

**DRAFT
INITIAL STUDY/
MITIGATED NEGATIVE DECLARATION**

**BRADLEY ROAD BRIDGE SCOUR REPAIR PROJECT
MONTEREY COUNTY, CALIFORNIA**



LSA

December 2019

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INITIAL STUDY/
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**BRADLEY ROAD BRIDGE SCOUR REPAIR PROJECT
MONTEREY COUNTY, CALIFORNIA**

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Project No. TRT1501



December 2019

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TABLE OF CONTENTS

TABLE OF CONTENTS	i
FIGURES AND TABLES	ii
1.0 PROJECT INFORMATION	1-1
2.0 PROJECT DESCRIPTION	2-1
2.1 Introduction	2-1
2.2 Project Purpose and Need	2-7
2.3 Project Alternatives.....	2-7
3.0 ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED.....	3-1
3.1 Determination	3-5
4.0 EVALUATION OF ENVIRONMENTAL IMPACTS	4-1
4.1 Aesthetics	4-3
4.2 Agriculture and Forestry Resources	4-4
4.3 Air Quality	4-5
4.4 Biological Resources.....	4-10
4.5 Cultural Resources	4-33
4.6 Energy.....	4-37
4.7 Geology and Soils	4-39
4.8 Greenhouse Gas Emissions	4-45
4.9 Hazards and Hazardous Materials	4-48
4.10 Hydrology and Water Quality	4-54
4.11 Land Use and Planning	4-66
4.12 Mineral Resources.....	4-67
4.13 Noise.....	4-68
4.14 Population and Housing	4-73
4.15 Public Services.....	4-74
4.16 Recreation	4-75
4.17 Transportation	4-76
4.18 Tribal Cultural Resources	4-79
4.19 Utilities and Service Systems.....	4-82
4.20 Wildfire.....	4-83
4.21 Mandatory Findings of Significance	4-84
5.0 FISH AND WILDLIFE ENVIRONMENTAL DOCUMENT FEES	5-1
6.0 REFERENCES.....	6-1

Appendix A Air Quality Modeling Worksheets	A-1
Appendix B Natural Environment Study and Natural Environment Study	
Addendum	B-1
Appendix C Foundation Report.....	C-1
Appendix D EDR Radius Map Report with GeoCheck	D-1
Appendix E Water Quality Memorandum	E-1
Appendix F Bridge Design Hydraulic Study Report	F-1
Appendix G Technical Noise Memorandum	G-1
Appendix H Construction Traffic Analysis	H-1

FIGURES

Figure 2.1: Project Location	2-3
Figure 2.2: Project Study Area	2-5
Figure 2.3a: Scour Photographs	2-9
Figure 2.3b: Scour Photographs.....	2-11
Figure 2.4: General Construction Plan	2-15
Figure 2.5: Project Construction Details	2-19

TABLES

Table 2-1: Scour Depths and Elevations for Existing Conditions Without Scour Protection	2-13
Table 2-2: Scour Depths and Elevations for Proposed Conditions with Scour Retrofit	2-13
Table 2-3: Anticipated Construction Equipment	2-21
Table 4.3-1: Project Construction Emissions in Pounds per Day	4-6
Table 4.12-1: Typical Construction Equipment Noise Levels	4-70

1.0 PROJECT INFORMATION

Project Title:	Bradley Road Bridge Scour Repair Project
File No.:	File No. 3852
Project Location:	The Bradley Road Bridge is located approximately 5 miles (mi) north of the Monterey County/San Luis Obispo County border, just west of Bradley and approximately 0.25 mi east of Highway 101 in unincorporated Monterey County.
Name of Property Owner:	County of Monterey
Name of Applicant:	County of Monterey RMA - Public Works & Facilities
Assessor's Parcel Number(s):	424-101-020, 424-101-004, 424-101-010, and 424-101-0210
Acreage of Property:	11.6 acres (ac) within the Project Study Area
General Plan Designations:	Farmlands 40 – 160 Ac Min and Rivers and Water Bodies
Zoning:	F/40 Farmlands Zoning District
Lead Agency:	County of Monterey RMA - Public Works & Facilities
Prepared By:	LSA 285 South Street, Suite P San Luis Obispo, California 93401
Date Prepared:	December 2019
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2.0 PROJECT DESCRIPTION

2.1 INTRODUCTION

The County of Monterey (County) RMA - Public Works & Facilities proposes to implement the Bradley Road Bridge Scour Repair Project (proposed project) to address existing scour issues by installing scour countermeasures to protect the Bradley Road Bridge (bridge) piers that are currently exposed due to scour (Bridge No. 44C-0050). The bridge identification information is listed below:

05-MON-0-CR
BRLS-5944(100)
Bradley Road Bridge, Co. No. 503, Caltrans Bridge Inventory # 44C-0050
Latitude: 35° 51' 48"
Longitude: 120° 48' 50"

The project will be funded by the Federal Highway Bridge Program (HBP) and Toll credits.

2.1.1 Existing Facility

The bridge is located approximately 5 miles (mi) north of the Monterey County/San Luis Obispo County border, just west of Bradley and approximately 0.25 mi east of U.S. Route 101 (US-101) (refer to Figure 2.1, Project Location, and Figure 2.2, Project Study Area).

Bradley Road is an existing two-lane road (one lane in each direction) that is classified by the California Road System (CRS) Maps as a Minor Collector. The bridge was originally constructed in 1931 and widened in 1954. The bridge is oriented generally in an east-west direction and crosses the Salinas River, which flows northwest through the project area and then northwesterly to Monterey Bay.

The existing bridge is approximately 1,668 feet (ft) long by 27 ft wide. The existing bridge is a twenty-four-span steel truss and concrete girder bridge with 23 concrete piers (Piers 2 through 24) and two concrete abutments (Abutments 1 and 25). Spans 1–10 (the western-most spans) and spans 17–24 (the eastern-most spans) consist of supported, reinforced concrete “T”-girders. Spans 11–16 consist of five-panel, riveted steel, deck trusses.

Overall, the existing bridge is in fair condition with minor deterioration. However, as discussed in more detail below, the bridge has a history of scour (the erosion of soil or sediment) at the concrete piers in the low flow channel of the Salinas River. Scour is currently undermining the foundations of Piers 16 through 19.

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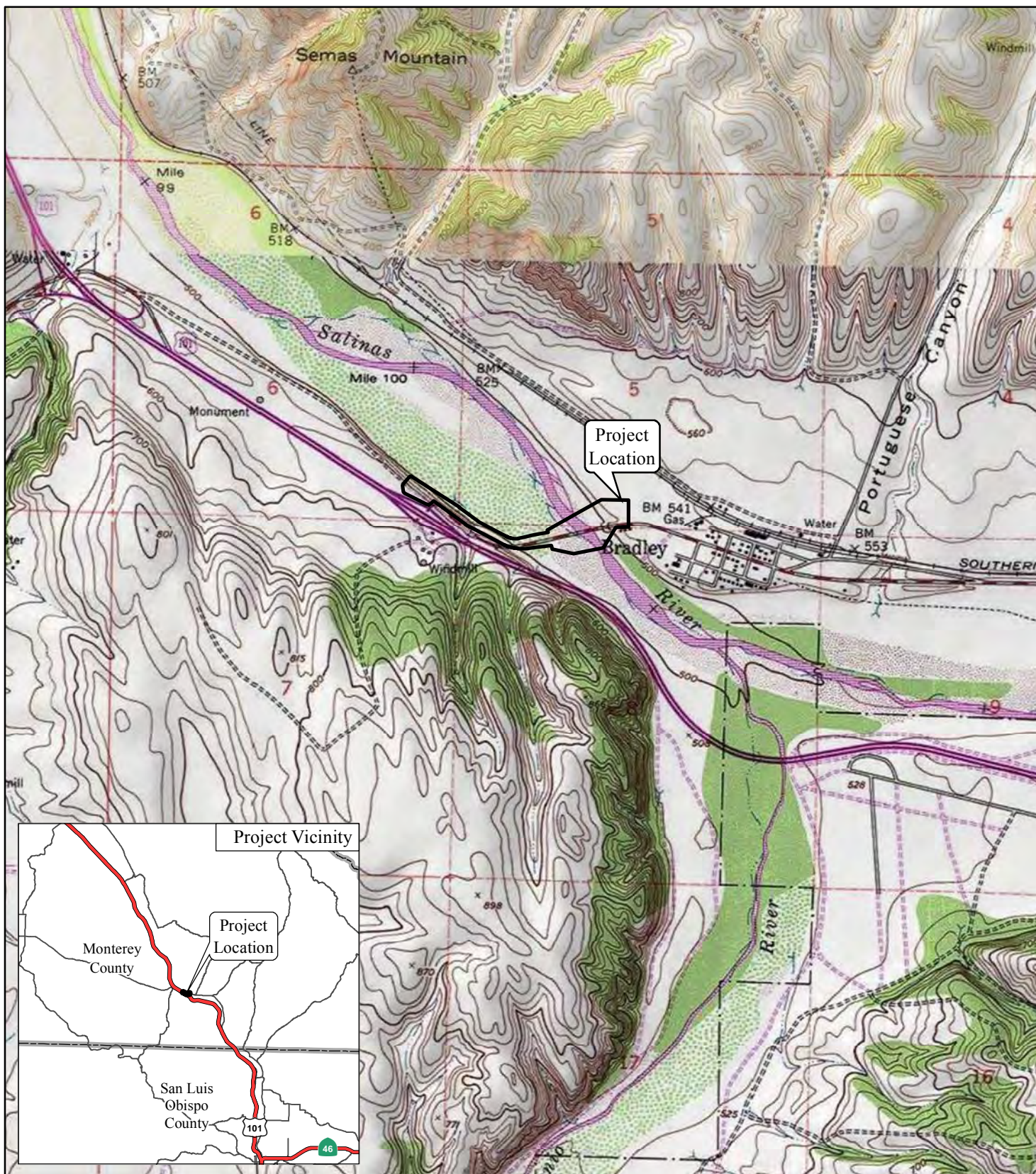
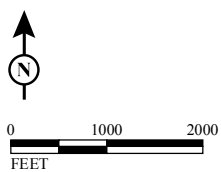


FIGURE 2.1

LEGEND

Project Study Area



SOURCE: USGS 7.5' Quad., Bradley, CA (1979), Wunpost, CA (1979)
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Bradley Road Bridge Scour Repair Project
Monterey County, California
Federal Project Number BHLO-5944(100)
Project Location

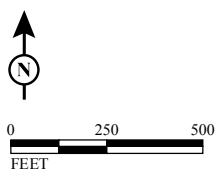
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LEGEND

 Project Study Area

FIGURE 2.2



SOURCE: Bing Aerial (10/2017); Quincy (12/2015)

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*Bradley Road Bridge Scour Repair Project
Monterey County, California
Federal Project Number BHLO-5944(100)
Project Study Area*

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2.2 PROJECT PURPOSE AND NEED

2.2.1 Purpose

The purpose of the proposed project is to install scour retrofits at the substructure of Piers 16 through 19 of the bridge in order to reduce the potential for scour damage to the existing bridge pier foundations.

2.2.2 Need

As mentioned previously, the bridge has a history of scour erosion of soil or sediment at the concrete piers in the low flow channel of the Salinas River. In the existing condition, scour is undermining the foundations of Piers 16 through 19.

The latest California Department of Transportation (Caltrans) bridge inspection report, dated October 10, 2018, gave the bridge a scour critical bridge rating of “U,” which represents a bridge with unknown foundation that has not been evaluated for scour, and the development of a plan of action is required. The bridge inspection report noted a scour hole at Pier 17 and undermining at Piers 18 and 19.

As a result of the findings of a previous bridge inspection report, the County prepared a *Bridge Scour Evaluation- Plan of Action* (POA) (February 2010). The POA summarized the scour history of the bridge from 1975 through 2007, which indicates a history of scour at Piers 18 and 19. The Bridge Scour POA recommended that Caltrans Bridge Maintenance engineers conduct biennial inspections to check for signs of degradation, settlement, and undermining of the bridge footings and monitor the bridge during a 50-year or greater storm event. The POA also recommended the installation of scour countermeasures.

The extent of the existing bridge scour at Piers 16 through 19 is provided in Table 2-1 below and depicted in Figures 2.3a and 2.3b, Scour Photographs. Contraction scour occurs when water accelerates as it flows through an opening that is narrower than the channel upstream from the bridge. The Contraction Scour Depth shown in Table 2-1 is based on a 100-year storm event. Short Term (Local) scour represents the predicted depth of scour that would occur during a 100-year storm event given the existing conditions. Long Term Degradation is not associated with a specific storm event. The estimated long-term degradation is projected based on a 50-year bridge service life.

2.3 PROJECT ALTERNATIVES

The proposed project includes evaluation of one Build Alternative and the No Build Alternative. The Build Alternative would install scour retrofits at Piers 16 through 19.

2.3.1 No Build Alternative: No Action is Taken to Address Existing Scour Issues at Bradley Road Bridge

In the No Build Alternative, no scour protection or retrofit will be installed and the bridge would remain at risk for continued erosion/scour, which would further compromise the structural integrity of the bridge.

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Exposed and Undermined Footing at Pier 16.



Formation of Scour Hole at Pier 16.



Exposed and Undermined Footing at Pier 17.



Exposed and Undermined Footing at Pier 17.

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FIGURE 2.3a

*Bradley Road Bridge Scour Repair Project
Monterey County, California
Federal Project Number BHLO-5944(100)
Scour Photographs*

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Exposed and Undermined Footing at Pier 18 (Span 17 Side).



Close Up Scour at Pier 18.



Scour Under Pier 19.



Exposed and Undermined Footing Cap at Pier 19.

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FIGURE 2.3b

*Bradley Road Bridge Scour Repair Project
Monterey County, California
Federal Project Number BHLO-5944(100)
Scour Photographs*

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Table 2-1: Scour Depths and Elevations for Existing Conditions Without Scour Protection

Pier No.	Contraction Scour Depth (ft)	Long-Term Degradation (ft)	Local Scour Depth (ft)	Total Scour Depth (ft) ¹	Total Scour Elevation (ft) ²
16	1.2	2.8	21.5	25.5	462.0
17	1.2	2.8	27.8	31.8	455.7
18	1.2	2.8	15.4	19.4	468.1
19	1.2	2.8	13.7	17.7	469.8

Source: Wreco (2016).

¹ The total scour depth is the sum of the contraction scour, long-term degradation, and the local scour.

² The total scour elevation references the existing channel thalweg elevation (i.e., the lowest elevation of the channel), which is 487.5 ft NAVD 88.

ft = foot/feet

2.3.2 Build Alternative: Install Super Piles at the Footing Caps of the Bradley Road Bridge

The Build Alternative would install cast-in-drilled-hole (CIDH) piles and retrofit of the pier footing caps¹ at Piers 16 through 19 (Refer to Figure 2.4, General Construction Plan). Two large diameter (120 inches at Piers 16/17 and 96 inches at Piers 18/19) CIDH piles would be installed at the end of each existing pier footing. The piles would extend into the new reinforced concrete footing. The new footing would be connected through drill and bond dowels to the existing footing and pier wall. Retrofitting of the footing caps would involve fully enclosing the existing footings in new, larger concrete footing caps. The new footing retrofits would be 12 ft in width, 8 ft in height, and 66 ft in length at Pier 16. The new footing retrofits would be 12 ft in width, 8 ft in height and 62 ft in length at Pier 17. The new footing retrofits would be 10 ft in width, 6 ft in height, and 62 ft in length at Piers 18 and 19. The new CIDH piles would be designed such that they resist the full loading demands from the existing superstructure, existing substructure, and new pile caps.

Table 2-2 summarizes the scour depths and elevations for conditions with the proposed scour retrofit.

Table 2-2: Scour Depths and Elevations for Proposed Conditions with Scour Retrofit

Pier No.	Contraction Scour Depth (ft)	Long-Term Degradation (ft)	Local Scour Depth (ft)	Total Scour Depth (ft) ¹	Total Scour Elevation (ft) ²
16	1.5	2.8	15.5	19.8	467.7
17	1.5	2.8	15.7	20.0	467.5
18	1.5	2.8	23.5	27.8	459.7
19	1.5	2.8	21.6	25.9	461.6

Source: Wreco (2016).

¹ The total scour depth is the sum of the contraction scour, long-term degradation, and the local scour.

² The total scour elevation references the existing channel thalweg elevation (i.e., the lowest elevation of the channel), which is 487.5 ft NAVD 88.

ft = foot/feet

¹ Footings are the large lower portion of the foundation that transfers weight from a bridge pier wall and columns to the deep foundation piles and soil below the original ground surface.

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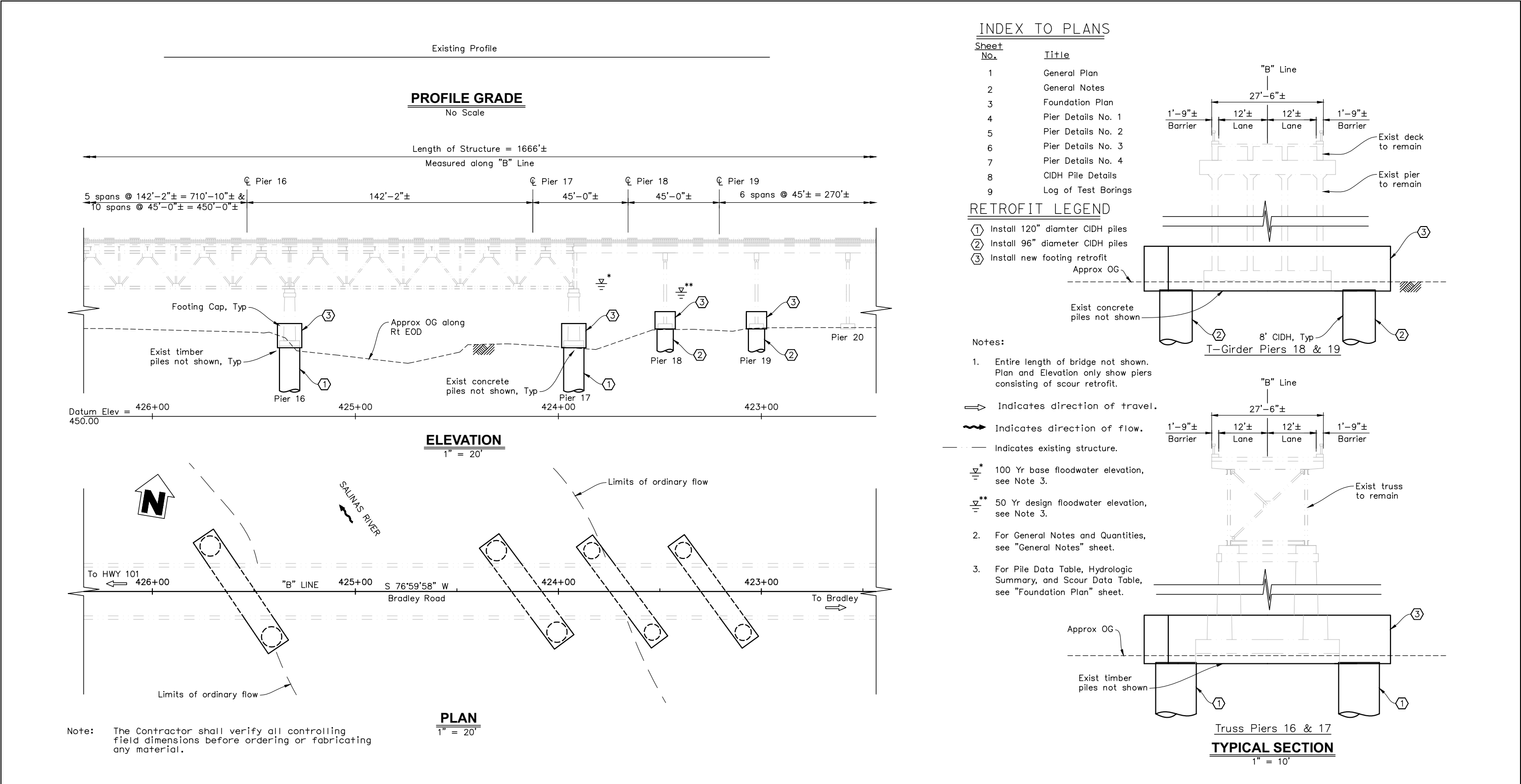


FIGURE 2.4

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2.3.2.1 Construction Details

Scheduling. Construction is anticipated to begin during the spring of 2021 and be completed by the fall of 2021, for a total construction duration of approximately five (5) months. Construction activities within the Salinas River are planned to occur from July 1 through October 15.

Traffic Detours and Construction Signage. The bridge will be open to public use during construction and no traffic detours will be required. Advanced and end-construction signage will be placed at the eastern and western approach of the bridge.

Water Diversion. The Salinas River has perennial flow and is expected to be flowing within the project area year round. A water diversion system will be required to divert the summer flow to provide contractor access to all the piers in need of retrofit. The water diversion will channelize the flow between Pier 16 and Pier 17. Contractor access will consist of temporary berms made of clean crushed gravel constructed around the piers. It is anticipated that temporary sheet pile shoring will be installed around the perimeter of the berms to help channelize the flow of the active channel and keep the work area dry for construction. The contractor will have access down to the river from both the East (Piers 17, 18, and 19) and West (Pier 16) sides of the bridge. It is anticipated that the contract language will only allow one side of the river to be worked on at a time and both Piers 16 and 17 will not have sheet piling around them at the same time. Therefore, there will not be significant channelization of the flow. Installation of the sheet pile shoring can be achieved using predrilling and vibratory methods. After construction is complete, the contractor will remove the temporary berms and sheet pile shoring and restore all disturbed areas within the river to preconstruction conditions.

The following is a detailed explanation of placing the stream diversion system and fish exclusion area:

1. A Qualified Biologist will locate the appropriate release locations for any rescued fish that need to be relocated. Criteria for release locations will be developed with agency personnel. A Qualified Biologists will be on site to monitor all dewatering and diversion activities to avoid any condition that could result in injury or mortality of listed species and to relocate fish as needed.
2. Install temporary sheet piles around the work areas of each bridge footing for localized dewatering purposes. Sheet piles shall be installed with pre-drilling and vibratory methods.
3. Temporary fill/clean crushed rock will be placed up to the sheet piling that will be installed both on the east and west sides of the river; however, the river flows will never be completely blocked.
4. The area isolated for dewatering behind the sheet piling will be dip-netted and/or seined for fish. Rocks and other hiding locations will be removed from the dewatering area to facilitate this activity.
5. The area isolated for dewatering will be dewatered using pumps with screened inlets.

6. If needed, install water pumps in localized areas (sheet piled zones, etc.) to provide workable areas for construction. Water quality of pumped water will be monitored prior to release back into the channel. If needed, the pumped water will be pumped into a storage tank. The storage tank will be located in previously disturbed areas or areas with only shrubby or herbaceous vegetation. No trees larger than 6 inches DBH will be removed to provide a space for the storage tank.
7. If needed, excavate an on-site detention basin for pumped groundwater collection to allow for sedimentation and filtration. The location of the detention basin will be identified prior to the start of work. The detention basin will be backfilled at completion of construction. Excavated material from the detention basin will be stored separately from other material so it can be replaced in the basin following construction.
8. At the completion of the construction season, all water pumps, temporary fill/clean crushed rock and sheet piles will be removed. The detention basin will be backfilled. The approved biologists will be present to observe the temporary berms removal.
9. The approved Project biologists will come prepared with the correct equipment to conduct the inspection of the work area, including, at a minimum:
 - Worker Educational Program Brochure
 - Sign-in Sheet
 - Permits
 - Chest waders
 - Gloves (latex or similar)
 - GPS unit
 - Seines
 - Long-handled fish collection dip-nets
 - Miscellaneous small hand-held aquarium dip-nets
 - 5-gallon Buckets (4-6)
 - Battery powered portable aerators and air stones
 - Chest waders
 - Hand held thermometers
 - Ice Chest with ice
 - Meter stick or fish measurer
 - Datasheets

Construction Staging and Access. Materials and equipment that will be used during bridge construction will be staged at a designated staging area located northeast of the project area (refer to Figure 2.5, Project Construction Details).

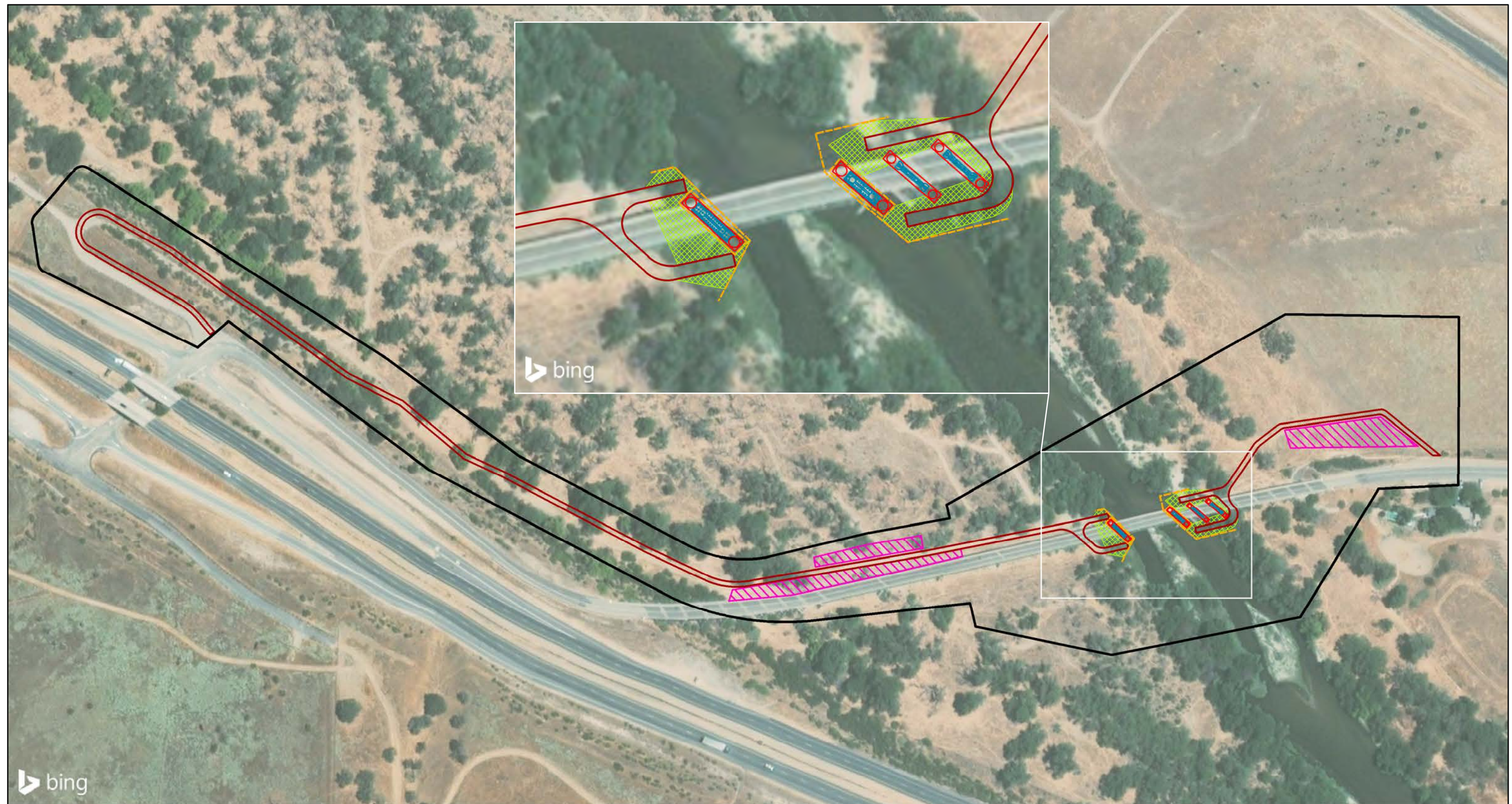


FIGURE 2.5

LEGEND

- | | | | |
|---|-------------------------------------|---|------------------------------|
|  | Project Study Area |  | Permanent New Pier Structure |
|  | Temporary Access Road |  | Existing Pier Structure |
|  | Temporary Construction Staging Area |  | Temporary Sheet Pile Shoring |
|  | Temporary Construction Work Area | | |



0 115 230
FEET

SOURCE: Bing Aerial (10/2017); Quincy (04/26/2017)

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*Bradley Road Bridge Scour Repair Project
Monterey County, California
Federal Project Number BHLO-5944(100)*

Project Construction Details

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River access will be provided on both sides of the channel. A 12 ft wide 700 ft long access road will be constructed off of Bradley Road at the northeast corner of the bridge (refer to Figure 2.5). A temporary construction easement (TCE) will be required for the construction of the access road and staging area on the northeast side of Bradley Road Bridge. The TCE will affect a single parcel (Assessor's Parcel Number [APN] 424-101-020).

Additional access from the west will be obtained from the use of an existing private dirt road that starts at the intersection of Bradley Road and the US 101 Northbound On and Off-Ramp. The dirt road runs north of and parallel to Bradley Road and the Bradley Road Bridge for approximately 3,000 ft. The existing dirt road will need to be improved (e.g., vegetation clearing and grading) for use as an access route for construction vehicles. The access route will be approximately 12 ft wide. The following additional parcels are anticipated to be affected by this new contractor access alternative and would require temporary easements for construction –APNs 424-101-010, 424-101-020, 424-101-021, and 424-101-004.

Construction Equipment. Table 2-3 summarizes the types of construction equipment that are anticipated to be used during construction.

Table 2-3: Anticipated Construction Equipment

Equipment	Construction Purpose
Backhoe	soil manipulation and drainage work
Bobcat	fill distribution
Bulldozer / Loader	earthwork construction and clearing and grubbing
Crane	bridge construction, sheet piling installation
Dump Truck	fill material delivery
Drill Rig	CIDH pile installation, pre-drilling for sheet piles
Excavator	soil manipulation
Forklift	material transportation
Front-End Loader	dirt or gravel manipulation
Haul Truck	earthwork construction and clearing and grubbing
Truck with Seed Sprayer	BMP installation
Water Truck	Earthwork construction and dust control
Vibratory Hammer	Vibrating sheet piling in the ground
Pump Truck	Pump concrete to pile and footing locations
Concrete Truck	Delivering concrete for new piles and footing

Source: *Bradley Road Bridge Description of Project and Environmental Setting* (Quincy 2019).

BMP = best management practices

CIDH = cast in drilled hole

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3.0 ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

The environmental factors checked below would be potentially affected by this Project, involving at least one impact that is a “Less than Significant Impact with Mitigation Incorporated” as indicated by the checklist on the following pages.

<input type="checkbox"/> Aesthetics	<input type="checkbox"/> Agriculture and Forestry Resources	<input checked="" type="checkbox"/> Air Quality
<input checked="" type="checkbox"/> Biological Resources	<input checked="" type="checkbox"/> Cultural Resources	<input type="checkbox"/> Energy
<input checked="" type="checkbox"/> Geology/Soils	<input checked="" type="checkbox"/> Greenhouse Gas Emissions	<input checked="" type="checkbox"/> Hazards & Hazardous Materials
<input checked="" type="checkbox"/> Hydrology/Water Quality	<input type="checkbox"/> Land Use/Planning	<input type="checkbox"/> Mineral Resources
<input checked="" type="checkbox"/> Noise	<input type="checkbox"/> Population/Housing	<input type="checkbox"/> Public Services
<input type="checkbox"/> Recreation	<input checked="" type="checkbox"/> Transportation	<input checked="" type="checkbox"/> Tribal Cultural Resources
<input type="checkbox"/> Utilities/Service Systems	<input type="checkbox"/> Wildfire	<input checked="" type="checkbox"/> Mandatory Findings of Significance

Some proposed applications that are not exempt from California Environmental Quality Act (CEQA) review may have little or no potential for adverse environmental impacts related to most of the topics in the Environmental Checklist; and/or potential impacts may involve only a few limited subject areas. These types of projects are generally minor in scope, located in a nonsensitive environment, and are easily identifiable and without public controversy. For the environmental issue areas where there is no potential for significant environmental impact (and not checked above), the following findings can be made using the project description, environmental setting, or other information as supporting evidence.

☐ Check here if this finding is not applicable.

Finding: For the above referenced topics that are not checked off, there is no potential for significant environmental impact to occur from either construction, operation, or maintenance of the proposed project, and no further discussion in the Environmental Checklist is necessary.

Evidence:

1. **Aesthetics:** The proposed project is a scour repair project, and implementation of the proposed project would not change portions of the bridge visible to motorists, bicyclists, or pedestrians along the roadway or bridge, or create visual changes to the environment.² Thus, implementation of the proposed project would not have an adverse effect on a scenic vista, damage scenic resources, degrade existing visual character or quality of public views of the site and its surroundings, or create a new source of substantial light or glare. The proposed project would have no impact on scenic resources or visual character.

² The proposed project generated a score of 8 in the Caltrans Questionnaire to Determine Visual Impact (VIA) Level. Scores that fall between 6 and 9 of the questionnaire indicate that no visual changes to the environment are proposed and no further analysis is required.

2. **Agriculture and Forest Resources:** The project area is designated as Grazing Land but is not designated Prime Farmland, Unique Farmland, or Farmland of Statewide Importance on maps prepared pursuant to the Farmland Mapping and Monitoring Program (FMMP) of the California Department of Conservation. The entire project area is an agricultural preserve under an existing Non-Prime Williamson Act contract. In addition, the project area is zoned Farmlands (F/40). The project area does not include any land zoned for forestland, timberland, or timberland zoned Timberland Production uses.

The proposed project is a scour repair project, and would take place entirely within existing right-of-way. The areas proposed for TCEs would not affect any current farmland activities or access to farmlands in the vicinity of the project. Implementation of the proposed project would have no impact on agricultural or forestry resources.

