

Water Quality Assessment Report

for the

Chuckwalla Valley Road Bridges

Over Aztec Ditch (Br. No. 56C0102; Federal Aid Project No. BRLO-5956(239))

and

Over Tarantula Ditch (Br. No. 56C0103; Federal Aid Project No. BRLO-5956(227))

and

Over Sutro Ditch (Br. No. 56C0104; Federal Aid Project No. BRLO-5956(226))

and

Over Acari Ditch (Br. No. 56C0108; Federal Aid Project No. BRLO-5956(225))

Submitted To

Caltrans District 8

Planning and Local Assistance

464 West 4th Street, 6th Floor (MS-760)

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Prepared For

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September 2019

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James Lu

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Subject: RE: RCTD Six Bridges - Railroad Avenue (FPN BRLO-5956-228, -229) and Chuckwalla Valley Road (FPN BRLO-5956-239, -227, -226, -225) - LHS and FER Reports

Hi Theresa,

Yes please. Thanks!

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Subject: RE: RCTD Six Bridges - Railroad Avenue (FPN BRLO-5956-228, -229) and Chuckwalla Valley Road (FPN BRLO-5956-239, -227, -226, -225) - LHS and FER Reports

Hi Aaron,
Thanks for the update and review! Do we need to send final copies?

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Subject: RE: RCTD Six Bridges - Railroad Avenue (FPN BRLO-5956-228, -229) and Chuckwalla Valley Road (FPN BRLO-5956-239, -227, -226, -225) - LHS and FER Reports

Hi Theresa,

My apologies. We completed our review yet we did not notify you so thank you for sending us the reminder. Caltrans concurs with the WQARs for the Railroad Avenue Bridges under FPN: 5956(228, 229) and the Chuckwalla Road Bridges under FPN: 5956(225, 226, 227, 239).

Sincerely,

Aaron P. Burton
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Subject: RE: RCTD Six Bridges - Railroad Avenue (FPN BRLO-5956-228, -229) and Chuckwalla Valley Road (FPN BRLO-5956-239, -227, -226, -225) - LHS and FER Reports

Aaron, Marko,
Following up on the LHS and FER submittals. When do you anticipate we might receive Caltrans comments?

Thanks,
Theresa

From: Dickerson, Theresa
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Subject: RCTD Six Bridges - Railroad Avenue (FPN BRLO-5956-228, -229) and Chuckwalla Valley Road (FPN BRLO-5956-239, -227, -226, -225) - LHS and FER Reports

Good Morning Marko,
Please see attached the Location Hydraulic Study and Floodplain Evaluation Reports for Railroad Avenue and Chuckwalla Valley Road for your review.

The link below contains both the word docs and compiled pdf documents.

<https://cnsengineersinc.box.com/s/gjbxqrjo65msvyq8tzphzhqz3b0cokyd>

Let me know if you have any questions.
Thanks,
Theresa

EXECUTIVE SUMMARY

The County of Riverside in cooperation with California Department of Transportation (Caltrans), is proposing to replace four existing structurally deficient timber bridges:

- State Bridge No. 56C0102 the Chuckwalla Valley Road Bridge over Aztec Ditch
- State Bridge No. 56C0103 the Chuckwalla Valley Road Bridge over Tarantula Ditch
- State Bridge No. 56C0104 the Chuckwalla Valley Road Bridge over Sutro Ditch
- State Bridge No. 56C0108 the Chuckwalla Valley Road Bridge over Acari Ditch

The project is located in the unincorporated area of Riverside County on Chuckwalla Valley Road. Chuckwalla Valley Road runs 16 miles parallel on the south side of Interstate 10 (I-10). It serves as an access road for utility vehicles and recreational off-road vehicles. The average daily traffic (ADT) volume is approximately 40 vehicles. This roadway also serves as a detour for Interstate 10 when the freeway is temporarily closed for construction or emergency incidents.

The proposed bridge improvements consist of complete demolition and replacement with new modern bridges with a curb to curb total width of 32 feet. The new bridges will consist of one lane of travel in each direction and a 4-foot shoulder on each side. Modern traffic barriers/railing will be installed to meet the current Caltrans safety design standards. The bridges will be 40-60 feet long depending on the channel hydraulic capacity. The bridges will be supported by pile columns and cast-in-drilled-hole pile installations. Channel slope improvements, including rock-slope protection and concrete wing walls, will be administered to avoid future scour problems. It is envisioned that the channel bottom will remain earthen.

The proposed project drains to the Aztec, Tarantula, Sutro, Acari Ditches, and ultimately to Palen Dry Lake and Ford Dry Lake. These waterbodies are not listed on the state water resources control board for 303d impairments. Also, there are currently no Total Maximum Daily Loads for these waterbodies. The project does not plan to change the hydrologic feature of Aztec, Tarantula, Sutro, and Acari drainage courses.

The purpose of the Water Quality Assessment Report (WQAR) for the Chuckwalla Valley Road Bridge Replacements is to fulfill the requirements of the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA), and provide information, to the extent possible, for the National Pollution Discharge Elimination System (NPDES) permitting.

This technical study will discuss the proposed Project, the physical setting of the Project area, and the regulatory framework with respect to water quality. It will also provide data on surface water and groundwater resources within the project area and their water quality health, describe water quality impairments and beneficial uses, identify potential water quality impacts/benefits associated with the proposed project, and recommend avoidance and/or minimization measures for potentially adverse impacts.

Construction of this Project has the potential to impact water quality unless pollutant minimization and/or preventive measures are implemented. In accordance with requirements of the California NPDES Construction General Permit (CA CGP), a Storm Water Pollution Prevention Plan (SWPPP) will be developed and implemented during the construction of the Project. Implementation of the SWPPP is expected to:

- Provide adequate and appropriate measures to protect the quality of receiving waters from discharges of pollutants in storm water from the construction site.
- Provide sufficient and appropriate measures to protect the quality of surface water and ground water from construction related materials and activities.

The post-construction or operation phase of the project also has the potential to impact water quality unless minimization and/or preventative measures are implemented. Post-construction best management practices will be developed and implemented in accordance with the CA CGP post-construction requirements. Implementation of post-construction best management practices is expected to:

- Provide adequate and appropriate measures to protect the quality of receiving waters (Aztec Ditch, Tarantula Ditch, Sutro Ditch, and Acari Ditch) from discharges of pollutants in storm water from the completed Project through its operational life.
- Provide sufficient and appropriate measures to protect the quality of surface water, receiving water, and ground water from the completed Project through its operational life.

With proper implementation and maintenance of the aforementioned pollution controls, the proposed Project's impacts to water quality are expected to be minimized or reduced to a level sufficient to protect receiving waters. The WQAR does not make conclusions regarding significance of the impacts; the determination of significance will be addressed in the NEPA/CEQA document based on information provided in the WQAR.

Summary of Water Quality Permits/Certification required:

- California Construction General Permit Coverage – Obtain through State Water Resources Control Board.
- Clean Water Act Section 401 Water Quality Certification – Obtain through Regional Water Quality Control Board.
- Clean Water Act Section 404 Permit – Obtain through United States Army Corps of Engineers.
- California Department of Fish and Wildlife Notification of Streambed Alteration (Fish and Wildlife Code Section 1602) – Obtain through California Department of Fish and Wildlife.

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1. INTRODUCTION

1.1 Approach to Water Quality Assessment

The purpose of the Water Quality Assessment Report (WQAR) is to fulfill the requirements of the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA), and to provide information for National Pollutant Discharge Elimination System (NPDES) permitting. The document includes a discussion of the proposed project, the general environmental setting of the project area, and the regulatory framework with respect to water quality; it also provides data on surface water and groundwater resources within the project area and the water quality of these waters, describes water quality impairments and beneficial uses, and identifies potential water quality impacts/benefits associated with the proposed project, and recommends avoidance and/or minimization measures for potentially adverse impacts.

The determination of adverse impacts on water quality will be based on two key Project phases: the construction phase and the post-construction or operational phase.

Construction Phase Impacts

- Soil disturbance
- Erodible areas
- Temporary removal of vegetation
- Non-storm water discharges
- Potential spills/leaks
- Potential discharges of sediments

Post-Construction Phase Impacts

- Discharges of roadway runoff to the ditches

1.2 Project Description

The Chuckwalla Valley Road Bridge Replacement Project (the Project) will replace four structurally deficient bridges and is located south of Interstate 10 between the freeway exits of Corn Springs Road and Ford Dry Lake Road within the Chuckwalla Valley. The Project lies within the unincorporated portion of the County of Riverside between the census-designated place Desert Center, CA and the City of Blythe, CA. Refer to Figure 1 for the project location.

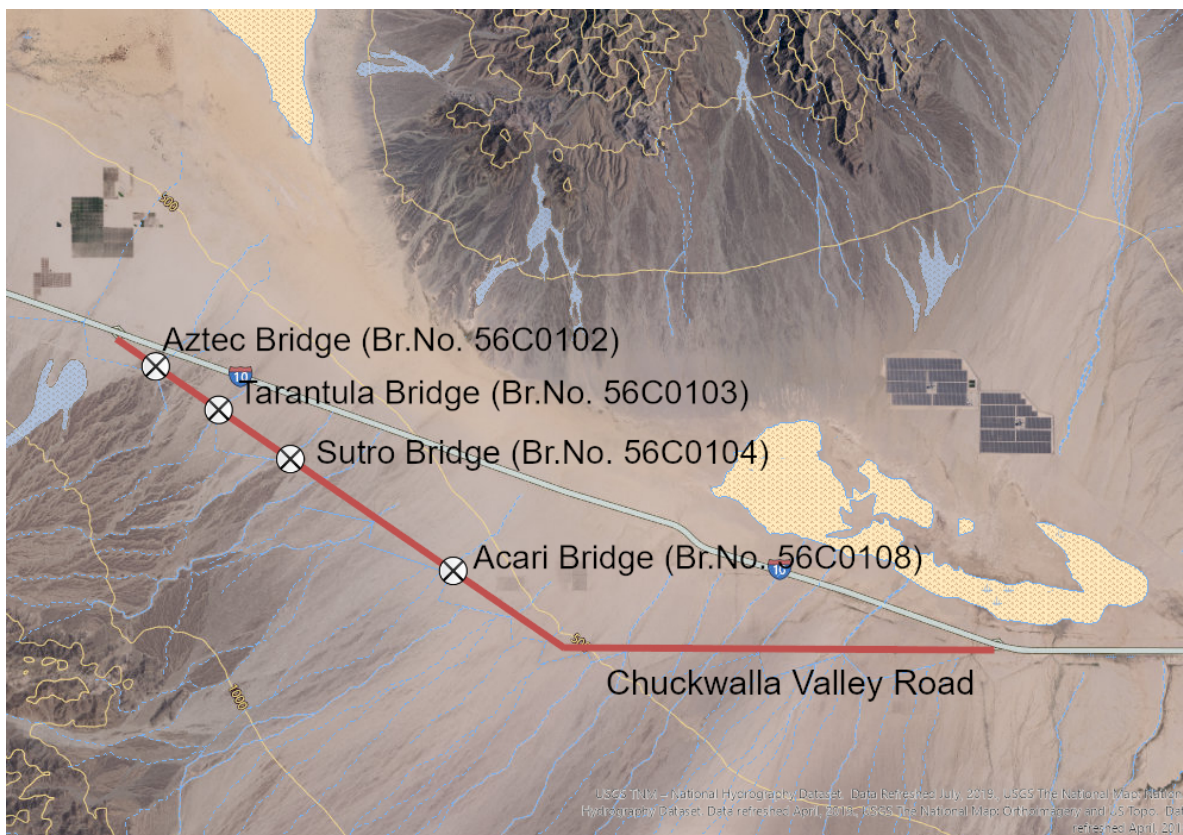


Figure 1: Project Location

Existing Site Features

Chuckwalla Valley Road is an approximately 16-mile stretch of frontage road that runs parallel to Interstate 10 (I-10). It connects Corn Springs Road and I-10 at the west end and Ford Dry Lake Road and I-10 at the east end. Classified as a Local Rural Road, it mostly serves vehicles accessing local utilities and off-road recreation. The average daily traffic (ADT) volume is approximately 40 vehicles. Periodically, the road carries detoured traffic from the heavily traveled I-10 when the freeway is temporarily closed for construction or emergency incidents. Therefore, it is important to maintain this frontage road in sound condition at all times.

