145 (A)	265 (B)

Prevalence Index = B/A = 1.82

Hydrophytic Vegetation Indicators:

√ Dominance Test is >50%

√ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes √ No ___

Remarks:

Photo PA040006

SOIL

Sampling Point: #1

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-5	2.5Y 3/2	100					clay loam,	lots of roots
5-14	2.5Y 3/1	95	5YR 4/6	5	C	M,PL	silty clay loam,	very moist but not saturated, some organic matter/muck

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: none

Depth (inches): ______

Hydric Soil Present? Yes ✓ No ______

Remarks:

Photo PA040032

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? Yes ✓ No ______

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Anzar Road Bridge City/County: San Juan Bautista, San Benito Sampling Date: 10/4/12

Applicant/Owner: County of San Benito Public Works State: CA Sampling Point: #2

Investigator(s): C. Gurney Section, Township, Range: Section 20, T12S, R4E

Landform (hillslope, terrace, etc.): Top of Bank Local relief (concave, convex, none): convex Slope (%): 0-2

Subregion (LRR): Region C (California) Lat: 36.875354 Long: -121.561199 Datum: WGS 84

Soil Map Unit Name: Sorrento Silty Clay Loam NWI classification: none

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

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

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

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

Hydrophytic Vegetation Present?	Yes ✓	No ____
Hydric Soil Present?	Yes ____	No ✓
Wetland Hydrology Present?	Yes ____	No ✓

Is the Sampled Area within a Wetland? Yes ____ No ✓

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix laevigata	40	Yes	FACW
2.			
3.			
4.			
= Total Cover	40		
Sapling/Shrub Stratum (Plot size: ____)			
1. Salix laevigata	5	Yes	FACW
2.			
3.			
4.			
5.			
= Total Cover	5		
Herb Stratum (Plot size: ____)			
1. Avena fatua	10	Yes	UPL
2. Hirschfeldia incana	10	Yes	UPL
3. Glycyrrhiza lepidota	15	Yes	FAC
4. Raphanus sativus	5	No	UPL
5. Foeniculum vulgare	5	No	UPL
6.			
7.			
8.			
= Total Cover	45		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
= Total Cover			

% Bare Ground in Herb Stratum 55 % Cover of Biotic Crust ____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 60% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	0	x 1 =
FACW species	45	x 2 = 90
FAC species	15	x 3 = 45
FACU species		x 4 =
UPL species	30	x 5 = 150
Column Totals:	90 (A)	285 (B)

Prevalence Index = B/A = 3.17

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

__ Prevalence Index is ≤3.0[1]

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

__ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✓ No ____

Remarks:

SOIL

Sampling Point: #2

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 3/2	100	none				clay loam	very dry, hard

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: ______

Depth (inches): ______

Hydric Soil Present? Yes ______ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? Yes ______ No ✓

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Anzar Road Bridge City/County: San Juan Bautista, San Benito Sampling Date: 10/4/12

Applicant/Owner: County of San Benito Public Works State: ________ Sampling Point: #3

Investigator(s): C. Gurney Section, Township, Range: Section 20, T12S, R4E

Landform (hillslope, terrace, etc.): Bank / Floodplain Local relief (concave, convex, none): Concave Slope (%): 50

Subregion (LRR): Region C (California) Lat: 36.875363 Long: -121.561367 Datum: WGS 84

Soil Map Unit Name: Sorrento Silty Clay Loam NWI classification: near PEMHx

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

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

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

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ______)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	______ = Total Cover		
Sapling/Shrub Stratum (Plot size: ______)			
1.			
2.			
3.			
4.			
5.			
	______ = Total Cover		
Herb Stratum (Plot size: 5 ft)			
1. Glycyrrhiza lepidota	50	Yes	FAC
2. Persicaria amphibia	15	Yes	OBL
3. Urtica dioica	10	No	FAC
4. Atriplex prostrata	10	No	FACW
5. Conium maculatum	5	No	FACW
6. Baccharis glutinosa	5	No	FACW
7. Epilobium ciliatum	5	No	FACW
8. Euthamia occidentalis	5	No	FACW
	105 = Total Cover		
Woody Vine Stratum (Plot size: ______)			
1.			
2.			
	______ = Total Cover		

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	15	x 1 = 15
FACW species	30	x 2 = 60
FAC species	60	x 3 = 180
FACU species	0	x 4 =
UPL species	0	x 5 =
Column Totals:	105 (A)	255 (B)

Prevalence Index = B/A = 2.42

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

✓ Prevalence Index is ≤3.0[1]

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

__ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✓ No ______

Remarks:

PA040017 (Photo #)

SOIL

Sampling Point: #3

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-10	2.5Y 3/1	80	5YR 4/6	20	C	PL,M	Silty Clay Loam	Shell fragments, very moist

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: none

Depth (inches): ______

Hydric Soil Present? Yes √ No ______

Remarks:

PA040041, PA040042 (Photo #6)

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ______ No √ Depth (inches): ______

Water Table Present? Yes ______ No √ Depth (inches): ______

Saturation Present? (includes capillary fringe) Yes ______ No √ Depth (inches): ______

Wetland Hydrology Present? Yes √ No ______

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Anzar Road Bridge City/County: San Juan Bautista, San Benito Sampling Date: 10/4/12

Applicant/Owner: County of San Benito Public Works State: CA Sampling Point: #4

Investigator(s): C. Gurney Section, Township, Range: Section 20, T12S, R4E

Landform (hillslope, terrace, etc.): Top of Bank Local relief (concave, convex, none): convex Slope (%): 5

Subregion (LRR): Region C (California) Lat: 36.875364 Long: -121.561433 Datum: WGS 84

Soil Map Unit Name: Sorrento Silty Clay Loam NWI classification: none

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

Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes √ No ___

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

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

Hydrophytic Vegetation Present?	Yes ___	No √
Hydric Soil Present?	Yes ___	No √
Wetland Hydrology Present?	Yes ___	No √

Is the Sampled Area within a Wetland? Yes ___ No √

Remarks:

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: ___)			
1.			
2.			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: ___)			
1.			
2.			
3.			
4.			
5.			
= Total Cover			
Herb Stratum (Plot size: ___)			
1. Foeniculum vulgare	30	Yes	UPL
2. Avena fatua	20	Yes	UPL
3. Glycyrrhiza lepidota	20	Yes	FAC
4. Hirschfeldia incana	15	No	UPL
5. Conium maculatum	10	No	FACW
6. Lactuca serriola	5	No	UPL
7.			
8.			
= Total Cover	100		
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
= Total Cover			

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species	10	x 2 =	20
FAC species	20	x 3 =	60
FACU species	70	x 4 =	280
UPL species		x 5 =	
Column Totals:	100 (A)		360 (B)

Prevalence Index = B/A = 3.60

Hydrophytic Vegetation Indicators:

- ___ Dominance Test is >50%
- ___ Prevalence Index is ≤3.0[1]
- ___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ___ No √

Remarks:

SOIL

Sampling Point: #4

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-9	2.5Y 3/2	100					Clay loam	Very dry, hard

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: ______

Depth (inches): ______

Hydric Soil Present? Yes ____ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ____ No ✓ Depth (inches): ______
Water Table Present? Yes ____ No ✓ Depth (inches): ______
Saturation Present? (includes capillary fringe) Yes ____ No ✓ Depth (inches): ______

Wetland Hydrology Present? Yes ____ No ✓

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

Remarks:

Appendix D. Photographs of BSA Conditions

Photo 1. San Juan Creek, looking southward towards Anzar Road Bridge. The creek bed is sparsely vegetated with watercress and ditch grass.

Photo 2. Pipe observed leaking water into San Juan Creek

Photo 3. San Juan Creek, looking southward from Anzar Road Bridge. The creek banks are densely vegetated with willows and other wetland riparian species including wild licorice and water smartweed.

Photo 4. Vegetation near soil pit 1 was dominated by willow saplings, with water smartweed in the understory

Photo 5. Vegetation near soil pit 3 was dominated by wild licorice, water smartweed, willowherb, and other hydrophytic vegetation

Photo 6. Soil from soil pit 3 showing redox concentrations in the matrix

Photo 7. Soil from soil pit 3 showing oxidized rhizospheres along living roots

Photo 8. Vegetation near soil pit 2 was sparse, with a mix of upland, facultative and facultative wetland plants including willows, wild licorice, wild oats, and short podded mustard

Photo 9. Vegetation near soil pit 4 was dominated by fennel, wild oats, and wild licorice

Appendix E. USACE Aquatic Resources Spreadsheet

Waters_Name	Cowadin_Code	HGM_Code	Measurement_Type	Amount	Units	Waters_Types	Latitude	Longitude	Local_Waterway
W1	PSSHx		Area	0.01	ACRE	NRPW	36.875 N	(-)121.561 W	
W2	PEMHx		Area	0.02	ACRE	NRPW	36.875 N	(-)121.561 W	
OW1	R4		Linear	0.05	ACRE	NRPW	36.876 N	(-)121.561 W	San Juan Creek

Appendix B USFWS Special-status Species List

United States Department of the Interior

FISH AND WILDLIFE SERVICE

Sacramento Fish and Wildlife Office
2800 Cottage Way, Room W-2605
Sacramento, California 95825

May 7, 2014

Document Number: 140507085018

Kelly Hardwicke PhD
H.T. Harvey and Associates
983 University Ave. Building D
Los Gatos, CA 95032

Subject: Species List for Anzar Road Bridge Replacement

Dear: Ms Hardwicke

We are sending this official species list in response to your May 7, 2014 request for information about endangered and threatened species. The list covers the California counties and/or U.S. Geological Survey 7½ minute quad or quads you requested.

Our database was developed primarily to assist Federal agencies that are consulting with us. Therefore, our lists include all of the sensitive species that have been found in a certain area *and also ones that may be affected by projects in the area*. For example, a fish may be on the list for a quad if it lives somewhere downstream from that quad. Birds are included even if they only migrate through an area. In other words, we include all of the species we want people to consider when they do something that affects the environment.

Please read Important Information About Your Species List (below). It explains how we made the list and describes your responsibilities under the Endangered Species Act.

Our database is constantly updated as species are proposed, listed and delisted. If you address proposed and candidate species in your planning, this should not be a problem. However, we recommend that you get an updated list every 90 days. That would be August 05, 2014.

Please contact us if your project may affect endangered or threatened species or if you have any questions about the attached list or your responsibilities under the Endangered Species Act. A list of Endangered Species Program contacts can be found http://www.fws.gov/sacramento/es/Branch-Contacts/es_branch-contacts.htm.

Endangered Species Division

U.S. Fish & Wildlife Service

Sacramento Fish & Wildlife Office

Federal Endangered and Threatened Species that Occur in or may be Affected by Projects in the Counties and/or U.S.G.S. 7 1/2 Minute Quads you requested

Document Number: 140507085018

Current as of: May 7, 2014

Quad Lists

Listed Species

Invertebrates

Euphydryas editha bayensis
bay checkerspot butterfly (T)

Fish

Oncorhynchus mykiss
South Central California steelhead (T) (NMFS)

Amphibians

Ambystoma californiense
California tiger salamander, central population (T)

Rana draytonii
California red-legged frog (T)

Birds

Brachyramphus marmoratus
marbled murrelet (T)

Sternula antillarum (=Sterna, =albifrons) browni
California least tern (E)

Vireo bellii pusillus
Least Bell's vireo (E)

Mammals

Vulpes macrotis mutica
San Joaquin kit fox (E)

Quads Containing Listed, Proposed or Candidate Species:

CHITTENDEN (386A)

County Lists

Listed Species

Invertebrates

Branchinecta conservatio
Conservancy fairy shrimp (E)

S

Branchinecta lynchi
Critical habitat, vernal pool fairy shrimp (X)
vernal pool fairy shrimp (T)
S

Desmocerus californicus dimorphus
valley elderberry longhorn beetle (T)
S

Euphydryas editha bayensis
bay checkerspot butterfly (T)
S

Fish

Hypomesus transpacificus
delta smelt (T)
S

Oncorhynchus mykiss
South Central California steelhead (T) (NMFS)
S

Amphibians

Ambystoma californiense
California tiger salamander, central population (T)
Critical habitat, CA tiger salamander, central population (X)
S

Rana draytonii
California red-legged frog (T)
Critical habitat, California red-legged frog (X)
S

Reptiles

Gambelia (=Crotaphytus) sila
blunt-nosed leopard lizard (E)
S

Thamnophis gigas
giant garter snake (T)
S

Birds

Brachyramphus marmoratus

marbled murrelet (T)
S

Gymnogyps californianus
California condor (E)
S

Rallus longirostris obsoletus
California clapper rail (E)
S

Sternula antillarum (=Sterna, =albifrons) browni
California least tern (E)
S

Vireo bellii pusillus
Least Bell's vireo (E)
S

Mammals

Dipodomys ingens
giant kangaroo rat (E)
S

Dipodomys nitratoides exilis
Fresno kangaroo rat (E)
S

Vulpes macrotis mutica
San Joaquin kit fox (E)
S

Plants

Camissonia benitensis
San Benito evening-primrose (T)
S

Holocarpha macradenia
Critical habitat, Santa Cruz tarplant (X)
Santa Cruz tarplant (T)
S

Monolopia congdonii (=Lembertia congdonii)
San Joaquin woolly-threads (E)
S

Key:

(E) *Endangered* - Listed as being in danger of extinction.

(T) *Threatened* - Listed as likely to become endangered within the foreseeable future.

(P) *Proposed* - Officially proposed in the Federal Register for listing as endangered or threatened.

(NMFS) Species under the Jurisdiction of the National Oceanic & Atmospheric Administration Fisheries Service. Consult with them directly about these species.

Critical Habitat - Area essential to the conservation of a species.

(PX) *Proposed Critical Habitat* - The species is already listed. Critical habitat is being proposed for it.

(C) *Candidate* - Candidate to become a proposed species.

(V) Vacated by a court order. Not currently in effect. Being reviewed by the Service.

(X) *Critical Habitat* designated for this species

Important Information About Your Species List

How We Make Species Lists

We store information about endangered and threatened species lists by U.S. Geological Survey 7½ minute quads. The United States is divided into these quads, which are about the size of San Francisco.

The animals on your species list are ones that occur within, **or may be affected by** projects within, the quads covered by the list.

- Fish and other aquatic species appear on your list if they are in the same watershed as your quad or if water use in your quad might affect them.
- Amphibians will be on the list for a quad or county if pesticides applied in that area may be carried to their habitat by air currents.
- Birds are shown regardless of whether they are resident or migratory. Relevant birds on the county list should be considered regardless of whether they appear on a quad list.

Plants

Any plants on your list are ones that have actually been observed in the area covered by the list. Plants may exist in an area without ever having been detected there. You can find out what's in the surrounding quads through the California Native Plant Society's online Inventory of Rare and Endangered Plants.

Surveying

Some of the species on your list may not be affected by your project. A trained biologist and/or botanist, familiar with the habitat requirements of the species on your list, should determine whether they or habitats suitable for them may be affected by your project. We recommend that your surveys include any proposed and candidate species on your list.
See our Protocol and Recovery Permits pages.

For plant surveys, we recommend using the Guidelines for Conducting and

Reporting Botanical Inventories. The results of your surveys should be published in any environmental documents prepared for your project.

Your Responsibilities Under the Endangered Species Act

All animals identified as listed above are fully protected under the Endangered Species Act of 1973, as amended. Section 9 of the Act and its implementing regulations prohibit the take of a federally listed wildlife species. Take is defined by the Act as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect" any such animal.

> Take may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or shelter (50 CFR §17.3).

Take incidental to an otherwise lawful activity may be authorized by one of two procedures:

- If a Federal agency is involved with the permitting, funding, or carrying out of a project that may result in take, then that agency must engage in a formal consultation with the Service.

  During formal consultation, the Federal agency, the applicant and the Service work together to avoid or minimize the impact on listed species and their habitat. Such consultation would result in a biological opinion by the Service addressing the anticipated effect of the project on listed and proposed species. The opinion may authorize a limited level of incidental take.

- If no Federal agency is involved with the project, and federally listed species may be taken as part of the project, then you, the applicant, should apply for an incidental take permit. The Service may issue such a permit if you submit a satisfactory conservation plan for the species that would be affected by your project.

  Should your survey determine that federally listed or proposed species occur in the area and are likely to be affected by the project, we recommend that you work with this office and the California Department of Fish and Game to develop a plan that minimizes the project's direct and indirect impacts to listed species and compensates for project-related loss of habitat. You should include the plan in any environmental documents you file.

Critical Habitat

When a species is listed as endangered or threatened, areas of habitat considered essential to its conservation may be designated as critical habitat. These areas may require special management considerations or protection. They provide needed space for growth and normal behavior; food, water, air, light, other nutritional or physiological requirements; cover or shelter; and sites for breeding, reproduction, rearing of offspring, germination or seed dispersal.

Although critical habitat may be designated on private or State lands, activities on these lands are not restricted unless there is Federal involvement in the activities or direct harm to listed wildlife.

If any species has proposed or designated critical habitat within a quad, there will be a separate line for this on the species list. Boundary descriptions of the critical habitat may be found in the Federal Register. The information is also reprinted in the Code of Federal Regulations (50 CFR 17.95). See our Map Room page.

Candidate Species

We recommend that you address impacts to candidate species. We put plants and animals on our candidate list when we have enough scientific information to eventually propose them for listing as threatened or endangered. By considering these species early in your planning process you may be able to avoid the problems that could develop if one of these candidates was listed before the end of your project.

Species of Concern

The Sacramento Fish & Wildlife Office no longer maintains a list of species of concern. However, various other agencies and organizations maintain lists of at-risk species. These lists provide essential information for land management planning and conservation efforts. More info

Wetlands

If your project will impact wetlands, riparian habitat, or other jurisdictional waters as defined by section 404 of the Clean Water Act and/or section 10 of the Rivers and Harbors Act, you will need to obtain a permit from the U.S. Army Corps of Engineers. Impacts to wetland habitats require site specific mitigation and monitoring. For questions regarding wetlands, please contact Mark Littlefield of this office at (916) 414-6520.

Updates

Our database is constantly updated as species are proposed, listed and delisted. If you address proposed and candidate species in your planning, this should not be a problem. However, we recommend that you get an updated list every 90 days. That would be August 05, 2014.

Appendix C Plants Identified on or Adjacent to the Project Site

Family	Scientific Name	Common Name
Apiaceae	Conium maculatum	poison hemlock
	Foeniculum vulgare	fennel
Asteraceae	Baccharis glutinosa	marsh baccharis
	Cirsium vulgare	bull thistle
	Erigeron bonariensis	flax-leaved horseweed
	Erigeron canadensis	horseweed
	Euthamia occidentalis	western goldenrod
	Helminthotheca echioides	bristly ox-tongue
	Lactuca serriola	prickly lettuce
Brassicaceae	Hirschfeldia incana	short podded mustard
	Nasturtium officinale	watercress
	Raphanus sativus	wild radish
Cactaceae	Opuntia sp.	pricklypear cactus
Chenopodiaceae	Atriplex prostrata	fat-hen
Convolvulaceae	Convolvulus arvensis	bindweed
Euphorbiaceae	Chamaesyce ocellata	sand spurge
Fabaceae	Glycyrrhiza lepidota	wild licorice
	Trifolium hirtum	rose clover
Malvaceae	Malva parviflora	cheeseweed
Onagraceae	Epilobium ciliatum	willowherb
Plantaginaceae	Kickxia elatine	sharpleaf cancerwort
	Plantago major	common plantain
Poaceae	Avena fatua	wild oats
	Festuca perennis	Italian ryegrass
	Holcus lanatus	velvet grass
	Phalaris sp.	canary grass
Polygonaceae	Persicaria amphibia	water smartweed
	Persicaria maculosa	spotted ladysthumb
	Polygonum aviculare	prostrate knotweed
Ruppiaceae	Ruppia cirrhosa	ditch grass
Salicaceae	Salix exigua	sandbar willow
	Salix laevigata	red willow
Urticaceae	Urtica dioica	stinging nettle
Zygophyllaceae	Tribulus terrestris	puncture vine
The species are arranged alphabetically by family name for all vascular plants encountered during the plant survey. Plants are also listed alphabetically within each family. Species nomenclature is from Baldwin *et al.* (2012).		

Appendix C

****

Biological Assessment

Draft Biological Assessment

Anzar Road Bridge over San Juan Creek Project
Near San Juan Bautista, San Benito County, California
(Existing Bridge No. 43C-0039)

Caltrans District 05
Federal Aid Number: BRLS-5943(062)

July 2014

Biological Assessment

Anzar Road Bridge over San Juan Creek Project
Near San Juan Bautista, San Benito County, California
(Existing Bridge No. 43C-0039)

Caltrans District 05
Federal Aid Number: BRLS-5943(062)

July 2014

Prepared By: ________________________________ Date: ______________

Patrick Boursier, Principal
H. T. Harvey & Associates
Los Gatos, California
(408) 458-3204

Approved By: ________________________________ Date: ______________

Arman Nazemi, Assistant Director
San Benito County Public Works Department
Hollister, California
(831) 636-4170

Approved By: ________________________________ Date: ______________

Randy LaVack, Senior Environmental Planner
Caltrans District 5 Environmental Stewardship Branch
San Luis Obispo, California
(805) 594-6188

For individuals with sensory disabilities, this document is available in Braille, large print, on audiocassette, or computer disk. To obtain a copy in one of these alternate formats, please call or write to Caltrans, Attn: Randy LaVack, Senior Environmental Planner, Environmental Stewardship Branch, 50 Higuera Street, San Luis Obispo, CA 93401; Phone: (805) 549-3182 Voice, or use the California Relay Service TTY number, 1 (800) 735-2929.

Summary of Findings, Conclusions, and Determinations

The County of San Benito is reconstructing the Anzar Road Bridge (existing bridge No. 43C-0039) over San Juan Creek in unincorporated San Benito County, California. The existing Anzar Road Bridge is a functionally obsolete two-lane structure that is scheduled for rehabilitation under the Highway Bridge Program (HBP). Anzar Road is designated as a rural major collector (1464 ADT) and runs east/west under U.S. Highway 101. The new bridge will include two 12-foot (ft) lanes, each with a minimum 4-ft shoulder. During construction, Anzar Road will be closed from McAlpine Lake & Park to San Juan Highway. East/west traffic will be temporarily diverted to Chittenden Road during this time.

This Project is funded by the Federal Highway Administration (FHWA) and administered by the California Department of Transportation (Caltrans); this Biological Assessment (BA) has been prepared following Caltrans' procedures (Caltrans 2011). Caltrans has assumed FHWA responsibility for environmental review, consultation, and coordination on this project, as assigned by FHWA pursuant to 23 USC 326. Caltrans will act as the lead federal agency for Section 7 of the federal Endangered Species Act. Reconnaissance-level surveys were conducted within the Biological Study Area (BSA) by H. T. Harvey & Associates ecologists in October 2012 and January 2013.

The purpose of this BA is to provide technical information and to review the proposed Project in sufficient detail to determine the extent to which the proposed Project may affect species listed or proposed as threatened or endangered under the Federal Endangered Species Act (FESA), as well as designated or proposed critical habitat for these species. This BA focuses on the only federally listed species that have any potential to be affected by the Project, the federally threatened South-Central California Coast (SCCC) steelhead (*Oncorhynchus mykiss*), California tiger salamander (*Ambystoma californiense*) and California red-legged frog (*Rana draytonii*).

The SCCC steelhead is known to occur in streams in the Project vicinity and, with no absolute barriers to fish entering San Juan Creek, there is the potential of individual steelhead to move through the Project site. However, San Juan Creek is dry much of the year, and when water is present in the channel, aquatic habitat within the portion of San Juan Creek in the BSA is not suitable for spawning and rearing due to the warm turbid water, silt substrate, eutrophic conditions, and lack of structural complexity.

Therefore, San Juan Creek is not expected to support a breeding population, and steelhead would not regularly be moving through the site (as might be expected if the species spawned upstream). The Project will not result in any permanent impacts to aquatic habitat within San Juan Creek.

The California red-legged frog breeds in the Project vicinity and may occur within the biological study area (BSA). Red-legged frogs are not expected to breed in the BSA in part because of high amounts of non-point pollution from adjacent agricultural fields. The pollutants include excess nutrients from agricultural runoff and organic matter, which results in inadequate dissolved oxygen levels for eggs and tadpoles. The creek is also channelized and does not have any off-channel pools or slow moving water with emergent vegetation required for breeding red-legged frogs. Thus, the BSA does not constitute suitable breeding habitat for red-legged frogs. However, individual red-legged frogs may occasionally use the BSA as dispersal habitat or nonbreeding foraging habitat. Thus, construction activities associated with the Project could result in the direct loss and disturbance of California red-legged frogs and their dispersal and foraging habitat. The Project could result in temporary impacts to 1.26 ac of red-legged frog dispersal habitat, including 0.04 ac of aquatic habitat within San Juan Creek, and permanent impacts to 0.20 ac of dispersal habitat for this species.

Suitable breeding habitat for the California tiger salamander is absent from the BSA, but several ponds within 1.24 mi could potentially be used for breeding by this species. Small mammal burrows and fissures in the ground in The BSA may provide upland refugial and dispersal habitat for California tiger salamanders that might be breeding in these off-site ponds. Thus, construction activities associated with the Project could result in the direct loss and disturbance of California tiger salamanders and their upland habitat. The Project will result in temporary impacts to 1.26 ac and permanent impacts to 0.20 ac of tiger salamander upland habitat.

The following effects determinations have been made on the species assessed in this BA:

- South-Central California Coast steelhead: **may affect, but is not likely to adversely affect**
- California red-legged frog: **may affect, and is likely to adversely affect**
- California tiger salamander: **may affect, and is likely to adversely affect**

The Project will not jeopardize the continued existence of any of these species due to its very limited extent, the low numbers of individuals of these species that could be affected by the Project, and the implementation of avoidance and minimization measures and compensatory mitigation (in the case of the tiger salamander). No critical habitat has been designated in the Project area, and thus the Project will not result in adverse modification of critical habitat.

Table of Contents

List of Figures

List of Tables

List of Abbreviated Terms

ac	acre(s)
BA	Biological Assessment
BMP	best management practice
BSA	Biological Study Area
CAD	computer-aided design
Caltrans	California Department of Transportation
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
DPS	Distinct Population Segment
FESA	Federal Endangered Species Act
ft	foot/feet
GIS	geographic information system
mi	mile(s)
NWI	National Wetland Inventory
RSP	rock slope protection
SR	State Route
USACE	U.S. Army Corps of Engineers
USFWS	United States Fish and Wildlife Service

Chapter 1. Introduction

The purpose of this biological assessment (BA) is to provide technical information and to review the proposed Anzar Road Bridge over San Juan Creek Project (hereafter "Project") in sufficient detail to determine to what extent the proposed Project may affect species listed as threatened, endangered, proposed, or candidate under the Federal Endangered Species Act (FESA), as well as designated critical habitat for these species. This BA focuses on the only federally listed species that have any potential to be affected by the Project, the South-Central California Coast (SCCC) steelhead (*Oncorhynchus mykiss*), California red-legged frog (*Rana draytonii*) and California tiger salamander (*Ambystoma californiense*). Other special-status species with the potential to occur in the Project vicinity are briefly discussed, but no other federally listed species has the potential to be affected by the proposed Project.

This BA has been prepared in accordance with the legal requirements set forth under Section 7 of FESA [16 USC 1536 (c)] and follows guidelines established in the Endangered Species Consultation Handbook (U.S. Fish and Wildlife Service [USFWS] 1998), and the California Department of Transportation (Caltrans) Standard Environmental Reference (Caltrans 2011). Caltrans, with its delegated National Environmental Policy Act (NEPA) authority, is the lead federal agency for Section 7 consultation. This BA, when submitted to the USFWS, initiates Section 7 consultation.

1.1 Project History

The Project entails the replacement of an existing 78-year-old, functionally obsolete, two-lane structure with a new two-lane bridge. The existing Anzar Road Bridge is a 22-ft-wide by 40-ft-long, two-span, reinforced concrete slab structure with reinforced concrete wall piers and abutments. In a routine Bridge Inspection Report prepared by Caltrans, numerous deficiencies in the Anzar Road Bridge were documented including: several spalls (i.e. chips, fragments or flakes from concrete) along the lower edges of the deck on both sides in both spans, a spall with exposed rebar on the north end of Pier 2, and a crack with an incipient spall and rust stain in the midspan soffit of Span 2. As part of a rural major collector roadway (1464 average daily traffic [ADT]), the bridge is important for local transportation. A new bridge will better serve the needs of the local community. The new bridge will include two 12-foot (ft) lanes, each with a minimum 4-ft shoulder. The addition of wider shoulders will improve traffic safety. The Project will be performed under the Highway Bridge Program using federal funds along with a required local match portion provided by the County of San Benito.

1.2 Project Description

1.2.1 Project Location

The Anzar Road Bridge (existing bridge # 43C-0039) crosses over San Juan Creek between U.S. Highway 101 and San Juan Highway, 2.4 mi northwest of the City of San Juan Bautista in San Benito County, California. The existing Anzar Road Bridge is a 22-ft-wide by 40-ft-long, two-span, reinforced concrete slab structure with reinforced concrete wall piers and abutments. The bridge connects the east and west sides of U.S. Highway 101 (Figure 1). For purposes of this report, the Biological Study Area (BSA) extends approximately 830 ft along and adjacent to Anzar Road, across San Juan Creek (Figure 2).

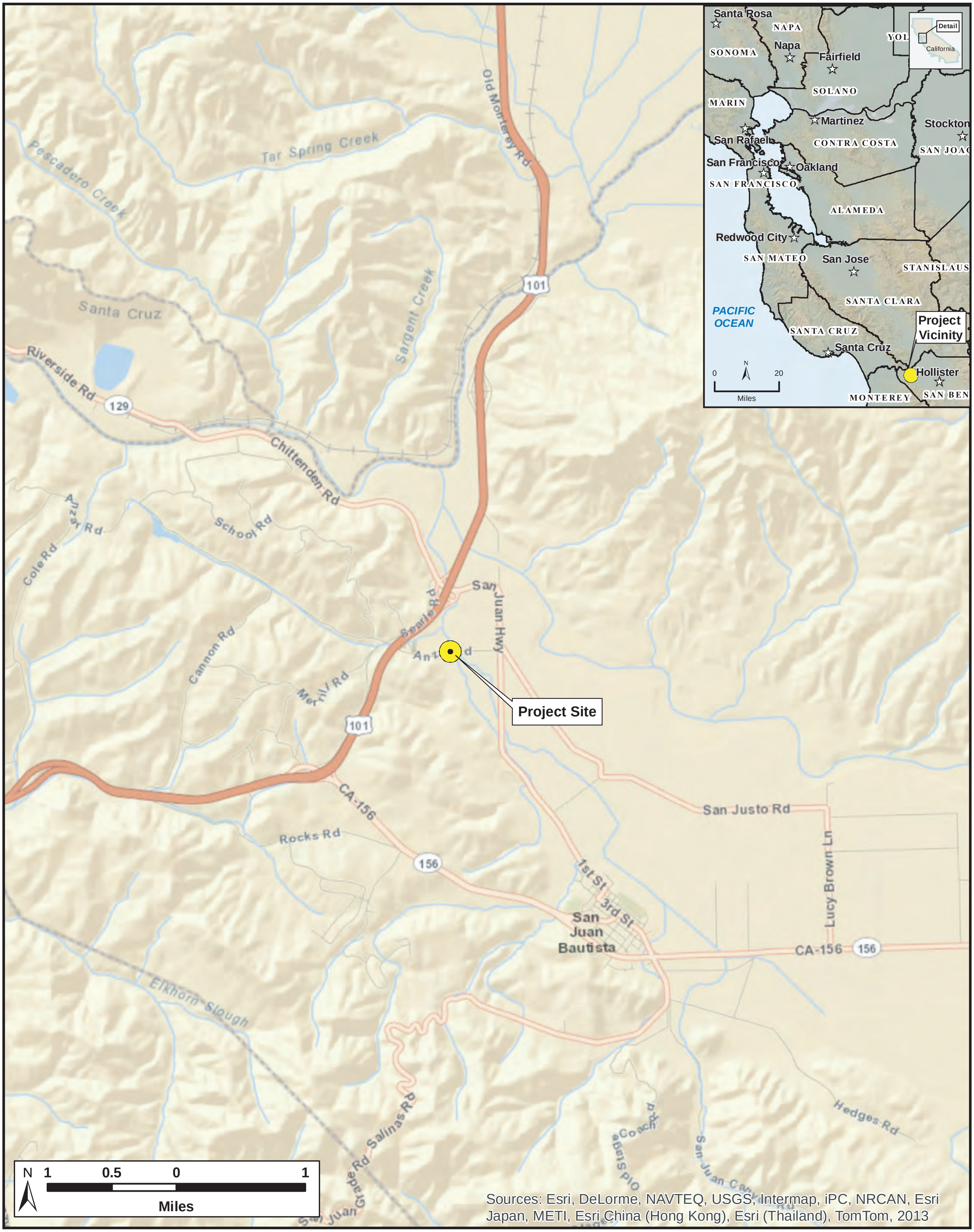
1.2.2 Project Components

The County of San Benito Public Works Department, in cooperation with Caltrans, proposes to replace the existing Anzar Road Bridge, with a new, two-lane structure. The bridge replacement will include the following project elements:

1. The existing functionally obsolete bridge will be replaced with a new bridge. The new bridge will consist of a single cast-in-place post-tensioned concrete slab supported on concrete abutment walls at each end. The new bridge will have a 32-ft clear width to accommodate two 12-ft-wide lanes and two 4-ft-wide shoulders. The new bridge will be approximately 42 ft in length and will have a road profile approximately 2 ft higher than that of the existing bridge.
2. The Project will also include approximately 390 ft of approach work on either side of the bridge, for a total of approximately 780 ft of roadway work. The existing roadway surface and road base will be removed and replaced with new materials.
3. The project will require relocation of some existing utilities and irrigation lines. The site will be excavated to a depth of approximately 15 feet for the bridge abutments, approximately six feet for relocation of an existing irrigation line, and three feet elsewhere within the roadway limits of work.
4. Due to scour and sediment deposition issues surrounding the abutments of the current bridge, the existing channel will be recontoured to stabilize the channel. In

this process a scour hole near the western abutment and a sediment deposit supporting successional riparian scrub vegetation will both be removed. Additionally, the existing channel will be widened slightly so that there will be a small net increase in aquatic habitat under and adjacent to the bridge (Figure 2).

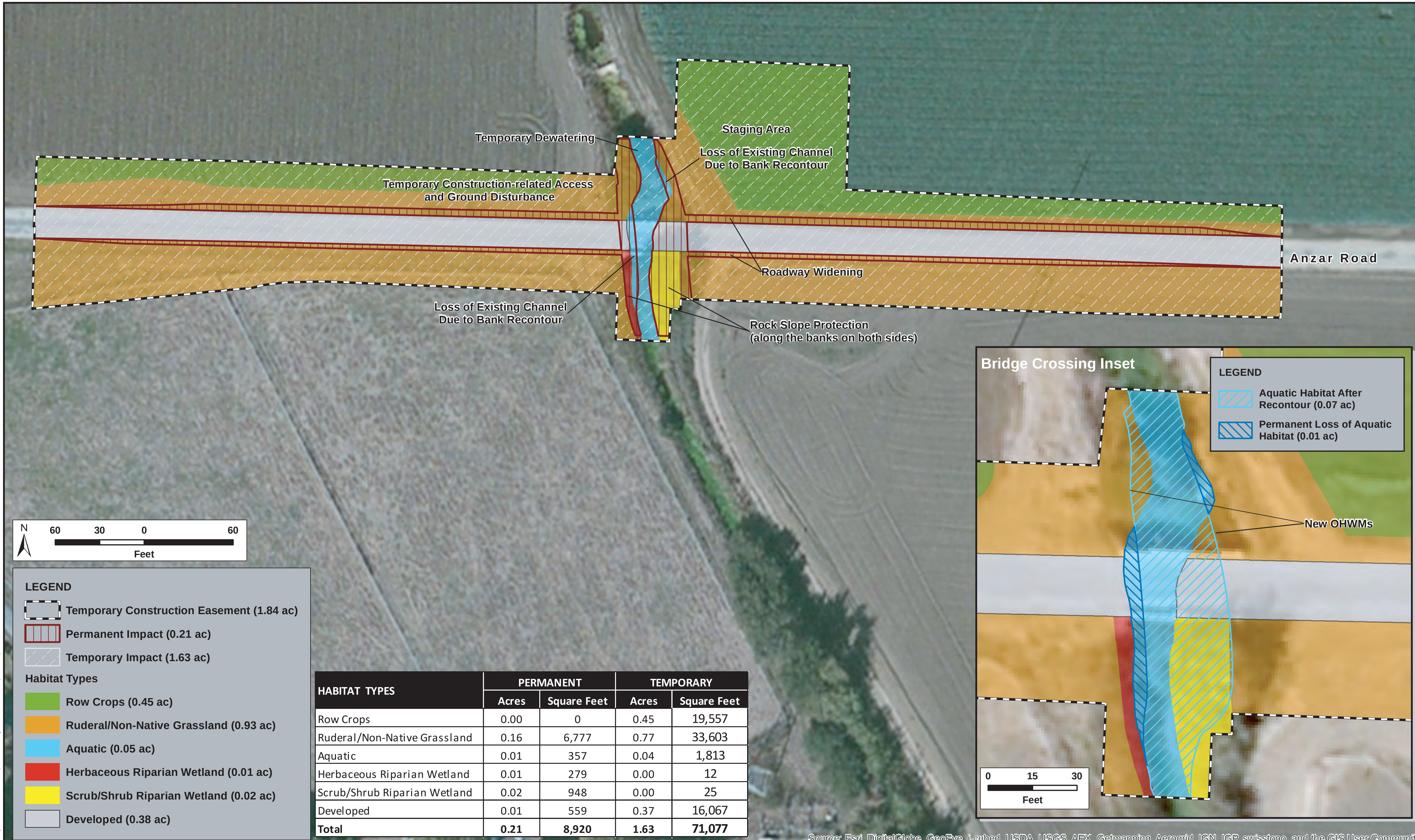
The Project will take place in one stage and will require complete closure of Anzar Road, from San Juan Highway west to McAlpine Lake and Park, during construction. Total construction time will not exceed 6 months. Approximately 6–7 driven precast concrete piles or drilled (cast-in-drilled-hole or CIDH) piles will be installed at each abutment adjacent to the creek. Pile depths will be less than 100 ft. There will be no pile installation within the top of creek banks and pile installation will take a total of one week to complete. The removal of existing piers, access, and recontouring will require the use of a temporary cofferdam and water diversion system to prevent debris from entering the creek and protect water quality within the watershed. Construction equipment used will include scrapers, dozers, loaders, excavators, a pile driver, flatbed trucks, concrete trucks, graders, a sheep foot, rollers, and an asphalt paver. All pile driving activities and work within the channel will be completed during the dry season from June 15 to October 15.



N:\Projects3300\3399-01\Reports\NES\Fig 1 Vicinity Map.mxd

H.T. HARVEY & ASSOCIATES
Ecological Consultants

Figure 1: Vicinity Map
Anzar Road Bridge Over San Juan Creek Project (3399-01)
July 2014



HABITAT TYPES	PERMANENT		TEMPORARY	
	Acres	Square Feet	Acres	Square Feet
Row Crops	0.00	0	0.45	19,557
Ruderal/Non-Native Grassland	0.16	6,777	0.77	33,603
Aquatic	0.01	357	0.04	1,813
Herbaceous Riparian Wetland	0.01	279	0.00	12
Scrub/Shrub Riparian Wetland	0.02	948	0.00	25
Developed	0.01	559	0.37	16,067
Total	**0.21**	**8,920**	**1.63**	**71,077**

H.T. HARVEY & ASSOCIATES
Ecological Consultants

Figure 2: Habitats and Impacts Map
Anzar Road Bridge Over San Juan Creek Project (3399-01)
July 2014

1.3 Summary of Consultation to Date

On 21 December 2012, H. T. Harvey & Associates biologists received (via internet) a list of federally threatened and endangered species potentially occurring in the region (the *Chittenden* USGS 7.5-minute quadrangle) from the Sacramento USFWS office; this list was updated on 7 May 2014 (Appendix A).

1.4 Document Preparation History

This BA was prepared by the following personnel at H. T. Harvey & Associates:

- Patrick Boursier, Ph.D., Principal-in-Charge, Senior Plant Ecologist
- Steve Rottenborn, Ph.D., Division Head, Senior Wildlife Ecologist
- Kelly Hardwicke, Ph.D., Project Manager, Senior Plant Ecologist
- Matthew Timmer, M.S., Wildlife Ecologist
- Chris Gurney, M.S., Plant Ecologist

The following associated documents have been prepared:

- H. T. Harvey & Associates. 2014. Natural Environment Study Anzar Road Bridge over San Juan Creek Project. May 2014.

Chapter 2. Study Methods

2.1 Listed and Proposed Species Potentially in the Biological Study Area

Consistent with Section 7 implementing regulations (50 CFR 402.12[b] [2]), a list of endangered, threatened, proposed, and candidate species (USFWS list) in the region (the *Chittenden* USGS 7.5-minute quadrangle) was generated from the Sacramento USFWS office website on 21 December 2012; this list was updated on 7 May 2014 (Appendix A).

The following federally threatened or endangered species were included on the USFWS species lists and were therefore considered for their potential to occur on the Project site:

- Monterey spineflower (*Chorizanthe pungens* var. *pungens*) **Threatened**
- Robust spineflower (*Chorizanthe robusta* var. *robusta*) **Endangered**
- Santa Clara Valley dudleya (*Dudleya abramsii* ssp. *setchellii*) **Endangered**
- Santa Cruz tarplant (*Holocarpha macradenia*) **Threatened**
- Yadon's rein orchid (*Piperia yadonii*) **Endangered**
- Metcalf Canyon jewel-flower (*Streptanthus albidus* ssp. *albidus*) **Endangered**
- Two-fork clover (*Trifolium amoenum*) **Endangered**
- Bay checkerspot butterfly (*Euphydryas editha bayensis*) **Threatened**
- California red-legged frog (*Rana draytonii*) **Threatened**
- California tiger salamander (*Ambystoma californiense*) **Threatened**
- South-Central California Coast steelhead (*Oncorhynchus mykiss*) **Threatened**
- Marbled murrelet (*Brachyramphus marmoratus*) **Threatened**
- California least tern (*Sterna antillarum browni*) **Endangered**
- Least Bell’s vireo (*Vireo bellii pusillus*) **Endangered**

The action addressed by this BA does not fall within any designated critical habitat.

Table 1 lists all of the federally protected species that occur in the region and/or that were included on the USFWS species lists for the *Chittenden* USGS 7.5-minute quadrangle and describes the rationale for the determination of their presence or absence from the BSA. The specific habitat requirements and the locations of known occurrences of each species were the principal criteria used to determine which species may potentially occur at the Project site.

Table 1: Listed Species, Proposed Species, and Critical Habitat Potentially Occurring or Known to Occur in the BSA.

Common Name	Scientific Name	Status	General Habitat Description	Habitat Present/ Absent	Rationale
Monterey spineflower	*Chorizanthe pungens* var. *pungens*	FT, CNPS List 1B.2	Chaparral (maritime), cismontane woodland, coastal dunes, coastal scrub, valley and foothill grassland/sandy; 10-1500ft.	A	No suitable coastal habitat with sandy soils present; presumed absent from San Benito County (CNPS 2013).
Robust spineflower	*Chorizanthe robusta* var. *robusta*	FE, CNPS List 1B.1	Chaparral (maritime), cismontane woodland (openings), coastal dunes, coastal scrub/sandy or gravelly; 10-1000ft.	A	No suitable chaparral, woodland, dune or scrub habitat present; presumed absent from San Benito County (CNPS 2013).
Santa Clara Valley dudleya	*Dudleya abramsii* ssp. *setchellii*	FE, CNPS List 1B.1	Cismontane woodland, valley and foothill grassland/serpentinite, rocky; 200-1500ft.	A	Lack of serpentine soils; out of elevation range; presumed absent from San Benito County (CNPS 2013).
Santa Cruz tarplant	*Holocarpha macradenia*	FT, SE, CNPS List 1B.1	Coastal prairie, coastal scrub, valley and foothill grassland/often clay, sandy; 30-700ft.	A	No suitable coastal habitat with sandy soils present; presumed absent from San Benito County (CNPS 2013).
Yadon's rein orchid	*Piperia yadonii*	FE, CNPS List 1B.1	Coastal bluff scrub, closed-cone coniferous forest, chaparral (maritime)/sandy; 30-1700ft.	A	No suitable coastal scrub, forest, or chaparral habitat present; presumed absent from San Benito County (CNPS 2013).
Metcalf Canyon jewel-flower	*Streptanthus albidus* ssp. *albidus*	FE, CNPS List 1B.1	Valley and foothill grassland (serpentinite); 150-2600ft.	A	Lack of serpentine soils; presumed absent from San Benito County (CNPS 2013).
Two-fork clover	*Trifolium amoenum*	FE, CNPS List 1B.1	Coastal bluff scrub, valley and foothill grassland(sometimes serpentinite); 20-1400ft.	A	No suitable coastal scrub or grassland habitat present; presumed extirpated south of SF Bay (CNPS 2013).
Bay checkerspot butterfly	*Euphydryas editha bayensis*	FT	Serpentine grasslands in the San Francisco Bay area where host plant (Plantago erecta) is present.	A	No suitable habitat on-site; no serpentine soils present. Out of range; not recorded south of San Martin, CA.

Common Name	Scientific Name	Status	General Habitat Description	Habitat Present/ Absent	Rationale
South-Central California Coast steelhead	*Oncorhynchus mykiss*	FT	Cool streams that reach the ocean and that have shallow, partially shaded pools, riffles, and runs	HP (no CH)	Steelhead are not known to occur in San Juan Creek, but there are no barriers to their movement into the BSA; San Juan Creek is not within critical habitat for this species (NMFS 2005), but critical habitat is designated in the San Benito and Pajaro Rivers approximately 1 mi downstream of the BSA.
California tiger salamander	*Ambystoma californiense*	FT, ST	Vernal or temporary pools in annual grasslands or open woodlands	HP (no CH)	Several CNDDB (2013) records in the vicinity of the BSA, with the closest record approximately 0.70 mi away to the northwest, indicate presence in the vicinity; a seasonal stock pond 1.1 mi to the south of the BSA provides potentially suitable breeding habitat. very low numbers of individuals may occur in the BSA owing to distance from suitable breeding habitat, disturbance associated with agricultural land uses, and the very low abundance of upland refugia in the BSA, but occasional occurrence by small numbers of dispersants cannot be ruled out.

Common Name	Scientific Name	Status	General Habitat Description	Habitat Present/ Absent	Rationale
California red-legged frog	*Rana draytonii*	FT, CSSC	Slow-moving streams, freshwater pools and ponds with overhanging vegetation	HP (no CH)	Known to occur in the vicinity; closest CNDDB (2013) record is 1.3 mi to the northeast; there are no pools with emergent vegetation or other egg-mass attachment sites in or immediately adjacent to the BSA. Occurrence in the BSA is unlikely owing to distance from suitable habitat and disturbance (including water-quality impacts in San Juan Creek) associated with agricultural land uses, but occasional occurrence by small numbers of dispersants cannot be ruled out.
Marbled murrelet	*Brachyramphus marmoratus*	FT, SE	Requires dense, mature forests of redwood and Douglas-fir for breeding.	A	No suitable habitat present within the BSA; outside of known range; determined to be absent.
California least tern	*Sterna antillarum browni*	FE, SE, SP	Nests along the coast on bare or sparsely vegetated, flat substrates. In S.F. Bay, nests in salt pannes and on an old airport runway. Forages for fish in open waters.	A	No suitable habitat present within the BSA; outside of known range; determined to be absent.
Least Bell's vireo	*Vireo bellii pusillus*	FE, SE	Dense, well-developed willow and cottonwood-dominated riparian habitat, primarily in low, flat valleys.	A	No suitable breeding habitat due to the lack of vertical complexity of the riparian vegetation and lack of dense vegetation in the lower strata in many areas; Project site is at the edge of historical range; determined to be absent.
San Joaquin kit fox	*Vulpes macrotis mutica*	FE, ST	Flat or gently sloping grasslands on the margins of the San Joaquin Valley and adjacent valleys.	A	No suitable habitat present; outside of known range; determined to be absent.

<u>Status</u>
FE = Federal Endangered
FT = Federal Threatened
FC = Federal Candidate
SE = State Endangered
ST = State Threatened
FP = State Fully Protected
CSSC = California Species of Special Concern
CNPS = California Native Plant Society
List 1B = Plants rare, threatened, or endangered in California and elsewhere
.1 = seriously endangered in California

<u>Habitat Present/Absent</u>
A = Absent - No habitat present and no further work needed.
HP = Habitat Present - Habitat is, or may be present. The species may be present.
P = Present - Species is present.
CH = Critical Habitat - Project footprint is located within a designated critical habitat unit, but does not necessarily mean that appropriate habitat is present.

2.2 Critical Habitat

The action addressed within this BA does not fall within any designated critical habitat.

2.3 Studies Required

2.3.1 Resources Reviewed

Prior to conducting surveys, H. T. Harvey & Associates biologists compiled information on federally listed and candidate species and sensitive habitats in the Project vicinity using the USFWS species lists identified above, the California Natural Diversity Database (CNDDB 2013), species accounts available through state and federal agencies, regional reports, and other technical documents.

2.3.2 Survey and Mapping Methods

H. T. Harvey & Associates biologists surveyed the BSA and adjacent areas to describe biotic habitats within the Project boundaries, to identify plants and animals found or likely found on the site, and to survey for suitable habitat for special-status plant and animal species.

All biotic habitats were mapped within the BSA onto an aerial photograph base (Figure 2). Where appropriate, plant communities were named according to Holland's system of classification (1986) or Sawyer et al (2008). Habitat acreages were calculated for all habitat types within the BSA using computer-aided design (CAD) mapping and geographic information systems (GIS).

2.3.3 Personnel and Survey Dates

P. Boursier, Ph.D., conducted a visit to the Project site on 16 May 2012. C. Gurney, M.S., conducted reconnaissance-level surveys of the BSA on 4 and 17 October 2012. In addition, M. Timmer, M.S., conducted a reconnaissance-level survey of the BSA on 8 January 2013. The purpose of these surveys was to: 1) assess existing biotic habitats, 2) assess the area for its potential to support special-status species and their habitats, 3) identify potential jurisdictional habitats, including Waters of the U.S., and 4) provide information for the initial Project impact assessment.

2.4 Agency Coordination and Professional Contacts

On 7 February 2013, H. T. Harvey & Associates principal wildlife ecologist Steve Rottenborn, Ph.D., contacted Joel Casagrande of NMFS to discuss the potential for steelhead to occur within San Juan Creek. NMFS knows of no records of steelhead within San Juan Creek, but concluded presence cannot be ruled out, and especially in a wet year steelhead may wander upstream from the San Benito River into the Project area.

2.5 Limitations That May Influence Results

With the exception of surveys for the non-federally listed Gairdner's yampah, focused or presence/absence protocol-level surveys were not conducted for the federally-listed plant or animal species given the particular species involved and project-specific conditions. For some species, such as the SCCC steelhead, California red-legged frog and California tiger salamander, inferring presence was reasonable given the species' known or potential occurrence in the site vicinity and potential for dispersal onto the site. For these species, which may occur only infrequently and irregularly, focused surveys were not deemed appropriate because a negative finding would not necessarily guarantee that the species would not be present during Project construction. For other species, such as the bay checkerspot butterfly (*Euphydryas editha bayensis*) and California least tern (*Sternula antillarum*), assessment of habitat conditions and occurrence records in the region was adequate to determine that the species were absent. In either case (i.e., whether inferring presence based on available information or determining absence based on the lack of suitable habitat), information obtained during more focused surveys or at a time of year more conducive for detecting the species would not have altered the determinations regarding potential presence or absence of these species. This methodology is consistent with the generally accepted standards for the preparation of a BA.

Chapter 3. Results: Environmental Setting

3.1 Study Area

The Project site is located on the Chittenden U.S. Geological Survey (USGS) 7.5-minute quadrangle in San Benito County (Figure 1). The BSA shown in Figure 2 encompasses all areas and features that may be temporarily or permanently affected by the Project.

The BSA comprises approximately 1.84 ac along Anzar Road, 0.5 mi east of U.S. Highway 101 and 2 mi northwest of downtown San Juan Bautista. The BSA is surrounded on all four sides by agricultural fields in various stages of production. Fields to the north are planted in row crops and are intensively managed, while fields to the south are fallow and are dominated by weedy annual grasses and forbs.

3.2 Physical Conditions

Elevations in the BSA range from approximately 145 ft National Geodetic Vertical Datum (NGVD) in San Juan Creek to 154 ft NGVD on the adjacent banks. Topography on the site is flat, with the exception of the steeply sloping creek banks. The site has an estimated mean annual temperature of 59°F) and an estimated mean annual precipitation of 19.86 inches (PRISM Climate Group 2012).

Only one soil type, Sorrento silty clay loam (0 to 2 percent, %, slopes), underlies the BSA. This soil type is classified as a hydric soil on the National List of Hydric Soils (NRCS 2012). It is well-drained, has an available water holding capacity of about 10 to 12 inches, and has moderately slow permeability (SCS 1969).