3. **Land Use/ Planning:** The proposed project is in the community of Bradley (a Census Designated Place) within the boundaries of the South County Area Plan, which is part of the Monterey County General Plan. The project area is currently designated Farmlands 40 – 160 Ac Min and Rivers and Water Bodies. The proposed project is a scour repair project, and would take place entirely within existing right-of-way. The areas proposed for TCEs would not affect access to homes or businesses in the vicinity of the proposed project. The proposed project would not physically divide an established community.

As stated above, the proposed project would be implemented entirely within existing right-of-way, albeit TCEs would be necessary during construction activities but would not permanently impact any adjacent land uses identified in the South County Area Plan. The proposed project is consistent with all applicable land use plans, policies, or regulations adopted and no impacts would occur.

The project area is not within the boundaries of any adopted Habitat Conservation Plan (HCP), Natural Community Conservation Plan (NCCP), or other approved local, regional, or State habitat conservation plan (California Department of Fish and Wildlife 2017). Implementation of the proposed project would not conflict with the provisions of an adopted HCP, NCCP, or other approved conservation plan, and no impacts would occur.

4. **Mineral Resources:** The proposed project is not located within an area classified as a Mineral Resource Zone. No mineral resources have been identified in the project area (Monterey County 2017). Implementation of the proposed project would not result in the loss of availability of any known mineral resources.
5. **Population/ Housing:** The proposed project is a scour repair project, which would reduce the potential for future scour damage at the bridge pier foundations. The capacity of the road would not change, and no additional traffic would be generated upon completion of the proposed project. The proposed project does not include the construction of new housing nor would it cause an increase in the housing supply indirectly through increased demand for housing. Additionally, the proposed project would not cause an increase in the County's population, and would not result in direct or indirect growth-inducing effects. The proposed project would not displace existing housing or people because the proposed project would be implemented within

the existing right-of-way. Implementation of the proposed project would not have an impact on population growth and housing.

6. **Public Services:** Public services are currently being provided to the project area, including fire and police services. Fire services for the proposed project and the surrounding area are and would continue to be provided by the CAL FIRE Southern Region San Benito-Monterey Unit. The closest CAL FIRE San Benito-Monterey Unit fire station, Bradley Station #40, is located in the community of Bradley northeast of the project area. The project area is located within an area of the South County Plan boundaries that has no organized fire protection. Police services for the proposed project and the surrounding area are and would continue to be provided by the South County Patrol Station of the Monterey County Sheriff's Department, which is located at 250 Franciscan Way in King City, approximately 33 mi from the project site. Implementation of the proposed project would install scour protection at the Bradley Road Bridge pier foundations, and would not increase the demand for fire or police services. Because the proposed project is a scour repair project, it would not generate the need for additional schools, park space, or other public services in the project vicinity. Implementation of the proposed project would not have an impact on public services.
7. **Recreation:** The proposed project is a scour repair project, which would reduce the potential for future scour damage at the bridge pier foundations. The capacity of the road would not change, and no additional traffic would be generated upon completion of the proposed project. The proposed project does not include the construction of new housing nor would it cause an increase in the housing supply indirectly through increased demand for housing. The proposed project would not generate an increased demand for park space or recreational facilities. There are no existing parks or recreational facilities within the project area. Implementation of the proposed project would not have an impact on recreation, including neighborhood and regional parks or other recreational facilities.
8. **Utilities/Service Systems:**

Wastewater. The proposed project does not involve uses requiring wastewater treatment. Wastewater generated during construction of the proposed project would be disposed of properly by the project contractor as required by the Construction General Permit. Operation of the proposed project would not generate wastewater that requires treatment subject to the requirements of the Regional Water Quality Control Board (RWQCB). The proposed project would not require or result in the construction of new wastewater treatment facilities or expansion of existing facilities.

Water. The proposed project may result in a short-term demand for water during excavation, grading, and construction activities. Water demand during construction activities (e.g., dust control for upland areas) would be temporary. These uses would cease when construction is complete. Overall, construction activities require minimal water and are not expected to have any adverse impacts on the existing water system or available water supplies. Water use for construction would cease when construction is completed. The proposed project is a scour repair project, and operation of the proposed project would not require water and would not generate a new demand that would adversely affect long-term water supplies. The proposed

project would not require or result in the construction of new water treatment facilities or expansion of existing facilities.

Stormwater Runoff. The proposed project would not require or result in construction of new storm water drainage facilities or require the expansion of existing facilities. Refer to Section 4.10, for a discussion of drainage associated with the proposed project.

Solid Waste. The proposed project would generate a nominal amount of construction waste that would require disposal in local landfills. Construction waste would be recycled as appropriate. The proposed project is a scour repair project and would not generate solid waste during project operation. The proposed project would not increase the demand for solid waste disposal (landfill service) facilities.

Electric Power/Natural Gas. The proposed project would neither require the relocation of electric power or natural gas facilities nor generate a demand for additional electric power or natural gas.

Telecommunications. During construction, the proposed project would require the temporary relocation of an existing aerial telecommunications (AT&T) line that is currently attached to the side of the bridge superstructure and piers. Temporary service disruptions could occur during the relocation. However, disruptions would, at a maximum, occur for just a few hours and users would be informed at least 48 hours before disruptions are to occur. Following the telecommunications relocation, all services would be restored. Construction of the proposed project would not result in impacts to telecommunication facilities. The proposed project would not require the relocation of telecommunications facilities during project operation.

The construction and operation of the proposed project would not impact wastewater, water, stormwater runoff, solid waste services, electric power, natural gas, or telecommunications facilities. The proposed project would have no impact on utilities and service systems.

9. **Wildfire:** The proposed project is located in a rural area, and is adjacent to more developed areas or areas where residences are intermixed with wildlands. According to the most up-to-date Fire Hazard Severity Zones map, which was adopted by CAL FIRE in 2007 and is provided in the County General Plan (2010), the project site is in the moderate Fire Hazard Severity Zone. The moderate Fire Hazard Severity Zone is the least serious of the three severity zones—moderate, high, and very high. The proposed project is a scour repair project, which would reduce the potential for future scour damage at the bridge pier foundations. The proposed project would not alter the risk or impacts to area residences from wildland fires as compared with the existing conditions. The proposed project would be constructed in approximately 5 months and would not require any road closures or detours. Because the proposed project would improve the integrity of the bridge, it would improve its reliability for use during an evacuation. Bradley Road is listed in the 2010 Monterey County General Plan as a road that would be used during an evacuation. The proposed project would not involve any work or other disruption on Bradley Road and, therefore, would not substantially impair an adopted emergency response plan or emergency evacuation plan. As noted above, because of the nature of the project (i.e., scour repair work at four piers under the bridge) the proposed project would

not exacerbate wildfire risks or secondary risks associated with wildfire such as flooding, landslides, or slope instability.

3.1 DETERMINATION

On the basis of this initial evaluation:

- ☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.
- ☒ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.
- ☐ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.
- ☐ I find that the proposed project MAY have a "Potentially Significant Impact" or "Potentially Significant Unless Mitigated" impact on the environment, but at least one effect (1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and (2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.
- ☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier ENVIRONMENTAL IMPACT REPORT or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier ENVIRONMENTAL IMPACT REPORT or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.



Project Planner

12/5/2019

Date



Planning Manager

12-5-2019

Date

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4.0 EVALUATION OF ENVIRONMENTAL IMPACTS

1. A brief explanation is required for all answers except “No Impact” answers that are adequately supported by the information sources a Lead Agency cites in the parentheses following each question. A “No Impact” answer is adequately supported if the referenced information sources show that the impact simply does not apply to Projects like the one involved (e.g., the Project falls outside a fault rupture zone). A “No Impact” answer should be explained where it is based on Project-specific factors as well as general standards (e.g., the Project will not expose sensitive receptors to pollutants, based on a Project-specific screening analysis).
2. All answers must take account of the whole action involved, including off-site as well as on-site, cumulative as well as Project-level, indirect as well as direct, and construction as well as operational impacts.
3. Once the Lead Agency has determined that a particular physical impact may occur, then the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. “Potentially Significant Impact” is appropriate if there is substantial evidence that an effect may be significant. If there are one or more “Potentially Significant Impact” entries when the determination is made, an Environmental Impact Report (EIR) is required.
4. “Negative Declaration: Less than Significant With Mitigation Incorporated” applies where the incorporation of mitigation measures has reduced an effect from “Potentially Significant Impact” to a “Less than Significant Impact.” The Lead Agency must describe the mitigation measures and briefly explain how they reduce the effect to a less than significant level (mitigation measures from earlier analyses may be cross-referenced, as discussed below).
5. Earlier analyses may be used where, pursuant to the tiering, Program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or Negative Declaration (Section 15063 [c][3][D]). In this case, a brief discussion should identify the following:
 - a. Earlier Analysis Used. Identify and state where they are available for review.
 - b. Impacts Adequately Addressed. Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis.
 - c. Mitigation Measures. For effects that are “Less than Significant with Mitigation Measures Incorporated,” describe the mitigation measures which were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the Project.
6. Lead Agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). Reference to a previously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated.
7. Supporting Information Sources: A source list should be attached, and other sources used or individuals contacted should be cited in the discussion.

8. This is only a suggested form, and Lead Agencies are free to use different formats; however, Lead Agencies should normally address the questions from this checklist that are relevant to a Project's environmental effects in whatever format is selected.
9. The explanation of each issue should identify:
 - a. The significance criteria or threshold, if any, used to evaluate each question; and
 - b. The mitigation measure identified, if any, to reduce the impact to less than significant.

4.1 AESTHETICS

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

Proposed project construction and operation would not result in aesthetic impacts. No analysis is required. Refer to Section 3.0, Environmental Factors Potentially Affected, including Determination, for a more detailed discussion about the proposed project and aesthetics.

4.2 AGRICULTURE AND FORESTRY RESOURCES

<i>Would the project:</i>	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b. Conflict with existing zoning for agricultural use, or a Williamson Act contract?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c. 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))?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d. Result in the loss of forest land or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e. Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Proposed project construction and operation would not result in agriculture or forest resources impacts. No analysis is required. Refer to Section 3.0, Environmental Factors Potentially Affected, including Determination, for a more detailed discussion about the proposed project and agriculture or forest resources.

4.3 AIR QUALITY

<i>Would the project:</i>	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Conflict with or obstruct implementation of the applicable air quality plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c. Expose sensitive receptors to substantial pollutant concentrations?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d. Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

4.3.1 Impact Analysis

The discussion and analysis provided in this section is based on air quality information obtained from the Monterey Bay Air Resources District (MBARD) as described below and air quality modeling conducted by LSA (June 2019). The air quality modeling worksheets are included in Appendix A. The MBARD regulates air quality in the project area. The MBARD area is in non-attainment for State ozone and particulate matter of 10 microns or less (PM₁₀).

a. Would the project conflict with or obstruct implementation of the applicable air quality plan?

The proposed project is located in unincorporated Monterey County, within the jurisdiction of the MBARD, which regulates air quality in the North Central Coast Air Basin (NCCAB). Air quality in the planning area is not only affected by various emission sources (mobile, industry, etc.), but also by atmospheric conditions such as wind speed, wind direction, temperature, and rainfall.

An air quality plan describes air pollution control strategies to be taken by counties or regions classified as nonattainment areas. The main purpose of an air quality plan is to bring a non-attainment area into compliance with the requirements of federal and State air quality standards. The air quality plan uses the assumptions and projections provided by local planning agencies to determine control strategies for achieving regional air quality compliance. The most recent MBARD plan for attaining California Ambient Air Quality Standards (AAQS) is the 2012–2017 Air Quality Management Plan (AQMP), which was adopted on March 15, 2017. The 2012–2017 AQMP addresses attainment of the State ozone standard. The 2012–2017 AQMP also serves as an assessment and update to the 2012 Triennial Plan, which documents the MBARD's progress towards attaining the State ozone standard. For a project in the NCCAB to be consistent with the AQMP, the pollutants emitted from the project must not exceed the MBARD significance thresholds or cause a significant impact to air quality.

Project construction emissions were analyzed using the Sacramento Metropolitan Air Quality Management District's Road Construction Emissions Model (RoadMod), Version 9.0.0.³ The results of the modeling are summarized in Table 4.3-1. The estimated maximum project emissions during construction for PM₁₀ were then compared to the MBARD threshold for construction-related emissions of PM₁₀. The MBARD does not have thresholds for construction-related emissions of other pollutants.

**Table 4.3-1: Project Construction
Emissions in Pounds per Day**

	Total PM₁₀
Maximum Project Emissions	3.7
MBARD Threshold	82.0
Exceed Threshold?	No

Source: LSA (2019).

PM₁₀ = particulate matter of 10 microns or less

Results, summarized in Table 4.3-1, were compared to the MBARD threshold for construction-related emissions of PM₁₀. As shown in Table 4.3-1, the proposed project would not exceed the MBARD threshold of significance for construction-related PM₁₀ emissions. Additionally, emissions from construction equipment, such as dump trucks, excavators, bulldozers, compactors, and front-end loaders are accommodated in the emissions inventories of State- and federally-required air quality plans. Construction of the proposed project would not conflict with or obstruct the MBARD's existing AQMP. No mitigation is required.

The proposed project would install scour retrofits at the substructure of the bridge in order to reduce the potential for scour damage to the existing bridge pier foundations. The proposed project would not increase vehicle capacity, and would not result in increased emissions once operational. Operation of the proposed project would not conflict with or obstruct the MBARD's existing AQMP. No mitigation is required.

Significance Determination: Less than Significant Impact.

Mitigation and/or Compliance Measures: No mitigation is required.

Significance Determination After Mitigation: Less than Significant Impact.

³ The Sacramento Metropolitan Air Quality Management District's Road Construction Emissions Model (RoadMod), Version 9.0.0 is an emissions model for linear projects and is approved for use by Air District's in California including the MBARD.

- b. Would the project 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?*

The MBARD is currently designated as a nonattainment area for State ozone standards and PM₁₀ ambient air quality standards and is designated as unclassified/attainment for all federal air quality standards. MBARD's nonattainment status is attributed to the region's existing development patterns and land use activities (i.e., vehicle use), which contribute to the region's adverse air quality impacts on a cumulative basis. By its very nature, air pollution is largely a cumulative impact. No single project is sufficient in size to, by itself, result in nonattainment of ambient air quality standards. Instead, a project's individual emissions contribute to existing cumulatively significant adverse air quality impacts. If a project's contribution to the cumulative impact is considerable, then the project's impact on air quality would be considered significant.

In developing thresholds of significance for air pollutants, MBARD considered the emission levels for which a project's individual emissions would be cumulatively considerable. If a project exceeds the identified significance thresholds, its emissions would be cumulatively considerable, resulting in significant adverse air quality impacts to the region's existing air quality conditions. The following analysis assesses whether the proposed project would result in a cumulatively considerable increase in ozone or PM₁₀ during construction and operation of the proposed project.

Short-Term (Construction) Emissions. Project construction would involve grading/land clearing, grading/excavation, drainage/utilities/sub-grade, and paving activities. The disturbance of soils would have the greatest construction-related effects on air quality. If not properly controlled, these activities would temporarily generate particulate emissions. Sources of fugitive dust would include disturbed soils at the construction site. Unless properly controlled, vehicles leaving the site would deposit dirt and mud on local streets, which could be an additional source of airborne dust after it dries. PM₁₀ emissions would vary from day to day, depending on the nature and magnitude of construction activity, local weather conditions, soil moisture, silt content of soil, and wind speed. Larger dust particles would settle near the source, while fine particles would be dispersed over greater distances from the construction site.

In addition to dust-related PM₁₀ emissions, heavy trucks and construction equipment powered by gasoline and diesel engines would generate carbon monoxide (CO), ozone (O₃), nitrogen dioxide (NO₂), sulfur dioxide (SO₂), and some soot particulate (PM_{2.5} and PM₁₀) in exhaust emissions. If construction activities were to increase traffic congestion in the area, CO and other emissions from traffic would increase slightly while those vehicles idle in traffic. Exhaust emissions during construction would vary daily as construction activity levels change. These emissions would be temporary in nature and limited to the immediate area surrounding the construction site and the routes the construction equipment travels to and from the project site.

The MBARD has established a threshold of significance of 82 pounds per day (lbs/day) for direct emissions of PM₁₀ during construction activities. Additionally, the MBARD has identified a level of construction activity above which a project could result in significant temporary impacts if not mitigated. Projects with minimal earthmoving have a threshold of potential significance of 8.1 acres (ac) per day and projects with earthmoving (grading, excavation) have a threshold of 2.2 ac per day.

In other words, construction of projects with activity below the acreage thresholds are assumed to be below the 82 lbs/day threshold of significance. The MBARD does state that this threshold should be used for screening purposes and does not represent a definitive threshold of significance. The MBARD has not established quantitative thresholds of significance for short-term emissions of any other criteria pollutants. As such, the following analysis is based on project construction emissions of PM₁₀.

The proposed project has a total construction activity area of 1.63 ac (0.23 ac for the bridge repairs and 1.14 ac for the access roads), and would have a daily construction activity area under the screening size threshold of 2.2 ac per day. Additionally, as shown in Table 4.3-1, project emissions would be well below the PM₁₀ threshold for construction related emission.

Although the construction phase of the proposed project would result in a net increase in criteria pollutants, including O₃ and PM₁₀, the emissions would be temporary in nature, and would cease when construction is completed. The proposed project would not exceed the MBARD threshold of significance for construction-related PM₁₀ emissions. Construction of the proposed project would not result in emissions that would result in a cumulatively considerable net increase in ozone or PM₁₀ for which the project region is nonattainment under an applicable federal or State ambient air quality standard, and impacts would be less than significant. No mitigation is required.

Long-Term (Operational) Emissions. The proposed project would install scour retrofits at the substructure of the bridge in order to reduce the potential for scour damage to the existing bridge pier foundations. The proposed project would not result in an increase in trip generation or existing vehicle use within the project area. Operation of the proposed project would not result in emissions that would result in a cumulatively considerable net increase of ozone or PM₁₀ for which the project region is nonattainment under State ambient air quality standards. Therefore, the proposed project would not violate any air quality standard or contribute substantially to an existing or projected air quality violation for which the project region is non-attainment under an applicable federal or State ambient air quality standard, and impacts would be less than significant. No mitigation is required.

Significance Determination: Less than Significant Impact.

Mitigation and/or Compliance Measures: No mitigation is required.

Significance Determination After Mitigation: Less than Significant Impact.

c. Would the project expose sensitive receptors to substantial pollutant concentrations?

Sensitive receptors include residences, schools, playgrounds, childcare centers, convalescent centers, retirement homes, and athletic fields. The project site is primarily surrounded by agricultural land uses and open space. One sensitive receptor, a residence, is located adjacent to eastern side of the project area and a school is located approximately 900 ft southeast of the project. Construction activities can expose sensitive receptors to airborne particulates and fugitive dust as well as a small quantity of construction equipment pollutants (i.e., diesel-fueled vehicles and equipment). However, due to the fact that construction would take place for only a short period of time (approximately 5 months), in a small geographic area, and the minimal emissions estimated for construction activities (see Table 4.3-1), sensitive receptors would not be exposed to substantial

pollutant concentrations as a result of project construction. Construction of the project would not expose sensitive receptors to substantial pollutant concentrations and impacts would be less than significant. No mitigation is required.

The proposed project would install scour retrofits at the substructure of the bridge in order to reduce the potential for scour damage to the existing bridge pier foundations. Once operational, the proposed project would not result in an increase in trip generation or existing vehicle use within the project area. The project would not result in increased pollutant concentrations in the regional than those existing without the project. Operation of the project would not expose sensitive receptors to substantial pollutant concentrations and impacts would be less than significant. No mitigation is required.

Significance Determination: Less than Significant Impact.

Mitigation and/or Compliance Measures: No mitigation is required.

Significance Determination After Mitigation: Less than Significant Impact.

d. Would the project result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

Odor complaints are most commonly associated with agricultural land uses, wastewater treatment plants, food processing plants, chemical plants, composting facilities, refineries, and landfills. During construction of the proposed project, objectionable odors may emanate from the operation of diesel-powered construction equipment. These odors, however, would be temporary and limited to the proposed project area.

Residential receptors are located approximately 50 ft, 875 ft, and 980 ft from the closest proposed construction area of the project. Odors emanating from construction equipment may be detectable at these residences; however, due to rapid dispersion of emissions that would occur with distance from the source, because odors during construction would be temporary, and because there are just three residences within 1,000 ft of the construction area, construction of the proposed project would not result in other emissions (such as those leading to odors) affecting a substantial number of people, and impacts would be less than significant. No mitigation is required.

The proposed project would install scour retrofits at the substructure of the bridge in order to reduce the potential for scour damage to the existing bridge and would not change or increase existing uses within the project area. Objectionable odors would not be emitted during the operation of the proposed project. The operation of the proposed project would not result in other emissions (such as those leading to odors) adversely affecting a substantial number of people and impacts would be less than significant. No mitigation is required.

Significance Determination: Less than Significant Impact.

Mitigation and/or Compliance Measures: No mitigation is required.

Significance Determination After Mitigation: Less than Significant Impact.

4.4 BIOLOGICAL RESOURCES

<i>Would the project:</i>	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. 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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

4.4.1 Impact Analysis

The analysis provided in this section is based on the Natural Environment Study (NES) and NES Addendum (LSA, September 2017, and LSA, August 2019, respectively) provided in Appendix B. For the purpose of the Biological Resources Section, the project area is referred to as the Biological Study Area (BSA), and encompasses the project footprint and adjacent areas that may be directly or indirectly affected by the proposed project.

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

The 22.90 ac BSA is at an elevation ranging from approximately 490 to 530 ft above mean sea level and includes the low-flow channel of the Salinas River, an adjacent floodplain and gently sloping terraces along the western and eastern edges of the river channel. The river channel and associated floodplain is surrounded by flats and rolling hills primarily used for cattle ranching operations.

The following electronic databases and agency communications were reviewed for species that could potentially occur within the vicinity of the BSA:

- California Natural Diversity Data Base *Rarefind 5* (CNNDDB)(2017 and 2019)
- California Native Plant Society (CNPS) *Online Inventory of Rare and Endangered Plants* (2017 and 2019)
- U.S. Fish and Wildlife Service (USFWS) letter titled “List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project” dated May 16, 2017, and June 13, 2019
- USFWS Critical Habitat Mapper (June 24, 2019)
- National Marine Fisheries Service (NMFS) official species list dated May 16, 2017, and June 17, 2019

A general biological field survey was conducted in April 2015 and May 2019 to assess the biological condition of the BSA for the presence of various special-status biological resources, including plants, wildlife, and habitat suitability for special-status species. In addition, LSA conducted on-site rare plant surveys (April, May, and July 2015, and April and June 2019), Least Bell’s Vireo and Willow Flycatcher Protocol Surveys (April, May, June, and July 2015), a habitat assessment for California red-legged frog (April 2015), a habitat assessment for San Joaquin kit fox (July 2015), a nighttime bat survey (July 2015), a jurisdictional delineation (June 2015), and a tree survey of the potential impact area and 20 ft buffer (October 2016 and June 2019).

Based on the database review and professional knowledge of species that may occur in the region, 11 special-status plants have the potential to occur within the records search area (2 mi radius around the BSA) (refer to Table 6 of the NES, which is provided in Appendix B). Although the visual assessment suggested that suitable habitat may be present in the BSA for some special-status plant species, only one special-status plant was observed during the protocol level surveys for rare plants, Davidson’s bush mallow (*Malacothamnus davidsonii*). This species is not federally or State-listed, but has a California Rare Plant Rank of 1B. Only a single Davidson’s bush mallow was found in the BSA during the 2019 surveys. This plant is not in an area of the BSA that will be affected by the proposed project.

Twenty special-status animal species have the potential to occur within the records search area. Of the 20 special status animal species, only the following 14 species have suitable habitat present in the BSA and are discussed below: American badger (*taxidea taxus*), California red-legged frog (*Rana draytonii*), least Bell’s vireo (*vireo bellii pusillus*), pallid bat (*antrozous pallidus*), Salinas pocket mouse (*perognathus inornatus*), San Joaquin coachwhip (*masticophis (Coluber) flagellum ruddocki*), San Joaquin kit fox (*vulpes macrotis mutica*), South/Central California coast steelhead (*oncorhynchus mykiss irideus*), two-striped garter snake (*thamnophis hammondi*), Western pond turtle (*emys marmorata*), Western red bat (*lasiurus blossevillei*), Southwestern willow flycatcher (*empidonax traillii extimus*), Western spadefoot (*spea hammondi*), and yellow warbler (*setophaga petechial*).

There is marginally suitable habitat for Western spadefoot and American Badger, but these species are unlikely to occur in the BSA, and are not discussed further in this analysis. Although suitable habitat is present for the 14 species listed above, only 3 species were observed during field surveys. Yellow warbler was observed in the riparian areas of the BSA during Spring 2015 surveys. Pallid bat was observed within the BSA during various survey efforts including the focused nighttime bat survey. Salinas pocket mouse was observed on the deck of the bridge in the BSA during the nighttime bat survey.

In addition, two special-status animal species, for which there is no suitable breeding/nesting habitat within the BSA, may occur within the BSA. Bald eagle (*haliaeetus leucocephalus*), which is unlikely to forage in the BSA, was observed flying over the BSA. Similar to the bald eagle, California condor (*gymnogyps californianus*) may occasionally forage or fly over the BSA. California condor was not observed during field surveys and is not discussed further in this analysis.

California Red-Legged Frog. California red-legged frog is a federally-listed threatened species and a State species of concern. The BSA is not located within designated critical habitat for California red-legged frog. California red-legged frog was not observed in the BSA during any of the field surveys. The BSA contains elements of suitable habitat upstream and downstream in the Salinas River. However, the presence of California red-legged frog in the BSA is unlikely, as numerous predatory fish and crayfish were observed in the aquatic habitat, and it is unlikely that this species would be able to successfully reproduce in this environment. If California red-legged frog is present, impacts would occur from temporary and/or permanent loss of breeding and tadpole development habitat in the river; direct mortality of frogs and/or tadpoles by equipment or vehicles being operated on the river bank or in the river; temporary and/or permanent impediments to movement along the river and river banks; mortality to tadpoles and frogs due to use of pumps during dewatering activities; increased risk of predation from predators drawn to the work area by trash accumulation; and introduction of parasites to frogs during handling for relocation outside the work area. Because the proposed project would result in temporary and/or permanent impacts to California red-legged frog habitat, informal consultation with the USFWS under Section 7 of the Federal Endangered Species Act would be required prior to construction. **Mitigation Measures BIO-1 through BIO-8 and BIO-16** require a qualified biologist/monitor, construction employee training, environmentally sensitive area (ESA) fencing, special-status species surveys, removal of invasive species, river monitoring during vegetation removal, minimum area for access routes and boundaries that are clearly demarcated, revegetation plans, and the prevention of concrete and other toxic substances from entering the river. **Mitigation Measures HAZ-1 and HAZ-2** require the preparation of an emergency response and cleanup plan and the implementation of spill prevention measures during construction. **Compliance Measures WQ-2 and WQ-3** require adherence to stormwater BMPs and the preparation of an erosion control plan. In addition, **Mitigation Measures PBO-1 through PBO-5, PBO-9, PBO-10, PBO-12 through PBO-14, and PBO-16** from the *Programmatic Biological Opinion for Projects Funded or Approved under the Federal Highway Administration's Federal Aid Program (8-8-10-F-58)* (PBO) would be implemented to reduce adverse effects to California red-legged frog and their habitat. Implementation of **Mitigation Measures BIO-1 through BIO-8, BIO-16, HAZ-2, HAZ-3, and PBO-1 through PBO-5, PBO-9, PBO-10, PBO-12 through PBO-14, PBO-16, and Compliance Measures WQ-2 and WQ-3**, would reduce impacts to California red-legged frog and its habitat to a less than significant level.

South-Central California Coast DPS Steelhead. The south-central California coast steelhead Distinct Population Segment (DPS) is a federally-threatened species and a State species of concern. The BSA lies within designated critical habitat for south-central California coast steelhead DPS. Suitable spawning habitat is not present in the BSA or immediate vicinity, but the main stem of the Salinas River in the BSA is a migration corridor for the steelhead spawning in the upper Salinas River watershed. If water is present in the river channel during construction and the channel requires diversion, fish movements upstream and downstream could be restricted.

Construction-related impacts to steelhead and steelhead critical habitat, which are primarily temporary and coincide with the period when adult or juvenile steelhead are least likely to occur in this portion of the river, would be reduced to less than significant with implementation of **Mitigation Measures BIO-1 through BIO-3, BIO-15 through BIO-21, HAZ-1, HAZ-2, and Compliance Measures WQ-2 and WQ-3.** **Mitigation Measures BIO-1 through BIO-3** require retention of a qualified biologist, construction employee training, and ESA fencing. **Mitigation Measures BIO-15 through BIO-21** require seasonal work restrictions within the Salinas River, limitations on materials allowed to enter the water channel, relocation of steelhead by a qualified biologist, monitoring of water diversion, and dewatering, limitations on hydroseeding, restoration of the river channel to its preconstruction contours, and the removal of all diversions and barriers. **Mitigation Measures HAZ-1 and HAZ-2** requires preparation of an emergency response and cleanup plan and equipment maintenance and fueling to be conducted in a manner that would not introduce pollutants to aquatic habitats. **Compliance Measure WQ-2** requires preparation of a Storm Water Pollution Prevention Plan (SWPPP) and implementation of construction BMPs. Implementation of **Mitigation Measures BIO-1 through BIO-3, BIO-15 through BIO-21, HAZ-1, HAZ-2, and Compliance Measures WQ-2 and WQ-3** would reduce impacts to south-central California coast steelhead DPS and its critical habitat to a less than significant level.

San Joaquin Kit Fox. San Joaquin kit fox is a federally listed endangered and State-listed threatened species. A focused habitat survey was conducted at the project site and no San Joaquin kit foxes were found. There is suitable habitat for this species in the dry open grasslands and foothills habitat along the Salinas River in and adjacent to the BSA. However, no burrows that are large enough for San Joaquin kit fox, including artificial burrows (e.g., culverts or pipes), were observed in the BSA, and no coyote or other canid dens were observed in the BSA. Although San Joaquin kit fox may forage or pass through the BSA, the lack of potential dens or other signs suggest this species does not occur in the BSA. If present at the project site during construction, construction activities would impact the San Joaquin Kit Fox. **Mitigation Measures BIO-1 through BIO-4 and BIO-7** require a qualified biologist/monitor, construction employee training, ESA fencing, special-status species surveys, and minimum area for access routes and boundaries, which should be clearly demarcated. With implementation of **Mitigation Measures BIO-1 through BIO-4 and BIO-7**, impacts to San Joaquin kit fox burrowing and foraging are less than significant.

Least Bell's Vireo. The least Bell's vireo is a federally and State-listed endangered species. This migratory songbird typically nests in riparian habitats along rivers and streams in valleys and lowlands. Eight field surveys were conducted in the BSA and no birds were found at the project site. The least Bell's vireo is rare in the County. Although the least Bell's vireo was not observed at the project site and is not expected to occur there, its presence cannot be definitely ruled out. If present

at the project site during construction, construction activities would impact the least Bell's vireo. **Mitigation Measures BIO-1 through BIO-4, and BIO-7** require retention of a qualified biologist, construction employee training, ESA fencing, special-status species surveys, and using the minimum area for access routes and boundaries, which should be clearly demarcated. **Mitigation Measure BIO-9** requires that vegetation removal and trimming be conducted during the nonbreeding season for birds (i.e., between September 1 and January 31) to avoid impacts to birds to the greatest extent practicable. If vegetation clearing and trimming must occur during the breeding season for birds, **Mitigation Measure BIO-10** requires a preconstruction bird survey by a qualified biologist to ensure that there are no active nests within 50 ft of the limits of construction and if a nest is found, **Mitigation Measure BIO-11** requires that if an active bird nest is found, an appropriate buffer shall be established and the nest monitored to ensure birds are not being impacted by construction activities. Implementation of **Mitigation Measures BIO-1 through BIO-4, BIO-7, and BIO-9 through BIO-11** would reduce potential construction-related impacts to least Bell's vireo to a less than significant level.

Willow Flycatcher. The willow flycatcher is a federally and State-listed endangered species. This migratory songbird nests in riparian habitats along rivers and streams in mountain, valley, and lowland landscapes. Five focused field surveys were conducted at the project site and no birds were found at the project site. Although the willow flycatcher was not observed at the project site and is not expected to occur there, its presence cannot be definitively ruled out. If present at the project site during construction, construction activities would impact the willow flycatcher. **Mitigation Measures BIO-1 through BIO-4, and BIO-7** require retention of a qualified biologist, construction employee training, ESA fencing, special-status species surveys, and minimum area for access routes and boundaries that are clearly demarcated. **Mitigation Measure BIO-9** requires that vegetation removal and trimming be conducted during the nonbreeding season for birds (i.e., between September 1 and January 31) to avoid impacts to birds to the greatest extent practicable. If vegetation clearing and trimming must occur during the breeding season for birds, **Mitigation Measure BIO-10** requires a preconstruction bird survey by a qualified biologist to ensure that there are no active nests within 50 ft of the limits of construction and if a nest is found, **Mitigation Measure BIO-11** requires that if an active bird nest is found, an appropriate buffer shall be established and the nest monitored to ensure birds are not being impacted by construction activities. Implementation of **Mitigation Measures BIO-1 through BIO-4, BIO-7, and BIO-9 through BIO-11** would reduce potential construction-related impacts to willow flycatcher to a less than significant level.