The existing timber bridges carry two lanes (one lane in each direction) of traffic over the Aztec, Tarantula, Sutro and Acari ditches. The timber bridges range from 41 feet to 60 feet in length and are approximately 24 feet and 8 inches wide from curb-to-curb. Currently, load restrictions posted on the four bridges limit the vehicular load-carrying capacity below normal standards.

The Build Alternative

The County of Riverside (County), in cooperation with California Department of Transportation (Caltrans), proposes to replace the following four (4) existing structurally deficient timber bridges (Attachment B: Maps) along Chuckwalla Valley Road near Desert Center in Riverside County, California:

- Chuckwalla Valley Road Bridge over Aztec Ditch (State Br. No. 56C0102) (Federal Aid Project No. BRLO-5956(239))

- Chuckwalla Valley Road Bridge over Tarantula Ditch (State Br. No. 56C0103) (Federal Aid Project No. BRLO-5956(227))
- Chuckwalla Valley Road Bridge over Sutro Ditch (State Br. No. 56C0104) (Federal Aid Project No. BRLO-5956(226))
- Chuckwalla Valley Road Bridge over Acari Ditch (State Br. No. 56C0108) (Federal Aid Project No. BRLO-5956(225))

The proposed project will replace the existing 2-lane timber bridges with new 2-lane modern bridges with a curb-to-curb roadway width of 32 feet at the same locations. The proposed road width would consist of two 12-foot-wide travel lanes, one lane in each direction, and a 4-foot-wide shoulder on each side. Modern traffic barriers/railings meeting current CALTRANS safety design standards would be constructed. The proposed bridges would be approximately 60 to 80 feet long depending on the channel hydraulic capacity and water surface freeboard requirements. Raising the elevation of the bridges is not anticipated. However, if raising the bridge elevation is found to be necessary to meet freeboard requirements, the total vertical increase is not anticipated to exceed one foot. Additionally, approach roadway improvements would be provided and channel improvements would be administered to avoid future scour problems. It is envisioned that the channel bottom will remain earthen.

All construction activities would be conducted within the existing roadway right of way with construction staging and material laydown areas on the roadway itself. Chuckwalla Valley Road between the Corn Springs Road intersection to 6.3 miles east of the intersection would be closed during construction. The construction duration will be further determined during the project development. It is envisioned that all four bridges will be either constructed at the same time or staged in sequence depending on the finding of available access to adjacent utilities and properties. A Traffic Management Plan (TMP) would be prepared to address closure of the road and access to local utilities and properties.

The existing bridges do not carry any utilities and the proposed bridge construction is not expected to include new utilities. A telephone line runs along the north side of the project area and may be near bridge wing walls. Further coordination with the utility provider will determine whether relocation will be required.

The bridges are listed in the federal Eligible Bridge List (EBL) as "Structurally Deficient (SD)" with a low Sufficiency Rating (SR) between 39.3 and 49.2. A sufficiency rating is essentially an overall rating of a functional/geometric obsolescence, and its essentiality to the public. A low sufficiency rating may be due to structural defects, narrow lanes, low vertical clearance, or any of many possible issues. A bridge is healthy when its SR is more than 80.0. Bridges with SR equal to or less than 80.0 and more than 50.0 require rehabilitation or widening. When the SR falls below 50.0, bridge replacement shall be considered for public safety.

1.2.1 No Project Alternative

The "No Project Alternative" would not mitigate the impacts of the structurally deficient bridge. The proposed bridge replacement is needed for public safety issues. The project is designed to comply with current engineering and safety standards to remove it from the federal Eligible Bridge List.

2. REGULATORY SETTING

2.1 Federal Laws and Requirements

2.1.1 Clean Water Act

In 1972 Congress amended the Federal Water Pollution Control Act, making the addition of pollutants to the waters of the United States (U.S.) from any point source unlawful unless the discharge is in compliance with a NPDES permit. Known today as the Clean Water Act (CWA), Congress has amended it several times. In the 1987 amendments, Congress directed dischargers of stormwater from municipal and industrial/construction point sources to comply with the NPDES permit program. Important CWA sections are:

- Sections 303 and 304 require states to promulgate water quality standards, criteria, and guidelines.
- Section 401 requires an applicant for a federal license or permit to conduct any activity, which may result in a discharge to waters of the U.S., to obtain certification from the State that the discharge will comply with other provisions of the act. (Most frequently required in tandem with a Section 404 permit request. See below).
- Section 402 establishes the NPDES, a permitting system for the discharges (except for dredge or fill material) of any pollutant into waters of the U.S. The Federal Environmental Protection Agency delegated to the California State Water Resources Control Board (SWRCB) the implementation and administration of the NPDES program in California. The SWRCB established nine Regional Water Quality Control Boards (RWQCBs). The SWRCB enacts and enforces the Federal NPDES program and all water quality programs and regulations that cross Regional boundaries. The nine RWQCBs enact, administer and enforce all programs, including NPDES permitting, within their jurisdictional boundaries. Section 402(p) requires permits for discharges of stormwater from industrial, construction, and Municipal Separate Storm Sewer Systems (MS4s).
- Section 404 establishes a permit program for the discharge of dredge or fill material into waters of the U.S, including wetlands. This permit program is administered by the U.S. Army Corps of Engineers (USACE).

The objective of the CWA is “to restore and maintain the chemical, physical, and biological integrity of the Nation’s waters.”

The USACE issues two types of 404 permits: General and Individual. There are two types of General permits: Regional and Nationwide permits. Regional permits are issued for a general category of activities when they are similar in nature and cause minimal environmental effect. Nationwide permits are issued to authorize a variety of minor project activities with no more than minimal effects.

There are also two types of Individual permits: Standard Individual permit and Letter of Permission. Ordinarily, projects that do not meet the criteria for a Nationwide Permit may be permitted under one of USACE’s Individual permits. For Standard Individual permit, the USACE decision to approve is based on compliance with U.S. Environmental Protection Agency’s (EPA) Section 404 (b)(1) Guidelines (U.S. EPA CFR 40 Part 230), and whether permit approval is in the public interest. The 404(b)(1) Guidelines were developed by the U.S. EPA in

conjunction with USACE and allow the discharge of dredged or fill material into the aquatic system (waters of the U.S.) only if there is no practicable alternative which would have less adverse effects. The Guidelines state that USACE may not issue a permit if there is a least environmentally damaging practicable alternative (LEDPA), to the proposed discharge that would have less effects on waters of the U.S., and not have any other significant adverse environmental consequences. Per Guidelines, documentation is needed that a sequence of avoidance, minimization, and compensation measures have been followed, in that order. The Guidelines also restrict permitting activities that violate water quality or toxic effluent standards, jeopardize the continued existence of listed species, violate marine sanctuary protections, or cause “significant degradation” to waters of the U.S. In addition, every permit from the USACE, even if not subject to the 404(b)(1) Guidelines, must meet general requirements. See 33 CFR 320.4.

2.2 State Laws and Requirements

2.2.1 Porter-Cologne Water Quality Control Act

California’s Porter-Cologne Act, enacted in 1969, provides the legal basis for water quality regulation within California. This Act requires a “Report of Waste Discharge” for any discharge of waste (liquid, solid, or gaseous) to land or surface waters that may impair beneficial uses for surface and/or groundwater of the State. It predates the CWA and regulates discharges to waters of the State. Waters of the State include more than just waters of the U.S., like groundwater and surface waters not considered waters of the U.S. Additionally, it prohibits discharges of “waste” as defined and this definition is broader than the CWA definition of “pollutant”.

Waste – “includes sewage and any and all other waste substances, liquid, solid, gaseous, or radioactive, associated with human habitation, or of human or animal origin, or from any producing, manufacturing, or processing operation, including waste placed within containers of whatever nature prior to, and for purposes of, disposal.” (Porter-Cologne Water Quality Control Act, 2012)

Pollutant – “dredged spoil, solid waste, incinerator residue, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials, heat, wrecked or discarded equipment, rock, sand, cellar dirt and industrial, municipal, and agricultural waste discharged into water. This term does not mean (A) “sewage from vessels” within the meaning of section 1322 of this title; or (B) water, gas, or other material which is injected into a well to facilitate production of oil or gas, or water derived in association with oil or gas production and disposed of in a well, if the well-used either to facilitate production or for disposal purposes is approved by authority of the State in which the well is located, and if such State determines that such injection or disposal will not result in the degradation of ground or surface water resources.” (Clean Water Act, 2012)

Discharges under the Porter-Cologne Act are permitted by Waste Discharge Requirements (WDRs) and may be required even when the discharge is already permitted or exempt under the CWA.

The State Water Resources Control Board (SWRCB) and RWQCBs are responsible for establishing the water quality standards as required by the CWA and regulating discharges to protect beneficial uses of water bodies. Details regarding water quality standards in a project area are contained in the applicable RWQCB Basin Plan. In California, Regional Boards designate beneficial uses for all water body segments in their jurisdictions, and then set standards necessary to protect these uses. Consequently, the water quality standards developed for particular water body segments are based on the designated use and vary depending on such use.

Water body segments that fail to meet standards for specific pollutants are included in a Statewide List in accordance with CWA Section 303(d). If a Regional Board determines that waters are impaired for one or more constituents and the standards cannot be met through point source or non-source point controls (NPDES permits or Waste Discharge Requirements), the CWA requires the establishment of Total Maximum Daily Loads (TMDLs). TMDLs specify allowable pollutant loads from all sources (point, non-point, and natural) for a given watershed. The SWRCB implemented the requirements of CWA Section 303(d) through Attachment IV of the Caltrans Statewide MS4, as it includes specific TMDLs for which Caltrans is the named stakeholder.

2.2.2 California Fish and Wildlife Code Sections 1601-1603

The California Department of Fish and Wildlife (CDFW), through provisions of the California Fish and Wildlife Code (Sections 1601-1603), is empowered to issue agreements for any alteration of a river, stream, or lake where fish or wildlife resources may be adversely affected. Streams and rivers are defined by the presence of a channel bed and banks and at least an intermittent flow of water. CDFW typically extends the limits of its jurisdiction laterally beyond the channel banks for streams that support riparian vegetation. In these situations, the outer edge of the riparian vegetation is generally used as the lateral extent of the stream and CDFW jurisdiction. The California Fish and Wildlife Code Section 1602 requires any person, state or local governmental agency, or public utility to notify the CDFW before beginning any activity that will result in one or more of the following: (1) substantial obstruction or diversion of the natural flow of a river, stream, or lake, (2) substantial change in or use of any material from the bed, channel, or bank of a river, stream, or lake, or (3) deposit or disposal of debris, waste, or other material containing crumbled, flaked, or ground pavement where it can pass into a river, stream, or lake. The Fish and Wildlife Code Section 1602 applies to all perennial, intermittent, and ephemeral rivers, streams, and lakes in the state.