The USFWS, as part of the National Wetland Inventory Program (NWI), has mapped aquatic resources for the study area and surrounding regions. Although no features are mapped within the BSA, two wetland types have been mapped in the immediate vicinity of the site, approximately 200 ft south of Anzar Road. These two freshwater wetland types include: (1) palustrine emergent permanently flooded and excavated wetlands, and (2) palustrine scrub-shrub permanently flooded and excavated wetlands.

3.3 Biological Conditions

We identified six biotic habitats within the approximately 1.84-ac BSA (Figure 2): scrub/shrub riparian wetland (0.02 ac), herbaceous riparian wetland (0.01 ac), aquatic (0.05 ac), row crops (0.45 ac), non-native/ruderal grassland (0.93 ac), and developed (0.38 ac).

3.3.1 Scrub/shrub Riparian Wetland

Vegetation. Scrub/shrub riparian wetland covers 0.02 ac in the BSA (Photo 1). This wetland is located on a low-lying terrace adjacent to the eastern OHW mark of San Juan Creek, and to the south of Anzar Road. The terrace is likely inundated for much of the wet season, during periods of high flow in San Juan Creek, and is likely seep fed during the dry season. Woody plant species including willow (*Salix* spp.) saplings and shrubs are the dominant vegetation. Only one willow is tree sized, with a dbh (diameter at breast height) of approximately 8-10 inches. The herbaceous understory is composed primarily of obligate and facultative wetland species including water smartweed (*Persicaria amphibia*), fat-hen (*Atriplex prostrata*), and poison hemlock (*Conium maculatum*).

Wildlife. Typically, riparian habitats in California are exceptionally productive habitats, offering high habitat value for a wide array of wildlife species and contributing disproportionately to landscape-level biodiversity. The presence of water and abundant invertebrate fauna provide foraging opportunities for many species. However, the low growing and relatively sparse stringer of riparian habitat along San Juan Creek in the BSA lacks the diverse habitat structure that typically provides cover and nesting opportunities for riparian associated birds. Song sparrows (*Melospiza melodia*) and red-winged blackbirds (*Agelaius phoeniceus*) may nest in the sparse riparian habitat on the site, and a variety of

Photo 1. Scrub/shrub riparian wetland habitat (left bank) and herbaceous riparian wetland habitat (right bank); view looking south from Anzar Road Bridge.

birds nesting in nearby trees may forage on the site, but the absence of larger, denser trees precludes the presence of a diverse nesting bird community. During migration and in winter, white-crowned sparrows (*Zonotrichia leucophrys*), golden-crowned sparrows (*Zonotrichia atricapilla*), and Lincoln's sparrows (*Melospiza lincolnii*) forage in this habitat.

Low-growing shrubs and forbs and sticks, logs, and other plant debris left behind by the receding stream in spring and summer provide refugia for slender salamanders (*Batrachoseps spp*.), western toads (*Anaxyrus boreas*), and Pacific chorus frogs (*Pseudacris regilla*). The riparian corridor also provides suitable habitat for a variety of mammalian species. Medium and large-sized mammals such as raccoons (*Procyon lotor*), striped skunks (*Mephitis mephitis*), and gray fox (*Urocyon cinereoargenteus*) forage in and disperse through the riparian zone.

3.3.2 Herbaceous Riparian Wetland

Vegetation. Herbaceous riparian wetland covers 0.01 ac in the BSA (Photo 1). This wetland is located on the western bank of San Juan Creek, to the south of Anzar Road. Topography in this wetland slopes steeply down from the top of bank, before leveling off near the OHW mark. Most of this area is never inundated, due to the steep slopes and relatively high elevations, but is instead seep fed. Vegetation in this wetland is composed of a diverse community of herbaceous hydrophytic plants. Species composition was arranged roughly in parallel bands corresponding to moisture gradients. Immediately adjacent to the creek, water smart weed, fat-hen, and willowherb (*Epilobium ciliatum*) were dominant. Further up-slope, facultative species including wild licorice (*Glycyrrhiza lepidota*) and stinging nettle (*Urtica dioica*) became more abundant.

Wildlife. The small patches of herbaceous riparian wetland within the BSA may support amphibian species like those in the scrub/shrub riparian wetland described above in Section 3.1.3.1. The vegetation is too short and limited to host most nesting birds, although song sparrows may nest in this vegetation, and birds nesting elsewhere in the Project area may forage in this habitat on occasion. Small mammals may forage on the freshwater vegetation as well.

3.3.3 Aquatic

Photo 2. Disturbed aquatic habitat located to the north of Anzar Road Bridge.

Vegetation. Approximately 0.05 ac of aquatic habitat occurs in the BSA (Photo 2). The creek was flowing during the time of surveys in early October 2012, prior to any winter rains occurring, indicating the creek's hydrology is supported by groundwater. This habitat is sparsely vegetated with aquatic plants including watercress (*Nasturtium officinale*) and ditch grass (*Ruppia cirrhosa*). The creek is mud-bottomed in this reach.

Wildlife. The low-gradient, turbid water of San Juan Creek in the BSA may support native fish species such as the hitch (*Lavinia exilicauda*) and Sacramento blackfish (*Orthodon microlepidotus*), and introduced species such as the mosquitofish (*Gambusia affinis*). South-Central California Coast steelhead are not known from this creek; however, the aquatic habitat within the Project is suitable for dispersal during months and years when flows are sufficient. Mammals such as the raccoon, striped skunk, gray fox, and nonnative opossum that use other habitats within the riparian corridor may forage in the aquatic habitat within the BSA. Mallards (*Anas platyrhynchos*), great blue herons (*Ardea herodias*), and great egrets (*Ardea alba*) forage in this reach of creek on occasion.

3.3.4 Row Crops

Vegetation. Approximately 0.45 ac of intensively managed row crops are present in the BSA (Photo 3).

Wildlife. The row crop habitat within the BSA has limited habitat value to wildlife because of regular disking and disturbance to the soil and the monoculture of plants. A variety of birds may occasionally forage in these fields, and terrestrial animals such as mammals, reptiles, and amphibians may move through these habitats, but the row crops on the site are not expected to be used heavily by any wildlife.

3.3.5 Non-native/Ruderal Grassland

Vegetation. Approximately 0.93 ac of developed/ruderal grassland habitat occurs in the BSA (Photo 4). The dominant species within this habitat are almost all non-native, invasive species and include fennel (*Foeniculum vulgare*), bristly ox-tongue (*Helminthotheca echioides*), wild radish (*Raphanus sativus*), wild oats (*Avena fatua*), and short-podded mustard (*Hirschfeldia incana*).

Photo 3. Row crop habitat on both sides of San Juan Creek to the north of Anzar Road Bridge.

Wildlife. Most of the wildlife species found in the ruderal grassland habitat in the BSA are common, widespread species associated with disturbed habitats. This habitat may support reptiles such as western fence lizards (*Sceloporus occidentalis*), gopher snakes (*Pituophis melanoleucus*), and common garter snakes (*Thamnophis sirtalis*). Raptor species such as the white-tailed kite (*Elanus leucurus*) and red-tailed hawk (*Buteo jamaicensis*) and songbirds such as the house finch (Carpodacus mexicanus) and lesser goldfinch (*Carduelis psaltria*) forage in ruderal grassland habitat. Mammalian species that use these habitats include the deer mouse (*Peromyscus maniculatus*), California mouse (*Peromyscus californicus*), and broad-footed mole (*Scapanus latimanus*).

Photo 4. Non-native/ruderal grassland habitat to the southeast of Anzar Road Bridge.

3.3.6 Developed

Photo 5. Developed habitat in the BSA includes the existing roadway and bridge.

Vegetation. Developed areas in the BSA include the roadway and bridge structure (Photo 5). These areas are paved and support no vegetation.

Wildlife. The paved roadway within the BSA serves as wildlife habitat only in a very limited capacity. The road is likely to be used by wildlife during movements back and forth across the road, and reptiles such as western fence lizards and gopher snakes may bask on the road surface in order to raise their body temperature. The existing bridge within the BSA offers some structure for nesting birds such as black phoebes (*Sayornis nigricans*) and cliff swallows (*Petrochelidon pyrrhonota*), and evidence of old nests of both species were observed on the bridge during the site visit. The concrete on the underside of the bridge is devoid of cracks and crevices, rendering it unsuitable for daytime roosting by bats.

Chapter 4. Results: Biological Resources, Discussion of Impacts and Mitigation

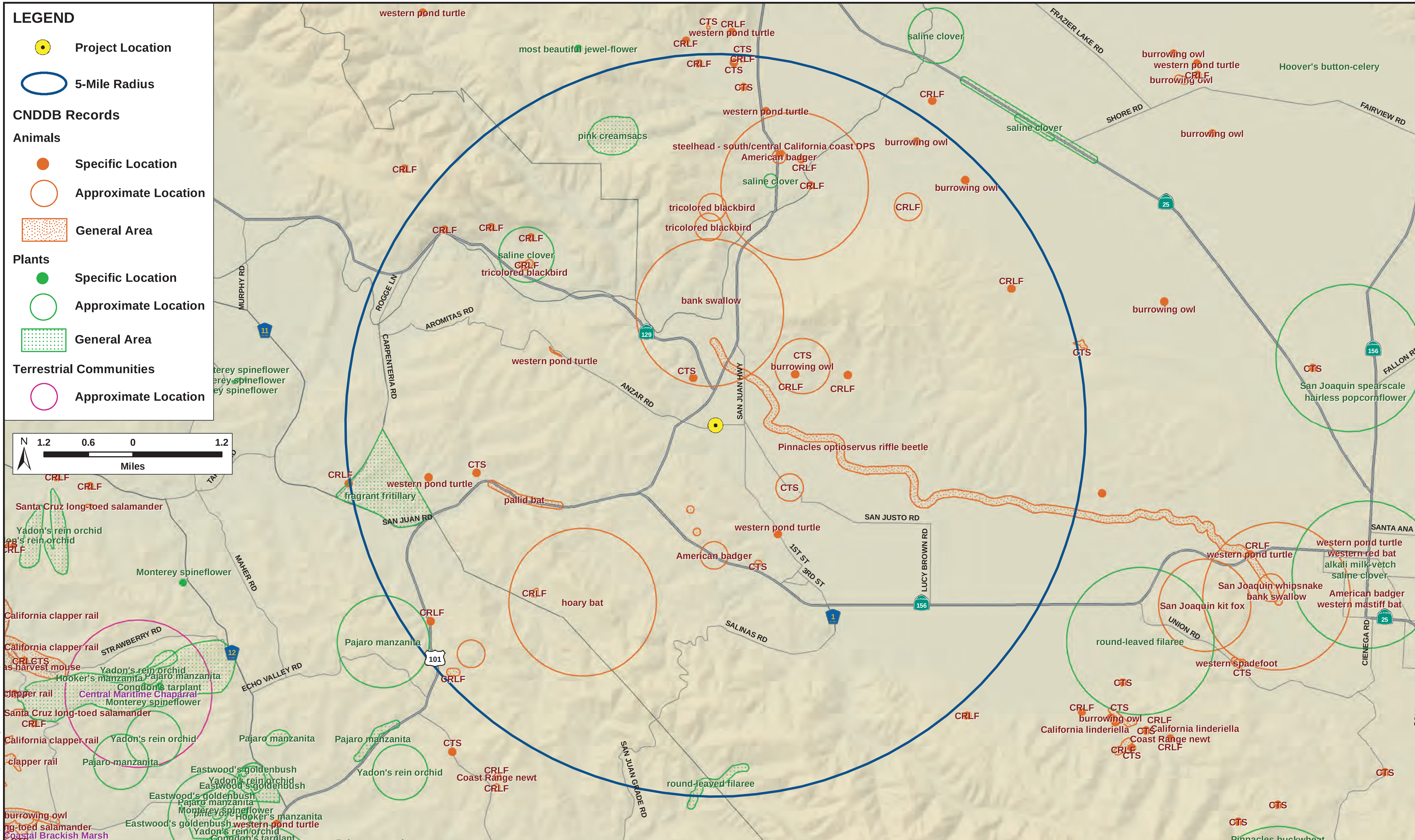
4.1 Federally-Listed/Proposed Species

Figure 3 depicts the CNDDB-mapped locations of federally listed and proposed species in the Project vicinity. The only federally listed species that have some potential to occur in the vicinity of the BSA are the SCCC steelhead, California red-legged frog and California tiger salamander. This chapter discusses the occurrence of these listed species in the vicinity of the BSA, the potential for the Project to affect these species, and the measures that will be implemented to avoid or minimize effects.

4.1.1 Discussion of the South-Central California Coast Steelhead

The SCCC steelhead distinct population segment (DPS) encompasses all naturally spawned steelhead below impassable barriers from the Pajaro River south to (but not including) the Santa Maria River. The National Marine Fisheries Service (NMFS) published a final rule to list the SCCC steelhead as threatened under the FESA on 18 August 1997; threatened status was reaffirmed on 5 January 2006 (NMFS 2006). A draft recovery plan addressing the SCCC steelhead DPS was released on 26 September 2012 (NMFS 2012).

The steelhead, the anadromous form of the rainbow trout, occurs in most perennial, free-flowing coastal streams in central and northern California where the water temperature does not exceed 70°F. In central California, adult steelhead migrate upstream to spawn from early winter to mid-spring, after winter storms provide sufficient flows to facilitate migration to spawning grounds (Moyle 2002). Spawning occurs between December and June. Adult females will prepare a redd (or nest) in a stream area with suitable gravel type composition, water depth, and velocity, typically in gravelly substrates free of fine sediments, roots, and emergent vegetation. Preferred streams typically support a dense canopy cover that provides shade, woody debris, and organic matter. The eggs usually hatch in 3 to 4 weeks, though the length of the incubation period is dependent on water temperature. Fry emerge from the gravel, and rear along the stream margins, moving gradually into pools and riffles as they grow larger. Young juveniles feed primarily on aquatic invertebrate drift.



H.T. HARVEY & ASSOCIATES
Ecological Consultants

Figure 3: CNDDB Records
Anzar Road Bridge Over San Juan Creek Project (3399-01)
July 2014

In California, juveniles usually live in freshwater for two years (Barnhart 1986), with a range of one to three years (Shapovalov and Taft 1954, Busby et al. 1996), then smolt and migrate to the sea; because of this multi-year rearing time period, steelhead can only spawn in tributaries that maintain suitable temperature and other water quality parameters year-round. Most downstream smolt migration takes place between February and June. Fukushima and Lesh (1998) report the peak timing of steelhead smolt outmigration in Central California occurs in March, April, and May, while Barnhart (1986) reports most steelhead smolts in California enter the sea in March and April. In creeks where the temperatures are higher and flow conditions lower, the duration of the smolt migration season may be compressed into a shorter period.

Adults feed on aquatic and terrestrial insects, mollusks, crustaceans, fish eggs, minnows, and other small fishes (including other trout). They can then remain at sea for up to three years before returning to freshwater to spawn. Some populations actually return to freshwater after their first season in the ocean, but do not spawn, and then return to the sea after one winter season in freshwater. Unlike other Pacific salmonids, steelhead are iteroparous; adults may survive and return to the ocean after spawning, coming back to spawn for one or more additional seasons.

Steelhead are capable of surviving in a wide range of temperature conditions. They usually cannot survive long in pools or streams with water temperatures above 70 °F, but they can use warmer habitats if food is available, such as at fast water riffles where fish can feed on drifting aquatic invertebrates. They do best where dissolved oxygen concentration is at least 7 parts per million.

Streambed degradation, alteration, and blockages have significantly reduced steelhead habitat, and this reduction, along with overharvesting, reduced genetic diversity, and climate change, has seriously impacted SCCC steelhead populations (Busby et al. 1996).

4.1.1.1 SURVEY RESULTS

There are no known records of steelhead occurring in San Juan Creek. Smith (1982) did not sample in San Juan Creek during his survey of fishes of the Pajaro River system. Additionally, San Juan Creek was not included as critical habitat despite the inclusion of nearby streams (NMFS 2005).

Much of San Juan Creek is dry much of the year, although the reach within the BSA appears to be perennially wet or nearly so. When water is present in the channel, aquatic habitat within the portion of San Juan Creek in the BSA is not suitable for spawning and rearing due to the warm turbid water, silt substrate, likely eutrophic condition, and lack of structural complexity. Water quality within this creek is low due to nutrient inputs from agricultural sources upstream. Therefore, San Juan Creek is not expected to support a breeding population, and steelhead would not regularly be moving through the site (as might be expected if the species spawned upstream). However, there are no absolute barriers to fish entering the stream and the Project site is only 1.2 mi from the confluence with the San Benito River, which is designated as critical habitat for this species. As a result, there is some potential (albeit a low probability) that steelhead may disperse upstream into the BSA. This probability is highest during the winter and spring months when the water is cooler and flows are higher, and is lower during the summer months when water temperatures increase, flows decrease, and the spawning season comes to a close.

4.1.1.2 CRITICAL HABITAT

The NMFS (2005) designated critical habitat for the SCCC steelhead DPS in 2005. The Pajaro and San Benito Rivers and selected tributaries of these rivers were designated as critical habitat for this species; however, San Juan Creek was not included. Therefore, the Project is not within critical habitat for this species.

Primary constituents of critical habitat for steelhead in freshwater systems include:

- Freshwater spawning sites with water quantity and quality conditions and substrate supporting spawning, incubation, and larval development;
- Freshwater rearing sites with water quantity and floodplain connectivity to form and maintain physical habitat conditions and support juvenile growth and mobility; water quality and forage supporting juvenile development; and natural cover such as shade, submerged and overhanging large wood, log jams and beaver dams, aquatic vegetation, large rocks and boulders, side channels, and undercut banks;
- Freshwater migration corridors free of obstruction with water quantity and quality conditions and natural cover such as submerged and overhanging large wood, aquatic vegetation, large rocks and boulders, side channels, and undercut banks supporting juvenile and adult mobility and survival.

The habitat conditions in the BSA are suboptimal for steelhead spawning and rearing. Spawning sites for steelhead are absent due to low water quality and inappropriate substrate, and rearing habitat is limited by low discharge rates during summer and fall in years of normal rainfall.

4.1.1.3 AVOIDANCE AND MINIMIZATION EFFORTS

Project-related impacts to aquatic habitats have been avoided to the maximum extent feasible. Construction activities within riparian and aquatic habitats will occur during the dry season to minimize the potential for impacts to aquatic species, such as steelhead, that are most likely to occur in the BSA during the wet season. Caltrans standard Best Management Practices (BMPs) have been incorporated into the Project to protect water quality during construction to minimize any potential Project effects on aquatic habitat and water quality:

Minimization of Effects on Water Quality. The Project applicant intends to implement BMPs as described under Section 7-1.01G ("Water Pollution" of the Caltrans Construction Manual (Caltrans 2001)) and as contained within Caltrans Construction Site BMPs (Caltrans 2003). Implementation of the measures described below will reduce potential effects on aquatic species from degradation of water quality.

- No equipment will be operated in the live stream channel;
- Standard erosion control and slope stabilization measures will be required for work performed in any area where erosion could lead to sedimentation of a waterbody;
- Silt fencing will be installed between any activities conducted within, or just above the edge of, the top-of-bank and the edge of the creek to prevent dirt or other materials from entering the channel;
- No debris, soil, silt, sand, bark, slash, sawdust, cement, concrete, washings, petroleum products or other organic or earthen material will be allowed to enter into or be placed where it may be washed by rainfall or runoff into waters of the U.S./State or aquatic habitat;
- Machinery will be refueled at least 60 ft from any aquatic habitat, and a spill prevention and response plan will be implemented;
- Water from dewatering of the work areas will not be pumped or allowed to flow into the creek until the water is clear. The method will be the responsibility of the contractor but will be a standard practice such as using sediment basins outside

of the channel or portable settling bins, and must successfully filter the water until clear; and

- Post-construction BMPs will be implemented as necessary to prevent a long-term increase in runoff and road-based contamination, as well as to prevent hydrological modification of San Juan Creek following Project construction, as required by the General Construction Permit (GCP) and the Project's Section 401 Water Quality Certification permit. These may include the use of bioswales and/or velocity reducing structures to treat and slow runoff from increased hardscape as needed, and measures to ensure runoff and road debris from the bridge is not allowed to enter directly into the creek. Volume that cannot be addressed using nonstructural practices shall be captured in structural practices and approved by the Central Coast RWQCB. All post-construction BMPs shall be implemented and functioning prior to completion of the Project.

Limiting Temporary Construction Areas. Temporary effects to aquatic habitat will be avoided to the maximum extent feasible during construction by implementing the following measures:

- Construction areas (e.g., for access, staging, equipment set-up, etc.) will be limited to the minimum necessary to perform the proposed work; and
- Temporary staging areas will be located in row crop habitat, away from aquatic habitats.
- Measures will be taken to prevent any materials from falling into the San Juan Creek during bridge demolition and construction, including dewatering and diverting the creek within a culvert if the stream is still flowing during the dry season, and the erection of barriers and netting, as needed.

In addition, the following additional, species-specific measures will be implemented to avoid and minimize impacts to individuals of this species.

- If activities in a flowing stream are unavoidable, the work area will be dewatered (e.g., using coffer dams), and any stream flow will be diverted around the work area by a barrier, temporary culvert, or a new channel capable of permitting upstream and downstream fish movement. Construction of the barrier or the new channel shall normally begin in the downstream area and continue in an upstream direction and the flow shall be diverted only when construction of the diversion is completed.

- Dewatering or diversion and any other work requiring access within the low-flow channel will occur during the dry season only (15 June to 15 October, with the potential for extensions beyond this period, in consultation with Caltrans, CDFW, and NMFS, if dry weather permits). During this time, creek flows are expected to be at annual lows, and steelhead are expected to be absent from the BSA (J. Casagrande pers. comm.).
- If flow is present in the San Juan Creek channel within the BSA when in-water construction is scheduled to occur, a qualified biologist will be present to monitor all activities involving the placement of fill (e.g., for cofferdams) in the creek. The biologist will inspect the area where the cofferdam will be constructed prior to construction and will ensure that any fish have vacated the cofferdam area before in-water work begins. During initiation of work within the creek channel, qualified fisheries biologists will stake a net across the creek at the upstream limits of dewatering. Then, holding a second net upright between them, the biologists will walk downstream to the lower end of the dewatering area to ensure that all fish have moved out of the dewatering zone; this second net will be anchored at the downstream end of the dewatering zone to prevent fish from entering the zone. The coffer dam constructed for dewatering would then be constructed within the area delimited by the two nets. A qualified fisheries biologist will monitor dewatering activities to ensure that no native fish are entrapped, and will relocate native fish as necessary. No steelhead will be moved without authorization of the NMFS in consultation with Caltrans.
- During demolition and construction activities, netting and other structures will be installed under the bridge to prevent debris from entering the channel, as such debris could degrade water quality and potentially injure steelhead, if present in the San Juan Creek channel (e.g., when work on the bridge deck is occurring during the wet season).
- A construction personnel education program will be given by a qualified biologist before the commencement of construction to explain to construction personnel how best to avoid the accidental take of steelhead. The approved biologist will conduct a training session that will be scheduled as a mandatory informational field meeting for contractors and all construction personnel. The field meeting will include topics on species identification, life history, descriptions of habitat requirements during various life stages, review of habitat sensitivity, required practices before the start of construction and a discussion of general measures that are being implemented to conserve the species as they

relate to the Project, penalties for noncompliance, and boundaries of the construction area. Emphasis will be placed on the importance of the habitat and life stage requirements within the context of Project avoidance and minimization measures. Handouts, illustrations, photographs, and/or Project mapping showing areas where minimization and avoidance measures are being implemented will be included as part of this education program. Upon completion of training, employees will sign a form stating that they attended the training and understand all the conservation and protection measures.

- To avoid and minimize impacts to fish resulting from pressure waves created during pile driving, the following measures will be implemented:
    - Pile driving work will be limited to the period 15 June to 15 October as described above.
    - There will be no pile installation within the creek below top-of-bank.
    - Low-impact pile driving equipment such as vibratory hammers or hydraulic casing oscillators, which minimize underwater sound pressure levels, or press-in pile installation will be used instead of impact hammers to the greatest extent practicable.
    - Steel piles will be avoided to the greatest extent practicable.
- If at any time an individual steelhead appears to be at risk of injury or mortality due to Project-related activities, all work will stop until Caltrans has consulted with NMFS to determine a means of avoiding impacts on the individual(s).

4.1.1.4 PROJECT EFFECTS

Due to the low quality (i.e., the shallow, warm, agriculturally-affected, and turbid condition of the water) of steelhead habitat within the BSA, we do not expect steelhead to be present in any numbers. In particular, restriction of work in the low-flow channel to the dry season may avoid impacts on steelhead entirely, as there may be little or no water in the channel during in-channel activities, thus avoiding the potential for take of individual steelhead. Further, restriction of pile driving to the dry season will avoid impacts on steelhead as a result of this activity, as steelhead are not expected to be present in or near the BSA during the dry season (J. Casagrande pers comm).

Steelhead may experience reduced foraging success due to Project-related turbidity, and may be adversely affected by percussion associated with any work on the bridge pilings within the creekbed. Construction activities adjacent to the waterway could disturb soils and cause sediment to be transported into and through the channel, which would result in temporary increases in turbidity and sedimentation downstream of construction sites. Periods of localized, high suspended sediment concentrations and turbidity owing to channel disturbance can result in a reduction of feeding opportunities for sight-feeding fish and clogging and abrasion of gill filaments. Increased sediment loading can degrade food-producing habitat downstream of project areas. Finally, sediment can interfere with photosynthesis of aquatic flora and result in the displacement of aquatic fauna. Other potential impacts could occur if fuel and concrete were allowed to spill into the waterway during construction. Various contaminants, such as fuel oils, grease, and other petroleum products used in construction activities, could be introduced into the system either directly or through surface runoff. Contaminants may be lethal or sub-lethally toxic to fish and other aquatic organisms, or may change the rate at which oxygen is diffused; as a result, they may reduce the survival and growth rates of aquatic species. However, implementation of the avoidance and minimization measures described above will minimize these potentially adverse effects. In addition, as described under Avoidance and Minimization Efforts above, in the unlikely event that steelhead are present in aquatic habitat within the Project site during construction, all work within or immediately adjacent to aquatic habitat shall stop immediately. The County shall contact Caltrans, which will then contact NMFS to request approval to capture and move the steelhead to suitable habitat downstream, both to avoid Project-related impacts and to avoid mortality due to desiccation as the pool dries up. No steelhead shall be moved without prior approval from NMFS, and no work that could result in impacts on steelhead will occur as long as individuals are present in the BSA.

Further, because pile driving and direct impacts to aquatic habitat will only occur during the dry season, when the potential for occurrence movement by steelhead through the site will be minimal, and when such movement is expected to occur only in the downstream direction, the presence of a culvert for this crossing will not impede the downstream movement of steelhead. Therefore, the Project will not preclude steelhead use of the channel as a migratory corridor during construction, and will have no long-term effects on dispersal habitat for the species within the BSA.

In conclusion, if this reach of San Juan Creek contains water during the construction period, there is some potential for steelhead to suffer injury or mortality during relocation if dewatering is necessary in the construction of the new bridge or due to other Project-related impacts. However, this potential is very low and has been further minimized through the incorporation of BMPs in the Project as discussed above. Project activities may affect, but are not likely to adversely affect steelhead.

4.1.1.5 Modifications to the Project to Mitigate Effects

The reach of San Juan Creek within the BSA is of low habitat quality for steelhead and the Project will not result in any permanent loss of habitat. Additionally, individual steelhead are not expected to be injured or killed as a result of Project activities given the Avoidance and Minimization Efforts described above in 4.1.1.3. Therefore, no compensatory mitigation is proposed.

4.1.1.6 Cumulative Effects (FESA)

Cumulative impacts to SCCC steelhead result from past, current, and reasonably foreseeable future projects in the region. Although such projects may result in impacts to this species, it is expected that most current and future projects that impact their habitat will have to mitigate impacts through the CEQA, Section 1600, or Section 404/401 permitting process, as well as through the FESA Section 7 consultation process. As a result, most projects in the region will mitigate their impacts to steelhead, minimizing cumulative impacts to this species. With implementation of avoidance minimization efforts, this Project will not make a considerable contribution to cumulative effects on SCCC steelhead.

4.1.2 Discussion of the California Red-legged Frog

The California red-legged frog was listed as threatened throughout its entire range on 23 May 1996 by the USFWS (1996). A recovery plan addressing the California red-legged frog was approved by the USFWS on 28 May 2002 (USFWS 2002).

The historic distribution of the California red-legged frog extended from the city of Redding in the Central Valley and Point Reyes National Seashore along the coast, south to Baja California, Mexico. However, the species’ current distribution is much reduced. The species is predominantly extirpated from the southern Transverse and Peninsular ranges, and there are only five or six known populations in the Sierra foothills, and only two extant populations in southern California (Fellers 2005). In the central California Coast Ranges, California red-legged frogs are still present throughout much of their former range, although the number of extant populations has been reduced substantially (Fellers 2005). The BSA is within the current range of the California red-legged frog (USFWS 2002).

The California red-legged frog has been observed in a number of aquatic and terrestrial habitats throughout its historic range. Larvae, juveniles, and adult frogs have been collected from natural lagoons, dune ponds, pools in or next to streams, streams, marshlands, sag ponds, and springs, as well as human-created stock ponds, secondary and tertiary sewage treatment ponds, wells, canals, golf course ponds, irrigation ponds, sand and gravel pits (containing water), and large reservoirs (Jennings 1988). The key to this species' occurrence in these habitats is the presence of perennial, or near perennial, water and a general lack of introduced aquatic predators such as centrarchid fishes (e.g., largemouth bass [*Micropterus salmoides*], green sunfish [*Lepomis cyanellus*], and bluegill [*Lepomis macrochirus*]), crayfish (*Pacifastacus leniusculus* and *Procambarus clarkii*), and bullfrogs (*Lithobates catesbeiana*). As long as there is standing water at least several inches deep, and introduced aquatic predators are rare or non-existent, conditions are at least potentially suitable for red-legged frogs. Adults often use dense shrubby or emergent riparian vegetation closely associated with deep (more than 2.3 ft deep) still or slow-moving water for cover (USFWS 2009a). High-quality breeding habitat consists of deep perennial pools with emergent vegetation such as cattails (*Typha* spp.), tules (*Scirpus* spp.), or sedges (*Carex* spp.) for attaching egg clusters (Hayes and Jennings 1988, Fellers 2005), as well as shallow benches to act as nurseries for juveniles (Jennings and Hayes 1994).

Non-breeding frogs may be found adjacent to streams and ponds in grasslands and woodlands. They may use California ground squirrel burrows, willow root wads, the undersides of old boards and other debris within the riparian zone, and large cracks in the bottom of dried ponds as refugia (Jennings and Hayes 1994, USFWS 2002, Tatarian 2008).

Red-legged frogs become sexually mature at an age of 2–4 years, with females requiring longer to develop (Cook 1997). Adults have been observed to breed from late November through early May after the onset of warm rains (Storer 1925, Jennings and Hayes 1994). Females attach an egg mass of 2000–6000 moderate-sized (0.08–0.11 inch diameter) eggs to an emergent vegetation brace, such as tule stalks, annual grasses (Poaceae), or willow (*Salix* spp.) roots just below the water surface (Storer 1925, Livezey and Wright 1947).

Embryos of California red-legged frogs hatch in 1–4 weeks, and the resulting larvae require 3–5 months to attain metamorphosis (Cook 1997). Most larvae metamorphose into juvenile frogs between July and September. Post-metamorphic frogs grow rapidly by feeding on a wide variety of invertebrates. Adult frogs apparently eat a variety of animal prey, including invertebrates, small fishes, frogs, and small mammals (Hayes and Tennant 1985, Arnold and Halliday 1986). Juvenile frogs are often observed sunning themselves during the day in the warm, surface-water layer associated with floating and submerged vegetation (Hayes and Tennant 1985). Adult frogs are largely nocturnal and are known to sit on stream banks or on the low hanging limbs of willow trees over pools of water where they can detect small mammal prey (Hayes and Tennant 1985, Jennings and Hayes 1994).

California red-legged frogs do not have a distinct breeding migration. Some frogs remain at breeding sites all year while others disperse. Red-legged frogs are often found in summer months in foraging habitat that would not be suitable for breeding; these individuals presumably move seasonally between summer foraging habitat and winter breeding habitat. Movements may occur along riparian corridors, but some individuals move directly from one site to another through normally inhospitable habitats (e.g., heavily grazed pastures or oak-grassland savanna) (USFWS 2002, Fellers 2005, Fellers and Kleeman 2007). Evidence from marked and radio-tagged frogs on the San Luis Obispo County coast suggests that frog movements, via upland habitats, of about 1 mi are possible over the course of a wet season (USFWS 2002). A radio-tracking study in Marin County found a range of migration distances (0.02–0.87 mi, straight-line) (Fellers and Kleeman 2007), and migrating frogs in northern Santa Cruz County traveled straight-line distances of 0.12–1.74 mi (Bulger et al. 2003). The distance moved is highly site-dependent, as influenced by the local landscape (Fellers and Kleeman 2007). The USFWS (2010) considered 1 mi a more typical dispersal distance for the species in its critical habitat designation.

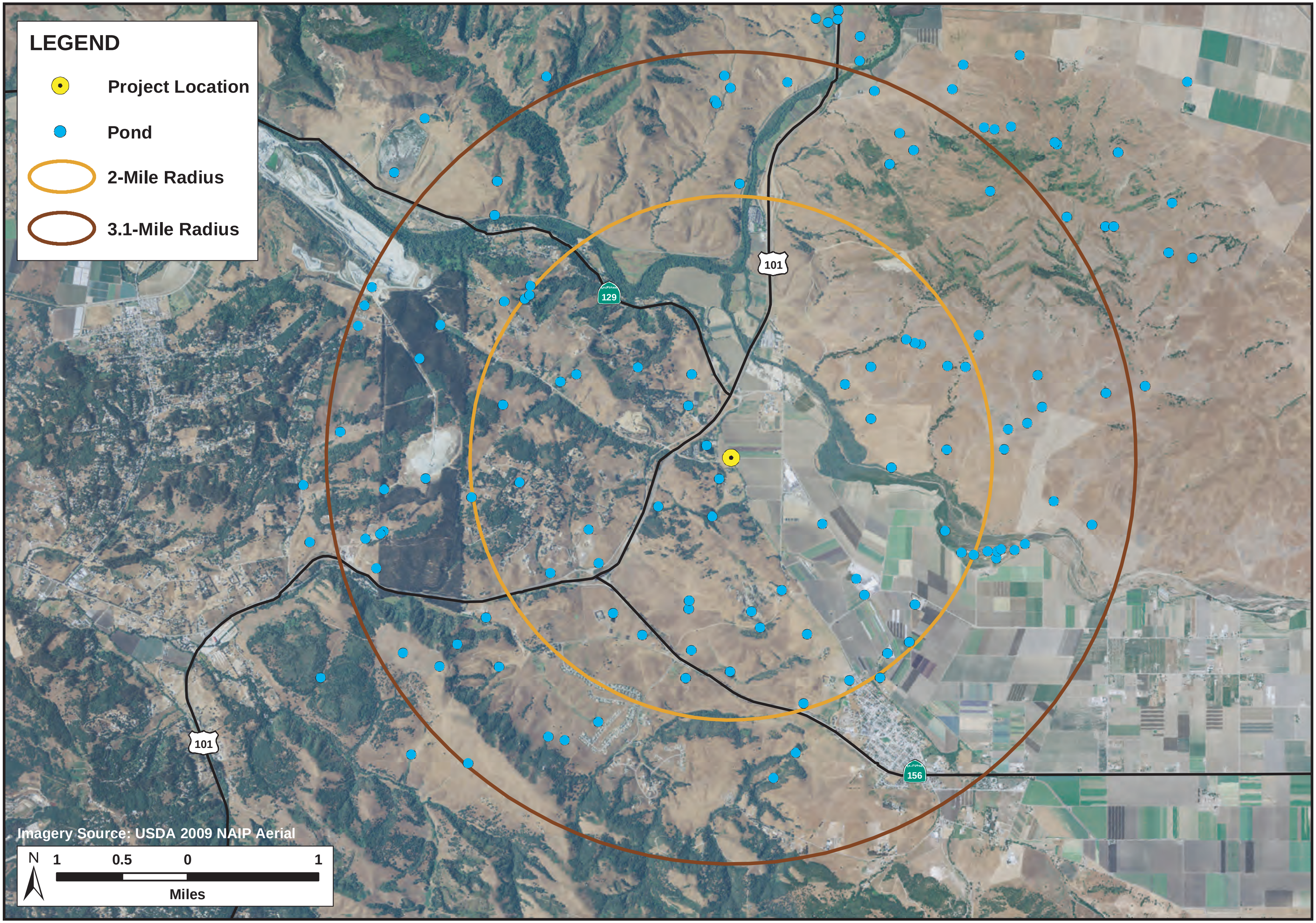
Current working hypotheses to explain the decline of the California red-legged frog include the adverse effects of climate change, increased exposure to UV-B and pesticides, historical over-harvesting, habitat destruction, and introduced species. These factors may work synergistically to decrease the California red-legged frogs’ chances for persistence (Fisher and Shaffer 1996, Kiesecker et al. 2001, Blaustein and Kiesecker 2002, Doubledee et al. 2003). Recent studies of California red-legged frog distribution have found an association between declines of the frog and landscape-level factors, such as upwind pesticide use and extent of urbanization (Davidson et al. 2001, 2002, Davidson 2004, D’Amore et al. 2009).

4.1.2.1 SURVEY RESULTS

H.T. Harvey and Associates performed a field survey and habitat assessment, and reviewed background information on known occurrences in the vicinity (Figures 4 & 5), to provide all the information requested for a California red-legged frog site assessment by the USFWS (2005a).

Wildlife Ecologist M. Timmer, M.S., conducted a reconnaissance-level survey and habitat assessment of the BSA and vicinity on 8 January 2013. The purpose of the survey was to document potential amphibian habitat within, and adjacent to, the BSA as well as assess potential impacts of the Project on California red-legged frogs. Prior to this site visit, the CNDDB (2013) was queried for information on the distribution of California red-legged frogs within the Project vicinity. CNDDB localities of California red-legged frogs within 2.0 mi of the project area were plotted on a GIS map based on USFWS site assessment criteria (Figure 5). The BSA and surrounding areas were surveyed on foot and by driving along (adjacent) access roads and stopping at locations selected to document habitats capable of supporting California red-legged frogs, as allowed by safety considerations and access permission from landowners. Otherwise, a review of aerial photographs was conducted using general knowledge of, and previous experience with, the habitat and ecology of California red-legged frogs to assess land-use conditions, potential barriers, and potential aquatic breeding sites (e.g., areas that pond water), both within the project area and all areas within 3.1 mi of the project boundary. Field observations and examination of aerial photographs were supplemented by utilizing an earlier California red-legged frog habitat assessment conducted for the U.S. 101 Widening Project (H.T. Harvey and Associates 2008). The southern reach of the U.S. 101 Widening Project extends just south of the U.S. 101/State Route (SR) 129 interchange, 0.4 mi north of the Project detailed in this BA. An extensive review of aerial images and field surveys for the 2008 habitat assessment revealed numerous areas that were either ponded or showed signs of ponding in the recent past (e.g., non-uniform soil coloration in depressional areas or presence of lush vegetation indicative of wetland plants) within 3.1 mi of the BSA. Ponds were originally digitized using ArcGIS 9.1 and this data layer was projected onto a United States Department of Agriculture (USDA) 2009 NAIP aerial map (Figure 4).

The California red-legged frog has not been recorded within the BSA itself. However, there are several CNDDB records of California red-legged frogs within 5 mi of the BSA (Figure 3) and two records within 2 mi of the BSA (Figure 5).



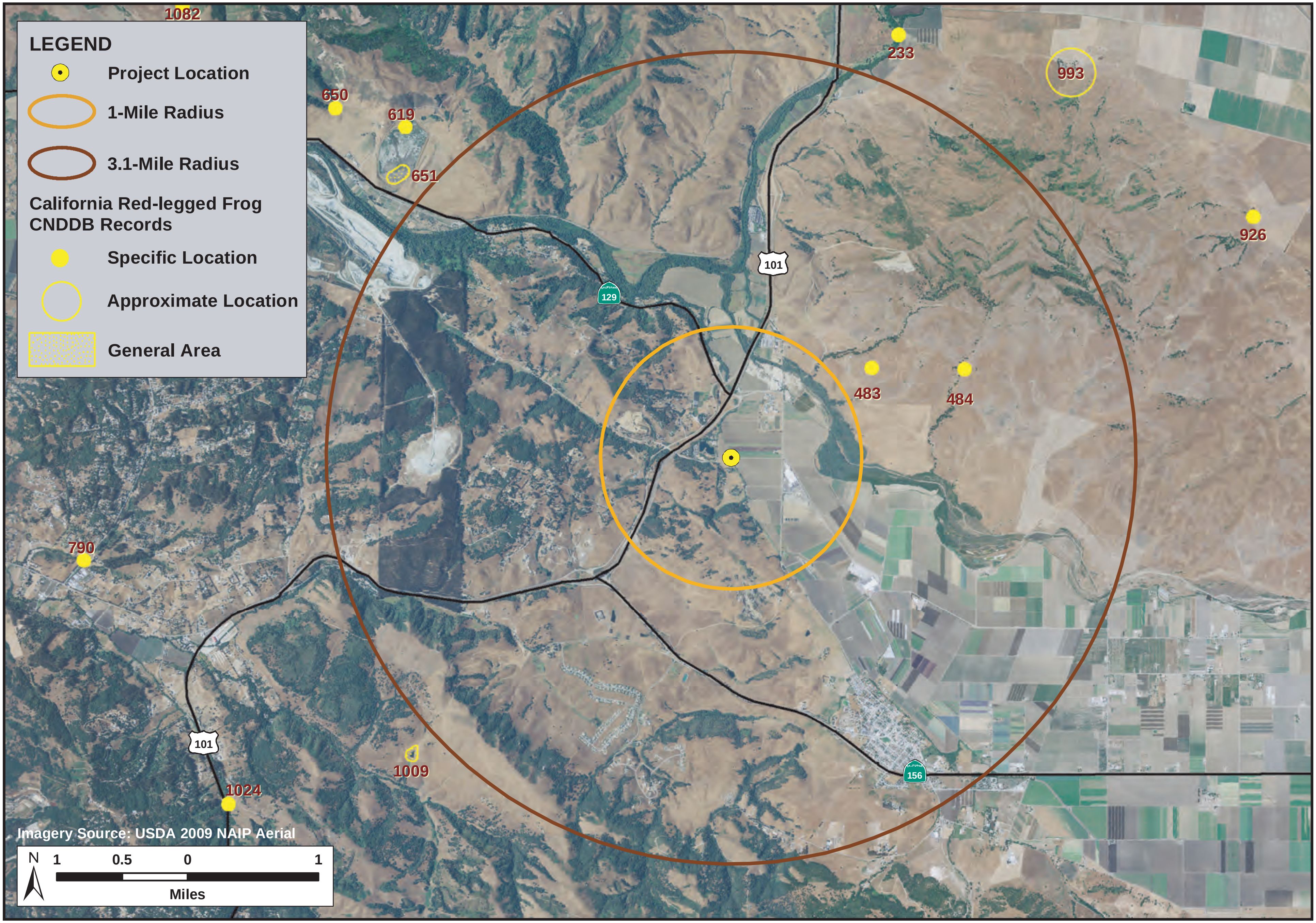
N:\Projects3300\3399-01\Reports\NES\Fig 4 Ponds within Vicinity of Project Area.mxd

H.T. HARVEY & ASSOCIATES
Ecological Consultants

Figure 4: Ponds within Vicinity of Project Area

Anzar Road Bridge Over San Juan Creek Project (3399-01)

July 2014



N:\Projects3300\3399-01\Reports\NES\Fig 5 CRLF CNDDB Records.mxd

H.T. HARVEY & ASSOCIATES
Ecological Consultants

Figure 5: California Red-legged Frog CNDDB Records
Anzar Road Bridge Over San Juan Creek Project (3399-01)
July 2014

The closest known records (#483 and #484) are from perennial stock ponds 1.2 and 1.8 mi from the BSA, respectively, in the hills to the northeast of the BSA (Figure 5).

Breeding Habitat. California red-legged frogs are known to breed in a wide variety of habitats ranging from isolated stock ponds to backwater pools in large riverine systems (Fellers 2005). However, due to the channelization of riverine habitats, reduced flows, and introduction of numerous non-native predators, California red-legged frogs are now largely restricted to breeding in isolated water bodies that are devoid of introduced predators. Thus, breeding now primarily occurs in stock ponds, depressional wetlands, marshes, long-lived temporary pools, and other areas that pond water during the spring and summer months. Breeding occasionally occurs in backwaters of lowland riparian corridors; however, these sites are now generally considered to be poor breeding habitat for California red-legged frogs due to high predator loads.

No California red-legged frogs or red-legged frog breeding habitat were observed during the reconnaissance-level survey of the BSA. San Juan Creek, where it flows through the BSA, is not suitable breeding habitat because of high amounts of non-point pollution from adjacent agricultural fields. The pollutants include excess nutrients from agricultural runoff and organic matter, which results in inadequate dissolved oxygen levels for eggs and tadpoles. The creek is also channelized and does not have any off-channel pools or slow moving water with emergent vegetation required for breeding red-legged frogs. Thus, the BSA does not constitute suitable breeding habitat for red-legged frogs. However, a survey of aerial photographs for aquatic habitat provides an overview of potential breeding sites in the immediate vicinity of the project area. The ponds distributed throughout the annual grassland and oak woodland south of the BSA are likely to provide suitable breeding habitat for California red-legged frogs (Figure 4). The closest potential breeding habitats are ponds approximately 0.45 mi to the south and 0.65 mi to the southwest of the BSA. Whether or not reproduction is successful in a particular pond largely depends upon the duration the pool remains wet (i.e., the pond must remain inundated long enough for tadpoles to successfully metamorphose, typically through July) and whether or not introduced predators, such as bullfrogs and fish, are present. More extensive on-the-ground surveys of individual ponds would be needed in order to determine whether or not these ponds actually support California red-legged frogs. Therefore, in the absence of focused surveys for breeding red-legged frogs, it was assumed that the ponds surrounding the BSA having suitable hydroperiods could potentially provide breeding habitat for red-legged frogs.

Foraging and Dispersal Habitat. California red-legged frogs feed on a wide variety of organisms including other frogs, salamanders, and even fish; however, their diet primarily consists of invertebrates (Hayes and Tennant 1985, Fellers 2005). While the high pollution levels in San Juan Creek may inhibit breeding, juvenile and adult red-legged frogs, which breathe air rather than through gills, are less susceptible to the effects of low dissolved oxygen and could use the creek channel for foraging. Thus, foraging habitat exists within the BSA and in the general Project vicinity, including San Juan Creek, the San Benito River, several intermittent tributaries to the east of the San Benito River (Figure 2), small ponds and surrounding moist areas and depressional wetlands south of the BSA. The BSA does provide suitable, albeit low quality non-breeding habitat for red-legged frogs dispersing between breeding sites, or between breeding and non-breeding aquatic habitats. As a perennial or near perennial creek that could contain water when other waterbodies in the region are dry or drying, the creek may attract foraging and dispersing frogs during summer months, and no barriers to dispersal are presented by the low earthen banks or the surrounding agricultural fields.

Adult California red-legged frogs are known to move 1.8 mi or more across a wide variety of habitats (Bulger et al. 2003) and will remain in nearly any area that remains cool and moist (Fellers 2005). California red-legged frogs utilize a wide variety of habitats during dispersal events. Bulger et al. (2003) found that most dispersing adult California red-legged frogs took a direct route to their breeding ponds rather than following tributaries and riparian corridors; habitats within their dispersal routes included agricultural fields, shrub lands, forests, and grasslands. In the same study, California red-legged frogs were found to traverse steep cliffs and only seemed to be deterred by vertical rock. The high density of ponds and numerous rivers, creeks, and intermittent drainages that occur throughout the project vicinity provides suitable dispersal habitat for California red-legged frogs. Essentially, all non-developed habitat, including the non-native ruderal grassland and agricultural land within the BSA, has the potential to be used by California red-legged frogs, at least for upland dispersal between aquatic habitats. Dispersal between the western and eastern sides of U.S. 101 is impeded by heavy traffic and concrete median barriers that separate south- and northbound traffic along much of the project alignment. However, the riparian habitat along the San Benito River represents a potential dispersal route for

California red-legged frogs between established breeding ponds west of U.S. 101 and breeding ponds east of U.S. 101.

Due to the absence of known occurrence records in close proximity to the Project site, the poor water quality in San Juan Creek, and the predominance of agricultural land uses in the Project vicinity (which may impede dispersal owing to lack of suitable refugia in upland areas), there is a low probability that red-legged frogs occur at all regularly, or in numbers, in the BSA. However, the potential for occurrence of dispersing red-legged frogs cannot be ruled out.

In summary, no focused surveys for California red-legged frogs were conducted for this Project. Rather, presence in the BSA was inferred because it is within dispersal distance of suitable breeding ponds. Information about the potential occurrence of California red-legged frogs as potential dispersers or foragers within the BSA that might be obtained from more focused surveys or at a time of year more conducive for detecting California red-legged frogs would not have altered the determinations regarding potential presence or absence of this species for this Project.

4.1.2.2 CRITICAL HABITAT

The Project is not within designated critical habitat for this species. The closest designated critical habitat unit is STC-2, located approximately 9.7 mi to the northeast.

4.1.2.3 AVOIDANCE AND MINIMIZATION EFFORTS

On 4 May 2011, the USFWS (2011) issued a Programmatic Biological Opinion (PBO) to the California Department of Transportation for projects funded under the FHWA's Federal Aid Program (8-8-10-F-58) and that are likely to adversely affect the California red-legged frog and its designated critical habitat, within the Ventura Fish and Wildlife Office's area of responsibility in San Benito, Santa Cruz, Monterey, San Luis Obispo, and Santa Barbara counties. The project is consistent with activities covered by the PBO as follows:

<u>Criteria 1:</u> The project, bridge replacement, is included in the PBO's list of actions that are likely to result in adverse effects on the California red-legged frog, but that would not affect the long-term viability of the population in the action area.

<u>Criteria 2:</u> The measures listed in the PBO to reduce or avoid adverse effects on the California red-legged frog and its critical habitat will be implemented (see below).

Criteria 3: The project is not part of a larger action or associated with other development project.

Criteria 4: The project is located in San Benito County, which is not an area where populations of California red-legged frogs are so isolated that even the small effects described in the PBO may have a substantial impact.

As described previously, project-related impacts to riparian, wetland, and aquatic habitats, where red-legged frogs concentrate their activities, have been avoided to the maximum extent feasible. The Project will incorporate preconstruction, construction site, and postconstruction BMPs, as described in Section 4.1.1.3, in all wetland and riparian areas to prevent impacts related to the degradation of water quality in downstream habitats. Further, implementation of the following measures from the PBO will avoid or minimize any impacts on individuals that may occur as a result of Project activities.

1. Only Service-approved biologists will participate in activities associated with the capture, handling, and monitoring of California red-legged frogs. Biologists authorized under this biological opinion do not need to re-submit their qualifications for subsequent projects conducted pursuant to this biological opinion, unless we have revoked their approval at any time during the life of this biological opinion.
2. Ground disturbance will not begin until written approval is received from the Service that the biologist is qualified to conduct the work, unless the individual(s) has/have been approved previously and the Service has not revoked that approval.
3. A Service-approved biologist will survey the project site no more than 48 hours before the onset of work activities. If any life stage of the California red-legged frog is found and these individuals are likely to be killed or injured by work activities, the approved biologist will be allowed sufficient time to move them from the site before work begins. The Service-approved biologist will relocate the California red-legged frogs the shortest distance possible to a location that contains suitable habitat and that will not be affected by activities associated with the proposed project. The relocation site should be in the same drainage to the extent practicable. Caltrans will coordinate with the Service on the relocation site prior to the capture of any California red-legged frogs.

4. Before any activities begin on a project, a Service-approved biologist will conduct a training session for all construction personnel. At a minimum, the training will include a description of the California red-legged frog and its habitat, the specific measures that are being implemented to conserve the California red-legged frog for the current project, and the boundaries within which the project may be accomplished. Brochures, books, and briefings may be used in the training session, provided that a qualified person is on hand to answer any questions.
5. A Service-approved biologist will be present at the work site until all California red- legged frogs have been relocated out of harm's way, workers have been instructed, and disturbance of habitat has been completed. After this time, the State or local sponsoring agency will designate a person to monitor on-site compliance with all minimization measures. The Service-approved biologist will ensure that this monitor receives the training outlined in measure 4 above and in the identification of California red-legged frogs. If the monitor or the Service-approved biologist recommends that work be stopped because California red-legged frogs would be affected in a manner not anticipated by Caltrans and the Service during review of the proposed action, they will notify the resident engineer (the engineer that is directly overseeing and in command of construction activities) immediately. The resident engineer will either resolve the situation by eliminating the adverse effect immediately or require that all actions causing these effects be halted. If work is stopped, the Service will be notified as soon as possible.
6. During project activities, all trash that may attract predators will be properly contained, removed from the work site, and disposed of regularly. Following construction, all trash and construction debris will be removed from work areas.
7. All refueling, maintenance, and staging of equipment and vehicles will occur at least 60 feet from riparian habitat or water bodies and in a location from where a spill would not drain directly toward aquatic habitat (e.g., on a slope that drains away from the water). The monitor will ensure contamination of habitat does not occur during such operations. Prior to the onset of work, Caltrans will ensure that a plan is in place for prompt and effective response to any accidental spills. All workers will be informed of the importance of preventing spills and of the appropriate measures to take should a spill occur.