Yellow Warbler. The yellow warbler is a State species of special concern. This species was observed in the riparian areas of the BSA and was heard singing during spring 2015 field surveys. Suitable nesting habitat occurs in the BSA along the Salinas River. This species is likely to nest in the red willow thicket and/or Fremont cottonwood forest in the BSA. The proposed project would result in impacts to 5.65 ac of potential yellow warbler nesting and foraging habitat (red willow thicket and Fremont cottonwood forest). **Mitigation Measures BIO-1 through BIO-4, and BIO-7** require retention of a qualified biologist, construction employee training, ESA fencing, special-status species surveys, the removal of invasive wildlife, river monitoring during vegetation removal, and minimum area for access routes and boundaries that are clearly demarcated. **Mitigation Measure BIO-9** requires that vegetation removal and trimming be conducted during the nonbreeding season for

birds (i.e., between September 1 and January 31) to avoid impacts to birds to the greatest extent practicable. If vegetation clearing and trimming must occur during the breeding season for birds, **Mitigation Measure BIO-10** requires a preconstruction bird survey by a qualified biologist to ensure that there are no active nests within 50 ft of the limits of construction and if a nest is found, **Mitigation Measure BIO-11** requires that if an active bird nest is found, an appropriate buffer shall be established and the nest monitored to ensure birds are not being impacted by construction activities. Implementation of **Mitigation Measures BIO-1 through BIO-4, BIO-7, and BIO-9 through BIO-11** would reduce potential construction-related impacts to yellow warbler to a less than significant level.

Salinas Pocket Mouse. Salinas pocket mouse is a State species of special concern. This species was incidentally observed on the deck of the bridge in the BSA during the nighttime bat survey. Suitable habitat is present in the BSA for breeding and foraging. Vehicle and equipment access and staging could impact Salinas pocket mouse foraging habitat and could destroy burrows as well as directly kill individual mice. **Mitigation Measures BIO-1 through BIO-4, BIO-7, BIO-9, and BIO-14** require a qualified biologist/monitor, construction employee training, ESA fencing, special-status species surveys, minimum area for access routes and boundaries, which should be clearly demarcated, that vegetation removal and trimming be conducted during the nonbreeding season for birds, and that a qualified biologist shall survey the area for potential Salinas pocket mouse burrows; if any burrows are located within the work area, the biologist shall flag them for avoidance, and the biological monitor shall ensure that vehicles and equipment avoid flagged burrows. With implementation of **Mitigation Measures BIO-1 through BIO-4, BIO-7, BIO-9, and BIO-14**, potential construction-related impacts to the Salinas pocket mouse would be reduced to a less than significant level.

San Joaquin Coachwhip. The San Joaquin coachwhip is a State species of special concern. No San Joaquin coachwhip were observed during surveys of the BSA. There are historic records of San Joaquin coachwhip approximately 1.2 mi southeast of the BSA in large contiguous grassland habitat. This large, extremely active, diurnal snake prefers open, dry habitats with little or no tree cover. Grasslands occur in the eastern portion of the BSA, but most of the BSA does not contain suitable habitat. Although the San Joaquin coachwhip was not observed at the project site and is not expected to occur there, its presence cannot be definitely ruled out. If present at the project site during construction, construction activities would impact the San Joaquin coachwhip. **Mitigation Measures BIO-1 through BIO-4** require retention of a qualified biologist, construction employee training, ESA fencing, and special-status species surveys. With implementation of **Mitigation Measures BIO-1 through BIO-4**, potential construction-related impacts to the San Joaquin coachwhip would be reduced to a less than significant level.

Two-Striped Garter Snake. The two-striped garter snake is a State species of special concern. No two-striped garter snakes were observed during general field surveys of the BSA. There are few historic records of this species throughout the Salinas Valley. However, marginally suitable habitat for this species occurs within the BSA. Although permanent freshwater and riparian growth is found in the BSA, the substrate is mostly sand, not the preferred rock and cobble. Although the two-striped garter snake was not observed in the project area and is not expected to occur there, its presence cannot be definitely ruled out. Construction activities including ground disturbance, removal of vegetation, and diversion of the river channel would result in temporary impacts to

garter snake habitat. The proposed construction access road is within potential garter snake habitat. If present at the project site during construction, construction activities would impact the two-striped garter snake. **Mitigation Measures BIO-1 through BIO-4, BIO-6, and BIO-7** require retention of a qualified biologist, construction employee training, ESA fencing, special-status species surveys, monitoring for reptiles and small wildlife, and minimum area for access routes and boundaries, which should be clearly demarcated. With implementation of **Mitigation Measures BIO-1 through BIO-4, BIO-6, and BIO-7**, potential construction-related impacts to the two-striped garter snake would be reduced to a less than significant level.

Western Pond Turtle. The western pond turtle is a State species of special concern. No pond turtles were observed during surveys of the BSA; however, the stretch of the Salinas River within the BSA provides suitable aquatic, basking, and upland habitat for western pond turtle. Although the western pond turtle was not observed in the project area and is not expected to occur there, its presence cannot be definitely ruled out. If present at the project site during construction, construction activities would impact the western pond turtle. **Mitigation Measures BIO-1 through BIO-4 and BIO-6** require retention of a qualified biologist, construction employee training, ESA fencing, special-status species surveys, and monitor wildlife during construction activities and move to a safe location if necessary. Implementation of **Mitigation Measures BIO-1 through BIO-4 and BIO-6** would reduce impacts to the western pond turtle to a less than significant impact.

Pallid Bat. The pallid bat is a State species of special concern. This species was observed during the nighttime bat survey. The pallid bat uses expansion joints at Pier 13 and Pier 15, which are within the BSA, for day roosting and potential maternity roosting. In addition, the western abutment of the bridge, which is outside the BSA, serves as a night roost for the pallid bat. There is an additional approximately 5.65 ac of potential pallid bat roosting habitat in nearby Fremont cottonwood forest and red willow thickets. Pallid bats were also acoustically detected throughout the BSA during the focused survey, indicating use of the BSA for foraging as well as roosting. The proposed project would not result in direct impacts (e.g., removal) to existing pallid bat roosts associated with the bridge structure. Construction activities are anticipated to occur during the bat maternity season. Although the maternity colony at Pier 15 is outside the work area and will not be directly impacted by the proposed activities, the maternity colony is approximately 100 ft from work that will occur at Pier 16. There is potential for temporary indirect impacts to roosting bats at Pier 15 from construction-related noise and vibration. In addition, impacts to approximately 5.65 ac of additional potential pallid bat roosting habitat may occur when these trees are trimmed or removed for construction activities, because pallid bats may also roost in the crevices or cavities of the mature trees in that area. As prescribed in **Mitigation Measure BIO-12**, a qualified bat biologist shall monitor the Pier 15 roosts during CIDH work and concrete drilling at Pier 16; if there is evidence that the maternity colony is disturbed by project activities, adaptive management measures shall be developed in coordination with the bat biologist and the contractor. As prescribed in **Mitigation Measure BIO-13**, orange ESA fencing shall be installed along both sides of the western access road and around staging areas so that construction equipment and personnel are excluded from the areas beneath identified bat roosting areas; construction activities shall not occur at nighttime; no artificial lighting shall be used; airspace access to and from the roost features of the bridge shall not be obstructed except in direct work areas; and tree removal trimming shall be performed outside of the bat maternity season (April 1–August 31), if feasible. If tree trimming or tree removal during the

bat maternity season cannot be avoided, a qualified bat biologist shall be present to inspect the limbs, branches, and main body of the trees for the presence of bats. If flightless young bats are found, a buffer distance shall be established in consultation with the California Department of Fish and Wildlife (CDFW) and this buffer shall be maintained until the bats are capable of flight and have left the roost. If flightless juvenile bats are observed after the roost limb or branch has been cut, the CDFW shall be notified and an appropriate protocol for relocation established under a Memorandum of Understanding. If removal is required, it shall occur in two stages as follows: Day 1, branches and limbs will be removed and placed in a pile adjacent to the tree in case bats are roosting on or within those branches. Day 2, the remainder of the tree may be removed, and all parts disposed if necessary. With implementation of **Mitigation Measures BIO-12 and BIO-13**, potential construction-related impacts to the pallid bat would be reduced to a less than significant level.

Western Red Bat. The western red bat is a State species of special concern. This species was not observed during the focused bat survey. There is suitable roosting habitat, including Fremont cottonwood forest and red willow thickets, and potential foraging habitat in the BSA. Direct impacts to approximately 5.65 ac of potential western red bat roosting habitat may occur when these trees are trimmed or removed for construction activities. Due to the solitary roosting habits of this species, preconstruction (i.e., vegetation removal) surveys to identify roost locations would not be feasible. Bats could be roosting in trees during removal and may be torpid and thus unable to flush when a tree is cut and processed. As prescribed in **Mitigation Measure BIO-13**, in order to protect bats from temporary impacts during construction, during tree removal, it will be necessary to leave all limbs and trees such as Fremont cottonwood and willows in place overnight after being cut to allow time for bats to leave the trees during the night. With implementation of **Mitigation Measure BIO-13**, potential construction-related impacts to the western red bat would be reduced to a less than significant level.

Bridge- and Crevice-Dwelling Bats. Four species of bats - Mexican free-tailed bats (*Tadarida brasiliensis*), big brown bat (*Eptesicus fuscus*) Yuma myotis (*Myotis yumanensis*) and California myotis (*Myotis californicus*) were observed using expansion joints at Pier 13 and Pier 15, which are within the BSA, for day roosting. The number and concentration of bats present in each of these expansion joints during the summer season when the focused survey was conducted indicates that the Mexican free-tailed bats also use the area for maternity roosting. No bats were observed using the area for night roosting, although the presence of bat sign (e.g., guano and urine staining) indicates it is likely that some bats use the area for night roosting.

The proposed project is a scour repair project and therefore would not result in direct impacts (removal) to the existing day/maternal bat roosts associated with the bridge structure because the bats use the expansion joints beneath the deck of the bridge where no work will occur. However, there is a potential for indirect impacts from construction-related noise and vibration. As prescribed in **Mitigation Measure BIO-12**, a qualified bat biologist shall monitor the Pier 15 roosts during CIDH work and concrete drilling at Pier 16; if there is evidence that the maternity colony is disturbed by project activities, adaptive management measures shall be developed in coordination with the bat biologist and the contractor. As prescribed in **Mitigation Measure BIO-13**, construction equipment will be excluded from beneath identified bat roosting areas; construction activities shall not occur at

nighttime; no artificial lighting shall be used; airspace access to and from the roost features of the bridge shall not be obstructed except in direct work areas; and tree removal trimming shall be performed outside of the bat maternity season (April 1–August 31), if feasible. If tree trimming or tree removal during the bat maternity season cannot be avoided, a qualified bat biologist shall be present to inspect the limbs, branches, and main body of the trees for the presence of bats. If flightless young bats are found, a buffer distance shall be established in consultation with CDFW and this buffer shall be maintained until the bats are capable of flight and have left the roost. If flightless juvenile bats are observed after the roost limb or branch has been cut, the CDFW shall be notified and an appropriate protocol for relocation established under a Memorandum of Understanding. If removal is required, it shall occur in two stages as follows: Day 1, branches and limbs will be removed and placed in a pile adjacent to the tree in case bats are roosting on or within those branches. Day 2, the remainder of the tree may be removed, and all parts disposed if necessary. With implementation of **Mitigation Measures BIO-12 and BIO-13**, potential construction-related impacts to bridge- and crevice-dwellings bat would be reduced to a less than significant level.

Bald Eagle. Bald eagle is a federally delisted endangered species and a State-listed endangered species. Eight field surveys were conducted in the BSA and bald eagles were observed flying over the BSA and were not observed foraging, roosting, or nesting on the project site. Although the bald eagle may nest along large river courses, the BSA does not provide suitable nesting habitat for bald eagles and no large stick nests were observed in or around the BSA. Impacts to bald eagle and foraging, roosting, and nesting habitat are less than significant, and no mitigation is required.

Significance Determination: Potentially Significant Impact.

Mitigation and/or Compliance Measures:

Mitigation Measure BIO-1 **Qualified Biologist/Biological Monitor.** Prior to initial ground disturbance, the County of Monterey (County) shall ensure the hiring of a qualified biologist with experience in the ecology of the California red-legged frog and the identification of all its life stages, steelhead biology and ecology, aquatic habitats, biological monitoring (including diversion/dewatering), and capture, handling, and relocating fish species. The qualified biologist shall coordinate with the California Department of Transportation (Caltrans) as well as the County, to identify a suitable upstream or downstream location within the Salinas River where steelhead captured within the Biological Study Area (BSA) will be relocated. The qualified biologist shall be present at the work site daily until all ground-disturbing activities in all portions of the project site have been completed, including installation and removal of the diversion structures, and workers have received environmental training. Once the dewatering and diversion structures have been installed, the qualified biologist shall make periodic inspections of the project site (weekly). A final inspection of the site shall also be made by the qualified biologist after completion of construction. After completion of ground-disturbing activities, the County shall ensure

that a qualified monitor is designated and who shall ensure on-site compliance with all avoidance and minimization efforts when the qualified biologist is not on site. The qualified biologist shall ensure that the qualified monitor is familiar with the avoidance and minimization efforts and is able to identify all the special-status species of potential occurrence in the BSA. The monitor and the qualified biologist shall have the authority to halt any action that might result in impacts that exceed the levels anticipated by the United States Fish and Wildlife Services (USFWS), the California Department of Fish and Wildlife (CDFW), or the National Marine Fisheries Service (NMFS) at any point during construction. If work is stopped, either the qualified biologist or on-site monitor shall immediately notify Caltrans and the County. If a State-listed species is found in the work area for which no incidental take permit has been issued, the County's Project Manager shall then consult with CDFW and shall advise the Construction Contractor on how to proceed.

Mitigation Measure BIO-2

Environmental Training Session. Prior to initial ground disturbance, the qualified biologist shall conduct an environmental training session for all construction and maintenance personnel. At a minimum, the training shall include a description of the special-status species that may occur in the biological study area (BSA), their habitat requirements, the measures being implemented to avoid and minimize impacts to these species, the authority and responsibilities of the qualified biologist and monitor, and procedures to follow if a listed or special-status species is observed. The environmental training shall include a discussion of the boundaries behind which the workers and equipment must remain, the purpose of the Environmentally Sensitive Area (ESA) fencing, and the resources being protected. All attendees shall sign a form acknowledging their attendance at an environmental training and their understanding of the measures being implemented. This form shall be kept by the qualified biologist and provided with the final monitoring report.

Mitigation Measure BIO-3

Environmentally Sensitive Area Fencing. Prior to construction activities, the qualified biologist shall identify locations for the placement of brightly colored Environmentally Sensitive Area (ESA) fencing to protect sensitive habitat areas (i.e., Salinas River floodplain, jurisdictional areas, riparian trees, including Freemont cottonwoods and red willows, California red-legged frog habitat, and bat roosting sites), to delineate a protection zone beyond which construction activities are prohibited, and to prevent terrestrial animals from entering the work area. The Construction Contractor,

with the assistance of the qualified biologist, shall install the ESA fencing prior to construction activities. The fence shall be installed 6 inches above ground level to allow small vertebrate species to move throughout the area. When placing the fencing around trees to be protected, the fences shall be placed at or beyond the drip-line of trees or groups of trees adjacent to the work area. The qualified biologist shall verify the correct placement and installation of the fences before work begins in the area. Fencing shall be maintained in good condition for the duration of construction activities.

Mitigation Measure BIO-4

Special-Status Species Survey. Immediately before initial ground disturbance and/or vegetation clearing in the Salinas River high-flow channel, the qualified biologist shall conduct a survey of the work area for special-status species, including California red-legged frog, western pond turtle, and two-striped garter snakes. If special-status species are found, they shall be allowed to leave the work area on their own or, if approved by the United States Fish and Wildlife Service (USFWS), the California Department of Fish and Wildlife (CDFW), and/or National Marine Fisheries Service (NMFS), the special-status species shall be captured and relocated by the biologist to a safe place outside the work area. If the removal or relocation of any special-status species is required during construction activities, at the end of the construction period, the qualified biologist shall prepare a report providing the results of any removal/relocation effort and submit it to the appropriate regulatory agencies. If applicable, the report shall also include information regarding the removal of non-native species from the project area during construction activities.

Mitigation Measure BIO-5

Removal of Invasive Wildlife. During project construction, a qualified biologist shall permanently remove individuals of nonnative, invasive wildlife species (e.g., bullfrogs, crayfish, and centrarchid fish) from the project area and dispatch them humanely, in compliance with the California Fish and Game Code, if they are found during surveys or monitoring activities. Nonnative fish and wildlife shall not be returned to the river.

Mitigation Measure BIO-6

River Monitoring. During vegetation removal, initial grading, and other ground-disturbing activities in the Salinas River channel, a qualified biologist shall monitor such activities for reptiles and other small wildlife exposed by such activities and then relocate them in a safe place outside the exclusion fence.

Mitigation Measure BIO-7

Routes and Boundaries. Prior to the start of construction, the County of Monterey shall ensure that the number and size of access routes and staging areas and the total area of construction activity

is limited to the minimum necessary to achieve the project goal. Routes and boundaries shall be clearly demarcated both on plans and in the field prior to the start of construction activities. Staging areas, access routes, and construction areas shall be located outside of aquatic habitat and riparian areas to the maximum extent practicable.

Mitigation Measure BIO-8

Revegetation. Prior to the start of construction, the County shall ensure the preparation and approval of a revegetation plan to restore riparian vegetation impacted by the proposed project. The plan shall specify the use of native tree species that were impacted during construction. Native trees will be of nursery stock from the local area and/or cuttings taken from within the Biological Study Area. Trees shall be planted at a 2:1 ratio (trees planted to trees removed) in similar habitat in and adjacent to the project area where they are exposed to light levels suitable for growth. The plan shall specify monitoring program and criteria to ensure successful revegetation, such as providing fencing around planted trees to protect from beaver activity and other herbivory and performance standards for determining success. A 5-year monitoring and maintenance plan shall be developed to ensure long-term survivorship of replacement plantings. Annual reports shall be prepared at the end of each year documenting the site conditions and progress toward achieving the performance standards.

Prior to the completion of construction, the County shall ensure that all temporary impact areas and permanently graded areas are revegetated according to the specifications detailed in the project revegetation plan.

Mitigation Measure BIO-9

Vegetation Removal. During construction, the County shall ensure that vegetation removal and trimming for the access road and temporary construction areas are conducted during the non-breeding season for birds (i.e., between September 1 and January 31), to the greatest extent feasible.

Mitigation Measure BIO-10

Nesting Bird Surveys. If project construction takes place during the bird nesting season (February 1 to August 31), all suitable nesting habitat within 50 feet of the limits of work shall be surveyed by a qualified biologist no more than 14 days prior to ground disturbing/vegetation removal activities and again within 2 days (48 hours) of such activities. Areas outside the public right-of-way shall not be surveyed for active nests unless such areas are visible from the public right-of-way.

Mitigation Measure BIO-11

Nesting Bird Buffer Areas. If an active bird nest is found, a qualified biologist shall delineate an appropriate buffer using plastic construction fencing (Environmentally Sensitive Area [ESA] fencing), pin flags, or other easily identified fencing material. If necessary, the biologist will consult with United States Fish and Wildlife Service (USFWS) and the California Department of Fish and Wildlife (CDFW) to determine an appropriate buffer size. Typically, buffers range from 250 to 500 feet depending on the species, nest location, surrounding habitat, and the nature of the adjacent construction activity. During construction, the qualified biologist will conduct regular monitoring (at USFWS- and CDFW-approved intervals) to evaluate the nest for potential disturbances associated with construction activities. Construction within the buffer shall be prohibited until the qualified biologist determines that the nest is no longer active. If an active nest is found after completion of the preconstruction surveys and after construction begins, all construction activities in the nest vicinity shall stop until a qualified biologist has evaluated the nest and erected the appropriate buffer around the nest. If establishment of the buffer is not feasible, USFWS/CDFW shall be contacted for further avoidance and minimization guidelines.

Mitigation Measure BIO-12

Pallid Bat Maternity Roosts. During the initiation of cast-in-drilled whole work and concrete drilling at Pier 16, a qualified bat biologist shall monitor the Pier 15 roosts and determine if the roosting pallid bat maternity colony are being disturbed by construction activities. If there is no evidence that the roosting pallid bat maternity colony is being disturbed by project activities, no further monitoring shall be necessary. If the qualified bat biologist determines that there is evidence that the roosting pallid bat maternity colony is being disturbed by construction activities, adaptive management measures shall be developed in coordination between the qualified bat biologist and the County to avoid or minimize potential impacts to maternity-roosting bats, including flightless young.

Mitigation Measure BIO-13

Roosting Bats. During construction:

- Orange ESA fencing shall be installed along both sides of the western access road and around the staging area on the western side of the river so that construction equipment (especially with diesel or combustion engines) and personnel are excluded from the areas beneath identified bat roosting areas.
- Construction activities shall not occur at nighttime.

- No artificial lighting shall be used.
- Airspace access to and from the roost features of the bridge shall not be obstructed except in direct work areas.
- Tree removal trimming shall be performed outside of the bat maternity season (April 1 – August 31), if feasible.
- If tree trimming or tree removal during the bat maternity season cannot be avoided, a qualified bat biologist shall be present to inspect the limbs, branches, and main body of the trees for the presence of bats. If flightless young bats are found, a buffer distance shall be established in consultation with the California Department of Fish and Wildlife (CDFW) and this buffer shall be maintained until the bats are capable of flight and have left the roost. If flightless juvenile bats are observed after the roost limb or branch has been cut, the CDFW shall be notified and an appropriate protocol for relocation established under a Memorandum of Understanding.
- If removal is required, it shall occur in two stages as follows: Day 1, branches and limbs will be removed and placed in a pile adjacent to the tree in case bats are roosting on or within those branches. Day 2, the remainder of the tree may be removed, and all parts disposed if necessary.

Mitigation Measure BIO-14

Salinas Pocket Mouse. Before vegetation in the annual brome grassland is disturbed, a qualified biologist shall survey the area for potential Salinas pocket mouse burrows. If any burrows are located within the work area, the biologist shall flag them for avoidance. The biological monitor shall ensure that vehicles and equipment avoid flagged burrows within the temporary access road and staging area.

Mitigation Measure BIO-15

Construction Period in the Salinas River. During construction, the County of Monterey shall ensure that all in-water work within the Salinas River is restricted to the low-flow season between July 1 and October 15, which is within the seasonal work window recommended by the National Marine Fisheries Service to minimize effects to steelhead.

Mitigation Measure BIO-16

Concrete and Toxic Substance Use. During construction, the County shall ensure that no fill material, including asphalt or concrete is allowed to enter the active water channel, with exception of clean river rock for the water diversion. Concrete shall not be allowed contact with surface waters until it has fully cured. In the event that

uncured concrete contacts surface water, the pH of water in the Salinas River shall be monitored before and after pouring of concrete until it cures. Water that contacts wet concrete and has a pH greater than 9.0 shall be pumped out of the work area and disposed of outside of the Salinas River channel. If commercial sealant is used on poured concrete surface, water shall be excluded from the site until the sealant is dry and fully cured according to the manufacturers' specifications. No substances toxic to aquatic life shall be discharged into the Salinas River (e.g., diesel fuel, oil, hydraulic fluid, run-off from curing concrete, etc.). Good Housekeeping Best Management Practices shall be used to keep toxic substances and fill materials out of aquatic habitats.

Mitigation Measure BIO-17

Steelhead Relocation. Prior to initial ground disturbance, the qualified biologist shall coordinate with California Department of Transportation, as well as the County of Monterey, to identify a suitable upstream or downstream location within the Salinas River where steelhead captured within the biological study area (BSA) shall be relocated. During ground-disturbing activities, including the installation of dewatering and diversion structures in the beginning of the construction timetable and the removal of the diversion structures at the end of construction; the qualified biologist shall be present at the work site daily. If steelhead are located within the work area during ground-disturbing activities while there are no water diversion structures, the qualified biologist shall remove and relocate steelhead to the pre-determined location. After completion of the proposed project, the qualified biologist shall prepare a report providing the results of the removal/relocation effort for submittal to the National Marine Fisheries Service. The report shall also include information on non-native species that were removed from the BSA.

Mitigation Measure BIO-18

Water Diversion. During dewatering and river diversion activities, the qualified biologist shall be on the project site, and shall assist the Construction Contractor in the implementation of the dewatering and river diversions, including monitoring the placement and removal of dewatering and diversion devices. The qualified biologist shall ensure that water diversions allow unrestricted passage of adult and juvenile steelhead through the Biological Study Area. During dewatering of cofferdam areas, pump intakes will be screened with no larger than 0.2 inches (5 millimeter) wire mesh to prevent steelhead and other aquatic wildlife from entering the pump system. Pumped water shall be released into a portable storage tank to allow suspended sediment to settle prior to being released back into the Salinas River. The qualified biologist

shall capture and relocate any stranded steelhead outside the work area.

Mitigation Measure BIO-19 **Hydroseeding.** During and after construction, if hydroseed mixes are used to stabilize disturbed areas, the County shall ensure that such mixes do not contain fertilizers.

Mitigation Measure BIO-20 **Contour Restoration.** Prior to the completion of construction, the County shall ensure that the Salinas River channel, and upland areas are returned to their original contours and condition to the greatest extent possible. All constructed ramps into the river channel for the temporary construction access road, construction mats, and other temporary material used for construction shall be removed. In addition, alteration of the Salinas River bed shall be minimized to the maximum extent possible.

Mitigation Measure BIO-21 **Removal of Diversions and Barriers.** Prior to the completion of construction, the County shall ensure that diversions and barriers to flow are removed in a manner that allows flow to resume with the least disturbance to the substrate. Imported material not part of the permanent scour repair shall be removed from the stream bed upon completion of construction. All constructed temporary access roads into the Salinas River channel, construction mats, and other temporary material used for construction shall be removed from the Biological Study Area and transported to an appropriate disposal or storage facility.

In addition to the Mitigation Measures listed above, the following measures will be implemented to reduce adverse effects to California red-legged frog and their habitat. These measures are from the *Programmatic Biological Opinion for Projects Funded or Approved under the Federal Highway Administration's Federal Aid Program (8-8-10-F-58) (PBO)*. Measures included in the PBO that are duplicative of mitigation measures already prescribed in this environmental document were not repeated below. USFWS has concurred that the proposed project will be included in PBO. This concurrence does not authorize capture, handling, or relocation of California red-legged frogs.

Mitigation Measure PBO-1 A biologist with experience in the identification of all life stages of the California red-legged frog, and its critical habitat, 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 detected the USFWS will be notified prior to the start of construction. If Caltrans and the USFWS determine that adverse effects to the California red-legged frog or its critical habitat cannot be avoided, the proposed project will not commence until the Caltrans completes the appropriate level of consultation with the USFWS.

Mitigation Measure PBO-2	Work activities will take place during the dry season, between April 1 and November 1, when water levels are typically at their lowest, and California red-legged frogs are likely to be more detectable. Should activities need to be conducted outside of this period, Caltrans may conduct or authorize such activities after obtaining the USFWS's written approval.
Mitigation Measure PBO-3	Before work begins on any proposed project, a biologist with experience in the ecology of the California red-legged frog, as well as the identification of all its life stages, will conduct a training session for all construction personnel, which will include a description of the California red-legged frog, its critical habitat, and specific measures that are being implemented to avoid adverse effects to the subspecies during the proposed project.
Mitigation Measure PBO-4	If any life stage of the California red-legged frog is detected in the project area during construction, work will cease immediately and the resident engineer, authorized biologist, or biological monitor will notify the Ventura Fish and Wildlife Office via telephone or electronic mail. If Caltrans and the USFWS determine that adverse effects to California red-legged frogs cannot be avoided, construction activities will remain suspended until Caltrans and the USFWS complete the appropriate level of consultation.
Mitigation Measure PBO-5	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.
Mitigation Measure PBO-9	Habitat contours will be returned to their original configuration at the end of project activities in all areas that have been temporarily disturbed by activities associated with the project, unless Caltrans and the USFWS determine that it is not feasible or modification of original contours would benefit the California red-legged frog.
Mitigation Measure PBO-10	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 confine access routes and construction areas to the minimum area necessary to complete construction, and minimize the impact to habitat for the California red-legged frog; this goal includes locating access routes and construction areas outside of aquatic habitat and riparian areas to the maximum extent practicable.

- Mitigation Measure PBO-12** If a work site is to be temporarily dewatered by pumping, the intake will be screened with wire mesh not larger than 0.2 inch to prevent any California red-legged frogs not initially detected from entering the pump system. If California red-legged frogs are detected during dewatering, and adverse effects to California red-legged frogs cannot be avoided, construction activities will remain suspended until Caltrans and the USFWS complete the appropriate level of consultation.
- Mitigation Measure PBO-13** 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 creek bed will be minimized to the maximum extent possible; any imported material will be removed from the stream bed upon completion of the project.
- Mitigation Measure PBO-14** Unless approved by the USFWS, water will not be impounded in a manner that may attract California red-legged frogs.
- Mitigation Measure PBO-16** To ensure that diseases are not conveyed between work sites by the USFWS-approved biologists, the fieldwork code of practice developed by the Declining Amphibian Populations Task Force will be followed at all times.

Significance Determination After Mitigation: Less than Significant Impact.

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

California Department of Fish and Wildlife Jurisdiction. CDFW jurisdiction typically extends beyond the streambed/banks to the limits of riparian vegetation associated with streams, rivers, or lakes. The CDFW defines riparian habitat as “on, pertaining to, the banks of a stream...vegetation which occurs in and/or adjacent to a watercourse.” The BSA includes approximately 13 ac of CDFW jurisdiction, including Fremont cottonwood forest, red willow thickets, sandbar willow thickets, water primrose wetland, and open water.

Project construction would result in approximately 1.8 ac of temporary impacts and approximately 0.04 ac of permanent impacts to CDFW jurisdictional areas, primarily from the removal of vegetation. Implementation of **Mitigation Measures BIO-3, BIO-7, BIO-8, BIO-20, BIO-22, and HAZ-2 and Compliance Measure WQ-2** would require installation of ESA fencing, minimizing impacts to aquatic and riparian areas during the placement of staging and access route areas, revegetation, restoration of habitat contours, permits from the regulatory agencies, spill prevention measures, and construction BMPs. With implementation of **Mitigation Measures BIO-3, BIO-7, BIO-8, BIO-20, and HAZ-2 and Compliance Measure WQ-2**, impacts to CDFW jurisdiction would be reduced to a less than significant level.

Sensitive Natural Communities. There are two sensitive natural communities within the BSA – Populus fremontii Forest Alliance (Fremont cottonwood forest) and Salix laevigata Woodland Alliance (red willow thicket). The Fremont cottonwood forest consists of a stand of midsized to large mature trees (with a DBH ranging between 12 and 36 inches) in the central and western portions of the BSA above the Salina River’s high-flow channel. Red willow thickets are primarily confined to the east and west banks of the main river channel. Construction of the temporary access roads and construction activities associated with the water diversion grading area would result in permanent impacts (i.e., trimming or removal) to Fremont cottonwoods and red willows in the BSA. Implementation of **Mitigation Measures BIO-3, BIO-7, BIO-8, and BIO-20** would require ESA fencing, minimizing impacts to aquatic and riparian areas during the placement of staging and access route areas, and revegetation, and habitat contour restoration. In addition, **Mitigation Measure BIO-23** requires revegetation to augment natural regeneration by planting Fremont Cottonwood Forest and Red Willow Thicket to replace removed trees at a 2:1 ratio (trees planted to trees removed) in similar habitat and adjacent to the BSA where they would be exposed to light levels suitable for growth and where they would not interfere with future maintenance operations. With implementation of **Mitigation Measures BIO-3, BIO-7, BIO-8, BIO-20, and BIO-23**, impacts to sensitive natural communities would be reduced to a less than significant level.

Invasive Plant Species. Twenty-eight (28) alien/nonnative plants on the California Invasive Plant Council’s (Cal-IPC) Invasive Plant Inventory were identified as occurring in the BSA. Such species typically occur in areas that have been previously disturbed, such as along roadsides or in places that have periodic natural disturbances including areas subject to floods along the Salinas River. Within the BSA, the disturbed areas adjacent to the river do not appear to be intensively managed for weeds, and the existing cattle ranching operation may contribute to the establishment and potential spread of invasive species. Ground disturbance associated with project construction can create optimal conditions for the spread of invasive plants by removing and/or disturbing native vegetation and soil. Construction equipment contaminated with soil containing invasive plant seeds from other areas can result in the spread of invasive plant species. **Mitigation Measures BIO-8, BIO-23, and BIO-24** require revegetation with approved native species and implementation of an invasive species abatement and eradication program during construction to ensure that invasive plant species are not introduced or spread. With implementation of **Mitigation Measure BIO-8, BIO-23, and BIO-24**, impacts related to the spread of invasive plant species would be reduced to a less than significant level.

Significance Determination: Potentially Significant Impact.

Mitigation and/or Compliance Measures: Please refer to **Mitigation Measure HAZ-2** in Response 4.8 a), Hazards and Hazardous Materials, below; and **Compliance Measure WQ-2** in Response 4.9 a), Hydrology and Water Quality, below.

Mitigation Measure BIO-22 **Regulatory Permits.** Prior to authorization to proceed with project construction, the County of Monterey shall obtain a 404 Nationwide Permit from the United States Army Corps of Engineers, a 401 Water Quality Certification from the Central Coast Regional Water Quality Control Board, and Lake and Streambed Alteration

Agreement from the California Department of Fish and Wildlife, or alternate permits as determined by the issuing agencies.

Mitigation Measure BIO-23

Compensatory Mitigation for Fremont Cottonwood Forest (*Populus fremontii* Forest Alliance) and Red Willow Thicket (*Salix laevigata* Woodland Alliance). The Salinas River high-flow channel is a naturally dynamic system and vegetation in the channel periodically changes depending on flood events and low-flow periods. Based on the dynamic nature of this system, cottonwoods and willows are expected to regenerate naturally in the high-flow channel after construction. Natural regeneration will be augmented by planting cuttings from nursery-grown trees of local stock. Prior to project completion, the County of Monterey shall ensure that permanently impacted Fremont Cottonwood and Red Willow is mitigated by planting trees at a 2:1 ratio (trees planted to trees removed) in similar habitat in and adjacent to the biological study area where they will be exposed to light levels suitable for growth. The tree cuttings will not be installed where they could interfere with future maintenance operations. Planted trees will be protected from beaver activity and other herbivory with environmentally sensitive area fencing.