2.2.3 State Water Resources Control Board and Regional Water Quality Control Boards

The SWRCB adjudicates water rights, sets water pollution control policy, and issues water board orders on matters of statewide application, and oversees water quality functions throughout the state by approving Basin Plans, TMDLs, and NPDES permits. RWCQB are responsible for protecting beneficial uses of water resources within their regional jurisdiction using planning, permitting, and enforcement authorities to meet this responsibility. This project is located within SWRCB Region 7 the Colorado River Basin.

2.2.3.1 National Pollutant Discharge Elimination System (NPDES) Program Municipal Separate Storm Sewer Systems (MS4)

Section 402(p) of the CWA requires the issuance of NPDES permits for five categories of stormwater dischargers, including MS4s. The U.S. EPA defines an MS4 as “any conveyance or system of conveyances (roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, human-made channels, and storm drains) owned or operated by a state, city, town, county, or other public body having jurisdiction over storm water, that are designed or used for collecting or conveying stormwater.” The SWRCB has identified the County of Riverside as an owner/operator of an MS4 pursuant to federal regulations. The County’s MS4 permit covers all County rights-of-way, properties, facilities, and activities within the County

boundaries. The SWRCB or the RWQCB issues NPDES permits for five years, and permit requirements remain active until a new permit has been adopted. The proposed project is located within unincorporated Riverside County; however, the project is located outside of the urban area in the Chuckwalla Region. This region is not covered by any MS4 permits.

2.2.3.2 Construction General Permit

Construction General Permit (NPDES No. CAS000002, SWRCB Order No. 2009-0009-DWQ, adopted on November 16, 2010) became effective on February 14, 2011 and was amended by Order No. 2010-0014-DWQ and Order No. 2012-0006-DWQ. The permit regulates stormwater discharges from construction sites which result in a Disturbed Soil Area (DSA) of one acre or greater, and/or are smaller sites that are part of a larger common plan of development.

For all projects subject to the CGP, the applicant is required to hire a Qualified Storm Water Pollution Prevention Plan (SWPPP) Developer (QSD) to develop and implement an effective SWPPP. All Project Registration Documents, including the SWPPP, are required to be uploaded into the SWRCB's on-line Stormwater Multiple Application and Report Tracking System (SMARTS), at least 30 days prior to construction.

Waivers from CGP coverage.

Projects that disturb over 1.0 acre but less than 5 acres of soil, may qualify for waiver of CGP coverage. This occurs whenever the R factor of the **Watershed Erosion Estimate (=R_xK_xLS) in tons/acre** is less than 5. Within this CGP formula, there is a factor related to when and where the construction will take place. This factor, the 'R' factor, may be low, medium or high. When the R factor is below the numeric value of 5, projects can be waived from coverage under the CGP, and are instead covered by the County MS4 Permit.

In accordance with SWMP, a Water Pollution Control Plan (WPCP) is necessary for construction of a project not covered by the CGP. This project will disturb approximately 13.6 acres. A risk assessment will need to be conducted to determine if the Watershed Erosion Estimate is less than 5. This project is expected to obtain CGP Coverage.

Construction activity that results in soil disturbances of less than one acre is subject to this CGP if there is potential for significant water quality impairment resulting from the activity as determined by the RWQCB. Operators of regulated construction sites are required to develop a SWPPP, to implement soil erosion and pollution prevention control measures, and to obtain coverage under the CGP.

The CGP contains a risk-based permitting approach by establishing three levels of risk possible for a construction site. Risk levels are determined during the planning, design, and construction phases, and are based on project risk of generating sediments and receiving water risk of becoming impaired. Requirements apply according to the Risk Level determined. For example, a Risk Level 3 (highest risk) project would require compulsory stormwater runoff pH and turbidity monitoring, and pre- and post-construction aquatic biological assessments during specified seasonal windows.

2.2.3.3 Section 401 Permitting

Under Section 401 of the CWA, any project requiring a federal license or permit that may result in a discharge to a water of the United States must obtain a 401 Certification, which certifies that the project will be in compliance with State water quality standards. The most common federal

permit triggering 401 Certification is a CWA Section 404 permit, issued by USACE. The 401 permit certifications are obtained from the appropriate RWQCB, dependent on the project location, and are required before USACE issues a 404 permit.

In some cases, the RWQCB may have specific concerns with discharges associated with a project. As a result, the RWQCB may prescribe a set of requirements known as Waste Discharge Requirements (WDRs) under the State Water Code (Porter-Cologne Act). WDRs may specify the inclusion of additional project features, effluent limitations, monitoring, and plan submittals that are to be implemented for protecting or benefiting water quality. WDRs can be issued to address both permanent and temporary discharges of a project.

2.3 Regional and Local Requirements

The proposed project will extend into the unincorporated regions of the County of Riverside in the Chuckwalla Region. The Chuckwalla Region is outside of the urban area and is not within a Phase I or Phase II MS4 Permit area. Therefore, this project is not subject to MS4 NPDES Permit requirements as defined by the Water Quality Control Plan for the Colorado River Basin-Region 7. The proposed project will comply with the State of California Construction General Permit requirements. Also, this proposed project is located within the Mojave Desert Air Basin which is under the jurisdiction of the South Coast Air Quality Management District. No sources of federal or state waters were located in the project vicinity this project does not plan to alter any form of groundwater.

3. AFFECTED ENVIRONMENT

3.1 Introduction

The Project is located in rural Riverside County off the Corn Springs Road exit on Interstate 10. The Project discharges to four separate stream bed channels one for each timber bridge: The Aztec, Tarantula, Sutro, and the Acari drainage ditches. The Aztec Ditch and the Tarantula Ditch stream beds are tributary to the Palen Dry Lake Bed and the Sutro Ditch and Acari Ditch stream beds are tributary to Ford Dry Lake Bed. These two dry lakes are the final endpoints in these watersheds.

3.2 General Environmental Setting

3.2.1 Population and Land Use

The Chuckwalla Valley Road Bridge Replacement Project is located in a rural unpopulated portion of the County of Riverside between the census-designated place of Desert Center and the City of Blythe. There are no commercial, residential, or industrial land uses within the immediate vicinity of the project. However, a power substation lies approximately 5 miles to the east of the Aztec Bridge (to be replaced by the proposed project) and a palm tree agricultural operation to the northwest approximately 2.5 miles away from the Aztec Bridge. Desert landscape is found on both sides of Chuckwalla Valley Road. There are no residential or business properties within the project. The project will be constructed within the existing right of way. No property acquisitions would be required and no permanent right of way acquisition or construction easements would be required. Replacement of the timber bridges would not divide or disrupt existing neighborhoods or communities. This project serves to enhance the safety of the traveling public, as well as the local community that uses the roadway for access as a detour from Interstate 10. The project limits will not encroach on any state or federal lands. All construction and construction activities including construction staging will occur on the roadway itself. This project is not adjacent to Tribal land and would not encroach upon Tribal land.

3.2.2 Topography

The project area rests within an alluvial fan below the tributary area running from Pilot Mountain, just east of the alluvial fan of Corn Springs. This project area is relatively flat and does not have steep slopes near the proposed bridge replacements or roadway improvements. Runoff associated with this project will discharge to the drainage ditches that run under the bridges to service Chuckwalla Valley Road, the Aztec Ditch, Tarantula Ditch, Sutro Ditch, and Acari Ditch, respectively. The runoff will then infiltrate into the ground. However, if the runoff were to continue downstream, the Aztec Ditch and Tarantula Ditch drainage will travel north crossing under Interstate 10 where it will enter Lower Palen Dry Lake Bed, approximately 4.5 miles away from the project limits. Runoff from the Sutro Ditch and the Acari Ditch will travel in a northeast direction crossing under Interstate 10 and will continue to the northeast until it deviates to the east at the base of the Palen Mountains where it will ultimately enter the Ford Dry Lake Bed just 6 miles northeast of the project limits. Figure 2 below shows a map of the project vicinity.



Figure 2: Project Vicinity

3.2.3 Hydrology

3.2.3.1 Regional Hydrology

The Chuckwalla Valley is located in an arid region bounded by the Chuckwalla Mountains, the Palen Mountains, Mc Coy Mountains, the Eagle Mountains, the Coxcomb Mountains, the Palen Valley and the Palo Verde Valley. The nearest waterbodies are the Colorado River and the Salton Sea. The Colorado River is located approximately 40 miles to the east. The Salton Sea is located approximately 42 miles to the southwest. In addition, Lake Havasu, is approximately 70 miles to the northeast. This area experiences little to no precipitation with the nearest rain gauge located at the Blythe Airport. There are no perennial streams in the Chuckwalla Valley. The Chuckwalla Valley is dry and free from surface flows most of the year. Runoff occurs only in response to infrequent intense rain storms. Refer to Figure 3 on the following page for the regional watershed boundaries of the proposed project.

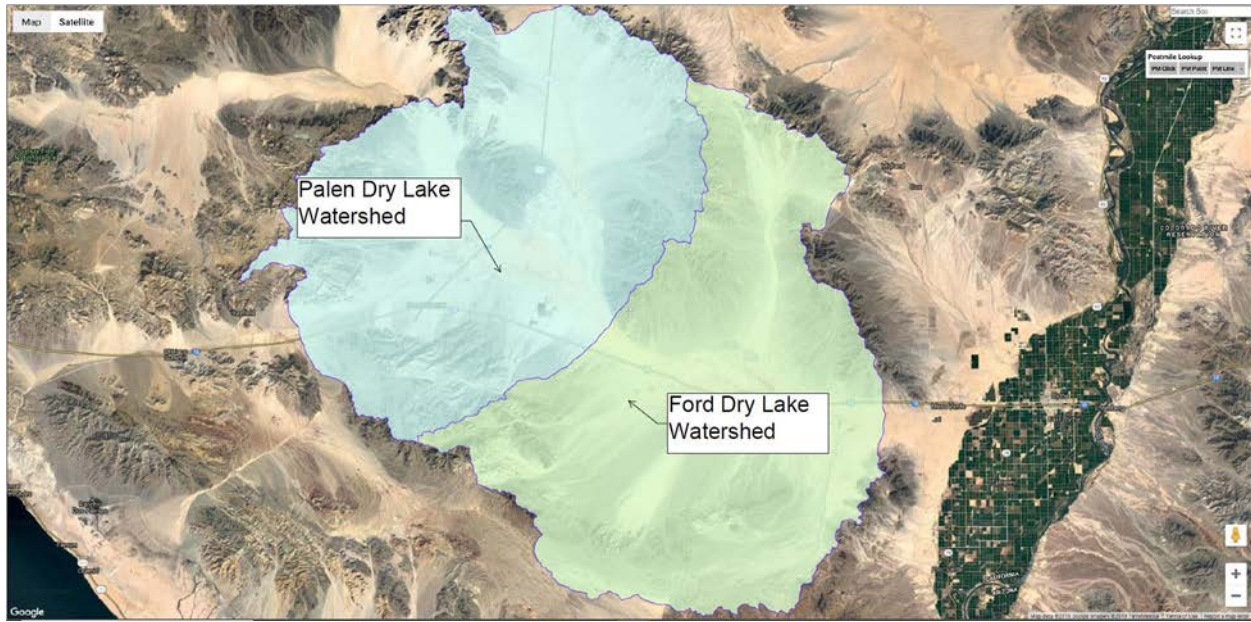


Figure 3: Regional Watershed Boudaries

3.2.3.2 Local Hydrology

The Aztec, Tarantula, Sutro, and Acari drainage areas experience little to no annual rainfall. These water courses only observe surface flow during times of infrequent intense rainstorms. The stormwater runoff flows from these drainage courses to the dry lake beds of Palen Dry Lake and Ford Dry Lake. Since the channel beds are in a low flow condition and/or dry most of the year, any runoff, is expected to be evaporated or infiltrated into the porous ground. The proposed project is not anticipated to change the upstream and downstream hydrology of the Aztec, Tarantula, Sutro, and Acari Ditches or the Palen Dry Lake and Ford Dry Lake watersheds. After construction the drainage ditch flow rates will observe a nominal increase due to the increased impervious surface area of the new bridge decks.