8. Habitat contours will be returned to their original configuration at the end of project activities. This measure will be implemented in all areas disturbed by activities associated with the project, unless the Service and Caltrans determine that it is not feasible or modification of original contours would benefit the California red-legged frog.
9. The number of access routes, size of staging areas, and the total area of the activity will be limited to the minimum necessary to achieve the project goals. Environmentally Sensitive Areas will be delineated to confirm access routes and construction areas to the minimum area necessary to complete construction, and minimize the impact to California red-legged frog habitat; this goal includes locating access routes and construction areas outside of wetlands and riparian areas to the maximum extent practicable.
10. Caltrans will attempt to schedule work activities for times of the year when impacts to the California red-legged frog would be minimal. For example, work that would affect large pools that may support breeding would be avoided, to the maximum degree practicable, during the breeding season (November through May). Isolated pools that are important to maintain California red-legged frogs through the driest portions of the year would be avoided, to the maximum degree practicable, during the late summer and early fall. Habitat assessments, surveys, and coordination between Caltrans and the Service during project planning will be used to assist in scheduling work activities to avoid sensitive habitats during key times of the year.
11. To control sedimentation during and after project implementation, Caltrans, and the sponsoring agency will implement best management practices outlined in any authorizations or permits issued under the authorities of the Clean Water Act that it receives for the specific project. If best management practices are ineffective, Caltrans will attempt to remedy the situation immediately, in coordination with the Service.
12. If a work site is to be temporarily dewatered by pumping, intakes will be completely screened with wire mesh not larger than 0.2 inch to prevent California red-legged frogs from entering the pump system. Water will be released or pumped downstream at an appropriate rate to maintain downstream flows during construction. Upon completion of construction activities, any diversions or barriers to flow will be removed in a manner that would allow flow to resume with the least disturbance to the ·substrate. Alteration of the stream bed will be minimized to the maximum extent

possible; any imported material will be removed from the stream bed upon completion of the project.

13. Unless approved by the Service, water will not be impounded in a manner that may attract California red-legged frogs.
14. A Service-approved biologist will permanently remove any individuals of non-native species, such as bullfrogs (*Rana catesbeianus*), signal and red swamp crayfish (*Pacifastacus leniusculus*; *Procambarus clarkii*), and centrarchid fishes from the project area, to the maximum extent possible. The Service-approved biologist will be responsible for ensuring his or her activities are in compliance with the California Fish and Game Code.
15. If Caltrans demonstrates that disturbed areas have been restored to conditions that allow them to function as habitat for the California red-legged frog, these areas will · not be included in the amount of total habitat permanently disturbed.
16. To ensure that diseases are not conveyed between work sites by the Service-approved biologist, the fieldwork code of practice developed by the Declining Amphibian Populations Task Force will be followed at all times. A copy of the code of practice is enclosed. To avoid harassment, injury, or mortality of California red-legged frogs by dogs or cats, no canine or feline pets shall be permitted in the project area.
17. Project sites will be re-vegetated with an assemblage of native riparian, wetland, and upland vegetation suitable for the area. Locally collected plant materials will be used to the extent practicable. Invasive, exotic plants will be controlled to the maximum extent practicable. This measure will be implemented in all areas disturbed by activities associated with the project, unless the Service and Caltrans determine that it is not feasible or practical.
18. Caltrans will not use herbicides as the primary method used to control invasive, exotic plants. However, if Caltrans determines the use of herbicides is the only feasible method for controlling invasive plants at a specific project site, it will implement the following additional protective measures for the California red-legged frog:
    a) Caltrans will not use herbicides during the breeding season for the California red-legged frog;
    b) Caltrans will conduct surveys for the California red-legged frog immediately prior to the start of any herbicide use. If found, California

red-legged frogs will be relocated to suitable habitat far enough from the project area that no direct contact with herbicides would occur;

c) Giant reed and other invasive plants will be cut and hauled out by hand and the stems painted with glyphosate or glyphosate-based products, such as Aquamaster® or Rodeo®;
d) Licensed and experienced Caltrans staff or a licensed and experienced contractor will use a hand-held sprayer for foliar application of Aquamaster® or Rodeo® where large monoculture stands occur at an individual project site;
e) All precautions will be taken to ensure that no herbicide is applied to native vegetation.
f) Herbicides will not be applied on or near open water surfaces (no closer than 60 feet from open water).
g) Foliar applications of herbicide will not occur when wind speeds are in excess of 3 miles per hour.
h) No herbicides will be applied within 24 hours of forecasted rain.
i) Application of all herbicides will be done by a qualified Caltrans staff or contractors to ensure that overspray is minimized, that all application is made in accordance with label recommendations, and with implementation of all required and reasonable safety measures. A safe dye will be added to the mixture to visually denote treated sites. Application of herbicides will be consistent with the U.S. Environmental Protection Agency's Office of Pesticide Programs, Endangered Species Protection Program county bulletins.
j) All herbicides, fuels, lubricants, and equipment will be stored, poured, or refilled at least 60 feet from riparian habitat or water bodies in a location where a spill would not drain directly toward aquatic habitat. Caltrans will ensure that contamination of habitat does not occur during such operations. Prior to the onset of work, Caltrans will ensure that a plan is in place for a prompt and effective response to accidental spills. All workers will be informed of the importance of preventing spills and of the appropriate measures to take should a spill occur.

19. Upon completion of any project for which this programmatic consultation is used Caltrans will ensure that a Project Completion Report is completed and provided to the Ventura Fish and Wildlife Office. A copy of the form is enclosed. Caltrans should include recommended modifications of the

protective measures if alternative measures would facilitate compliance with the provisions of this consultation. In addition, Caltrans will reinitiate formal consultation in the event any of the following thresholds are reached as a result of projects conducted under the provisions of this consultation:

Caltrans will reinitiate consultation when, as a result of projects conducted under the provisions of this consultation:

a) 10 California red-legged frog adults or juveniles have been killed or injured in any given year. (For this and all other standards, an egg mass is considered to be one California red-legged frog.);
b) 50 California red-legged frogs have been killed or injured in total;
c) 20 acres of critical habitat for the California red-legged frog that include the primary constituent elements of aquatic breeding and non-breeding aquatic habitat and upland and dispersal habitat have been permanently lost in any given year;
d) 100 acres of critical habitat for the California red-legged frog that include the primary constituent elements of aquatic breeding and non-breeding aquatic habitat and upland and dispersal habitat have been permanently lost in total;
e) 100 acres of critical habitat for the California red-legged frog that include the primary constituent elements of aquatic breeding and non-breeding aquatic habitat and upland and dispersal habitat have been temporarily disturbed in any given year; or
f) 500 acres of critical habitat for the California red-legged frog that include the primary constituent elements of aquatic breeding and non-breeding aquatic habitat and upland and dispersal habitat have been temporarily disturbed in total.

4.1.2.4 PROJECT EFFECTS

The Project will not directly affect any established red-legged frog populations or potential red-legged frog breeding habitat because the BSA does not contain suitable breeding habitat. In addition, the Project will not adversely affect high-quality dispersal habitat or interfere substantially with the movement of California red-legged frogs. Nevertheless, individual red-legged frogs may occasionally use the BSA for dispersal between established populations. Thus, in the absence of avoidance and minimization measures, construction activities associated with the Project could result in the direct loss of individual red-legged frogs. However, in the unlikely event that a red-legged frog(s) is present during Project activities, implementation of avoidance and minimization measures, including pre-construction surveys, will avoid take of individuals that might otherwise result, including take that might result from the injury or mortality of individuals by equipment, vehicle traffic, and worker foot traffic; crushing of individual frogs in burrows due to the passage of heavy equipment; mortality of individuals as a result of the spill of petrochemicals, hydraulic fluids, or solvents; desiccation or predation of individuals as a result of being driven from refugia by pile-driving activities; injury or mortality resulting from degradation of water quality; and mortality resulting from an increase in native and non-native predators attracted to the BSA due to trash left on the work site.

Red-legged frogs may occasionally use the BSA for dispersal between established populations. Thus, in the absence of avoidance and minimization measures, the Project could affect individual red-legged frogs as a result of:

- Direct mortality during construction as a result of trampling by construction personnel or equipment;
- Increased mortality due to roadkill caused by the construction and vehicular use in and around the vicinity of the Project;
- Potential reduction in dispersal to and from ponds up and downstream of the BSA due to the physical impediment posed by construction materials or parked vehicles;
- Direct mortality from the collapse of underground burrows (which may be used as refugia in upland areas by red-legged frogs), resulting from soil compaction;
- Substrate vibrations may cause individuals to move out of refugia, exposing them to a greater risk of depredation or desiccation, may interfere with predator detection, and may result in a decrease in time spent foraging;
- Individuals that are found during pre-activity surveys and relocated to suitable habitat outside of the BSA may be subjected to physiological stress and greater risk of predation, or may undergo increased competition with frogs already present in the area to which they are relocated.
- Loss of suitable dispersal and foraging habitat resulting from the fill of wetland and aquatic habitats and removal of riparian vegetation; and
- Loss/degradation of potential breeding pools in San Juan Creek downstream of the BSA as a result of increased sedimentation/erosion due to construction activities.

The avoidance and minimization measures described above and the implementation of BMPs described in Section 4.1.1.3 will minimize impacts on individuals and their habitat during construction.

In all, the Project could impact up to 1.46 ac of potential red-legged frog foraging and dispersal habitat (i.e., scrub/shrub riparian wetland, herbaceous riparian wetland, aquatic, row crops, and non-native/ruderal grassland).

Because it was assumed that red-legged frogs could occur virtually anywhere in the BSA, all impacted natural habitats (i.e., areas that were not already paved or otherwise developed) were considered impacted red-legged frog habitat. Two categories of habitat impacts were identified:

- Permanent Impacts. Approximately 0.20 ac of potential red-legged frog dispersal habitat would be permanently lost due to the construction of pavement and installation of rock slope protection in areas that currently provide natural habitat that may be used by red-legged frogs.
- Temporary Impacts. Approximately 1.26 ac of potential red-legged frog habitat, including aquatic habitat for foraging and upland/riparian habitat for cover and dispersal, would be used for the temporary detour, construction access, and staging while the Project is being constructed or would be impacted by grading (cut/fill) activities as part of the Project. Areas used for construction access, and staging would not be paved or otherwise permanently altered. These areas are expected to provide habitat of similar quality to existing conditions shortly (i.e., in less than one year) after the completion of construction. Areas that would be temporarily impacted by grading would be revegetated following the completion of construction; such areas are expected to provide habitat of similar quality to the existing habitat that would be impacted, from the perspective of California red-legged frogs, within approximately one year after the completion of construction.

4.1.2.5 MODIFICATIONS TO THE PROJECT TO MITIGATE EFFECTS

The Project would result in permanent impacts on 0.20 ac of habitats that could potentially be used by red-legged frogs during foraging or dispersal. However, with implementation of the avoidance and minimization measures listed above, take of individuals will be minimized and project activities are not expected to result in a substantial permanent effect on habitat for California red-legged frogs. Therefore, per the PBO, no compensatory mitigation is warranted.

4.1.2.6 Cumulative Effects (FESA)

The historic distribution of the California red-legged frog extended from the city of Redding in the Central Valley and Point Reyes National Seashore along the coast, south to Baja California, Mexico. However, the species' current distribution is much reduced. It has been extirpated from 70 percent of its former range and now is found primarily in coastal drainages of central California, from Marin County, California, south to northern Baja California, Mexico, and in isolated drainages in the Sierra Nevada, northern Coast, and northern Transverse Ranges (USFWS 1996). The California red-legged frog is threatened within its remaining range, by a wide variety of human impacts to its habitat, including urban encroachment, construction of reservoirs and water diversions, contaminants, agriculture, and livestock grazing (USFWS 2002). The California red-legged frog was listed as threatened throughout its entire range on 23 May 1996 by the USFWS.

Cumulative impacts to California red-legged frogs result from past, current, and reasonably foreseeable future projects in the region, including periodic maintenance and replacement of bridges throughout San Benito County. Although such projects may result in impacts to this species, it is expected that most current and future projects that impact these habitats will have to mitigate impacts through the CEQA, Section 1600, or Section 404/401 permitting process, as well as through the FESA Section 7 consultation process. As a result, most projects in the region will mitigate their impacts to California red-legged frogs, minimizing cumulative impacts to this species. With implementation of avoidance and mitigation measures, this Project will not make a considerable contribution to cumulative effects on California red-legged frogs.

4.1.3 Discussion of the California Tiger Salamander

The California tiger salamander occurs in the Central Valley and the South Coast Range of California from Yolo County south to Santa Barbara County. In the Coast Ranges, California tiger salamanders occur in scattered populations from Sonoma County south to Santa Barbara County, while in the Central Valley and the foothills of the Sierra Nevada, the species occurs from Yolo County south through the San Joaquin Valley to Kern County.

The primary breeding habitat of the California tiger salamander consists of temporary ponded environments, such as vernal pools, seasonal wetlands, and human-made ponds such as stock ponds surrounded by uplands that support small mammal burrows. Temporary breeding pools must hold water for at least 3-4 months to support the development of larvae to the age of metamorphosis. Ponds that contain populations of exotic predatory fishes, crayfish, and bullfrogs appear unsuitable as breeding habitat (Collins et al. 1988, Shaffer et al. 1993, Jennings and Hayes 1994, Fisher and Shaffer 1996, Shaffer and Trenham 2005). Because populations of such predators persist primarily in perennial ponds, such ponds may be less suitable to support California tiger salamander breeding populations, although California tiger salamanders will breed in perennial ponds. Successful breeding is unlikely to occur in streams, as high winter flows during the wet season (when eggs are laid) would destroy eggs or wash them downstream, where predation may be higher (e.g., in deeper pools or perennial reaches) or where surrounding upland habitat conditions may be unsuitable.

Although larvae develop in the pools and ponds in which they hatch, the species is otherwise terrestrial, spending most of its post-metamorphic life in widely dispersed, underground retreats (Trenham 2001). Such retreats consist primarily of burrows of small mammals such as California ground squirrels (*Spermophilus beecheyi*) and valley pocket gophers (*Thomomys bottae*), though other refugia, such as deep crevices, could potentially serve as suitable upland refugia. Adults are rarely encountered, even where they are known to be abundant, spending most of the year in or near upland refugia (Storer 1925, Barry and Shaffer 1994, Shaffer and Trenham 2005). Seasonal migration of adults to pools and ponds occurs only for the purposes of breeding. After autumn rains commence, California tiger salamanders emerge from refugia and begin nocturnal migrations, congregating at breeding sites. Eggs are deposited singly or in small groups of 2 to 4 in relatively shallow water (Storer 1925, Twitty 1941). Following breeding, adults move away from ponds to upland refugia. Eggs hatch 2 to 4 weeks after deposition (Storer 1925, Twitty 1941), and a minimum of approximately 10 weeks is required to complete development through metamorphosis (Anderson 1968 and Feaver 1971, as cited in Jennings and Hayes 1994). Thus, aquatic breeding sites must retain water for a minimum of 3-4 months. Following metamorphosis, juveniles leave the drying ponds in late spring or summer and move at night to upland refugia. Juveniles and adults may emerge from refugia on cool, moist, or foggy nights to feed on a wide variety of invertebrate and small vertebrate prey (Shaffer et al. 1993).

Most studies of upland habitat use by California tiger salamanders suggest that most individuals do not travel far from breeding ponds. Trenham and Shaffer (2005) estimated that 50, 90, and 95 percent of adult California tiger salamanders were within 492, 1608, and 2034 ft of their study pond, respectively, and that 95 percent of juvenile California tiger salamanders were within 2067 ft of the pond, with 85 percent concentrated between 656 and 1969 ft, but none were found at 2625 ft. Trenham et al. (2001) observed a high probability of adult California tiger salamanders dispersing between pools up to 2198 ft apart but did not observe dispersal events longer than 2297 ft. However, Austin and Shaffer (1992) reported dispersal distances by California tiger salamanders of at least 1.0 mi, and Orloff (2007) reported longer-distance dispersal by a few individuals in a population in Pittsburgh, Contra Costa County. Orloff's results suggested that some individuals may travel up to 1.3 mi or more from aquatic breeding habitat to upland aestivation habitat. Collectively, these studies suggest that dispersal distances may vary among populations and/or sites; that California tiger salamander abundance likely decreases with increasing distance from a breeding pond; and that a few individuals may disperse 1 mi or more from breeding areas.

The primary cause of the decline of California tiger salamander populations is the loss and fragmentation of habitat from human activities and the encroachment of non-native predators (Barry and Shaffer 1994, Fisher and Shaffer 1996, Davidson et al. 2002, USFWS 2009b). Other potential threats include automobiles and off-road vehicles (Twitty 1941, Barry and Shaffer 1994), the reduction of ground squirrel populations to low levels through widespread rodent control programs (Loredo et al. 1996, USFWS 2009b), and hybridization between the threatened native California tiger salamander and the introduced barred tiger salamander (*Ambystoma tigrinum mavortium*).

4.1.3.1 Survey Results

The BSA falls within the range of the Central DPS of California tiger salamanders. This DPS was federally listed as threatened on 4 August 2004 (USFWS 2004). H. T. Harvey and Associates performed a field survey and habitat assessment, and reviewed background information on known occurrences in the vicinity, to provide all the information requested for a California tiger salamander site assessment by the USFWS (USFWS 2003).

Wildlife Ecologist M. Timmer, M.S., conducted a reconnaissance-level survey and habitat assessment of the BSA and vicinity on 8 January 2013. The purpose of the survey was to document potential amphibian habitat within, and adjacent to, the BSA as well as to assess potential impacts of the Project on California tiger salamanders. Prior to this site visit, the CNDDB (2013) was queried for information on the known distribution of California tiger salamanders within the Project vicinity. CNDDB localities of California tiger salamanders within 1.24 mi of the project area were plotted on a GIS map based on USFWS site assessment criteria (Figure 6). The BSA and surrounding areas were surveyed on foot and by driving along (adjacent) access roads and stopping at locations selected to document habitats capable of supporting California tiger salamanders, as allowed by safety considerations and access permission from landowners. Otherwise, a review of aerial photographs was conducted using general knowledge of, and previous experience with, the habitat and ecology of California tiger salamanders to assess land-use conditions, potential barriers, and potential aquatic breeding sites (e.g., areas that pond water), both within the project area and all areas within 3.1 mi of the project boundary. Field observations and examination of aerial photographs were supplemented by utilizing an earlier California tiger salamander Habitat Assessment conducted for the U.S. 101 Widening Project (H.T. Harvey and Associates 2008). The southern reach of the U.S. 101 Widening Project extended just south of the U.S. 101/State Route (SR) 129 interchange, 0.4 mi north of the Project detailed in this BA. An extensive review of aerial images and field surveys for the 2008 Habitat Assessment revealed numerous areas that were either ponded or showed signs of ponding in the recent past (e.g., non-uniform soil coloration in depressional areas or presence of lush vegetation indicative of wetland plants) within 3.1 mi of the BSA. Ponds were originally digitized using ArcGIS 9.1 and this data layer was projected onto a United States Department of Agriculture (USDA) 2009 NAIP aerial map (Figure 4).

The California tiger salamander has not been recorded within the BSA itself. However, there are several CNDDB records of California tiger salamanders within 5 mi of the BSA (Figure 3) and three records within 1.24 mi of the BSA (Figure 6). The closest known record (#754) is from a stock pond 0.7 mi north-northwest of the BSA in 2003. In 1993, larvae were surveyed in a drainage east of the San Benito River and the San Juan Valley (#633), 1.1 mi in the hills northeast of the BSA (Figure 6). CNDDB occurrence #78 was an observation from 1973 along San Justo Road, 1.1 mi southeast of the BSA, although it appears that this area is now completely developed.

Breeding Habitat. As mentioned above, California tiger salamanders breed in pond environments that persist for a minimum of 3-4 months during winter and spring. Examples of such environments include temporary, rain-fed pools and human-made ponds surrounded by uplands that contain small mammal burrows. Breeding typically occurs from early December through mid-March, with metamorphosis and migration from ponds occurring in late May through late July (Storer 1925). Juveniles leave the ponds en masse during a one to two-week period and take several years to reach maturity.

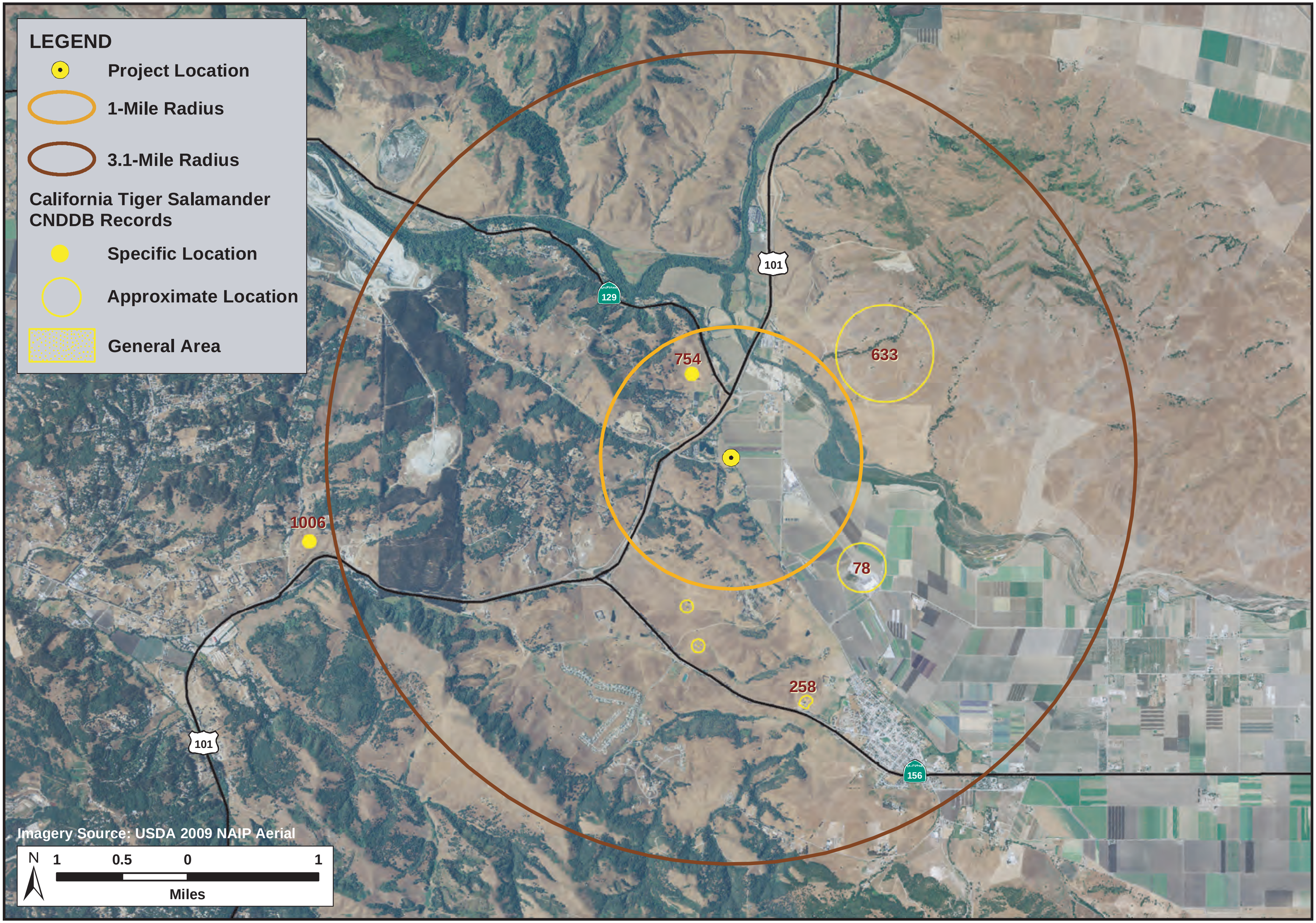
No California tiger salamanders or tiger salamander breeding habitat were observed during the reconnaissance-level survey of the BSA. The only aquatic feature in the BSA, the San Juan Creek channel, is not suitable breeding habitat for tiger salamanders like most creeks in the area because their eggs or larvae are susceptible to wash away during high flows and are also vulnerable to predators that reside within the creek. While there is no breeding habitat within the BSA, inspection of aerial photographs for aquatic habitat provided an overview of potential breeding sites in the immediate vicinity of the project area (Figure 4). There are several ponds distributed throughout the annual grassland and oak woodland south of the BSA, which could potentially provide suitable breeding habitat for California tiger salamanders. The closest of these potential breeding habitats are perennial ponds approximately 0.45 mi to the south and 0.65 mi to the southwest of the BSA. It is likely that these perennial ponds contain introduced predators, such as fish and bullfrogs, which would limit the likelihood of them supporting populations of breeding salamanders. Seasonal ponds nestled within annual grassland 1.0-1.1 mi to the south and southwest may provide more suitable breeding habitat. Whether or not reproduction is successful in these ponds largely depends upon the duration the pool remains wet (i.e., the pond must remain inundated long enough for juveniles to successfully metamorphose). More extensive on-the-ground surveys of individual ponds would be needed in order to determine whether or not these ponds actually support California tiger salamanders. In the absence of focused surveys for breeding tiger salamanders, it was assumed that the ponds surrounding the BSA having suitable hydroperiods could potentially provide breeding habitat for tiger salamanders.

Upland Habitat. Small mammal burrows and fissures in the ground may provide refugial habitat for juvenile and adult California tiger salamanders. Adults occupy burrows most of the year with the exception of the breeding season when they migrate to breeding ponds. Newly metamorphosed juveniles from the previous summer that have not reached sexual maturity by the breeding season presumably remain in burrows instead of migrating to ponds. The upland portion of the BSA is composed of non-native ruderal grassland (46%), row crops (28%), and developed land (20%), and is highly disturbed by agricultural activities. The fallow fields consisting of non-native grasses south of Anzar Rd, both on the southern side of the BSA and to the south of this area, were observed to have only a few small mammal burrows that could provide refugia for tiger salamanders during the non-breeding season. The intensively cultivated agricultural fields north of Anzar Rd, both on the northern side of the BSA and to the north of this area, are unsuitable refugial habitat due to frequent disturbance and lack of small mammal burrows. The annual grasslands surrounding the BSA and the greater San Juan Valley provide suitable upland habitat for tiger salamanders, some of which is within 0.10 mi of the BSA.

California tiger salamanders primarily use open grassland and areas with scattered trees as dispersal habitats, and very rarely utilize riparian habitat (Trenham 2001). Trenham and Shaffer (2005) suggest that a buffer of at least 870 ft is necessary around California tiger salamander breeding ponds in order to protect critical upland habitat for adults and juvenile salamanders. Other research has documented California tiger salamanders using animal burrows and migrating through upland habitat greater distances from breeding ponds (Pittman 2005, Orloff 2007). Orloff (2007) suggested that California tiger salamanders may move up to 1.3 mi from suitable aquatic habitat. Migration distance is likely dependent upon the quantity and quality of suitable dispersal habitat and the density of refuge sites in a particular area.

Approximately one quarter of the land area within a 1.2 mi radius circle of the BSA represents habitat suitable for dispersing California tiger salamanders within reach of the BSA. The remainder of the surrounding area is either unsuitable or functionally isolated from the BSA due to significant impediments to dispersal. For example, suitable grassland habitat with known breeding locations west of U.S. 101 is isolated from the BSA by heavy traffic and median barriers. Regular disking and plowing in agricultural fields and the San Benito River make dispersal from the grasslands east of the San Juan Valley into the BSA unlikely for tiger salamanders. However, there is a known California tiger salamander breeding site within 3.1 mi to the south of the BSA with high quality upland habitat and potential breeding sites in between (Figures 4 and 6). Thus, much of the habitat to the south-southwest of the BSA has the potential to be used by dispersing California tiger salamanders, and, as a result, salamanders may disperse into the BSA. Once in the BSA, it is possible that salamanders could use the few burrows present there as upland refugia. Although the potential for occurrence of California tiger salamanders in the BSA cannot be ruled out, the probability of occurrence or number of individuals that could be impacted is very low owing to the distance between potential breeding ponds and the site and the unsuitability of habitat in most of the Project vicinity due to intensive cultivation.

In summary, no focused surveys for California tiger salamanders were conducted for this Project. Rather, potential for occurrence was inferred because: 1) the BSA is within dispersal distance of suitable breeding ponds; 2) potential dispersal habitat exists between these suitable breeding ponds and the BSA; and 3) there are no barriers to dispersal between these potential breeding ponds and the BSA. However, assuming that that the majority of construction of the new bridge and roadway approaches happens during the dry season (summer/fall), the likelihood of tiger salamanders occurring in the BSA during that time is very low because there are few burrows which salamanders could use for refugia, and there will likely be no individuals dispersing across the site during the dry season. Information about the potential occurrence of California tiger salamanders within the BSA that might be obtained from more focused surveys or at a time of year more conducive for detecting California tiger salamanders would not have altered the determinations regarding potential presence or absence of this species for this Project.



N:\Projects3300\3399-01\Reports\NES\Fig 6 CTS CNDDB Records.mxd

H.T. HARVEY & ASSOCIATES
Ecological Consultants

Figure 6: California Tiger Salamander CNDDB Records
Anzar Road Bridge Over San Juan Creek Project (3399-01)
July 2014

4.1.3.2 Critical Habitat

Critical Habitat was designated for the Central DPS in the *Federal Register* on 23 August 2005 by the USFWS (USFWS 2005b). The Project is not within designated critical habitat for this species. The closest designated critical habitat unit is East Bay Region Unit 12, located approximately 8.8 mi to the northeast.

4.1.3.3 Avoidance and Minimization Efforts

The Project will incorporate preconstruction, construction site, and postconstruction BMPs to prevent the degradation of habitat. In addition, all avoidance and minimization measures described above for the California red-legged frog in Section 4.1.2.3 will be implemented for the California tiger salamander, with the caveat that any agency consultation that occurs due to discovery of a salamander must involve CDFW and Caltrans as well as USFWS.

4.1.3.4 Project Effects

Small numbers of California tiger salamanders may occasionally use the BSA for dispersal between established populations and for summer refugial habitat. Thus, in the absence of avoidance and minimization measures, the Project could affect individual tiger salamanders as a result of:

- Direct mortality during construction as a result of trampling by construction personnel or equipment;
- Increased mortality due to roadkill caused by the construction and vehicular use in and around the vicinity of the Project;
- Potential reduction in dispersal to and from nearby breeding ponds due to the physical impediment posed by construction materials or parked vehicles;
- Direct mortality from the collapse of occupied burrows, resulting from soil compaction; and
- Direct mortality or loss of suitable habitat resulting from the loss of dispersal habitat and refugia.

The avoidance and minimization measures described above will minimize impacts on individuals during construction. No known or potential tiger salamander breeding habitat will be directly or indirectly impacted by the Project's construction activities, as no breeding habitat is present in or very close to the BSA.

The removal of the old bridge and construction of a new bridge could result in impacts on as much as 1.46 ac of dispersal and refugial habitat that is occasionally used by small numbers of California tiger salamanders. Two categories of habitat impacts were identified:

- Permanent Impacts. Approximately 0.20 ac of potential tiger salamander refugial/dispersal habitat would be permanently lost due to the construction of pavement and installation of rock slope protection in areas that currently provide natural habitat that may be used by tiger salamanders.
- Temporary Impacts. Approximately 1.26 ac of potential tiger salamander habitat would be used for construction access and staging while the Project is being constructed or would be impacted by grading (cut/fill) activities as part of the Project. Areas that would be temporarily impacted by grading would not be paved, and instead would be revegetated following the completion of construction; such areas are expected to provide habitat of similar quality to the existing habitat that would be impacted, from the perspective of California tiger salamanders, within approximately one year after the completion of construction.

4.1.3.5 MODIFICATIONS TO THE PROJECT TO MITIGATE EFFECTS

Project activities are not expected to result in a substantial effect on habitat for, or populations of, the California tiger salamander; due to the distance between the site and potential breeding ponds, coupled with the very small number of burrows on the Project site and the expectation that salamanders would not be dispersing during the dry season when work is being performed, the number of individuals that could use the site, and thus the number that may be impacted, would be very low. As a result, the Project will not have a substantial impact on California tiger salamander populations, and no compensatory mitigation is warranted for the purpose of environmental review.

However, regulatory protection of the California tiger salamander is expected to result in the need for compensatory mitigation. Because the species is State and federally listed, incidental take approval must be obtained before any individuals can be taken, and the CESA has a requirement that all take be fully mitigated. Therefore, it is expected that the CDFW will require compensatory mitigation as a condition of any Incidental Take Permit issued for the Project. In anticipation of this regulatory mitigation requirement, the County will mitigate any long-term loss of California tiger salamander dispersal or upland refugial habitat at a 2:1 ratio (mitigation:impact), on an acreage basis for all permanent impacts, and 0.5:1 for all temporary impacts. This mitigation ratio has been determined to reflect the need to compensate for lost habitat functions and values, and potential loss of individuals, resulting from Project activities. Thus, based upon the estimated area of impact (i.e., 0.20 ac permanent and 1.26 ac temporary) this would result in approximately 1.03 ac of habitat to be preserved. Compensatory mitigation may be carried out through purchasing credits at a conservation bank and/or one or both of the following methods, in order of preference:

- The preservation and management of high-quality habitat that is already occupied by California tiger salamanders
- The restoration or enhancement of degraded habitat or habitat that is unsuitable for use by California tiger salamanders, but that (a) is in close proximity to areas of known occurrence and (b) could be made more suitable for use via construction of one or more breeding ponds, enhancement of breeding and nonbreeding aquatic habitat via improvements to emergent vegetation or other cover, or management to improve the quality of upland habitat.

If high quality habitat is preserved or degraded habitat restored/enhanced, the Project proponent will develop a Habitat Mitigation & Monitoring Plan describing the measures that will be taken to manage the property and to monitor the effects of management on the California tiger salamander. That plan will include, at a minimum, the following:

- A description of the location and boundaries of the mitigation site and description of existing site conditions
- A description of measures to be undertaken if necessary to enhance (e.g., through focused management) the mitigation site for California tiger salamanders
- Proposed management activities, such as managed grazing and management of invasive plants, to maintain high-quality habitat conditions for California tiger salamanders
- A description of habitat and species monitoring measures on the mitigation site, including specific, goals and objectives, performance indicators, success criteria, monitoring methods, data analysis, reporting requirements, and monitoring schedule
- A description of the management plan’s adaptive component, including potential contingency measures for mitigation elements that do not meet performance criteria
- A description of the funding mechanism to ensure the long-term maintenance and monitoring of the mitigation lands.

4.1.3.6 CUMULATIVE EFFECTS (FESA)

The California tiger salamander is widely distributed in the relatively xeric central California valleys and foothills. This region was originally composed of several million hectares of perennial grasslands intermixed with annual grasses, forbs, and open oak woodlands (Heady 1988). Today, introduced grasses dominate grassland habitats, and an estimated 75 percent of vernal pool habitat has been destroyed (Holland 1998; Ricketts et al. 1999). The primary cause of the decline of California tiger salamander populations is the loss and fragmentation of habitat from human activities and the encroachment of nonnative predators. Federal, State, and local laws have not prevented past and ongoing losses of habitat (USFWS 2009b). The California tiger salamander was listed as threatened throughout its entire range on 4 August 2004 by the USFWS.

Cumulative impacts to California tiger salamanders result from past, current, and reasonably foreseeable future Projects in the region, including periodic maintenance and replacement of bridges throughout San Benito County. Although such projects will result in impacts to this species, it is expected that most current and future projects that impact these habitats will have to mitigate these impacts through the CEQA, Section 1600, or Section 404/401 permitting process, as well as through the FESA Section 7 consultation process. As a result, most projects in the region will mitigate their impacts to tiger salamanders, minimizing cumulative impacts to this species. Due to the very low probability that the California tiger salamander will be impacted by the Project, and with implementation of avoidance and mitigation measures, this Project will not make a considerable contribution to cumulative effects on the California tiger salamander.

Chapter 5. Conclusions and Determination

5.1 Conclusions

Project activities have the potential to result in short- and long-term effects on individual SCCC steelhead, California red-legged frogs, and California tiger salamanders and the habitat of these species. However, due to the absence of breeding habitat in close proximity to the BSA, individuals of each species are expected to occur only as infrequent non-breeding visitors or dispersants, and the magnitude of impacts to the SCCC steelhead, California red-legged frog, and California tiger salamander from this Project would be very low.

Furthermore, the Project includes a number of measures to avoid and minimize impacts on individuals and habitat of these species during construction activities. After implementation of these measures, the Project will not have a substantial residual impact on populations of either of these species. Furthermore, with implementation of these measures, the Project will not contribute to cumulative impacts on these species.

5.2 Determination

Based on the above analysis, it is determined that implementation of the Proposed Project may affect, but is not likely to adversely affect, the SCCC steelhead and may affect, and is likely to adversely affect, the California red-legged frog and the California tiger salamander. This determination is based on:

- The low quality of the SCCC steelhead, the California red-legged frog, and the California tiger salamander habitat to be impacted
- The absence of breeding habitat for the SCCC steelhead, the California red-legged frog, and California tiger salamander within the BSA
- The lack of critical habitat for the SCCC steelhead, the California red-legged frog, and the California tiger salamander within the BSA
- The very low probability of occurrence of the SCCC steelhead, the California red-legged frog, and the California tiger salamander in the BSA

- Implementation of avoidance and minimization measures to prevent impacts to the SCCC steelhead, the California red-legged frog, and the California tiger salamander in the BSA

Chapter 6. References

6.1 Literature Cited

Arnold, S. J. and T. Halliday. 1986. Life history notes: *Hyla regilla*, predation. Herpetological Review 17(2):44.

Austin, C. C. and H. B. Shaffer. 1992. Short-, medium-, and long-term repeatability of locomotor performance in the tiger salamander *Ambystoma californiense*. Functional Ecology 6:145-153.

Barnhart, R. A. 1986. Species profiles: life histories and environmental requirements of coastal fishes and invertebrates (Pacific Southwest) — steelhead. U.S. Fish and Wildlife Service Biol. Rep. 82(11.60). U.S. Army Corps of Engineers, TR EL-82-4. 21 p.

Barry, S. J. and H. B. Shaffer. 1994. The status of the California tiger salamander (Ambystoma californiense) at Lagunita: A 50-year update. Journal of Herpetology 28(2):159-16.

Blaustein, A. R. and J. M. Kiesecker. 2002. Complexity in conservation: Lessons from the global decline of amphibian populations. Ecology Letters 5:567-608.

Bulger, J. B., and N. J. Scott, Jr. 2003. Terrestrial activity and conservation of adult California red-legged frogs *Rana aurora draytonii* in coastal forests and grasslands. Biological Conservation 110:85-95.

Busby, P. J., T. C. Wainwright, G. J. Bryant, L. J. Lierheimer, R. S. Waples, F. W. Waknitz, and I. V. Lagomarsino. 1996. Status review of west coast steelhead from Washington, Idaho, Oregon, and California. NOAA Technical Memorandum NMFS-NWFSC-27.

[Caltrans] California Department of Transportation. 2001. “Water Pollution Section” of the Caltrans Construction Manual.

[Caltrans] California Department of Transportation. 2003. Construction Site Best Management Practice (BMP) Field Manual and Troubleshooting Guide. CTSW-RT-02-007.

[Caltrans] California Department of Transportation. 2011. Standard Environmental Reference, Volume 3: Biological Resources. http://www.dot.ca.gov/ser/vol3/vol3.htm (last updated 3 January 2011).

[CNDDB] California Natural Diversity Database. 2013. Rarefind. California Department of Fish and Game.

Collins, J. P., T. R. Jones, and H. J. Beina. 1988. Conserving genetically distinctive populations: The case of the Huachuca tiger salamander (*Ambystoma tigrinum stebbinsi* Lowe). In Proceedings of the symposium on the management of amphibians, reptiles, and small mammals in North America, edited by R. C. Szaro, K. E. Severson and D. R. Patton: U.S. Department of Agriculture, Forest Service, General Technical Report RM-166.

Cook, D. 1997. Biology of the California red-legged frog: a synopsis. *In* M. Morrison (ed.), 1997 Transactions of the Western Section of the Wildlife Society 33: 79-82. Oakland, CA: Western Section of the Wildlife Society.

D'Amore, A., V. Hemingway, and K. Wasson. 2009. Do a threatened native amphibian and its invasive congener differ in response to human alteration of the landscape. Biological Invasions published online.

Davidson, C., H. B. Shaffer, and M. R. Jennings. 2001. Declines of the California red-legged frog: Climate, UV-B, habitat, and pesticides hypothesis. Ecological Applications 11(2):461-479.

Davidson, C., H. B. Shaffer, and M. R. Jennings. 2002. Spatial tests of the pesticide drift, habitat destruction, UV-B, and climate-change hypotheses for California amphibian declines. Conservation Biology 16(6):1588-1601.

Doubledee, R. A., E. B. Muller, and R. M. Nisbet. 2003. Bullfrogs, disturbance regimes, and the persistence of California red-legged frogs. Journal of Wildlife Management 67(2):424-438.

Fellers, G. M. 2005. *Rana draytonii* California red-legged frog. Pages 552-554 *in* M. Lannoo, editor. Amphibian declines: The conservation status of United States species. University of California Press, Berkeley, California.

Fellers, G. M., and P. M. Kleeman. 2007. California red-legged frog (*Rana draytonii*) movement and habitat use: Implications for conservation. Journal of Herpetology 41:276-286.

Fisher, R. N. and H. B. Shaffer. 1996. The decline of amphibians in California's Great Central Valley. Conservation Biology 10(5):1387-1397.

Fukushima, L., and E. W. Lesh. 1998. Adult and juvenile anadromous salmonid migration timing in California streams. California Fish and Game. 84(3): 13 3-144.

Hayes, M. P. and M. R. Tennant. 1985. Diet and feeding behavior of the California red-legged frog, *Rana aurora draytonii* (Ranidae). The Southwestern Naturalist 30(4):601-605.

Hayes, M. P. and M. R. Jennings. 1988. Habitat correlates of distribution of the California red-legged frog (*Rana aurora draytonii*) and the foothill yellow-legged frog (*Rana boylii*): implications for management. In: R. Sarzo, K. E. Severson, and D. R. Patton (technical coordinators). Proceedings of the symposium on the management of amphibians, reptiles, and small mammals in North America. United States Department of Agriculture, Forest Service, Rocky Mountain Range and Experiment Station, Fort Collins, Colorado. General Technical Report (RM-166):1-458. pp. 144-158

Heady, H.F. 1988. Valley grassland. *In* Terrestrial vegetation of California, M.G. Barbour and J. Major, *eds*. California Native Plant Society.

Holland, R. F. 1986. Preliminary Description of the Terrestrial Natural Communities of California. California Department of Fish & Game.

Holland, V.L., and D. Keil. 1995. Oak Woodland Communities. *In* California Vegetation. Kendall Hunt Publishing Company. pp. 265-285.

Holland, D.C. 1998. Changes in Great Valley vernal pool distribution from 1989 to 1997. Prepared for the California Department of Fish and Game. June 1998.

H. T. Harvey and Associates. 2008. California Red-legged Frog and California Tiger Salamander Habitat Assessment: U.S. Highway 101 Widening Project. Prepared for HDR Engineering Inc., URS, and David J. Powers & Associates.

Jennings, M. R. and M. P. Hayes. 1994. Amphibian and reptile species of special concern in California. California Department of Fish and Game, Inland Fisheries Division.

Kiesecker, J. M., A. R. Blaustein, and L. K. Belden. 2001. Complex causes of amphibian population declines. Nature 410:681-684.

Livezey, R. L. and A. H. Wright. 1947. A synoptic key to the salientian eggs of the United States. The American Midland Naturalist 37(1):179-222.

Loredo, I., D. Van Vuren, and M. L. Morrison. 1996. Habitat use and migration behavior of the California tiger salamander. Journal of Herpetology 30(2):282-285.

[NMFS] National Marine Fisheries Service. 2005. Endangered and threatened species: Designation of critical habitat for seven Evolutionarily Significant Units of Pacific steelhead and salmon in California. Final Rule. Federal Register 70(170): 52488-52626.

[NMFS] National Marine Fisheries Service. 2006. Endangered and Threatened Species: Final Listing Determination for 10 Distinct Population Segments of West Coast Steelhead. Federal Register 71:834-862.

[NMFS] National Marine Fisheries Service. 2012. South-central California Steelhead Recovery Plan Public Review Draft. September 2012.

[NRCS] Natural Resource Conservation Service. 2013. National List of Hydric Soils. http://soils.usda.gov/use/hydric/. Accessed January 2013.

[NWI] National Wetlands Inventory. 2012. Wetlands Mapper. Accessed on 28 June 2012 from http://107.20.228.18/Wetlands/WetlandsMapper.html

Orloff, S. 2007. Migratory movements of California tiger salamanders in upland habitat-a five-year study. Pittsburg, California. Prepared for Bailey Estates, LCC by Ibis Environmental, Inc. May.

Pittman, B. T. 2005. Observations of upland habitat use by California tiger salamanders based on burrow excavations. Transactions of the Western Society of the Wildlife Society. 41:26-30.

Ricketts, T.H., E. Dinerstein, D.M. Olson, C.J. Loucks, W. Eichbaum, D. DellaSala, K. Kavanagh, P. Hedao, P.T. Hurley, K.M. Carney, R. Abell, and S. Walters, *eds*. 1999. Terrestrial Ecoregions of North America. A Conservation Assessment. Washington, D.C. and Covelo, California: Island Press.

Sawyer, J. O., and T. Keeler-Wolf. 1995. A Manual of California Vegetation. California Native Plant Society.

[SCS] Soil Conservation Service, National Cooperative Soil Survey. 1969. Soil Survey of San Benito County, California. U.S. Department of Agriculture.

Shaffer, H. B., R. N. Fisher, and S. E. Stanley. 1993. Status report: The California tiger salamander *Ambystoma californiense*. Final report for California Department of Fish and Game, Inland Fisheries Division. Report No. Cen CTS PR 4381.

Shaffer, H. B., and P. C. Trenham. 2005. *Ambystoma californiense* Gray, 1853. In Amphibian declines: The conservation status of United States species, edited by M. Lannoo: University of California Press.

Shapavalov, L., and A. Taft. 1954. The Life Histories of the Steelhead Rainbow Trout and Silver Salmon. State of California Department of Fish and Game. Fish Bulletin No. 98.

Smith, J. J. 1982. Fishes of the Pajaro River. Pages 83-257 in Moyle, Peter B., Jerry J. Smith, Robert A. Daniels, and Donald M. Baltz, editors. Distribution and ecology of stream fishes of the Sacramento-San Joaquin drainage system, California. University of California Publications in Zoology v115, Berkeley, CA.

Storer, T. I. 1925. A synopsis of the amphibia of California. University of California Publications in Zoology 27(1):1-342.

Tatarian, P. J. 2008. Movement patterns of California red-legged frogs (*Rana draytonii*) in an inland California environment. Herpetological Conservation and Biology 3:155-169.

Trenham, P. C. 2001. Terrestrial habitat use by adult California tiger salamanders. Journal of Herpetology 35(2):343-346.

Trenham, P. C. and B. Shaffer. 2005. Amphibian upland habitat use and its consequences for population viability. Ecological Applications 15:1158-1168.

Trenham, P.C., W.D. Koenig, and H.B. Shaffer. 2001. Spatially autocorrelated demography and interpond dispersal in the salamander *Ambystoma californiense*. Ecology 82:3519-3530.

Twitty, V. C. 1941. Data on the life history of *Ambystoma tigrinum californiense* Gray. Copeia 1941(1):1-4.

[USFWS] U.S. Fish and Wildlife Services. 1996. Endangered and Threatened Wildlife and Plants; Determination of Threatened Status for the California Red-legged Frog. Federal Register 61:25813-25833.

[USFWS] U.S. Fish and Wildlife Services. 1998. Endangered Species Consultation Handbook. Procedures for Conducting Consultation and Conference Activities under Section 7 of the Endangered Species Act. March 1998. 315 pp.

[USFWS] U.S. Fish and Wildlife Service. 2002. Recovery plan for the California red-legged frog (*Rana aurora draytonii*). U.S. Fish and Wildlife Service, Region 1.

[USFWS] U.S. Fish and Wildlife Service. 2003. Interim Guidance on Site Assessment and Field Surveys for Determining Presence or a Negative Finding of the Californian Tiger Salamander, October 22, 2003.

[USFWS] U.S. Fish and Wildlife Service. 2004. Endangered and threatened wildlife and plants; determination of threatened status for the California tiger salamander; and special rule exemption for existing routine ranching activities; final rule. Federal Register 69:47212-47248.

[USFWS] U.S. Fish and Wildlife Service. 2005a. Revised Guidance on Site Assessments and Field Surveys for the California Red-legged Frog. August 2005.

[USFWS] U.S. Fish and Wildlife Service. 2005b. Endangered and Threatened Wildlife and Plants: Designation of Critical habitat for the California Tiger Salamander, Central Population: Final rule. Federal Register 70: 49380-49458.

[USFWS] U.S. Fish and Wildlife Service. 2009a. Species account California red-legged frog *Rana aurora draytonii*. http://www.fws.gov/sacramento/ES_Species/Accounts/Amphibians-Reptiles/Documents/ca_red-legged_frog.pdf

[USFWS] U.S. Fish and Wildlife Service. 2009b. Species Account California Tiger Salamander *Ambystoma californiense*. http://www.fws.gov/sacramento/es_species/Accounts/Amphibians-Reptiles/Documents/california_tiger_salamander.pdf.

[USFWS] U.S. Fish and Wildlife Service. 2011. Programmatic Biological Opinion for Projects Funded or Approved under the Federal Aid Program (HDA-CA, File #: Section 7 with Ventura USFWS, Document # S38192) (8-8-10-F-58).

[USFWS] U.S. Fish and Wildlife Service. 2010. Endangered and Threatened Wildlife and Plants: Revised Designation of Critical Habitat for California Red-legged Frog; Final Rule. Federal Register 75:12816-12959.

Appendix A USFWS Special-status Species List

United States Department of the Interior

FISH AND WILDLIFE SERVICE

Sacramento Fish and Wildlife Office
2800 Cottage Way, Room W-2605
Sacramento, California 95825

May 7, 2014

Document Number: 140507085018

Kelly Hardwicke PhD
H.T. Harvey and Associates
983 University Ave. Building D
Los Gatos, CA 95032

Subject: Species List for Anzar Road Bridge Replacement

Dear: Ms Hardwicke

We are sending this official species list in response to your May 7, 2014 request for information about endangered and threatened species. The list covers the California counties and/or U.S. Geological Survey 7½ minute quad or quads you requested.

Our database was developed primarily to assist Federal agencies that are consulting with us. Therefore, our lists include all of the sensitive species that have been found in a certain area *and also ones that may be affected by projects in the area*. For example, a fish may be on the list for a quad if it lives somewhere downstream from that quad. Birds are included even if they only migrate through an area. In other words, we include all of the species we want people to consider when they do something that affects the environment.

Please read Important Information About Your Species List (below). It explains how we made the list and describes your responsibilities under the Endangered Species Act.

Our database is constantly updated as species are proposed, listed and delisted. If you address proposed and candidate species in your planning, this should not be a problem. However, we recommend that you get an updated list every 90 days. That would be August 05, 2014.

Please contact us if your project may affect endangered or threatened species or if you have any questions about the attached list or your responsibilities under the Endangered Species Act. A list of Endangered Species Program contacts can be found http://www.fws.gov/sacramento/es/Branch-Contacts/es_branch-contacts.htm.