Mitigation Measure BIO-24:

Invasive Species Abatement and Eradication Program. The County of Monterey shall require the Construction Contractor to implement an invasive species abatement and eradication program during construction. The invasive species abatement and eradication measures shall be included in the project design and contract specifications. At a minimum, the abatement and eradication measures shall include:

- The Construction Contractor shall inspect and clean construction equipment at the beginning and end of each day and prior to transporting equipment from one project location to another.
- Soil and vegetation disturbance shall be minimized to the greatest extent feasible.
- The Construction Contractor shall ensure that all active portions of the construction site and stockpiled material are sufficiently watered or covered to prevent excessive amounts of dust and seed dispersal.
- Soil/gravel/rock shall be obtained from weed-free sources. Only certified weed-free straw, mulch, and/or fiber rolls shall be used for erosion control.

- All invasive plant material removed from during construction shall be disposed of properly in a landfill or other suitable facility where it can be chipped and composted to prevent spreading viable seeds or propagules that could take root on another site.
- Eradication procedures (e.g., spraying and/or hand weeding) shall be implemented should an infestation occur.

Significance Determination After Mitigation: Less than Significant Impact.

c. Would the project 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?

The BSA includes approximately 0.46 ac of wetland and 1.91 ac of open water and nonwetland waters of the U.S. within the jurisdiction of the U.S. Army Corps of Engineers (Corps). Construction of the proposed project, including construction access and dewatering, would result in temporary impacts to approximately 0.34 ac and permanent impacts to approximately 0.03 ac of areas under Corps jurisdiction (waters of the U.S.) and RWQCB jurisdiction (waters of the State). Implementation of **Mitigation Measures BIO-3, BIO-7, BIO-8, BIO-15, BIO-20, BIO-22, and HAZ-2 and Compliance Measure WQ-2** would require installation of ESA fencing, minimizing impacts to aquatic and riparian areas during the placement of staging and access route areas, revegetation, restricting the timing of work within the streambed, restoration of habitat contours, permits from the regulatory agencies, spill prevention measures, and construction BMPs. With implementation of **Mitigation Measures BIO-3, BIO-7, BIO-8, BIO-15, BIO-20, BIO-22, and HAZ-2 and Compliance Measure WQ-2**, impacts to wetlands and non-wetland waters of the U.S. protected under Section 404 of the Clean Water Act would be reduced to a less than significant level.

Significance Determination: Potentially Significant Impact.

Mitigation and/or Compliance Measures: Refer to **Mitigation Measures BIO-3, BIO-7, BIO-8, BIO-15, BIO-20, and BIO-22** in Responses 4.4 a) and 4.4 b) above; **HAZ-2** in Response 4.8 a) Hazards and Hazardous Materials, below; and **Compliance Measure WQ-2** in Response 4.9 a), Hydrology and Water Quality, below.

Significance Determination After Mitigation: Less than Significant Impact.

d. Would the project 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?

Within the BSA, the Salinas River and associated riparian vegetation provides a corridor of relatively natural habitat surrounded by annual grasslands and rangeland. Many species of terrestrial animals likely use this riparian corridor and high flow channel for local and long distance movements. Bradley Road is a possible hazard to some animal species due to the high traffic volumes. Much of

the wildlife moving across the creek bed would probably pass under the bridge and thus avoid any exposure to traffic. Therefore, construction activity may result in temporary blockage of the low-flow channel to wildlife movement. These effects would only be during the daylight hours during the 4-month construction season. Overall, construction of the proposed project would result in temporary effects to wildlife movement, but these effects would be temporary in that they would only occur during construction and would not result in a permanent barrier to aquatic or terrestrial animals.

Additionally, steelhead and other fish species would be expected to use the river channel during high flows when sufficient water levels are present. River flows would be maintained in the active river channel during construction. Only the area immediately around the pier being worked on will be dewatered. Water diversions features would be designed to channelize the flow of the active work channel and thereby allow for unrestricted passage of adult and juvenile steelhead. These channelizing methods are shown in Figure 2.5, Project Construction Details. Furthermore, a qualified fisheries biologist and CDFW approved biologist would be on-site to assist in the design and implementation of diversion features in the river, restrict work within the streambed to when Steelhead are least likely to be present (July 1 through October 15), and require that all construction activity be conducted during daylight hours to allow salmonids, if present, to migrate undisturbed through the BSA. **Mitigation Measures BIO-15 through BIO-21** require seasonal work restrictions within the Salinas River, limitations on materials allowed to enter the water channel, relocation of steelhead, monitoring of water diversion and dewatering, hydroseeding requirements, restoration of the Salinas River channel, and removal of diversions and barriers in the Salinas River channel following construction. Implementation of **Mitigation Measures BIO-15 through BIO-21**, would reduce impacts to migrating south-central California coast steelhead to a less than significant level.

Seventy-one (71) bird species were observed in the BSA during the field surveys; 67 of these species are native birds protected under the Migratory Bird Treaty Act (MBTA). Five of these species were observed to be nesting in the BSA, and a number of the other observed bird species have the potential to nest in the BSA. The riparian vegetation in the BSA provides nesting habitat for the greatest number of species, but some species currently nest within the coyote brush scrub along the north shoulder of Bradley Road in the eastern portion of the BSA. In addition, some species currently nest along the bridge structure, particularly Piers 18 and 20, as well as red willow thicket in the south-central portion of the BSA. Removal of vegetation and construction activities could directly destroy an active nest or affect the behavior of adults and young birds in the nest and cause a nest to fail. Additionally, construction activity could attract predatory species to the work area, thus increasing the risk of nest predation to nests located within or adjacent to the work area. **Mitigation Measure BIO-9** restricts vegetation removal to the non-breeding season for birds (September 1 through January 31) and if the non-breeding season cannot be avoided, **Mitigation Measure BIO-10** requires preconstruction nesting bird surveys. As required by **Mitigation Measure BIO-11**, if an active nest is discovered, the area will be delineated using ESA fencing to prohibit construction within an established nest buffer area. With implementation of **Mitigation Measures BIO-9 through BIO-11**, potential construction-related impacts to nesting birds would be reduced to a less than significant level.

The proposed project consists of installation of scour protection measures. The proposed project does not involve a change in existing land uses or human activities as compared to existing conditions. With implementation of **Mitigation Measures BIO-9 through BIO-11 and BIO-15 through BIO-21**, the proposed 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, and impacts would be less than significant.

Significance Determination: Potentially Significant Impact.

Mitigation and/or Compliance Measures: Refer to **Mitigation Measures BIO-9 through BIO-11** in Section 4.4.a) above.

Significance Determination After Mitigation: Less than Significant Impact.

e. Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

Protected trees within Monterey County are regulated by the County of Monterey Zoning Ordinance, Title 21, Chapter 21.64.260 - Preservation of Oak and Other Protected Trees (tree ordinance). In addition, Senate Bill (SB) 1334 requires mitigation for projects with significant oak woodland impacts. Implementation of the proposed project would not result in the removal of oak trees. The proposed project would not conflict with any local policies or ordinances protecting biological resources. No mitigation is required.

Significance Determination: No Impact.

Mitigation and/or Compliance Measures: No mitigation is required.

Significance Determination After Mitigation: No Impact.

f. Would the project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

The project site does not fall in an area with an adopted HCP, NCCP, or other approved local, Regional, or State habitat conservation plan, and would not present a conflict with any such plan. No mitigation is required.

Significance Determination: No Impact.

Mitigation/Compliance Measures: No mitigation is required.

Significance Determination After Mitigation: No Impact.

4.5 CULTURAL RESOURCES

<i>Would the project:</i>	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b. Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c. Disturb any human remains, including those interred outside of formal cemeteries?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

4.5.1 Impact Analysis

The discussion and analysis provided in this section is based on the *Supplemental Historic Property Survey Report* (HPSR) (LSA, July 2019). The project area for cultural resources is the Area of Potential Effects (APE), which is the area where ground-disturbing activities would occur, and extends around the entirety of the parcels where the built environment may be direct or indirectly affected. It has been bounded to include the maximum extent of ground disturbance including access routes, staging, and work areas.

a. Would the project cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5?

CEQA defines a “historical resource” as a resource that meets one or more of the following criteria: (1) listed in, or determined eligible for listing in, the California Register of Historical Places (California Register); (2) listed in a local register of historical resources as defined in the California Public Resources Code (PRC) Section 5020.1(k); (3) identified as significant in a historical resource survey meeting the requirements of PRC Section 5024.1(g); or (4) determined to be a historical resource by a project’s Lead Agency (PRC Section 21084.1 and *State CEQA Guidelines* Section 15064.5(a)).

A records search of the APE was conducted on June 10, 2019, at the Northwest Information Center (NWIC) and a field survey of the APE was conducted on July 1, 2019. No cultural resources have been previously recorded within the APE and none were observed during the field surveys.

The Caltrans Historic Bridge Inventory lists the bridge (#44C-050) as Category 5, not eligible for inclusion in the National Register.

The proposed project would not cause a substantial change in the significance of a historical resource pursuant to *State CEQA Guidelines* Section 15064.5. No mitigation is required.

Significance Determination: No Impact.

Mitigation and/or Compliance Measures: No mitigation is required.

Significance Determination After Mitigation: No Impact.

b. Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?

Based on the results of the background research and archaeological field survey, no archaeological resources were identified within or adjacent to the APE, and there is no indication of elevated sensitivity for the presence of previously undocumented buried archaeological resources to occur in the APE. Much of the proposed access road in the western portion of the APE has been used as an access route historically, is along a steep slope, the nature of which precludes the accumulation of intact archaeological deposits. Portions of the APE within the floodplain of the Salinas River contain poorly-developed, frequently flooded psamments and fluvents and may be sensitive for redeposited archaeological resources but is unlikely to contain intact archaeological deposits. Ground disturbance would occur in the project staging areas to a depth of 2 ft, and the access routes. Grading of the access routes would result in ground disturbance to a depth of approximately 2 to 3 ft and tree removal within the access routes would result in ground disturbance to a depth of 3 to 5 ft. Excavation at the base of the piers would result in ground disturbance to a depth of 10 ft and the pile driving or excavation for the new piles would result in ground disturbance to a depth of 80 ft.

In the unlikely event that any previously unidentified archaeological resources are discovered during ground disturbing activities, work in the area would be required to cease, and deposits would be treated in accordance with federal, State, and local guidelines, including those set forth in PRC Section 21083.2 as specified in **Compliance Measure CULT-1**. Compliance with existing regulations, as specified in **Compliance Measure CULT-1**, would reduce the potential for impacts to unidentified archaeological resources to a less than significant level.

Significance Determination: Less than Significant Impact.

Mitigation and/or Compliance Measures:

Compliance Measure CULT-1: Discovery of Unknown Archaeological Resources. During construction, if cultural, archaeological, or historical resources are encountered (surface or subsurface resources), work shall be halted immediately within 50 meters (165 feet) of the find until a qualified professional archaeologist can evaluate it. The County of Monterey (County) RMA – Public Works & Facilities and a qualified archaeologist (i.e., an archaeologist registered with the Register of Professional Archaeologists) shall be immediately contacted by the responsible individual present on site. When contacted, the project planner and the archaeologist shall immediately visit the site to determine the extent of the resources and to develop proper mitigation measures required for the discovery (California Code of Regulations [CCR], Title 14, Chapter 3, Section 15064.5(f)).

Significance Determination After Compliance: Less than Significant Impact.

c. Would the project disturb any humans remains, including those interred outside of formal cemeteries?

No human remains are present within the APE and there is no evidence to support the idea that Native Americans or people of European descent are buried in the APE. However, ground-disturbing activities associated with the project have the potential to disturb previously unknown human remains. In the unlikely event that human remains are encountered during construction activities, the proper authorities would be notified, and standard procedures for the respectful handling of human remains during the earthmoving activities would be implemented, as specified by **Compliance Measure CULT-2**. Compliance with **Compliance Measure CULT-2** would reduce the potential for impacts on unknown buried human remains to a less than significant level.

Significance Determination: Less than Significant Impact.

Mitigation and/or Compliance Measures:

Compliance Measure CULT-2 **Discovery of Human Remains.** If human remains are accidentally discovered during construction activities, there shall be no further excavation or disturbance within 50 meters (165 feet) of the find until an evaluation by a qualified archaeologist can be performed. In addition, the following actions shall occur:

- The owner, applicant, or contractor shall contact Monterey County RMA-Planning and inform the project planner of the find.
- The owner, applicant, or contractor shall contact the Monterey County Coroner to determine that no investigation of the cause of death is required.
- If the County Coroner determines the remains to be Native American:
 - The Coroner shall contact the Native American Heritage Commission and RMA-Planning within 24 hours.
 - The Native American Heritage Commission shall identify the person or persons from the recognized local tribe of the Esselen, Salinan, Costonoan/Ohlone, and Chumash tribal groups, as appropriate, to be the most likely descendant.

The most likely descendant may make recommendations to the landowner or person responsible for the excavation work, for means of treating or disposition of, with appropriate dignity, the human remains and any associated grave goods as provided in Public Resources Code Section 5097.9 and 5097.993. When human

remains are exposed, Health and Safety Code Section 7050.5 requires that no further excavation or disturbance occurs in the area and that the County Coroner is called so that the Coroner can verify that remains are not subject to medical jurisprudence. Within 24 hours of notification, the Coroner shall call the Native American Heritage Commission if the remains are known or thought to be Native American. The Native American Commission reports to the most likely descendant (MLD). The MLD has 48 hours to respond. All work shall halt within 50-meter radius until an osteologist can examine the remains, and a treatment plan for any said remains has been provided by the MLD.

Significance Determination After Mitigation: Less than Significant Impact.

4.6 ENERGY

<i>Would the project:</i>	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources during project construction or operation?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

4.6.1 Impact Analysis

- a. *Would the project result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources during project construction or operation?*

This analysis evaluates energy consumption for both construction and operation of the proposed project, including diesel fuel use for off-road construction equipment.

Construction. Construction of the proposed project would require the use of energy to fuel grading vehicles, trucks, and other construction vehicles. All or most of this energy would be derived from non-renewable resources. However, construction activities are not anticipated to result in an inefficient use of energy as gasoline and diesel fuel would be supplied by construction contractors who would conserve the use of their supplies to minimize their costs on the project. Energy (i.e., fuel) usage on the project site during construction would be temporary in nature and would be relatively small in comparison to the State's available energy sources. Construction of the proposed project would not result in the wasteful, inefficient, or unnecessary consumption of energy resources and construction-related impacts would be less than significant. No mitigation is required.

Operation. Typically, the consumption of energy during the operation of a project is associated with fuel used for vehicle trips and natural gas and energy use. However, the proposed project would install scour retrofits at the substructure of the bridge in order to reduce the potential for scour damage to the existing bridge and would not change or increase existing uses within the project area. Vehicles using the roadway would continue consume to energy; however, the proposed project would not increase the existing vehicle use within the project area. In addition, operation of the proposed project would not result in an increase in the consumption of electricity or natural gas as compared to existing conditions. Operation of the proposed project would not result in the wasteful, inefficient, or unnecessary consumption of energy resources and operational impacts would be less than significant. No mitigation is required.

Significance Determination: Less than Significant Impact.

Mitigation/Compliance Measures: No mitigation is required.

Significance Determination After Mitigation: Less than Significant Impact.

b. Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

In 2002, the Legislature passed Senate Bill 1389, which required the California Energy Commission (CEC) to develop an integrated energy plan every 2 years for electricity, natural gas, and transportation fuels, for the California Energy Policy Report. The CEC recently adopted the *2017 Integrated Energy Policy Report*. The *2017 Integrated Energy Policy Report* provides the results of the CEC's assessments of a variety of energy issues facing California. Many of these issues will require action if the State is to meet its climate, energy, air quality, and other environmental goals while maintaining energy reliability, and controlling costs. The *2017 Integrated Energy Policy Report* covers a broad range of topics, including implementation of Senate Bill 350, integrated resource planning, distributed energy resources, transportation electrification, solutions to increase resiliency in the electricity sector, energy efficiency, barriers faced by disadvantaged communities, demand response, transmission and landscape-scale planning, the California Energy Demand Preliminary Forecast, the preliminary transportation energy demand forecast, renewable gas (in response to Senate Bill 1383), updates on Southern California electricity reliability, natural gas outlook, and climate adaptation and resiliency. The County of Monterey relies on the State integrated energy plan and does not have its own local plan to address renewable energy or energy efficiency.

As indicated above, energy usage on the project site during construction would be temporary in nature since operation of the proposed project would not result in an increase in energy consumption as compared to existing conditions. Because the project's total impact on regional energy supplies would be minor, the proposed project would not conflict with or obstruct California's energy conservation plans as described in the CEC's *2017 Integrated Energy Policy Report*, and impacts would be less than significant. No mitigation is required.

Significance Determination: Less than Significant Impact.

Mitigation/Compliance Measures: No mitigation is required.

Significance Determination After Mitigation: Less than Significant Impact.

4.7 GEOLOGY AND SOILS

<i>Would the project:</i>	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
ii. Strong seismic ground shaking?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
iii. Seismic-related ground failure, including liquefaction?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
iv. Landslides?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b. Result in substantial soil erosion or the loss of topsoil?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d. Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e. Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

4.7.1 Impact Analysis

The discussion and analysis provided in this section is based on the *Foundation Report* (Parikh, May 2019) (refer to Appendix C) and the *Monterey County General Plan* (2010).

a. *Would the project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:*

i. *Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.*

The proposed project is located outside the designated State of California “Alquist–Priolo Earthquake Fault Zones” (Parikh 2016). According to the Monterey County General Plan, no known active regional faults cross through the project area. The nearest active regional fault is the Rinconada Fault located approximately 6.35 mi from the project area. The proposed project would not result in impacts related to rupture of known earthquake faults as

designated on the most recent Alquist-Priolo Earthquake Fault Zone map or from other known faults in the project area. No mitigation is required.

Significance Determination: No Impact.

ii. Strong seismic ground shaking?

The extent of ground shaking associated with an earthquake depends on the size of the earthquake and the geologic material of the underlying area. As discussed above, the nearest active fault is the Rinconada Fault located approximately 6.35 mi from the proposed project. According to the geotechnical report, the project site is located in a seismically active part of northern California. Many faults in the region are capable of producing earthquakes, which may cause strong ground shaking at the site. It is likely that the project site would be subject to moderate seismic shaking during an earthquake, which may expose the bridge and people using the bridge to adverse effects. **Mitigation Measure GEO-1** requires the County to prepare a Final Geotechnical Report which would stipulate appropriate seismic design provisions that shall be implemented so that the scour protection measures installed along the bridge substructure would be capable of tolerating seismic-related ground shaking. With implementation of **Mitigation Measure GEO-1**, potential project impacts associated with seismic ground shaking would be reduced to a less than significant level.

Significance Determination: Potentially Significant Impact.

Mitigation and/or Compliance Measures:

Mitigation Measure GEO-1

Final Geotechnical Report. During final design, a detailed geotechnical investigation shall be conducted by qualified geotechnical personnel to assess the geotechnical conditions at the project site. The geotechnical investigation could include seismic cone penetration tests and exploratory borings to investigate site-specific soils and conditions, as well as the collection of subsurface soil samples for laboratory testing. The project-specific findings and recommendations of the geotechnical investigation shall be incorporated into final design of the proposed project and shall be summarized in the Final Geotechnical Report to be submitted to the County of Monterey for review and approval.

Significance Determination After Mitigation: Less than Significant Impact.

iii. Seismic-related ground failure, including liquefaction?

Liquefaction occurs when shallow, loose, unconsolidated, fine- to medium-grained sediments saturated with water are subjected to shaking as a result of an earthquake. This

causes the soils to lose cohesion and shear strength, leading to liquefaction. The possibility of liquefaction occurring at the project site is dependent upon the occurrence of a significant earthquake in the vicinity; sufficient groundwater to cause high pore pressures; and the grain size, plasticity, relative density, and confining pressures of the soils at the project site. According to the *Foundation Report*, the loose and medium dense granular soils encountered at depths of approximately 7 ft to 15 ft at the project site have been identified as potentially liquefiable. The *Foundation Report* indicates that potential post-liquefaction settlement would be between 1.5 and 2 inches. **Mitigation Measure GEO-1** requires the County to prepare a Final Geotechnical Report which stipulates appropriate scour protection measures that shall be implemented to address the high potential for liquefaction at the project site. With implementation of **Mitigation Measure GEO-1**, liquefaction-related impacts would be reduced to a less than significant level.

Significance Determination: Potentially Significant Impact.

Mitigation and/or Compliance Measures: Refer to **Mitigation Measure GEO-1** in Response 4.6 a) (ii), above.

Significance Determination After Mitigation: Less than Significant Impact.

iv. Landslides?

Seismically induced landslides and other slope failures are common occurrences during or soon after earthquakes in areas with significant ground slopes. Aside from the natural slopes associated with the river channel, the project site is relatively flat. According to the State Seismic Hazards Zone map, the project site is not located in an area identified as susceptible to landslides. The potential for seismically induced landslides to occur in the project area would be the same as with the existing condition. There is no potential for the proposed project to expose people or structures to impacts related to landslides. No mitigation is required.

Significance Determination: No Impact.

Mitigation and/or Compliance Measures: No mitigation is required.

Significance Determination After Mitigation: No Impact.

b. Would the project result in substantial soil erosion or the loss of topsoil?

During construction activities, soil would be exposed during grading and excavation activities, and there would be an increased potential for soil erosion compared to existing conditions. Additionally, during a storm event, soil erosion could occur at an accelerated rate; although construction would occur between May and October, which is outside the rainy season. Nevertheless, any erosion could result in short-term water quality impacts as identified in Section 4.9, Hydrology and Water Quality. As required by the Construction General Permit and as prescribed in **Compliance Measure WQ-2**, a SWPPP would be prepared, which would specify construction BMPs that would be implemented

during construction activities. Construction BMPs would include Erosion Control BMPs designed to minimize erosion. In addition, as discussed in **Compliance Measure WQ-3**, the County Municipal Code requires preparation of an Erosion Control Plan that provides methods to control runoff, erosion, and sediment movement during project construction. With implementation of **Compliance Measures WQ-2 and WQ-3**, potential impacts associated with erosion or topsoil loss would be reduced to a less than significant level.

The proposed project involves installation of scour protection measures along the bridge substructure. Implementation of the proposed project would not result in an increase in impervious surface area at the project site or result in an increase in surface runoff or soil erosion. Operation of the proposed project would not result in impacts associated with soil erosion or the loss of topsoil. No mitigation is required.

Significance Determination: Potentially Significant Impact.

Mitigation and/or Compliance Measures: Refer to **Compliance Measures WQ-2 and WQ-3** in Response 4.9 a) Hydrology and Water Quality, below.

Significance Determination After Compliance: Less than Significant Impact.

c. Would the project 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?

As indicated in Response 4.6 a) (iv) above, the project area is relatively flat aside from the natural slopes associated with the river channel. According to the State Seismic Hazards Zone Map, the project area is not located in an area identified as susceptible to landslides. There is no potential for seismically induced landslides to occur on the project site. No mitigation is required.

Ground subsidence can occur as a result of “shakedown” when dry, low cohesion soils are subjected to earthquake vibration of high amplitude. In general, significant deposits of dry, loose sandy soils do not exist in the project area as most of the soil is partially or completely saturated. The potential for ground subsidence to occur in the project area is less than significant. No mitigation is required.

As previously discussed, loose and medium dense granular soils encountered at the project site at depths of 7 ft to 15 ft below ground surface have been identified as potentially liquefiable. Ground subsidence can occur when dry, low cohesion soils are subject to high amplitude earthquake vibrations. Liquefaction-induced lateral spreading is defined as finite, lateral displacement of gently sloping or flat-laying ground as a result of pore-pressure build-up or liquefaction in a shallow underlying deposit toward a free face such as an excavation, channel, or open body of water. Lateral spreading is generally caused by liquefaction of soils with gentle slopes. The project site consists predominately of sandy soils and there is a potential for liquefaction at the project site. However, the proposed project is a scour repair project only; the project is not adding any new structures or additional load. Potential impacts associated with liquefaction-induced lateral spreading would be the same as in the existing condition. Potential impacts associated with liquefaction-induced lateral spreading would be less than significant and no mitigation is required.

Collapsible soils consist of loose, dry, low-density materials that collapse and compact under the addition of water or excessive loading. Soils prone to collapse generally have a substantial amount of clay and fail (collapse) when subjected to saturation or loading. The soils in the project area are mostly loose to medium dense sands with gravel, cobbles, silt, pebbles, and organic matter. These soils are not considered collapsible. Further, they are already under saturated conditions and the project is neither adding new structures nor additional load. The potential for impacts associated with collapsible soils would be the same as in the existing condition. Potential impacts associated with collapsible soils would be less than significant, and no mitigation is required.

Significance Determination: Less than Significant Impact.

Mitigation and/or Compliance Measures: No mitigation is required.

Significance Determination After Mitigation: Less than Significant Impact.

d. Would the project be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?

Expansive soils generally have a substantial amount of clay particles, which can give up water (shrink) or absorb water (swell). The change in the soil volume can cause structures to move unevenly and crack. The extent or range of the shrink/swell is influenced by the amount and kind of clay present in the soil. Expansive soils can be widely dispersed, and they can occur in hillside areas as well as low-lying alluvial basins.

The soils in the project area are mostly loose to medium dense sands with gravel, cobbles, silt, pebbles, and organic matter. These soils are not considered expansive. The potential for impacts associated with expansive soils would be the same as with the existing condition. Potential direct and indirect impacts associated with expansive soils would be less than significant and no mitigation is required.

Significance Determination: No Impact.

Mitigation and/or Compliance Measures: No mitigation is required.

Significance Determination After Mitigation: No Impact.

e. Would the project have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?

The proposed project is a scour repair project and would not generate wastewater. No septic or alternative waste treatment systems would be required for construction or operation of the proposed project. The proposed project would not result in impacts associated with soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems. No mitigation is required.

Significance Determination: No Impact.

Mitigation and/or Compliance Measures: No mitigation is required.

Significance Determination After Mitigation: No Impact.

f. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

No paleontological resources or unique geologic features were observed within the project APE during the archaeological survey. The soils in the APE consist of Chualar loam, a well-developed soil associated with older landforms, and poorly-developed, frequently flooded psamments and fluvents. These soils are unlikely to contain intact paleontological deposits. If any previously unidentified paleontological resources are discovered during ground-disturbing activities, compliance with **Compliance Measure GEO-2** would reduce the potential for impacts to unidentified paleontological resources to a less than significant level.

Significance Determination: Less than Significant Impact.

Mitigation and/or Compliance Measures:

Compliance Measure GEO-2 **Discovery of Unknown Paleontological Resources.** During construction, if paleontological resources are encountered, work shall be halted immediately within 50 meters (165 feet) of the find until a professional paleontologist can evaluate it. The County of Monterey (County) RMA – Public Works & Facilities and a professional paleontologist shall be immediately contacted by the responsible individual present on site. When contacted, the project planner and the paleontologist shall immediately visit the site to determine the extent of the resources and to develop proper mitigation measures required for the discovery per Standard Procedures for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources put forth by the Society of Vertebrate Paleontology.

Significance Determination After Compliance: Less than Significant Impact.

4.8 GREENHOUSE GAS EMISSIONS

<i>Would the project:</i>	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

4.8.1 Impact Analysis

- a. *Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?*

Greenhouse gases (GHGs) are present in the atmosphere naturally, are released by natural sources, or are formed from secondary reactions taking place in the atmosphere. The gases that are widely seen as the principal contributors to human-induced global climate change are:

- Carbon dioxide (CO₂);
- Methane (CH₄);
- Nitrous oxide (N₂O);
- Hydrofluorocarbons (HFCs);
- Perfluorocarbons (PFCs); and
- Sulfur Hexafluoride (SF₆).

Over the last 200 years, humans have caused substantial quantities of GHGs to be released into the atmosphere. These extra emissions are increasing GHG concentrations in the atmosphere and enhancing the natural greenhouse effect, which is believed to be causing global warming. While manmade GHGs include naturally-occurring GHGs such as CO₂, CH₄, and N₂O, some gases, like HFCs, PFCs, and SF₆ are completely new to the atmosphere.

Certain gases, such as water vapor, are short-lived in the atmosphere. Others remain in the atmosphere for significant periods of time, contributing to climate change in the long term. Water vapor is excluded from the list of GHGs above because it is short-lived in the atmosphere and its atmospheric concentrations are largely determined by natural processes, such as oceanic evaporation.

These gases vary considerably in terms of Global Warming Potential (GWP), which is a concept developed to compare the ability of each GHG to trap heat in the atmosphere relative to another gas. The GWP is based on several factors, including the relative effectiveness of a gas to absorb infrared radiation and length of time that the gas remains in the atmosphere ("atmospheric lifetime"). The GWP of each gas is measured relative to CO₂, the most abundant GHG; the definition

of GWP for a particular GHG is the ratio of heat trapped by one unit mass of the GHG to the ratio of heat trapped by one unit mass of CO₂ over a specified time period. GHG emissions are typically measured in terms of pounds or tons of “CO₂ equivalents” (CO₂e).

The *State CEQA Guidelines* indicate that a project would normally have a significant adverse GHG emission impact if the project would:

- Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment; or
- Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs.

Emissions estimates for the proposed project are discussed below. GHG emissions estimates are provided herein for informational purposes only because there is no established quantified GHG emissions threshold. The MBARD has proposed a GHG threshold to provide guidance to lead agencies for evaluating GHG impacts in accordance with the requirements of CEQA. Under the guidance for consideration by the MBARD, the GHG threshold applicable to this project would be the bright line threshold of 2,000 metric tons (MT) CO₂ equivalents (CO₂e) per year.

Short-Term (Construction) GHG Emissions. Construction activities, such as site preparation, site grading, and motor vehicles transporting the construction crew would produce combustion emissions from various sources. During construction of the proposed project, GHGs would be emitted through the operation of construction equipment and from worker vehicles, each of which typically use fossil-based fuels to operate. The combustion of fossil-based fuels creates GHGs such as CO₂, CH₄, and N₂O. Furthermore, CH₄ is emitted during the fueling of heavy equipment. Exhaust emissions from on-site construction activities would vary daily as construction activity levels change.

Project construction emissions were analyzed using the RoadMod, Version 9.0.0 (refer to Appendix A). Results of the analysis indicate that construction would result in approximately 205.2 MT of CO₂e over the 5-month construction period. The MBARD does not provide guidance for analyzing GHG emissions during construction; amortizing the project emissions over 50 years (the expected lifespan of the project) would result in GHG emissions of approximately 4.1 MT of CO₂e per year, which is well below the MBARD threshold of 2,000 MT of CO₂e per year. Construction of the proposed project would not generate greenhouse gas emissions that would have a significant impact on the environment and construction-related impacts would be less than significant. No mitigation is required.

Long-Term (Operational) GHG Emissions. The proposed project would install scour retrofits at the substructure of the bridge in order to reduce the potential for scour damage to the existing bridge and would not change or increase existing uses within the project area. The proposed project would not increase the existing vehicle use within the project area and would not result in an increase in the generation of GHG emissions from existing conditions. Operation of the proposed project would not generate greenhouse gas emissions that would have a significant impact on the environment and operational impacts would be less than significant. No mitigation is required.

Significance Determination: Less than Significant Impact.

Mitigation/Compliance Measures: No mitigation is required.

Significance Determination After Mitigation: Less than Significant Impact.

b. Would the project conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

The County has not adopted a Climate Action Plan (Plan) and no other local plans exist for the purpose of reducing GHG emissions. The State has established GHG reduction goals under Assembly Bill (AB) 32, SB 32, and Executive Order (EO) S-3-05. As discussed in Response 4.8 a), the project's short-term construction and long-term operational GHG emissions would be minimal and would not exceed the established threshold. The MBARD's goal in developing the GHG threshold is to establish an emission level necessary to achieve Statewide goals to reduce GHG emissions. Since the proposed project would not exceed construction emissions levels of 2,000 MT of CO₂e per year established by the MBARD, the proposed project would not result in emissions that would conflict with any applicable plan, policy or regulation adopted for the purpose of reducing GHG emissions and no impacts would occur. No mitigation is required.

Significance Determination: No Impact.

Mitigation/Compliance Measures: No mitigation is required.

Significance Determination After Mitigation: No Impact.

4.9 HAZARDS AND HAZARDOUS MATERIALS

<i>Would the project:</i>	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d. Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e. For a project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g. Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

4.9.1 Impact Analysis

The analysis provided in this section is based on the *EDR Radius Map Report with GeoCheck* (EDR, October 2017) provided in Appendix D.

a. Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

Hazardous materials are chemicals that could potentially cause harm during an accidental release and are defined as being toxic, corrosive, flammable, reactive, an irritant, or a strong sensitizer. Hazardous substances include all chemicals regulated under the United States Department of Transportation “hazardous materials” regulations and the Environmental Protection Agency (EPA) “hazardous waste” regulations. Hazardous wastes require special handling and disposal because of their potential to damage public health and the environment. The severity of any such exposure is dependent upon the type, amount, and characteristics of the hazardous material involved; the time, location, and nature of the event; and the sensitivity of the individual or environment affected.