Table 1 Impervious Surface Area Increase for Each Bridge Watershed

Proposed Bridges	Aztec Bridge (Br. No. 56C0102)	Tarantula Bridge (Br. No. 56C0103)	Sutro Bridge (Br. No. 56C0104)	Acari Bridge (Br. No. 56C0108)
Size of Watershed Area (Acres)	2,892	2,125	2,739	26,366
Existing impervious surface area per bridge deck (Acres)	0.033	0.023	0.033	0.032
Total increase in impervious surface area per bridge deck (Acres)	0.031	0.022	0.031	0.031
The percent increase in	0.00108	0.00104	0.00114	0.000118

imperviousness over the whole ditch watershed				
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Figure 4: Project Area Sub Watersheds

3.2.3.2.1 Precipitation and Climate

Historically, precipitation in the Chuckwalla Valley is extremely limited. There are two local rain gauges that are the most representative of the project area. These rain gauges are the BLYTHE ASOS rain gauge and the EAGLE MOUNTAIN, CA rain gauge. The average annual precipitation for the BLYTHE ASOS rain gauge is 3.09 inches per year based off an eighteen-year annual rain gauge history research. The average annual precipitation for the EAGLE MOUNTAIN, CA rain gauge is 3.81 inches per year based off an eighteen-year annual rain gauge history research. Most rainfall occurs during winter months; however, high intensity rains can occur during mid-summer producing flash floods and severe erosion. Refer to Figure 5 for data on both the BLYTHE ASOS rain gauge and the EAGLE MOUNTAIN, CA rain gauge.

Windstorms in the project area are not uncommon and can cause extensive damage to unprotected soils, plants, structures, and vehicles. Airborne dust carried by these winds can compromise air quality and respiratory health.

Annual temperature variations in the Chuckwalla Valley are extreme with average winter lows in low 30s (degrees Fahrenheit) and average summer highs of 112 to 117 (degrees Fahrenheit). The mean annual temperature is 73 (degrees Fahrenheit) (NOAA Online Weather Data).

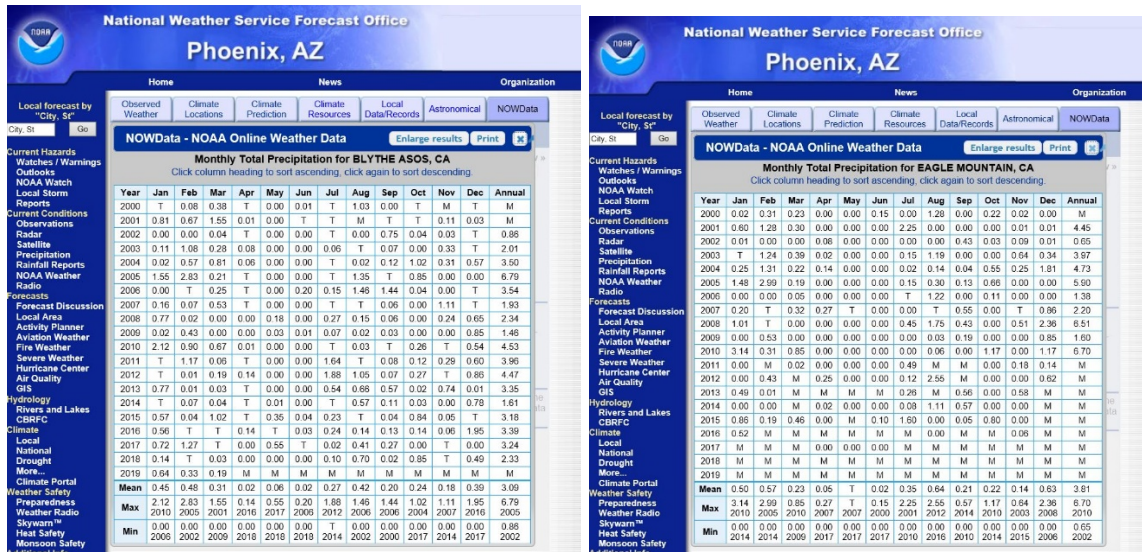


Figure 5: Precipitation Data for the Two Closest Rain Gauges to Project

3.2.3.2.2 Surface Waters

Chuckwalla Valley has many intermittent and ephemeral streams that are tributary to Ford Dry Lake Bed and Palen Dry Lake Bed. Some of these streams include: Corn Springs Wash, Ship Creek, Red Cloud Wash, Dragon Wash and a series of dry washes and ditches. Refer to Figure 6 to view the network of the intermittent and ephemeral streams that convey runoff into Palen Dry Lake Bed and Ford Dry Lake Bed. The average annual rainfall is three inches per year and the climate is very arid. Almost all the moisture from rain is lost through evaporation, evapotranspiration, and/or infiltration. This project will discharge to the Aztec, Tarantula, Sutro, and Acari Ditches which are not listed in the State Water Resources Control Board 303d list. No USEPA approved TMDLs are being implemented for these drainage pathways. According to the California Regional Water Quality Control Board, Board Order R7-2013-0005, Ford Dry Lake Bed and Palen Dry Lake Bed have Beneficial Use Designations of Wildlife Habitat (WILD) and Preservation of Rare, Threatened, or Endangered Species (RARE). This project lies directly north and within 5 miles of the Chuckwalla Mountains Wilderness area and approximately 25 miles from the Palen-McCoy Wilderness Area. However, it is not within or immediately adjacent to a Wild and Scenic River System. The proposed project is an area already used for vehicular traffic. The replacement of the bridge will continue to allow for safe passage of terrestrial species that may inhabit the drainage ditch bed. All drainage ditches are ephemeral and contain sandy soils. There is no presence of specialized vegetation or aquatic species.

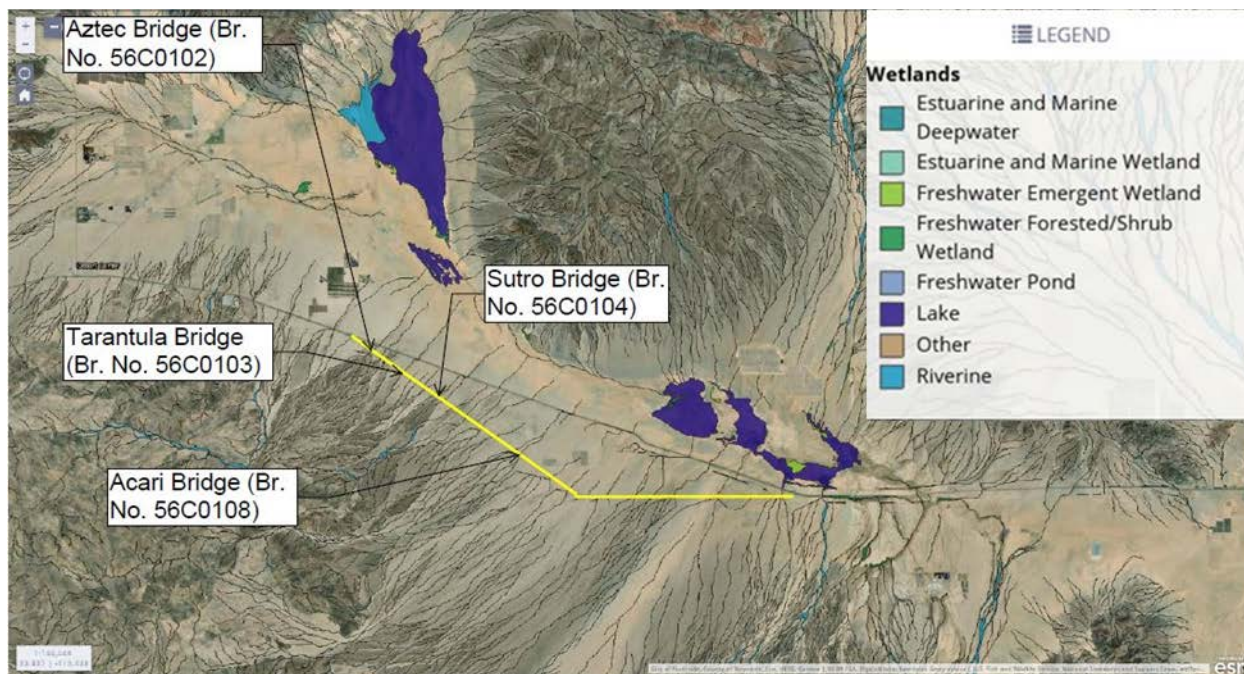


Figure 6: Surface Drainage Pattern Vicinity Map

3.2.3.2.3 Floodplains

The project is located within an area designated as Zone D (FEMA Flood Map #06065C2475). According to the Flood Insurance Rate Map (FIRM), the Project is not located in a regulatory floodway. The Project is not within a base floodplain elevation of a watercourse or lake. FEMA Zone D areas have possible, but undetermined flood hazard zoning, although no flood hazard analysis has been conducted.

3.2.3.2.4 Municipal Supply

The project site is currently uninhabited and has no municipal supply of water or utilities except for the telephone line that runs along the north side of the project. This project is located within the Chuckwalla Valley Groundwater Basin where the basin is recharged by subsurface flow from the Pinto Valley and Cadiz Valley, and the Orocopia Groundwater basins, refer to Figure 7. These groundwater basins are recharged by the combined percolation of runoff from the surrounding mountains and of precipitation on the valley floor. (USGS Everett). Local wells near the project area withdraw water for industrial use.

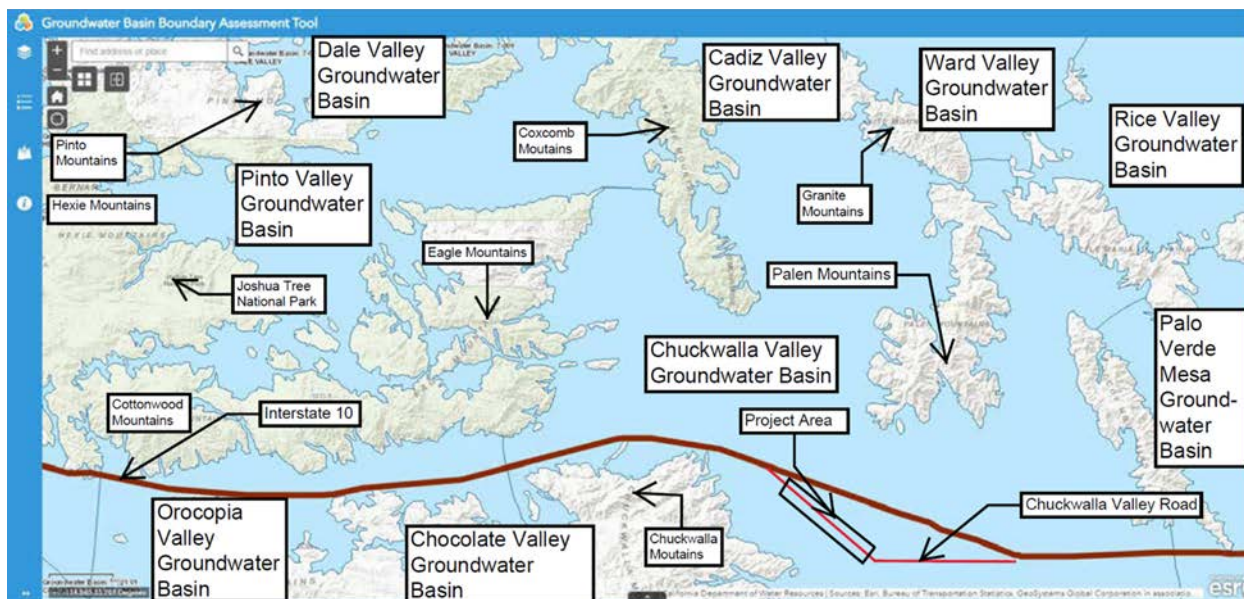


Figure 7: Groundwater Basin Vicinity Map

3.2.3.3 Groundwater Hydrology

The Chuckwalla Valley Groundwater Basin (Basin Number 7-5) underlies the Palen and Chuckwalla Valleys and covers approximately 605,000 acres (940 square miles) in both Riverside and Imperial Counties. This basin is located within the Colorado River Aquifer. The basin is surrounded by mountains and other nearby valleys. According to the water budget conditions the water levels are stable in the central part and eastern part of the basin. However, the water levels have started to decline around 50 feet starting in 1980 around Desert Center. No overdraft conditions have occurred (Draft DRECP and EIR/EIS). The Groundwater has a beneficial uses of Municipal Supply (MUN) and Industrial Supply (IND) (Board Order R7-2013-0005 Genesis Solar). Groundwater flows southeastward from the basin's boundary with the Cadiz Valley and Pinto Valley Basins through the narrows between the McCoy and Mule Mountains and into the adjacent Palo Verde Mesa Basin. Measured groundwater levels range from an elevation of 500ft in the western portion of the basin to less than 275 ft near the eastern portion. According to the Chuckwalla Valley Groundwater Basin California Groundwater Bulletin 118 the Chuckwalla Valley Groundwater Basin is impaired for sulfate, chloride, fluoride, TDS, boron and sodium.