Endangered Species Division

TAKE PRIDE IN AMERICA

U.S. Fish & Wildlife Service

Sacramento Fish & Wildlife Office

Federal Endangered and Threatened Species that Occur in or may be Affected by Projects in the Counties and/or U.S.G.S. 7 1/2 Minute Quads you requested

Document Number: 140507085018

Current as of: May 7, 2014

Quad Lists

Listed Species

Invertebrates

Euphydryas editha bayensis

bay checkerspot butterfly (T)

Fish

Oncorhynchus mykiss

South Central California steelhead (T) (NMFS)

Amphibians

Ambystoma californiense

California tiger salamander, central population (T)

Rana draytonii

California red-legged frog (T)

Birds

Brachyramphus marmoratus

marbled murrelet (T)

Sternula antillarum (=Sterna, =albifrons) browni

California least tern (E)

Vireo bellii pusillus

Least Bell's vireo (E)

Mammals

Vulpes macrotis mutica

San Joaquin kit fox (E)

Quads Containing Listed, Proposed or Candidate Species:

CHITTENDEN (386A)

County Lists

Listed Species

Invertebrates

Branchinecta conservatio

Conservancy fairy shrimp (E)

S

Branchinecta lynchi
Critical habitat, vernal pool fairy shrimp (X)
vernal pool fairy shrimp (T)
S

Desmocerus californicus dimorphus
valley elderberry longhorn beetle (T)
S

Euphydryas editha bayensis
bay checkerspot butterfly (T)
S

Fish

Hypomesus transpacificus
delta smelt (T)
S

Oncorhynchus mykiss
South Central California steelhead (T) (NMFS)
S

Amphibians

Ambystoma californiense
California tiger salamander, central population (T)
Critical habitat, CA tiger salamander, central population (X)
S

Rana draytonii
California red-legged frog (T)
Critical habitat, California red-legged frog (X)
S

Reptiles

Gambelia (=Crotaphytus) sila
blunt-nosed leopard lizard (E)
S

Thamnophis gigas
giant garter snake (T)
S

Birds

Brachyramphus marmoratus

marbled murrelet (T)
S

Gymnogyps californianus
California condor (E)
S

Rallus longirostris obsoletus
California clapper rail (E)
S

Sternula antillarum (=Sterna, =albifrons) browni
California least tern (E)
S

Vireo bellii pusillus
Least Bell's vireo (E)
S

Mammals

Dipodomys ingens
giant kangaroo rat (E)
S

Dipodomys nitratoides exilis
Fresno kangaroo rat (E)
S

Vulpes macrotis mutica
San Joaquin kit fox (E)
S

Plants

Camissonia benitensis
San Benito evening-primrose (T)
S

Holocarpha macradenia
Critical habitat, Santa Cruz tarplant (X)
Santa Cruz tarplant (T)
S

Monolopia congdonii (=Lembertia congdonii)
San Joaquin woolly-threads (E)
S

Key:

(E) *Endangered* - Listed as being in danger of extinction.

(T) *Threatened* - Listed as likely to become endangered within the foreseeable future.

(P) *Proposed* - Officially proposed in the Federal Register for listing as endangered or threatened.

(NMFS) Species under the Jurisdiction of the National Oceanic & Atmospheric Administration Fisheries Service. Consult with them directly about these species.

Critical Habitat - Area essential to the conservation of a species.

(PX) *Proposed Critical Habitat* - The species is already listed. Critical habitat is being proposed for it.

(C) *Candidate* - Candidate to become a proposed species.

(V) Vacated by a court order. Not currently in effect. Being reviewed by the Service.

(X) *Critical Habitat* designated for this species

Important Information About Your Species List

How We Make Species Lists

We store information about endangered and threatened species lists by U.S. Geological Survey 7½ minute quads. The United States is divided into these quads, which are about the size of San Francisco.

The animals on your species list are ones that occur within, **or may be affected by** projects within, the quads covered by the list.

- Fish and other aquatic species appear on your list if they are in the same watershed as your quad or if water use in your quad might affect them.
- Amphibians will be on the list for a quad or county if pesticides applied in that area may be carried to their habitat by air currents.
- Birds are shown regardless of whether they are resident or migratory. Relevant birds on the county list should be considered regardless of whether they appear on a quad list.

Plants

Any plants on your list are ones that have actually been observed in the area covered by the list. Plants may exist in an area without ever having been detected there. You can find out what's in the surrounding quads through the California Native Plant Society's online Inventory of Rare and Endangered Plants.

Surveying

Some of the species on your list may not be affected by your project. A trained biologist and/or botanist, familiar with the habitat requirements of the species on your list, should determine whether they or habitats suitable for them may be affected by your project. We recommend that your surveys include any proposed and candidate species on your list.
See our Protocol and Recovery Permits pages.

For plant surveys, we recommend using the Guidelines for Conducting and

Reporting Botanical Inventories. The results of your surveys should be published in any environmental documents prepared for your project.

Your Responsibilities Under the Endangered Species Act

All animals identified as listed above are fully protected under the Endangered Species Act of 1973, as amended. Section 9 of the Act and its implementing regulations prohibit the take of a federally listed wildlife species. Take is defined by the Act as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect" any such animal.

> Take may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or shelter (50 CFR §17.3).

Take incidental to an otherwise lawful activity may be authorized by one of two procedures:

- If a Federal agency is involved with the permitting, funding, or carrying out of a project that may result in take, then that agency must engage in a formal consultation with the Service.

  During formal consultation, the Federal agency, the applicant and the Service work together to avoid or minimize the impact on listed species and their habitat. Such consultation would result in a biological opinion by the Service addressing the anticipated effect of the project on listed and proposed species. The opinion may authorize a limited level of incidental take.

- If no Federal agency is involved with the project, and federally listed species may be taken as part of the project, then you, the applicant, should apply for an incidental take permit. The Service may issue such a permit if you submit a satisfactory conservation plan for the species that would be affected by your project.

  Should your survey determine that federally listed or proposed species occur in the area and are likely to be affected by the project, we recommend that you work with this office and the California Department of Fish and Game to develop a plan that minimizes the project's direct and indirect impacts to listed species and compensates for project-related loss of habitat. You should include the plan in any environmental documents you file.

Critical Habitat

When a species is listed as endangered or threatened, areas of habitat considered essential to its conservation may be designated as critical habitat. These areas may require special management considerations or protection. They provide needed space for growth and normal behavior; food, water, air, light, other nutritional or physiological requirements; cover or shelter; and sites for breeding, reproduction, rearing of offspring, germination or seed dispersal.

Although critical habitat may be designated on private or State lands, activities on these lands are not restricted unless there is Federal involvement in the activities or direct harm to listed wildlife.

If any species has proposed or designated critical habitat within a quad, there will be a separate line for this on the species list. Boundary descriptions of the critical habitat may be found in the Federal Register. The information is also reprinted in the Code of Federal Regulations (50 CFR 17.95). See our Map Room page.

Candidate Species

We recommend that you address impacts to candidate species. We put plants and animals on our candidate list when we have enough scientific information to eventually propose them for listing as threatened or endangered. By considering these species early in your planning process you may be able to avoid the problems that could develop if one of these candidates was listed before the end of your project.

Species of Concern

The Sacramento Fish & Wildlife Office no longer maintains a list of species of concern. However, various other agencies and organizations maintain lists of at-risk species. These lists provide essential information for land management planning and conservation efforts. More info

Wetlands

If your project will impact wetlands, riparian habitat, or other jurisdictional waters as defined by section 404 of the Clean Water Act and/or section 10 of the Rivers and Harbors Act, you will need to obtain a permit from the U.S. Army Corps of Engineers. Impacts to wetland habitats require site specific mitigation and monitoring. For questions regarding wetlands, please contact Mark Littlefield of this office at (916) 414-6520.

Updates

Our database is constantly updated as species are proposed, listed and delisted. If you address proposed and candidate species in your planning, this should not be a problem. However, we recommend that you get an updated list every 90 days. That would be August 05, 2014.

Appendix D

****

Phase I & Asbestos Lead-Containing Paint Study

ASBESTOS AND LEAD-CONTAINING PAINT SURVEY REPORT

ANZAR ROAD BRIDGE
SAN BENITO COUNTY, CALIFORNIA

PREPARED FOR:
DAVID J. POWERS & ASSOCIATES, INC.
1871 THE ALAMEDA, SUITE 200
SAN JOSE, CALIFORNIA 95126

PREPARED BY:
GEOCON CONSULTANTS, INC.
6671 BRISA STREET
LIVERMORE, CALIFORNIA 94550

GEOCON

GEOCON PROJECT No. E8705-02-01 AUGUST 2013

Project No. E8705-02-01
August 31, 2013

Ms. Judy Fenerty
David J. Powers & Associates, Inc.
1871 The Alameda, Suite 200
San Jose, California 95126

Subject: ASBESTOS AND LEAD-CONTAINING PAINT SURVEY REPORT
ANZAR ROAD BRIDGE (43C-0039)
SAN BENITO COUNTY, CALIFORNIA

Dear Ms. Fenerty:

We have performed an asbestos and lead-containing paint survey at the subject bridge. The scope of services provided by Geocon included surveying the bridge for suspect asbestos-containing materials and paint, collecting bulk construction material and soil samples, and submitting the samples to laboratories for analyses.

The accompanying report summarizes the services performed and the results of laboratory testing.

The contents of this report reflect the views of Geocon, who are responsible for the facts and accuracy of the data presented herein. This report does not constitute a standard, specification, or regulation.

If there are questions concerning the contents of this report, or if we may be of further service, please contact us at your convenience.

Sincerely,

GEOCON CONSULTANTS, INC.

David Watts, CAC No. 98-2404
Senior Project Scientist

(2) Addressee

TABLE OF CONTENTS

ASBESTOS AND LEAD-CONTAINING PAINT SURVEY REPORT

Page

ASBESTOS AND LEAD-CONTAINING PAINT SURVEY REPORT

1.0 INTRODUCTION

1.1 Site Description

The subject site (Site) consists of the Anzar Road Bridge (43C-0039) over San Juan Creek at Post Mile 3.86 in San Benito County, California. The Site is depicted on the Vicinity Map (Figure 1), Site Plan (Figure 2), and in the Site Photographs. Geocon understands that the bridge is scheduled for demolition.

1.2 Objectives

Our objectives were to assess the potential presence and quantity of asbestos and lead-containing paint (LCP) at the Site prior to demolition. The information obtained from this investigation will be used by David J. Powers & Associates, Inc. for waste profiling, determining California Occupational Safety and Health Administration (Cal/OSHA) applicability, and coordinating potential asbestos and/or LCP disturbance activities.

> *It was <u>not</u> Geocon's intent during this inspection to conduct a U.S. Department of Housing and Urban Development (HUD) evaluation of lead paint hazards.*

2.0 BACKGROUND

2.1 Asbestos

The *Code of Federal Regulations (CFR),* 40 CFR 61, Subpart M, National Emissions Standards for Hazardous Air Pollutants (NESHAP) and Federal Occupational Safety and Health Administration (FED OSHA) classify asbestos-containing material (ACM) as any material or product that contains *greater than* 1% asbestos. Nonfriable ACM is classified by NESHAP as either Category I or Category II material defined as follows:

- **Category I** – asbestos-containing packings, gaskets, resilient floor coverings, and asphalt roofing products.
- **Category II** – all remaining types of nonfriable asbestos-containing material not included in Category I that when dry, cannot be crumbled, pulverized, or reduced to powder by hand pressure.

Regulated asbestos-containing material (RACM), a hazardous waste when friable, is classified as any manufactured material that contains *greater than* 1% asbestos by dry weight *and* is:

- Friable (can be crumbled, pulverized, or reduced to powder by hand pressure); or
- Category I material that has become friable; or
- Category I material that has been subjected to sanding, grinding, cutting, or abrading; or
- Category II nonfriable material that has a high probability of becoming crumbled, pulverized, or reduced to a powder during demolition or renovation activities.

Activities that disturb materials containing *any* amount of asbestos are subject to certain requirements of the Cal/OSHA asbestos standard contained in Title 8, CCR Section 1529. Typically, removal or disturbance of more than 100 square feet of material containing more than 0.1% asbestos must be performed by a registered asbestos abatement contractor, but associated waste labeling is not required if the material contains 1% or less asbestos. When the asbestos content of a material exceeds 1%, virtually all requirements of the standard become effective.

Materials containing more than 1% asbestos are also subject to NESHAP regulations (40 CFR Part 61, Subpart M). RACM (friable ACM and nonfriable ACM that will become friable during demolition operations) must be removed from structures prior to demolition. Certain nonfriable ACM and materials containing 1% or less asbestos may remain in structures during demolition; however, there are waste handling/disposal issues and Cal/OSHA work requirements that must be addressed. Contractors are responsible for segregating and characterizing waste streams prior to disposal.

With respect to potential worker exposure, notification, and registration requirements, Cal/OSHA defines asbestos-containing construction material (ACCM) as construction material that contains more than 0.1% asbestos (Title 8, CCR 341.6).

2.2 Lead

Construction activities (including demolition) that disturb materials or paints containing *any* amount of lead are subject to certain requirements of the Cal/OSHA lead standard contained in Title 8, CCR, Section 1532.1. Deteriorated paint is defined by Title 17, CCR, Division 1, Chapter 8, §35022 as a surface coating that is cracking, chalking, flaking, chipping, peeling, non-intact, failed, or otherwise separating from a substrate. Demolition of a deteriorated LCP component would require waste characterization and appropriate disposal. Intact LCP on a component is currently accepted by most landfills and recycling facilities; however, contractors are responsible for segregating and characterizing waste streams prior to disposal.

For a solid waste containing lead, the waste is classified as California hazardous when: 1) the total lead content equals or exceeds the respective Total Threshold Limit Concentration (TTLC) of 1,000 milligrams per kilogram (mg/kg); or 2) the soluble lead content equals or exceeds the respective Soluble Threshold Limit Concentration (STLC) of 5 milligrams per liter (mg/l) based on the standard Waste Extraction Test (WET). A waste has the potential for exceeding the lead STLC when the waste's total lead content is greater than or equal to ten times the respective STLC value since the WET uses a 1:10 dilution ratio. Hence, when total lead is detected at a concentration greater than or equal to 50 mg/kg, and assuming that 100 percent of the total lead is soluble, soluble lead analysis is required. Lead-containing waste is classified as "Resource, Conservation, and Recovery Act" (RCRA) hazardous, or Federal hazardous, when the soluble lead content equals or exceeds the Federal regulatory level of 5 mg/l based on the Toxicity Characteristic Leaching Procedure (TCLP).

The above regulatory criteria are based on chemical concentrations. Wastes may also be classified as hazardous based on other criteria such as ignitability; however, for the purposes of this investigation, toxicity (i.e., lead concentration) is the primary factor considered for waste classification since waste generated during the construction activities would not likely warrant testing for ignitability or other criteria. Waste that is classified as either California-hazardous or RCRA-hazardous requires management as a hazardous waste.

Potential hazards exist to workers who remove or cut through LCP coatings during demolition. Dust containing hazardous concentrations of lead may be generated during scraping or cutting materials coated with lead-containing paint. Torching of these materials may produce lead oxide fumes. Therefore, air monitoring and/or respiratory protection may be required during the demolition of materials coated with LCP. Guidelines regarding regulatory provisions for construction work where workers may be exposed to lead are presented in Title 8, CCR, Section 1532.1.

3.0 SCOPE OF SERVICES

Mr. David Watts, a California-Certified Asbestos Consultant (CAC), certification No. 98-2404 (expiration September 16, 2014), and Certified Lead Paint Inspector/Assessor and Project Monitor with the California Department of Public Health (DPH), certification numbers I-1734 and M-1734 (expiration December 4, 2014), performed the asbestos and LCP survey at the Site on August 2, 2013.

3.1 Asbestos

Suspect ACM were grouped into homogeneous areas with representative samples randomly collected from each. In addition, each potential ACM was evaluated for quantity and friability. A total of eight asbestos samples (representing four suspect construction materials) and one, four-part composite soil sample were collected during our survey.

Geocon's procedures for inspection and sampling are discussed below:

- Collected bulk asbestos samples after first wetting friable materials with a light mist of water. The samples were then cut from the substrate and transferred to labeled containers. Note that when multiple samples were collected, the sampling locations were distributed throughout the homogeneous area (spaces where the material was observed). The four-part soil sample was field homogenized prior to delivery to the laboratory.
- Relinquished bulk asbestos material and soil samples to EMSL Analytical, Inc., a California-licensed laboratory, for asbestos analysis in accordance with EPA Test Method 600/R-93/116 and California Air Resources Board Method 435(A), respectively, using polarized light microscopy (PLM) under standard chain-of-custody procedures. EMSL Analytical, Inc. is a laboratory accredited by the National Institute of Standards and Technology National

Voluntary Laboratory Accreditation Program (NIST-NVLAP) for bulk asbestos fiber analysis. The laboratory analyses were requested on a 120-hour turnaround.

Sample group identification numbers, material descriptions, approximate quantities, and friability assessments are summarized in Table 1. Sample locations are presented on the Site Plan. Materials represented by the samples collected are shown in the Site Photographs.

3.2 Lead

Four bulk samples of suspect LCP were collected during our survey. Mr. Watts field composited the suspect LCP samples into two paint schemes prior to submittal to the laboratory. We observed no deteriorated suspect LCP during our survey.

Four 1-foot soil samples (0 to 1 foot below ground surface) were also collected during our survey. Soil samples were field homogenized prior to delivery to the laboratory.

Our sampling procedures are discussed below:

- Collected bulk LCP samples using techniques presented in HUD guidelines. The painted areas were evaluated for deterioration. Soil samples were collected using hand augers.
- Relinquished samples under chain-of-custody protocol to McCampbell Analytical, Inc. (MAI), a California-licensed and Caltrans-approved subcontractor, for lead analysis in accordance with EPA Test Method 6010B. MAI is accredited by the DPH for lead analysis. The laboratory analyses were requested on a 120-hour turnaround.

Sample identification numbers, descriptions, and peeling/flaking quantities are summarized in Table 2. The approximate sample locations are presented on the Site Plan. Materials represented by the samples collected are shown in the Site Photographs.

4.0 INVESTIGATIVE RESULTS

4.1 Asbestos

Chrysotile asbestos at a concentration of 3% was detected in samples representing approximately 5 square feet of nonfriable asphalt coating used on iron pipe attached to the north side of the bridge span.

No asbestos was detected in samples of the remaining materials or soil. A summary of the analytical laboratory test results for paint is presented in Table 1. Reproductions of the laboratory report and chain-of-custody documentation are presented in Appendix A.

4.2 Lead

The composite sample representing white paint used on the bridge barriers exhibited a total lead concentration of 6.6 mg/kg.

The composite sample representing yellow traffic striping exhibited a total lead concentration of 1,700 mg/kg. Additional analysis of the sample indicated TCLP lead was not detected at or above the method detection limit of 0.2 mg/l.

Samples of soils collected during our survey exhibited total lead concentrations ranging from 18 to 110 mg/kg. Additional analysis of the soil samples indicated WET lead concentrations of 2.2 and 1.5 mg/l.

A summary of the analytical laboratory test results for paint is presented in Table 2. Reproductions of the laboratory report and chain-of-custody documentation are presented in Appendix A.

5.0 CONCLUSIONS AND RECOMMENDATIONS

5.1 Asbestos

NESHAP regulations do not require that nonfriable asphalt coating (a Category I nonfriable/nonhazardous material) identified during our survey be removed prior to demolition or be treated as hazardous waste. The piping may also be reused or stored for future reuse. However, *disturbance* of the material is still covered by the Cal/OSHA asbestos standard (Title 8, CCR Section 1529).

We also recommend the notification of contractors (that will be conducting demolition or related activities) of the presence of asbestos in their work areas (i.e., provide the contractor[s] with a copy of this report). Personnel not trained for asbestos work should be instructed not to disturb asbestos.

Contractors are responsible for informing the landfill of the contractor's intent to dispose of asbestos waste. Some landfills and recycling facilities may require additional waste characterization. Contractors are responsible for segregating and characterizing waste streams prior to disposal.

In accordance with Monterey Bay Unified Air Pollution Control District requirements, written notification is required ten working days prior to commencement of *any* demolition activity (whether asbestos is present or not).

5.2 Lead

Yellow traffic striping identified during our survey would be classified as a California hazardous waste based on lead content if stripped, blasted, or otherwise separated from the asphalt substrate.

White paint and soil represented by samples collected during our survey would not be considered a California or Federal hazardous waste based on lead content.

We recommend that paints and soil at the Site be treated as lead-containing for purposes of determining the applicability of the Cal/OSHA lead standard during demolition activities. This recommendation is based on sample results and the fact that lead was a common ingredient of paints manufactured before 1978 and is still an ingredient of some paints. Compliance and training requirements regarding construction activities where workers may be exposed to lead are presented in Title 8, CCR, Section 1532.1, subsections (e) and (l), respectively. Contractors are responsible for segregating and characterizing waste streams prior to disposal.

6.0 REPORT LIMITATIONS

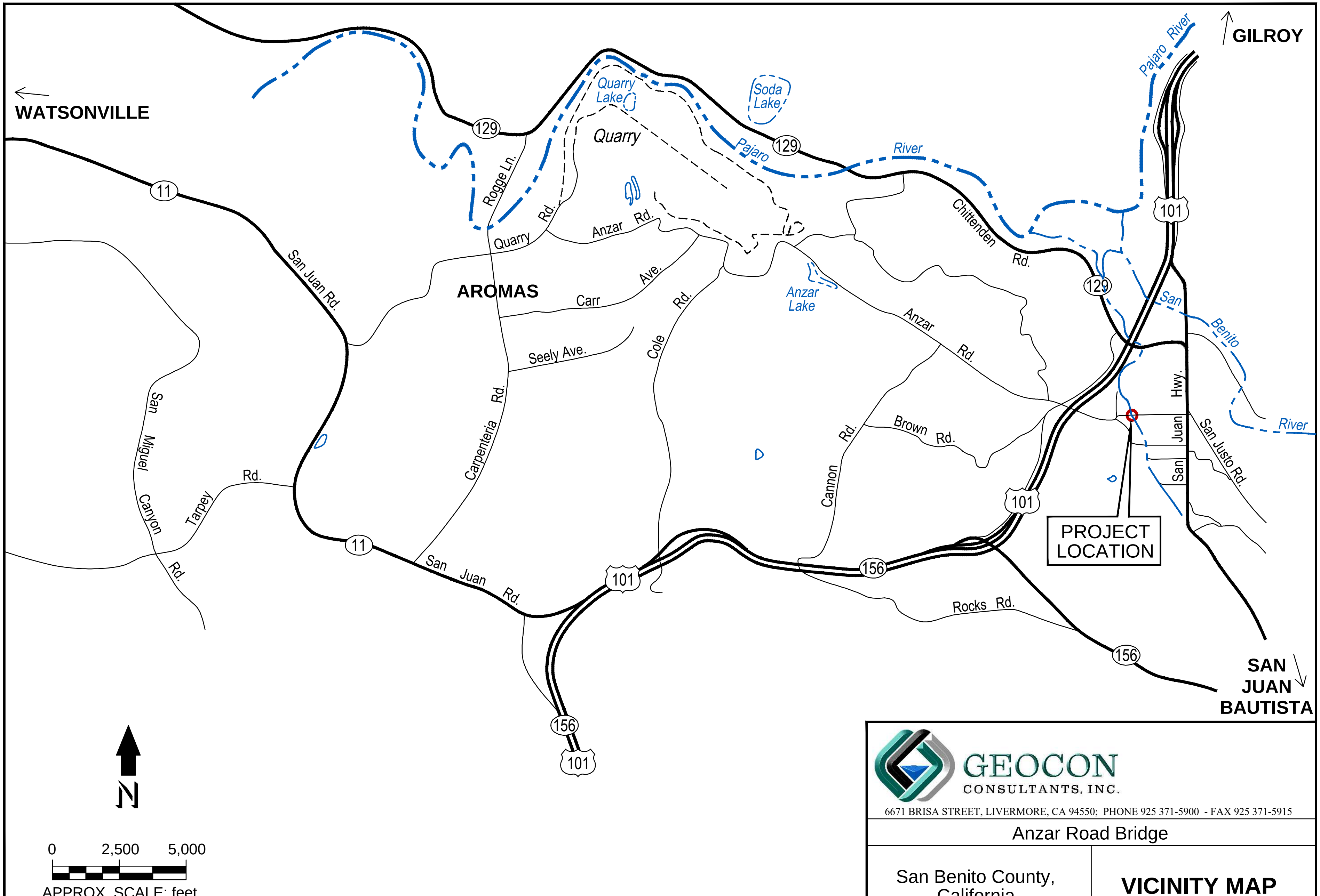
This report has been prepared exclusively for David J. Powers & Associates, Inc. The information contained herein is only valid as of the date of the report and will require an update to reflect additional information obtained.

Our asbestos and LCP survey was conducted in conformance with generally accepted standards of practice for identifying and evaluating asbestos and LCP in structures. The survey addressed only the structure identified in Section 1.1. Due to the nature of structure surveys, asbestos and LCP use, and laboratory analytical limitations, some asbestos or LCP may not have been identified. Spaces, such as cavities, crawlspaces, voids, and pipe chases, may have been concealed to our investigator. Previous retrofit/rehabilitation work may have concealed or covered spaces or materials, or may have partially demolished materials and left debris in inaccessible areas. Additionally, retrofit/rehabilitation activities may have partially replaced asbestos with indistinguishable non-asbestos. Asbestos and/or LCP may exist in areas not accessible or sampled in conjunction with our scope of services.

During retrofit/rehabilitation or demolition operations, suspect materials may be uncovered which are different from those accessible for sampling during this assessment. Personnel in charge of retrofit/rehabilitation or demolition should be alerted to note materials uncovered during such activities that differ substantially from those included in this or previous assessment reports. If additional suspect materials are found, they should be treated as ACM and/or LCP until/unless sampling and analysis indicate otherwise.

This report is not a comprehensive site characterization and should not be construed as such. The findings as presented in this report are predicated on the results of the limited sampling and laboratory testing performed. In addition, the information obtained is not intended to address potential impacts related to sources other than those specified herein. Therefore, the report should be deemed conclusive with respect to only the information obtained. We make no warranty, express or implied, with respect to the content of this report or any subsequent reports, correspondence, or consultation. Geocon strived to perform the services summarized herein in accordance with the local standard of care in the geographic region at the time the services were rendered.

The contents of this report reflect the views of the author who is responsible for the facts and accuracy of the data presented herein. This report does not constitute a standard, specification, or regulation.



GEOCON
CONSULTANTS, INC.

6671 BRISA STREET, LIVERMORE, CA 94550; PHONE 925 371-5900 - FAX 925 371-5915

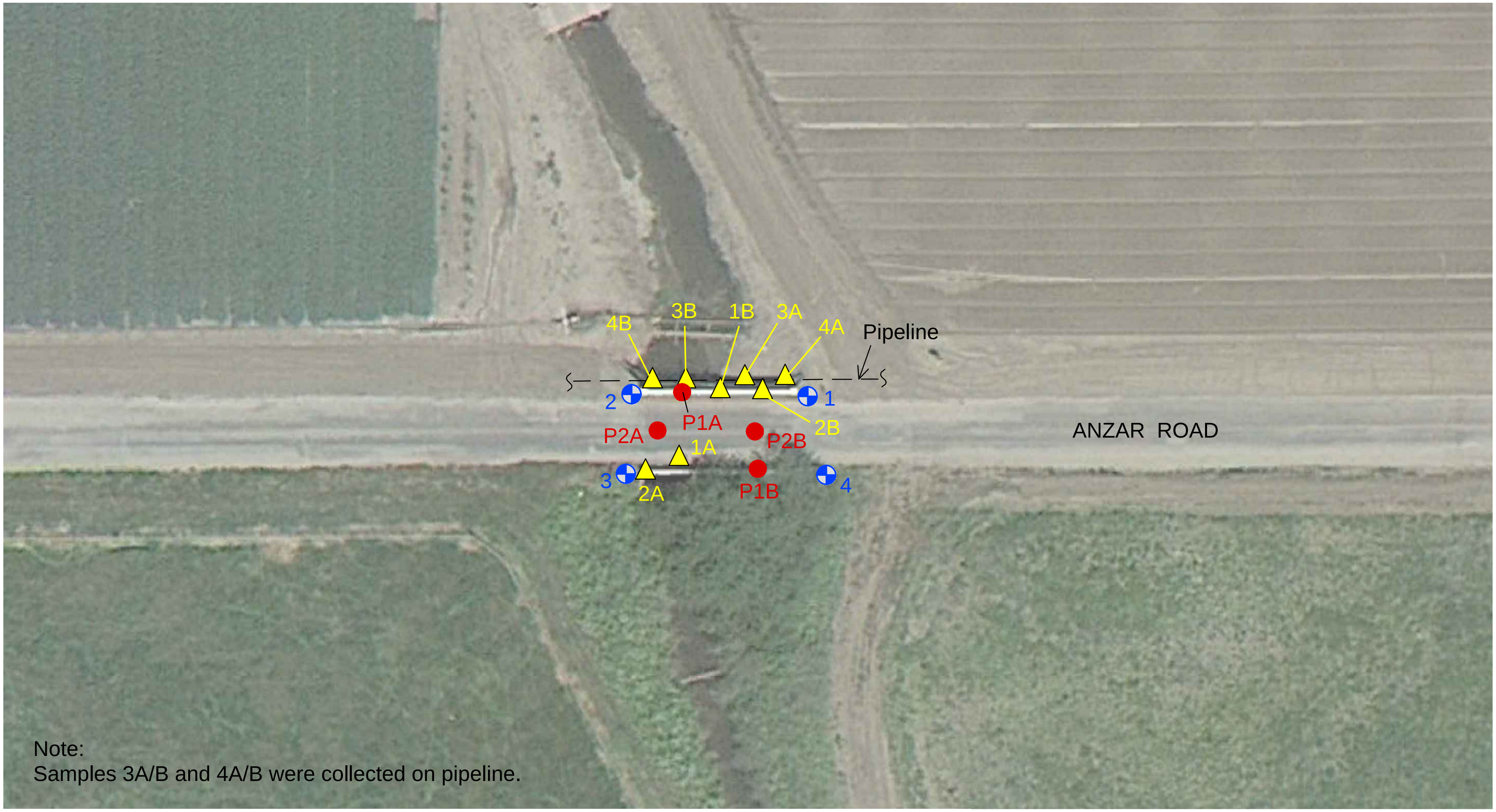
Anzar Road Bridge

San Benito County, California

VICINITY MAP

GEOCON Proj. No. E8705-02-01	August 2013	Figure 1

SITE0813



LEGEND:
- Approximate Soil Sample Location
- Approximate Asbestos Sample Location
- Approximate Paint Sample Location

N

0 20 40
APPROX. SCALE: feet

GEOCON
CONSULTANTS, INC.
6671 BRISA STREET, LIVERMORE, CA 94550; PHONE 925 371-5900 - FAX 925 371-5915

Anzar Road Bridge		
San Benito County, California	**SITE PLAN**	
GEOCON Proj. No. E8705-02-01	August 2013	Figure 2

SITE0813

Photo 1 – Anzar Road Bridge (43C-0039) at San Juan Creek, Post Mile 3.86 in San Benito County, California

Photo 2 – Bridge deck and barriers

Photo 3 – West abutment and span

GEOCON
CONSULTANTS, INC.
6671 BRISA STREET – LIVERMORE, CA 94550
PHONE 925.371.5900 – FAX 925.371.5915

PHOTOGRAPHS 1, 2, & 3		
Anzar Road Bridge San Benito County, California		
E8705-02-01		August 2013

Photo 4 – East abutment and span

Photo 5 – Iron pipe attached to north side of bridge span

Photo 6 – West approach

GEOCON CONSULTANTS, INC.
6671 BRISA STREET – LIVERMORE, CA 94550
PHONE 925.371.5900 – FAX 925.371.5915

PHOTOGRAPHS 4, 5, & 6		
Anzar Road Bridge San Benito County, California		
E8705-02-01		August 2013

TABLE 1
SUMMARY OF ASBESTOS ANALYTICAL RESULTS
ANZAR ROAD BRIDGE REPLACEMENT PROJECT
SAN BENITO COUNTY, CALIFORNIA

Polarized Light Microscopy (PLM) - EPA Test Method 600/R-93/116

Sample Group No.	Description of Material	Approximate Quantity	Friable	Site Photos	Asbestos Content
1	Concrete	NA	NA	1 through 6	ND
2	Textured paint (barriers)	NA	NA	1, 2, and 6	ND
3	Pipe wrap	NA	NA	2 and 5	ND
4	**Asphalt pipe coating**	**5 square feet**	**No**	**2 and 5**	**3%**
S1 - 4 COMP	Soil	NA	NA	1, 5, and 6	ND*

Notes:

NA = Not applicable (no asbestos detected)

ND = Not detected

* Soil analyzed using California Air Resources Board Method 435(A)

TABLE 2
SUMMARY OF LEAD ANALYTICAL RESULTS - TOTAL AND SOLUBLE
ANZAR ROAD BRIDGE REPLACEMENT PROJECT
SAN BENITO COUNTY, CALIFORNIA

Sample No.	Description	Approximate Quantity Peeling/Flaking	Site Photos	Total Lead (mg/kg)	WET Lead (mg/l)	TCLP Lead (mg/l)
P1A/B	White paint (barriers)	Intact	1, 2, and 6	6.6	---	---
P2A/B	Yellow paint (traffic striping)	Intact	1 and 6	1,700	---	<0.2
S1	Soil	NA	1, 5, and 6	18	---	---
S2	Soil	NA		38	---	---
S3	Soil	NA		110	2.2	---
S4	Soil	NA		50	1.5	---

Notes:

mg/kg = milligrams per kilogram (EPA Test Method 6010B)
WET = Waste Extraction Test (EPA Test Method 6010B)
mg/l = milligrams per liter
TCLP = Toxicity Characteristic Leaching Procedure (EPA Test Method 1311/6010B)
--- = Not analyzed
< = Not detected at or above the indicated method detection limit

APPENDIX A

EMSL Analytical, Inc
2235 Polvorosa Ave , Suite 230, San Leandro, CA 94577
Phone/Fax: (510) 895-3675 / (510) 895-3680
http://www.EMSL.com sanleandrolab@emsl.com

EMSL Order:	091312595
CustomerID:	GECN21
CustomerPO:	E8705-02-01
ProjectID:	

Attn: **Dave Watts**
Geocon Consultants, Inc.
6671 Brisa Street

Livermore, CA 94550

Project: **E8705-02-01 ANZAR RD**

Phone:	(925) 371-5900
Fax:	(925) 371-5915
Received:	08/02/13 1:30 PM
Analysis Date:	8/9/2013
Collected:	8/2/2013

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
1A Concrete *091312595-0001*	CONCRETE	Gray Non-Fibrous Homogeneous		100% Non-fibrous (other)	**None Detected**
1B Concrete *091312595-0002*	CONCRETE	Gray Non-Fibrous Homogeneous		100% Non-fibrous (other)	**None Detected**
2A Paint *091312595-0003*	TEXTURED PAINT	White Non-Fibrous Homogeneous		100% Non-fibrous (other)	**None Detected**
2B Paint *091312595-0004*	TEXTURED PAINT	White Non-Fibrous Homogeneous		100% Non-fibrous (other)	**None Detected**
3A Pipe Wrap *091312595-0005*	PIPE WRAP	Black Non-Fibrous Homogeneous		100% Non-fibrous (other)	**None Detected**
3B Pipe Wrap *091312595-0006*	PIPE WRAP	Black Non-Fibrous Homogeneous		100% Non-fibrous (other)	**None Detected**
4A Pipe Coating *091312595-0007*	ASPHALT PIPE COATING	Black Fibrous Homogeneous		97% Non-fibrous (other)	**3% Chrysotile**
4B Pipe Coating *091312595-0008*	ASPHALT PIPE COATING	Black Fibrous Homogeneous		97% Non-fibrous (other)	**3% Chrysotile**

Analyst(s)
Nonette Patron (8)

Baojia Ke, Laboratory Manager
or other approved signatory

Samples analyzed by EMSL Analytical, Inc San Leandro, CA NVLAP Lab Code 101048-3, WA C884

Initial report from 08/09/2013 13:50:07

EMSL Analytical, Inc
2235 Polvorosa Ave , Suite 230, San Leandro, CA 94577
Phone/Fax: (510) 895-3675 / (510) 895-3680
http://www.EMSL.com sanleandrolab@emsl.com

EMSL Order:	091312595
CustomerID:	GECN21
CustomerPO:	E8705-02-01
ProjectID:	

Attn: **Dave Watts**
Geocon Consultants, Inc.
6671 Brisa Street

Livermore, CA 94550

Project: **E8705-02-01 ANZAR RD**

Phone:	(925) 371-5900
Fax:	(925) 371-5915
Received:	08/02/13 1:30 PM
Analysis Date:	8/9/2013
Collected:	8/2/2013

Test Report: PLM Analysis of Bulk Samples for Asbestos via EPA 600/R-93/116 Method with CARB 435 Prep (Milling) Level A for 0.25% Target Analytical Sensitivity

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
S1-4 COMP *091312595-0009*	SOIL	Brown Non-Fibrous Homogeneous		100.00% Non-fibrous (other)	**None Detected**

Analyst(s)

Nonette Patron (1)

Baojia Ke, Laboratory Manager
or other approved signatory

Initial report from 08/09/2013 13:51:51

091312595

EMSL ANALYTICAL, INC.
LABORATORY • PRODUCTS • TRAINING

Asbestos Chain of Custody

EMSL Order Number (Lab Use Only):
#091312595

EMSL ANALYTICAL, INC.
2235 POLVOROSA DR., STE. 230
SAN LEANDRO, CA 94577
PHONE: (510) 895-3675
FAX: (510) 895-3680

Company: GEOCON	EMSL-Bill to: ☒ Same ☐ Different If Bill to is Different note instructions in Comments**
Street: 6671 BRISA St	Third Party Billing requires written authorization from third party
City: LIVERMORE State/Province: CA	Zip/Postal Code: 94550 Country: USA
Report To (Name): D. WATTS	Fax #: 925-371-5915
Telephone #: 925-371-5900	Email Address: WATTS@GEOCONINC.COM
Project Name/Number: E8705-02-01 ANZAR RD	
Please Provide Results: ☐ Fax ☒ Email / Purchase Order:	U.S. State Samples Taken: CA

Turnaround Time (TAT) Options* – Please Check

☐ 3 Hour ☐ 6 Hour ☐ 24 Hour ☐ 48 Hour ☐ 72 Hour ☐ 96 Hour ☒ 1 Week ☐ 2 Week

**For TEM Air 3 hours/6 hours, please call ahead to schedule.*There is a premium charge for 3 Hour TEM AHERA or EPA Level II TAT. You will be asked to sign an authorization form for this service. Analysis completed in accordance with EMSL's Terms and Conditions located in the Analytical Price Guide.*

PCM - Air
- ☐ NIOSH 7400
- ☐ w/ OSHA 8hr. TWA

PLM - Bulk (reporting limit)
- ☒ PLM EPA 600/R-93/116 (<1%)
- ☐ PLM EPA NOB (<1%)

Point Count
- ☐ 400 (<0.25%) ☐ 1000 (<0.1%)

Point Count w/Gravimetric
- ☐ 400 (<0.25%) ☐ 1000 (<0.1%)
- ☐ NYS 198.1 (friable in NY)
- ☐ NYS 198.6 NOB (non-friable-NY)
- ☐ NIOSH 9002 (<1%)

TEM – Air ☐ 4-4.5hr TAT (AHERA only)
- ☐ AHERA 40 CFR, Part 763
- ☐ NIOSH 7402
- ☐ EPA Level II
- ☐ ISO 10312

TEM - Bulk
- ☐ TEM EPA NOB
- ☐ NYS NOB 198.4 (non-friable-NY)
- ☐ Chatfield SOP
- ☐ TEM Mass Analysis-EPA 600 sec. 2.5

TEM – Water: EPA 100.2
- Fibers >10µm ☐ Waste ☐ Drinking
- All Fiber Sizes ☐ Waste ☐ Drinking

TEM- Dust
- ☐ Microvac - ASTM D 5755
- ☐ Wipe - ASTM D6480
- ☐ Carpet Sonication (EPA 600/J-93/167)

Soil/Rock/Vermiculite
- * ☐ PLM CARB 435 - A (0.25% sensitivity)
- ☐ PLM CARB 435 - B (0.1% sensitivity)
- ☐ TEM CARB 435 - B (0.1% sensitivity)
- ☐ TEM CARB 435 - C (0.01% sensitivity)
- ☐ EPA Protocol (Semi-Quantitative)
- ☐ EPA Protocol (Quantitative)

Other:
- ☐

☐ **Check For Positive Stop – Clearly Identify Homogenous Group**

Samplers Name: D. WATTS Samplers Signature: WATTS

Sample #	Sample Description	Volume/Area (Air) HA # (Bulk)	Date/Time Sampled
1A/B	CONCRETE	NA	2 AUG 2013
2	TEXTURED PAINT		
3	PIPE WRAP		
4	ASPHALT PIPE COATING		
S1-4 COMP	SOIL *	NA	2 AUG 2013

Client Sample # (s): Total # of Samples: 9

Relinquished (Client): WATTS Date: 8/2/13 Time: 1335

Received (Lab): Date: RECEIVED AUG 02 2013 Time: 1:30 pm

Comments/Special Instructions:

* ANALYZE SOIL SAMPLE USING CARB 435A CWF

Angy

McCampbell Analytical, Inc. "When Quality Counts"	1534 Willow Pass Road, Pittsburg, CA 94565-1701 Toll Free Telephone: (877) 252-9262 / Fax: (925) 252-9269 http://www.mccampbell.com / E-mail: main@mccampbell.com

Analytical Report

GEOCON Env. Consultants 6671 Brisa St Livermore, CA 94550	Client Project ID: #E8705-02-01; ANZAR RD	Date Sampled: 08/02/13
		Date Received: 08/02/13
	Client Contact: David A. Watts	Date Reported: 08/07/13
	Client P.O.:	Date Completed: 08/05/13

WorkOrder: 1308092

August 08, 2013

Dear David:

Enclosed within are:

1) The results of the **6** analyzed samples from your project: **#E8705-02-01; ANZAR RD,**
2) QC data for the above samples, and
3) A copy of the chain of custody.

All analyses were completed satisfactorily and all QC samples were found to be within our control limits. If you have any questions or concerns, please feel free to give me a call. Thank you for choosing McCampbell Analytical Laboratories for your analytical needs.

Best regards,

Angela Rydelius
Laboratory Manager
McCampbell Analytical, Inc.

The analytical results relate only to the items tested.

1308092

McCampbell Analytical, Inc.

1534 Willow Pass Rd. / Pittsburg, Ca. 94565-1701
www.mccampbell.com / main@mccampbell.com
Telephone: (877) 252-9262 / Fax: (925) 252-9269

CHAIN OF CUSTODY RECORD

TURN AROUND TIME ☐ RUSH ☐ 24 HR ☐ 48 HR ☐ 72 HR ☒ 5 DAY

GeoTracker EDF ☐ PDF ☒ Excel ☐ Write On (DW) ☐
☐ Check if sample is effluent and "J" flag is required

Report To: D. WATTS Bill To: SAME
Company: 6671 BRISA ST.
LIVERMORE, CA 94550
E-Mail:
Tele: (925) 371-5900 Fax: (925) 371-5915
Project #: E8705-02-01 Project Name: D. WATTS
Project Location: ANZAR RD
Sampler Signature: WATT

SAMPLE ID	LOCATION/ Field Point Name	SAMPLING Date	SAMPLING Time	# Containers	Type Containers	MATRIX Water	MATRIX Soil	MATRIX Air	MATRIX Sludge	MATRIX Other	METHOD PRESERVED ICE	METHOD PRESERVED HCL	METHOD PRESERVED HNO_3	METHOD PRESERVED Other	BTEX & TPH as Gas (602 / 8021 + 8015) / MTBE	TPH as Diesel (8015)	Total Petroleum Oil & Grease (1664 / 5520 E/B&F)	Total Petroleum Hydrocarbons (418.1)	EPA 502.2 / 601 / 8010 / 8021 (HVOCs)	MTBE / BTEX ONLY (EPA 602 / 8021)	EPA 505/ 608 / 8081 (Cl Pesticides)	EPA 608 / 8082 PCB's ONLY; Aroclors / Congeners	EPA 507 / 8141 (NP Pesticides)	EPA 515 / 8151 (Acidic Cl Herbicides)	EPA 524.2 / 624 / 8260 (VOCs)	EPA 525.2 / 625 / 8270 (SVOCs)	EPA 8270 SIM / 8310 (PAHs / PNAs)	CAM 17 Metals (200.7 / 200.8 / 6010 / 6020)	LUFT 5 Metals (200.7 / 200.8 / 6010 / 6020)	Lead (200.7 / 200.8 / 6010 / 6020)	Filter sample for DISSOLVED metals analysis	Other	Other	Comments
P1A/B	PAINT	8/2/13	VAR	1	Bg					X PAINT																				X				**Indicate here if these samples are potentially dangerous to handle:
P2A/B	↓		↓							↓																								
S1	SOIL		1117				X																											
2			1141																															
3			1154																															
↓ 4	↓	↓	1211	↓	↓		↓																							↓				

**MAI clients MUST disclose any dangerous chemicals known to be present in their submitted samples in concentrations that may cause immediate harm or serious future health endangerment as a result of brief, gloved, open air, sample handling by MAI staff. Non-disclosure incurs an immediate $250 surcharge and the client is subject to full legal liability for harm suffered. Thank you for your understanding and for allowing us to work safely.

Relinquished By:	Date:	Time:	Received By:
WATT	8/2/13	1430	[signature]
Relinquished By:	Date:	Time:	Received By:
Relinquished By:	Date:	Time:	Received By:

ICE/t° ______
GOOD CONDITION ______
HEAD SPACE ABSENT ______
DECHLORINATED IN LAB ______
APPROPRIATE CONTAINERS ______
PRESERVED IN LAB ______

PRESERVATION ______ VOAS O&G METALS OTHER
pH<2

COMMENTS:
Anticipate Soluble Requests

McCampbell Analytical, Inc.

1534 Willow Pass Rd
Pittsburg, CA 94565-1701
(925) 252-9262

CHAIN-OF-CUSTODY RECORD

WorkOrder: 1308092 **ClientCode: GECL**

☐ WaterTrax ☐ WriteOn ☐ EDF ☐ Excel ☐ EQuIS ☑ Email ☐ HardCopy ☐ ThirdParty ☐ J-flag

Report to:
David A. Watts
GEOCON Env. Consultants
6671 Brisa St
Livermore, CA 94550
(925) 371-5900 FAX: 925-371-5915

Email: watts@geoconinc.com; Livermore@geoco
cc:
PO:
ProjectNo: #E8705-02-01; ANZAR RD

Bill to:
Accounts Payable
GEOCON Env. Consultants
6671 Brisa St
Livermore, CA 94550

Requested TAT: **5 days**

Date Received: **08/02/2013**
Date Printed: **08/02/2013**

Lab ID	Client ID	Matrix	Collection Date	Hold	Requested Tests (See legend below) 1	2	3	4	5	6	7	8	9	10	11	12
1308092-001	P1A/B	Paint Chips	8/2/2013	☐	A											
1308092-002	P2A/B	Paint Chips	8/2/2013	☐	A											
1308092-003	S1	Soil	8/2/2013 11:17	☐	A											
1308092-004	S2	Soil	8/2/2013 11:41	☐	A											
1308092-005	S3	Soil	8/2/2013 11:54	☐	A											
1308092-006	S4	Soil	8/2/2013 12:11	☐	A											

Test Legend:

1	PB_S	2		3		4		5	
6		7		8		9		10	
11		12							

Prepared by: Yolanda Jacinto

Comments:

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days).
Hazardous samples will be returned to client or disposed of at client expense.

McCampbell Analytical, Inc.
"When Quality Counts"

1534 Willow Pass Road, Pittsburg, CA 94565-1701
Toll Free Telephone: (877) 252-9262 / Fax: (925) 252-9269
http://www.mccampbell.com / E-mail: main@mccampbell.com

Sample Receipt Checklist

Client Name:	**GEOCON Env. Consultants**	Date and Time Received:	**8/2/2013 3:51:38 PM**
Project Name:	**#E8705-02-01; ANZAR RD**	LogIn Reviewed by:	Yolanda Jacinto
WorkOrder N°:	**1308092** Matrix: Paint Chips/Soil	Carrier:	Client Drop-In

Chain of Custody (COC) Information

Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Sample IDs noted by Client on COC?	Yes ☑	No ☐	
Date and Time of collection noted by Client on COC?	Yes ☑	No ☐	
Sampler's name noted on COC?	Yes ☑	No ☐	

Sample Receipt Information

Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	NA ☑
Shipping container/cooler in good condition?	Yes ☑	No ☐	
Samples in proper containers/bottles?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	

Sample Preservation and Hold Time (HT) Information

All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature	Cooler Temp:		NA ☑
Water - VOA vials have zero headspace / no bubbles?	Yes ☐	No ☐	No VOA vials submitted ☑
Sample labels checked for correct preservation?	Yes ☑	No ☐	
Metal - pH acceptable upon receipt (pH<2)?	Yes ☐	No ☐	NA ☑
Samples Received on Ice?	Yes ☐	No ☑	

** NOTE: If the "No" box is checked, see comments below.*

Comments:

McCampbell Analytical, Inc.
"When Quality Counts"

1534 Willow Pass Road, Pittsburg, CA 94565-1701
Toll Free Telephone: (877) 252-9262 / Fax: (925) 252-9269
http://www.mccampbell.com / E-mail: main@mccampbell.com

GEOCON Env. Consultants 6671 Brisa St Livermore, CA 94550	Client Project ID: #E8705-02-01; ANZAR RD	Date Sampled: 08/02/13 Date Received: 08/02/13
	Client Contact: David A. Watts	Date Extracted: 08/02/13
	Client P.O.:	Date Analyzed: 08/05/13

Lead by ICP*

Extraction method: SW3050B   Analytical methods: SW6010B   Work Order: 1308092

Lab ID	Client ID	Matrix	Extraction Type	Lead	DF	% SS	Comments
1308092-001A	P1A/B	C	TOTAL	6.6	1	98	
1308092-002A	P2A/B	C	TOTAL	1700	1	107	
1308092-003A	S1	S	TOTAL	18	1	104	
1308092-004A	S2	S	TOTAL	38	1	103	
1308092-005A	S3	S	TOTAL	110	1	103	
1308092-006A	S4	S	TOTAL	50	1	107	

Reporting Limit for DF =1; ND means not detected at or above the reporting limit				
	W	TOTAL	NA	µg/L
	S	TOTAL	5.0	mg/Kg

*water samples are reported in µg/L, product/oil/non-aqueous liquid samples and all TCLP / STLC / DISTLC / SPLP extracts are reported in mg/L, soil/sludge/solid samples in mg/kg, wipe samples in µg/wipe, filter samples in µg/filter.

means surrogate diluted out of range; ND means not detected above the reporting limit/method detection limit; N/A means not applicable to this sample or instrument.

TOTAL = Hot acid digestion of a representative sample aliquot.
TRM = Total recoverable metals is the "direct analysis" of a sample aliquot taken from its acid-preserved container.
DISS = Dissolved metals by direct analysis of 0.45 µm filtered and acidified sample.

%SS = Percent Recovery of Surrogate Standard
DF = Dilution Factor

CDPH ELAP 1644 ♦ NELAP 12283CA   AR Analyst's Initial   AR Angela Rydelius, Lab Manager

McCampbell Analytical, Inc.
"When Quality Counts"
1534 Willow Pass Road, Pittsburg, CA 94565-1701
Toll Free Telephone: (877) 252-9262 / Fax: (925) 252-9269
http://www.mccampbell.com / E-mail: main@mccampbell.com

QC SUMMARY REPORT FOR 6010B

W.O. Sample Matrix: Soil | QC Matrix: Soil | BatchID: 80067 | WorkOrder: 1308092

EPA Method: SW6010B	Extraction: SW3050B					Spiked Sample ID: 1308044-001A			
Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	Acceptance Criteria (%)		
	mg/Kg	mg/Kg	% Rec.	% Rec.	% RPD	% Rec.	MS / MSD	RPD	LCS
Lead	58	50	NR	NR	NR	104	N/A	N/A	75 - 125
%SS:	108	500	104	108	2.92	103	70 - 130	20	70 - 130

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

BATCH 80067 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
1308092-001A	08/02/13	08/02/13	08/05/13 4:37 PM				

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

N/A = not applicable to this method.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

CDPH ELAP 1644 ♦ NELAP 12283CA

QA/QC Officer

McCampbell Analytical, Inc.
"When Quality Counts"

1534 Willow Pass Road, Pittsburg, CA 94565-1701
Toll Free Telephone: (877) 252-9262 / Fax: (925) 252-9269
http://www.mccampbell.com / E-mail: main@mccampbell.com

QC SUMMARY REPORT FOR 6010B

W.O. Sample Matrix: Soil | QC Matrix: Soil | BatchID: 80112 | WorkOrder: 1308092

EPA Method: SW6010B		Extraction: SW3050B					Spiked Sample ID: 1308092-005A		
Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	Acceptance Criteria (%)		
	mg/Kg	mg/Kg	% Rec.	% Rec.	% RPD	% Rec.	MS / MSD	RPD	LCS
Lead	110	50	NR	NR	NR	85.6	N/A	N/A	75 - 125
%SS:	103	500	105	106	0.900	99	70 - 130	20	70 - 130

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

BATCH 80112 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
1308092-002A	08/02/13	08/02/13	08/05/13 4:39 PM	1308092-003A	08/02/13 11:17 AM	08/02/13	08/05/13 4:46 PM
1308092-004A	08/02/13 11:41 AM	08/02/13	08/05/13 4:48 PM	1308092-005A	08/02/13 11:54 AM	08/02/13	08/05/13 4:50 PM
1308092-006A	08/02/13 12:11 PM	08/02/13	08/05/13 4:52 PM				

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

N/A = not applicable to this method.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

CDPH ELAP 1644 ♦ NELAP 12283CA

QA/QC Officer

Analytical Report

GEOCON Env. Consultants 6671 Brisa St	Client Project ID: #E8705-02-01; ANZAR RD	Date Sampled: 08/02/13
		Date Received: 08/02/13
	Client Contact: David A. Watts	Date Reported: 08/07/13
Livermore, CA 94550	Client P.O.:	Date Completed: 08/13/13

WorkOrder: 1308092 **A**

August 14, 2013

Dear David:

Enclosed within are:

1) The results of the **3** analyzed samples from your project: **#E8705-02-01; ANZAR RD,**
2) QC data for the above samples, and
3) A copy of the chain of custody.