Potentially hazardous materials such as dry construction materials, fuels, lubricants, and solvents may be used during work on the bridge substructure. The amount of hazardous chemicals present during construction would be used in compliance with existing government regulations. The potential for the release of hazardous materials during project construction is low and, even if a release were to occur, it would not result in a significant hazard to the public, surrounding land uses, or environment due to the small quantities of these materials being used during project construction. As specified in **Mitigation Measure HAZ-1**, the Construction Contractor shall be required to prepare and implement an emergency spill and response plan in the event a spill was to occur. In addition, in order to prevent hazardous runoff into the Salinas River in the event of a fuel or oil spill, all equipment maintenance and refueling would be conducted outside of the Salinas River channel. **Mitigation Measure HAZ-2** would require the contractor to adhere to procedures for construction equipment maintenance, refueling, and washing activities. With implementation of **Mitigation Measures HAZ-1 and HAZ-2**, potential impacts associated with the routine transport, use, or disposal of hazardous materials would be reduced to a less than significant level.

The proposed project would modify the substructure of an existing transportation facility. Potentially hazardous materials such as fuels and solvents may be used during routine maintenance activities during operation of the proposed project. However, maintenance activities would be similar to those currently being conducted for the existing bridge and would be conducted in compliance with existing government regulations. Operation of the proposed project would not produce hazardous emissions or require handling, transport, or disposal of acutely hazardous materials, substances, or waste. Operation of the proposed project would result in less than significant impacts related to the routine transport, use, or disposal of hazardous materials. No mitigation is required.

Significance Determination: Potentially Significant Impact.

Mitigation/Compliance Measures:

- | | |
|---------------------------------|--|
| Mitigation Measure HAZ-1 | Emergency Response and Cleanup Plan. Prior to commencement of construction activities, the Construction Contractor shall prepare an emergency response and cleanup plan for review and approval by the County of Monterey (County). The Construction Contractor shall implement the plan during construction. The plan shall detail the methods to contain and clean up spill of petroleum products or other hazardous materials in the work area. |
| Mitigation Measure HAZ-2 | Construction Equipment Maintenance, Refueling, and Washing Activities. During construction, the County shall ensure that the Construction Contractor's equipment maintenance and fueling areas are located at least 60 feet away from aquatic habitats, including the Salinas River channel, on level ground, and away from concentrated flows of storm water and drainage courses. Fueling of vehicles shall take place within a containment area that will prevent any spilled or leaked fuel from running into the river. All equipment servicing must occur within designated staging areas outside the |

high-flow river channel. Drip pans or absorbent pads shall be used during equipment refueling and maintenance activities. All motorized equipment used during construction or demolition activities shall be checked for oil, fuel, and coolant leaks prior to initiating work in the high-flow river channel. Any equipment found to be leaking fluids shall not be used on the project and shall be replaced with equipment that does not leak. In the event that a spill does occur, adequate quantities of absorbent spill clean-up material and spill kits shall be kept in the refueling and maintenance area and on fuel trucks. Spill clean-up and materials shall be disposed of immediately after use.

Significance Determination After Mitigation: Less than Significant Impact.

- b. Would the project 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?*

Exposure to hazardous materials during the construction and operation phases of the proposed project could result from (1) the improper handling or use of hazardous substances; (2) a transportation accident; or (3) inadvertent release resulting from an unforeseen event (e.g., fire, flood, or earthquake).

As stated above, routine transport, use, or disposal of hazardous materials during construction would be used in compliance with applicable laws and regulations. Potentially hazardous materials such as dry construction materials, fuels, lubricants, and solvents may be used during work on the bridge substructure. The amount of hazardous chemicals present during construction is limited and would be in compliance with existing government regulations. The potential for the release of hazardous materials during project construction is low and, even if a release were to occur, it would not result in a significant hazard to the public, surrounding land uses, or environment due to the small quantities of these materials that would be used during construction activities. In addition, construction equipment maintenance, refueling, and washing activities would not be permitted within the Salinas River channel to prevent hazardous runoff in the event of a fuel or oil spill.

Mitigation Measure HAZ-1 would require the contractor to implement an Emergency Spill and Response Cleanup Plan and **Mitigation Measure HAZ-2** would require the contractor to adhere to procedures for construction equipment maintenance, refueling, and washing activities.

Implementation of **Mitigation Measures HAZ-1 and HAZ-2** would reduce potential construction-related impacts associated with hazards from a reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment to a less than significant level.

The proposed project involves installation of scour protection and will not change the existing use of the project site. As a scour repair project, the potential for releasing hazardous materials into the environment during project operation would be limited to vehicles that are traveling on the roadway. This potential exists under existing conditions and would not be exacerbated by the implementation of the proposed project because traffic volumes would remain the same.

Additionally, the transport of hazardous materials is subject to strict regulations established by State and federal agencies. Operation of the proposed project would not result in a significant impact associated with hazards from a reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment. No mitigation is required.

Significance Determination: Potentially Significant Impact.

Mitigation/Compliance Measures: Refer to **Mitigation Measures HAZ-1 and HAZ-2** in Response 4.8 a) above.

Significance Determination After Mitigation: Less than Significant Impact.

c. Would the project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

Bradley Elementary School, located at 65600 Dixie Street, is within 0.25 mi of the proposed project. As stated above, routine transport, use, or disposal of hazardous materials during construction would be used in compliance with applicable laws and regulations. Potentially hazardous materials such as dry construction materials, fuels, lubricants, and solvents may be used during work on the bridge substructure. The amount of hazardous chemicals present during construction is limited and would be in compliance with existing government regulations. The potential for the release of hazardous materials during project construction is low and, even if a release were to occur, it would not result in a significant hazard to the public, surrounding land uses, or environment due to the small quantities of these materials that would be used during construction activities. Construction of the proposed project would result in a less than significant impact associated with emitting or handling of hazardous emissions or materials, substances or waste within 0.25 mi of an existing or proposed school. No mitigation is required.

The proposed project involves installation of scour protection and will not change the existing use of the project site. As a scour repair project, the potential for releasing hazardous materials into the environment during project operation would be limited to vehicles that are traveling on the roadway. This potential exists under existing conditions and would not be exacerbated by the implementation of the proposed project because traffic volumes would remain the same. Additionally, the transport of hazardous materials is subject to strict regulations established by State and federal agencies. Operation of the proposed project would result in a less than significant impact associated with emitting or handling of hazardous emissions or materials, substances or waste within 0.25 mi of an existing or proposed school. No mitigation is required.

Significance Determination: Less than Significant Impact.

Mitigation/Compliance Measures: No mitigation is required.

Significance Determination After Mitigation: Less than Significant Impact.

- d. Would the project 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?*

According to the regulatory database search that was conducted for the proposed project (refer to Appendix D), the project site is not included in any hazardous materials databases pursuant to Government Code Section 65962.5. Implementation of the proposed project would not create a significant hazard to the public or the environment. No mitigation is required.

Significance Determination: No Impact.

Mitigation and/or Compliance Measures: No mitigation is required.

Significance Determination After Mitigation: No Impact.

- e. Would the project be located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?*

The proposed project is not located within 2 mi of a public airport, and the project area is not located in any airport land use plan area. The proposed project would not result in an airport-related hazard or excessive noise for people accessing or working at the project area. No mitigation is required.

Significance Determination: No Impact.

Mitigation and/or Compliance Measures: No mitigation is required.

Significance Determination After Mitigation: No Impact.

- f. Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?*

The *Monterey County Emergency Operations Plan* (2014) is applicable to the project area. It describes the actions that will be taken by the Monterey County Office of Emergency Services during natural, technical, and human-caused emergencies. The plan addresses both response and recovery efforts and discusses the procedures that the Monterey County Office of Emergency Services and its partners use during an emergency. The bridge would remain open to public use during construction and no traffic detours would be required. A temporary access road stemming from Bradley Road to the river would be created during construction. Advanced and end-construction signage will be provided to notify drivers of construction activities at the bridge. Because the bridge would remain open to public use during construction and no traffic detours would be required, construction of the proposed project would not impair or physically interfere with adopted emergency response or emergency evacuation plans.

The proposed project is a scour repair project. Operation of the proposed project would not result in a change in traffic volume or access to the project site. The proposed project would not interfere with existing emergency response times or adopted emergency response or evacuation plans and there would be no impact. No mitigation is required.

Significance Determination: No Impact.

Mitigation/Compliance Measures: No mitigation is required.

Significance Determination After Mitigation: No Impact.

g. Would the project expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?

The proposed project is located in a rural area, and is adjacent to more developed areas or areas where residences are intermixed with wildlands. According to the most up-to-date Fire Hazard Severity Zones map, which was adopted by CAL FIRE in 2007 and is provided in the County General Plan (2010), the project site is in the moderate Fire Hazard Severity Zone. The moderate Fire Hazard Severity Zone is the least serious of the three severity zones—moderate, high, and very high. The proposed project is a scour repair project, which would reduce the potential for future scour damage at the bridge pier foundations. The proposed project would not alter the risk or impacts to area residences from wildland fires as compared with the existing conditions. Implementation of the proposed project would not expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires. No mitigation is required.

Significance Determination: No Impact.

Mitigation/Compliance Measures: No mitigation is required.

Significance Determination After Mitigation: No Impact.

4.10 HYDROLOGY AND WATER QUALITY

<i>Would the project:</i>	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:	<input type="checkbox"/>			<input type="checkbox"/>
i. Result in substantial erosion or siltation on- or off-site;	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ii. Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
iii. Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
iv. Impede or redirect flood flows?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d. In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e. Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

4.10.1 Impact Analysis

The discussion and analysis provided in this section is based on the *Water Quality Memorandum* (LSA, June 2019) and the *Bridge Design Hydraulic Study* (Wreco, June 2019) (refer to Appendices E and F).

a. Would the project violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality?

Pollutants of concern during construction of the proposed project include sediments, trash, petroleum products, concrete waste (dry and wet), sanitary waste, and chemicals. During construction activities, soil would be disturbed, and there would be an increased potential for soil erosion compared to existing conditions. During a storm event, soil erosion could occur at an accelerated rate. Additionally, construction-related pollutants such as liquid and petroleum products and concrete-related waste to be spilled or transported via storm runoff into adjacent drainages and into downstream receiving waters. Any of these pollutants have the potential to be transported via storm water runoff into receiving waters (i.e., the Salinas River).

Construction in the Salinas River would occur from July 1 through October 15. However, because the Salinas River has perennial flow and is expected to be flowing within the project area year-round, diversion of streamflow around the work area in the river would be required. Temporary berms, comprised of clean crushed gravel and sheet pile shoring, would be required to channelize and divert the summer flow around the work area to keep the work area dry for the duration of construction. After construction is complete, the contractor would remove the temporary berms and sheet pile shoring and restore all disturbed areas within the river to preconstruction conditions. Conducting construction activities outside of any areas with water present within the Salinas River channel would reduce the potential for construction activities to contribute pollutants to downstream receiving waters.

During construction, the total disturbed area would be approximately 3.3 ac. Because the proposed project would disturb greater than 1 ac of soil, the proposed project is subject to the requirements of the State Water Resources Control Board's National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Order No. 2009-0009-DWQ, NPDES No. CAS000002, as amended by Order Nos. 2010-0014-DWQ and 2012-12-0006-DWQ) (Construction General Permit). However, because the proposed project would disturb between 1 and 5 ac (approximately 4.13 ac), it is eligible for a Small Construction Rainfall Erosivity Waiver, which would exempt the proposed project from coverage under the Construction General Permit. To obtain a waiver, the proposed project would need to demonstrate that there would be no adverse water quality impacts because construction activities would only occur when there is a low erosivity potential (i.e., the rainfall erosivity value in the Revised Universal Soil Loss Equation [R value] for the proposed project is less than 5). Based on a construction start date of May 1 and an end date of October 1, 2021, the R factor for the project would be 0.95, and the proposed project would qualify for a Construction General Permit waiver. The project has a low erosivity potential because construction would occur during the dry season when there is a lower probability of a storm event occurring that would result in erosion and sedimentation. As specified in **Compliance Measure WQ-1**, the proposed project would obtain a Construction General Permit waiver prior to construction. If the construction schedule changes during final design, resulting in an R factor greater than 5, coverage under the Construction General Permit would be required for the proposed project.

Although the proposed project is not required to comply with the requirements of the Construction General Permit if a waiver is obtained, due to work within and in close proximity to the Salinas River, a SWPPP would be prepared and Construction BMPs implemented during construction to minimize erosion and prevent spills within the Salinas River, as specified in **Compliance Measure WQ-2**. Additionally, the proposed project is also required to comply with the provisions of the Monterey County Erosion Control Ordinance (Municipal Code Title 16, Chapter 16.12) as specified in **Compliance Measure WQ-3**. The Erosion Control Ordinance requires preparation of an Erosion Control Plan that describes the Construction BMPs that would be implemented to control runoff, erosion, and sediment movement during construction. Construction BMPs would include Erosion Control and Sediment Control BMPs designed to minimize erosion and retain sediment on site, and Good Housekeeping BMPs to prevent spills, leaks, and discharge of construction debris and waste into receiving waters.

Construction BMPs would be designed to retain sediment and other pollutants on the project site so they would not reach receiving waters. Construction BMPs are anticipated to include preservation of existing vegetation, hydroseeding, soil binders, silt fences, fiber rolls, stabilized construction entrance/exit, stabilized construction roadway, entrance/outlet tire wash, temporary stream crossing, pile driving operations, concrete curing, and structure demolition over or adjacent to water. When Construction BMPs are properly designed, implemented, and maintained to address pollutants of concern, as required in **Compliance Measures WQ-2 and WQ-3**, pollutants of concern would be retained on the project area so they would not reach receiving waters. For these reasons, with implementation of **Compliance Measures WQ-1 through WQ-3**, impact associated with the violation of water quality standards and waste discharge requirements or degradation of surface water quality would be reduced to less than significant.

Depth to groundwater in the project area was measured to occur at a depth of approximately 3 ft below the existing grade. Groundwater levels may vary with the passage of time due to factors including seasonal groundwater fluctuation, local irrigation practice, water level in the Salinas River, surface and subsurface flows, and storm water runoff. Due to the anticipated depth of groundwater (3 ft below ground surface), groundwater dewatering is anticipated to be required during construction at the bridge piers. For excavations below the groundwater table, groundwater levels would need to be lowered to at least 2 ft below the bottom of the excavation to provide a workable condition. Dewatered groundwater is anticipated to be pumped into water storage tanks, such as Baker tanks. These tanks would also be used for wet CIDH pile construction to contain slurry and drilling fluid. However, coverage under the Low Threat Discharge Permit would be required if groundwater is discharged into the Salinas River instead of collected in water storage tanks. Groundwater may contain elevated levels of total dissolved solids, nitrates, or other constituents that could affect surface water quality when discharged into the Salinas River. As specified in **Compliance Measure WQ-4**, groundwater dewatering during construction would be conducted in accordance with the requirements of the State Water Resources Control Board (SWRCB) Low Threat Discharge Permit. This order requires testing and treatment, as necessary, of groundwater encountered during groundwater dewatering prior to its release into surface waters to ensure that effluent limitations for constituents are not exceeded. As a result, groundwater dewatering during project construction would not introduce pollutants to receiving waters or violate water quality standards and waste discharge requirements or degrade surface water quality.

Pollutants in stormwater are generally removed by soil through absorption as water infiltrates. Therefore, in areas of deep groundwater, there is more absorption potential and, as a result, less potential for pollutants to reach groundwater. However, as discussed above, groundwater could occur at shallow depths in the range of 3 ft below ground surface. Because construction would occur in the dry season, there is a lower probability of a storm event occurring and for construction pollutants to infiltrate to groundwater. Groundwater extracted during dewatering would be tested, treated (if required), and discharged into the Salinas River. Dewatered groundwater would not be reinjected directly into the groundwater table. Any dewatered groundwater that is discharged into the Salinas River would be treated to reduce pollutants and would therefore not introduce pollutants into groundwater. For these reasons, impacts related to water quality standards and waste discharge requirements or the substantial degradation of surface or groundwater quality during construction would be less than significant.

The proposed project is a scour repair project and would not involve modification of Bradley Road or the bridge beyond installation of scour protection. No storm drain facilities would be constructed as part of the proposed project. Because the area disturbed during construction would be restored to preconstruction conditions, the proposed project would maintain the existing drainage pattern in the project area. Installation of scour protection at the substructure of the bridge would reduce the potential for future scouring at the bridge pier foundations, which would reduce sediments in the water and improve water quality. Therefore, the proposed project would result in an overall beneficial impact to water quality. With adherence to **Compliance Measures WQ-1, WQ-2, WQ-3, and WQ-4**, impacts related to water quality standards and waste discharge requirements or the substantial degradation of surface or groundwater quality would be reduced to less than significant. No mitigation is required.

Significance Determination: Potentially Significant Impact.

Mitigation and/or Compliance Measures:

Compliance Measure WQ-1 Construction General Permit Waiver. Prior to the start of construction, a waiver shall be obtained for the National Pollutant Discharge Elimination System General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Construction General Permit) Order No. 2009-0009-DWQ, NPDES No. CAS000002, as amended by Order Nos. 2010-0014-DWQ and 2012-12-0006-DWQ. To obtain a waiver, the County of Monterey (County) or its designated contractor shall complete the electronic Notice of Intent and Sediment Risk form through the State Water Resources Control Board (SWRCB) Stormwater Multi-Application Reporting and Tracking System (SMARTS) and certify that the construction activity shall take place during a period when the value of the rainfall erosivity factor ("R" in the Revised Universal Soil Loss Equation) is less than 5.

If construction activities continue beyond the projected completion date provided on the waiver certification, the County or its designated contractor shall recalculate the rainfall erosivity factor for the new project duration and submit the new construction schedule through SMARTS 30 days prior to the projected completion date listed on the original waiver. If the new R factor is below 5, the discharger shall update through SMARTS all applicable information on the waiver certification and retain a copy of the revised waiver on site. If the new R factor is greater than 5, the County shall apply for coverage under the Construction General Permit.

If the construction schedule changes during final design, and the resulting R factor is greater than 5, the County shall apply for coverage under the Construction General Permit. Construction

activities shall not commence until a waiver or coverage under the Construction General Permit has been obtained from the SWRCB.

Compliance Measure WQ-2

Construction Best Management Practices. Prior to the start of construction, the County shall ensure that the Construction Contractor prepares and implements a Storm Water Pollution Prevention Plan (SWPPP) to address all construction-related activities, equipment, and materials that have the potential to affect water quality. The SWPPP shall identify the sources of pollutants that may affect the quality of storm water and include Best Management Practices (BMPs) to control the pollutants (e.g., Sediment Control, Erosion Control, and Good Housekeeping BMPs).

Compliance Measure WQ-3

Erosion Control Plan. During the plans, specifications, and estimates phase, an Erosion Control Plan shall be prepared and implemented by the County of Monterey or its designated contractor in compliance with the provisions of the Monterey County Erosion Control Ordinance (Municipal Code, Title 16, Chapter 16.12). The Erosion Control Plan shall indicate the proposed methods for the control of runoff, erosion, and sediment movement during project construction.

Compliance Measure WQ-4

Groundwater Dewatering. Prior to commencement of groundwater dewatering activities, the proposed project shall obtain coverage under the State Water Resources Control Board's (SWRCB) *Statewide General Waste Discharge Requirements for Discharges to Land with a Low Threat to Water Quality* (Water Quality Order No. 2003-0003-DWQ). This shall include submission of a Notice of Intent for coverage under the permit to the SWRCB. Construction activities shall not commence until a letter is obtained from the SWRCB stating that the project has obtained coverage under the permit. Construction dewatering activities shall comply with all applicable provisions in the permit, including water sampling, analysis, and reporting of dewatering-related discharges. Upon completion of groundwater dewatering activities, a Notice of Termination shall be submitted to the SWRCB.

Significance Determination After Mitigation: Less than Significant Impact.

- b. *Would the project substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?*

Due to the anticipated depth of groundwater (3 ft below ground surface), groundwater dewatering is anticipated to be required during construction at the bridge piers. Groundwater dewatering would be temporary in nature and would cease following completion of construction. It is not anticipated

that the volume of groundwater extracted during dewatering activities would be substantial in comparison to the overall volume of the groundwater basin. Additionally, soils within the Salinas River within the project area have a high infiltration capacity, which would allow any dewatered groundwater that is discharged back into the Salinas River instead of collected in Baker tanks to infiltrate and offset any localized groundwater depletion. Construction activities associated with the proposed project would result in a less than significant impact associated with a decrease in groundwater supplies or interference with groundwater recharge and would not impede sustainable groundwater management of the basin. No mitigation is required.

Project operation would not require groundwater extraction. In addition, the proposed project would not increase impervious surface areas and would not affect long-term groundwater infiltration. For these reasons, implementation of the proposed project would not result in long-term impacts associated with decreasing groundwater supplies or substantially interfering with groundwater recharge in a manner that may impede sustainable groundwater management of the basin. No mitigation is required.

Significance Determination: Less than Significant Impact.

Mitigation and/or Compliance Measures: No mitigation is required.

Significance Determination After Mitigation: Less than Significant Impact.

- c. *Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:*
 - i. *Result in substantial erosion or siltation on- or off-site;*

Construction activities (e.g., installation of scour protection, water diversion, and equipment staging) would disturb soil and increase the potential for soil erosion and transport of sediment downstream. However, as specified in **Compliance Measures WQ-1, WQ-2, and WQ-3** in Response 4.9 a), above, construction of the proposed project would comply with the requirements of the Construction General Permit and County Erosion Control Ordinance. As specified in **Compliance Measures WQ-2 and WQ-3**, a SWPPP and Erosion Control Plan would be prepared for the proposed project and Construction BMPs detailed in these plans would be implemented during construction activities to minimize erosion and siltation. Additionally, water within the Salinas River would be temporarily diverted around any scour repair work. Separating construction activities from the river flow and channelizing the flow would reduce the potential for erosion to occur within the river. Adherence to **Compliance Measures WQ-1, WQ-2, and WQ-3** during project construction would reduce impacts associated with on- and off-site siltation during the temporary modification of the existing drainage pattern (i.e., diverting river flow away from the location of each scour repair) to a less than significant level.

In the existing condition, storm water runoff flows off the road into the Salinas River or onto adjacent properties. The area disturbed during construction would be restored to

preconstruction conditions and the existing drainage patterns would be maintained. Also, the proposed project would not increase impervious surface areas within the project area and would therefore not create additional runoff off. Because the proposed project would maintain the existing drainage pattern in the project area and would not increase the amount of impervious surface at the project site, the proposed project would not cause a substantial increase in erosion or siltation on or off site. Additionally, installation of scour protection at the substructure of the bridge would reduce the potential for future scouring at the bridge pier foundations, which would reduce sediments in the water and improve water quality. Project operation would result in an overall beneficial impact related to erosion or siltation. No mitigation is required.

Significance Determination: Potentially Significant Impact.

Mitigation and/or Compliance Measures: Refer to **Compliance Measures WQ-1, WQ-2, and WQ-3** in Response 4.9 a) above.

Significance Determination After Mitigation: Less than Significant Impact.

ii. *Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;*

During construction, soil would be disturbed and compacted and drainage patterns would be temporarily altered, which can increase the volume and velocity of storm water runoff and increase the potential for localized flooding compared to existing conditions. As discussed in **Compliance Measures WQ-1, WQ-2, and WQ-3**, in Response 4.9 a) above, preparation of a SWPPP and Erosion Control Plan and implementation of construction BMPs to control and direct surface runoff on-site would be required. By controlling and directing surface runoff on-site, the BMPs will direct additional runoff into the Salinas River, which has additional capacity. Because additional runoff during construction will be channeled to the Salinas River, which has capacity, construction activities would not result in on- or off-site flooding. With adherence to **Compliance Measures WQ-1, WQ-2, and WQ-3**, construction impacts related to altering the existing drainage pattern of the site or area or increasing the rate or amount of surface runoff in a manner that would result in flooding on- or off-site would be reduced to less than significant. As under existing conditions, storm water runoff from the project area would run off the road into the Salinas River or onto adjacent properties. Because the area disturbed during construction would be restored to preconstruction conditions, operation of the proposed project would maintain the existing drainage pattern in the project area and all storm water runoff from the project area would continue to flow into the Salinas River or onto adjacent properties. The proposed project would not increase impervious surface areas within the project area and would therefore not create additional runoff. As a result, installation of scour protection at the substructure of the bridge would not alter the existing drainage pattern of the site or area, including through alteration of a stream or river, or substantially increase the rate or amount of surface runoff above pre-development condition in a manner that would result in flooding on or off site. No mitigation is required.

Significance Determination: Less than Significant Impact.

Mitigation/Compliance Measures: Refer to **Compliance Measures WQ-1, WQ-2, and WQ-3** in Response 4.9 a) above.

Significance Determination After Mitigation: Less than Significant Impact.

iii. Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or

As discussed in Response 4.9 d) above, earthwork activities during construction would compact soil, which can increase storm water runoff. In addition, construction-related pollutants such as liquid and petroleum products and concrete related waste could be spilled, leaked, or transported via storm runoff into adjacent drainages and into downstream receiving waters during construction activities. The proposed project would implement **Compliance Measures WQ-1, WQ-2, and WQ-3**, which require preparation of a SWPPP and Erosion Control Plan and implementation of construction BMPs to control storm water runoff, including the discharge of pollutants. With adherence to **Compliance Measures WQ-1, WQ-2, and WQ-3**, impacts related to the creation or contribution of runoff which would exceed the capacity of the storm water drainage system or contributing substantial additional sources of polluted runoff would be reduced to less than significant. As discussed under Response 4.9 a) above, groundwater dewatering would be required during construction. Groundwater may contain pollutants that could affect surface water quality when discharged into the Salinas River, As specified in **Compliance Measure WQ-4**, groundwater dewatering during construction would be conducted in accordance with the requirements of the SWRCB Low Threat Discharge Permit. With adherence to **Compliance Measure WQ-4**, impacts associated with the introduction of substantial sources of polluted runoff from groundwater dewatering during construction would be reduced to less than significant.

The proposed project is a scour repair project and would not involve modification of Bradley Road or the bridge beyond installation of scour protection. Similar to existing conditions, storm water runoff from the proposed project would run off the road into adjacent properties or into the Salinas River. Because the area disturbed during construction would be restored to preconstruction conditions, the proposed project would maintain the existing drainage pattern of the project site. In addition, the proposed project would not increase impervious surface areas. Therefore, the proposed project would not contribute any additional runoff to storm water drainage systems. Installation of scour protection at the substructure of the bridge would reduce the potential for future scouring at the bridge pier foundations, which would reduce sediments in the water and improve water quality. The proposed project would result in an overall beneficial impact to water quality. For these reasons, operation of the proposed project would not create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff. No mitigation is required.

Significance Determination: Less than Significant Impact.

Mitigation and/or Compliance Measures: Refer to **Compliance Measures WQ-1, WQ-2, WQ-3, and WQ-4** in Response 4.9 a) above.

Significance Determination After Mitigation: Less than Significant Impact.

iv. Impede or redirect flood flows?

According to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRM) No. 06053C1925G (April 2, 2009), the project area lies within Zone A and Zone X. The Salinas River floodplain is designated as Zone A, which comprises areas that are subject to inundation by the 1 percent annual chance flood event (100-year floodplain) with base flood elevations not determined. The project area to the east and west of the Salinas River are designated as Zone X, which are areas determined to be outside the 0.2 percent annual chance flood event (500-year floodplain).

The proposed project would not place new structures within a floodplain that could impede or redirect flow. Rather, the project would retrofit the existing pier footings in a manner that would allow flood waters to continue being conveyed downstream through the piers. The new, larger concrete footing caps would, however, place additional materials at the existing piers in the floodplain. The results of the hydraulic analysis indicate that the proposed project would result in minor changes to the water surface profile within the study area. The changes in water surface elevation would be less than 0.2 ft for the 100-year peak flow and less than 0.1 ft for the 50-year peak flow compared to existing conditions. This increase would be below the 1 ft increase allowable by FEMA. Furthermore, any increase in flood elevation would be localized at the retrofitted piers. The scour retrofit would be localized at the existing structures, and new structures would not be constructed that could impede or redirect flood flows. Therefore, the proposed project would result in a less than significant impact related to impeding or redirecting flood flows. No mitigation is required.

Significance Determination: Less than Significant Impact.

Mitigation and/or Compliance Measures No mitigation is required.

Significance Determination After Mitigation: Less than Significant Impact.

d. In flood hazard, tsunami, or seiche zones, would the project risk release of pollutants due to project inundation?

Flood Hazard. As stated previously, the project area within the Salinas River is a flood hazard area (Zone A floodplain). In the existing condition, scour and the erosion of soil or sediment are undermining the pier foundations, which release sediment into the Salinas River. Installation of scour protection at the substructure of the bridge would reduce the potential for future scouring at the bridge pier foundations, which would reduce sediments in the water and improve water quality during storm events. Therefore, the proposed project would not increase the risk of release of pollutants compared to existing conditions.

No levees exist within the project area. There would be no risk of release of pollutants from flooding as a result of a levee failure.

Dam failure is defined as the structural collapse of a dam that releases the water stored in a reservoir behind the dam. A dam failure is usually the result of the age of the structure, inadequate spillway capacity, or structural damage caused by an earthquake or flood. According to Figure E-4 of the Monterey County Multi-Jurisdictional Hazard Mitigation Plan (Monterey County 2015), the project area is in a dam failure hazard area associated with the San Antonio Dam and Nacimiento Dam. The San Antonio Dam and Nacimiento Dam are maintained and inspected to ensure their integrity and to ensure that risk of failure is minimized. The proposed project would install scour repairs within a dam inundation zone, which would not affect the dam or likelihood of dam failure. Additionally, there is a low probability of dam failure occurring and, therefore, a low probability of pollutants being released during construction and operation from flooding from dam failure. Additionally, the proposed project would reduce scour and, therefore the potential for release of pollutants, at the piers in the unlikely event that the project area is flooded from dam failure. Therefore, the proposed project would result in a less than significant impact related to the release of pollutants in the event of inundation from flooding from dam failure. No mitigation is required.

Tsunami. Tsunamis are generated wave trains generally caused by tectonic displacement of the seafloor associated with shallow earthquakes, seafloor landslides, rock falls, and exploding volcanic islands. The bridge is not located in a tsunami inundation area as identified by the State of California Department of Conservation Tsunami Inundation Maps (California Department of Conservation 2016). Due to the distance of the proposed project from the ocean (greater than 25 mi) and its location outside of any tsunami inundation area, the risk associated with tsunami is not considered a potential constraint or a potentially significant impact. Therefore, the proposed project would result in no impacts related to the release of pollutants in the event of inundation from a tsunami. No mitigation would be required.

Seiche Zone. Seiche is a phenomenon that occurs when seismic groundshaking induces standing waves (seiches) inside water retention facilities such as reservoirs and water tanks. Such waves can cause retention structures to fail and flood downstream properties. There are no water retention facilities located in close proximity to the project site. The water retention facilities closest to the proposed project are the San Antonio Reservoir and Lake Nacimiento, which are located 6 mi and 8 mi southwest of the project area, respectively. Due to the distance to these reservoirs, seiches generated at these waterbodies would not be anticipated to put the project site at risk. Therefore, the proposed project is not subject to inundation from seiche waves, and there is no risk of release of pollutants due to inundation from seiche. No mitigation would be required.

Significance Determination: Less than Significant Impact.

Mitigation/Compliance Measures: No mitigation is required.

Significance Determination After Mitigation: Less than Significant Impact.

e. Would the project conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

The project is within the jurisdiction of the Central Coast Regional Water Quality Control Board (RWQCB). The Central Coast RWQCB adopted a Water Quality Control Plan (i.e., Basin Plan) (June 1971, with amendments effective on or before June 2019) which designates beneficial uses for all surface and groundwater within its jurisdiction and established the water quality objectives and standards necessary to protect those beneficial uses. As summarized below, the project would comply with the applicable NPDES permits and State and local regulations and would implement construction BMPs to reduce pollutants of concern and stormwater runoff. NPDES permits and associated BMPs are designed to ensure that the water quality objectives in the Water Quality Control Plan are not exceeded and that beneficial uses of receiving waters are not impaired.

As discussed above in Response 4.9 a), during construction activities, soil would be disturbed, and there would be an increased potential for soil erosion compared to existing conditions. Additionally, construction-related pollutants such as liquid and petroleum products and concrete-related waste may be spilled or transported via stormwater runoff into downstream receiving waters. As specified in **Compliance Measures WQ-1, WQ-2, and WQ-3**, the proposed project would require preparation of a SWPPP and Erosion Control Plan and implementation of construction BMPs to control storm water runoff, including the discharge of pollutants. As discussed in **Compliance Measure WQ-4**, groundwater dewatering during construction would be conducted in accordance with the requirements of the State Water Resources Control Board (SWRCB) Low Threat Discharge Permit. Therefore, project construction would comply with the applicable NPDES permits and local and State regulations. Installation of scour protection at the substructure of the bridge would reduce the potential for future scouring at the bridge pier foundations, which would reduce sediments in the water and improve water quality. In the long-term, the proposed project would result in an overall beneficial impact to water quality. Because the proposed project would comply with NPDES requirements including implementation of construction BMPs and would reduce long-term scour, the project would not result in water quality impacts that would conflict with the Central Coast RWQCB's Basin Plan. Therefore, impacts related to conflict with a water quality control plan would be less than significant.

The Sustainable Groundwater Management Act (SGMA) was enacted in September 2014. SGMA requires governments and water agencies of high and medium priority basins to halt overdraft of groundwater basins. SGMA requires the formation of local groundwater sustainability agencies (GSAs) in high and medium priority basins, that are required to adopt Groundwater Sustainability Plans to manage the sustainability of the groundwater basins. The project site is located within the Salinas Valley Groundwater Basin, which is located within both the County of Monterey and the County of San Luis Obispo. The portion of the groundwater basin within Monterey County is managed by the Salinas Valley Basin Groundwater Sustainability Agency (the GSA for the basin). The Salinas Valley Groundwater Basin within Monterey County is identified by the Department of Water Resources as a medium priority basin.⁴ Therefore, the Groundwater Sustainability Plan is required to

⁴ California Department of Water Resources, SGMA Basin Prioritization Dashboard, Groundwater Basins 2019. Website: <https://gis.water.ca.gov/app/bp-dashboard/p2/> (accessed June 24, 2019).

be developed by 2020 and sustainability of the basin achieved by 2040. As discussed in Response 4.9 b), the proposed project does not have the potential to impact groundwater quality, interfere with groundwater recharge, or decrease groundwater supplies. Furthermore, because there is not currently an adopted Groundwater Sustainability Plan, the proposed project would not conflict with or obstruct the implementation of the Salinas Valley Groundwater Sustainability Plan. Therefore, no impacts related to conflict or obstruction of a sustainable groundwater management plan would occur.