3.2.4 Geology/Soils

The Chuckwalla Valley consists of a series of mountain ranges surrounded by alluvial fans that slope toward Ford Dry Lake Bed and Palen Dry Lake Bed. The bridges to be replaced rest in a relatively flat area from the alluvial fan of the Chuckwalla Mountain ranges. The region has previously undergone a complex arrangement of geologic transformations. This region has experienced volcanic activity, folding, uplift and erosion, and sedimentation. The region is underlain by Holocene to Miocene basin fill deposits. The project area consists of recent dune sand, recent alluvium, and non-marine sedimentary deposits. The project area slopes to the northwest and rests at an elevation range of 691 to 552 feet above mean sea level.

3.2.5 Biological Communities

The Chuckwalla Valley is home to many different animal species and biological communities. The proposed bridge replacements for the project will primarily affect the species that live within the channel bed and the area immediately downstream so the focus of this section will be primarily on those species. The information presented in this section is based on the Project's biological studies.

3.2.5.1 Aquatic Habitat

The four drainage ditches associated with the four timber bridge replacements are dry most of the year; therefore, there are no aquatic species that regularly live in the part of the drainage ditches near the bridge replacements. No aquatic life is expected to be encountered at the project site.

3.2.5.1.1 Special Status Species

According to the US Fish and Wildlife (USFWS) IPaC list and California Natural Diversity Database (CNDDB) (January 2019) and the Project's Biologist, this project occurs within a critical habitat for the Desert Tortoise (*Gopherus agassizii*) a federal and state endangered species. The Project area provides a suitable habitat for this species; however, the species was not found during focused surveys for Desert Tortoise performed in May 2017 and updated in April 2019 using the current USFWS protocol. The project will avoid and minimize effects to this species with implementation of avoidance measures. Other sensitive species that could potentially occur within the project vicinity include: the American badger (*Taxidea taxus*), the desert bighorn sheep (*Ovis canadensis nelsoni*), the burrowing owl (*Athene cunicularia*), the western mastiff bat (*Eumops perotis*), and the pallid bat (*Antrozous pallidus*). None of these species were found during biological studies conducted by the County of Riverside's Biologist. The project does not occur within or adjacent to essential fish habitat areas. In addition, there are numerous migratory birds that could potentially nest or search for prey within the Project area. Two sensitive species found in the Project area include the Black-tailed gnatcatcher (*Polioptila melanura*) and the loggerhead shrike (*Lanius ludovicianus*). More migratory birds that are not special status but protected under the Migratory Bird Treaty Act and similar provisions of the Fish and Game Code include: the verdin, the red-tailed hawk, the cactus wren, Wilson's warbler, the California quail, the rock pigeon, the American crow (*Corvus brachyrhynchos*), the common raven, the lark sparrow, the desert roadrunner, the northern mockingbird, the ash-throated flycatcher, the house finch, the cliff swallow, the phainopepla, the common grackle, Say's yellow-rumped warbler, the northern rough-winged swallow, the yellow-headed blackbird, and the mourning dove. Avoidance measures will ensure there are no effects on any nesting birds.

3.2.5.1.2 Stream/Riparian Habitats

During times of the year when the four drainage ditches have flows from stormwater runoff, the ditch beds can host a moderate and limited riparian habitat. The riparian vegetation is sparse in the ditches and their banks are comprised of a few individuals of athel tamarisk, Mexican palo verde, and honey mesquite. Small mammals, snakes, and lizards also inhabit the channel.

3.2.5.1.3 Wetlands

There are no wetlands associated with any of the jurisdictional features along Chuckwalla Valley Road. However, per the National Wetlands Inventory, the nearest wetlands to the project area are

located approximately 3-miles to the southwest. Hydrology of the Riverine system within the project are classified as intermittent with a water regime that intermittently floods. The surface water is not expected to be present for a sufficient enough period to create hydric soils or predominance of hydrophytic vegetation. The site occurs within an alluvial system in an arid environment; therefore, runoff is ephemeral and is only expected to occur during and for a short duration following the infrequent rain events in the vicinity.

3.2.5.1.4 Fish Passage

This project does not occur within critical habitat or essential fish habitat areas. No essential fish habitat is present within or adjacent to the construction area.

4. ENVIRONMENTAL CONSEQUENCES

4.1 Introduction

The purpose of this Water Quality Assessment Report is to analyze the difference between the existing conditions and the proposed Project build conditions with respect to water quality impacts. The assessment takes the following into consideration:

- Pollutants of concern (pollutants associated with the Project and pollutants impairing receiving waters)
- Impervious area and relation to amount of runoff (increase, decrease, or offset)
- Application of BMPs (types of BMPs, technologies, effectiveness)

The exact disturbed area acreage of the proposed bridges and associated road improvements total approximately 3.9 acres for each of the Aztec, Tarantula and Sutro ditch bridges and 1.95 acres for the Acari ditch bridge. Figures 8-11 show the limits of disturbance for each bridge. The disturbed area is not to exceed 126 feet upstream and 74 feet downstream of the centerline of Chuckwalla Valley Road, within the proposed limits of the right-of-way. The staging yards for equipment and materials storage are expected to be located on the paved portions of Chuckwalla Valley Road near the terminal ends of the existing and proposed bridge replacement areas. The total permanent and temporary disturbed area for both bridges and the staging area is approximately 13.6 acres.

No staging, parking of construction vehicles, material setup and delivery, work areas, storage areas, or maintenance areas will occur off the paved roadway of Chuckwalla Valley Road or within 50 feet of any drainage course.

The Project proposes no excavation, no back fill, or disturbance of soil within the staging area. The limits of the bridge replacements and improvements within the drainage ditches will occur with as little of a footprint as feasible. The total temporary disturbed acreage within all the ditches is expected to not exceed 0.22 acres in each ditch. Temporary construction BMPs, such as linear perimeter controls and good housekeeping measures as outlined in the Projects SWPPP will be utilized to reduce or eliminate pollution on the construction site and protect the upstream and downstream portions of the drainage ditches not within the project limits. The increase in the footprint of the bridge will increase the 2, 10 and 100-year flows of the local hydrology of each drainage ditch by a nominal factor.