All analyses were completed satisfactorily and all QC samples were found to be within our control limits.
If you have any questions or concerns, please feel free to give me a call. Thank you for choosing McCampbell Analytical Laboratories for your analytical needs.

Best regards,

Angela Rydelius
Laboratory Manager
McCampbell Analytical, Inc.

The analytical results relate only to the items tested.

1308092

McCampbell Analytical, Inc.

1534 Willow Pass Rd. / Pittsburg, Ca. 94565-1701
www.mccampbell.com / main@mccampbell.com
Telephone: (877) 252-9262 / Fax: (925) 252-9269

CHAIN OF CUSTODY RECORD

TURN AROUND TIME ☐ RUSH ☐ 24 HR ☐ 48 HR ☐ 72 HR ☒ 5 DAY

GeoTracker EDF ☐ PDF ☒ Excel ☐ Write On (DW) ☐

☐ Check if sample is effluent and "J" flag is required

Report To: D. WATTS　　Bill To: SAME
Company: 6671 BRISA ST.
LIVERMORE, CA 94550
E-Mail:
Tele: (925) 371-5900　　Fax: (925) 371-5915
Project #: E8705-02-01　　Project Name: D. WATTS
Project Location: ANZAR RD
Sampler Signature: [signature]

SAMPLE ID	LOCATION/ Field Point Name	SAMPLING Date	SAMPLING Time	# Containers	Type Containers	MATRIX Water	Soil	Air	Sludge	Other PAINT	METHOD PRESERVED ICE	HCL	HNO_3	Other
P1A/B	PAINT	8/2/13	VAR	1	Bg					X				
P2A/B	↓		↓							↓				
S1	SOIL		1117				X							
2			1141											
3			1154											
4	↓	↓	1211	↓	↓		↓							

Analysis Request:

SAMPLE ID	BTEX & TPH as Gas (602 / 8021 + 8015) / MTBE	TPH as Diesel (8015)	Total Petroleum Oil & Grease (1664 / 5520 E/B&F)	Total Petroleum Hydrocarbons (418.1)	EPA 502.2 / 601 / 8010 / 8021 (HVOCs)	MTBE / BTEX ONLY (EPA 602 / 8021)	EPA 505/ 608 / 8081 (Cl Pesticides)	EPA 608 / 8082 PCB's ONLY; Aroclors / Congeners	EPA 507 / 8141 (NP Pesticides)	EPA 515 / 8151 (Acidic Cl Herbicides)	EPA 524.2 / 624 / 8260 (VOCs)	EPA 525.2 / 625 / 8270 (SVOCs)	EPA 8270 SIM / 8310 (PAHs / PNAs)	CAM 17 Metals (200.7 / 200.8 / 6010 / 6020)	LUFT 5 Metals (200.7 / 200.8 / 6010 / 6020)	Lead (200.7 / 200.8 / 6010 / 6020)	Other: Filter sample for DISSOLVED metals analysis	STLC Pb added 8/8/13 5 day	TCLP Pb	Comments: **Indicate here if these samples are potentially dangerous to handle:
P1A/B																X				
P2A/B																			X	
S1																				
2																				
3																		X		
4																↓		X		

**MAI clients MUST disclose any dangerous chemicals known to be present in their submitted samples in concentrations that may cause immediate harm or serious future health endangerment as a result of brief, gloved, open air, sample handling by MAI staff. Non-disclosure incurs an immediate $250 surcharge and the client is subject to full legal liability for harm suffered. Thank you for your understanding and for allowing us to work safely.

Relinquished By:	Date:	Time:	Received By:
[signature]	8/2/13	1430	[signature]
Relinquished By:	Date:	Time:	Received By:
Relinquished By:	Date:	Time:	Received By:

ICE/t° ______
GOOD CONDITION ______
HEAD SPACE ABSENT ______
DECHLORINATED IN LAB ______
APPROPRIATE CONTAINERS ______
PRESERVED IN LAB ______

PRESERVATION　VOAS　O&G　METALS pH<2　OTHER

COMMENTS: Anticipate Soluble Requests

McCampbell Analytical, Inc.
1534 Willow Pass Rd
Pittsburg, CA 94565-1701
(925) 252-9262

CHAIN-OF-CUSTODY RECORD

WorkOrder: 1308092 **A** **ClientCode: GECL**

☐ WaterTrax ☐ WriteOn ☐ EDF ☐ Excel ☐ Fax ☑ Email ☐ HardCopy ☐ ThirdParty ☐ J-flag

Report to:
David A. Watts
GEOCON Env. Consultants
6671 Brisa St
Livermore, CA 94550
(925) 371-5900 FAX: 925-371-5915

Email: watts@geoconinc.com; Livermore@geoco
cc:
PO:
ProjectNo: #E8705-02-01; ANZAR RD

Bill to:
Accounts Payable
GEOCON Env. Consultants
6671 Brisa St
Livermore, CA 94550

Requested TAT: **5 days**
Date Received: **08/02/2013**
Date Add-On: **08/08/2013**
Date Printed: **08/14/2013**

Lab ID	Client ID	Matrix	Collection Date	Hold	Requested Tests (See legend below) 1	2	3	4	5	6	7	8	9	10	11	12
1308092-002	P2A/B	Solid	8/2/2013	☐		A										
1308092-005	S3	Soil	8/2/2013 11:54	☐	A											
1308092-006	S4	Soil	8/2/2013 12:11	☐	A											

Test Legend:

1	STLC_PB_S	2	TCLP_PB_S	3		4		5	
6		7		8		9		10	
11		12							

Prepared by: Yolanda Jacinto

Comments: TCLP Pb, STLC Pb 005 & 006 8/8/13.

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days).
Hazardous samples will be returned to client or disposed of at client expense.

McCampbell Analytical, Inc. "When Quality Counts"	1534 Willow Pass Road, Pittsburg, CA 94565-1701 Toll Free Telephone: (877) 252-9262 / Fax: (925) 252-9269 http://www.mccampbell.com / E-mail: main@mccampbell.com

GEOCON Env. Consultants 6671 Brisa St Livermore, CA 94550	Client Project ID: #E8705-02-01; ANZAR RD	Date Sampled: 08/02/13 Date Received: 08/02/13
	Client Contact: David A. Watts	Date Extracted: 08/10/13
	Client P.O.:	Date Analyzed: 08/12/13

Lead by ICP*

Extraction method: CA Title 22 | Analytical methods: SW6010B | Work Order: 1308092

Lab ID	Client ID	Matrix	Extraction Type	Lead	DF	% SS	Comments
1308092-005A	S3	S	WET	2.2	1	N/A	
1308092-006A	S4	S	WET	1.5	1	N/A	

Reporting Limit for DF =1; ND means not detected at or above the reporting limit	W	TOTAL	NA	µg/L
	S	WET	0.2	mg/L

*water samples are reported in µg/L, product/oil/non-aqueous liquid samples and all TCLP / STLC / DISTLC / SPLP extracts are reported in mg/L, soil/sludge/solid samples in mg/kg, wipe samples in µg/wipe, filter samples in µg/filter.

means surrogate diluted out of range; ND means not detected above the reporting limit/method detection limit; N/A means not applicable to this sample or instrument.

WET = Waste Extraction Test, i.e., STLC (Soluble Threshold Limit Concentration).
DI WET = Waste Extraction Test using DI water (DI STLC).

%SS = Percent Recovery of Surrogate Standard
DF = Dilution Factor

CDPH ELAP 1644 ♦ NELAP 12283CA   PR Analyst's Initial   Angela Rydelius, Lab Manager

McCampbell Analytical, Inc.
"When Quality Counts"

1534 Willow Pass Road, Pittsburg, CA 94565-1701
Toll Free Telephone: (877) 252-9262 / Fax: (925) 252-9269
http://www.mccampbell.com / E-mail: main@mccampbell.com

GEOCON Env. Consultants 6671 Brisa St Livermore, CA 94550	Client Project ID: #E8705-02-01; ANZAR RD	Date Sampled: 08/02/13 Date Received: 08/02/13
	Client Contact: David A. Watts	Date Extracted: 08/08/13
	Client P.O.:	Date Analyzed: 08/12/13

Lead by ICP*

Extraction method: SW1311/SW3050B Analytical methods: SW6010B Work Order: 1308092

Lab ID	Client ID	Matrix	Extraction Type	Lead	DF	% SS	Comments
1308092-002A	P2A/B	S	TCLP	ND	1	N/A	

Reporting Limit for DF =1; ND means not detected at or above the reporting limit				
	W	TOTAL	NA	µg/L
	S	TCLP	0.2	mg/L

*water samples are reported in µg/L, product/oil/non-aqueous liquid samples and all TCLP / STLC / DISTLC / SPLP extracts are reported in mg/L, soil/sludge/solid samples in mg/kg, wipe samples in µg/wipe, filter samples in µg/filter.

means surrogate diluted out of range; ND means not detected above the reporting limit/method detection limit; N/A means not applicable to this sample or instrument.

TCLP = Toxicity Characteristic Leaching Procedure.
DI TCLP = Toxicity Characteristic Leaching Procedure using DI water.

%SS = Percent Recovery of Surrogate Standard
DF = Dilution Factor

CDPH ELAP 1644 ♦ NELAP 12283CA PR Analyst's Initial Angela Rydelius, Lab Manager

McCampbell Analytical, Inc.
"When Quality Counts"
1534 Willow Pass Road, Pittsburg, CA 94565-1701
Toll Free Telephone: (877) 252-9262 / Fax: (925) 252-9269
http://www.mccampbell.com / E-mail: main@mccampbell.com

Quality Control Report

Client:	GEOCON Env. Consultants	**WorkOrder:**	1308092
Date Prepared:	8/8/13	**BatchID:**	80335
Date Analyzed:	8/12/13	**Extraction Method**	CA Title 22
Instrument:	ICP-JY	**Analytical Method:**	SW6010B
Matrix:	Soil	**Unit:**	mg/L
Project:	#E8705-02-01; ANZAR RD	**Sample ID:**	MB/LCS-80335

QC SUMMARY REPORT FOR SW6010B

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS	LCS %REC	LCS Limits
Lead	ND	0.8235	0.20	1	-	82.4	75-125

McCampbell Analytical, Inc.
"When Quality Counts"

1534 Willow Pass Road, Pittsburg, CA 94565-1701
Toll Free Telephone: (877) 252-9262 / Fax: (925) 252-9269
http://www.mccampbell.com / E-mail: main@mccampbell.com

Quality Control Report

Client:	GEOCON Env. Consultants	**WorkOrder:**	1308092
Date Prepared:	8/8/13	**BatchID:**	80315
Date Analyzed:	8/9/13	**Extraction Method**	SW1311/SW3050B
Instrument:	ICP-JY	**Analytical Method:**	SW6010B
Matrix:	Soil	**Unit:**	mg/L
Project:	#E8705-02-01; ANZAR RD	**Sample ID:**	MB/LCS-80315

QC SUMMARY REPORT FOR SW6010B

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS	LCS %REC	LCS Limits
Lead	ND	0.8612	0.20	1	-	86.1	75-125

APPENDIX B

State of California
Division of Occupational Safety and Health
Certified Asbestos Consultant

David Alexander Watts
Name

Certification No. **98-2404**

Expires on **09/16/14**

This certification was issued by the Division of Occupational Safety and Health as authorized by Sections 7180 et seq. of the Business and Professions Code.

State of California Department of Public Health

Inspector/Assessor **12/04/2014**
Project Monitor **12/04/2014**

20883

David A. Watts

ID #: **1734**

STATE OF NEVADA
DEPARTMENT OF BUSINESS AND INDUSTRY
DIVISION OF INDUSTRIAL RELATIONS
OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION

ASBESTOS ABATEMENT CONSULTANT
DAVID WATTS
GEOCON CONSULTANTS, INC.

HAS PAID FEE REQUIRED BY
SPO Rev. 2-06) CHAPTER 618 OF NAC (O) 3656
THIS LICENSE EXPIRES ON 4/03/14

Geocon Consultants, Inc.
COMPLIANCE CERTIFICATION

David Watts, CAC

Senior Project Scientist
Livermore

Douglas S. Krause, CIH - ABIH No. 2123

Annual H&S Refresher Training - Exp: May 31, 2014
T8 CCR §5192 Hazardous Waste Operations

DMV CALIFORNIA DMV
DRIVER LICENSE
EXPIRES 12-04-13 C3695223 CLASS:C

DAVID ALEXANDER WATTS
503 LAKEVIEW DR
BRENTWOOD CA 94513
SEX:M HAIR:BRN EYES:BRN
HT:5-10 WT:160 DOB:12-04-59
DONOR
10/16/2003 592 27 FD/13

Clayton Environmental Consultants, Inc.
Certifies that

David Watts

Has successfully completed training for Permit Required Confined Space Entry in compliance with 29 CFR 1910.146 and GISO Article 108

Robert J. Sutay, CIH
Corporate Health and Safety Officer

Training Date: March 25, 1999

ACI Concrete Field Testing Technician -
Grade I

DAVID A WATTS

Certification ID #01201240
Expires on: 10/30/2015

aci certification Verify at CheckACI.org

Appendix E

****

Hydraulics Study

COUNTY OF SAN BENITO

ANZAR ROAD BRIDGE AT SAN JUAN CREEK (BRIDGE No. 43C-0039)

LOCATION HYDRAULIC STUDY REPORT

FINAL DRAFT

September 2013

NOLTE VERTICALFIVE

INTRODUCTION

The County of San Benito proposes to replace the Anzar Road Bridge (Bridge Number 43C0039). The project will be performed under the Highway Bridge Program (HBP) using federal funds along with a local matching fund. This technical memorandum is to document the hydrologic and hydraulic assessment for the Bridge under the existing conditions and to present the hydraulic analysis and any unusual aspects of the design that require special attention, and clarify the procedures, methodology, and criteria used in the analysis.

The existing bridge is considered as functionally obsolete and scheduled for rehabilitation under Highway Bridge Program (HBP). Anzar Road is designated as a major collector that carries 1900 ADT, intersecting San Juan Highway on the east end and San Justo Road at the westerly end. The County has proposed to replace the existing bridge with a new bridge with two-12-foot lanes and minimum of 4-foot shoulders on each side. The profile of new roadway will be raised to improve hydraulic capacity under the bridge. As-built information was not available for the existing bridge.

The floodplain for the San Juan Creek was depicted as Zone A on San Benito County Flood Insurance Rate Map (FIRM) Panel 06069C0045D with an effective date of 4/16/2009 (see attachments). Zone A is the flood insurance rate zone that corresponds to no base flood elevations determined. There are no known flooding events that have affected the roadway or bridge.

HYDROLOGY

San Juan Creek is located in the lower portion of the San Benito River Watershed and delivers runoff to the Pajaro River that eventually joins the Monterey Bay. Figure 1 is an excerpt from the FEMA FIRM Index Map and depicts the waterways near the Anzar Road Bridge project site. The drainage area at Anzar Road is 35.2 square miles. Land use within the immediate and surrounding area is primarily agricultural with residential units interspersed. It is assumed that the existing land use will not change significantly for the foreseeable future. Exhibit 1 in the attachments to this memorandum presents the limits of the San Juan Creek watershed.

Flow rates in San Juan Creek at Anzar Road were calculated using the method presented in USGS - The National Streamflow Statistics Program: A computer program for estimating streamflow statistics for ungaged sites (USGS Regression Equations).

Table 1. San Juan Creek Hydrology Summary

	San Juan Creek at Anzar Road
Drainage Area (square mile)	**35.2**
Year of Reoccurrence	**Discharge (cfs)**
2	275
5	877
10	1,540
25	2,680
50	3,880
100	5,170

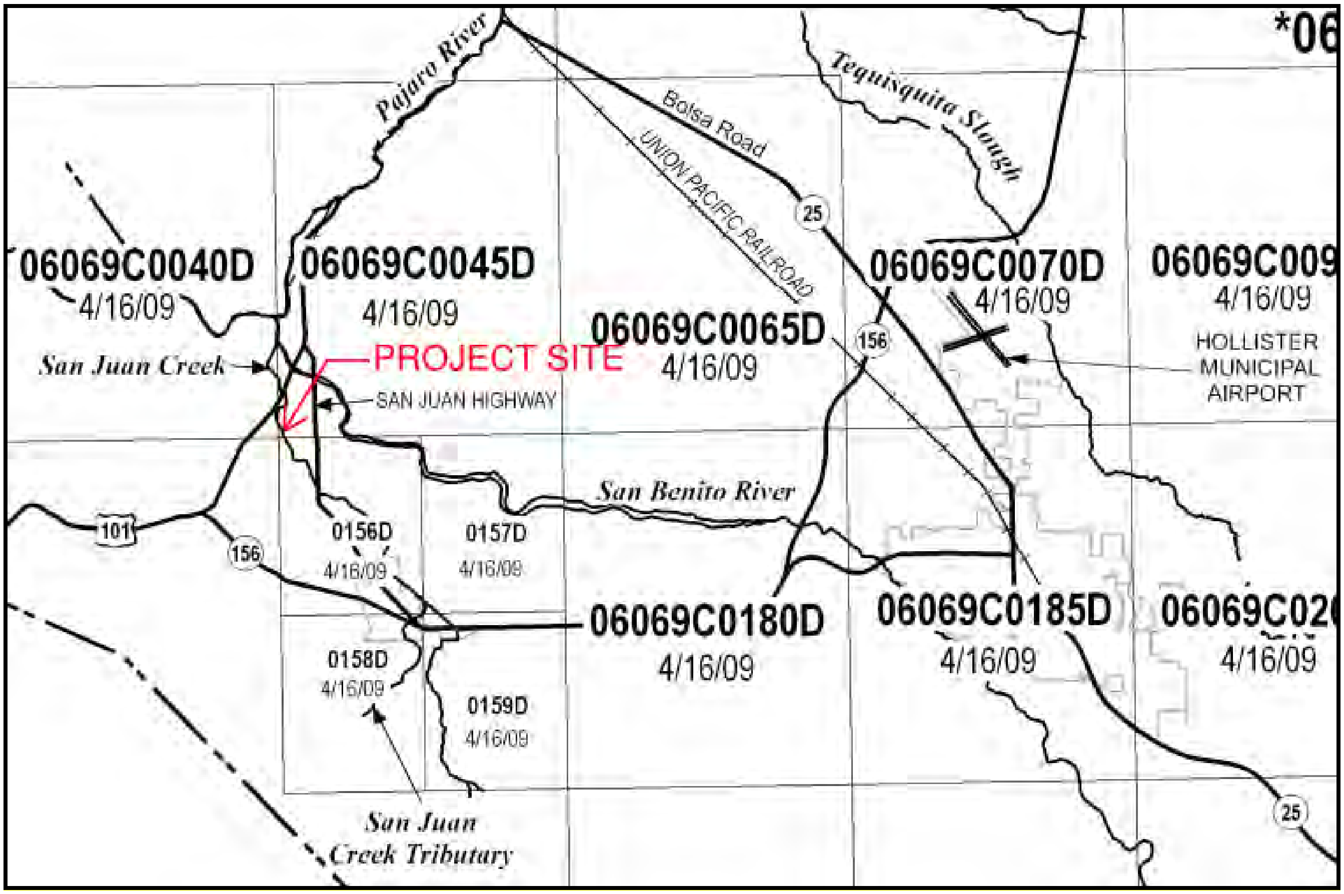


Figure 1 FEMA Flood Insurance Rate Map Index for San Juan Creek at Anzar Road Bridge

There are no gage stations around the project area to directly verify the hydrologic discharges. One way to verify the result is to compare the data with other results from similar watersheds. Table 2 presents the base (100-year) discharge comparisons. Figure 2 presents the base discharge and drainage area correlation for watersheds that share similar topographic and land use characteristics, and the correlation reveals high dependency ($R^2 = 0.99$). The discharges determined in Table 1 will be used for hydraulic analysis.

Table 2. Base Discharge Comparison

Watershed	Drainage Area (sq-mi)	Base Discharge (cfs)	Data Source
San Juan Creek @ Anzar Rd	35.2	5,170	This Study
San Juan Creek @ Hwy 156	19.1	2,600	FEMA
San Juan Creek @ Mission-Vineyard Rd	8.12	800	FEMA
Santa Ana Creek @ Hwy 156	56.9	7,500	FEMA

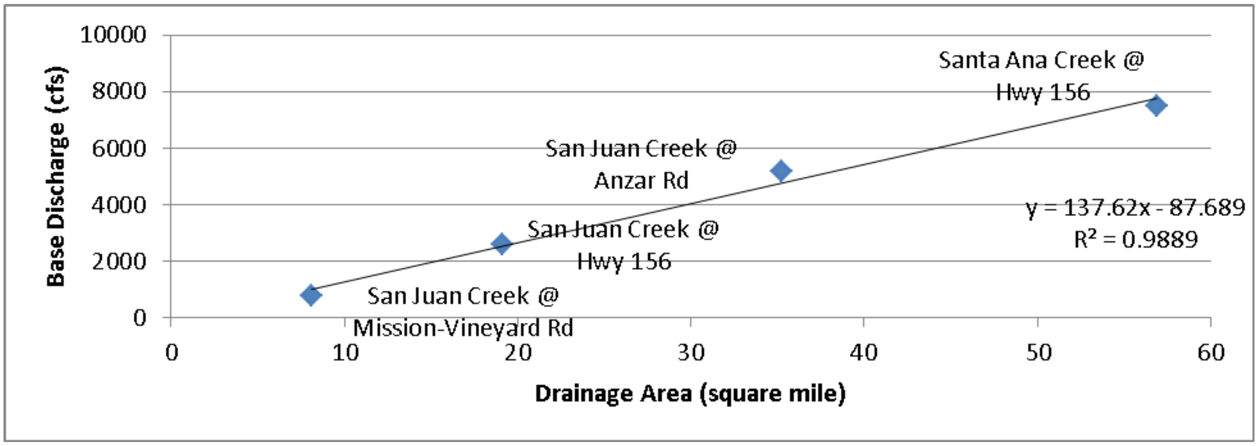


Figure 2. Base Discharge and Drainage Area Correlation for Similar Watersheds in San Benito County

HYDRAULIC EVALUATION

A bridge hydraulics analysis was performed using the US Army Corps of Engineers HEC-RAS program. NV5 used the HEC-RAS hydraulic model to simulate the steady-state water surface profile for the existing bridge condition at Anzar Road.

Normal depth of 0.003 foot/foot was assumed as the downstream boundary condition. One-foot topographic mapping and field survey data were used to develop the geometry of the hydraulic model. Ditch roughness factors (Manning's n-values) were determined on the basis of field inspection and the values are 0.036 for the main channel and 0.04 for the overbanks. Fifteen (15) riverine cross sections were created from the topographic mapping beginning approximately 90 feet downstream of Anzar Road Bridge (located at Cross Section 102, station 1+02), and extending to approximately 190 feet upstream of the Bridge at Cross Section 291 (station 2+91). The existing bridge is located between Cross Sections 85 (station 0+85) and 118 (station 1+18). Exhibit 2 presents the locations of the cross sections used in the HEC-RAS model (see attachments). The discharges in Table 1 were used to run the hydraulic model.

EXISTING CONDITIONS MODEL RESULTS

A tabular summary, cross sections and a profile of the existing condition model results are presented in the attachments. The results indicate that the existing Anzar Road Bridge can contain a 2-year storm event with a freeboard of 0.7 feet, as shown in Figure 3. The existing bridge/roadway can pass a 10-year storm event without overtopping; however, there is no freeboard. All elevations presented in the technical memorandum are referenced to NAVD 1988 Vertical Datum.

The basic geometry of the existing Anzar Road Bridge and approach roadway is:

Bridge span length	41 feet
Bridge deck elevation	154.79 feet
Bridge soffit elevation	152.11 feet

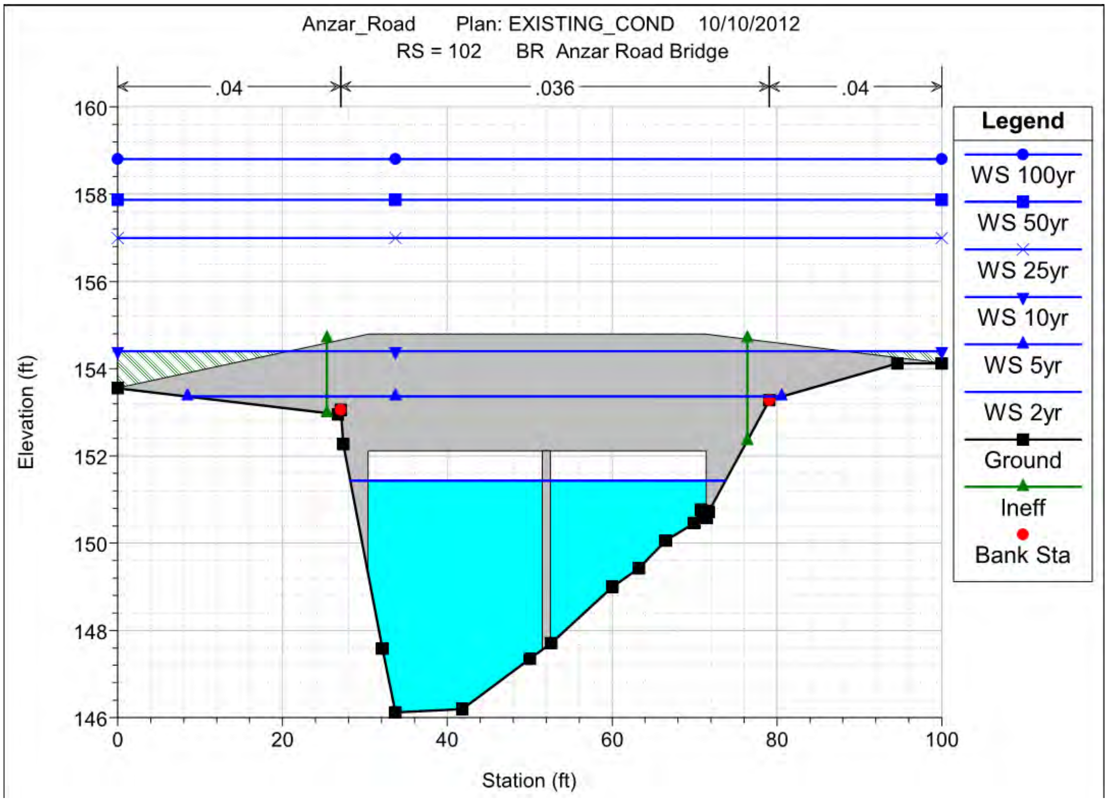


Figure 3. Anzar Road Bridge hydraulic performance in the 2 to 100-year events under the existing condition

The cross sections included in the attachments demonstrate that San Juan Creek is capable of containing the 2-year storm discharge within the limits of the embankments. The Creek cannot convey a 5-year storm discharge without being overtopped, almost everywhere in the model reach. The Creek would require significant excavation to be upgraded to a 10-year capacity.

Additionally, the model indicates that both San Juan Creek and Anzar Road Bridge are not adequate to pass both the 50-year storm and the 100-year storm. Upgrading the Anzar Road Bridge to convey a 50-year or 100-year storm event would also involve significant excavation to the existing creek to increase capacity. See attachments for the 100-year floodplain. The 100-year floodplain extends a width of approximately 400-feet (centered at the Creek) at the location of the Anzar Road Bridge. The floodplain limits further demonstrate the limited capacity of the existing Creek.

PROPOSED CONDITIONS MODEL RESULTS

The existing conditions model results indicate that both San Juan Creek and Anzar Road Bridge can convey a 2-year storm event without overtopping. However, a storm with a larger recurrence interval (5-year, 10-year, 25-year, 50-year, or 100-year) would result in overtopping the existing creek banks. The existing conditions model was modified by changing the bridge geometry to allow a 5-year event to pass under the bridge. The proposed bridge geometry assumes a 1.75 ft thick bridge deck:

Bridge span length	55 feet
Bridge deck elevation (at the lowest point)	155.1 feet
Bridge soffit elevation (at the lowest point)	153.3 feet

The results of the proposed conditions model are depicted in Figure 4. The proposed bridge structure would pass a 5-year storm event and improve the existing conditions. Some overtopping of the existing creek would occur on the banks. However, upgrading the bridge to pass a storm event with a larger recurrence interval (10-year, 25-year, 50-year, or 100-year) would involve significant excavation of the existing creek or addition of floodwalls to improve San Juan Creek capacity.

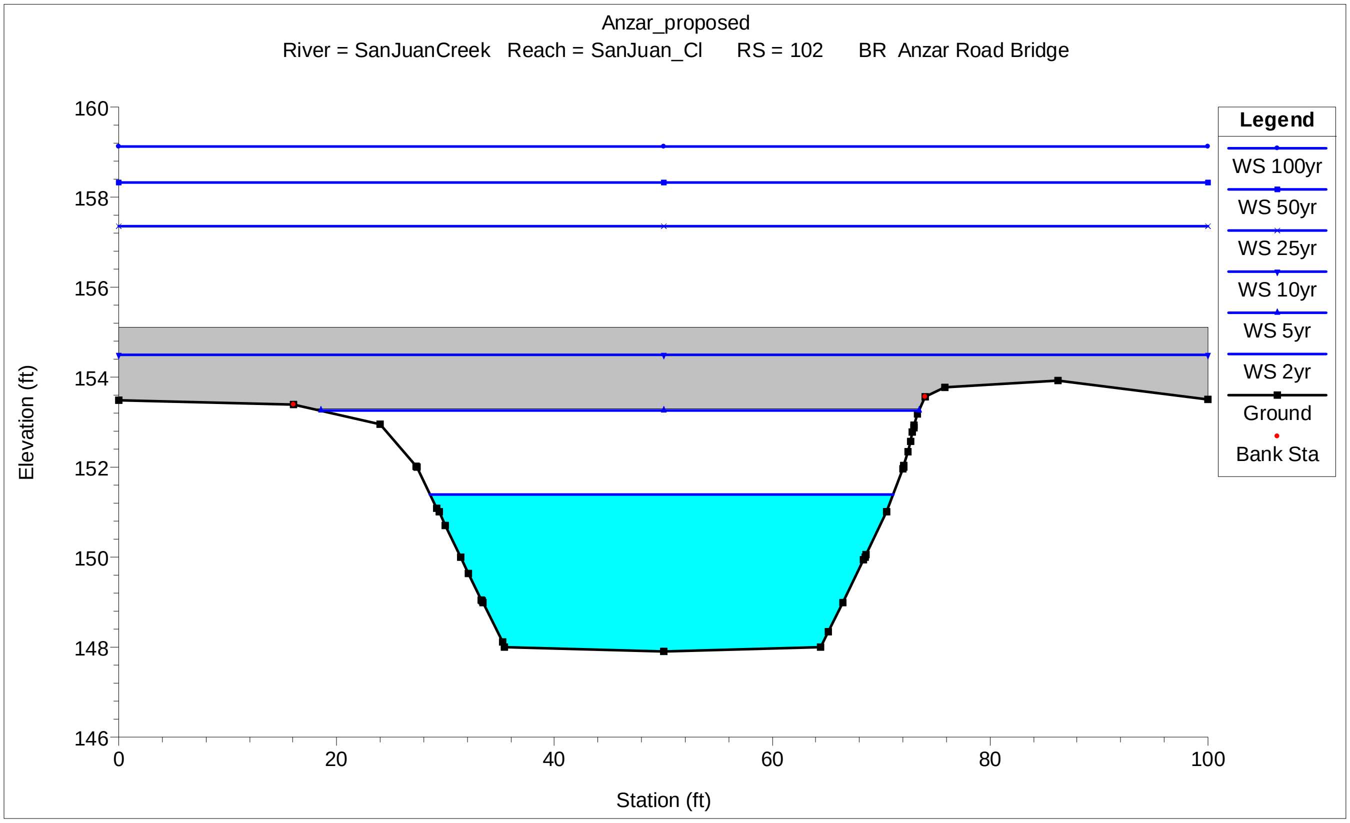


Figure 4. Anzar Road Bridge hydraulic performance in the 2 to 100-year events under the proposed condition

Table 3 summarizes the predicted water surface elevation for the existing and proposed conditions.

Table 3. HEC-RAS Model Results Comparison

HEC-RAS Model River Sta	Storm Reoccurrence	Total Discharge Q (cfs)	Water Surface Elevation (ft)		
			Existing	Proposed	Change
291.03	5yr	877	154.15	154.16	0.0
280	5yr	877	154.17	154.18	0.0
260	5yr	877	154.14	154.14	0.0
240	5yr	877	153.96	153.97	0.0
220	5yr	877	153.54	153.37	-0.2
200	5yr	877	153.64	153.15	-0.5
180	5yr	877	153.68	153.25	-0.4
160	5yr	877	153.7	153.28	-0.4
135.13	5yr	877	153.68	153.29	-0.4
102		Bridge			
65.4	5yr	877	153.1	153.17	0.1
40	5yr	877	152.81	152.81	0.0
20	5yr	877	152.81	152.81	0.0
0	5yr	877	152.77	152.77	0.0

The minimal change in water surface demonstrates that the proposed change to the bridge deck elevation does not significantly impact the existing Creek hydraulics resulting in scouring. Other improvements in the bridge design include channel bed grading by filling the scour hole in the creek located underneath of the existing bridge, addition of sloping abutment with a side slope of 2:1 (H:V), and installation of rock slope protection (RSP) in the vicinity of the project.

The proposed bridge and channel improvement will not negatively impact the floodplain.

REFERENCES

1. *San Benito County, California and Incorporated Areas, Number 06069CV000A, Flood Insurance Study*, Federal Emergency Management Agency, April 16, 2009.

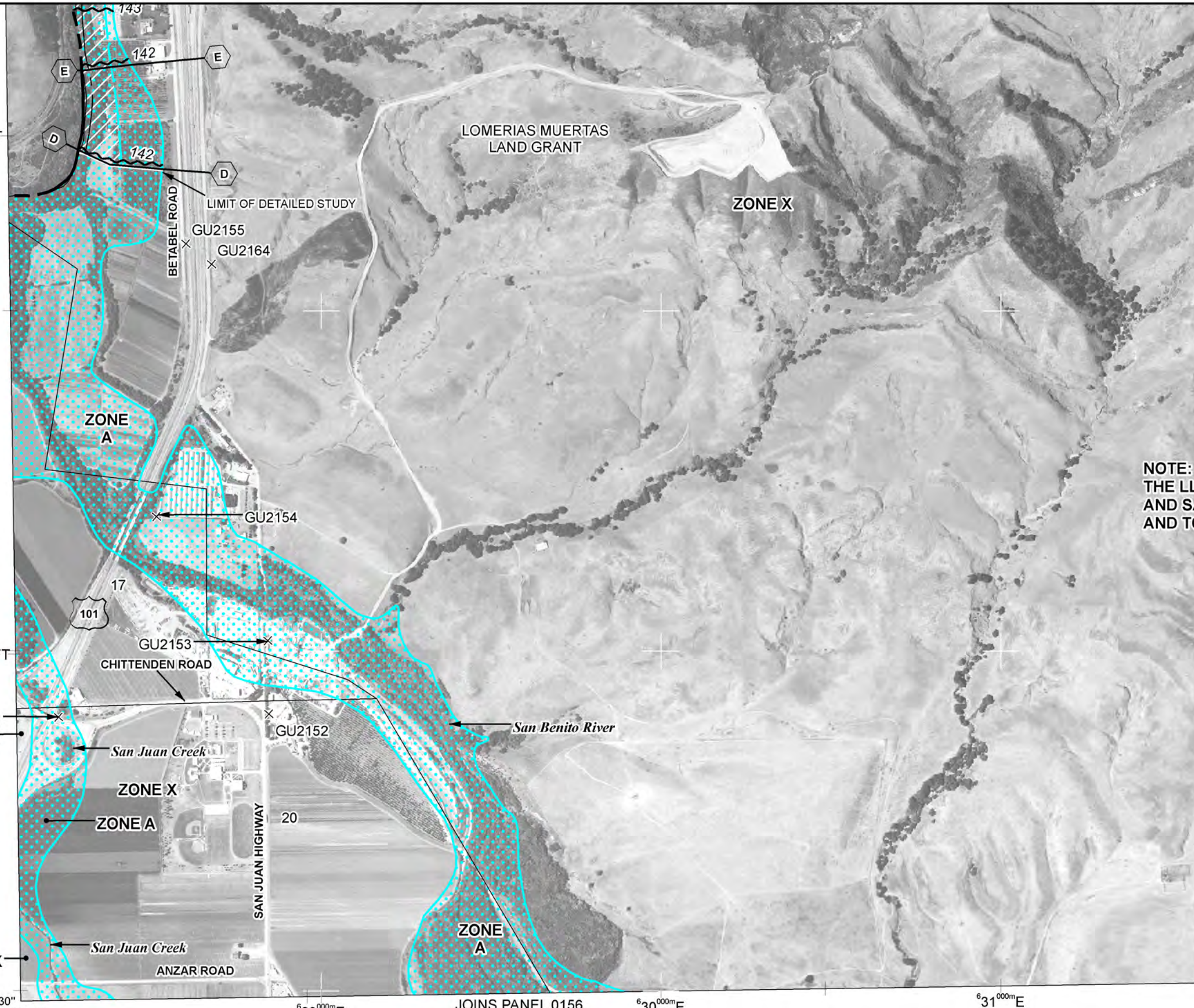
2. *The National Streamflow Statistics Program: A Computer Program for Estimating Streamflow Statistics for Ungaged Sites,* U.S. Geological Survey, 2007

3. *Caltrans Local Assistance Procedures Manual*, California Department of Transportation, 2005 (with updates).

4. *HEC-RAS River Analysis System, V4.0*, US Army Corps of Engineers, 2007.

ATTACHMENTS

1. San Juan Creek 100-Year Floodplain Delineation
2. Exhibit 1 – San Juan Creek Watershed
3. Exhibit 2- HEC-RAS Model Cross Section Stationing
4. HEC-RAS Existing Conditions Model Results
    a. Tabular Summary
    b. Cross Sections
    c. Profile
5. HEC-RAS Proposed Conditions Model Results
    a. Tabular Summary
    b. Cross Sections
    c. Profile
6. Location Hydraulic Study Form
7. Summary of Floodplain Encroachment Report



ional Flood Insurance Program at 1-800-638-6620.

N

MAP SCALE 1" = 1000'

00 0 1000 2000 FEET

METERS

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0045D

FIRM
FLOOD INSURANCE RATE MAP

SAN BENITO COUNTY, CALIFORNIA
AND INCORPORATED AREAS

PANEL 45 OF 955

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
SAN BENITO COUNTY	060267	0045	D

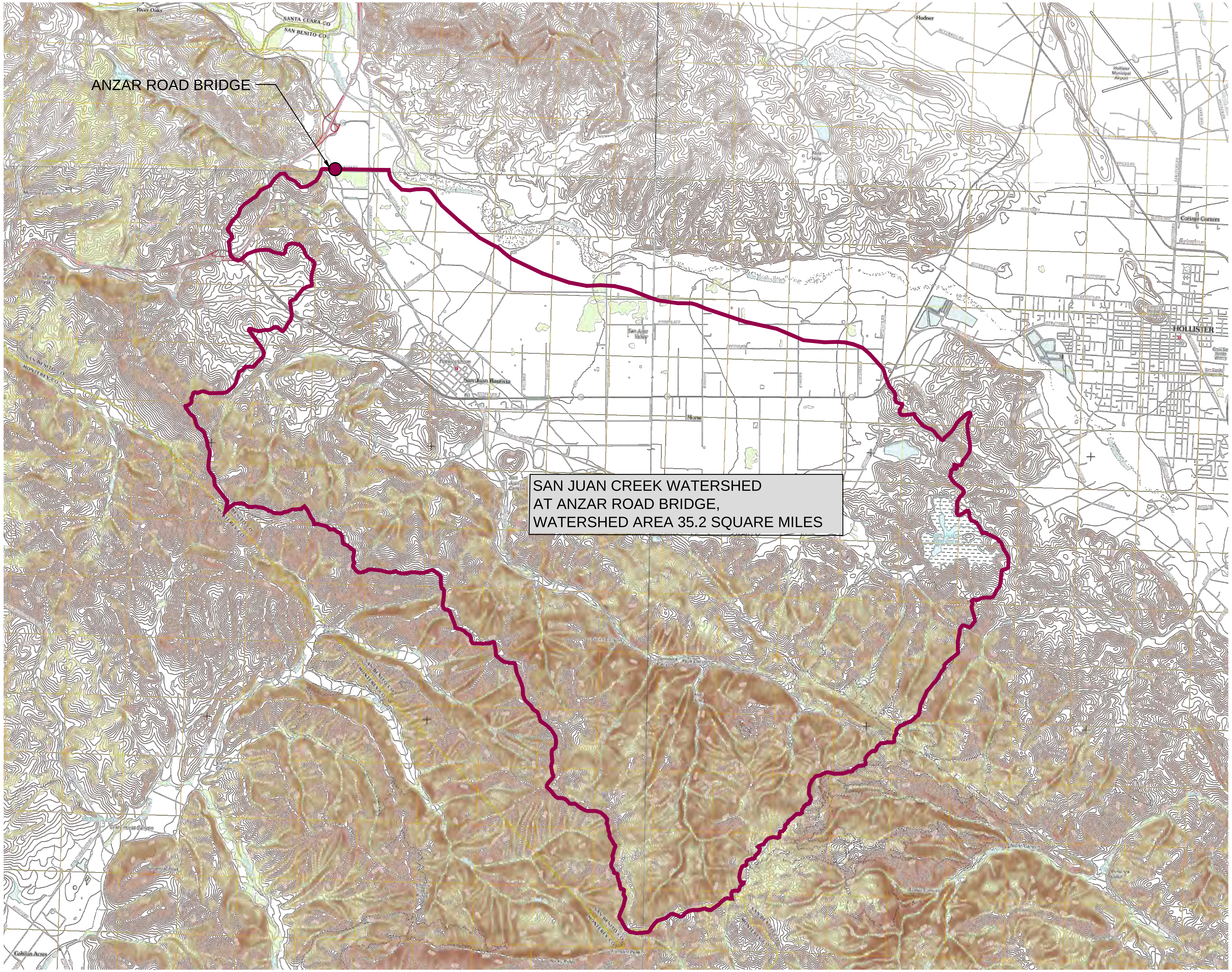
Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

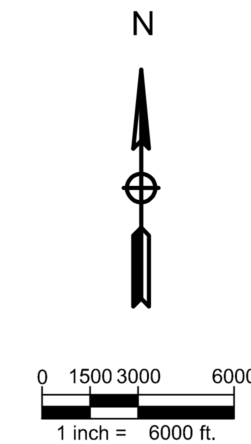
MAP NUMBER
06069C0045D

MAP REVISED
APRIL 16, 2009

Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov





VERTICAL CONTROL VALUES PER NAVD 88 DATUM

HORIZONTAL CONTROL VALUES PER NAD 83 DATUM

TOPOGRAPHICAL DATA ARE BASED ON USGS MAPS DATED 2012

PRELIMINARY

NOT FOR CONSTRUCTION

DATE: 10/12/12 TIME: 2:55:28 PM
SERVER: NONE LAYOUT: Layout1
PATH: N:\SAB048500\CADD\WORKING
DRAWING NAME: EXHIBIT_SANJUANCANYON_WS.DWG
PAGE SETUP: ----
DESIGNER: DW PROJ. MGR: NFE

SYLVESTER
XREFS:

NV5
NOLTE VERTICALFIVE
2025 GATEWAY PLACE, SUITE 156 SAN JOSE, CA 95110
408.392.7200 TEL 408.392.0101 FAX WWW.NV5.COM

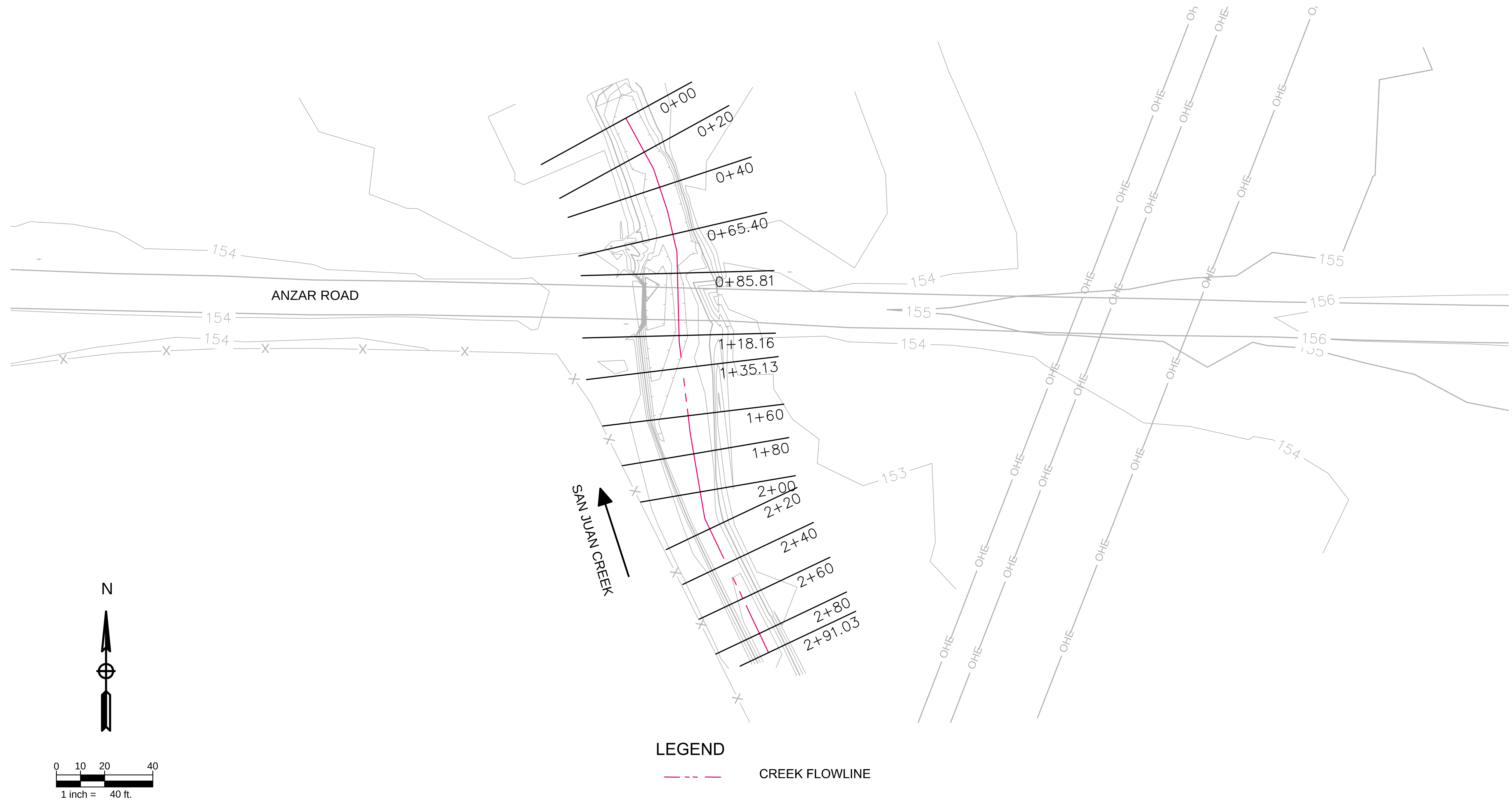
ANZAR ROAD BRIDGE REPLACEMENT
BRIDGE HYDRAULICS STUDY EXHIBIT
SAN JUAN CREEK WATERSHED

PREPARED FOR: SAN BENITO COUNTY

DATE SUBMITTED: OCT 2012

SHEET NUMBER 1 OF SHEETS

JOB NUMBER SAB048500



VERTICAL CONTROL VALUES PER NAVD 88 DATUM

HORIZONTAL CONTROL VALUES PER NAD 83 DATUM

TOPOGRAPHICAL DATA ARE BASED ON FIELD SURVEY DATED JUNE 19, 2012 BY NV5.