Significance Determination: Potentially Significant Impact.

Mitigation and/or Compliance Measures: Refer to **Compliance Measures WQ-1, WQ-2, WQ-3, and WQ-4** in Response 4.9 a) above.

Significance Determination After Mitigation: Less than Significant Impact.

4.11 LAND USE AND PLANNING

<i>Would the project:</i>	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Physically divide an established community?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b. 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Proposed project construction and operation would not result in impacts associated with land use and/or planning at the project site. No analysis is required. Refer to Section 3.0, Environmental Factors Potentially Affected, including Determination, for a more detailed discussion about the proposed project and land use/planning.

4.12 MINERAL RESOURCES

<i>Would the project:</i>	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b. Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Proposed project construction and operation would not result in impacts to mineral resources. No analysis is required. Refer to Section 3.0, Environmental Factors Potentially Affected, including Determination, for a more detailed discussion about the proposed project and mineral resources.

4.13 NOISE

<i>Would the project result in:</i>	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Generation of excessive groundborne vibration or groundborne noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c. For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within 2 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

4.13.1 Impact Analysis

The discussion and analysis provided in this section is based on the *Technical Noise Memorandum* (LSA, May 2019) provided in Appendix G.

a. Would the project 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?

There are two types of short-term activities that could generate a substantial temporary increase in ambient noise levels during project construction: (1) equipment delivery and construction worker commutes, and (2) project construction activities.

The Monterey County General Plan Policy S-7.9 stipulates that no construction activities pursuant to a County permit shall be allowed within 500 ft of a noise-sensitive land use during the evening hours of Monday through Saturday, or anytime on Sunday or holidays, prior to completion of a noise mitigation study. Typically, when not specified in a policy or ordinance, daytime hours occur from 7:00 a.m. to 7:00 p.m. while evening and nighttime hours occur from 7:00 p.m. to 7:00 a.m.

Section 10.60.030 of the Monterey County Municipal Code prohibits the operation of any machine, mechanism, device, or contrivance which produces a noise level exceeding 85 A-weighted decibels (dBA) measured 50 ft from the point source.

Caltrans Standard Specifications requires noise levels from the contractor's operations, between the hours of 9:00 p.m. and 6:00 a.m., to be at or below 86 dBA maximum instantaneous noise level (L_{max}) at a distance of 50 ft from the job site.

The first category of activities that could generate short-term construction noise that could result in an increase in ambient noise levels involves transporting construction equipment, materials, and construction workers to the project site. These transportation activities would incrementally raise

noise levels on existing access roads leading to the project site. As shown in Table 4.12-1, the single-event noise from equipment trucks passing at a distance of 50 ft would reach a maximum level of 84 dBA L_{max} . However, heavy equipment for grading and construction activities would be moved on-site once, and then would remain on site for the duration of each construction phase. This one time trip, when heavy construction equipment is moved on- and off-site, would not add to the daily traffic noise in the project vicinity. Projected traffic from construction worker commutes would be minimal when compared to existing traffic volumes on Bradley Road and other affected streets, and its associated long-term noise level change would not be perceptible. Potential temporary noise associated with impacts from equipment transport and construction worker commutes would be less than significant. No mitigation is required.

The second category of activities that could generate short-term construction noise that could result in an increase in ambient noise levels involves noise generated by equipment during project construction. Construction is performed in discrete steps, each having its own mix of equipment and, consequently, its own noise characteristics. These various sequential phases change the character of the noise generated, as well as the noise levels in the project area as construction progresses. Despite the variety in the type and size of construction equipment, similarities in the dominant noise sources and patterns of operation allow construction-related noise ranges to be categorized by work phase. Table 4.12-1 lists typical construction equipment noise levels (L_{max}) recommended for noise impact assessments based on a distance of 50 ft between the equipment and a noise receptor.

In addition to standard construction equipment, the proposed project proposes use of a vibratory hammer and crane. When the crane and vibratory hammer are utilized during construction, as shown in Table 4.12-1, the crane would generate noise levels of approximately 85 dBA L_{max} at a distance of 50 ft, with a composite noise level of 95 dBA L_{max} if the crane and vibratory hammer are used at the same time. Normal construction operations, specifically during the site preparation phase which includes excavation and grading, may generate high noise levels from an active construction area. Earthmoving equipment includes excavating machinery such as backfillers, bulldozers, and front-end loaders. Earthmoving and compacting equipment includes compactors, scrapers, and graders. Typical operating cycles for these types of construction equipment may involve 1 or 2 minutes of full-power operation followed by 3 or 4 minutes at lower power settings.

Noise associated with the use of earthmoving construction equipment is estimated between 55 and 85 dBA L_{max} at a distance of 50 ft from each piece of equipment. As seen in Table 4.12-1, the maximum noise level generated by each excavator, bulldozer, and pick-up truck is assumed to be approximately 85 dBA L_{max} , 85 dBA L_{max} , and 55 dBA L_{max} at 50 ft, respectively. Each piece of construction equipment operates as an individual point source. The worst-case composite noise level would be 88 dBA L_{max} at a distance of 50 ft from an active construction area.

Table 4.12-1: Typical Construction Equipment Noise Levels

Equipment Description ¹	Maximum Noise Level (L _{max}) at 50 Ft ²
Backhoes	80
Compactor (ground)	80
Cranes	85
Dozers	85
Dump Trucks	84
Excavators	85
Flat Bed Trucks	84
Front-end Loaders	80
Graders	85
Impact Pile Drivers	95
Jackhammers	85
Pick-up Truck	55
Pneumatic Tools	85
Pumps	77
Rock Drills	85
Rollers	85
Scrapers	85
Tractors	84
Vibratory Hammer/Pile Driver	95

Source: *Federal Highway Administration Roadway Construction Noise Model* (January 2006).

Note: Noise levels reported in this table are rounded to the nearest whole number.

¹ Equipment shown in **bold** is expected to be used on site.

² Maximum noise levels were developed based on Spec 721.560 from the Central Artery/Tunnel (CA/T) program to be consistent with the City of Boston's Noise Code for the "Big Dig" project.

ft = foot/feet

L_{max} = maximum instantaneous sound level

The closest noise receptors, and the distance and construction noise levels for each are provided below:

- A single-family residence, located at 65486 Bradley Road, is approximately 140 ft south of the temporary construction staging area and 430 ft east of the closest pile installation activities. This residence may be subject to short-term noise reaching 79 dBA L_{max} during general construction activities, 76 dBA L_{max} during pile driving activities, and 81 dBA L_{max} should pile driving and general construction occur simultaneously.
- The Bradley Elementary School is located approximately 735 ft southeast of the temporary construction staging area and 1,075 ft east of the closest pile installation activities. This school may be subject to short-term noise reaching 64.7 dBA L_{max} generated by general construction activities, 68.5 dBA L_{max} during pile installation operations, and 69.9 dBA L_{max} should pile installation and general construction occur simultaneously.

- A single-family residence, located at 73121 Hall Street, is 1,040 ft southeast of the temporary construction staging area and 1,400 ft east of the closest pile installation activities. This residence may be subject to short-term noise reaching 61.6 dBA L_{max} generated by general construction activities, 66.1 dBA L_{max} during pile installation operations and 67.4 dBA L_{max} should pile installation and general construction occur simultaneously.
- A single-family residence, located at 65653 Bradley Road, is approximately 945 ft east of the temporary construction staging area and 1,370 ft east of the closest pile installation activities. This residence may be subject to short-term noise reaching 62.5 dBA L_{max} generated by general construction activities, 66.3 dBA L_{max} during pile installation operations, and 67.8 dBA L_{max} should pile installation and general construction occur simultaneously.

The maximum short-term construction noise at all four sensitive noise receptors discussed above would be below noise level standards established by both the County (85 dBA at a distance of 50 ft from the job site) and Caltrans (86 dBA at a distance of 50 ft from the job site). Although noise levels would be below both the County's and Caltrans' standards during temporary construction activities, implementation of **Compliance Measure N-1** is required and would further reduce the impacts from temporary noise by prohibiting construction activities within 500 ft of sensitive land uses during the hours of 7:00 pm and 7:00 am Monday through Saturday, or anytime on Sundays and holidays. There would be no substantial temporary increase in ambient noise levels in the vicinity of the proposed project during construction activities. No mitigation is required.

The proposed project is a scour repair project. Implementation of the proposed project would not generate additional vehicular traffic on the bridge or roadway approaches compared to existing conditions. Operation of the proposed project would not result in any long-term changes in noise sources or noise levels in the project area beyond the existing conditions. Operation of the proposed project would not generate a permanent increase in ambient noise levels in the vicinity of the proposed project in excess of established County or Caltrans standards. No mitigation is required.

Significance Determination: Less than Significant Impact.

Mitigation/Compliance Measures:

Compliance Measure N-1

Compliance with the County General Plan, Policy S-7.9. During construction, no construction activities pursuant to a County permit shall be permitted within 500 feet of a noise-sensitive land use during the evening hours of Monday through Saturday, or anytime on Sunday or holidays, prior to completion of a noise mitigation study. Evening hours are defined as the time between 7:00 p.m. to 7:00 a.m. for the purpose of this compliance measure.

Significance Determination After Mitigation: Less than Significant Impact.

b. Would the project result in generation of excessive groundborne vibration or groundborne noise levels?

Groundborne noise in buildings and structures is produced when interior surfaces such as walls and floors are “excited” into motion by groundborne vibration transmitted into a given structure. In general, groundborne vibration from standard construction practices is only a potential structural damage issue when within 25 ft of sensitive structures. Because construction is not proposed within 25 ft of any sensitive or fragile structures, construction of the proposed project would not generate excessive groundborne vibration that would impact sensitive structures in the project vicinity. Therefore, the generation of excessive groundborne vibration or groundborne noise levels during project construction activities is considered less than significant. No mitigation is required.

The proposed project is a scour repair project, and implementation of the proposed project would not generate additional vehicular traffic or other potential sources of groundborne vibration. Operation of the proposed project would not generate excessive groundborne vibration or groundborne noise levels. No mitigation is required.

Significance Determination: No Impact.

Mitigation/Compliance Measures: No mitigation is required.

Significance Determination After Mitigation: No Impact.

c. For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within 2 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?

The proposed project is not located within the vicinity of a private airstrip, in an airport land use plan or within 2 mi of a public airport. Implementation of the proposed project would not expose people residing or working in the project area to excessive noise levels. No mitigation is required.

Significance Determination: No Impact.

Mitigation/Compliance Measures: No mitigation is required.

Significance Determination After Mitigation: No Impact.

4.14 POPULATION AND HOUSING

<i>Would the project:</i>	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b. Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Proposed project construction and operation would not result in impacts to population and housing. No analysis is required. Refer to Section 3.0, Environmental Factors Potentially Affected, including Determination, for a more detailed discussion about the proposed project as it relates to population and housing.

4.15 PUBLIC SERVICES

<i>Would the project:</i>	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a. 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:				
i. Fire protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
ii. Police protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
iii. Schools?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
iv. Parks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
v. Other public facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Proposed project construction and operation would not result in impacts to public services. No analysis is required. Refer to Section 3.0, Environmental Factors Potentially Affected, including Determination, for a more detailed discussion about the proposed project and public services.

4.16 RECREATION

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b. Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Proposed project construction and operation would not result in recreation impacts. No analysis is required. Refer to Section 3.0, Environmental Factors Potentially Affected, including Determination, for a more detailed discussion about the proposed project and recreation.

4.17 TRANSPORTATION

<i>Would the project:</i>	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Conflict or be inconsistent with CEQA Guidelines §15064.3, subdivision (b)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c. Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d. Result in inadequate emergency access?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

The analysis in this section relies upon the Construction Traffic Analysis (Quincy Engineering, 2019), provided in Appendix H.

4.17.1 Impact Analysis

a. Would the project conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?

The proposed project is a scour repair project, which involves installing scour countermeasures to protect the Bradley Road Bridge (bridge) piers that are currently exposed due to scour. The proposed project does not include any work on Bradley Road, which would remain open during construction. There are no bicycle or pedestrian facilities on Bradley Road or Bradley Road Bridge. Furthermore, public transit, such as bus lines, do not operate along Bradley Road or Bradley Road Bridge.

Because the proposed project involves work on the bridge piers and would not affect normal traffic flow or circulation in the project area, neither operation nor construction of the proposed project would conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities, and impacts would be less than significant.

Significance Determination: Less than Significant Impact.

Mitigation/Compliance Measures: No mitigation is required.

Significance Determination After Mitigation/Compliance: Less than Significant Impact.

b. Would the project conflict or be inconsistent with CEQA Guidelines §15064.3, subdivision (b)?

State CEQA Guidelines Section 15064.3, subdivision (b) states that "Transportation projects that reduce, or have no impact on, vehicle miles traveled should be presumed to cause a less than

significant transportation impact.” The proposed project is a scour repair project, which involves installing scour countermeasures to protect the Bradley Road Bridge (bridge) piers that are currently exposed due to scour. The proposed project does not include any detours or road closures. Given the fact that the proposed project does not involve land development activities or changes to the roadway and will not alter travel patterns or travel demand, the proposed project will not conflict with or be inconsistent with *State CEQA Guidelines* Section 15064.3. No mitigation is required.

Significance Determination: No Impact.

Mitigation/Compliance Measures: No mitigation is required.

Significance Determination After Mitigation/Compliance: No Impact.

c. Would the project substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

The proposed project is a bridge scour repair project. Implementation of the proposed project does not include any work on Bradley Road. Neither project construction nor project operations would substantially increase hazards due to a geometric design feature or an incompatible use. There would be no proposed project-related impact associated with an increased hazard due to a geometric design feature or incompatible use. No mitigation is required.

Significance Determination: No Impact.

Mitigation/Compliance Measures: No mitigation is required.

Significance Determination After Mitigation/Compliance: No Impact.

d. Would the project result in inadequate emergency access?

Emergency services in the proposed project area are provided by CAL FIRE for fire and emergency services, and by the Monterey County Sheriff’s Department for police services. The proposed project is a bridge scour repair project and would not alter access to Bradley Road, the Bradley Road Bridge, or the community of Bradley.

Proposed project construction would last approximately 5 months, and would not require any road closures. Because the proposed project involves work under the bridge, construction and operation of the proposed project would not alter travel times for emergency service vehicles using Bradley Road. Although the additional traffic from construction vehicles to the project site is not expected to result in a significant impact on the surrounding roadways, minor impacts and inconveniences to travelers during project construction would be minimized or avoided by implementing **Mitigation Measure TR-1**, which requires the preparation and implementation of a TMP during construction. Impacts to emergency access at and in the vicinity of the project site during construction and operation of the proposed project would be less than significant.

Significance Determination: Less than Significant Impact.

Mitigation Measure TR-1

Transportation Management Plan (TMP). Prior to construction, the Construction Contractor shall be required to submit a Traffic Management Plan (TMP) to the County of Monterey (County) RMA – Public Works & Facilities or appropriate designee for review and approval. During construction, the County shall require the Construction Contractor to adhere to all requirements of the TMP. The TMP shall include the following: installation of construction signs, notices of construction activities, if necessary, in local media, and advance notice to the public and local emergency service providers regarding the timing, location, and duration of construction activities.

Significance Determination After Mitigation/Compliance: Less than Significant Impact.

4.18 TRIBAL CULTURAL RESOURCES

<i>Would the project:</i>	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a. 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:				
i. Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k)? Or	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
ii. 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 Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

4.18.1 Impact Analysis

The discussion and analysis provided in this section is based on the HPSR (LSA, August 2016). The consultation study area for tribal cultural resources is the APE, which is the area where ground-disturbing activities would occur, and includes the maximum extent of ground disturbance, including access routes, staging, and work areas.

a. 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:

i. Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k)? Or

Records search #14-1418 was conducted at the NWIC on April 16, 2015. The records search included a review of the National Register of Historic Places, the California Register, the California Inventory of Historic Resources, California Historical Landmarks, California Points of Historical Interest, the California Historical Resources Information System, and the Caltrans Historic Highway Bridge Inventory. The records search did not identify any tribal cultural resources in the APE or a 1 mi radius of the APE.

On June 14, 2016, the County met with tribal representatives from the Ohlone Costanoan Esselen Nation (OCEN) pursuant to the consultation requirements of AB 52. No listed or eligible tribal cultural resources were identified during the meeting.

The proposed project would not cause a substantial adverse change in a California Native American tribal cultural resource that is listed or eligible for listing in the California Register or in a local register of historical resources, as defined in PRC section 5020.1(k).

Significance Determination: No Impact.

Mitigation and/or Compliance Measures: No mitigation is required.

Significance Determination After Mitigation: No Impact.

- ii. *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 Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.*

On June 14, 2016, the County met with tribal representatives from the OCEN pursuant to the consultation requirements of AB 52. As part of the consultation, tribal representatives did not provide substantial evidence of any tribal cultural resources occurring in or within the vicinity of the APE.

Nevertheless, the Chairwoman of the OCEN requested that a designated tribal representative be present to monitor ground-disturbing activities and in the event of a discovery, artifacts identified during construction shall be returned to the OCEN. The designated monitor was identified during the meeting. The County agreed to the requirement that a designated tribal representative monitor ground-disturbing activities and to return any artifacts identified during construction to the OCEN. The Esselen tribal representative stated that no additional measures to address potential impacts to tribal cultural resources were necessary or warranted.

The implementation of **Mitigation Measure TCR-1** would satisfy the agreement between the County and tribal representatives under AB 52 and reduce potential impacts from the proposed project to a less than significant level. In the unlikely event that previously unidentified archaeological resources are discovered by the tribal monitor implementation of **Compliance Measure CULT-1** would be required. Compliance with existing regulations as specified in **Compliance Measure CULT-1** would reduce the potential for impacts to unidentified archaeological resources to a less than significant level.

Significance Determination: Less than Significant Impact.

Mitigation and/or Compliance Measures: Refer to **Compliance Measure CULT-1** in Response 4.5 b), Cultural Resources.

Mitigation Measure TCR-1

Tribal Cultural Resources Monitoring and Artifact Return:

Prior to construction, the County of Monterey (County) RMA – Public Works & Facilities shall contact the Ohlone Costanoan Esselen Nation (OCEN) and request that it submit the name of the designated monitor.

The designated OCEN monitor shall be on-site during all ground-disturbing activities.

Should a tribal cultural resource be encountered during ground-disturbing activities, all ground-disturbing activities within 25 feet shall be redirected and the OCEN monitor shall assess the resource, consult with the County and make recommendations for the treatment of the discovery. The County shall be notified by the OCEN monitor within 24 hours of the encounter. If found to be significant by the OCEN monitor, the County shall be responsible for implementing and funding appropriate mitigation measures. Mitigation measures may include, but would not be limited to, recording the tribal cultural resource, data recovery and analysis, and public outreach. Upon completion of the selected mitigations, a report documenting methods, findings, and recommendations shall be prepared by the OCEN monitor and submitted to the County for review. Any artifacts or significant tribal cultural resources discovered during ground-disturbing activities shall be given to an OCEN tribal representative.

Refer to Section 4.5, Cultural Resources, for measures pertaining to unidentified archaeological, historical, or paleontological resources, or discovery of human remains.

Significance Determination After Mitigation: Less than Significant Impact.

4.19 UTILITIES AND SERVICE SYSTEMS

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

Proposed project construction and operation would not result in impacts to utilities/service systems. No analysis is required. Refer to Section 3.0, Environmental Factors Potentially Affected, including Determination, for a more detailed discussion about the proposed project and utilities/service systems.

4.20 WILDFIRE

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
<i>Would the project:</i>				
If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:				
a. Substantially impair an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b. 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c. 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d. 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Proposed project construction and operation would not result in wildfire impacts. No analysis is required. Refer to Section 3.0, Environmental Factors Potentially Affected, including Determination, for a more detailed discussion about the proposed project and wildfire.

4.21 MANDATORY FINDINGS OF SIGNIFICANCE

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a. 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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c. Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

4.21.1 Discussion/Conclusion/Mitigation

- a. *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?*

As discussed in Section 4.4, Biological Resources, the proposed project has the potential to result in impacts to biological resources. The proposed project has the potential to adversely impact special-status species, including California red-legged frog, South/Central Coast Steelhead DPS, San Joaquin kit fox, least Bell's vireo, Southwestern willow flycatcher, yellow warbler, Salinas pocket mouse, San Joaquin coachwhip, two-striped garter snake, Western pond turtle, pallid bat, western red bat, and other bridge- and crevice-dwelling bats. With the implementation of **Mitigation Measures BIO-1 through BIO-21, HAZ-1 and HAZ-2, and WQ-2 and WQ-3**, potential impacts to special status species would be reduced to less than significant levels. Construction of the proposed project has the potential to adversely impact migratory birds and raptors protected under the MBTA during the nesting season. With implementation of **Mitigation Measure BIO-9 through BIO-11**, potential impacts to migratory birds and raptors would be reduced to less than significant levels. In addition, construction of the proposed project would result in temporary and permanent impact to two (2) sensitive natural habitats/plant species of special concern: the Populus fremontii Forest Alliance (Fremont cottonwood forest) and Salix laevigata Woodland Alliance (red willow thicket). However, potential impacts would be reduced to less than significant levels with implementation of **Mitigation Measures BIO-3, BIO-7, BIO-8, BIO-20, and BIO-23**. Construction of the proposed project would result in temporary impacts to the movement of native resident or migratory fish or wildlife species,

but these impacts would be reduced to a less than significant level with implementation of **Mitigation Measures BIO-9 through BIO-11 and BIO-15 through BIO-21**.

As discussed in Section 4.5, Cultural Resources, the proposed project is not expected to result in any significant impacts to any examples of the major periods of California history or prehistory. No historic cultural or archaeological resources as defined by CEQA were identified in the APE. However, because the proposed project includes excavation, it has the potential to impact unknown buried archaeological resources, paleontological resources, and human remains. **Compliance Measure CULT-1** requires consultation with a qualified archaeologist or paleontologist if unknown archaeological or paleontological materials are discovered during construction activities. Similarly, **Compliance Measure CULT-2** requires that proper authorities be notified and standard procedures be followed for the respectful handling of human remains if unknown human remains are discovered during construction activities. Implementation of **Compliance Measures CULT-1 and CULT-2** would reduce any potential impacts to previously undiscovered archaeological or paleontological resources or human remains to a less than significant level.

With implementation of **Mitigation Measures BIO-1 through BIO-24, PBO-1 through PBO-5, PBO-9, PBO-10, PBO-12 through PBO-14, PBO-16, HAZ-1 and HAZ-2, and Compliance Measures CULT-1, CULT-2, WQ-2, and WQ-3**, the potential for the proposed project to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of rare or endangered plants or animals, or eliminate important examples of the major periods of California history or prehistory would be less than significant.

Significance Determination: Potentially Significant Impact.

Mitigation and/or Compliance Measures: Refer to **Mitigation Measures BIO-1 through BIO-24 and PBO-1 through PBO-5, PBO-9, PBO-10, PBO-12 through PBO-14, and PBO-16**, in Responses 4.4 a) and 4.4 b), Biological Resources; **Compliance Measures CULT-1 and CULT-2**, in Responses 4.5 b) and 4.5 d), Cultural Resources; **Mitigation Measures HAZ-1 and HAZ-2**, in Response 4.8 a), Hazards and Hazardous Materials; and **Compliance Measures WQ-2 and WQ-3**, in Response 4.9 a), Hydrology and Water Quality.

Significance Determination After Mitigation: Less than Significant Impact.

- b. *Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?*

Section 15065(a)(3) of the *State CEQA Guidelines* states that a project's cumulative impacts are the possible environmental effects that may be cumulatively considerable when considered with other reasonable foreseeable projects. Cumulatively considerable impacts occur when the incremental effects of a particular project or program are significant when viewed in connection with the effects of other past, current, or reasonably foreseeable future projects. Section 15355 of the *State CEQA*

Guidelines defines a cumulative impact as an impact which is created as a result of the combination of the project evaluated in the CEQA document together with other projects causing related impacts. The proposed project is not located in the vicinity of any probable current or future projects as identified by the County. As shown in the discussion above, environmental impacts associated with the proposed project can be reduced to less than significant through project-specific mitigation or compliance measures. The impacts relevant to the proposed project are localized and confined to the immediate project area. Given that the potential project-related impacts are less than significant and limited and there are no current or future projects scheduled for development within the project area, implementation of the proposed project would not result in impacts that are cumulatively considerable when evaluated with the impacts of other current projects, or the effects of probable future projects. No mitigation is required.

Significance Determination: Less than Significant Impact.

Mitigation and/or Compliance Measures: No mitigation is required.

Significance Determination After Mitigation: Less than Significant Impact.

c. Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?

The proposed project includes installation of scour protection at the substructure of the bridge. Implementation of the proposed project would reduce the potential for future scour damage at the bridge pier foundations. As shown in the discussion above, environmental impacts, including those that may have a direct or indirect adverse effect on humans (i.e., air quality and greenhouse gas emissions), that are associated with the proposed project can be reduced to less than significant through project-specific mitigation or compliance measures. The proposed project would not result in environmental effects which would cause a substantial adverse effect on human beings either directly or indirectly.

Significance Determination: Less than Significant Impact.

Mitigation/Compliance Measures: No mitigation is required.

Significance Determination After Mitigation: Less than Significant Impact.

5.0 FISH AND WILDLIFE ENVIRONMENTAL DOCUMENT FEES

A. Assessment of Fee

The State Legislature, through the enactment of SB 1535, revoked the authority of lead agencies to determine that a project subject to CEQA review had a “de minimus” (minimal) effect on fish and wildlife resources under the jurisdiction of the CDFW. Projects that were determined to have a “de minimus” effect were exempt from payment of the filing fees.

SB 1535 has eliminated the provision for a determination of “de minimus” effect by the lead agency; consequently, all land development projects that are subject to environmental review are now subject to the filing fees, unless the CDFW determines that the project would have no effect on fish and wildlife resources.

To be considered for determination of “no effect” on fish and wildlife resources, development applicants must submit a form requesting such determination to the CDFW. Forms may be obtained by contacting the agency by telephone at (916) 631-0606 or through its website at www.dfg.ca.gov.

B. Conclusion

The project will be required to pay the fee.

C. Evidence

Based on the record as a whole as embodied in the Planning Department, files pertaining to File Number 3852 and the attached Initial Study/Proposed Mitigated Negative Declaration.

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6.0 REFERENCES

- California Department of Forestry and Fire Protection (CAL FIRE). 2017. Monterey County Very High Fire Hazard Severity Zones in LRA. Website: http://www.fire.ca.gov/fire_prevention/fhsz_maps_monterey (accessed January 2017).
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- Federal Highway Administration. 2006. *Roadway Construction Noise Model*.
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Parikh Consultants, Inc. 2019. *Foundation Report*.

Quincy Engineering. 2019. *Construction Traffic Analysis*.

Quincy Engineering. 2019. *Utilities Memorandum*.


Wreco. 2019. *Bridge Design Hydraulic Study Report*.

APPENDIX A

AIR QUALITY MODELING WORKSHEETS



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Road Construction Emissions Model		Version 9.0.0			
Data Entry Worksheet					
<p><small>Note:</small> Required data input sections have a yellow background.</p> <p>Optional data input sections have a blue background. Only areas with a yellow or blue background can be modified. Program defaults have a white background.</p> <p>The user is required to enter information in cells D10 through D24, E28 through G35, and D38 through D41 for all project types.</p> <p>Please use "Clear Data Input & User Overrides" button first before changing the Project Type or begin a new project.</p>					
Input Type					
Project Name	Bradley Bridge				
Construction Start Year	2021	Enter a Year between 2014 and 2040 (inclusive)			
Project Type	3	1) New Road Construction : Project to build a roadway from bare ground, which generally requires more site preparation than widening an existing roadway 2) Road Widening : Project to add a new lane to an existing roadway 3) Bridge/Overpass Construction : Project to build an elevated roadway, which generally requires some different equipment than a new roadway, such as a crane 4) Other Linear Project Type: Non-roadway project such as a pipeline, transmission line, or levee construction			
Project Construction Time	4.50	months			
Working Days per Month	22.00	days (assume 22 if unknown)			
Predominant Soil/Site Type: Enter 1, 2, or 3 <small>(for project within "Sacramento County", follow soil type selection instructions in cells E18 to E20 otherwise see instructions provided in cells J18 to J22)</small>	1	1) Sand Gravel : Use for quaternary deposits (Delta/West County) 2) Weathered Rock-Earth : Use for Laguna formation (Jackson Highway area) or the lone formation (Scott Road, Rancho Murieta) 3) Blasted Rock : Use for Salt Springs Slate or Copper Hill Volcanics (Folsom South of Highway 50, Rancho Murieta)		<div style="border: 1px solid black; padding: 5px;"> <p>Please note that the soil type instructions provided in cells E18 to E20 are specific to Sacramento County. Maps available from the California Geologic Survey (see weblink below) can be used to determine soil type outside Sacramento County.</p> <p>http://www.conservation.ca.gov/cgs/information/geologic_mapping/Pages/googlemaps.aspx#regionalseries</p> </div>	
Project Length	0.05	miles			
Total Project Area	0.27	acres			
Maximum Area Disturbed/Day	0.27	acres			
Water Trucks Used?	1	1. Yes 2. No			
Material Hauling Quantity Input					
Material Type	Phase	Haul Truck Capacity (yd ³) (assume 20 if unknown)	Import Volume (yd ³ /day)	Export Volume (yd ³ /day)	
Soil	Grubbing/Land Clearing				
	Grading/Excavation				
	Drainage/Utilities/Sub-Grade				
	Paving				
Asphalt	Grubbing/Land Clearing				
	Grading/Excavation				
	Drainage/Utilities/Sub-Grade				
	Paving				
Mitigation Options					
On-road Fleet Emissions Mitigation			Select "2010 and Newer On-road Vehicles Fleet" option when the on-road heavy-duty truck fleet for the project will be limited to vehicles of model year 2010 or newer.		
Off-road Equipment Emissions Mitigation			Select "20% NOx and 45% Exhaust PM reduction" option if the project will be required to use a lower emitting off-road construction fleet. The SMAQMD Construction Mitigation Calculator can be used to confirm compliance with this mitigation measure (http://www.airquality.org/Businesses/CEQA-Land-Use-Planning/Mitigation). Select "Tier 4 Equipment" option if some or all off-road equipment used for the project meets CARB Tier 4 Standard		
The remaining sections of this sheet contain areas that can be modified by the user, although those modifications are optional.					

Note: The program's estimates of construction period phase length can be overridden in cells D50 through D53, and F50 through F53.

Construction Periods	User Override of Construction Months	Program Calculated Months	User Override of Phase Starting Date	Program Default Phase Starting Date
Grubbing/Land Clearing		0.45		1/1/2021
Grading/Excavation		1.80		1/15/2021
Drainage/Utilities/Sub-Grade		1.58		3/11/2021
Paving		0.68		4/28/2021
Totals (Months)	5			

Note: Soil Hauling emission default values can be overridden in cells D61 through D64, and F61 through F64.

Soil Hauling Emissions		User Override of Miles/Round Trip	Program Estimate of Miles/Round Trip	User Override of Truck Round Trips/Day	Default Values Round Trips/Day	Calculated Daily VMT				
User Input										
Miles/round trip: Grubbing/Land Clearing		30.00			0	0.00				
Miles/round trip: Grading/Excavation		30.00			0	0.00				
Miles/round trip: Drainage/Utilities/Sub-Grade		30.00			0	0.00				
Miles/round trip: Paving		30.00			0	0.00				
Emission Rates	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Grubbing/Land Clearing (grams/mile)	0.04	0.42	3.06	0.11	0.05	0.02	1,779.29	0.00	0.28	1,862.69
Grading/Excavation (grams/mile)	0.04	0.42	3.06	0.11	0.05	0.02	1,779.29	0.00	0.28	1,862.69
Draining/Utilities/Sub-Grade (grams/mile)	0.04	0.42	3.06	0.11	0.05	0.02	1,779.29	0.00	0.28	1,862.69
Paving (grams/mile)	0.04	0.42	3.06	0.11	0.05	0.02	1,779.29	0.00	0.28	1,862.69
Grubbing/Land Clearing (grams/trip)	0.00	0.00	3.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation (grams/trip)	0.00	0.00	3.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Draining/Utilities/Sub-Grade (grams/trip)	0.00	0.00	3.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving (grams/trip)	0.00	0.00	3.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling Emissions	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Pounds per day - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Grading/Excavation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grading/Excavation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total tons per construction project	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Note: Asphalt Hauling emission default values can be overridden in cells D91 through D94, and F91 through F94.