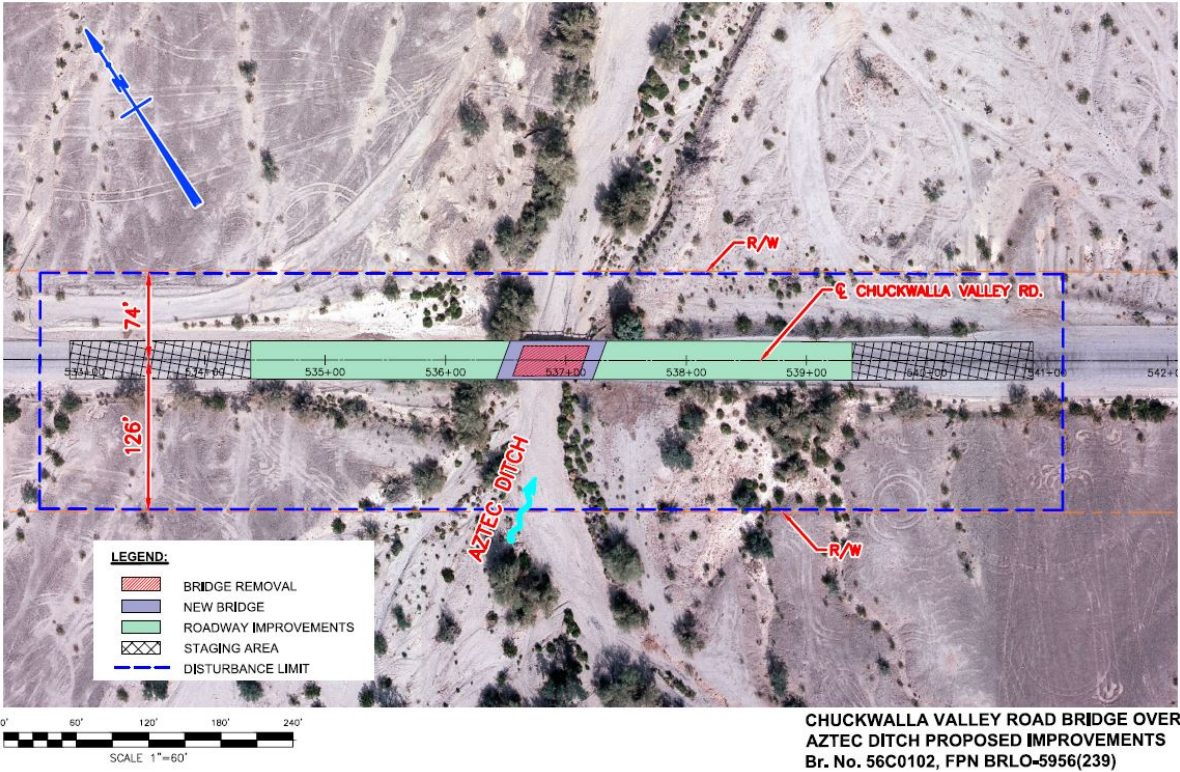


Figure 8: Proposed Improvements for Bridge over Aztec Ditch

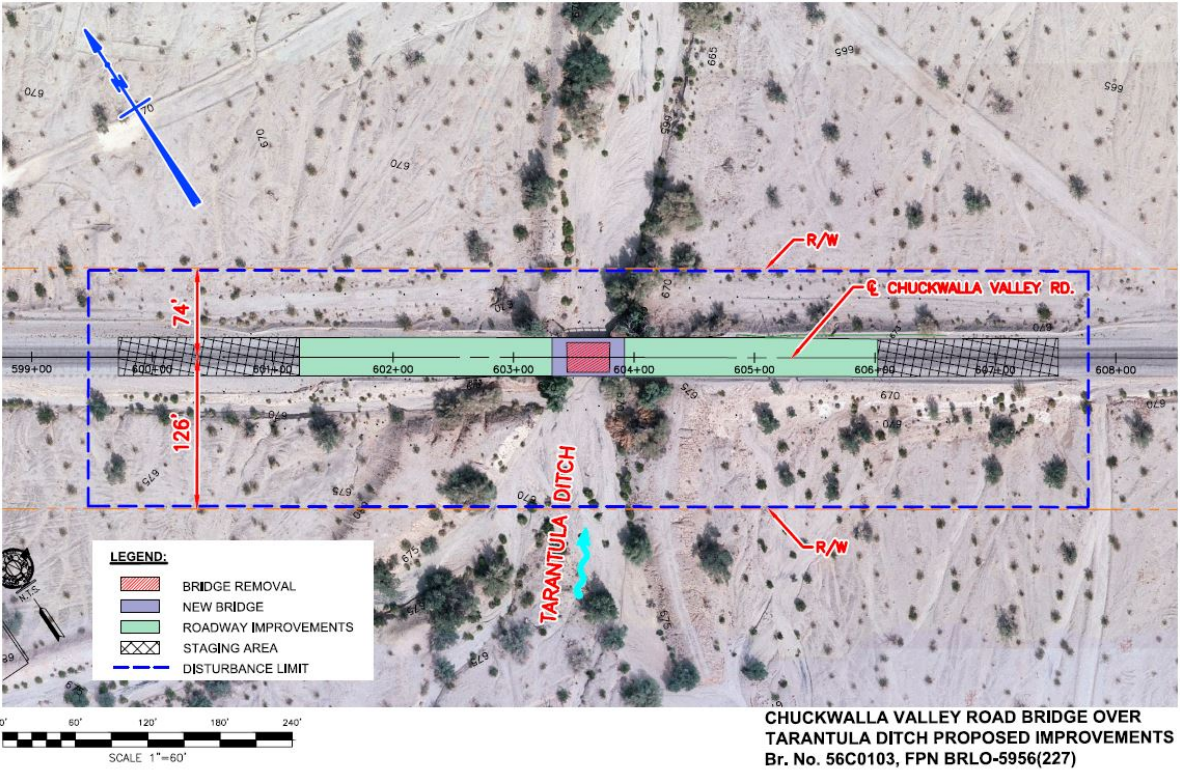


Figure 9: Proposed Improvements for Bridge over Tarantula Ditch

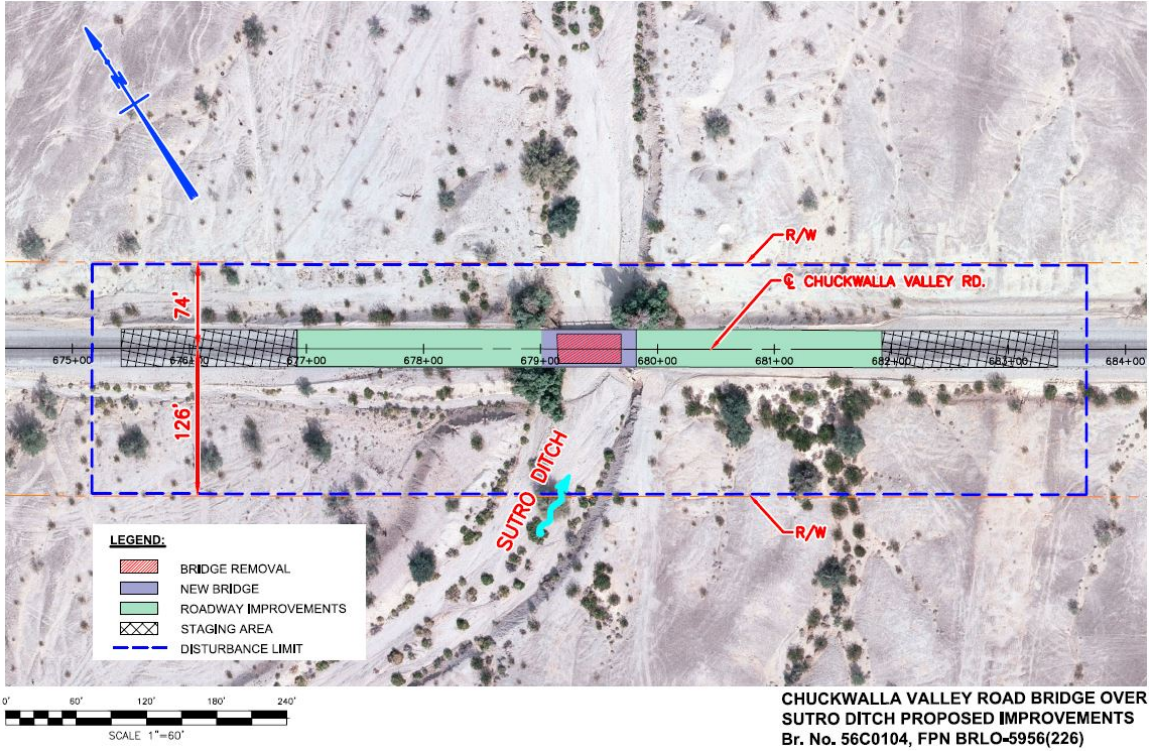


Figure 10: Proposed Improvements for Bridge over Sutro Ditch

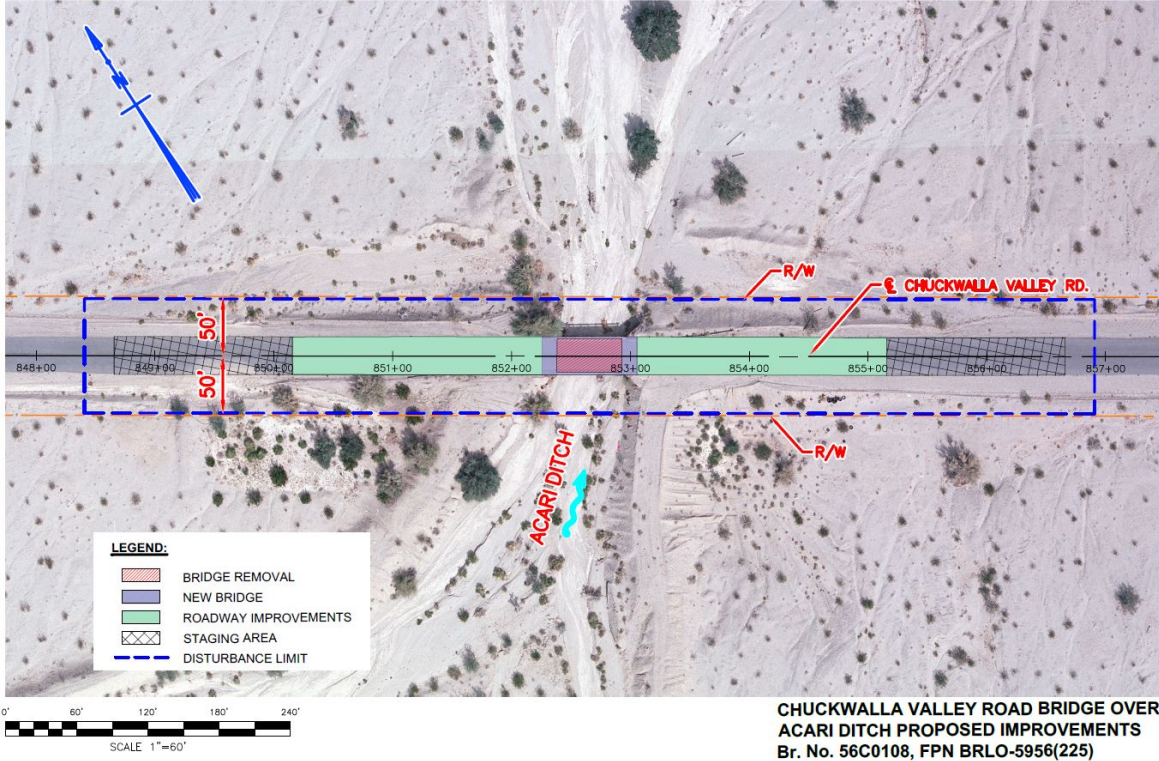


Figure 11: Proposed Improvements over Acari Ditch

4.2 Potential Impacts to Water Quality

During Construction

The Project may utilize a temporary earthen ramp to gain access to the channel bed of the ditches. If a temporary ramp is used, the contractor will implement BMPs around the ramp to prevent potential erosion of the earthen ramp in the event of dry weather low flows, rain event flows, or heavy rain event flows. During construction of the bridges, the drainage ditches will have a temporary disturbed soil area. Disturbed soil, construction materials, and construction wastes have a potential to be deposited during construction activities and also have a potential to run off during rain storms and pollute the Aztec, Tarantula, Sutro, and Acari Ditches. To prevent the release of pollutants into the ditches during construction, the contractor will implement BMPs at project perimeters to control runoff and potential run-on, and will implement materials storage and waste management controls throughout the construction site. These BMPs will be outlined in the Project SWPPP and will reduce or eliminate pollutants on the construction site from potentially causing adverse water quality impacts to the Aztec, Tarantula, Sutro, and Acari Ditches.

Post-Construction

The proposed bridge improvements will be constructed to direct storm water flows such that they will discharge into the drainage ditches and then follow the existing drainage pattern away from the site. The proposed project will not constitute a significant change to the drainage system. The ditches will still convey flows away from the Project; however, under the proposed condition, during low and high flow conditions the upstream flows of the ditches will continue to pass under the bridges, preventing contact with the roadway surfaces. During the long-term life of the Project, the impacts to water quality will be minimized through site design characteristics and source control maintenance to remove pollutants that could accumulate on the road surface, such as oil, grease, litter, and sediment.

4.2.1 Anticipated Changes to the Physical/Chemical Characteristics of the Aquatic Environment

4.2.1.1 Substrate

During Construction

Construction may require a temporary earthen ramp to be built to allow equipment to gain access to the channel bed of the ditches. If a temporary ramp is used, the contractor will implement BMPs around the ramp to prevent potential erosion of the earthen ramp. Construction will require temporary disturbance for demolition of the existing timber bridge structures, grading, the use of construction equipment and vehicles for bridge construction. The contractor will implement BMPs at project perimeters to control runoff and potential run-on into project areas. Once the new modern bridges are installed, the channel bed outside the permanent disturbance area will be returned to a condition similar to that of the existing riverbed in the vicinity of the Project.

Post-Construction

The Project proposes a minimal increase in impervious surface area of each bridge, totaling 0.115 acres for all 4 bridges. This will have a minimal impact on the aquatic environment and surrounding wetlands. The proposed ditch improvements will be returned to a condition similar to that of the existing channel bed in the vicinity of the Project.

4.2.1.2 Currents, Circulation or Drainage Patterns

During Construction

As construction progresses, the stream course will be diverted around the current phase of bridge construction to prevent potential stormwater or ephemeral flows from coming into contact with the construction activities and storage areas. If a temporary earthen access ramp is used, the contractor will implement BMPs around the ramp to prevent potential erosion of the earthen ramp during dry weather low flows and rain event flows. If a heavy rain event is forecast, then the contractor will implement run on BMPs such as CASQA BMP NS-5 Clear Water Diversion to divert the flows around the earthen ramp, and erosion control BMPs on disturbed slope areas within the ditches. These BMPs will be outlined in the Project SWPPP and will reduce or eliminate erosion from the earthen ramp from potentially causing adverse water quality impacts to the Aztec, Tarantula, Sutro, and Acari Ditches.

Post-Construction

The existing drainage pattern will be retained and will still be able to handle the 2, 10, 100-year flows. Flows will be managed in a manner similar to the existing conditions upstream and downstream of the current flow crossing. Therefore, the ditches are anticipated to have no negative impacts.