PRELIMINARY

NOT FOR CONSTRUCTION

DATE: 10/12/12 TIME: 2:52:38 PM

SERVER: NONE LAYOUT: Layout1

PATH: N:\SAB048500\CADD\WORKING

DRAWING NAME: EXHIBIT_RAS_ALIGNMENT.DWG

PAGE SETUP: ----

DESIGNER: #### PROJ. MGR: ####

XREFS: SYLVESTER

N|V|5

NOLTE VERTICALFIVE

2025 GATEWAY PLACE, SUITE 156 SAN JOSE, CA 95110

408.392.7200 TEL 408.392.0101 FAX WWW.NV5.COM

ANZAR ROAD BRIDGE REPLACEMENT

BRIDGE HYDRAULICS STUDY EXHIBIT

HEC-RAS MODEL CROSS SECTION STATIONING

PREPARED FOR: SAN BENITO COUNTY

DATE SUBMITTED: OCT 2012

SHEET NUMBER 2 OF SHEETS

JOB NUMBER SAB048500

SAN BENITO COUNTY ANZAR ROAD BRIDGE
EXISTING CONDITIONS HEC-RAS MODEL RESULTS

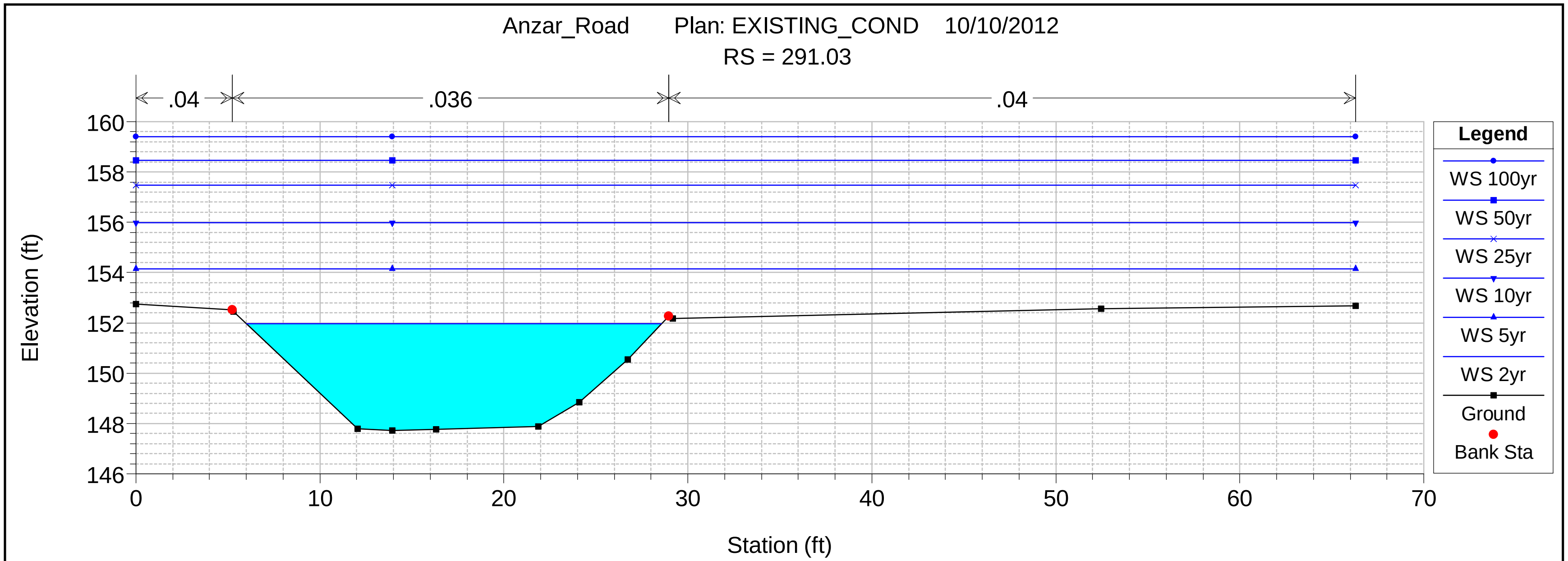
Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)
SanJuan_Cl	291.03	2yr	275	147.71	151.96	0.002447	4	68.69	22.54
SanJuan_Cl	291.03	5yr	877	147.71	154.15	0.002604	5.78	191.22	66.31
SanJuan_Cl	291.03	10yr	1540	147.71	155.98	0.002002	6.22	312.22	66.31
SanJuan_Cl	291.03	25yr	2680	147.71	157.47	0.002648	8.15	411.65	66.31
SanJuan_Cl	291.03	50yr	3880	147.71	158.45	0.00356	10.17	476.46	66.31
SanJuan_Cl	291.03	100yr	5170	147.71	159.4	0.004325	11.96	539.53	66.31
SanJuan_Cl	280	2yr	275	147.55	151.93	0.002453	4.02	68.37	22.26
SanJuan_Cl	280	5yr	877	147.55	154.17	0.002213	5.41	211.72	75
SanJuan_Cl	280	10yr	1540	147.55	156.02	0.001628	5.68	350.33	75
SanJuan_Cl	280	25yr	2680	147.55	157.57	0.002087	7.34	466.64	75
SanJuan_Cl	280	50yr	3880	147.55	158.62	0.002725	9.06	545.47	75
SanJuan_Cl	280	100yr	5170	147.55	159.66	0.003224	10.55	623.37	75
SanJuan_Cl	260	2yr	275	147.8	151.82	0.003293	4.41	62.39	22.36
SanJuan_Cl	260	5yr	877	147.8	154.14	0.002243	5.38	213.48	75
SanJuan_Cl	260	10yr	1540	147.8	156	0.001613	5.63	352.96	75
SanJuan_Cl	260	25yr	2680	147.8	157.54	0.002075	7.3	468.56	75
SanJuan_Cl	260	50yr	3880	147.8	158.57	0.002723	9.04	546.34	75
SanJuan_Cl	260	100yr	5170	147.8	159.6	0.003234	10.54	623.33	75
SanJuan_Cl	240	2yr	275	148.12	151.66	0.004594	4.94	55.64	21.7
SanJuan_Cl	240	5yr	877	148.12	153.96	0.00315	6.11	187.98	75
SanJuan_Cl	240	10yr	1540	148.12	155.91	0.001886	5.96	334.57	75
SanJuan_Cl	240	25yr	2680	148.12	157.43	0.002368	7.66	448.24	75
SanJuan_Cl	240	50yr	3880	148.12	158.42	0.003115	9.48	522.42	75
SanJuan_Cl	240	100yr	5170	148.12	159.4	0.003699	11.06	596.04	75
SanJuan_Cl	220	2yr	275	148.44	151.33	0.00844	6.04	45.56	21.04
SanJuan_Cl	220	5yr	877	148.44	153.54	0.005854	7.58	147.31	75
SanJuan_Cl	220	10yr	1540	148.44	155.82	0.00217	6.23	318.73	75
SanJuan_Cl	220	25yr	2680	148.44	157.31	0.002664	7.95	430.43	75
SanJuan_Cl	220	50yr	3880	148.44	158.24	0.003531	9.87	500.41	75
SanJuan_Cl	220	100yr	5170	148.44	159.17	0.004216	11.53	569.87	75
SanJuan_Cl	200	2yr	275	148.33	151.39	0.004061	4.53	60.74	24.93
SanJuan_Cl	200	5yr	877	148.33	153.64	0.003628	5.95	178.62	81.31
SanJuan_Cl	200	10yr	1540	148.33	155.86	0.001596	5.3	358.89	81.31
SanJuan_Cl	200	25yr	2680	148.33	157.37	0.001983	6.84	482.12	81.31
SanJuan_Cl	200	50yr	3880	148.33	158.35	0.00261	8.49	561.4	81.31
SanJuan_Cl	200	100yr	5170	148.33	159.32	0.003091	9.92	640.66	81.31
SanJuan_Cl	180	2yr	275	148.1	151.43	0.002018	3.42	80.53	29.71
SanJuan_Cl	180	5yr	877	148.1	153.68	0.002262	4.99	210.51	87.6
SanJuan_Cl	180	10yr	1540	148.1	155.88	0.001175	4.71	403.02	87.6
SanJuan_Cl	180	25yr	2680	148.1	157.41	0.001504	6.13	537.43	87.6
SanJuan_Cl	180	50yr	3880	148.1	158.42	0.00199	7.62	625.32	87.6
SanJuan_Cl	180	100yr	5170	148.1	159.42	0.002362	8.9	713.58	87.6

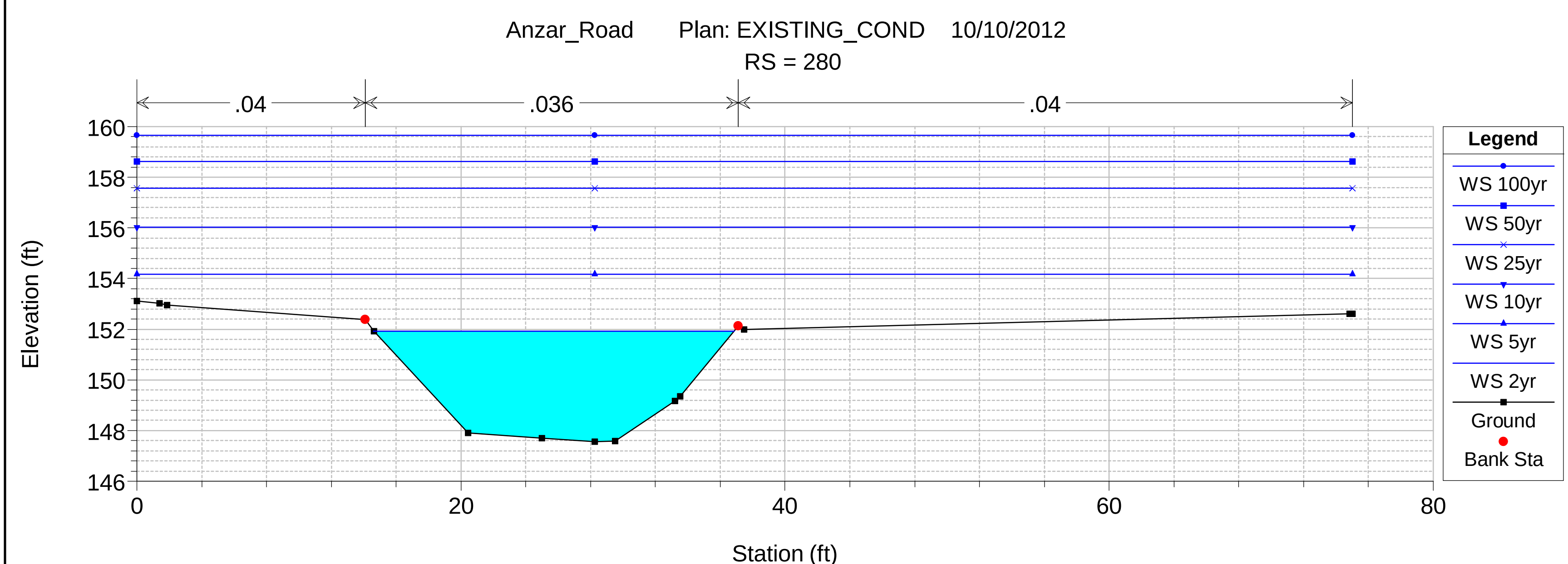
SAN BENITO COUNTY ANZAR ROAD BRIDGE
EXISTING CONDITIONS HEC-RAS MODEL RESULTS

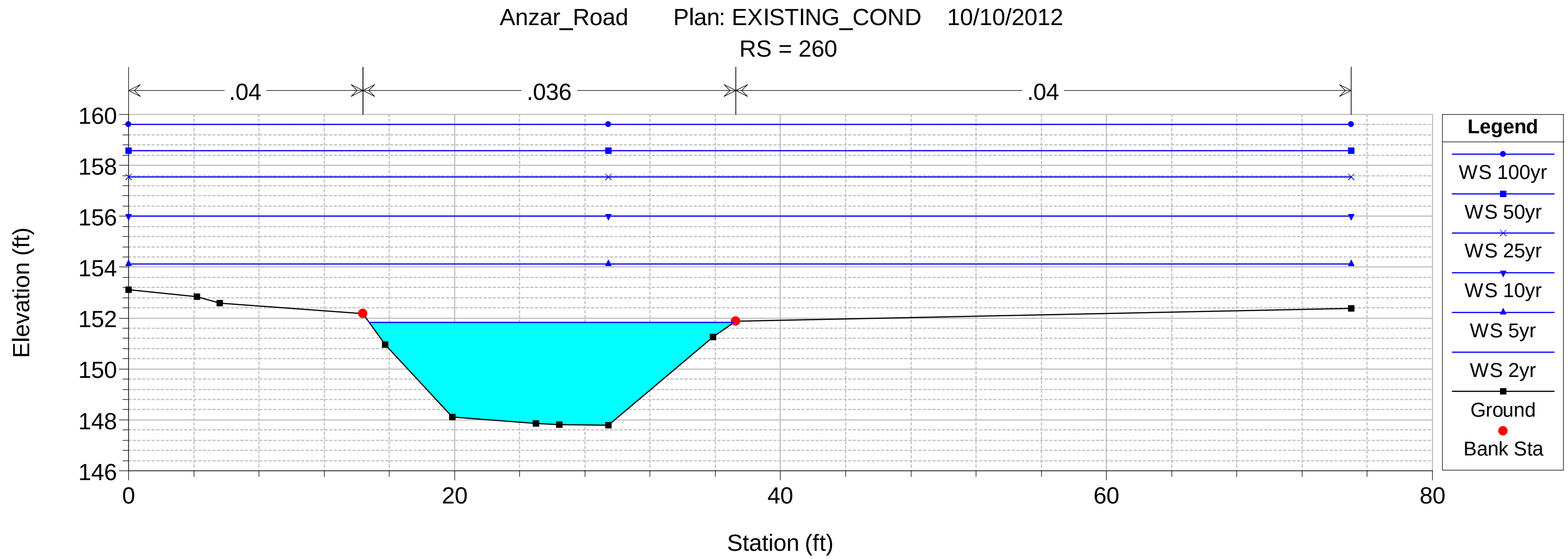
Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)
SanJuan_Cl	160	2yr	275	147.75	151.44	0.001338	2.82	97.6	36.29
SanJuan_Cl	160	5yr	877	147.75	153.7	0.001852	4.22	233.23	94.59
SanJuan_Cl	160	10yr	1540	147.75	155.9	0.000951	4.07	440.81	94.59
SanJuan_Cl	160	25yr	2680	147.75	157.44	0.001205	5.33	587.34	94.59
SanJuan_Cl	160	50yr	3880	147.75	158.47	0.001579	6.63	684.27	94.59
SanJuan_Cl	160	100yr	5170	147.75	159.5	0.001856	7.75	781.86	94.59
SanJuan_Cl	135.13	2yr	275	146.81	151.44	0.000874	2.36	116.72	40.51
SanJuan_Cl	135.13	5yr	877	146.81	153.68	0.001396	3.93	229.86	80.63
SanJuan_Cl	135.13	10yr	1540	146.81	155.87	0.000856	4.03	446.1	100
SanJuan_Cl	135.13	25yr	2680	146.81	157.42	0.001103	5.26	601	100
SanJuan_Cl	135.13	50yr	3880	146.81	158.44	0.001451	6.53	703.22	100
SanJuan_Cl	135.13	100yr	5170	146.81	159.47	0.001705	7.6	806.79	100
SanJuan_Cl	118.16	2yr	275	146.12	151.44	0.000458	1.86	147.77	45.56
SanJuan_Cl	118.16	5yr	877	146.12	153.69	0.000837	3.41	257.87	86.62
SanJuan_Cl	118.16	10yr	1540	146.12	155.88	0.000623	3.65	487.17	100
SanJuan_Cl	118.16	25yr	2680	146.12	157.42	0.000859	4.88	642.04	100
SanJuan_Cl	118.16	50yr	3880	146.12	158.45	0.001164	6.12	744.39	100
SanJuan_Cl	118.16	100yr	5170	146.12	159.48	0.0014	7.18	848.03	100
SanJuan_Cl	102		Bridge						
SanJuan_Cl	85.81	2yr	275	145.31	151.42	0.000414	1.82	150.78	41.95
SanJuan_Cl	85.81	5yr	877	145.31	153.27	0.001161	3.77	232.67	60.9
SanJuan_Cl	85.81	10yr	1540	145.31	154.26	0.001964	5.31	309.86	88.87
SanJuan_Cl	85.81	25yr	2680	145.31	155.68	0.002419	6.81	450.22	100
SanJuan_Cl	85.81	50yr	3880	145.31	157.02	0.002473	7.74	583.77	100
SanJuan_Cl	85.81	100yr	5170	145.31	158.31	0.002456	8.49	713.15	100
SanJuan_Cl	65.4	2yr	275	147.21	151.32	0.001505	2.72	100.93	43.33
SanJuan_Cl	65.4	5yr	877	147.21	153.1	0.002395	4.61	200	96.93
SanJuan_Cl	65.4	10yr	1540	147.21	154.15	0.002687	5.78	305.13	100
SanJuan_Cl	65.4	25yr	2680	147.21	155.64	0.002659	6.9	453.97	100
SanJuan_Cl	65.4	50yr	3880	147.21	156.98	0.002571	7.73	588.23	100
SanJuan_Cl	65.4	100yr	5170	147.21	158.27	0.002488	8.46	717.83	100
SanJuan_Cl	40	2yr	275	147.12	151.24	0.001497	3.08	89.16	30.95
SanJuan_Cl	40	5yr	877	147.12	152.81	0.003439	5.77	176.91	100
SanJuan_Cl	40	10yr	1540	147.12	153.93	0.003353	6.72	288.39	100
SanJuan_Cl	40	25yr	2680	147.12	155.49	0.003002	7.61	444.68	100
SanJuan_Cl	40	50yr	3880	147.12	156.87	0.002812	8.35	582.41	100
SanJuan_Cl	40	100yr	5170	147.12	158.18	0.002692	9.03	713.54	100
SanJuan_Cl	20	2yr	275	147.57	151.16	0.002411	3.42	80.41	35.27
SanJuan_Cl	20	5yr	877	147.57	152.81	0.003504	5.15	192.68	100
SanJuan_Cl	20	10yr	1540	147.57	153.94	0.003087	5.92	305.47	100
SanJuan_Cl	20	25yr	2680	147.57	155.5	0.002735	6.85	460.78	100
SanJuan_Cl	20	50yr	3880	147.57	156.87	0.002569	7.64	597.83	100
SanJuan_Cl	20	100yr	5170	147.57	158.17	0.002468	8.37	728.45	100

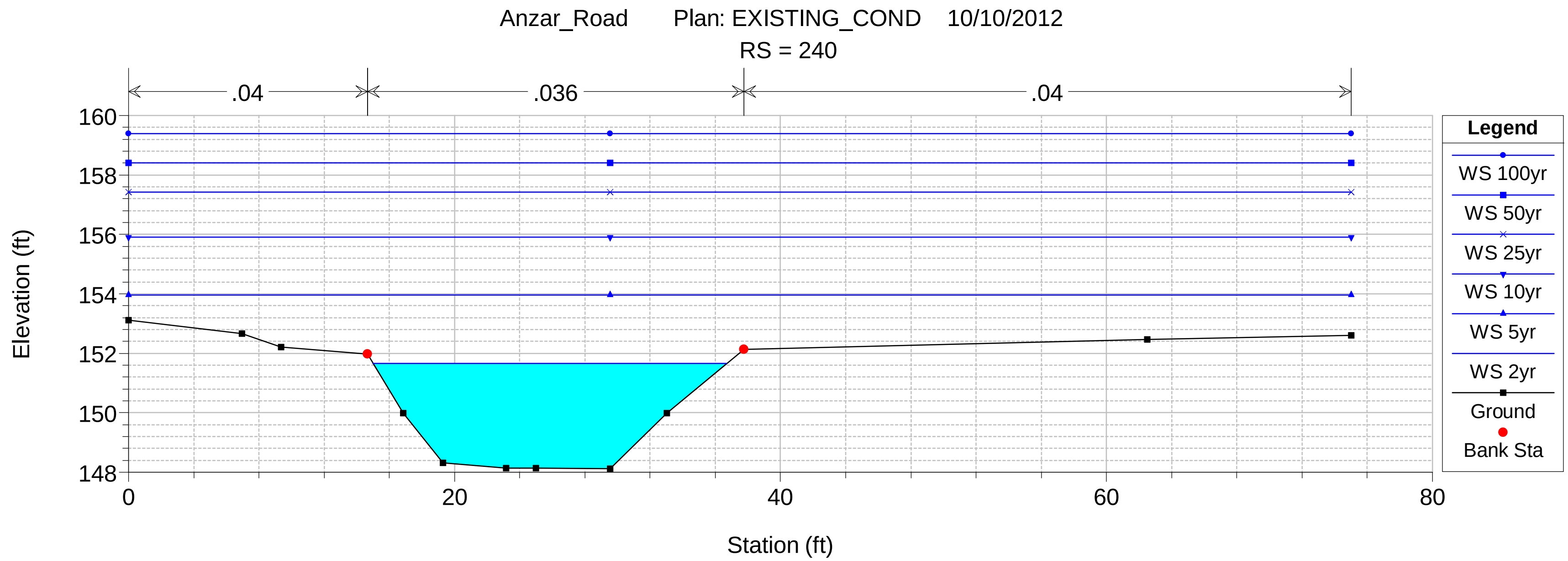
SAN BENITO COUNTY ANZAR ROAD BRIDGE
EXISTING CONDITIONS HEC-RAS MODEL RESULTS

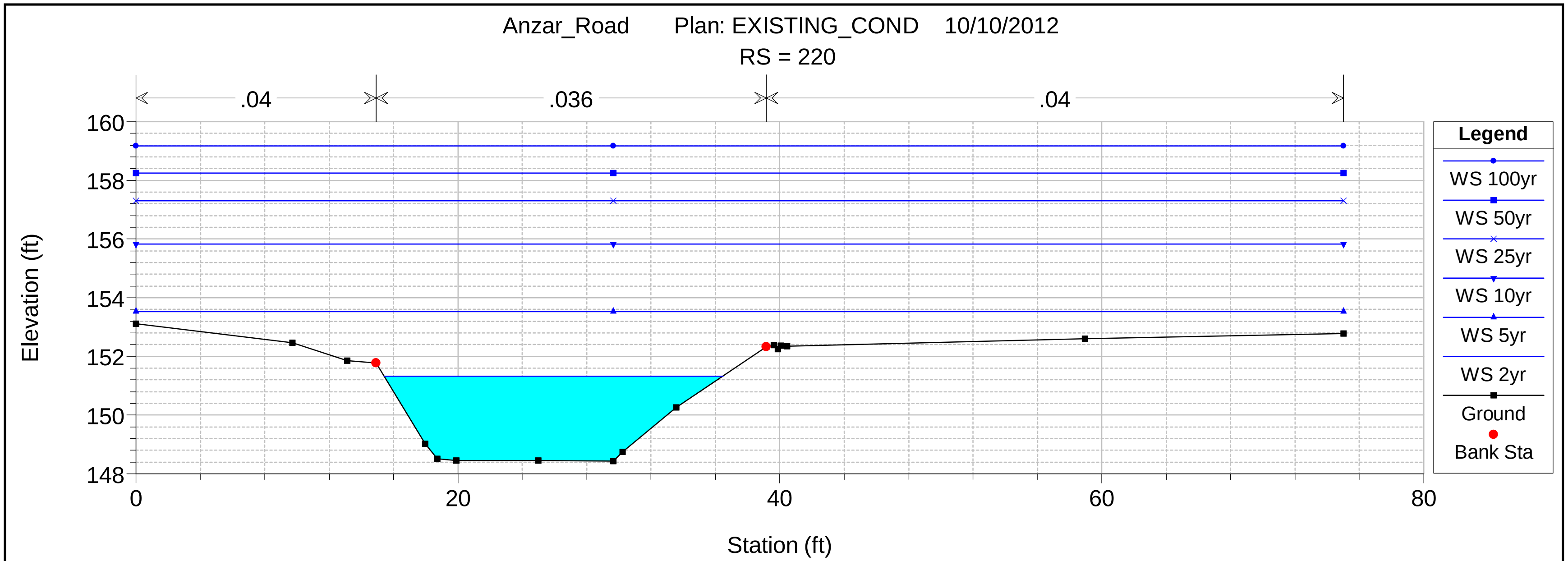
Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)
SanJuan_Cl	0	2yr	275	147.25	151.11	0.003004	3.42	80.5	42.03
SanJuan_Cl	0	5yr	877	147.25	152.77	0.003001	5.01	202.06	88.93
SanJuan_Cl	0	10yr	1540	147.25	153.87	0.003	6.03	299.29	88.93
SanJuan_Cl	0	25yr	2680	147.25	155.35	0.003	7.29	431	88.93
SanJuan_Cl	0	50yr	3880	147.25	156.65	0.003001	8.32	547.09	88.93
SanJuan_Cl	0	100yr	5170	147.25	157.89	0.003001	9.24	657.52	88.93


Anzar_Road Plan: EXISTING_COND 10/10/2012
RS = 291.03
.04
.036
.04
Elevation (ft)
160
158
156
154
152
150
148
146
0
10
20
30
40
50
60
70
Station (ft)
Legend
WS 100yr
WS 50yr
WS 25yr
WS 10yr
WS 5yr
WS 2yr
Ground
Bank Sta

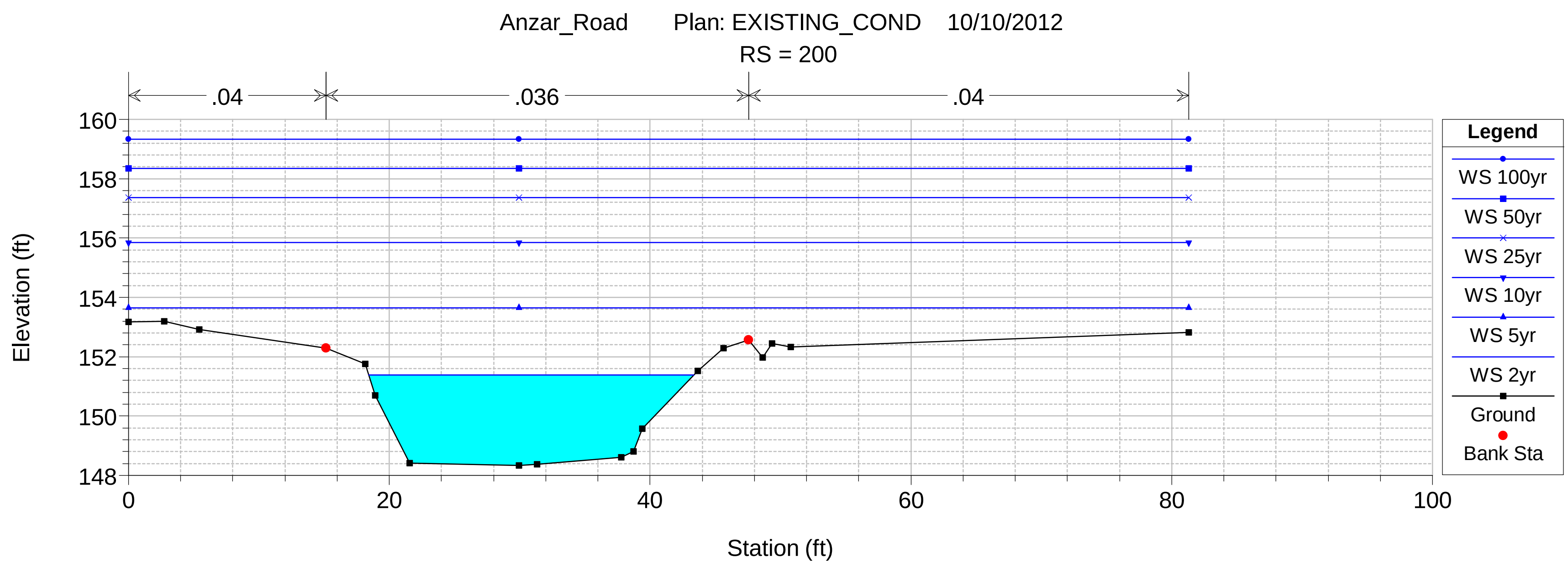

Anzar_Road Plan: EXISTING_COND 10/10/2012
RS = 280
.04
.036
.04
Elevation (ft)
160
158
156
154
152
150
148
146
0
20
40
60
80
Station (ft)
Legend
WS 100yr
WS 50yr
WS 25yr
WS 10yr
WS 5yr
WS 2yr
Ground
Bank Sta


Anzar_Road Plan: EXISTING_COND 10/10/2012
RS = 260
.04
.036
.04
Elevation (ft)
160
158
156
154
152
150
148
146
0
20
40
60
80
Station (ft)
Legend
WS 100yr
WS 50yr
WS 25yr
WS 10yr
WS 5yr
WS 2yr
Ground
Bank Sta

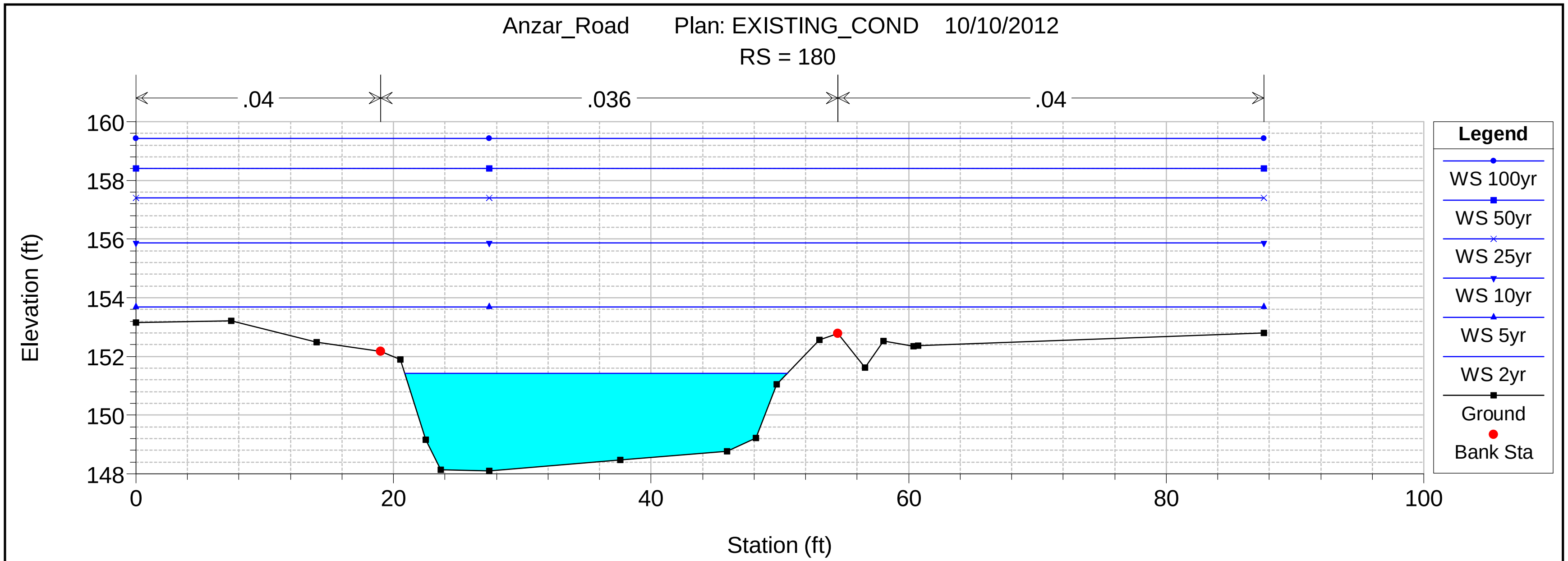

Anzar_Road Plan: EXISTING_COND 10/10/2012
RS = 240
.04
.036
.04
Elevation (ft)
160
158
156
154
152
150
148
0
20
40
60
80
Station (ft)
Legend
WS 100yr
WS 50yr
WS 25yr
WS 10yr
WS 5yr
WS 2yr
Ground
Bank Sta

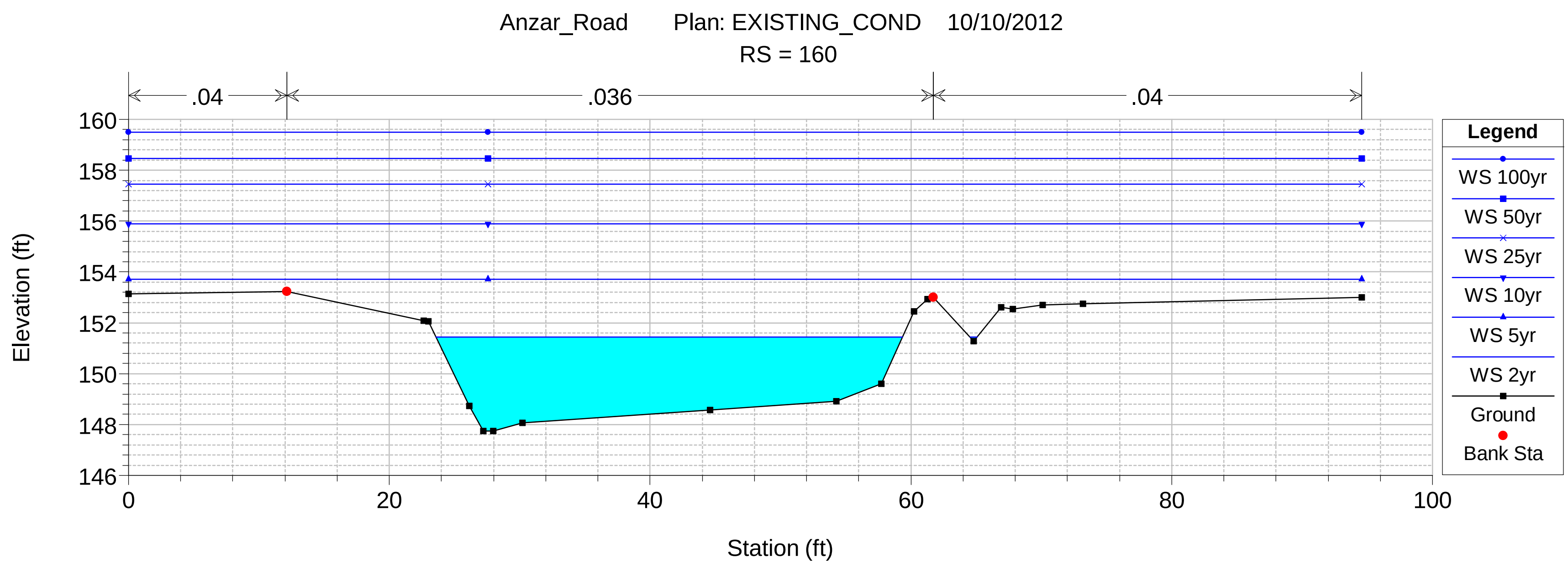


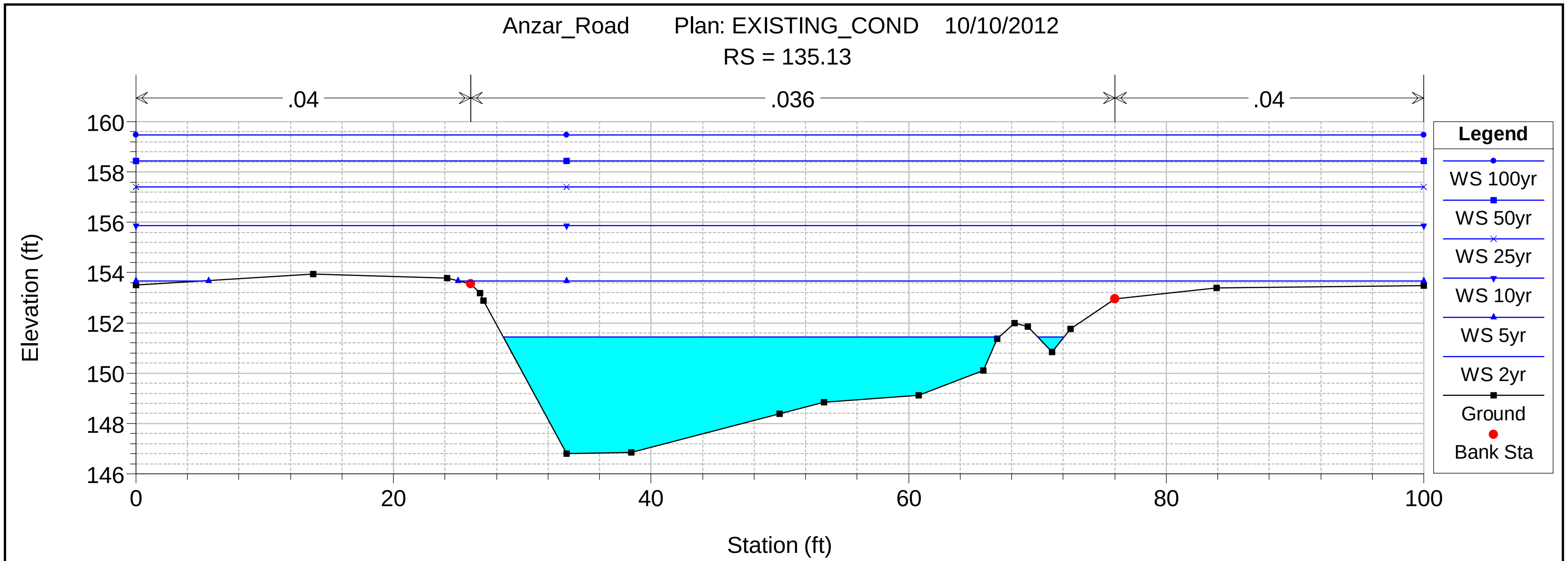
Anzar_Road Plan: EXISTING_COND 10/10/2012
RS = 220
.04
.036
.04
Elevation (ft)
160
158
156
154
152
150
148
0
20
40
60
80
Station (ft)
Legend
WS 100yr
WS 50yr
WS 25yr
WS 10yr
WS 5yr
WS 2yr
Ground
Bank Sta



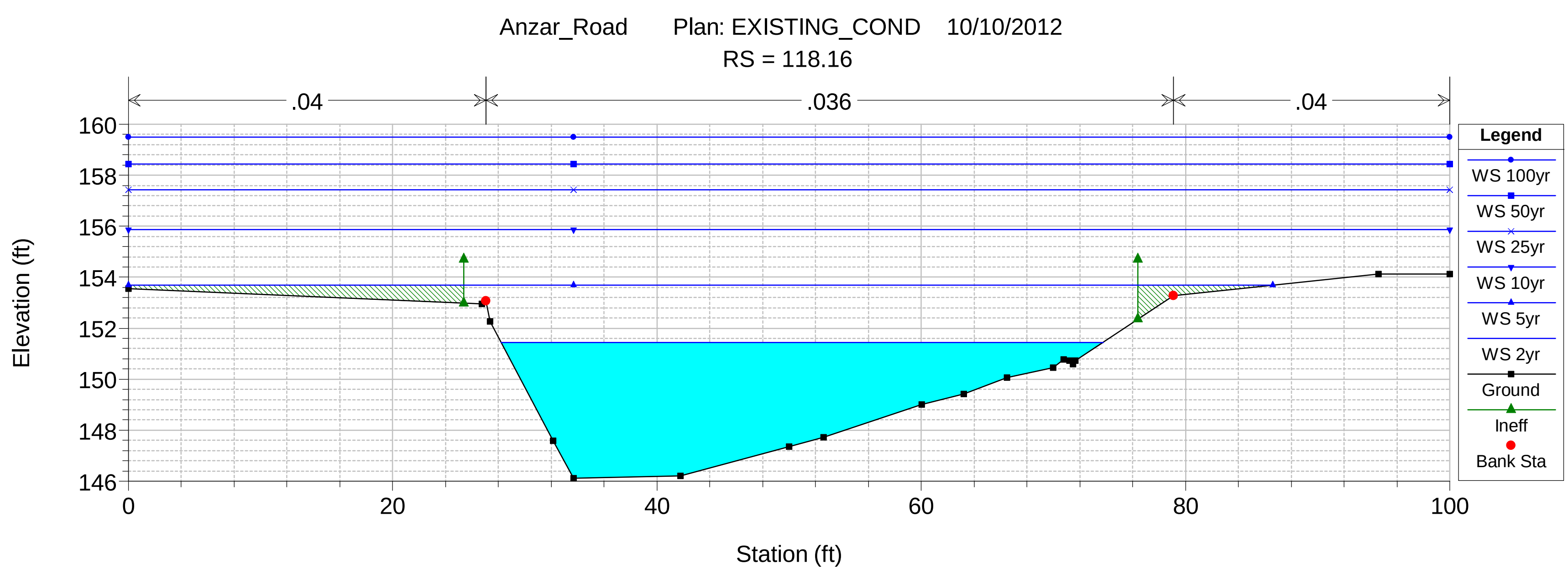
Anzar_Road Plan: EXISTING_COND 10/10/2012
RS = 200
.04
.036
.04
Elevation (ft)
160
158
156
154
152
150
148
0
20
40
60
80
100
Station (ft)
Legend
WS 100yr
WS 50yr
WS 25yr
WS 10yr
WS 5yr
WS 2yr
Ground
Bank Sta


Anzar_Road Plan: EXISTING_COND 10/10/2012
RS = 180
.04
.036
.04
Elevation (ft)
Station (ft)
Legend
WS 100yr
WS 50yr
WS 25yr
WS 10yr
WS 5yr
WS 2yr
Ground
Bank Sta

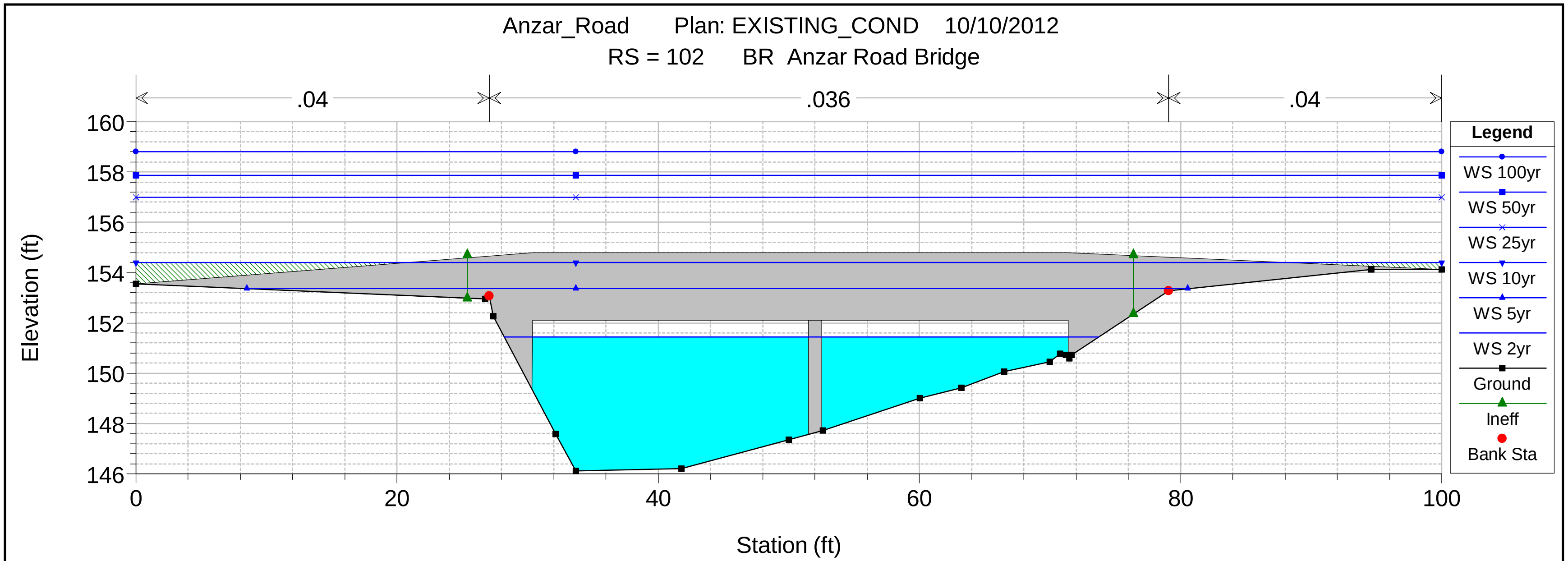

Anzar_Road Plan: EXISTING_COND 10/10/2012
RS = 160
.04
.036
.04
Elevation (ft)
Station (ft)
Legend
WS 100yr
WS 50yr
WS 25yr
WS 10yr
WS 5yr
WS 2yr
Ground
Bank Sta

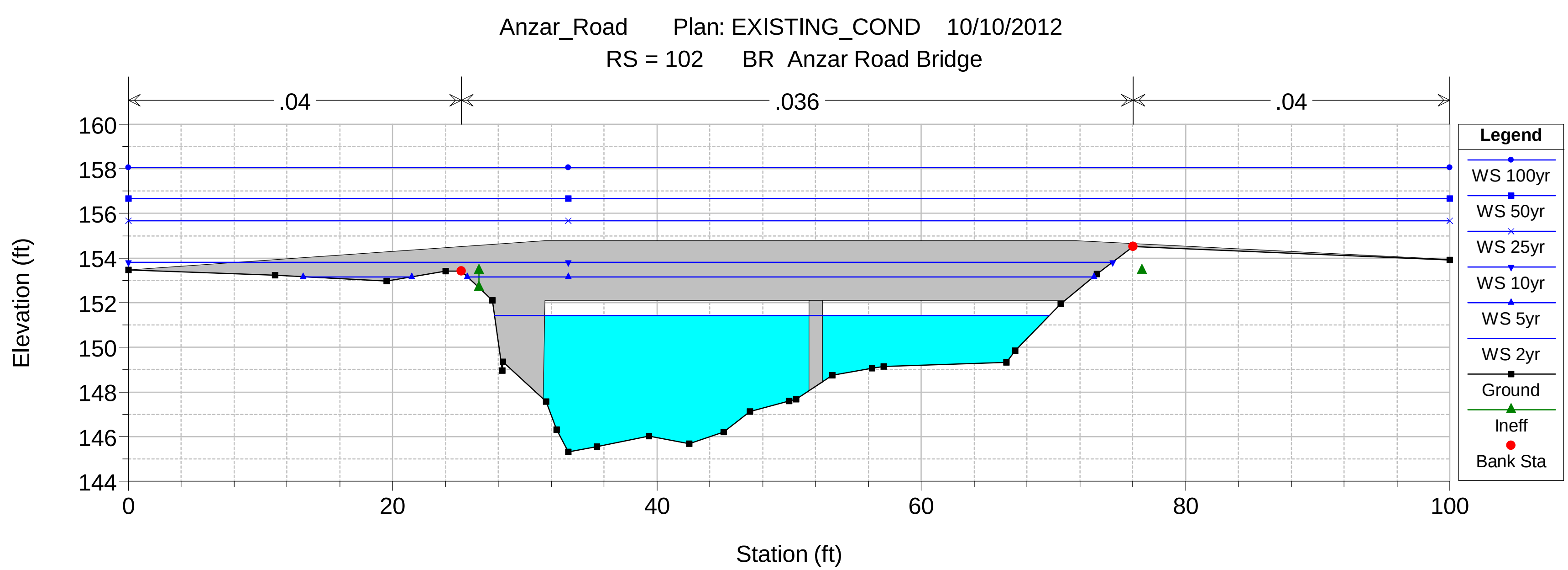


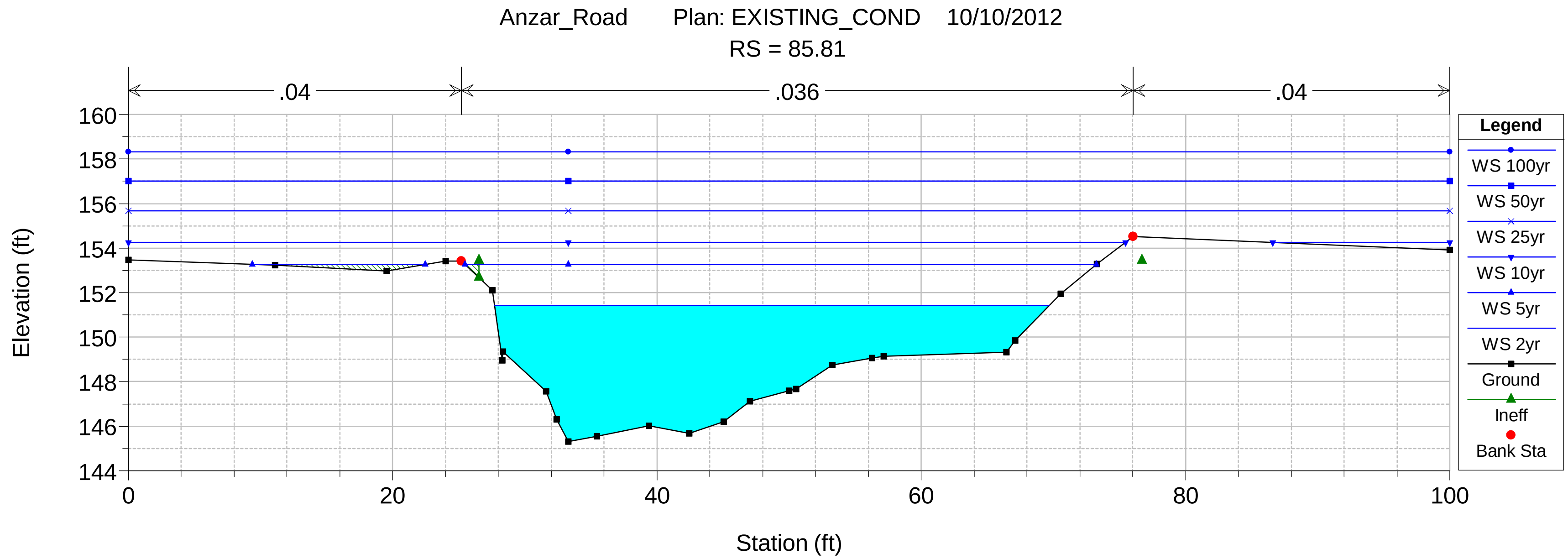
Anzar_Road Plan: EXISTING_COND 10/10/2012
RS = 135.13
.04
.036
.04
Elevation (ft)
Station (ft)
Legend
WS 100yr
WS 50yr
WS 25yr
WS 10yr
WS 5yr
WS 2yr
Ground
Bank Sta



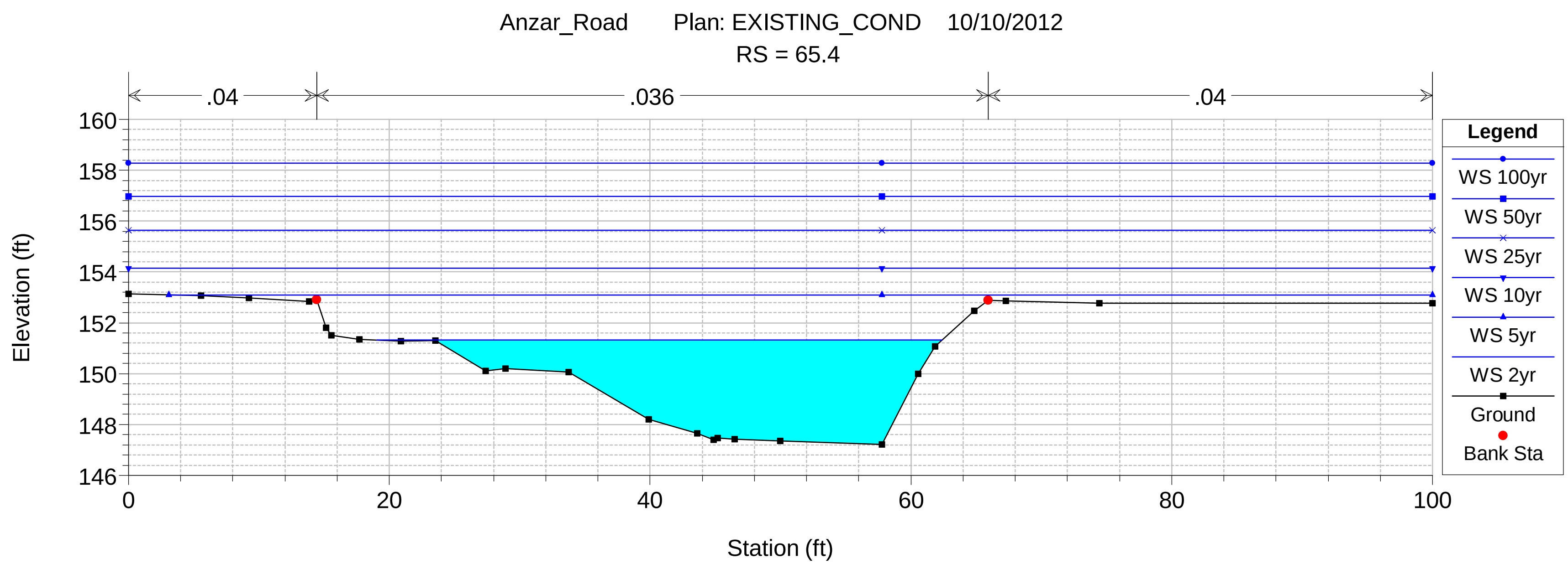
Anzar_Road Plan: EXISTING_COND 10/10/2012
RS = 118.16
.04
.036
.04
Elevation (ft)
Station (ft)
Legend
WS 100yr
WS 50yr
WS 25yr
WS 10yr
WS 5yr
WS 2yr
Ground
Ineff
Bank Sta


Anzar_Road Plan: EXISTING_COND 10/10/2012
RS = 102 BR Anzar Road Bridge
.04
.036
.04
Elevation (ft)
Station (ft)
Legend
WS 100yr
WS 50yr
WS 25yr
WS 10yr
WS 5yr
WS 2yr
Ground
Ineff
Bank Sta

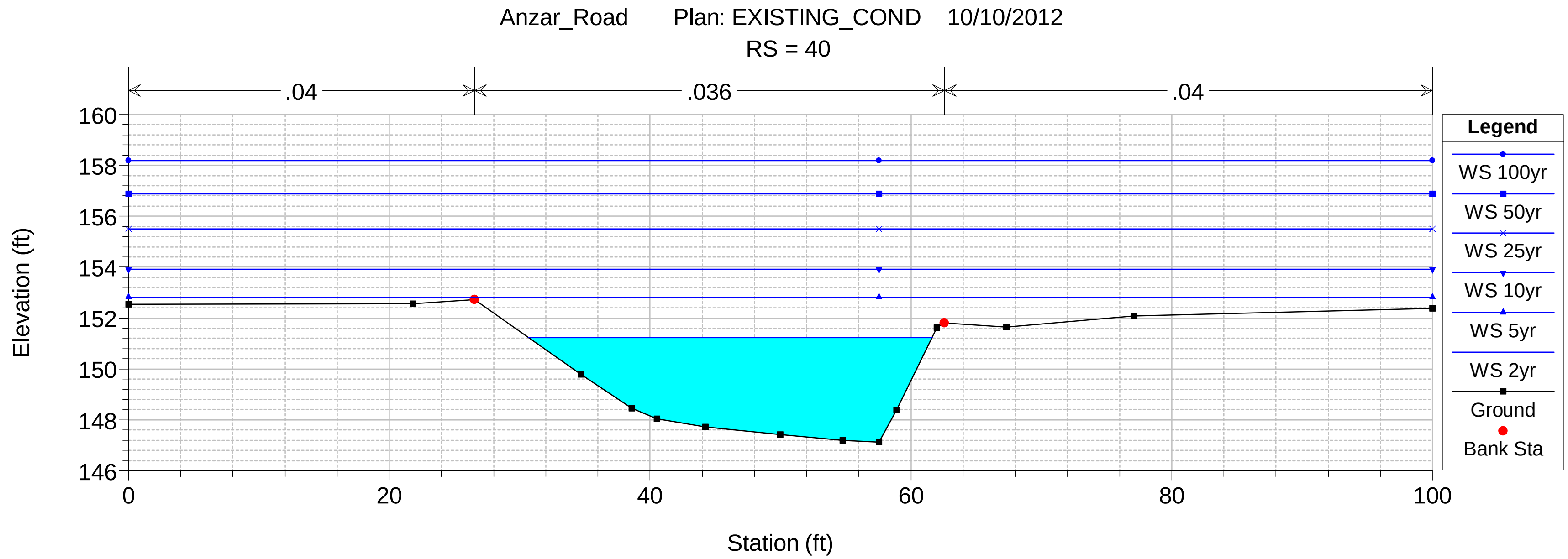

Anzar_Road Plan: EXISTING_COND 10/10/2012
RS = 102 BR Anzar Road Bridge
.04
.036
.04
Elevation (ft)
Station (ft)
Legend
WS 100yr
WS 50yr
WS 25yr
WS 10yr
WS 5yr
WS 2yr
Ground
Ineff
Bank Sta