Asphalt Hauling Emissions		User Override of	Program Estimate of	User Override of Truck	Default Values	Calculated				
User Input	Miles/Round Trip	Miles/Round Trip	Round Trips/Day	Round Trips/Day	Round Trips/Day	Daily VMT				
Miles/round trip: Grubbing/Land Clearing		30.00		0	0.00					
Miles/round trip: Grading/Excavation		30.00		0	0.00					
Miles/round trip: Drainage/Utilities/Sub-Grade		30.00		0	0.00					
Miles/round trip: Paving		30.00		0	0.00					
Emission Rates	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Grubbing/Land Clearing (grams/mile)	0.04	0.42	3.06	0.11	0.05	0.02	1,779.29	0.00	0.28	1,862.69
Grading/Excavation (grams/mile)	0.04	0.42	3.06	0.11	0.05	0.02	1,779.29	0.00	0.28	1,862.69
Draining/Utilities/Sub-Grade (grams/mile)	0.04	0.42	3.06	0.11	0.05	0.02	1,779.29	0.00	0.28	1,862.69
Paving (grams/mile)	0.04	0.42	3.06	0.11	0.05	0.02	1,779.29	0.00	0.28	1,862.69
Grubbing/Land Clearing (grams/trip)	0.00	0.00	3.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation (grams/trip)	0.00	0.00	3.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Draining/Utilities/Sub-Grade (grams/trip)	0.00	0.00	3.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving (grams/trip)	0.00	0.00	3.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Emissions	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Pounds per day - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Grading/Excavation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grading/Excavation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total tons per construction project	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Note: Worker commute default values can be overridden in cells D121 through D126.

Worker Commute Emissions		User Override of Worker									
User Input		Commute Default Values		Default Values							
Miles/ one-way trip			20		Calculated		Calculated				
One-way trips/day			2		Daily Trips		Daily VMT				
No. of employees: Grubbing/Land Clearing			5		10		200.00				
No. of employees: Grading/Excavation			28		56		1,120.00				
No. of employees: Drainage/Utilities/Sub-Grade			18		36		720.00				
No. of employees: Paving			8		16		320.00				
Emission Rates		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Grubbing/Land Clearing (grams/mile)		0.02	1.10	0.10	0.05	0.02	0.00	339.80	0.00	0.01	342.28
Grading/Excavation (grams/mile)		0.02	1.10	0.10	0.05	0.02	0.00	339.80	0.00	0.01	342.28
Draining/Utilities/Sub-Grade (grams/mile)		0.02	1.10	0.10	0.05	0.02	0.00	339.80	0.00	0.01	342.28
Paving (grams/mile)		0.02	1.10	0.10	0.05	0.02	0.00	339.80	0.00	0.01	342.28
Grubbing/Land Clearing (grams/trip)		1.18	2.95	0.34	0.00	0.00	0.00	72.81	0.08	0.04	85.39
Grading/Excavation (grams/trip)		1.18	2.95	0.34	0.00	0.00	0.00	72.81	0.08	0.04	85.39
Draining/Utilities/Sub-Grade (grams/trip)		1.18	2.95	0.34	0.00	0.00	0.00	72.81	0.08	0.04	85.39
Paving (grams/trip)		1.18	2.95	0.34	0.00	0.00	0.00	72.81	0.08	0.04	85.39
Emissions		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Pounds per day - Grubbing/Land Clearing		0.03	0.55	0.05	0.02	0.01	0.00	151.43	0.00	0.00	152.80
Tons per const. Period - Grubbing/Land Clearing		0.00	0.00	0.00	0.00	0.00	0.00	0.75	0.00	0.00	0.76

Pounds per day - Grading/Excavation	0.20	3.08	0.28	0.11	0.05	0.01	848.01	0.02	0.02	855.69
Tons per const. Period - Grading/Excavation	0.00	0.06	0.01	0.00	0.00	0.00	16.79	0.00	0.00	16.94
Pounds per day - Drainage/Utilities/Sub-Grade	0.13	1.98	0.18	0.07	0.03	0.01	545.15	0.01	0.02	550.09
Tons per const. Period - Drainage/Utilities/Sub-Grade	0.00	0.03	0.00	0.00	0.00	0.00	9.44	0.00	0.00	9.53
Pounds per day - Paving	0.06	0.88	0.08	0.03	0.01	0.00	242.29	0.01	0.01	244.48
Tons per const. Period - Paving	0.00	0.01	0.00	0.00	0.00	0.00	1.80	0.00	0.00	1.82
Total tons per construction project	0.01	0.10	0.01	0.00	0.00	0.00	28.78	0.00	0.00	29.04

Note: Water Truck default values can be overridden in cells D153 through D156, I153 through I156, and F153 through F156.

Water Truck Emissions										
User Input	User Override of Default # Water Trucks	Program Estimate of Number of Water Trucks	User Override of Truck Round Trips/Vehicle/Day	Default Values Round Trips/Vehicle/Day	Calculated Trips/day	User Override of Miles/Round Trip	Default Values Miles/Round Trip	Calculated Daily VMT		
Grubbing/Land Clearing - Exhaust		1		5	5		8.00	40.00		
Grading/Excavation - Exhaust		1		5	5		8.00	40.00		
Drainage/Utilities/Subgrade		1		5	5		8.00	40.00		
Paving		1		5	5		8.00	40.00		
Emission Rates	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	C02e
Grubbing/Land Clearing (grams/mile)	0.04	0.42	3.06	0.11	0.05	0.02	1,779.29	0.00	0.28	1,862.69
Grading/Excavation (grams/mile)	0.04	0.42	3.06	0.11	0.05	0.02	1,779.29	0.00	0.28	1,862.69
Draining/Utilities/Sub-Grade (grams/mile)	0.04	0.42	3.06	0.11	0.05	0.02	1,779.29	0.00	0.28	1,862.69
Paving (grams/mile)	0.04	0.42	3.06	0.11	0.05	0.02	1,779.29	0.00	0.28	1,862.69
Grubbing/Land Clearing (grams/trip)	0.00	0.00	3.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation (grams/trip)	0.00	0.00	3.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Draining/Utilities/Sub-Grade (grams/trip)	0.00	0.00	3.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving (grams/trip)	0.00	0.00	3.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Emissions	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	C02e
Pounds per day - Grubbing/Land Clearing	0.00	0.04	0.31	0.01	0.00	0.00	156.91	0.00	0.02	164.26
Tons per const. Period - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.78	0.00	0.00	0.81
Pounds per day - Grading/Excavation	0.00	0.04	0.31	0.01	0.00	0.00	156.91	0.00	0.02	164.26
Tons per const. Period - Grading/Excavation	0.00	0.00	0.01	0.00	0.00	0.00	3.11	0.00	0.00	3.25
Pounds per day - Drainage/Utilities/Sub-Grade	0.00	0.04	0.31	0.01	0.00	0.00	156.91	0.00	0.02	164.26
Tons per const. Period - Drainage/Utilities/Sub-Grade	0.00	0.00	0.01	0.00	0.00	0.00	2.72	0.00	0.00	2.85
Pounds per day - Paving	0.00	0.04	0.31	0.01	0.00	0.00	156.91	0.00	0.02	164.26
Tons per const. Period - Paving	0.00	0.00	0.00	0.00	0.00	0.00	1.17	0.00	0.00	1.22
Total tons per construction project	0.00	0.00	0.02	0.00	0.00	0.00	7.77	0.00	0.00	8.13

Note: Fugitive dust default values can be overridden in cells D183 through D185.

Fugitive Dust	User Override of Max Acreage Disturbed/Day	Default Maximum Acreage/Day	PM10 pounds/day	PM10 tons/per period	PM2.5 pounds/day	PM2.5 tons/per period
Fugitive Dust - Grubbing/Land Clearing		0.27	2.70	0.01	0.56	0.00
Fugitive Dust - Grading/Excavation		0.27	2.70	0.05	0.56	0.01
Fugitive Dust - Drainage/Utilities/Subgrade		0.27	2.70	0.05	0.56	0.01

Off-Road Equipment Emissions																
Grubbing/Land Clearing		Default Number of Vehicles	Mitigation Option Override of	Default	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e		
Override of Default Number of Vehicles		Program-estimate	Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected)		Equipment Tier	Type	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day		
					Model Default Tier	Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
					Model Default Tier	Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
					Model Default Tier	Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
					Model Default Tier	Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
					Model Default Tier	Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
					Model Default Tier	Cranes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
0.00		1			Model Default Tier	Crawler Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
					Model Default Tier	Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
0.00		2			Model Default Tier	Excavators	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
					Model Default Tier	Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
					Model Default Tier	Generator Sets	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
					Model Default Tier	Graders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
					Model Default Tier	Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
1.00					Model Default Tier	Off-Highway Trucks	0.61	3.60	5.26	0.19	0.18	0.01	1,278.52	0.41		
					Model Default Tier	Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
					Model Default Tier	Other General Industrial Equipn	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
					Model Default Tier	Other Material Handling Equiprr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
					Model Default Tier	Pavers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
					Model Default Tier	Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
					Model Default Tier	Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
					Model Default Tier	Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
					Model Default Tier	Pumps	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
					Model Default Tier	Rollers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
					Model Default Tier	Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
1.00					Model Default Tier	Rubber Tired Dozers	1.05	4.04	10.97	0.53	0.49	0.01	827.35	0.27		
1.00					Model Default Tier	Rubber Tired Loaders	0.34	1.60	3.86	0.13	0.12	0.01	605.23	0.20		
					Model Default Tier	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
0.00		1			Model Default Tier	Signal Boards	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
					Model Default Tier	Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
					Model Default Tier	Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
					Model Default Tier	Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
					Model Default Tier	Tractors/Loaders/Backhoes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
					Model Default Tier	Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
					Model Default Tier	Welders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
User-Defined Off-road Equipment																
Number of Vehicles		If non-default vehicles are used, please provide information in 'Non-default Off-road Equipment' tab				ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e	
0.00		N/A				0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
0.00		N/A				0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
0.00		N/A				0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
0.00		N/A				0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
0.00		N/A				0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
0.00		N/A				0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
0.00		N/A				0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	Grubbing/Land Clearing					pounds per day	2.00	9.24	20.10	0.85	0.79	0.03	2,711.10	0.88	0.02	2,740.32
	Grubbing/Land Clearing					tons per phase	0.01	0.05	0.10	0.00	0.00	0.00	13.42	0.00	0.00	13.56
Grading/Excavation																
Default Number of Vehicles		Mitigation Option Override of	Default	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e			
Override of Default Number of Vehicles		Program-estimate	Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected)		Equipment Tier	Type	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day		
					Model Default Tier	Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
					Model Default Tier	Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
					Model Default Tier	Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
					Model Default Tier	Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
					Model Default Tier	Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
0.00		1			Model Default Tier	Cranes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
1.00		2			Model Default Tier	Crawler Tractors	0.55	2.44	6.97	0.26	0.24	0.01	760.36	0.25		
					Model Default Tier	Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
1.00		4			Model Default Tier	Excavators	0.23	3.27	2.15	0.10	0.10	0.01	500.19	0.16		
1.00					Model Default Tier	Forklifts	0.13	1.17	1.18	0.08	0.08	0.00	148.03	0.05		
					Model Default Tier	Generator Sets	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
0.00		2			Model Default Tier	Graders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
					Model Default Tier	Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
1.00					Model Default Tier	Off-Highway Trucks	0.61	3.60	5.26	0.19	0.18	0.01	1,278.52	0.41		
					Model Default Tier	Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
					Model Default Tier	Other General Industrial Equipn	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
					Model Default Tier	Other Material Handling Equiprr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
					Model Default Tier	Pavers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
					Model Default Tier	Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
					Model Default Tier	Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
					Model Default Tier	Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
					Model Default Tier	Pumps	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
0.00		3			Model Default Tier	Rollers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
					Model Default Tier	Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
1.00					Model Default Tier	Rubber Tired Dozers	1.05	4.04	10.97	0.53	0.49	0.01	827.35	0.27		
1.00		3			Model Default Tier	Rubber Tired Loaders	0.34	1.60	3.86	0.13	0.12	0.01	605.23	0.20		
0.00		4			Model Default Tier	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
0.00		1			Model Default Tier	Signal Boards	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
					Model Default Tier	Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
					Model Default Tier	Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
					Model Default Tier	Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
		2			Model Default Tier	Tractors/Loaders/Backhoes	0.37	4.52	3.79	0.22	0.21	0.01	601.80	0.19		
					Model Default Tier	Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
					Model Default Tier	Welders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
User-Defined Off-road Equipment																
Number of Vehicles		If non-default vehicles are used, please provide information in 'Non-default Off-road Equipment' tab				ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e	
		Equipment Tier				Type	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	

0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			pounds per day	3.28	20.64	34.19	1.53	1.41	0.05	4,721.49	1.53	0.04	4,772.37	
			tons per phase	0.06	0.41	0.68	0.03	0.03	0.00	93.49	0.03	0.00	94.49	

Drainage/Utilities/Subgrade		Default Number of Vehicles	Mitigation Option Override of	Default	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
		Override of Default Number of Vehicles	Program-estimate	Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected)	Equipment Tier	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
					Model Default Tier	Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		0.00	1		Model Default Tier	Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		2.00			Model Default Tier	Bore/Drill Rigs	0.52	4.15	0.18	0.17	0.02	1,824.13	0.59	1,843.84
					Model Default Tier	Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
					Model Default Tier	Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		1.00			Model Default Tier	Cranes	0.41	1.98	0.20	0.18	0.01	558.74	0.18	564.76
					Model Default Tier	Crawler Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
					Model Default Tier	Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
					Model Default Tier	Excavators	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
					Model Default Tier	Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		0.00	1		Model Default Tier	Generator Sets	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		0.00	2		Model Default Tier	Graders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
					Model Default Tier	Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
					Model Default Tier	Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
					Model Default Tier	Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
					Model Default Tier	Other General Industrial Equipmn	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
					Model Default Tier	Other Material Handling Equiprr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
					Model Default Tier	Pavers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
					Model Default Tier	Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		0.00	1		Model Default Tier	Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		0.00	1		Model Default Tier	Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
					Model Default Tier	Pumps	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		0.00	1		Model Default Tier	Rollers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
					Model Default Tier	Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
					Model Default Tier	Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
					Model Default Tier	Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		0.00	4		Model Default Tier	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		0.00	1		Model Default Tier	Signal Boards	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
					Model Default Tier	Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
					Model Default Tier	Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
					Model Default Tier	Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		1.00	2		Model Default Tier	Tractors/Loaders/Backhoes	0.19	2.26	1.90	0.11	0.10	300.90	0.10	304.14
					Model Default Tier	Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
					Model Default Tier	Welders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

User-Defined Off-road Equipment		If non-default vehicles are used, please provide information in 'Non-default Off-road Equipment' tab			ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
		Number of Vehicles	Equipment Tier	Type	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
		0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
					pounds per day	1.12	8.39	12.79	0.49	0.45	2,683.77	0.87	0.02	2,712.74
					tons per phase	0.02	0.15	0.22	0.01	0.01	46.50	0.02	0.00	47.00

Paving		Default Number of Vehicles	Mitigation Option Override of	Default	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
		Override of Default Number of Vehicles	Program-estimate	Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected)	Equipment Tier	Type	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
					Model Default Tier	Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
					Model Default Tier	Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
					Model Default Tier	Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
					Model Default Tier	Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
					Model Default Tier	Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
					Model Default Tier	Cranes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
					Model Default Tier	Crawler Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
					Model Default Tier	Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
					Model Default Tier	Excavators	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
					Model Default Tier	Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
					Model Default Tier	Generator Sets	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
					Model Default Tier	Graders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
					Model Default Tier	Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
					Model Default Tier	Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
					Model Default Tier	Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
					Model Default Tier	Other General Industrial Equipmn	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
					Model Default Tier	Other Material Handling Equiprr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
					Model Default Tier	Pavers	0.25	2.90	0.13	0.12	0.00	455.06	0.15	459.97
		1			Model Default Tier	Paving Equipment	0.19	2.54	1.94	0.10	0.09	394.46	0.13	398.71
					Model Default Tier	Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
					Model Default Tier	Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
					Model Default Tier	Pumps	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		1			Model Default Tier	Rollers	0.19	1.88	1.92	0.12	0.11	254.09	0.08	256.83
					Model Default Tier	Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
					Model Default Tier	Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
					Model Default Tier	Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
					Model Default Tier	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		1			Model Default Tier	Signal Boards	0.06	0.30	0.36	0.01	0.01	49.31	0.01	49.56
					Model Default Tier	Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
					Model Default Tier	Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

			Model Default Tier	Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	2		Model Default Tier	Tractors/Loaders/Backhoes	0.37	4.52	3.79	0.22	0.21	0.01	601.80	0.19	0.01	608.28	
			Model Default Tier	Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Welders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
User-Defined Off-road Equipment															
Number of Vehicles		If non-default vehicles are used, please provide information in 'Non-default Off-road Equipment' tab			ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e	
		Equipment Tier	Type		pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	
0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
		Paving	pounds per day		1.06	12.15	10.61	0.58	0.53	0.02	1,754.72	0.56	0.02	1,773.35	
		Paving	tons per phase		0.01	0.09	0.08	0.00	0.00	0.00	13.03	0.00	0.00	13.17	
Total Emissions all Phases (tons per construction period) =>					0.10	0.69	1.08	0.05	0.04	0.00	166.43	0.05	0.00	168.22	


Equipment default values for horsepower and hours/day can be overridden in cells D403 through D436 and F403 through F436.

Equipment	User Override of Horsepower	Default Values Horsepower	User Override of Hours/day	Default Values Hours/day
Aerial Lifts		63		8
Air Compressors		78		8
Bore/Drill Rigs		221		8
Cement and Mortar Mixers		9		8
Concrete/Industrial Saws		81		8
Cranes		231		8
Crawler Tractors		212		8
Crushing/Proc. Equipment		85		8
Excavators		158		8
Forklifts		89		8
Generator Sets		84		8
Graders		187		8
Off-Highway Tractors		124		8
Off-Highway Trucks		402		8
Other Construction Equipment		172		8
Other General Industrial Equipment		88		8
Other Material Handling Equipment		168		8
Pavers		130		8
Paving Equipment		132		8
Plate Compactors		8		8
Pressure Washers		13		8
Pumps		84		8
Rollers		80		8
Rough Terrain Forklifts		100		8
Rubber Tired Dozers		247		8
Rubber Tired Loaders		203		8
Scrapers		367		8
Signal Boards		6		8
Skid Steer Loaders		65		8
Surfacing Equipment		263		8
Sweepers/Scrubbers		64		8
Tractors/Loaders/Backhoes		97		8
Trenchers		78		8
Welders		46		8

END OF DATA ENTRY SHEET

Road Construction Emissions Model, Version 9.0.0

Daily Emission Estimates for -> Bradley Bridge														
Project Phases (Pounds)	ROG (lbs/day)	CO (lbs/day)	NOx (lbs/day)	Total PM10 (lbs/day)	Exhaust PM10 (lbs/day)	Fugitive Dust PM10 (lbs/day)	Total PM2.5 (lbs/day)	Exhaust PM2.5 (lbs/day)	Fugitive Dust PM2.5 (lbs/day)	SOx (lbs/day)	CO2 (lbs/day)	CH4 (lbs/day)	N2O (lbs/day)	CO2e (lbs/day)
Grubbing/Land Clearing	2.03	9.83	20.46	3.58	0.88	2.70	1.36	0.80	0.56	0.03	3,019.44	0.88	0.05	3,057.38
Grading/Excavation	3.48	23.76	34.78	4.35	1.65	2.70	2.02	1.46	0.56	0.06	5,726.40	1.55	0.09	5,792.33
Drainage/Utilities/Sub-Grade	1.25	10.41	13.28	3.28	0.58	2.70	1.05	0.49	0.56	0.03	3,385.82	0.88	0.06	3,427.09
Paving	1.12	13.07	11.00	0.62	0.62	0.00	0.55	0.55	0.00	0.02	2,153.92	0.56	0.05	2,182.09
Maximum (pounds/day)	3.48	23.76	34.78	4.35	1.65	2.70	2.02	1.46	0.56	0.06	5,726.40	1.55	0.09	5,792.33
Total (tons/construction project)	0.11	0.80	1.10	0.17	0.05	0.11	0.07	0.05	0.02	0.00	202.98	0.05	0.00	205.40
Notes: Project Start Year -> 2021														
Project Length (months) -> 5														
Total Project Area (acres) -> 0														
Maximum Area Disturbed/Day (acres) -> 0														
Water Truck Used? -> Yes														
Total Material Imported/Exported Volume (yd³/day)														
Daily VMT (miles/day)														
Phase	Soil	Asphalt	Soil Hauling	Asphalt Hauling	Worker Commute	Water Truck								
Grubbing/Land Clearing	0	0	0	0	200	40								
Grading/Excavation	0	0	0	0	1,120	40								
Drainage/Utilities/Sub-Grade	0	0	0	0	720	40								
Paving	0	0	0	0	320	40								
PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.														
Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns G and H. Total PM2.5 emissions shown in Column I are the sum of exhaust and fugitive dust emissions shown in columns J and K.														
CO2e emissions are estimated by multiplying mass emissions for each GHG by its global warming potential (GWP), 1 , 25 and 298 for CO2, CH4 and N2O, respectively. Total CO2e is then estimated by summing CO2e estimates over all GHGs.														
Total Emission Estimates by Phase for -> Bradley Bridge														
Project Phases (Tons for all except CO2e. Metric tonnes for CO2e)	ROG (tons/phase)	CO (tons/phase)	NOx (tons/phase)	Total PM10 (tons/phase)	Exhaust PM10 (tons/phase)	Fugitive Dust PM10 (tons/phase)	Total PM2.5 (tons/phase)	Exhaust PM2.5 (tons/phase)	Fugitive Dust PM2.5 (tons/phase)	SOx (tons/phase)	CO2 (tons/phase)	CH4 (tons/phase)	N2O (tons/phase)	CO2e (MT/phase)
Grubbing/Land Clearing	0.01	0.05	0.10	0.02	0.00	0.01	0.01	0.00	0.00	0.00	14.95	0.00	0.00	13.73
Grading/Excavation	0.07	0.47	0.69	0.09	0.03	0.05	0.04	0.03	0.01	0.00	113.38	0.03	0.00	104.04
Drainage/Utilities/Sub-Grade	0.02	0.18	0.23	0.06	0.01	0.05	0.02	0.01	0.01	0.00	58.66	0.02	0.00	53.86
Paving	0.01	0.10	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	15.99	0.00	0.00	14.70
Maximum (tons/phase)	0.07	0.47	0.69	0.09	0.03	0.05	0.04	0.03	0.01	0.00	113.38	0.03	0.00	104.04
Total (tons/construction project)	0.11	0.80	1.10	0.17	0.05	0.11	0.07	0.05	0.02	0.00	202.98	0.05	0.00	186.34
PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.														
Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns G and H. Total PM2.5 emissions shown in Column I are the sum of exhaust and fugitive dust emissions shown in columns J and K.														
CO2e emissions are estimated by multiplying mass emissions for each GHG by its global warming potential (GWP), 1 , 25 and 298 for CO2, CH4 and N2O, respectively. Total CO2e is then estimated by summing CO2e estimates over all GHGs.														
The CO2e emissions are reported as metric tons per phase.														

<h2 style="margin: 0;">Road Construction Emissions Model</h2> <h3 style="margin: 0;">Data Entry Worksheet</h3> <p><small>Note: Required data input sections have a yellow background. Optional data input sections have a blue background. Only areas with a yellow or blue background can be modified. Program defaults have a white background. The user is required to enter information in cells D10 through D24, E28 through G35, and D38 through D41 for all project types. Please use "Clear Data Input & User Overrides" button first before changing the Project Type or begin a new project.</small></p>		Version 9.0.0		 <p>To begin a new project, click this button to clear data previously entered. This button will only work if you opted not to disable macros when loading this spreadsheet.</p>																																																
<div style="display: flex; justify-content: space-between;"> <div style="width: 30%;"> <h4>Input Type</h4> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td>Project Name</td><td>Bradley Access Road</td></tr> <tr><td>Construction Start Year</td><td>2021</td></tr> <tr><td>Project Type</td><td>2</td></tr> <tr><td>Project Construction Time</td><td>0.50</td></tr> <tr><td>Working Days per Month</td><td>22.00</td></tr> <tr><td>Predominant Soil/Site Type: Enter 1, 2, or 3 <small>(for project within "Sacramento County", follow soil type selection instructions in cells E18 to E20 otherwise see instructions provided in cells J18 to J22)</small></td><td>1</td></tr> <tr><td>Project Length</td><td>0.10</td></tr> <tr><td>Total Project Area</td><td>1.92</td></tr> <tr><td>Maximum Area Disturbed/Day</td><td>1.92</td></tr> <tr><td>Water Trucks Used?</td><td>1</td></tr> </table> </div> <div style="width: 65%;"> <p>Enter a Year between 2014 and 2040 (inclusive)</p> <ol style="list-style-type: none"> New Road Construction : Project to build a roadway from bare ground, which generally requires more site preparation than widening an existing roadway Road Widening : Project to add a new lane to an existing roadway Bridge/Overpass Construction : Project to build an elevated roadway, which generally requires some different equipment than a new roadway, such as a crane Other Linear Project Type: Non-roadway project such as a pipeline, transmission line, or levee construction <p>months days (assume 22 if unknown)</p> <ol style="list-style-type: none"> Sand Gravel : Use for quaternary deposits (Delta/West County) Weathered Rock-Earth : Use for Laguna formation (Jackson Highway area) or the lone formation (Scott Road, Rancho Murieta) Blasted Rock : Use for Salt Springs Slate or Copper Hill Volcanics (Folsom South of Highway 50, Rancho Murieta) <p>miles acres acres 1. Yes 2. No</p> </div> </div>						Project Name	Bradley Access Road	Construction Start Year	2021	Project Type	2	Project Construction Time	0.50	Working Days per Month	22.00	Predominant Soil/Site Type: Enter 1, 2, or 3 <small>(for project within "Sacramento County", follow soil type selection instructions in cells E18 to E20 otherwise see instructions provided in cells J18 to J22)</small>	1	Project Length	0.10	Total Project Area	1.92	Maximum Area Disturbed/Day	1.92	Water Trucks Used?	1																											
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<div style="float: right; border: 1px solid black; padding: 5px; font-size: small;"> Please note that the soil type instructions provided in cells E18 to E20 are specific to Sacramento County. Maps available from the California Geologic Survey (see weblink below) can be used to determine soil type outside Sacramento County. http://www.conservation.ca.gov/cgs/information/geologic_mapping/Pages/googlemaps.aspx#regionalseries </div>																																																				
<h4>Material Hauling Quantity Input</h4> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Material Type</th> <th>Phase</th> <th>Haul Truck Capacity (yd³) (assume 20 if unknown)</th> <th>Import Volume (yd³/day)</th> <th>Export Volume (yd³/day)</th> </tr> </thead> <tbody> <tr><td rowspan="5">Soil</td><td>Grubbing/Land Clearing</td><td></td><td></td><td></td></tr> <tr><td>Grading/Excavation</td><td></td><td></td><td></td></tr> <tr><td>Drainage/Utilities/Sub-Grade</td><td></td><td></td><td></td></tr> <tr><td>Paving</td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td></tr> <tr><td rowspan="5">Asphalt</td><td>Grubbing/Land Clearing</td><td></td><td></td><td></td></tr> <tr><td>Grading/Excavation</td><td></td><td></td><td></td></tr> <tr><td>Drainage/Utilities/Sub-Grade</td><td></td><td></td><td></td></tr> <tr><td>Paving</td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td></tr> </tbody> </table>						Material Type	Phase	Haul Truck Capacity (yd³) (assume 20 if unknown)	Import Volume (yd³/day)	Export Volume (yd³/day)	Soil	Grubbing/Land Clearing				Grading/Excavation				Drainage/Utilities/Sub-Grade				Paving								Asphalt	Grubbing/Land Clearing				Grading/Excavation				Drainage/Utilities/Sub-Grade				Paving							
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<p>The remaining sections of this sheet contain areas that can be modified by the user, although those modifications are optional.</p>																																																				

Note: The program's estimates of construction period phase length can be overridden in cells D50 through D53, and F50 through F53.

Construction Periods	User Override of Construction Months	Program Calculated Months	User Override of Phase Starting Date	Program Default Phase Starting Date
Grubbing/Land Clearing		0.05		1/1/2021
Grading/Excavation		0.20		1/3/2021
Drainage/Utilities/Sub-Grade		0.18		1/10/2021
Paving		0.08		1/16/2021
Totals (Months)	1			

Note: Soil Hauling emission default values can be overridden in cells D61 through D64, and F61 through F64.

Soil Hauling Emissions		User Override of Miles/Round Trip	Program Estimate of Miles/Round Trip	User Override of Truck Round Trips/Day	Default Values Round Trips/Day	Calculated Daily VMT				
User Input										
Miles/round trip: Grubbing/Land Clearing		30.00			0	0.00				
Miles/round trip: Grading/Excavation		30.00			0	0.00				
Miles/round trip: Drainage/Utilities/Sub-Grade		30.00			0	0.00				
Miles/round trip: Paving		30.00			0	0.00				
Emission Rates	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Grubbing/Land Clearing (grams/mile)	0.04	0.42	3.06	0.11	0.05	0.02	1,779.29	0.00	0.28	1,862.69
Grading/Excavation (grams/mile)	0.04	0.42	3.06	0.11	0.05	0.02	1,779.29	0.00	0.28	1,862.69
Draining/Utilities/Sub-Grade (grams/mile)	0.04	0.42	3.06	0.11	0.05	0.02	1,779.29	0.00	0.28	1,862.69
Paving (grams/mile)	0.04	0.42	3.06	0.11	0.05	0.02	1,779.29	0.00	0.28	1,862.69
Grubbing/Land Clearing (grams/trip)	0.00	0.00	3.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation (grams/trip)	0.00	0.00	3.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Draining/Utilities/Sub-Grade (grams/trip)	0.00	0.00	3.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving (grams/trip)	0.00	0.00	3.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling Emissions	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Pounds per day - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Grading/Excavation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grading/Excavation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total tons per construction project	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Note: Asphalt Hauling emission default values can be overridden in cells D91 through D94, and F91 through F94.

Asphalt Hauling Emissions		User Override of	Program Estimate of	User Override of Truck	Default Values	Calculated				
User Input	Miles/Round Trip	Miles/Round Trip	Round Trips/Day	Round Trips/Day	Round Trips/Day	Daily VMT				
Miles/round trip: Grubbing/Land Clearing		30.00		0	0.00					
Miles/round trip: Grading/Excavation		30.00		0	0.00					
Miles/round trip: Drainage/Utilities/Sub-Grade		30.00		0	0.00					
Miles/round trip: Paving		30.00		0	0.00					

Emission Rates	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Grubbing/Land Clearing (grams/mile)	0.04	0.42	3.06	0.11	0.05	0.02	1,779.29	0.00	0.28	1,862.69
Grading/Excavation (grams/mile)	0.04	0.42	3.06	0.11	0.05	0.02	1,779.29	0.00	0.28	1,862.69
Draining/Utilities/Sub-Grade (grams/mile)	0.04	0.42	3.06	0.11	0.05	0.02	1,779.29	0.00	0.28	1,862.69
Paving (grams/mile)	0.04	0.42	3.06	0.11	0.05	0.02	1,779.29	0.00	0.28	1,862.69
Grubbing/Land Clearing (grams/trip)	0.00	0.00	3.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation (grams/trip)	0.00	0.00	3.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Draining/Utilities/Sub-Grade (grams/trip)	0.00	0.00	3.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving (grams/trip)	0.00	0.00	3.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Emissions	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Pounds per day - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Grading/Excavation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grading/Excavation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total tons per construction project	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Note: Worker commute default values can be overridden in cells D121 through D126.

Worker Commute Emissions		User Override of Worker									
User Input		Commute Default Values		Default Values							
Miles/ one-way trip			20		Calculated		Calculated				
One-way trips/day			2		Daily Trips		Daily VMT				
No. of employees: Grubbing/Land Clearing			5		10		200.00				
No. of employees: Grading/Excavation			20		40		800.00				
No. of employees: Drainage/Utilities/Sub-Grade			14		28		560.00				
No. of employees: Paving			10		20		400.00				
Emission Rates		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Grubbing/Land Clearing (grams/mile)		0.02	1.10	0.10	0.05	0.02	0.00	339.80	0.00	0.01	342.28
Grading/Excavation (grams/mile)		0.02	1.10	0.10	0.05	0.02	0.00	339.80	0.00	0.01	342.28
Draining/Utilities/Sub-Grade (grams/mile)		0.02	1.10	0.10	0.05	0.02	0.00	339.80	0.00	0.01	342.28
Paving (grams/mile)		0.02	1.10	0.10	0.05	0.02	0.00	339.80	0.00	0.01	342.28
Grubbing/Land Clearing (grams/trip)		1.18	2.95	0.34	0.00	0.00	0.00	72.81	0.08	0.04	85.39
Grading/Excavation (grams/trip)		1.18	2.95	0.34	0.00	0.00	0.00	72.81	0.08	0.04	85.39
Draining/Utilities/Sub-Grade (grams/trip)		1.18	2.95	0.34	0.00	0.00	0.00	72.81	0.08	0.04	85.39
Paving (grams/trip)		1.18	2.95	0.34	0.00	0.00	0.00	72.81	0.08	0.04	85.39
Emissions		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Pounds per day - Grubbing/Land Clearing		0.03	0.55	0.05	0.02	0.01	0.00	151.43	0.00	0.00	152.80
Tons per const. Period - Grubbing/Land Clearing		0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.00	0.00	0.08

Pounds per day - Grading/Excavation	0.14	2.20	0.20	0.08	0.03	0.01	605.72	0.02	0.02	611.21
Tons per const. Period - Grading/Excavation	0.00	0.00	0.00	0.00	0.00	0.00	1.33	0.00	0.00	1.34
Pounds per day - Drainage/Utilities/Sub-Grade	0.10	1.54	0.14	0.06	0.02	0.00	424.00	0.01	0.01	427.85
Tons per const. Period - Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.82	0.00	0.00	0.82
Pounds per day - Paving	0.07	1.10	0.10	0.04	0.02	0.00	302.86	0.01	0.01	305.60
Tons per const. Period - Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.00	0.00	0.25
Total tons per construction project	0.00	0.01	0.00	0.00	0.00	0.00	2.48	0.00	0.00	2.50

Note: Water Truck default values can be overridden in cells D153 through D156, I153 through I156, and F153 through F156.