4.2.1.3 Suspended Particulates (Turbidity)

During Construction

The proposed bridge replacements and associated road improvements have the potential to increase the contribution of suspended particulates in the Aztec, Tarantula, Sutro, and Acari Ditches during construction. BMPs will be implemented and regularly maintained during each phase of construction to prevent soil erosion, waste discharge, eroding streambanks, and to control sediment from disturbed areas of the Project and the earthen access ramp from reaching flowing portions of the Aztec, Tarantula, Sutro, and Acari Ditches.

Post-Construction

The proposed bridge replacements and associated street improvements are not expected to increase suspended particulates in the Aztec, Tarantula, Sutro, and Acari Ditches. The proposed bridge improvements will not likely increase the flows of the ditches. Aztec, Tarantula, Sutro, and Acari Ditches are dry most of the year; therefore, the transport of suspended particulates is limited. The bridge is an existing stabilized surface and unlikely to contribute suspended particulates to the Aztec, Tarantula, Sutro, and Acari Ditches.

4.2.1.4 Oil, Grease and Chemical Pollutants

During Construction

The bridge replacements and associated road improvements have the potential to increase the contribution of oil, grease, or chemical pollution to the Aztec, Tarantula, Sutro, and Acari

Ditches during construction. BMPs will be implemented for the proper management, storage, and removal of construction materials, solid wastes, and hazardous substances. Staging areas will be at least 50 feet from any drainage ditch and the maintenance or refueling of equipment will not take place within the drainage ditches. Additionally, preventative practices will be used for the maintenance of construction equipment and vehicles, and personnel properly trained in spill prevention and clean up procedures will be onsite throughout the duration of construction. Jointly these controls will be used to prevent the introduction of construction pollutants into the Aztec, Tarantula, Sutro, and Acari Ditches. Pesticide application is not planned for this construction project. Every employee shall receive training on stormwater pollution prevention.

Post-Construction

The Project proposes to replace existing bridges that supports vehicular traffic. In the proposed and existing condition flows of the Aztec, Tarantula, Sutro, and Acari Ditches do not come into direct contact with the bridge deck. The project is anticipated to reduce the water quality impacts to the ditches associated with the introduction of oil, grease, and chemical pollutants from vehicular traffic by implementing site design and source control BMPs, such as litter removal and CASQA BMP SC-70 Road and Street Maintenance. Source control BMPs to remove the pollutants introduced to the bridge and road surfaces will be implemented. These controls will be used to prevent the introduction of typical roadway pollutants into the Aztec, Tarantula, Sutro, and Acari Ditches. Since the bridges will be an engineered, raised surface, pesticides are not anticipated to be used in the post-construction condition.

4.2.1.5 Temperature, Oxygen, Depletion and Other Parameters

During Construction

The bridge replacements and associated road approach improvements are not expected to change these parameters. During construction, BMPs for proper management, storage, and removal of construction materials, solid wastes, and hazardous substances (as applicable) will be utilized to ensure that construction activities do not introduce pollutants into the Aztec, Tarantula, Sutro, and Acari Ditches.

Post-Construction

The bridge replacements and associated road improvements will have little effect on the temperature and oxygen of the Aztec, Tarantula, Sutro, and Acari Ditches.

4.2.1.6 Flood Control Functions

During Construction

The main flow line of the Aztec, Tarantula, Sutro, and Acari Ditches will be diverted around active soil disturbance areas during construction in order to keep construction activities and materials from coming into contact with receiving waters. If a temporary earthen access ramp is used, the contractor will implement erosion and sediment control BMPs around the earthen ramp during dry weather low flows and predicted rain event flows. If a heavy rain event is forecast, the contractor will divert the flows around the earthen ramp using run-on control BMPs, such as CASQA BMP NS-5 Clear Water Diversion, as outlined in the Project SWPPP

Post-Construction

The proposed cross-sectional area of the bridges will increase the stream channel capacity by providing a wider section that is consistent with the rest of the channel and will continue to provide flood control capabilities of the Aztec, Tarantula, Sutro, and Acari Ditches.

4.2.1.7 Storm, Wave and Erosion Buffers

The project is not located within a tidelands area. Aztec, Tarantula, Sutro, and Acari Ditches remain dry for most of the year, with seasonal flows.

During Construction

The Project site will utilize erosion and sediment control BMPs to control erosion from disturbed soil areas during the road improvements and construction of the bridges.

Post-Construction

The Aztec, Tarantula, Sutro, and Acari Ditches will have rock slope protection and concrete wing walls near the abutments of each bridge. Drainage will discharge directly to the earthen channel bottom as in the existing condition.

4.2.1.8 Erosion and Accretion Patterns

During Construction

During construction the contractor will implement erosion and sediment control BMPs onsite to control erosion from disturbed soil areas during construction of the bridges and road improvements. If a temporary earthen access ramp is used, the contractor will implement erosion and sediment control BMPs around the earthen ramp during dry weather low flows and rain event flows. The contractor will also implement wind erosion controls to control the fugitive dust created by this project and will comply with all AQMD requirements.

Post-Construction

The Project does not plan to alter any erosion and accretion patterns post construction, as post-construction conditions are expected to equal pre-construction conditions.

4.2.1.9 Aquifer Recharge/Groundwater

The proposed bridge replacements and associated road improvements will not impede aquifer or groundwater recharge in the area. The Project does not propose to construct additional pervious surfaces in the channel bed. The ditches will retain the same amount of pervious surface to infiltrate and recharge local aquifers.

4.2.1.10 Baseflow

The proposed bridge replacements and associated road improvements will not affect the base flow of the Aztec, Tarantula, Sutro, and Acari Ditches as it is dry most of the year due to dry weather climate and extremely permeable soils in the channel bed, which reduce the transport of flows.

4.2.2 Anticipated Changes to the Biological Characteristics of the Aquatic Environment

4.2.2.1 Special Aquatic Sites

Since these are existing bridges and the Project proposes only to replace the existing bridges with new modern and safer bridges for vehicle use, this area is not anticipated to be impacted by the construction of the bridges. The bridges over the Aztec, Tarantula, Sutro, and Acari Ditches are not considered special aquatic sites. All ditches are ephemeral and contain sandy soils. No specialized aquatic species are present.

4.2.2.2 Habitat for Fish and Other Aquatic Organisms

The proposed bridge replacements and associated roadway improvements to match the bridge approach to the grade of the existing roadway are unlikely to affect the characteristics of the habitat for fish and other aquatic organisms since the area in its existing condition is a raised roadway that supports vehicular traffic across the Aztec, Tarantula, Sutro, and Acari Ditches. Also, the ditches are dry most of the year. During construction, wildlife friendly BMP products (such as but not limited to biodegradable (burlap) gravel bags, fiber rolls (burlap wrapped), etc.) will be utilized within the ditches. Therefore, there is no concern related to adverse impacts of the habitat for fish and other aquatic organisms.

4.2.2.2.1 Fish Passage (Beneficial Uses)

The proposed bridge replacements will neither increase or decrease potential fish passage for the Aztec, Tarantula, Sutro, and Acari Ditches. This watercourse is dry most of the year and fish species are not expected to be encountered at any time during construction or during the post construction phase of this project.

4.2.2.3 Wildlife Habitat

The proposed bridge replacements and associated roadway improvements are unlikely to affect the characteristics of the wildlife habitat. The Project's biological studies have documented two vegetation communities within the ditches that are suitable for wildlife species: the creosote brush scrub and desert wash. This Project occurs within a critical habitat for specialized species such as the desert tortoise (*Gopherus agassizii*), the American badger (*Taxidea taxus*), the desert bighorn sheep (*Ovis canadensis nelsoni*), the burrowing owl (*Athene cunicularia*), the western mastiff bat (*Eumops perotis*), and the pallid bat (*Antrozous pallidus*). Migratory birds could potentially nest or search for prey within the Project area. Two sensitive species that reside in the Project vicinity are the black-tailed gnatcatcher (*Polioptila melanura*) and the loggerhead shrike (*Lanius ludovicianus*). Avoidance measures will be implemented during construction so there are no impacts on the species. The area, in its existing condition, which is a raised roadway that supports vehicular traffic across the Aztec, Tarantula, Sutro, and Acari Ditches, will continue to be a similar bridge and roadway after Project completion. Therefore, there is no concern related to adverse impacts of the wildlife habitat.

4.2.2.3.1 Wildlife Passage (Beneficial Uses)

The proposed bridges and associated roadway improvements will not restrict potential wildlife passage for the Aztec, Tarantula, Sutro, and Acari Ditches since the area underneath the bridge will remain open, allowing for the migration of wildlife. Wildlife passage during construction

may be impacted temporarily while construction crews need to access the ditches to construct improvements.

4.2.2.4 Endangered or Threatened Species

The Aztec, Tarantula, Sutro, and Acari Ditches at this location are within a critical habitat for the desert tortoise (*Gopherus agassizii*) and other sensitive species such as the following: the American badger (*Taxidea taxus*), the desert bighorn sheep (*Ovis canadensis nelsoni*), the burrowing owl (*Athene cunicularia*), the western mastiff bat (*Eumops perotis*), and the pallid bat (*Antrozous pallidus*). Avoidance measures will be implemented so there are no impacts on the species. The proposed Project will only have temporary effects to the existing habitat within the stream beds at these locations due to construction activity to replace the existing bridges. The post-Project conditions will equal the pre-Project conditions. This Project consists of bridge replacements that span their own stream courses, similar to the existing structure, only wider and safer for vehicular usage.

4.2.2.5 Invasive Species

The proposed bridge replacements and associated roadway improvements have the potential to be affected by invasive species. Seeds can be dropped off from construction vehicle tires while entering and working within the drainage ditch. A construction entrance will need to be utilized to prevent the spread of invasive plant species to the Aztec, Tarantula, Sutro, and Acari Ditches. The proposed bridge deck work and associated roadway improvements will remain elevated over the Aztec, Tarantula, Sutro, and Acari Ditches.

4.2.3 Anticipated Changes to the Human Use Characteristics of the Aquatic Environment

4.2.3.1 Existing and Potential Water Supplies; Water Conservation

There is no anticipated change to existing and potential water supply. The water for this area is supplied through natural groundwater recharge. During construction, water conservation practices will be employed and minimal water will be used to control dust. The water use anticipated with this Project, once complete, is similar to the existing bridges at these locations.

4.2.3.2 Recreational or Commercial Fisheries

Due to the limited supply of runoff in this arid environment there are no local recreational or commercial fisheries that will be impacted by the project.

4.2.3.3 Other Water Related Recreation

Due to the limited supply of runoff in this arid environment there are no other water related recreational activities that will be affected.

4.2.3.4 Aesthetics of the Aquatic Ecosystem

Post construction, the ditches will be returned to their natural state and any temporary earthen access ramps removed from the channel bed of the ditches.

4.2.3.5 Parks, National and Historic Monuments, National Seashores, Wild and Scenic Rivers, Wilderness Areas, etc.

Within this rural area of Riverside County and within the Aztec, Tarantula, Sutro, and Acari Ditches, there are neither a park, historic monument, national seashore, wild and scenic river, nor wilderness area; therefore, there is no impact to these areas.

4.2.3.6 Traffic/Transportation Patterns

The Project proposes to improve the safety of the structurally deficient bridges with total replacement. The current traffic and transportation patterns will remain the same. The Project will have no adverse impacts on publicly-owned parks, recreational areas or wildlife or waterfowl refuges.

4.2.3.7 Energy Consumption of Generation

The project will not increase or decrease energy consumption or generation.

4.2.3.8 Navigation

The individual channel cross-sections will be improved; however, all of the channels are dry most of the year and there is no known navigation within the channels. The channel cross sections will be improved as the Project proposes to replace structurally deficient bridges with new modern bridges constructed with fewer piles that are designed to support modern vehicular traffic loads. The timber piles used to support the existing bridges will be properly discarded once the Project commences.