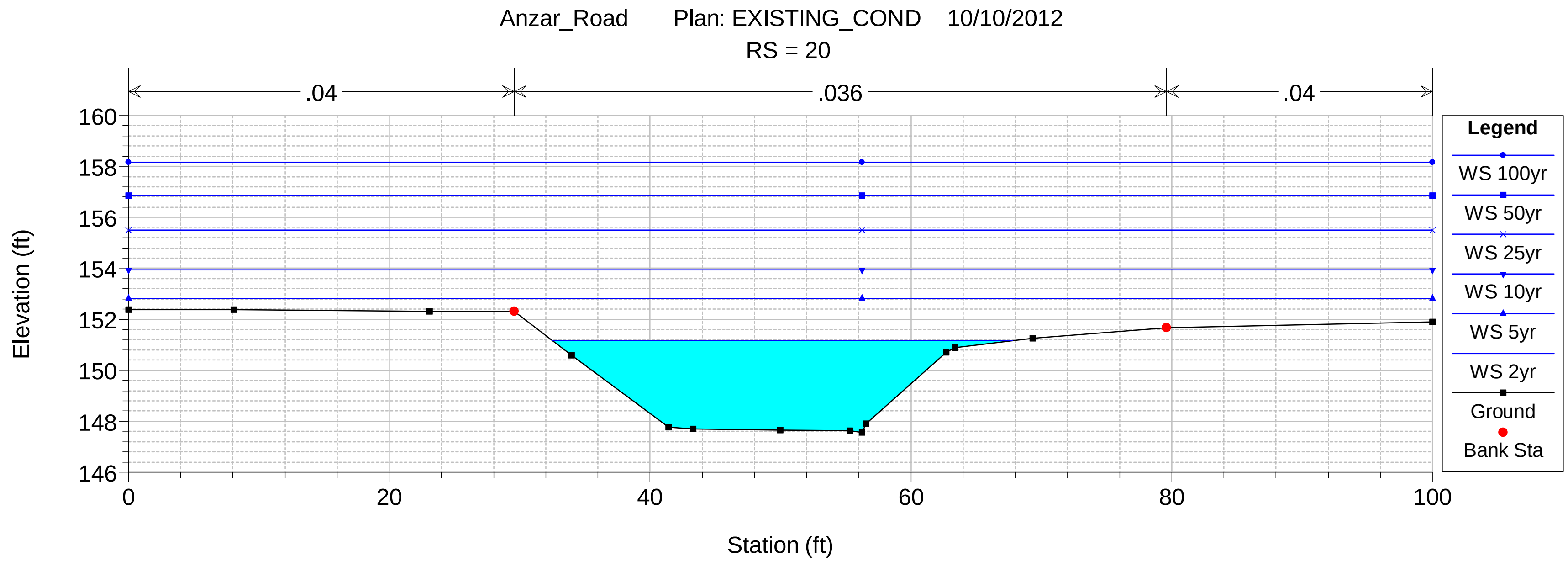


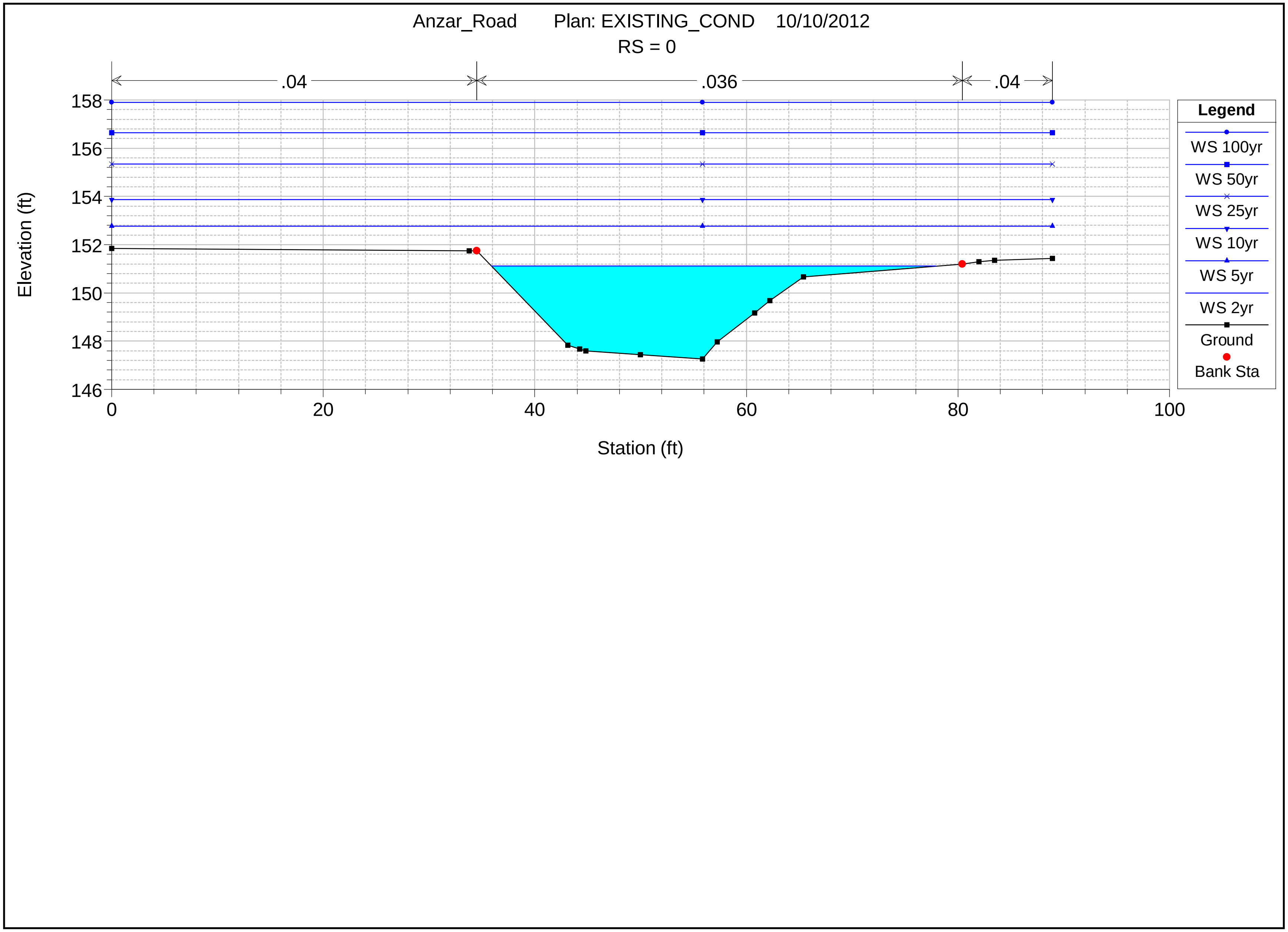
Anzar_Road Plan: EXISTING_COND 10/10/2012
RS = 85.81
.04
.036
.04
Elevation (ft)
160
158
156
154
152
150
148
146
144
0
20
40
60
80
100
Station (ft)
Legend
WS 100yr
WS 50yr
WS 25yr
WS 10yr
WS 5yr
WS 2yr
Ground
Ineff
Bank Sta



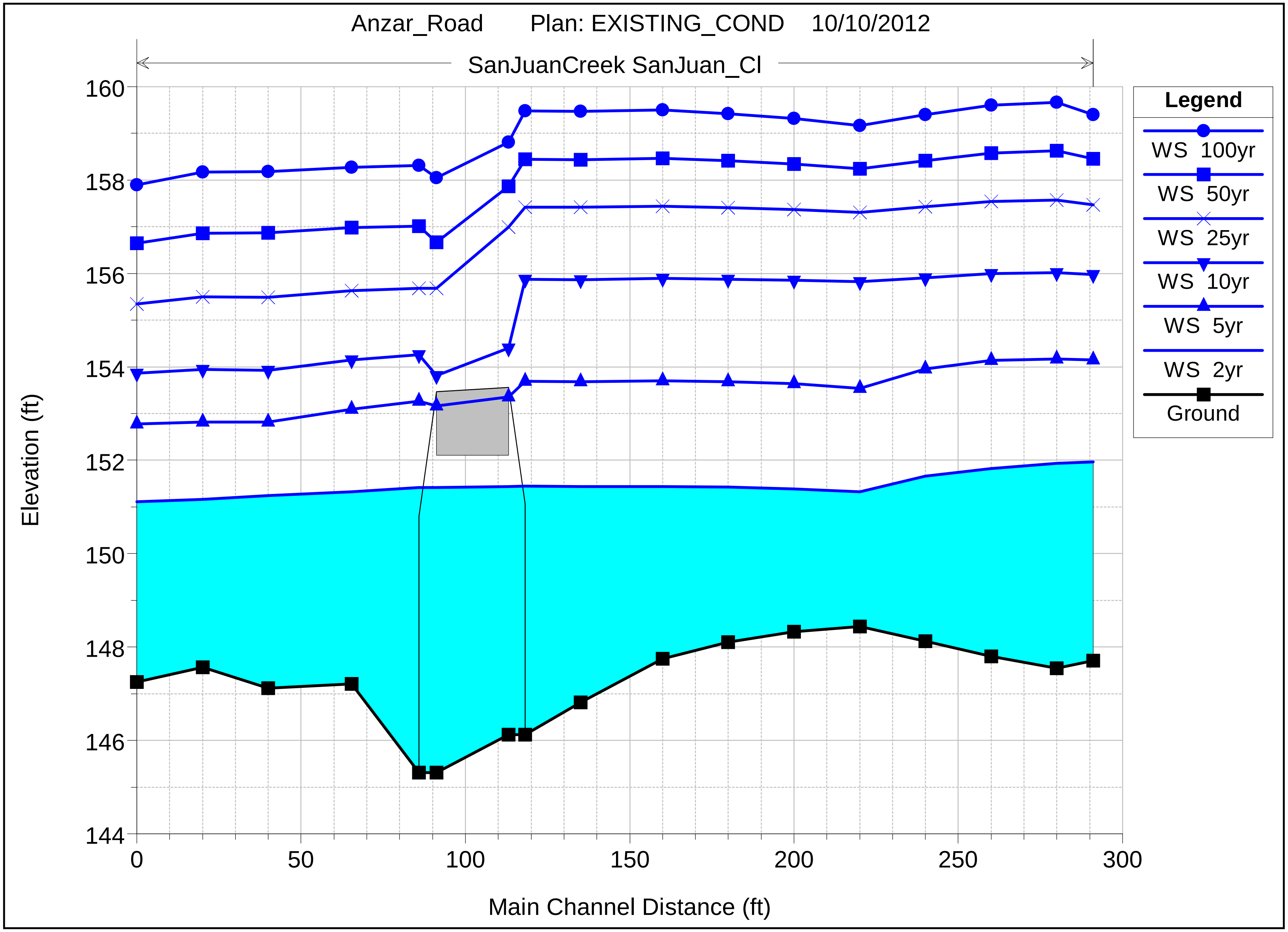
Anzar_Road Plan: EXISTING_COND 10/10/2012
RS = 65.4
.04
.036
.04
Elevation (ft)
160
158
156
154
152
150
148
146
0
20
40
60
80
100
Station (ft)
Legend
WS 100yr
WS 50yr
WS 25yr
WS 10yr
WS 5yr
WS 2yr
Ground
Bank Sta


Anzar_Road Plan: EXISTING_COND 10/10/2012
RS = 40
.04
.036
.04
Elevation (ft)
Station (ft)
Legend
WS 100yr
WS 50yr
WS 25yr
WS 10yr
WS 5yr
WS 2yr
Ground
Bank Sta


Anzar_Road Plan: EXISTING_COND 10/10/2012
RS = 20
.04
.036
.04
Elevation (ft)
Station (ft)
Legend
WS 100yr
WS 50yr
WS 25yr
WS 10yr
WS 5yr
WS 2yr
Ground
Bank Sta



Anzar_Road Plan: EXISTING_COND 10/10/2012
RS = 0
.04
.036
.04
Elevation (ft)
158
156
154
152
150
148
146
0
20
40
60
80
100
Station (ft)
Legend
WS 100yr
WS 50yr
WS 25yr
WS 10yr
WS 5yr
WS 2yr
Ground
Bank Sta



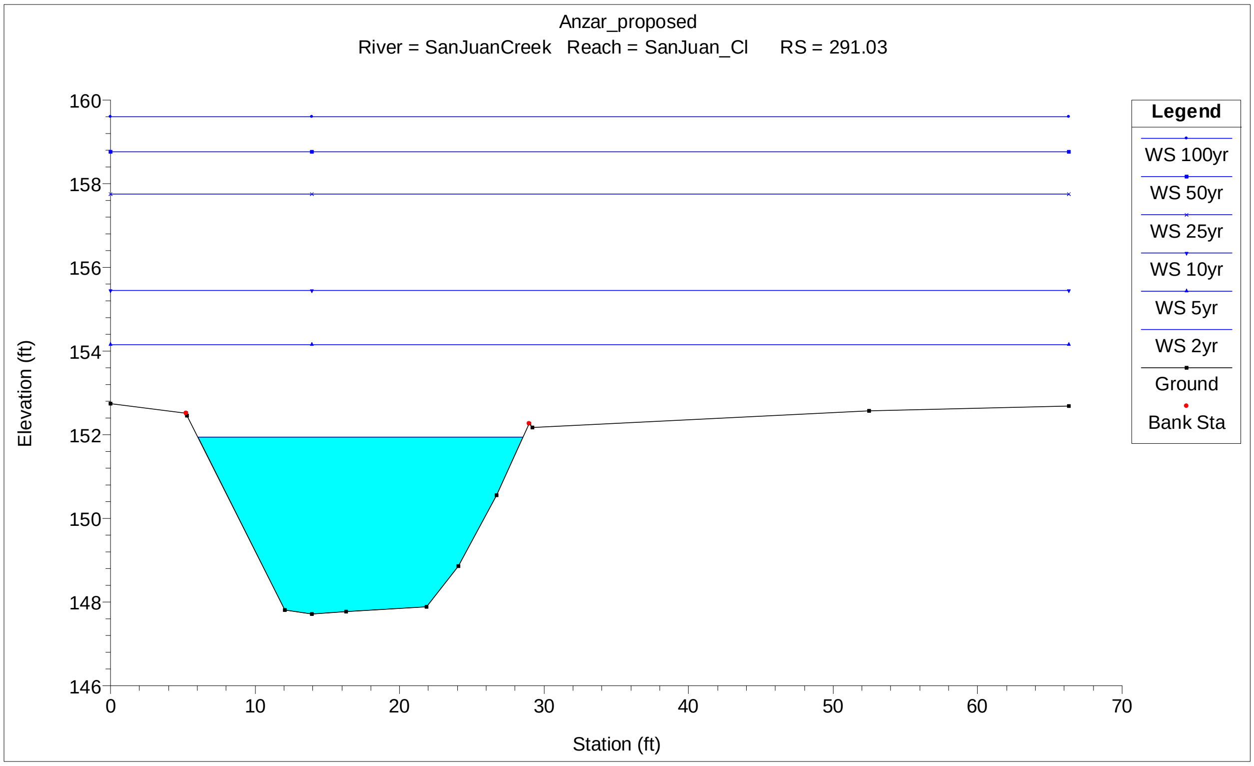
Anzar_Road Plan: EXISTING_COND 10/10/2012
SanJuanCreek SanJuan_Cl
Legend
WS 100yr
WS 50yr
WS 25yr
WS 10yr
WS 5yr
WS 2yr
Ground
Elevation (ft)
Main Channel Distance (ft)
160
158
156
154
152
150
148
146
144
0
50
100
150
200
250
300

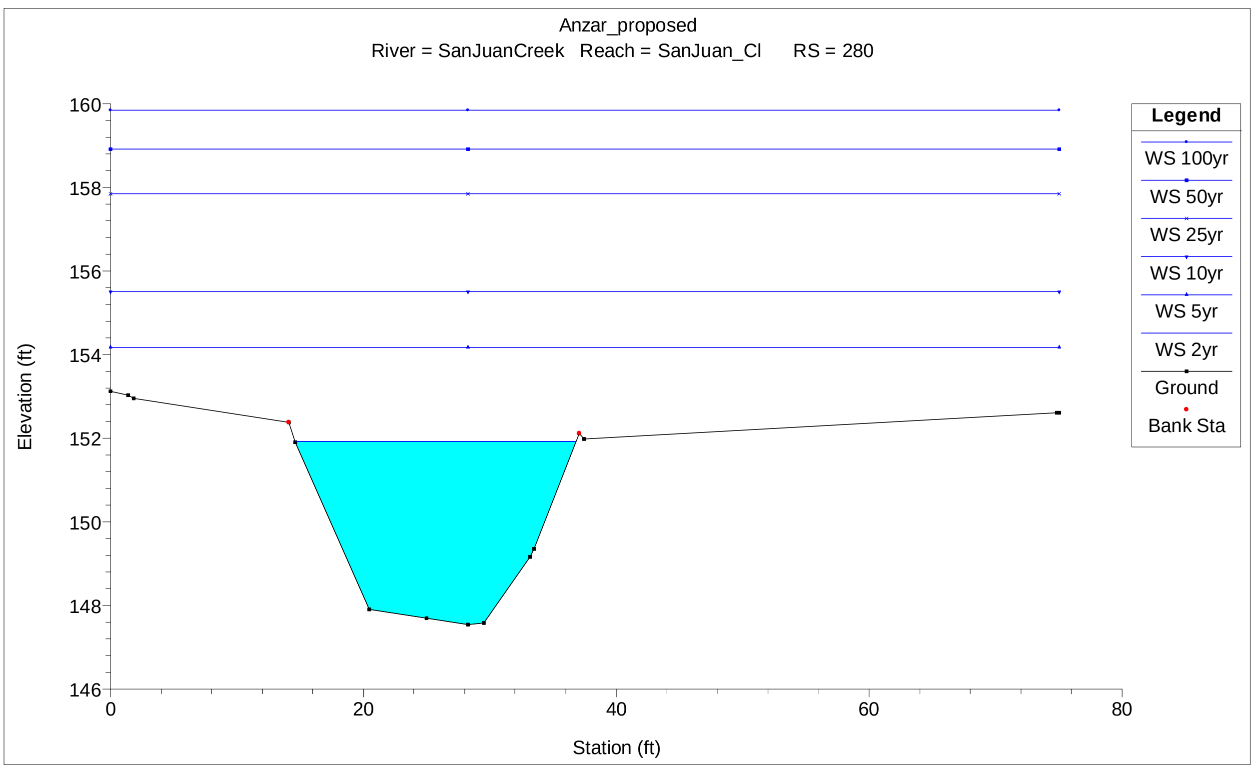
SAN BENITO COUNTY ANZAR ROAD BRIDGE
PROPOSED CONDITIONS HEC-RAS MODEL RESULTS

Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)
SanJuan_Cl	291.03	2yr	275	147.71	151.95	152.2	0.002475	4.02	68.41	22.51
SanJuan_Cl	291.03	5yr	877	147.71	154.16	154.59	0.002589	5.77	191.63	66.31
SanJuan_Cl	291.03	10yr	1540	147.71	155.45	156.05	0.00283	7.01	277.48	66.31
SanJuan_Cl	291.03	25yr	2680	147.71	157.76	158.47	0.002315	7.79	430.33	66.31
SanJuan_Cl	291.03	50yr	3880	147.71	158.76	159.87	0.003131	9.75	496.93	66.31
SanJuan_Cl	291.03	100yr	5170	147.71	159.61	161.19	0.004006	11.67	553.2	66.31
SanJuan_Cl	280	2yr	275	147.55	151.92	152.17	0.002482	4.04	68.09	22.23
SanJuan_Cl	280	5yr	877	147.55	154.18	154.54	0.002199	5.4	212.19	75
SanJuan_Cl	280	10yr	1540	147.55	155.51	155.98	0.002293	6.41	311.85	75
SanJuan_Cl	280	25yr	2680	147.55	157.85	158.4	0.001833	7.03	487.13	75
SanJuan_Cl	280	50yr	3880	147.55	158.92	159.76	0.002417	8.71	567.43	75
SanJuan_Cl	280	100yr	5170	147.55	159.85	161.03	0.003009	10.31	637.66	75
SanJuan_Cl	260	2yr	275	147.8	151.8	152.11	0.00334	4.43	62.06	22.31
SanJuan_Cl	260	5yr	877	147.8	154.14	154.49	0.002229	5.37	213.98	75
SanJuan_Cl	260	10yr	1540	147.8	155.47	155.93	0.002294	6.37	313.58	75
SanJuan_Cl	260	25yr	2680	147.8	157.82	158.36	0.001817	6.98	489.42	75
SanJuan_Cl	260	50yr	3880	147.8	158.87	159.71	0.002408	8.68	568.8	75
SanJuan_Cl	260	100yr	5170	147.8	159.8	160.97	0.003012	10.3	638	75
SanJuan_Cl	240	2yr	275	148.12	151.64	152.02	0.004687	4.98	55.24	21.64
SanJuan_Cl	240	5yr	877	148.12	153.97	154.43	0.003119	6.09	188.66	75
SanJuan_Cl	240	10yr	1540	148.12	155.32	155.87	0.00286	6.9	290.62	75
SanJuan_Cl	240	25yr	2680	148.12	157.72	158.31	0.002044	7.29	470.5	75
SanJuan_Cl	240	50yr	3880	148.12	158.74	159.65	0.002709	9.05	546.9	75
SanJuan_Cl	240	100yr	5170	148.12	159.62	160.89	0.003405	10.76	612.41	75
SanJuan_Cl	220	2yr	275	148.44	151.29	151.88	0.008901	6.15	44.69	20.88
SanJuan_Cl	220	5yr	877	148.44	153.37	154.29	0.007193	8.17	134.91	75
SanJuan_Cl	220	10yr	1540	148.44	155.15	155.8	0.003611	7.45	267.97	75
SanJuan_Cl	220	25yr	2680	148.44	157.63	158.27	0.002261	7.52	454.31	75
SanJuan_Cl	220	50yr	3880	148.44	158.6	159.58	0.003007	9.36	527.45	75
SanJuan_Cl	220	100yr	5170	148.44	159.42	160.81	0.00382	11.17	588.6	75
SanJuan_Cl	200	2yr	275	148.33	151.35	151.68	0.004254	4.6	59.78	24.81
SanJuan_Cl	200	5yr	877	148.33	153.15	153.93	0.006526	7.3	138.76	78.09
SanJuan_Cl	200	10yr	1540	148.33	155.2	155.69	0.002564	6.24	305.65	81.31
SanJuan_Cl	200	25yr	2680	148.33	157.68	158.19	0.001696	6.49	507.41	81.31
SanJuan_Cl	200	50yr	3880	148.33	158.7	159.47	0.002245	8.09	589.69	81.31
SanJuan_Cl	200	100yr	5170	148.33	159.56	160.66	0.002822	9.63	659.96	81.31
SanJuan_Cl	180	2yr	275	148.1	151.39	151.58	0.002103	3.46	79.41	29.6
SanJuan_Cl	180	5yr	877	148.1	153.25	153.75	0.003574	5.86	172.67	87.6
SanJuan_Cl	180	10yr	1540	148.1	155.23	155.61	0.001825	5.48	346.45	87.6
SanJuan_Cl	180	25yr	2680	148.1	157.72	158.13	0.001297	5.83	564.36	87.6

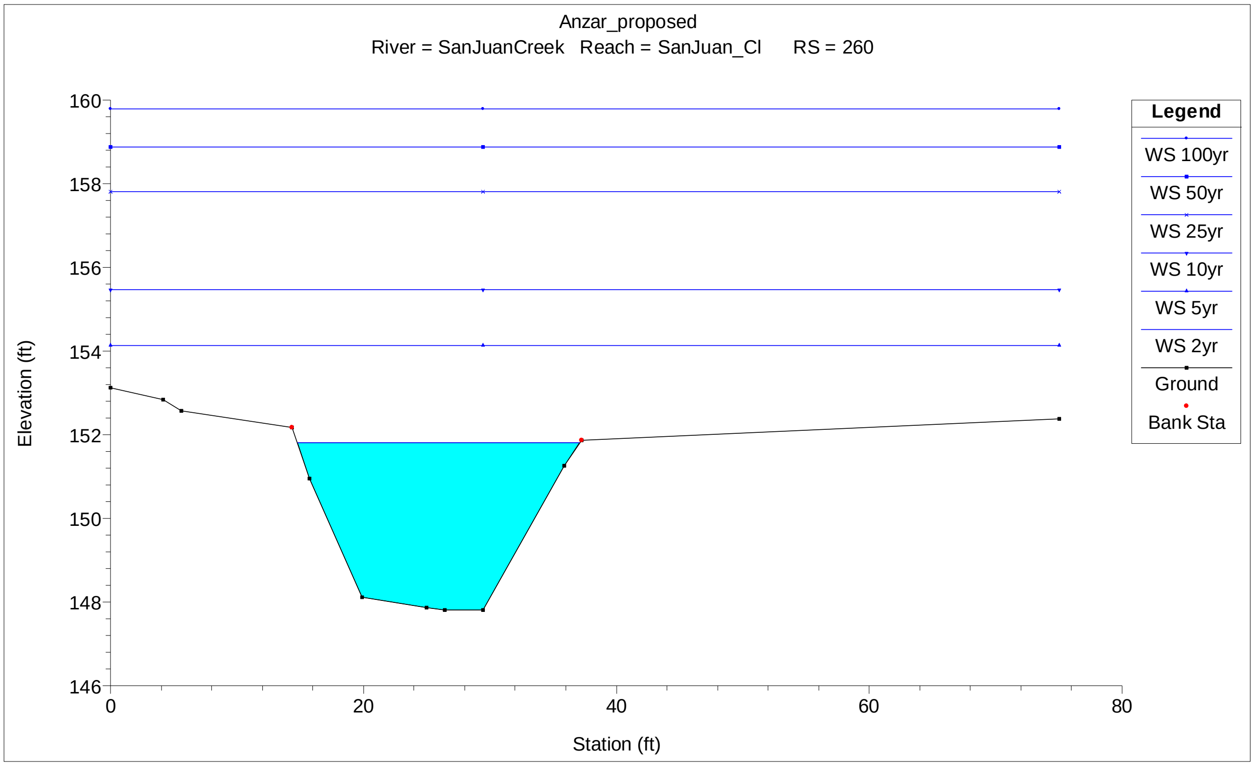
SanJuan_Cl	180	50yr	3880	148.1	158.76	159.39	0.001726	7.27	655.23	87.6
SanJuan_Cl	180	100yr	5170	148.1	159.65	160.55	0.002168	8.66	733.83	87.6
SanJuan_Cl	160	2yr	275	147.75	151.4	151.53	0.001397	2.86	96.23	36.09
SanJuan_Cl	160	5yr	877	147.75	153.28	153.64	0.002911	4.91	193.45	94.59
SanJuan_Cl	160	10yr	1540	147.75	155.26	155.56	0.001474	4.71	380.32	94.59
SanJuan_Cl	160	25yr	2680	147.75	157.75	158.09	0.00104	5.08	616.15	94.59
SanJuan_Cl	160	50yr	3880	147.75	158.81	159.33	0.001372	6.34	716.1	94.59
SanJuan_Cl	160	100yr	5170	147.75	159.73	160.46	0.001706	7.54	803.29	94.59
SanJuan_Cl	135.13	2yr	275	147.9	151.41	151.49	0.000734	2.22	123.78	42.58
SanJuan_Cl	135.13	5yr	877	147.9	153.29	153.56	0.001787	4.14	212.02	55.52
SanJuan_Cl	135.13	10yr	1540	147.9	155.24	155.52	0.001213	4.4	391.43	100
SanJuan_Cl	135.13	25yr	2680	147.9	157.74	158.06	0.000879	4.79	641.88	100
SanJuan_Cl	135.13	50yr	3880	147.9	158.8	159.28	0.001162	5.98	747.78	100
SanJuan_Cl	135.13	100yr	5170	147.9	159.73	160.4	0.001445	7.11	840.43	100
SanJuan_Cl	102		Bridge							
SanJuan_Cl	65.4	2yr	275	147.6	151.37	151.43	0.000594	2.08	132.32	42.43
SanJuan_Cl	65.4	5yr	877	147.6	153.17	153.43	0.001613	4.06	215.78	53.13
SanJuan_Cl	65.4	10yr	1540	147.6	154.15	154.62	0.002489	5.57	293.26	100
SanJuan_Cl	65.4	25yr	2680	147.6	155.58	156.27	0.002687	6.91	436.22	100
SanJuan_Cl	65.4	50yr	3880	147.6	156.93	157.77	0.002598	7.76	571.02	100
SanJuan_Cl	65.4	100yr	5170	147.6	158.23	159.21	0.002499	8.47	701.46	100
SanJuan_Cl	40	2yr	275	147.12	151.24	151.39	0.001497	3.08	89.16	30.95
SanJuan_Cl	40	5yr	877	147.12	152.81	153.3	0.003439	5.77	176.93	100
SanJuan_Cl	40	10yr	1540	147.12	153.93	154.52	0.003353	6.72	288.39	100
SanJuan_Cl	40	25yr	2680	147.12	155.49	156.19	0.003002	7.61	444.68	100
SanJuan_Cl	40	50yr	3880	147.12	156.87	157.69	0.002812	8.35	582.41	100
SanJuan_Cl	40	100yr	5170	147.12	158.18	159.13	0.002692	9.03	713.54	100
SanJuan_Cl	20	2yr	275	147.57	151.16	151.35	0.002411	3.42	80.41	35.27
SanJuan_Cl	20	5yr	877	147.57	152.81	153.2	0.003503	5.15	192.7	100
SanJuan_Cl	20	10yr	1540	147.57	153.94	154.42	0.003087	5.92	305.47	100
SanJuan_Cl	20	25yr	2680	147.57	155.5	156.1	0.002735	6.85	460.78	100
SanJuan_Cl	20	50yr	3880	147.57	156.87	157.61	0.002569	7.64	597.83	100
SanJuan_Cl	20	100yr	5170	147.57	158.17	159.06	0.002468	8.37	728.45	100
SanJuan_Cl	0	2yr	275	147.25	151.11	151.29	0.003004	3.42	80.5	42.03
SanJuan_Cl	0	5yr	877	147.25	152.77	153.13	0.003	5.01	202.08	88.93
SanJuan_Cl	0	10yr	1540	147.25	153.87	154.35	0.003	6.03	299.29	88.93
SanJuan_Cl	0	25yr	2680	147.25	155.35	156.04	0.003	7.29	431	88.93
SanJuan_Cl	0	50yr	3880	147.25	156.65	157.54	0.003001	8.32	547.09	88.93
SanJuan_Cl	0	100yr	5170	147.25	157.89	158.98	0.003001	9.24	657.52	88.93

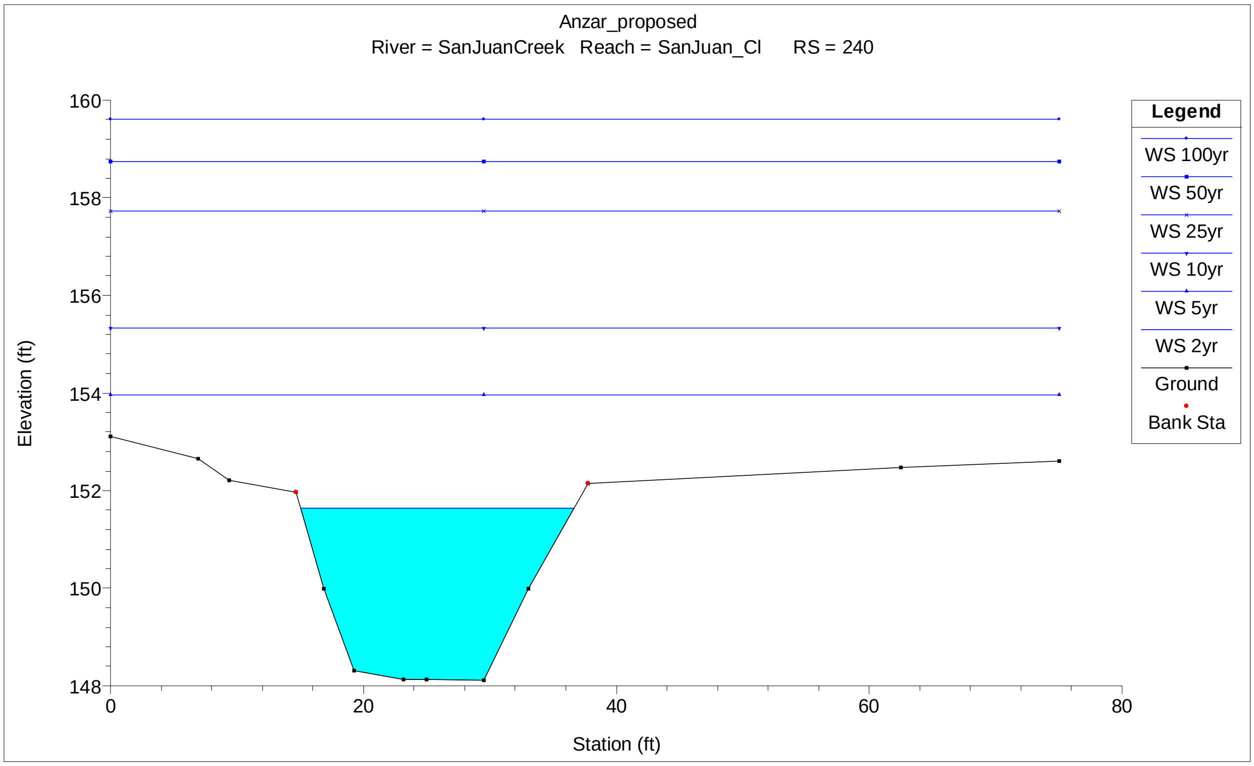
Anzar Road Bridge Hydraulics HEC-RAS Cross Sections
Proposed Conditions



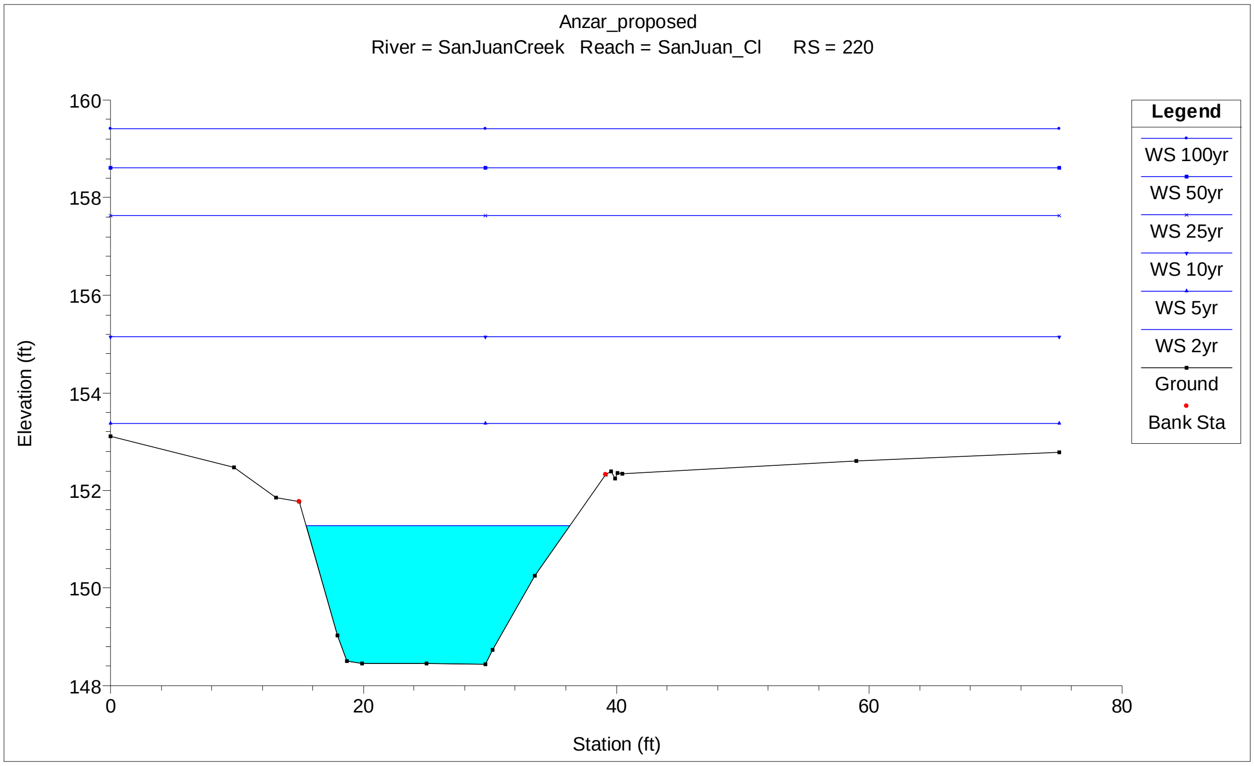


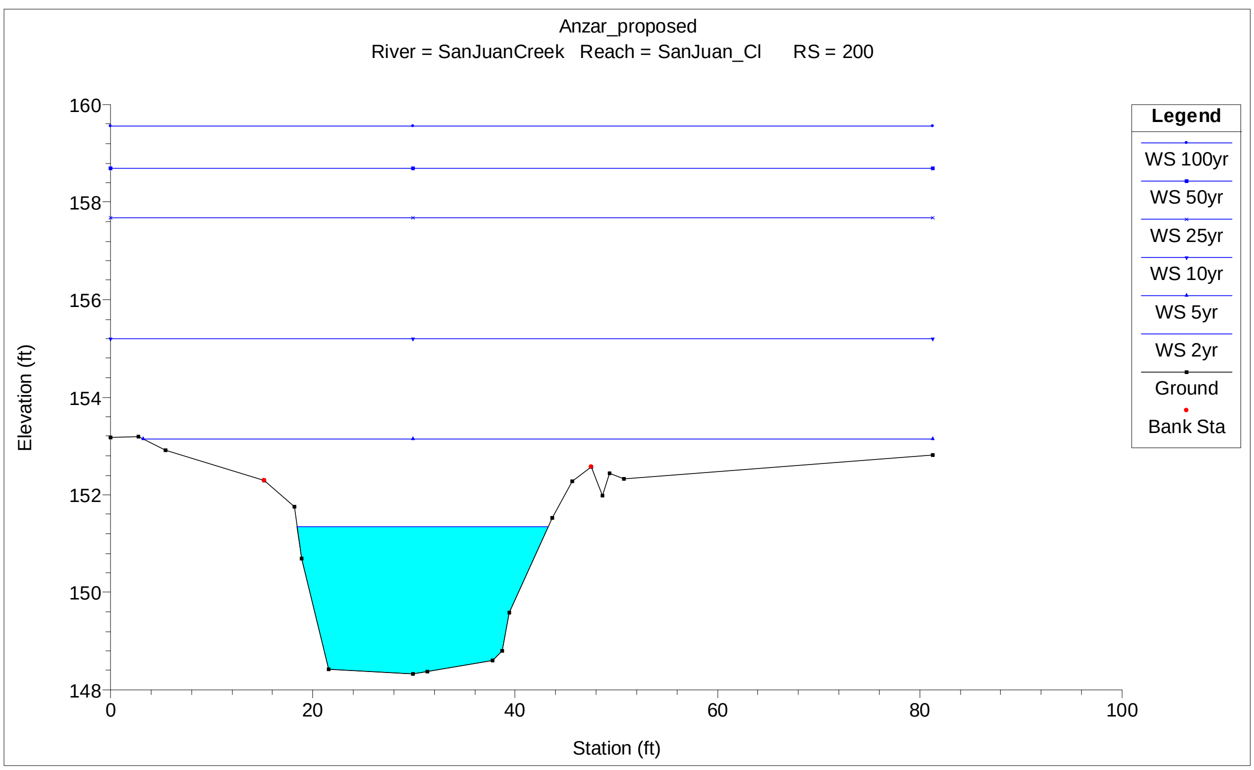
Anzar Road Bridge Hydraulics HEC-RAS Cross Sections
Proposed Conditions



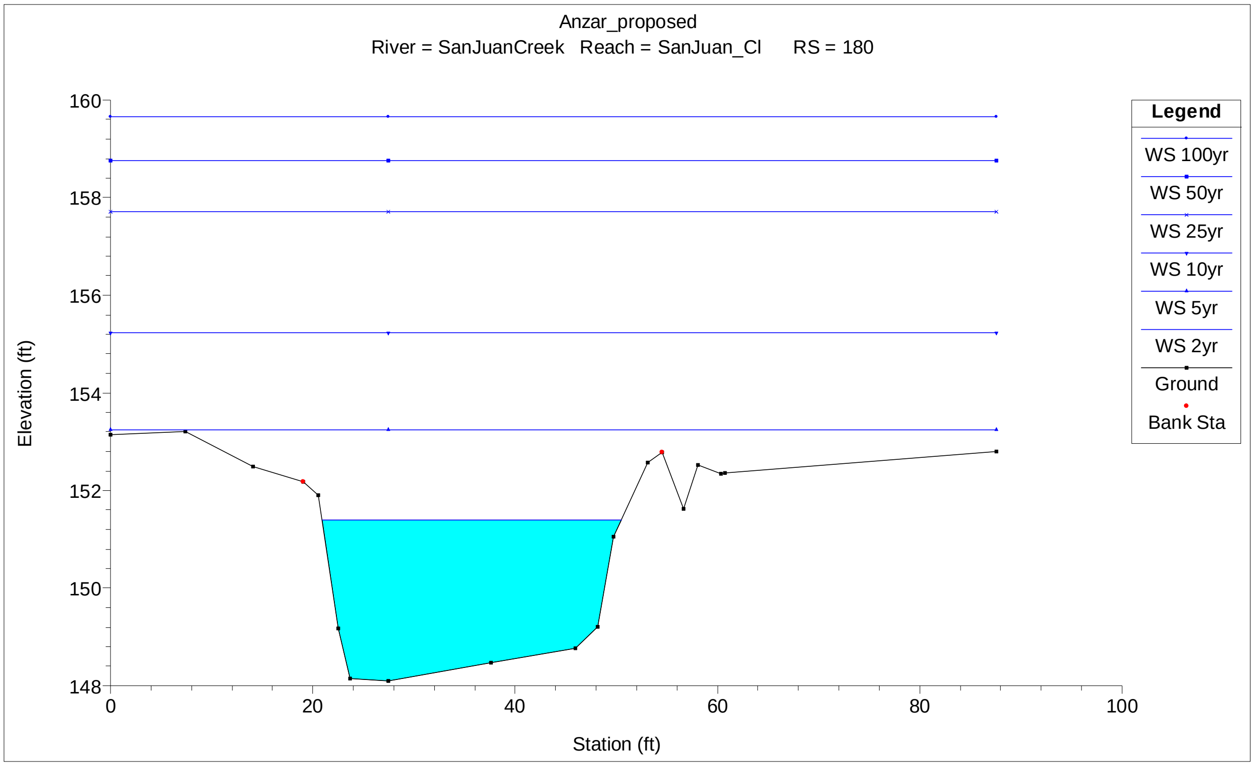


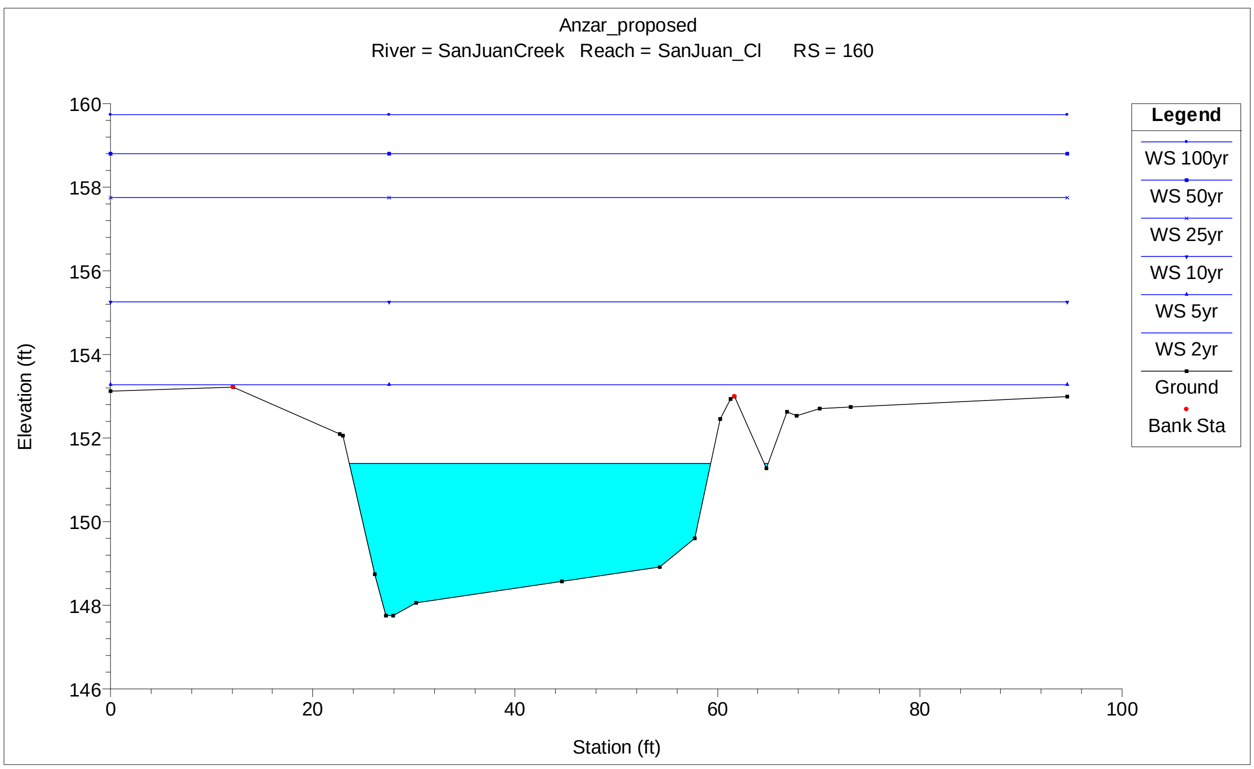
Anzar Road Bridge Hydraulics HEC-RAS Cross Sections
Proposed Conditions



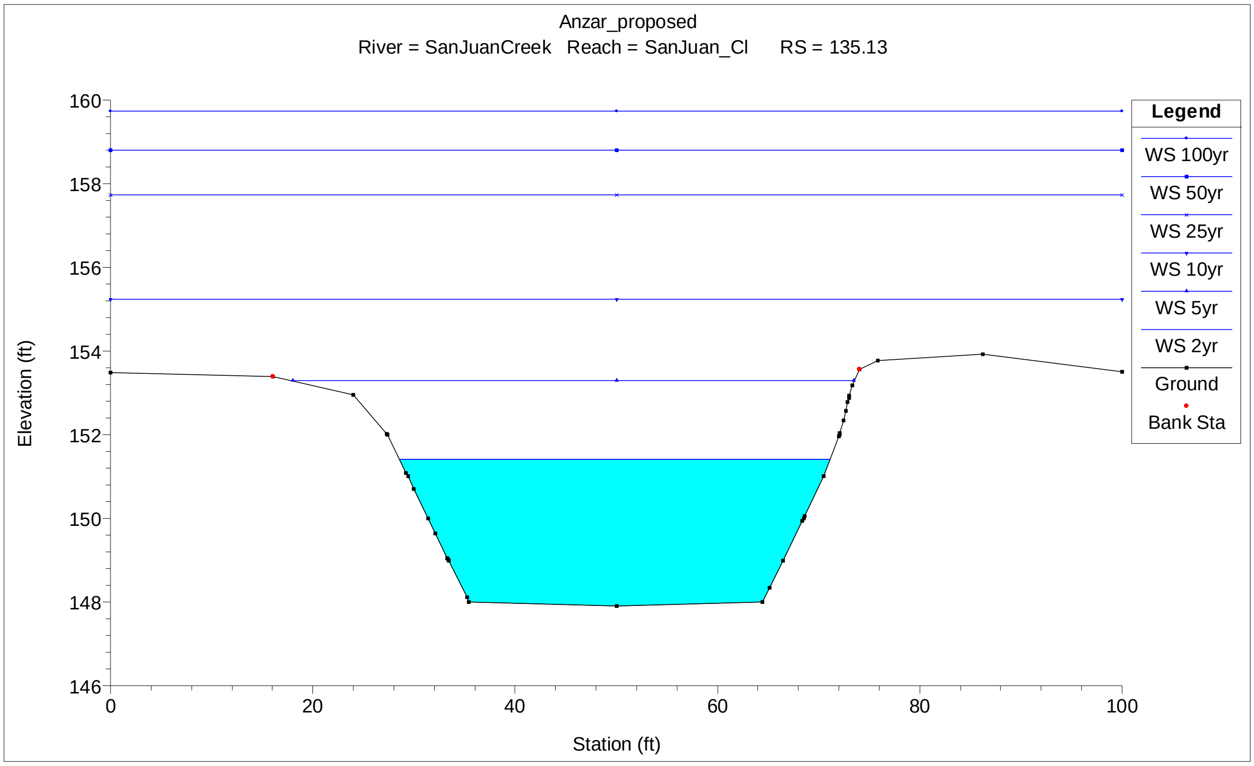


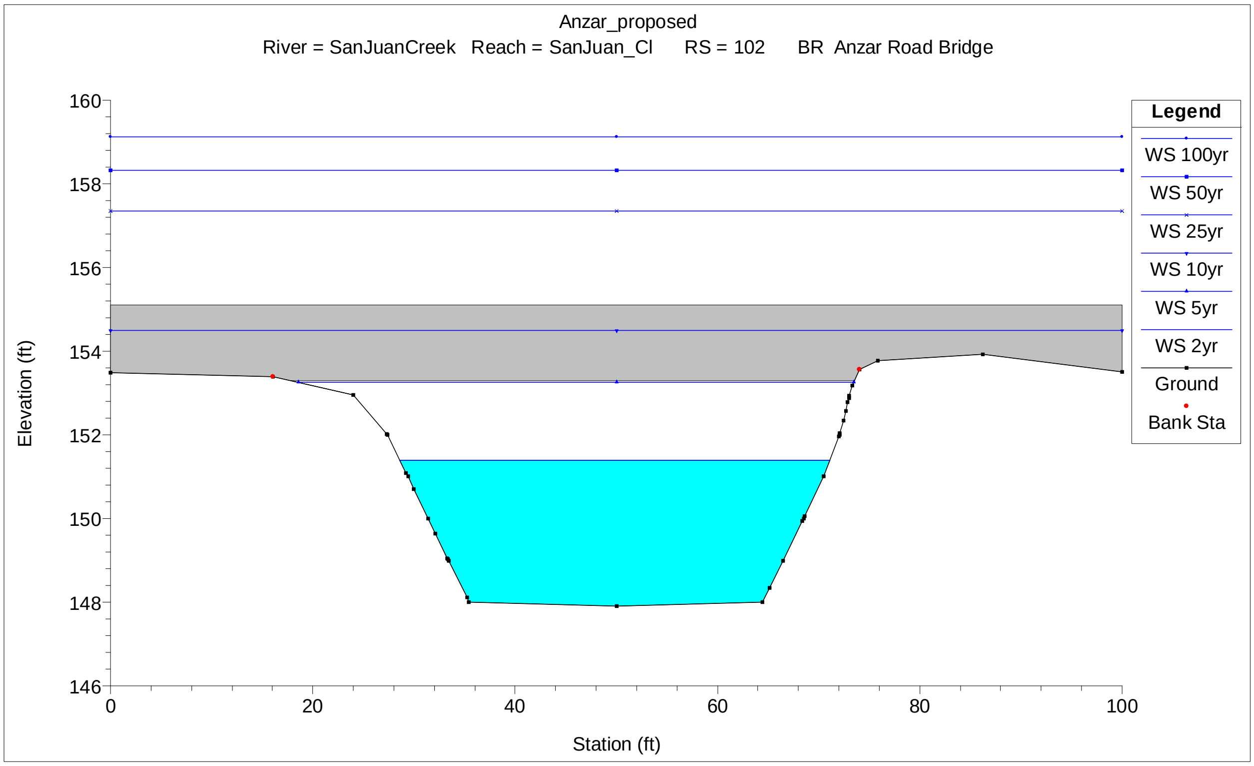
Anzar Road Bridge Hydraulics HEC-RAS Cross Sections
Proposed Conditions