4.2.3.9 Safety

The existing timber bridges are structurally deficient. The Project will construct four new modern bridges that comply with current engineering standards and safety regulations.

4.2.4 Temporary Impacts to Water Quality During Construction

The replacement of the four bridges will include construction activities, materials, and wastes that have a potential to cause erosion, sedimentation, and the discharge of polluted storm water and non-storm water runoff from the Project site.

Construction activities that will be performed on-site will have the potential to affect water quality. Clearing of vegetation, demolition, generation of debris, and grading will be performed which could lead to exposed or stockpiled soils susceptible to peak storm water runoff flows. The compaction of soils by heavy construction machinery may reduce the infiltration capacity of soils (exposed during construction) and increase runoff and erosion potential. The paving of bridge decks and use of finishing agents are also activities that will need to have pollutant controls. When access to the channel bed of the ditches is needed during construction to construct the pile columns and cast-in-drilled-hole pile installations, the contractor may utilize a temporary earthen access ramp constructed in the ditches. This earthen ramp will be protected by erosion and sediment control BMPs in order to reduce potential erosion of the earthen ramp during dry weather low flows and rain event flows. If a heavy rain event is forecast, the contractor will divert the flows around the earthen ramp to prevent potential erosion.

Another potential pollutant on a construction site is construction materials. The presence of significant amounts of raw materials for construction of the bridges and abutments will need to be controlled. This includes concrete, asphalt, mortar, and slurry.

The final pollutants present on a construction site are construction wastes. Construction wastes are generated from the use of raw materials or are a byproduct of construction activities.

If uncontrolled, pollutants associated with these activities, materials and wastes could lead to water quality problems including sediment-laden runoff, prohibited non-storm water discharges, and ultimately the degradation of downstream receiving waters, groundwater, and/or ecosystems. Construction related impacts to water quality will be addressed by developing and implementing a project specific Stormwater Pollution Prevention Plan (SWPPP) in accordance with the requirements of the California Construction General Permit. The project specific SWPPP will outline BMP implementation to control these potential construction pollutants. Table 1 lists potential pollutants related to construction and the typical location where each pollutant can be found.

Table 2 Potential Construction Pollutants

Material Type	Pollutant	Visually Observable	Typical Location
Diesel Fuel	Petroleum distillates, naphthalene, xylene	Sheen/Stain	Staging area
Gasoline	Benzene, toluene, xylene, MTBE	Sheen/Stain	Staging area
Hydraulic Oil	Mineral oil, trace additives	Sheen/Stain	Staging area
Engine Oil	Mineral oil, additives, combustion byproducts	Sheen/Stain	Staging area
Transmission Oil	Mineral oil, trace additives	Sheen/Stain	Staging area
Engine Coolant	Ethylene and propylene glycol, heavy metals	Green/red	Staging area
Grease	Petroleum hydrocarbons	Sheen/Stain	Staging area
Kerosene	Petroleum hydrocarbons	Sheen/Stain	Staging area
Fertilizer	Nitrogen, phosphorus	No	Material storage area
Pesticide	Water-insoluble chlorinated hydrocarbons, organophosphates, carbonates, and pyrethrums.	Varies	Material storage area
Herbicide	Chlorinated hydrocarbons, organophosphates	Varies	Material storage area
Soil Amendments		No	Material storage area
Concrete (wet)	Fly ash, heavy metals, Portland cement	White solid	Streets & foundation pads
Concrete coring slurry	Turbidity and pH	Gray liquid	Bridge construction & streets
Concrete sawing slurry	Turbidity and pH	Gray liquid	Bridge construction & streets
Cement	Aluminum calcium iron oxide, calcium sulfate	Gray powder	Bridge construction & streets
Grout	Silica sand, Portland cement	White powder	Block wall construction
Paint	Ethylene glycol, titanium oxide, VOC	Colored liquid	Streets
Sealers	Diacetone alcohol,		Bridge construction & streets
Adhesives	COD/ Pheno.ls/ SVOC	White/yellow	Bridge construction

Material Type	Pollutant	Visually Observable	Typical Location
Sanitary waste	Bacteria, Ammonia, Nutrients	Yes	Staging areas & all construction areas
Animal waste	Bacteria, Ammonia, Nutrients	Yes	All construction areas
Asphalt	Asphalt fumes, cutback asphalt,	Black material	Streets
Curing compounds	Glass Oxide, urea-extended phenol	Creamy white	Building construction & Streets
Waste wash water	Residuals and modifications to pH	Suds, foam, froth	All construction areas
Wood Preservatives	Arsenic, Chromium (Total), Copper, and Zinc	Amber liquid	Bridge construction
Cleaning solvents	Perchloroethylene, methylene chloride, TCE	Varies	Staging areas
Sediment	Soil, turbidity, dust	Cloudy/muddy	All construction areas/ Access ramp
Vegetation	Organic matter	Yes	All construction areas
Solid waste	Floatable and blowable trash and debris	Yes	All construction areas

4.2.4.1 No Build Alternative

A No Build Alternative is proposed for this project.

4.2.4.2 Build Alternative(s)

No other Build Alternative(s) are proposed for this project.

4.2.5 Long-term Impacts During Operation and Maintenance

Since the Project is proposing to replace four existing bridges, the Project will unlikely add physical and chemical characteristics that will impact the project area. The new bridges will be similar to the existing bridges and only nominally wider. Accordingly, the new bridges are not expected to produce impacts that differ from the existing bridges. Furthermore, the bridges will continue to be maintained per Riverside County roadway maintenance programs.

4.2.5.1 No Build Alternative

A No Build Alternative is proposed for this project.

4.2.5.2 Build Alternative(s)

No other Build Alternative(s) are proposed for this project.

4.3 Impact Assessment Methodology

There is no project alternative. The proposed bridge replacements are needed for public safety issues. The Project is designed to comply with current engineering and safety standards to remove it from the federal Eligible Bridge List.

4.4 Cumulative Impacts

During Construction

With the successful implementation of the SWPPP requirements and proper management of the project-specific BMPs, is not expected to produce cumulative water quality impacts to the Project site.

Post-Construction

The hydrologic conditions will not change dramatically since the Project is not concentrating flows, and the additional impervious footprint is minimal. Therefore, the overall Project is not expected to provide cumulative water quality impacts to the Aztec, Tarantula, Sutro, and Acari Ditches. Additionally, potential pollutants present during the post-construction or operational phase of the Project will be controlled through the County of Riverside roadway maintenance programs, such as road repairs as needed, to minimize adverse impacts to water quality.

5. AVOIDANCE AND MINIMIZATION MEASURES

During each phase of the Project, construction and post-construction operational phase, the Project will feature avoidance and minimization measures to control, reduce, or eliminate potential water quality issues. These measures will each be given a WQ-X designation.

During Construction

During the construction of the four bridges, the County of Riverside will implement the specific requirements of the California NPDES Construction General Permit. A project-specific Storm Water Pollution Prevention Plan (SWPPP) will be developed and the practices and control measures therein will be implemented onsite during construction activities in order to control, reduce, or eliminate discharge of pollutants to the Aztec, Tarantula, Sutro, and Acari Ditches. The plan will include, but is not limited to, housekeeping practices, waste management, hazardous waste management, non-stormwater management, spill prevention and clean up procedures, erosion controls, sediment control, training, inspections, and monitoring requirements during construction. Refer to Section 2.2.3.2 for more details.

The during construction avoidance and minimization water quality measures outlined in the project-specific SWPPP will be designated as:

- WQ-1 SWPPP

Post-Construction

Post-construction measures will be used to avoid, minimize and/or mitigate storm water runoff impacts caused by the redevelopment of the site. This includes implementing control measures to prevent pollution from discharging from the site during the life of the Project. In order to control potential pollutants, the County of Riverside will implement site design (SD), and non-structural source control (SC) BMPs.

Site design BMPs are used to incorporate site features aimed to directly reduce and control post-development runoff. This is often accomplished by increased opportunity for infiltration onsite which reduces the transport mechanism for moving pollutants off site, and helps to mitigate the differences between pre- and post-development hydrographs. Structural source control BMPs are any structural facility designed and constructed to mitigate the adverse impacts of storm water and urban runoff pollution (e.g., canopy, structural enclosure, slope and channel protection, energy dissipation, etc.). Site design BMPs, such as channel rock-slope protection and minimization of impervious surfaces, will be incorporated into the permanent build of the site. Throughout the operational life of the Project these BMPs will be maintained using a regular maintenance program implemented by the County.

Source control BMPs will be used to reduce the potential of stormwater runoff and pollutants from coming into contact with one another. Source control BMPs are often managerial practices or operational practices that aim to prevent storm water pollution by reducing the potential for contamination at the source of pollution. It also includes administrative actions, prohibitions of practices, maintenance procedures, design of a structural facility, usage of alternative materials, and operation, maintenance, inspections, and establishing compliance of an area. These practices are typically applied before, during, and/or after pollution producing activities. Throughout the

operational life of the Project these BMPs will be maintained using a regular maintenance program implemented by the County.

The following site design and source control BMPs will be used at the site:

- WQ-2 Employee Training (SC)¹
- WQ-3 Litter Control (SC)²
- WQ-4 Slope and Channel Protection (SD)³
- WQ-5 Minimization of Impervious Surfaces (SD)⁴

¹ Employee Training BMP shall be in accordance with CASQA Municipal BMP SC-70 Road and Street Maintenance and County of Riverside Requirements.

² Litter Control BMP shall be in accordance with CASQA Municipal BMP SC-70 Road and Street Maintenance and County of Riverside Maintenance Requirements and Frequencies.

³ Slope and Channel Protection BMP shall be in accordance with CASQA New Development and Re-development BMP SD-10 Site Design and Landscape Planning or the equivalent County of Riverside Standard.

6. REFERENCES

Caltrans Division of Design Stormwater homepage for guidance and tools (Project Risk Level, Estimating for CGP, Erosion Prediction software, etc.):

<http://www.dot.ca.gov/design/hsd/index.html>

Caltrans Division of Environmental Analysis Stormwater Homepage:

<http://www.dot.ca.gov/hq/env/stormwater/>

Caltrans Standard Environmental Reference (SER) Volume I

- For wetlands, hydromorphic method and water assessment information, see Chapter 15 - Waters of the U.S. and the State:
<http://www.dot.ca.gov/ser/vol1/sec3/natural/ch15wetland/ch15wetland.htm>
- For hydraulic studies and floodplain encroachment information, see Chapter 17 - Floodplains: <http://www.dot.ca.gov/ser/vol1/sec3/special/ch17flood/chap17.htm>
- For Coastal Zone permits information, see Volume 5 - Coastal Zone:
<http://www.dot.ca.gov/ser/vol5/vol5.htm>
- For Wild and Scenic Rivers information, see Chapter 19 - Wild and Scenic Rivers:
<http://www.dot.ca.gov/ser/vol1/sec3/special/ch19wsrivers/chap19.htm>

Caltrans Stormwater Quality Handbook Project Planning and Design Guide (PPDG):

http://www.dot.ca.gov/design/hsd/ppdg/PPDG-Final_2017-07.pdf

Caltrans Stormwater Quality Practice Guidelines:

http://www.dot.ca.gov/hq/env/stormwater/special/newsetup/_pdfs/management_ar_rwp/CTSW-RT-02-009.pdf

Caltrans Water Quality Planning Tool: <http://www.water-programs.com/wqpt.htm>

Regional Water Quality Control Board website and Basin Plans:

http://www.swrcb.ca.gov/plans_policies/

State Water Resources Control Board Storm Water Program, 2009-0009-DWQ Construction General Permit:

http://www.waterboards.ca.gov/water_issues/programs/stormwater/constpermits.shtml

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