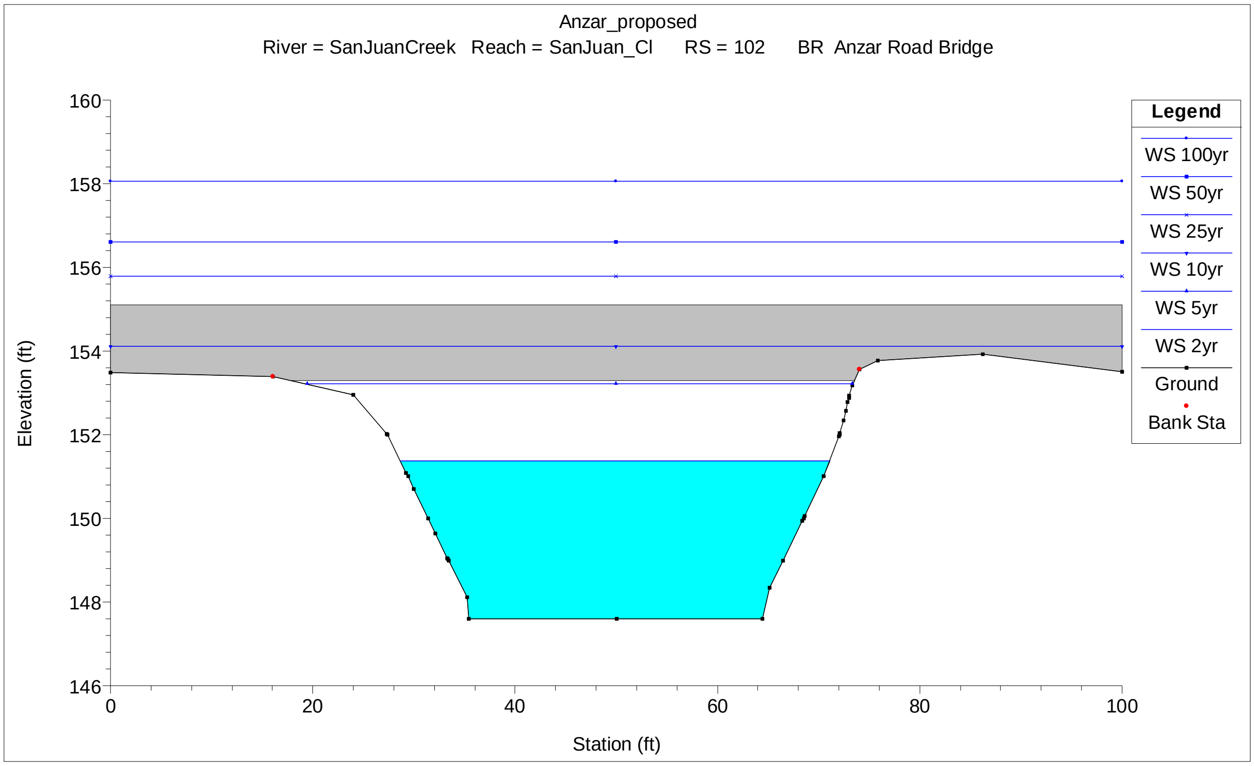


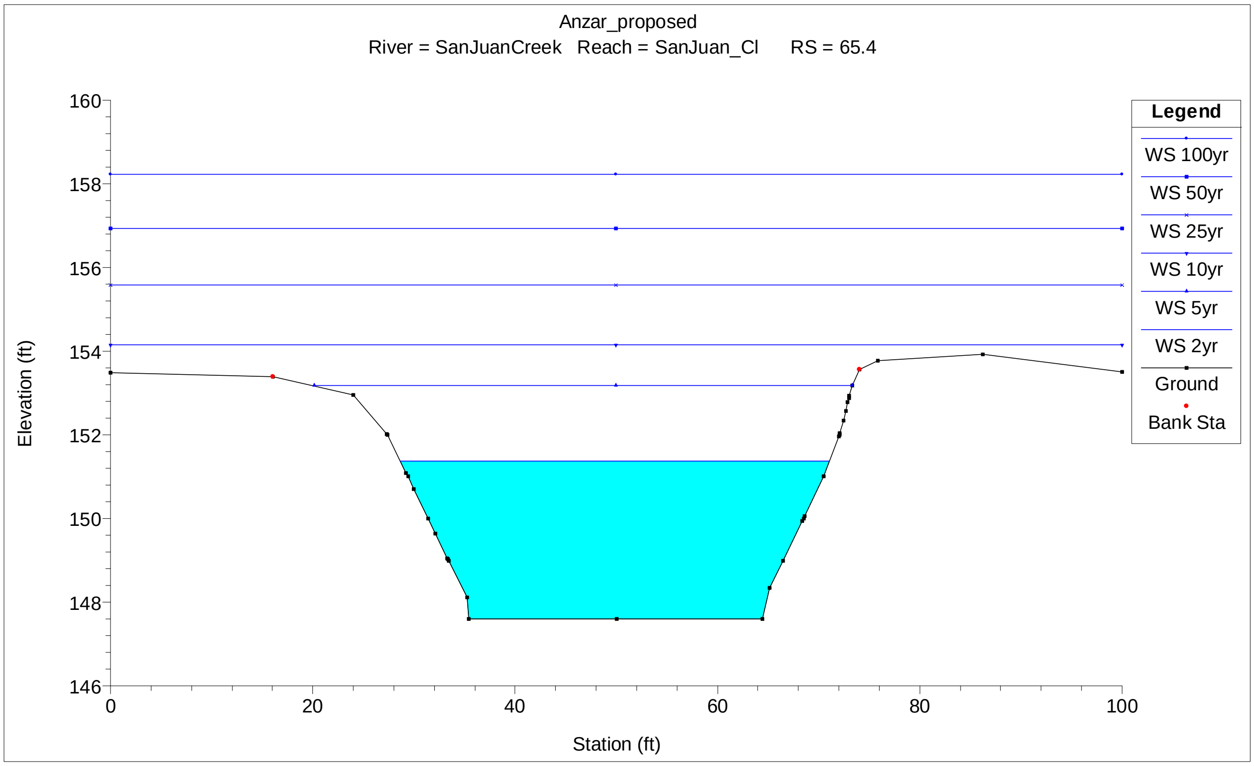
Anzar Road Bridge Hydraulics HEC-RAS Cross Sections
Proposed Conditions



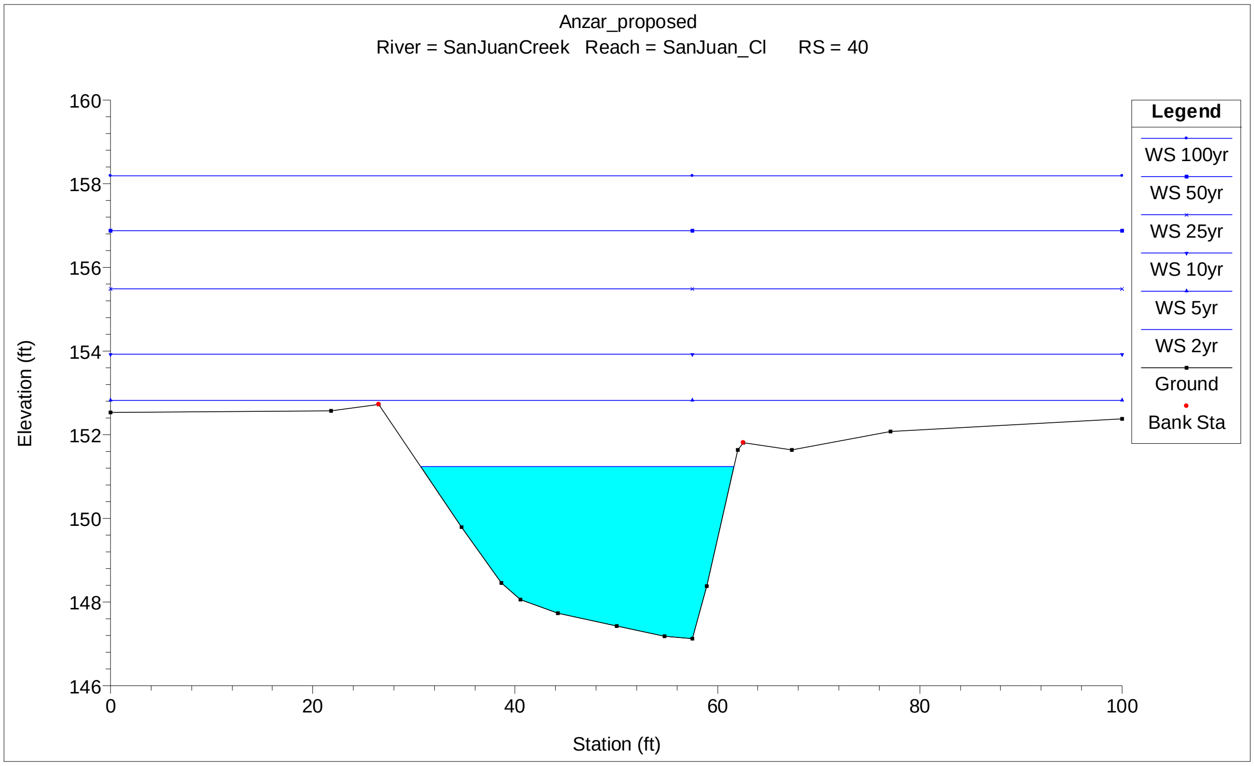


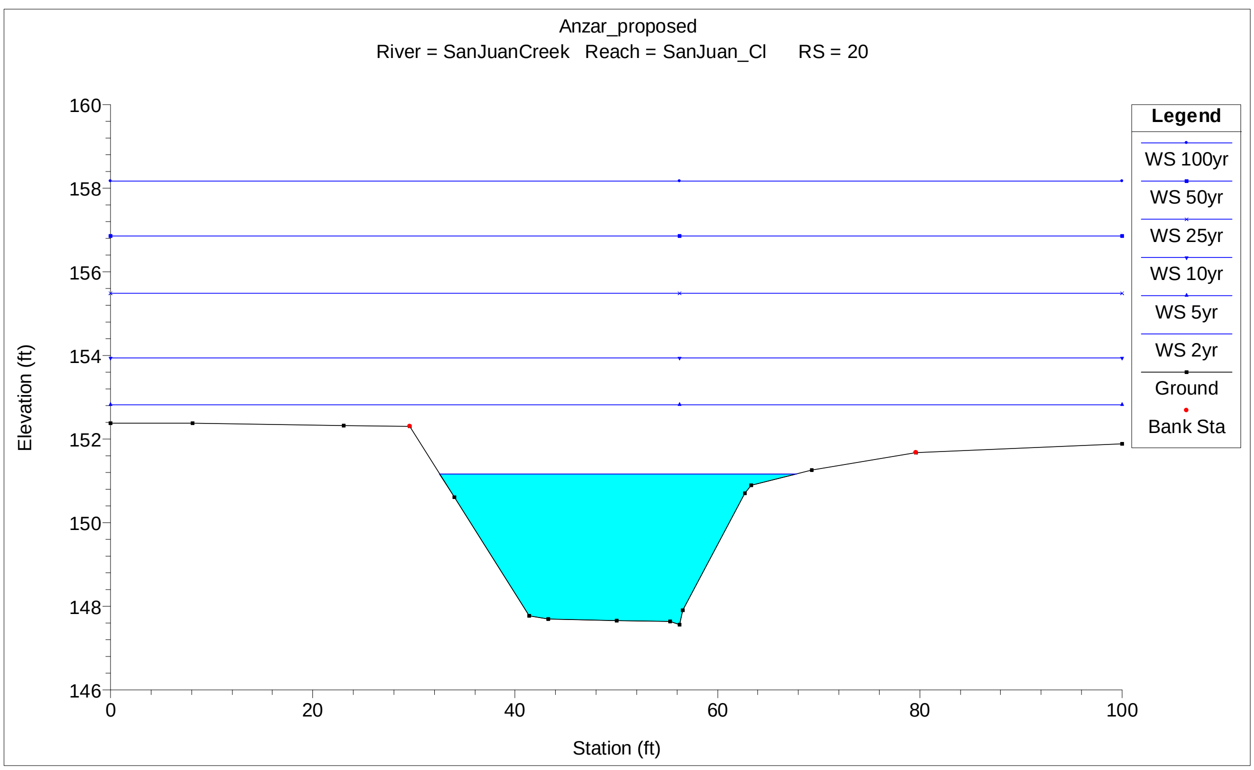
Anzar Road Bridge Hydraulics HEC-RAS Cross Sections
Proposed Conditions



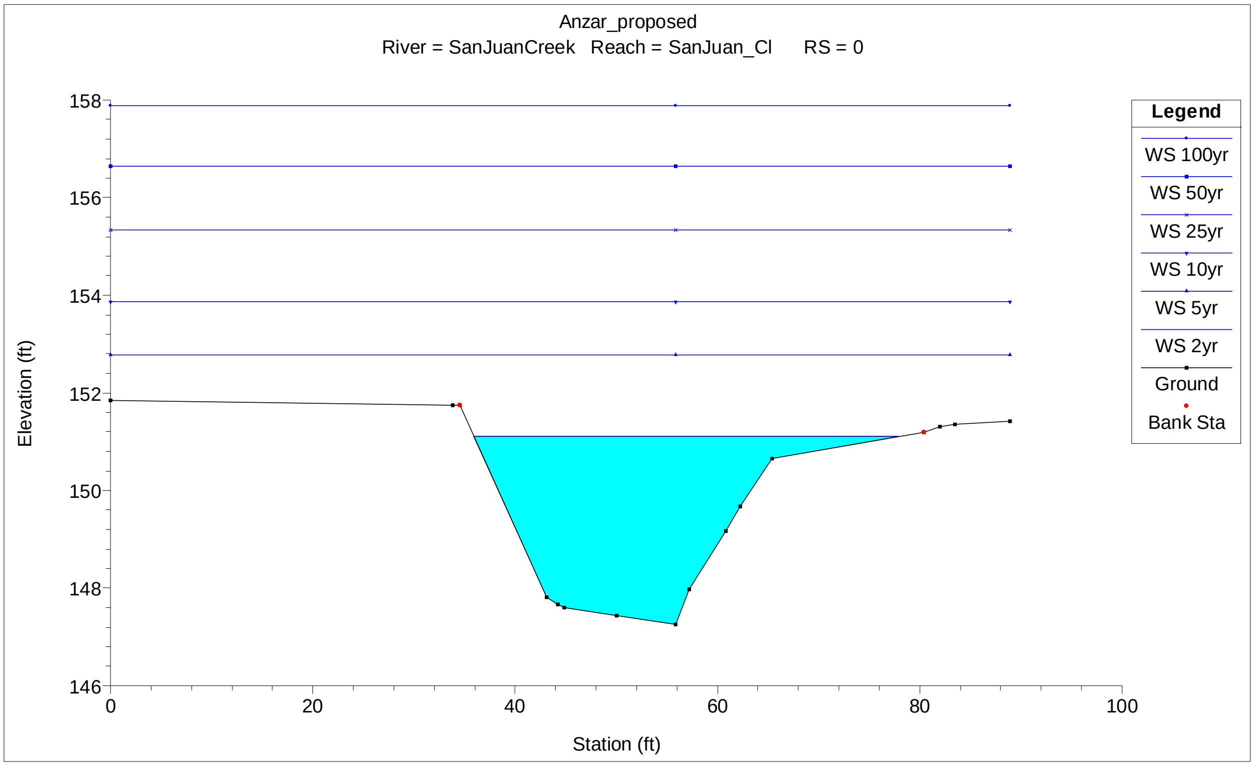


Anzar Road Bridge Hydraulics HEC-RAS Cross Sections
Proposed Conditions

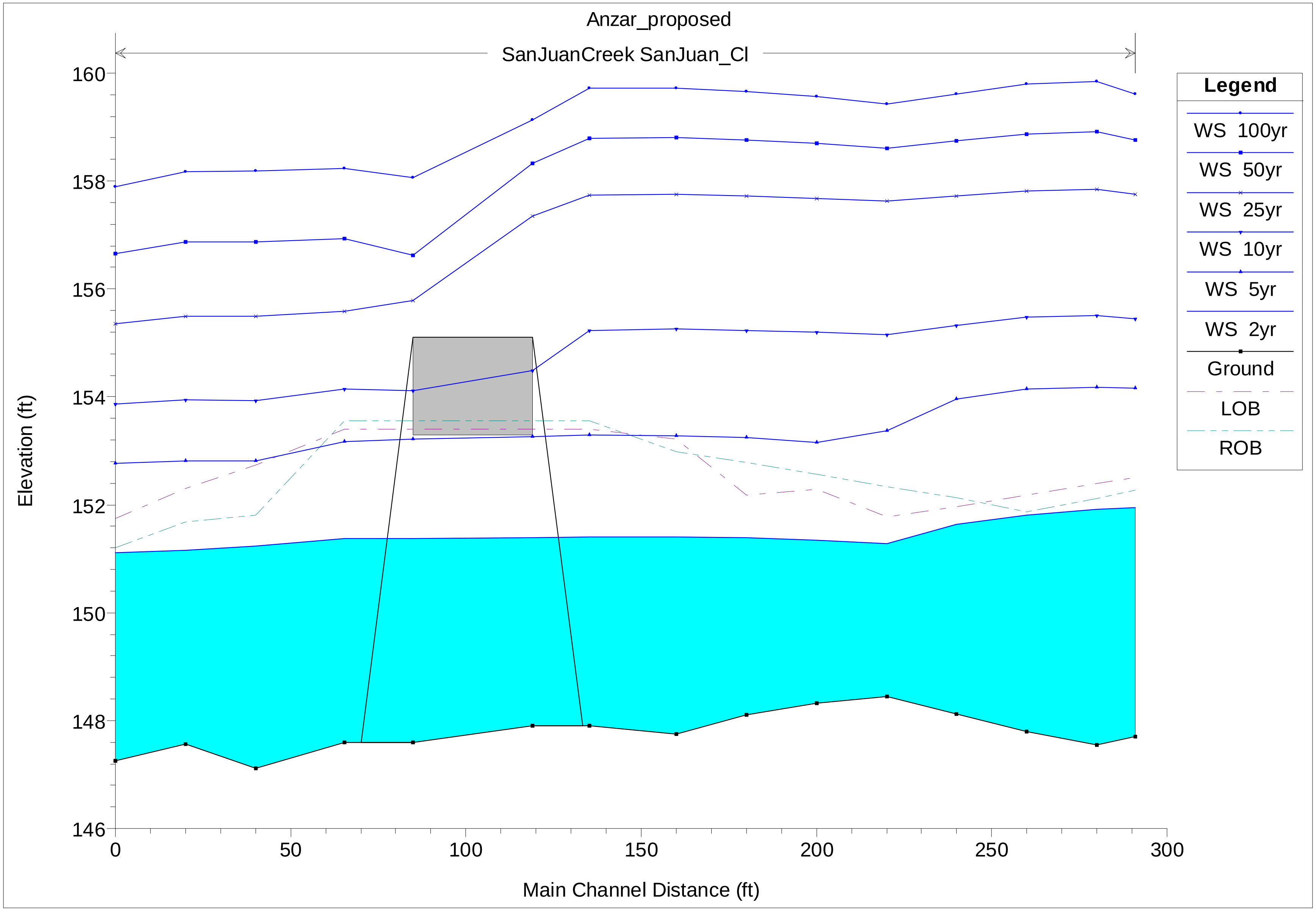




Anzar Road Bridge Hydraulics HEC-RAS Cross Sections
Proposed Conditions



Anzar Road Hydraulic Profile
Proposed Conditions



LOCATION HYDRAULIC STUDY FORM *

Dist. 05 Co. SBT Rte. Loc P.M. --
EA N/A Bridge No. 43C0071
Floodplain Description:
The Anzar Road Bridge is located within the San Juan Creek floodplain in San Benito County. Neither the channel nor the bridge has the capacity to contain the 100-year flood.
1. Description of Proposal (include any physical barriers i.e. concrete barriers, soundwalls, etc. and design elements to minimize floodplain impacts)

The proposed bridge features a longer span and higher soffit elevation. The design also eliminates the existing scour hole in the creek bed and enhances embankment stabilization. The improvement will enable both the creek and the bridge to convey the 5-year flood without overtopping.

2. ADT: Current 1900 Projected 2000

3. Hydraulic Data: Base Flood Q_{100}= 5170 CFS
WSE_{100}= 159.48 ft The flood of record, if greater than Q_{100}:
Q=__________CFS WSE= __________
Overtopping flood Q= 1540 CFS WSE= 155.88 ft
Are NFIP maps and studies available? YES________ NO X

4. Is the highway location alternative within a regulatory floodway ?
YES________ NO X

5. Attach map with flood limits outlined showing all buildings or other improvements within the base floodplain.

Potential Q_{100} backwater damages:

A. Residences? NO X YES________
B. Other Bldgs? NO X YES________
C. Crops? NO________ YES Y
D. Natural and beneficial Floodplain values? NO X YES________

6. Type of Traffic:

A. Emergency supply or evacuation route? NO X YES________
B. Emergency vehicle access? NO________ YES X
C. Practicable detour available? NO________ YES X
D. School bus or mail route? NO________ YES X

7. Estimated duration of traffic interruption for 100-year event hours: 24

8. Estimated value of Q_{100} flood damages (if any) – moderate risk level.

A. Roadway $\$$___________
B Property $\$$___________
Total $\$$___________

9. Assessment of Level of Risk Low__X____
Moderate____
High________

For High Risk projects, during design phase, additional Design Study Risk Analysis May be necessary to determine design alternative.

Signature – Dist. Hydraulic Engineer_________________________Date________
(Item numbers 3,4,5,7,9)

Is there any longitudinal encroachment, significant encroachment, or any support of incompatible Floodplain development? NO___X_____YES________

If yes, provide evaluation and discussion of practicability of alternatives in accordance with 23 CFR 650.113

Information developed to comply with the Federal requirement for the Location Hydraulic Study shall be retained in the project files.

Signature – Dist. Project Engineer___________________________Date________
(Item numbers 1,2,6,8)

* Same as Figure 804.7A Technical Information for Location Hydraulic Study located in Chapter 804 of the Highway Design Manual

SUMMARY FLOODPLAIN ENCROACHMENT REPORT*

Dist. __05________Co. ___SBT______ Rte.____Loc______ P.M. ____--___ ______
Project No.: __BRLS-5943(062)_________ Bridge No. __43C0071_________
Limits: ___400 ft from each end of bridge__________________________________

____

Floodplain Description: __The Anzar Road Bridge is located within the San Juan Creek floodplain in San Benito County. Neither the channel nor the bridge has the capacity to contain the 100-year flood.____

____

		No	Yes
1.	Is the proposed action a longitudinal encroachment of the base floodplain?	_X_	___
2.	Are the risks associated with the implementation of the proposed action significant?	_X_	___
3.	Will the proposed action support probable incompatible floodplain development?	_X_	___
4.	Are there any significant impacts on natural and beneficial floodplain values?	_X_	___
5.	Routine construction procedures are required to minimize impacts on the floodplain. Are there any special mitigation measures necessary to minimize impacts or restore and preserve natural and beneficial floodplain values? If yes, explain.	_X_	___
6.	Does the proposed action constitute a significant floodplain encroachment as defined in 23 CFR, Section 650.105(q).	_X_	___
7.	Are Location Hydraulic Studies that document the above answers on file? If not explain.	___	_X_

PREPARED BY:

_________________________________ ___________
Signature - Dist. Hydraulic Engineer Date

_________________________________ ___________
Signature - Dist. Environmental Branch Chief Date

_________________________________ ___________
Signature - Dist. Project Engineer Date

* Same as Figure 804.7B Floodplain Evaluation Report Summary located in Chapter 804 of the Highway Design Manual

Appendix F

****

Construction Noise and Vibration Assessment

ANZAR ROAD BRIDGE REPLACEMENT PROJECT CONSTRUCTION NOISE AND VIBRATION ASSESSMENT SAN BENITO COUNTY, CALIFORNIA

September 12, 2013

♦ ♦ ♦

Prepared for:

Judy Fenerty
Project Manager
David J. Powers & Associates, Inc.
1871 The Alameda, Suite 200
San Jose, CA 95126

Prepared by:

Michael S. Thill

ILLINGWORTH & RODKIN, INC.
Acoustics • Air Quality
1 Willowbrook Court, Suite 120
Petaluma, CA 94954
(707) 794-0400

Job No. : 12-139

Introduction

This report presents the results of the construction noise and vibration assessment completed for the Anzar Road Bridge Replacement Project in San Benito County, California. The report first presents the fundamentals of environmental noise and vibration for those who may not be familiar with acoustical terminology or concepts, then provides an evaluation of noise and vibration levels resulting from project construction activities. Measures to reduce construction noise levels are recommended.

The proposed project would replace the existing bridge with a new single span, cast-in-place post-tensioned concrete slab, supported on concrete abutments. The new bridge will have a 32-foot curb-to-curb width to accommodate two, 12-foot lanes and two, four-foot shoulders. The new bridge will be approximately 55 feet in length and will have a road profile grade at the bridge location approximately two feet higher than the existing bridge. The project will include approximately 400 feet of approach work on either side of the bridge including new fill embankments to raise the roadway to the higher profile of the new bridge. The existing roadway surface and road base will be removed and replaced with new materials.

Fundamentals of Environmental Noise

Noise may be defined as unwanted sound. Noise is usually objectionable because it is disturbing or annoying. The objectionable nature of sound could be caused by its *pitch* or its *loudness*. *Pitch* is the height or depth of a tone or sound, depending on the relative rapidity (frequency) of the vibrations by which it is produced. Higher pitched signals sound louder to humans than sounds with a lower pitch. *Loudness* is intensity of sound waves combined with the reception characteristics of the ear. Intensity may be compared with the height of an ocean wave in that it is a measure of the amplitude of the sound wave.

In addition to the concepts of pitch and loudness, there are several noise measurement scales which are used to describe noise in a particular location. A decibel (dB) is a unit of measurement which indicates the relative amplitude of a sound. The zero on the decibel scale is based on the lowest sound level that the healthy, unimpaired human ear can detect. Sound levels in decibels are calculated on a logarithmic basis. An increase of 10 decibels represents a ten-fold increase in acoustic energy, while 20 decibels is 100 times more intense, 30 decibels is 1,000 times more intense, etc. There is a relationship between the subjective noisiness or loudness of a sound and its intensity. Each 10 decibel increase in sound level is perceived as approximately a doubling of loudness over a fairly wide range of intensities. Technical terms are defined in Table 1.

There are several methods of characterizing sound. The most common in California is the A-weighted sound level or dBA. This scale gives greater weight to the frequencies of sound to which the human ear is most sensitive. Representative outdoor and indoor noise levels in units of dBA are shown in Table 2. Because sound levels can vary markedly over a short period of time, a method for describing either the average character of the sound or the statistical behavior of the variations must be utilized. Most commonly, environmental sounds are described in terms of an average level that has the same acoustical energy as the summation of all the time-varying events. This energy-equivalent sound/noise descriptor is called L_{eq}. The most common averaging period is hourly, but L_{eq} can describe any series of noise events of arbitrary duration.

The scientific instrument used to measure noise is the sound level meter. Sound level meters can accurately measure environmental noise levels to within about plus or minus 1 dBA. Various computer models are used to predict environmental noise levels from sources, such as roadways and airports. The accuracy of the predicted models depends upon the distance the receptor is from the noise source. Close to the noise source, the models are accurate to within about plus or minus 1 to 2 dBA.

Fundamentals of Groundborne Vibration

Ground vibration consists of rapidly fluctuating motions or waves with an average motion of zero. Several different methods are typically used to quantify vibration amplitude. One method is the Peak Particle Velocity (PPV). The PPV is defined as the maximum instantaneous positive or negative peak of the vibration wave. In this report, a PPV descriptor with units of mm/sec or in/sec is used to evaluate construction generated vibration for building damage and human complaints. Table 3 displays the reactions of people and the effects on buildings that continuous vibration levels produce.

The annoyance levels shown in Table 3 should be interpreted with care since vibration may be found to be annoying at much lower levels than those shown, depending on the level of activity or the sensitivity of the individual. To sensitive individuals, vibrations approaching the threshold of perception can be annoying. Low-level vibrations frequently cause irritating secondary vibration, such as a slight rattling of windows, doors, or stacked dishes. The rattling sound can give rise to exaggerated vibration complaints, even though there is very little risk of actual structural damage.

Construction activities can cause vibration that varies in intensity depending on several factors. The use of pile driving and vibratory compaction equipment typically generates the highest construction related ground-borne vibration levels. Because of the impulsive nature of such activities, the use of the PPV descriptor has been routinely used to measure and assess ground-borne vibration and almost exclusively to assess the potential of vibration to induce structural damage and the degree of annoyance for humans.

The two primary concerns with construction-induced vibration, the potential to damage a structure and the potential to interfere with the enjoyment of life, are evaluated against different vibration limits. Studies have shown that the threshold of perception for average persons is in the range of 0.008 to 0.012 inches/second, peak particle velocity (in/sec, PPV). Human perception to vibration varies with the individual and is a function of physical setting and the type of vibration. Persons exposed to elevated ambient vibration levels, such as people in an urban environment, may tolerate a higher vibration level.

Structural damage can be classified as cosmetic only, such as minor cracking of building elements, or may threaten the integrity of the building. Safe vibration limits that can be applied to assess the potential for damaging a structure vary by researcher and there is no general consensus as to what amount of vibration may pose a threat for structural damage to the building. Construction-induced vibration that can be detrimental to the building is very rare and has only been observed in instances where the structure is at a high state of disrepair and the construction activity occurs immediately adjacent to the structure.

TABLE 1 Definition of Acoustical Terms Used in this Report

Term	Definition
Decibel, dB	A unit describing, the amplitude of sound, equal to 20 times the logarithm to the base 10 of the ratio of the pressure of the sound measured to the reference pressure. The reference pressure for air is 20.
Sound Pressure Level	Sound pressure is the sound force per unit area, usually expressed in micro Pascals (or 20 micro Newtons per square meter), where 1 Pascal is the pressure resulting from a force of 1 Newton exerted over an area of 1 square meter. The sound pressure level is expressed in decibels as 20 times the logarithm to the base 10 of the ratio between the pressures exerted by the sound to a reference sound pressure (e. g. , 20 micro Pascals). Sound pressure level is the quantity that is directly measured by a sound level meter.
Frequency, Hz	The number of complete pressure fluctuations per second above and below atmospheric pressure. Normal human hearing is between 20 Hz and 20,000 Hz. Infrasonic sound are below 20 Hz and Ultrasonic sounds are above 20,000 Hz.
A-Weighted Sound Level, dBA	The sound pressure level in decibels as measured on a sound level meter using the A-weighting filter network. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound in a manner similar to the frequency response of the human ear and correlates well with subjective reactions to noise.
Equivalent Noise Level, L_{eq}	The average A-weighted noise level during the measurement period.
L_{max}, L_{min}	The maximum and minimum A-weighted noise level during the measurement period.
L_{01}, L_{10}, L_{50}, L_{90}	The A-weighted noise levels that are exceeded 1%, 10%, 50%, and 90% of the time during the measurement period.
Day/Night Noise Level, L_{dn} or DNL	The average A-weighted noise level during a 24-hour day, obtained after addition of 10 decibels to levels measured in the night between 10:00 pm and 7:00 am.
Community Noise Equivalent Level, CNEL	The average A-weighted noise level during a 24-hour day, obtained after addition of 5 decibels in the evening from 7:00 pm to 10:00 pm and after addition of 10 decibels to sound levels measured in the night between 10:00 pm and 7:00 am.
Ambient Noise Level	The composite of noise from all sources near and far. The normal or existing level of environmental noise at a given location.
Intrusive	That noise which intrudes over and above the existing ambient noise at a given location. The relative intrusiveness of a sound depends upon its amplitude, duration, frequency, and time of occurrence and tonal or informational content as well as the prevailing ambient noise level.

Source: Handbook of Acoustical Measurements and Noise Control, Harris, 1998.

TABLE 2 Typical Noise Levels in the Environment

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
	110 dBA	Rock band
Jet fly-over at 1,000 feet		
	100 dBA	
Gas lawn mower at 3 feet		
	90 dBA	
Diesel truck at 50 feet at 50 mph		Food blender at 3 feet
	80 dBA	Garbage disposal at 3 feet
Noisy urban area, daytime		
Gas lawn mower, 100 feet	70 dBA	Vacuum cleaner at 10 feet
Commercial area		Normal speech at 3 feet
Heavy traffic at 300 feet	60 dBA	
		Large business office
Quiet urban daytime	50 dBA	Dishwasher in next room
Quiet urban nighttime	40 dBA	Theater, large conference room
Quiet suburban nighttime		
	30 dBA	Library
Quiet rural nighttime		Bedroom at night, concert hall
	20 dBA	
		Broadcast/recording studio
	10 dBA	
	0 dBA	

Source: Technical Noise Supplement (TeNS), Caltrans, November 2009.

TABLE 3 Reaction of People and Damage to Buildings From Continuous or Frequent Intermittent Vibration Levels

Velocity Level, PPV (in/sec)	Human Reaction	Effect on Buildings
0.01	Barely perceptible	No effect
0.04	Distinctly perceptible	Vibration unlikely to cause damage of any type to any structure
0.08	Distinctly perceptible to strongly perceptible	Recommended upper level of the vibration to which ruins and ancient monuments should be subjected
0.1	Strongly perceptible	Virtually no risk of damage to normal buildings
0.3	Strongly perceptible to severe	Threshold at which there is a risk of damage to older residential dwellings such as plastered walls or ceilings
0.5	Severe - Vibrations considered unpleasant	Threshold at which there is a risk of damage to newer residential structures

Source: Transportation- and Construction-Induced Vibration Guidance Manual, California Department of Transportation, June 2004.

Construction Noise Assessment

Description of Project Construction Activities

Construction and Demolition: The existing bridge will be demolished and removed prior to replacement, and the roadway surface will be removed and replaced up to 400 feet on both sides of the bridge. Dewatering required to allow removal of the existing pier in the creek will be achieved by use of a temporary cofferdam and pipe culvert bypass system. The project will also require relocation of some existing utilities and irrigation lines.

The site will be excavated to a depth of approximately 15 feet for the bridge abutments and less than three feet within the roadway limits of work, except for excavation to relocate a private irrigation line. Approximately seven precast concrete piles will be driven at each bridge abutment to a maximum depth of 100 feet, for a total of 14 piles. Rock slope protection may be required for the creek banks to prevent scour at the bridge abutments, and would extend along each bank of the creek approximately 30 feet upstream and downstream from each side of the bridge. Trees and vegetation would be removed from the areas where rock slope protection will be installed.

Construction Staging and Easements: During construction, all equipment and materials will be stored at a 100-foot by 100-foot temporary construction staging area, located adjacent to the northeast corner of the bridge. This site will be fenced and best management practices will be implemented to control tracking of soil from the site. An approximately 50-foot wide construction easement will be required on each side of the County right-of-way in the immediate vicinity of the creek, and a 25-foot wide construction easement will be required for the remainder of the roadway approach work. No new or temporary access roads will be required for the project.

Estimated Schedule: Construction and demolition activities will take place over an up to six-month construction schedule, including up to one week of pile driving. Pile driving within the channel of San Juan Creek would be completed in the dry season (June 15 to October 15). Construction activities will occur from Monday through Friday between 7:00 a.m. and 7:00 p.m. No night or weekend construction is proposed.

Regulatory Criteria

Caltrans Standard Specifications, or any special requirements developed during the project design phase, would regulate noise from project construction activities. Section 14-8.02 (Noise Control) of the Caltrans Standard Specifications states:

- Do not exceed 86 dBA L_{max} at 50 feet from the job site activities from 9 p.m. to 6 a.m. Use an alternative warning method instead of a sound signal unless required by safety laws.

- Equip an internal combustion engine with the manufacturer-recommended muffler. Do not operate an internal combustion engine on the job site without the appropriate muffler.

Work taking place within the Caltrans right-of-way is not subject to local noise requirements; however, Caltrans will work with the contractor to meet local requirements where feasible. San Benito County does not establish quantitative noise limits for construction activities, but establishes allowable construction hours in the Health and Safety Element of the Draft 2035 General Plan (estimated to be adopted Summer 2013[1]). Draft 2035 San Benito County General Plan Policy HS-9.3 limits construction activities to between the hours of 7:00 A.M. to 6:00 P.M. on weekdays, and within the hours of 8:00 A.M. to 5:00 P.M. on weekends. Quantitative noise limits for construction are not established in either the 1980 San Benito County General Plan or Draft 2035 San Benito County General Plan.

Section 19.39.051 of the San Benito County Code of ordinances limits received noise generated by any source at any property line of residential, commercial, or industrial properties. Temporary construction, demolition, or maintenance of structures is exempted from the noise level standards provided that activities are limited to between the hours of 7:00 A.M. and 7:00 P.M., except on Sundays and federal holidays.

Construction Noise Levels

Noise generated by project-related construction activities would be a function of the noise levels generated by individual pieces of construction equipment, the type and amount of equipment operating at any given time, the timing and duration of construction activities, the proximity of nearby sensitive land uses, and the presence or lack of shielding at these sensitive land uses. Construction noise levels would vary on a day-to-day basis during each phase of construction

[1] Accessed via http://www.sanbenitogpu.com/ on September 4, 2013.

depending on the specific task being completed. Each construction phase would require a different combination of construction equipment necessary to complete the task and differing usage factors for such equipment. Construction noise would primarily result from the operation of heavy construction equipment and the arrival and departure of heavy-duty trucks. The highest maximum instantaneous noise levels would result from special impact tools, such as vibratory and impact pile drivers, used to install the piles that would support the bridge.

The Federal Highway Administration's (FHWA) Roadway Construction Noise Model (RCNM) was used to calculate the maximum and average noise levels anticipated during each phase of construction. This construction noise model includes representative sound levels for the most common types of construction equipment and the approximate usage factors of such equipment that were developed based on an extensive database of information gathered during the construction of the Central Artery/Tunnel Project in Boston, Massachusetts (CA/T Project or "Big Dig"). The usage factors represent the percentage of time that the equipment would be operating at full power. Vehicles and equipment anticipated during each phase of construction were input into RCNM to calculate noise levels at a reference distance of 50 feet. These levels were then adjusted to account for attenuation with distance from the noise source. The approximate distances from the center of the construction site to the nearest residences to the south and east of the existing bridge are 400 feet and 1,700 feet, respectively. The McAlpine Lake and Park private campground is located approximately 600 feet to the west and Anzar High School is located approximately 1,500 feet to the northeast.

Demolition, earthwork, and structures are calculated to result in hourly average noise levels of 85 to 88 dBA L_{eq} at a distance of 50 feet. Maximum instantaneous noise levels from individual pieces of construction equipment would range from 82 to 90 dBA L_{max} at 50 feet. During impact pile driving, hourly average noise levels would reach 95 dBA L_{eq} at a distance of 50 feet, and maximum instantaneous noise levels would reach 101 dBA L_{max} at the same distance. Construction generated noise levels drop off at a rate of about 6 dBA per doubling of distance between the source and receptor; therefore the noise levels calculated at 400 feet would be about 18 dBA less. At a distance of 600 feet, demolition and construction noise levels would be approximately 22 dBA less than the source noise levels referenced above. At distances of 1,500 feet to 1,700 feet, noise levels are estimated to be about 30 to 31 dBA less than the source noise levels referenced above. Tables 4 and 5 summarize the results of the calculations made to quantify maximum instantaneous and hourly average construction noise levels at the nearest receptors.

TABLE 4 Maximum Instantaneous Construction Noise Levels (dBA, L_{max}) at Nearest Receptors

Construction Phase	Source (50 feet)	Residence (400 feet)	Private Campground (600 feet)	High School (1,500 feet)	Residence (1,700 feet)
Ground Clearing, Grubbing, and Earthwork	90	72	68	60	59
Bridge Demolition and Excavation	90	72	68	60	59
Foundations (Impact Pile Driving)	101	83	79	71	70
Bridge and Channel Construction	82	64	60	52	51
Finishing	85	67	63	55	54

Source: Illingworth & Rodkin, Inc., September 2013.

TABLE 5 Hourly Average Construction Noise Levels (dBA, L_{eq}) at Nearest Receptors

Construction Phase	Source (50 feet)	Residence (400 feet)	Private Campground (600 feet)	High School (1,500 feet)	Residence (1,700 feet)
Ground Clearing, Grubbing, and Earthwork	88	70	66	58	57
Bridge Demolition and Excavation	85	67	63	55	54
Foundations (Impact Pile Driving)	95	77	73	65	64
Bridge and Channel Construction	85	67	63	55	54
Finishing	85	67	63	55	54

Source: Illingworth & Rodkin, Inc., September 2013.

<u>Construction Noise Reduction Measures</u>

To reduce the potential for noise impacts resulting from project construction activities, the following standard measures should be implemented during demolition and construction:

- Noise-generating construction activities should be restricted to the hours of 7:00 A.M. to 7:00 P.M. daily, except Sundays and federal holidays. If work is necessary outside of these hours, the County should require the contractor to implement a construction noise monitoring program and, if feasible, provide additional mitigation as necessary (in the form of noise control blankets or other temporary noise barriers, etc.) for affected receptors.

- Equip all internal combustion engine driven equipment with intake and exhaust mufflers that are in good condition and appropriate for the equipment.

- Unnecessary idling of internal combustion engines should be strictly prohibited.

- Locate stationary noise generating equipment as far as possible from sensitive receptors when sensitive receptors adjoin or are near a construction project area.

- Utilize "quiet" air compressors and other "quiet" equipment where such technology exists.

- Require all construction equipment to conform to Section 14-8. 02, Noise Control, of the latest Standard Specifications.

- The contractor should prepare a detailed construction plan identifying the schedule for major noise-generating construction activities and distribute this plan to adjacent noise-sensitive receptors. The construction plan should also list the construction noise reduction measures identified in this study.

Construction Vibration Assessment

For structural damage, the California Department of Transportation uses a vibration limit of 0.5 in/sec, PPV for buildings structurally sound and designed to modern engineering standards, 0.3 in/sec, PPV for older residential buildings, 0.25 for historic and some old buildings, and a conservative limit of 0.08 in/sec, PPV for ancient buildings or buildings that are documented to be structurally weakened. All buildings in the project vicinity are assumed to be structurally sound, but these buildings may or may not have been designed to modern engineering standards. No ancient buildings or buildings that are documented to be structurally weakened are known to exist in the area.

The only significant source of ground vibration associated with the project would result from vibratory or impact pile driving. Table 5 presents typical vibration levels that could be expected from construction equipment at a distance of 25 feet. Given the small size of the piles and the overall range of piles, the "typical" values shown in Table 6 would provide a credible worst case level for anticipated pile driving vibration. A review of the vibration source level data indicates that vibration levels expected from project construction would typically range from 0.003 in/sec PPV to 0.644 in/sec PPV at a distance of 25 feet for the vast majority of proposed construction activities. "Upper range" vibration levels expected from pile driving could reach 0.734 in/sec PPV to 1.158 in/sec PPV at a distance of 25 feet.

Vibration levels are highest close to the source, and then attenuate with increasing distance at the rate $(D_{ref}/D)^{1.1}$, where D is the distance from the source in feet and D_{ref} is the reference distance of 25 feet. Using the attenuation rate above, the use of an impact pile driving hammer is calculated to result in typical levels of 0.031 in/sec PPV at the nearest residence approximately 400 feet south of the construction site. "Upper range" vibration levels expected from pile driving could reach 0.055 in/sec PPV at a distance of 400 feet.

Vibration levels would not exceed the 0.3 in/sec PPV threshold and would not be expected to cause cosmetic damage at the nearest residences. Worst-case vibration levels at the nearest residence approximately 400 feet south of the construction site may at times be perceptible; however, as with any type of construction, the potential for perceptible vibrations would be anticipated by receptors and would not be considered significant because of the intermittent and short duration of the impact pile driving phase. Perceptible vibrations resulting from impact pile driving during the daytime would not be expected to cause an adverse human reaction.

TABLE 6 Vibration Source Levels for Construction Equipment

Equipment		PPV at 25 ft. (in/sec)
Pile Driver (Impact)	upper range	1.158
	typical	0.644
Pile Driver (Sonic)	upper range	0.734
	typical	0.170
Clam shovel drop		0.202
Hydromill (slurry wall)	in soil	0.008
	in rock	0.017
Vibratory Roller		0.210
Hoe Ram		0.089
Large bulldozer		0.089
Caisson drilling		0.089
Loaded trucks		0.076
Jackhammer		0.035
Small bulldozer		0.003

Source: Transit Noise and Vibration Impact Assessment, United States Department of Transportation, Federal Transit Agency, Office of Planning and Environment, May 2006.

Appendix G

****

Traffic Control Technical Memorandum

MEMORANDUM

TO:	**San Benito County Public Works**	**DATE:**	**September 25, 2013**
FROM:	**Charmaine Zamora, NV5, Inc.**	**PROJ #:**	**SAB048500**
SUBJECT:	**Anzar Road Bridge Replacement Project - Traffic Control Technical Memorandum**		

INTRODUCTION

The proposed project would replace the existing two-lane bridge (Br. No. 43C-0039) on Anzar Road approximately 0.35 miles west of San Juan Highway near the City of San Juan Bautista in the County of San Benito, California. Anzar Road Bridge was built in 1935 and consists of a 40 foot long by 22 foot wide, two span slab structure crossing over San Juan Creek.

The proposed bridge (Br. No. 43C-0071) will be on the same alignment as the existing bridge, and will be a single span, cast-in-place post-tensioned concrete slab bridge. The new bridge will have a 32-foot clear width to accommodate two 12-foot-wide lanes and two 4-foot-wide shoulders. The new bridge will be 55-foot in length and will have a road profile that up to 2 feet higher than the existing grade.

Anzar Road will be closed during construction with vehicular traffic being rerouted along a local street detour.

PURPOSE

The purpose of this memo is to demonstrate that the proposed detour for construction of the bridge replacement project will have a minimal impact on local residents and businesses.

DISCUSSION

The project limits will include approximately 400 feet of approach work on either side of the bridge, widening the roadway and creating drainage ditches. The existing roadway surface and road base will be removed and will be replaced with new materials.

It is proposed that Anzar Road will be closed to vehicular traffic during construction of the replacement bridge and approach work. Access to the residences, businesses and the farmland located along Anzar Road and the detour route will be maintained during construction and only minor inconveniences are anticipated. Pedestrian traffic within the project limits will not be allowed as no formal pedestrian path currently exists. The detour is anticipated to be required for six (6) months from May through October in one construction season.

The proposed 2 mile vehicular detour is described as follows, beginning at the Anzar Road/San Juan Highway intersection:

- North on San Juan Highway to Hwy 129/Chittenden Road;
- West on Hwy 129/Chittenden Road to Searle Road;
- Southwest on Searle Road to Anzar Road;
- East on Anzar Road.

The proposed ‘Detour Plan’ along with proposed signage is provided as an attachment to this memo.

IMPACT TO PROJECT

With a current ADT of 1900, a local street detour is recommended during the project construction. If a detour was not provided, a temporary on-site detour using temporary pipe culverts would need to be installed upstream of the existing bridge. The realigned temporary roadway would need to accommodate 2-lanes of traffic, and would require temporary easements from private properties. Additional regulatory agency permitting would also be required to allow placement of the culverts and additional earthwork within San Juan Creek.

A staged construction alternative would also not be practical due to the orientation of the existing bridge and the straight alignment of Anzar Road. A staged construction approach would require a major realignment of Anzar Road to allow the first stage of bridge construction to be built with sufficient width to support traffic during the second stage of bridge construction.

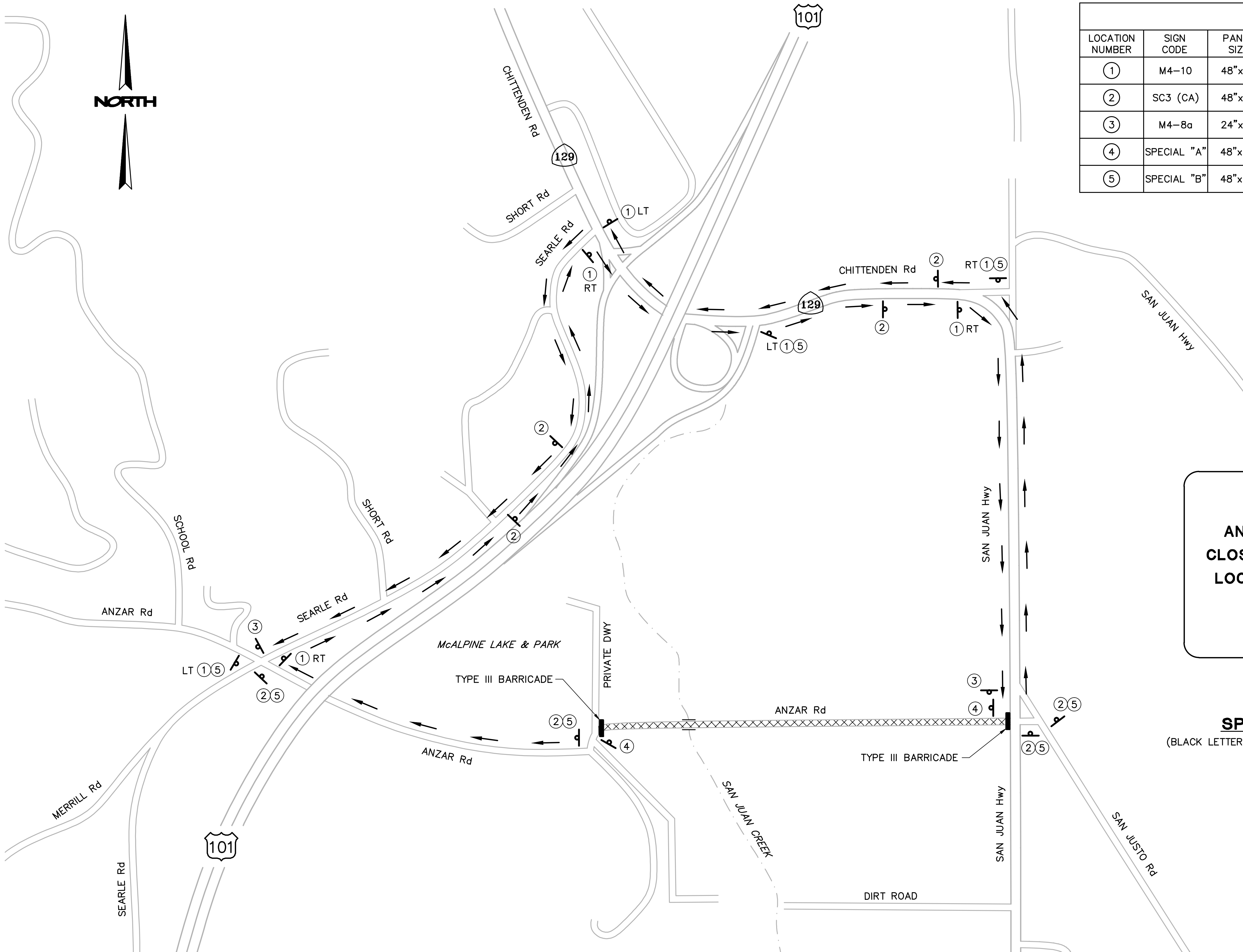
A full closure of Anzar Road along with a local street detour is proposed in order to eliminate the additional cost and permitting requirements noted above. The proposed road closure and detour would alleviate issues related to public traffic conveyance through the project site during construction, would reduce construction time for the project, and would result in a lower project cost by eliminating the need for a temporary crossing or staged construction.

PUBLIC NOTIFICATION

The County of San Benito will notify the local Sheriff and Fire Departments of the upcoming project. The project Special Provisions will require the Contractor to mail out flyers to local residents and businesses in the vicinity of the project along with Anzar High School administration and the residents/businesses along the detour route. At least one week prior to the commencement of work, the Special Provisions would require the contractor to provide message signs at each end of the project to notify drivers of the upcoming project and detour. Barricades will be placed near the intersection of San Juan Highway (on the east side) and the residential driveways (on the west side) such that vehicles may perform a U-turn in the event that the driver did not see any of the preceding road closed/detour signs.

ATTACHMENTS

1. Detour Plan



PLAN

NO SCALE

DETOUR SIGNS

LOCATION NUMBER	SIGN CODE	PANEL SIZE	No. OF POSTS & SIZE	No. OF SIGNS	SIGN MESSAGE
1	M4–10	48"x18"	2–4"x4"	7	DETOUR IN ARROW
2	SC3 (CA)	48"x18"	2–4"x4"	8	DETOUR WITH ARROW AHEAD
3	M4–8a	24"x18"	1–4"x4"	2	END DETOUR
4	SPECIAL "A"	48"x48"	1–4"x4"	2	ANZAR ROAD CLOSED AHEAD – LOCAL ACCESS ONLY
5	SPECIAL "B"	48"x48"	1–4"x4"	7	ANZAR ROAD CLOSED BETWEEN McALPINE LAKE & PARK AND SAN JUAN HIGHWAY – USE DETOUR

NOTES:

1. DURING CONSTRUCTION OF ANZAR ROAD, VEHICULAR TRAFFIC SHALL BE DIRECTED TO THE DETOUR AS SHOWN ON THE PLAN.
2. SIGN LOCATIONS ARE APPROXIMATE. EXACT LOCATIONS TO BE DETERMINED BY THE ENGINEER.
3. FOR TYPE III BARRICADE DETAILS, SEE CALTRANS STANDARD PLAN A73C.

ANZAR ROAD
CLOSED AHEAD -
LOCAL ACCESS
ONLY

SPECIAL "A"

(BLACK LETTERS ON ORANGE BACKGROUND)

ANZAR ROAD
CLOSED BETWEEN
McALPINE
LAKE & PARK
AND SAN JUAN
HIGHWAY -
USE DETOUR

SPECIAL "B"

(BLACK LETTERS ON ORANGE BACKGROUND)

65% SUBMITTAL

DATE: 9/25/13 TIME: 1:40:20 PM
SERVER: NONE LAYOUT: TITLE
PATH: N:\SAB048500\CADD\CIVIL
DRAWING NAME: DE01.DWG
PAGE SETUP: ----
DESIGNER: DW PROJ. MGR: CZ

NO.	BY	DATE	REVISIONS:

CAUTION: The engineer preparing these plans will not be responsible for, or liable for, unauthorized changes to or uses of these plans. All changes to the plans must be approved by the preparer of these plans.

NOT FOR CONSTRUCTION

REGISTERED PROFESSIONAL ENGINEER CHARMAINE S. ZAMORA No. C60639 Exp. 12-31-14 CIVIL STATE OF CALIFORNIA

NV5 BEYOND ENGINEERING

2025 GATEWAY PLACE, SUITE 156 SAN JOSE, CA 95110
408.392.7200 TEL 408.392.0101 FAX WWW.NV5.COM

ANZAR ROAD BRIDGE REPLACEMENT

ANZAR ROAD DETOUR PLAN

PREPARED FOR: SAN BENITO COUNTY

DATE SUBMITTED: SEPT 2013

SHEET NUMBER DE-1

9 OF 21 SHEETS

SCALE VERTICAL: 1"= NA HORIZONTAL: 1"= NA

JOB NUMBER SAB048500