Water Truck Emissions										
User Input	User Override of Default # Water Trucks	Program Estimate of Number of Water Trucks	User Override of Truck Round Trips/Vehicle/Day	Default Values Round Trips/Vehicle/Day	Calculated Trips/day	User Override of Miles/Round Trip	Default Values Miles/Round Trip	Calculated Daily VMT		
Grubbing/Land Clearing - Exhaust		1		5	5		8.00	40.00		
Grading/Excavation - Exhaust		1		5	5		8.00	40.00		
Drainage/Utilities/Subgrade		1		5	5		8.00	40.00		
Paving		1		5	5		8.00	40.00		
Emission Rates	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Grubbing/Land Clearing (grams/mile)	0.04	0.42	3.06	0.11	0.05	0.02	1,779.29	0.00	0.28	1,862.69
Grading/Excavation (grams/mile)	0.04	0.42	3.06	0.11	0.05	0.02	1,779.29	0.00	0.28	1,862.69
Draining/Utilities/Sub-Grade (grams/mile)	0.04	0.42	3.06	0.11	0.05	0.02	1,779.29	0.00	0.28	1,862.69
Paving (grams/mile)	0.04	0.42	3.06	0.11	0.05	0.02	1,779.29	0.00	0.28	1,862.69
Grubbing/Land Clearing (grams/trip)	0.00	0.00	3.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation (grams/trip)	0.00	0.00	3.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Draining/Utilities/Sub-Grade (grams/trip)	0.00	0.00	3.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving (grams/trip)	0.00	0.00	3.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Emissions	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Pounds per day - Grubbing/Land Clearing	0.00	0.04	0.31	0.01	0.00	0.00	156.91	0.00	0.02	164.26
Tons per const. Period - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.00	0.00	0.09
Pounds per day - Grading/Excavation	0.00	0.04	0.31	0.01	0.00	0.00	156.91	0.00	0.02	164.26
Tons per const. Period - Grading/Excavation	0.00	0.00	0.00	0.00	0.00	0.00	0.35	0.00	0.00	0.36
Pounds per day - Drainage/Utilities/Sub-Grade	0.00	0.04	0.31	0.01	0.00	0.00	156.91	0.00	0.02	164.26
Tons per const. Period - Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.30	0.00	0.00	0.32
Pounds per day - Paving	0.00	0.04	0.31	0.01	0.00	0.00	156.91	0.00	0.02	164.26
Tons per const. Period - Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.00	0.00	0.14
Total tons per construction project	0.00	0.00	0.00	0.00	0.00	0.00	0.86	0.00	0.00	0.90

Note: Fugitive dust default values can be overridden in cells D183 through D185.

Fugitive Dust	User Override of Max Acreage Disturbed/Day	Default Maximum Acreage/Day	PM10 pounds/day	PM10 tons/per period	PM2.5 pounds/day	PM2.5 tons/per period
Fugitive Dust - Grubbing/Land Clearing		1.92	19.20	0.01	3.99	0.00
Fugitive Dust - Grading/Excavation		1.92	19.20	0.04	3.99	0.01
Fugitive Dust - Drainage/Utilities/Subgrade		1.92	19.20	0.04	3.99	0.01

Off-Road Equipment Emissions																
Grubbing/Land Clearing		Default Number of Vehicles	Mitigation Option Override of	Default	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e		
Override of Default Number of Vehicles		Program-estimate	Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected)		Equipment Tier	Type	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day		
					Model Default Tier	Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
					Model Default Tier	Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
					Model Default Tier	Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
					Model Default Tier	Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
					Model Default Tier	Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
					Model Default Tier	Cranes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
0.00		1			Model Default Tier	Crawler Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
					Model Default Tier	Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
0.00		2			Model Default Tier	Excavators	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
					Model Default Tier	Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
					Model Default Tier	Generator Sets	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
					Model Default Tier	Graders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
					Model Default Tier	Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
1.00					Model Default Tier	Off-Highway Trucks	0.61	3.60	5.26	0.19	0.18	0.01	1,278.52	0.41		
					Model Default Tier	Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
					Model Default Tier	Other General Industrial Equipn	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
					Model Default Tier	Other Material Handling Equiprr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
					Model Default Tier	Pavers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
					Model Default Tier	Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
					Model Default Tier	Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
					Model Default Tier	Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
					Model Default Tier	Pumps	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
					Model Default Tier	Rollers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
					Model Default Tier	Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
1.00					Model Default Tier	Rubber Tired Dozers	1.05	4.04	10.97	0.53	0.49	0.01	827.35	0.27		
1.00					Model Default Tier	Rubber Tired Loaders	0.34	1.60	3.86	0.13	0.12	0.01	605.23	0.20		
					Model Default Tier	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
0.00		1			Model Default Tier	Signal Boards	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
					Model Default Tier	Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
					Model Default Tier	Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
					Model Default Tier	Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
					Model Default Tier	Tractors/Loaders/Backhoes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
					Model Default Tier	Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
					Model Default Tier	Welders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
User-Defined Off-road Equipment																
Number of Vehicles		If non-default vehicles are used, please provide information in 'Non-default Off-road Equipment' tab				ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e	
0.00		Equipment Tier				Type	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	
0.00		N/A				0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
0.00		N/A				0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
0.00		N/A				0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
0.00		N/A				0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
0.00		N/A				0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
0.00		N/A				0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
0.00		N/A				0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
							ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
		Grubbing/Land Clearing				pounds per day	2.00	9.24	20.10	0.85	0.79	0.03	2,711.10	0.88	0.02	2,740.32
		Grubbing/Land Clearing				tons per phase	0.00	0.01	0.01	0.00	0.00	0.00	1.49	0.00	0.00	1.51
Grading/Excavation																
Grading/Excavation		Default Number of Vehicles	Mitigation Option Override of	Default	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e		
Override of Default Number of Vehicles		Program-estimate	Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected)		Equipment Tier	Type	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day		
					Model Default Tier	Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
					Model Default Tier	Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
					Model Default Tier	Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
					Model Default Tier	Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
					Model Default Tier	Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
		0			Model Default Tier	Cranes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
		1			Model Default Tier	Crawler Tractors	0.55	2.44	6.97	0.26	0.24	0.01	760.36	0.25		
					Model Default Tier	Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
1.00		3			Model Default Tier	Excavators	0.23	3.27	2.15	0.10	0.10	0.01	500.19	0.16		
					Model Default Tier	Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
					Model Default Tier	Generator Sets	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
1.00		2			Model Default Tier	Graders	0.45	1.77	5.92	0.19	0.17	0.01	641.68	0.21		
					Model Default Tier	Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
					Model Default Tier	Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
					Model Default Tier	Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
					Model Default Tier	Other General Industrial Equipn	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
					Model Default Tier	Other Material Handling Equiprr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
					Model Default Tier	Pavers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
					Model Default Tier	Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
					Model Default Tier	Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
					Model Default Tier	Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
					Model Default Tier	Pumps	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
1.00		2			Model Default Tier	Rollers	0.19	1.88	1.92	0.12	0.11	0.00	254.09	0.08		
					Model Default Tier	Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
1.00					Model Default Tier	Rubber Tired Dozers	1.05	4.04	10.97	0.53	0.49	0.01	827.35	0.27		
		1			Model Default Tier	Rubber Tired Loaders	0.34	1.60	3.86	0.13	0.12	0.01	605.23	0.20		
0.00		2			Model Default Tier	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
0.00		1			Model Default Tier	Signal Boards	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
					Model Default Tier	Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
					Model Default Tier	Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
					Model Default Tier	Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
2.00		4			Model Default Tier	Tractors/Loaders/Backhoes	0.37	4.52	3.79	0.22	0.21	0.01	601.80	0.19		
					Model Default Tier	Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
					Model Default Tier	Welders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
User-Defined Off-road Equipment																
Number of Vehicles		If non-default vehicles are used, please provide information in 'Non-default Off-road Equipment' tab				ROG	CO	NOx	PM10	PM2.5	SOx					

0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			pounds per day	3.19	19.51	35.60	1.56	1.43	0.04	4,190.71	1.36	0.04	4,235.87	
			tons per phase	0.01	0.04	0.08	0.00	0.00	0.00	9.22	0.00	0.00	9.32	

Default		Mitigation Option		Default		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Number of Vehicles		Override of		Default											
Override of Default Number of Vehicles		Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected)		Equipment Tier		pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
0.00	1			Model Default Tier	Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Model Default Tier	Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Model Default Tier	Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Model Default Tier	Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Model Default Tier	Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Model Default Tier	Cranes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Model Default Tier	Crawler Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Model Default Tier	Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Model Default Tier	Excavators	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Model Default Tier	Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	1			Model Default Tier	Generator Sets	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	1			Model Default Tier	Graders	0.45	1.77	5.92	0.19	0.17	0.01	641.68	0.21	0.01	648.60
				Model Default Tier	Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Model Default Tier	Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Model Default Tier	Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Model Default Tier	Other General Industrial Equipmn	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Model Default Tier	Other Material Handling Equiprr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Model Default Tier	Pavers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Model Default Tier	Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	1			Model Default Tier	Plate Compactors	0.04	0.21	0.25	0.01	0.01	0.00	34.48	0.00	0.00	34.65
				Model Default Tier	Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	1			Model Default Tier	Pumps	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Model Default Tier	Rollers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	1			Model Default Tier	Rough Terrain Forklifts	0.12	2.29	1.61	0.06	0.06	0.00	333.77	0.11	0.00	337.37
				Model Default Tier	Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Model Default Tier	Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	1			Model Default Tier	Scrapers	0.93	7.00	10.70	0.42	0.38	0.02	1,467.91	0.47	0.01	1,483.74
0.00	1			Model Default Tier	Signal Boards	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Model Default Tier	Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Model Default Tier	Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Model Default Tier	Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3			Model Default Tier	Tractors/Loaders/Backhoes	0.56	6.78	5.69	0.34	0.31	0.01	902.70	0.29	0.01	912.42
				Model Default Tier	Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Model Default Tier	Welders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

User-Defined Off-road Equipment		If non-default vehicles are used, please provide information in 'Non-default Off-road Equipment' tab												
Number of Vehicles		Equipment Tier	Type	ROG pounds/day	CO pounds/day	NOx pounds/day	PM10 pounds/day	PM2.5 pounds/day	SOx pounds/day	CO2 pounds/day	CH4 pounds/day	N2O pounds/day	CO2e pounds/day	
0.00		N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
0.00		N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
0.00		N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
0.00		N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
0.00		N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
0.00		N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
0.00		N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
0.00		N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
0.00		N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
0.00		N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
0.00		N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	

Paving	Default		Mitigation Option		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
	Number of Vehicles	Override of	Default											
	Override of Default Number of Vehicles	Program-estimate	Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected)	Equipment Tier										
			Model Default Tier	Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Cranes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Crawler Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Excavators	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Generator Sets	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Graders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other General Industrial Equipmn	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other Material Handling Equiprr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00	1	Model Default Tier	Pavers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00	1	Model Default Tier	Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pumps	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00	2	Model Default Tier	Rollers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00	1	Model Default Tier	Signal Boards	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

0.00	3		Model Default Tier	Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Tractors/Loaders/Backhoes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Welders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
User-Defined Off-road Equipment															
If non-default vehicles are used, please provide information in 'Non-default Off-road Equipment' tab															
Number of Vehicles		Equipment Tier	Type		ROG pounds/day	CO pounds/day	NOx pounds/day	PM10 pounds/day	PM2.5 pounds/day	SOx pounds/day	CO2 pounds/day	CH4 pounds/day		N2O pounds/day	CO2e pounds/day
0.00		N/A	0		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00
0.00		N/A	0		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00
0.00		N/A	0		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00
0.00		N/A	0		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00
0.00		N/A	0		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00
0.00		N/A	0		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00
0.00		N/A	0		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00
0.00		N/A	0		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00
Total Emissions all Phases (tons per construction period) ==>															
					0.01	0.08	0.14	0.01	0.01	0.00	17.22	0.01		0.00	17.40

Equipment default values for horsepower and hours/day can be overridden in cells D403 through D436 and F403 through F436.

Equipment	User Override of Horsepower	Default Values Horsepower	User Override of Hours/day	Default Values Hours/day
Aerial Lifts		63		8
Air Compressors		78		8
Bore/Drill Rigs		221		8
Cement and Mortar Mixers		9		8
Concrete/Industrial Saws		81		8
Cranes		231		8
Crawler Tractors		212		8
Crushing/Proc. Equipment		85		8
Excavators		158		8
Forklifts		89		8
Generator Sets		84		8
Graders		187		8
Off-Highway Tractors		124		8
Off-Highway Trucks		402		8
Other Construction Equipment		172		8
Other General Industrial Equipment		88		8
Other Material Handling Equipment		168		8
Pavers		130		8
Paving Equipment		132		8
Plate Compactors		8		8
Pressure Washers		13		8
Pumps		84		8
Rollers		80		8
Rough Terrain Forklifts		100		8
Rubber Tired Dozers		247		8
Rubber Tired Loaders		203		8
Scrapers		367		8
Signal Boards		6		8
Skid Steer Loaders		65		8
Surfacing Equipment		263		8
Sweepers/Scrubbers		64		8
Tractors/Loaders/Backhoes		97		8
Trenchers		78		8
Welders		46		8

END OF DATA ENTRY SHEET

APPENDIX B

NATURAL ENVIRONMENT STUDY AND NATURAL ENVIRONMENT STUDY ADDENDUM



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NATURAL ENVIRONMENT STUDY



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Natural Environment Study

Discussion of Biological Assessment, Jurisdictional Delineation,
Focused Species Surveys, and Habitat Assessments

Monterey County, California

Federal Project Number BHLO-5944 (100)

Bridge Number 44C-0050

August 2017

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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, District 5, 50 South Higuera Street, San Luis Obispo, CA 93401; (805) 549-3182 Voice, or use the California Relay Service TTY number, (800) 735-2929.

Natural Environment Study

Bradley Road Bridge Scour Repair Project
Monterey County, California
05-MON-0-CR
Bridge Number 44C-0050

August 2017

STATE OF CALIFORNIA
Department of Transportation and
County of Monterey Department of Public Works

Prepared By:


Matthew Willis, Senior Biologist
(805) 782-0745
LSA Associates, Inc.
285 South Street, Suite P
San Luis Obispo, California 93401

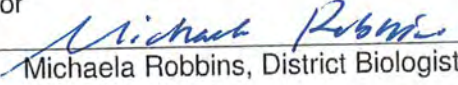
Reviewed By:


José Luis Gómez, Assistant Engineer/Project Manager
(831) 755-4816
County of Monterey
RMA - Public Works & Facilities
1441 Schilling Place, 2nd Floor
Salinas, California 93901

Date: *Sept. 7, 2017*

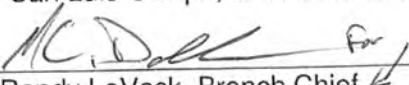
Recommended for

Approval By:


Michaela Robbins, District Biologist
(805) 549-3422
District 5 Environmental Stewardship Branch
50 Higuera Street
San Luis Obispo, California 93401

Date: *Sept 19, 2017*

Approved By:


Randy LaVack, Branch Chief
(805) 549-3182
District 5 Environmental Stewardship Branch
50 Higuera Street
San Luis Obispo, California 93401

Date: *9/20/17*

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Summary

This Natural Environment Study (NES) has been prepared to provide the technical information regarding special-status species and other natural resources that may be encountered during the County of Monterey (County) Public Works Department Bradley Road Bridge (County Bridge No. 44C-0050) Scour Repair Project (proposed project). The project is receiving funding from the Federal Highway Administration (FHWA) with local assistance from the California Department of Transportation (Caltrans). As part of its National Environmental Policy Act assignment of federal responsibilities by the FHWA (effective October 1, 2012) and pursuant to United States Code Title 23, Part 326, Caltrans will be the lead federal agency for the Section 7 Consultation of the Federal Endangered Species Act.

The County proposes to install scour protection at the substructure of the existing two-lane bridge on Bradley Road in the low-flow channel of the Salinas River in Monterey County, California. A 2013 Caltrans Bridge Inspection Report gave the Bradley Road Bridge a scour critical bridge rating that requires a plan of action. The proposed project also includes creating a temporary access road and diverting the flow of the Salinas River in order to install scour countermeasures at four bridge piers. Pile driving will not be required. After construction, the work areas will be returned to pre-project conditions.

This NES describes a Biological Study Area (BSA) that encompasses the proposed project footprint and a buffer to accommodate project changes that may occur during project design and development. This NES documents the conditions of the eight land cover types in the BSA and addresses potential impacts to each as well as to wetlands and other Waters of the United States (streambeds) under the jurisdiction of the United States Army Corps of Engineers (Corps), the Central Coast Regional Water Quality Control Board, and the California Department of Fish and Wildlife (CDFW). This NES also addresses potential impacts to trees, a bat maternity roost, 31 special-status species (11 plant species, 20 animal species), three Natural Communities of Special Concern, and two areas of Designated Critical Habitat under the jurisdiction of the United States Fish and Wildlife Service, National Marine Fisheries Service, and/or the CDFW. Included in these totals are nine federally listed species and seven State-listed species.

The proposed project will result in permanent impacts to the river channel resulting from increasing the size of four existing bridge piers. Temporary impacts will result

from vegetation removal associated with equipment access, staging areas, water diversion, and establishment of other work areas. The proposed project will result in permanent impacts to 0.03 acre and temporary impacts to 1.642 acres of areas within the jurisdiction of the Corps. Additionally, the proposed project will result in permanent impacts to 0.04 acre and temporary impacts to 2.71 acres of areas within the jurisdiction of the CDFW.

South-central California coast Distinct Population Segment (DPS) steelhead (*Oncorhynchus mykiss irideus*) is federally listed as a threatened species and has a designation of Species of Special Concern (SSC) by the CDFW. The Salinas River is federally designated critical habitat for the south-central California coast steelhead. The Salinas River provides suitable habitat for this anadromous species to spawn and develop before leaving the river for the ocean. With implementation of the proposed avoidance, minimization, and mitigation measures, the proposed project is not likely to adversely affect these special-status species. Therefore, the proposed project **may affect, is likely to adversely affect** the federally threatened south-central California coast DPS steelhead. Although permanent impacts to the Salinas River channel are proposed, mitigation and restoration is proposed as part of project implementation. Therefore, the proposed project **may affect, is likely to adversely affect** the federally designated critical habitat for steelhead. Additionally, the proposed project **may affect, but is not likely to adversely affect** the federally threatened California red-legged frog (*Rana Draytonii*).

One State endangered (SE) species and seven other SSC are also known to occur or may occur within and adjacent to the BSA. These species include bald eagle (*Haliaeetus leucocephalus*; SE), western pond turtle (*Emys marmorata*; SSC), San Joaquin coachwhip (*Masticophis [Coluber] flagellum ruddocki*; SSC), two-striped garter snake (*Thamnophis hammondi*; SSC), yellow warbler (*Setophaga petechia*; SSC), pallid bat (*Antrozous pallidus*; SSC), western red bat (*Lasiurus blossevillii*; SSC), and Salinas pocket mouse (*Perognathus inornatus psammophilus*; SSC). The proposed project will have no effect on the other special-status species known from the region. For a summary of effects determinations, see Table 7 in Chapter 5.

Table of Contents

Summary	i
Table of Contents	iii
List of Figures	ix
List of Tables	xi
List of Abbreviated Terms	xiii
Chapter 1. Introduction	1
1.1. <i>Project History</i>	1
1.1.1. Existing Facility	1
1.2. <i>Project Description</i>	11
1.2.1. Purpose and Need	11
1.2.2. Scour Repair	12
1.2.3. Construction Schedule	15
1.2.4. Traffic Detours and Construction Signage	15
1.2.5. Construction Staging and Access	15
1.2.6. Diversion and Dewatering	19
1.2.7. Construction Equipment	19
Chapter 2. Study Methods	21
2.1. <i>Regulatory Requirements</i>	21
2.1.1. Federal Endangered Species Act	21
2.1.2. Magnuson-Stevens Fishery Conservation and Management Act	21
2.1.3. Migratory Bird Treaty Act	21
2.1.4. Clean Water Act	21
2.1.5. Executive Order 11988 – Floodplain Management	22
2.1.6. Executive Order 11990 – Protection of Wetlands	22
2.1.7. Executive Order 13112 – Invasive Species	23
2.1.8. National Environmental Policy Act	23
2.1.9. California Endangered Species Act	23
2.1.10. Section 401 Water Quality Certification	23
2.1.11. California Fish and Game Code	23
2.1.11.1. Sections 3503, 3503.5, and 3513: Breeding Birds	23
2.1.11.2. Section 4150: Bat Maternity Colonies	24
2.1.11.3. Sections 1600-1616: Lake and Streambed Alteration	24
2.1.12. California Species of Special Concern	24
2.1.13. Native Plant Protection Act	24
2.1.14. Oak Woodlands Conservation Act (Senate Bill 1334)	25
2.1.15. County of Monterey Ordinance: Preservation of Oak and Other Protected Trees	25
2.2. <i>Studies Required</i>	25
2.2.1. Literature Search	25
2.3. <i>Field Reviews</i>	26
2.4. <i>Biological Study Area</i>	27
2.5. <i>Survey Methods</i>	27
2.5.1. General Biological Survey	27
2.5.2. Rare Plant Surveys	27
2.5.3. Least Bell’s Vireo and Willow Flycatcher Protocol Surveys	28
2.5.4. California Red-legged Frog Habitat Assessment	28
2.5.5. San Joaquin Kit Fox Habitat Assessment	28

2.5.6.	Nighttime Bat Survey.....	28
2.5.7.	Jurisdictional Delineation	28
2.5.8.	Tree Survey	29
2.6.	Personnel and Survey Dates	29
2.7.	Agency Coordination and Professional Contacts	32
2.8.	Limitations That May Influence Results.....	32
Chapter 3.	Results: Environmental Setting	35
3.1.	Description of the Existing Biological and Physical Conditions	35
3.1.1.	Study Area.....	35
3.1.2.	Physical Conditions.....	35
3.1.3.	Habitat Connectivity	36
3.1.4.	Biological Conditions in the Biological Study Area.....	37
3.1.4.1.	Annual Brome Grassland (<i>Bromus [diandrus,</i> <i>hordeaceus]</i> , <i>Brachypodium distachyon</i> Semi-Natural Herbaceous Stands)	41
3.1.4.2.	Fremont Cottonwood Forest (<i>Populus fremontii</i> Forest Alliance)	41
3.1.4.3.	Red Willow Thicket (<i>Salix laevigata</i> Woodland Alliance)	42
3.1.4.4.	Sandbar Willow Thicket (<i>Salix exigua</i> Shrubland Alliance)	43
3.1.4.5.	Coyote Brush Scrub (<i>Baccharis pilularis</i> Shrubland Alliance)	43
3.1.4.6.	Water Primrose Wetland (<i>Ludwigia [hexapetala,</i> <i>peplodes]</i> Provisional Semi-Natural Herbaceous Stands)	44
3.1.4.7.	Developed Area	44
3.1.4.8.	Open Water	45
3.1.4.9.	Wetlands	45
3.2.	Regional Species and Habitats of Concern.....	50
Chapter 4.	Results: Biological Resources, Discussion of Impacts, and Mitigation	67
4.1.	Habitats and Natural Communities of Special Concern.....	67
4.1.1.	Discussion of Fremont Cottonwood Forest (<i>Populus fremontii</i> Forest Alliance) and Red Willow Thicket (<i>Salix laevigata</i> Woodland Alliance).....	67
4.1.1.1.	Survey Results	67
4.1.1.2.	Project Impacts	67
4.1.1.3.	Avoidance and Minimization Efforts	67
4.1.1.4.	Compensatory Mitigation	68
4.1.1.5.	Cumulative Effects	68
4.1.2.	Discussion of Waters of the United States and State Waters.....	73
4.1.2.1.	Survey Results	73
4.1.2.2.	Project Impacts	73
4.1.2.3.	Avoidance and Minimization Efforts	73
4.1.2.4.	Compensatory Mitigation	74
4.1.2.5.	Cumulative Effects	74
4.1.3.	Discussion of Streambed.....	74
4.1.3.1.	Survey Results	74
4.1.3.2.	Project Impacts	75
4.1.3.3.	Avoidance and Minimization Efforts	75

4.1.3.4.	Compensatory Mitigation.....	75
4.1.3.5.	Cumulative Effects.....	75
4.1.4.	Discussion of Riparian Trees.....	76
4.1.4.1.	Survey Results.....	76
4.1.4.2.	Project Impacts.....	76
4.1.4.3.	Avoidance and Minimization Efforts.....	76
4.1.4.4.	Compensatory Mitigation.....	76
4.1.4.5.	Cumulative Effects.....	76
4.1.5.	Discussion of South-Central California Coast DPS Steelhead Critical Habitat	77
4.1.5.1.	Survey Results.....	78
4.1.5.2.	Project Impacts.....	78
4.1.5.3.	Avoidance and Minimization Efforts.....	78
4.1.5.4.	Compensatory Mitigation.....	78
4.1.5.5.	Cumulative Effects.....	78
4.1.6.	Discussion of Invasive Species.....	79
4.1.6.1.	Survey Results.....	79
4.1.6.2.	Project Impacts.....	80
4.1.6.3.	Avoidance and Minimization Efforts.....	80
4.1.6.4.	Compensatory Mitigation.....	81
4.1.6.5.	Cumulative Effects.....	81
4.2.	<i>Special-Status Plant Species.....</i>	81
4.2.1.	Discussion of Special-Status Plant Species	81
4.2.1.1.	Survey Results.....	82
4.2.1.2.	Project Impacts.....	82
4.2.1.3.	Avoidance and Minimization Efforts.....	82
4.2.1.4.	Compensatory Mitigation.....	82
4.2.1.5.	Cumulative Impacts.....	82
4.3.	<i>Special-Status Animal Species Occurrences</i>	82
4.3.1.	Discussion of South-Central California Coast DPS Steelhead.....	86
4.3.1.1.	Survey Results.....	86
4.3.1.2.	Project Impacts.....	86
4.3.1.3.	Avoidance and Minimization Efforts.....	86
4.3.1.4.	Compensatory Mitigation.....	90
4.3.1.5.	Cumulative Effects.....	90
4.3.2.	Discussion of California Red-Legged Frog.....	90
4.3.2.1.	Survey Results.....	90
4.3.2.2.	Project Impacts.....	91
4.3.2.3.	Avoidance and Minimization Efforts.....	91
4.3.2.4.	Compensatory Mitigation.....	94
4.3.2.5.	Cumulative Impacts.....	94
4.3.3.	Discussion of Western Pond Turtle.....	94
4.3.3.1.	Survey Results.....	95
4.3.3.2.	Project Impacts.....	95
4.3.3.3.	Avoidance and Minimization Efforts.....	95
4.3.3.4.	Compensatory Mitigation.....	95
4.3.3.5.	Cumulative Effects.....	95
4.3.4.	Discussion of San Joaquin Coachwhip.....	96
4.3.4.1.	Survey Results.....	96
4.3.4.2.	Project Impacts.....	96
4.3.4.3.	Avoidance and Minimization Efforts.....	96

4.3.4.4.	Compensatory Mitigation	96
4.3.4.5.	Cumulative Effects	96
4.3.5.	Discussion of Two-Stripe Garter Snake.....	96
4.3.5.1.	Survey Results	97
4.3.5.2.	Project Impacts	97
4.3.5.3.	Avoidance and Minimization Efforts	97
4.3.5.4.	Compensatory Mitigation	97
4.3.5.5.	Cumulative Effects	97
4.3.6.	Discussion of Least Bell's Vireo.....	97
4.3.6.1.	Survey Results	97
4.3.6.2.	Project Impacts	98
4.3.6.3.	Avoidance and Minimization Efforts	98
4.3.6.4.	Compensatory Mitigation	98
4.3.6.5.	Cumulative Impacts	98
4.3.7.	Discussion of Willow Flycatcher	98
4.3.7.1.	Survey Results	98
4.3.7.2.	Project Impacts	98
4.3.7.3.	Avoidance and Minimization Efforts	99
4.3.7.4.	Compensatory Mitigation	99
4.3.7.5.	Cumulative Impacts	99
4.3.8.	Discussion of Bald Eagle	99
4.3.8.1.	Survey Results	99
4.3.8.2.	Project Impacts	99
4.3.8.3.	Avoidance and Minimization Efforts	99
4.3.8.4.	Compensatory Mitigation	100
4.3.8.5.	Cumulative Impacts	100
4.3.9.	Discussion of Yellow Warbler	100
4.3.9.1.	Survey Results	100
4.3.9.2.	Project Impacts	100
4.3.9.3.	Avoidance and Minimization Efforts	100
4.3.9.4.	Compensatory Mitigation	100
4.3.9.5.	Cumulative Impacts	100
4.3.10.	Discussion of California Scrub Jay, Cliff Swallow, Barn Owl, Black Phoebe, Song Sparrow, and Other Migratory Nesting Birds (Class Aves)	101
4.3.10.1.	Survey Results	101
4.3.10.2.	Project Impacts	101
4.3.10.3.	Avoidance and Minimization Efforts	101
4.3.10.4.	Compensatory Mitigation	101
4.3.10.5.	Cumulative Impacts	102
4.3.11.	Discussion of Pallid Bat	102
4.3.11.1.	Survey Results	102
4.3.11.2.	Project Impacts	102
4.3.11.3.	Avoidance and Minimization Efforts	102
4.3.11.4.	Compensatory Mitigation	104
4.3.11.5.	Cumulative Effects	104
4.3.12.	Discussion of Western Red Bat.....	105
4.3.12.1.	Survey Results	105
4.3.12.2.	Project Impacts	105
4.3.12.3.	Avoidance and Minimization Efforts	105
4.3.12.4.	Compensatory Mitigation	105

4.3.12.5. Cumulative Effects.....	105
4.3.13. Discussion of Bridge- and Crevice-Dwelling Bats.....	106
4.3.13.1. Survey Results.....	106
4.3.13.2. Project Impacts.....	106
4.3.13.3. Avoidance and Minimization Efforts.....	107
4.3.13.4. Compensatory Mitigation.....	107
4.3.13.5. Cumulative Effects.....	107
4.3.14. Discussion of Salinas Pocket mouse	107
4.3.14.1. Survey Results.....	107
4.3.14.2. Project Impacts.....	107
4.3.14.3. Avoidance and Minimization Efforts.....	107
4.3.14.4. Compensatory Mitigation.....	108
4.3.14.5. Cumulative Effects.....	108
4.3.15. Discussion of San Joaquin Kit Fox.....	108
4.3.15.1. Survey Results.....	108
4.3.15.2. Project Impacts.....	108
4.3.15.3. Avoidance and Minimization Efforts.....	109
4.3.15.4. Compensatory Mitigation.....	109
4.3.15.5. Cumulative Impacts.....	109
Chapter 5. Results: Conclusions and Regulatory Determination.....	111
5.1. Federal Endangered Species Act Consultation Summary.....	111
5.2. Magnuson-Stevens Fishery Conservation and Management Act Coordination Summary.....	112
5.3. Migratory Bird Treaty Act Coordination Summary	112
5.4. Clean Water Act Coordination Summary.....	112
5.5. Executive Order 11988 (Floodplain Management) Coordination Summary.....	113
5.6. Executive Order 11990 (Protection of Wetlands) Coordination Summary.....	113
5.7. Executive Order 13112 (Invasive Species) Coordination Summary	113
5.8. National Environmental Policy Act Consultation Summary	114
5.9. California Endangered Species Act Consultation Summary	114
5.10. Section 401 Water Quality Certification Coordination Summary.....	114
5.11. California Fish and Game Code Coordination Summary.....	114
5.11.1. Sections 3503, 3503.5, and 3513: Breeding Birds.....	114
5.11.2. Section 4150: Bat Maternity Colonies.....	115
5.11.3. Sections 1600-1616: Lake and Streambed Alteration	115
5.12. California Species of Special Concern Coordination Summary	115
5.13. Native Plant Protection Act Coordination Summary	115
5.14. Oak Woodlands Conservation Act (SB 1334) Coordination Summary	115
5.15. County of Monterey Ordinance: Preservation of Oaks and Other Protected Trees Coordination Summary.....	116
Chapter 6. References	117
6.1. Personal Communications.....	122

Appendix A	Site Photographs	123
Appendix B	NMFS, USFWS, CNDDB and CNPS Lists.....	131
Appendix C	California Red-legged Frog Site Assessment	153
Appendix D	Wetland Delineation	185
Appendix E	Tree Survey Report.....	211
Appendix F	Species Observed in the BSA	213
Appendix G	Programmatic Biological Opinion for Projects Funded or Approved under the Federal Highway Administration's Federal Aid Program (8-8-10-F-58)	219

List of Figures

Figure 1: Regional Location	3
Figure 2: Project Location	5
Figure 3: Biological Study Area	7
Figure 4: General Bridge Plan	9
Figure 5: Construction Details	13
Figure 6: Project Details and Impacts	17
Figure 8: Potential Jurisdictional Waters	47
Figure 9: Special-Status Species and Critical Habitat within 2 Miles of the Biological Study Area	51
Figure 10: Special-Status Biological Resources Map	69
Figure 11: Tree Map	71

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List of Tables

Table 1: Scour Depths and Elevations for Existing Conditions without Scour Protection	12
Table 2: Scour Depths and Elevations for Proposed Conditions with Scour Retrofit	15
Table 3: Anticipated Construction Equipment.....	19
Table 4: Survey Dates and Personnel	31
Table 5: Acreages of Land Cover Types in the Biological Study Area.....	37
Table 6: Special-Status Species, Natural Communities of Special Concern, and Critical Habitat Potentially Occurring or Known to Occur in the Biological Study Area	53
Table 7: Federally Listed Species and Critical Habitat Determinations	111

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List of Abbreviated Terms

<u>Abbreviation</u>	<u>Spelled-out Term</u>
BA	Biological Assessment
BMP	Best Management Practices
BSA	Biological Study Area
Caltrans	California Department of Transportation
Cal-IPC	California Invasive Plant Council
CDFG ¹	California Department of Fish and Game
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CIDH	cast-in-drilled-hole
CNDDDB	California Natural Diversity Data Base
CNPS	California Native Plant Society
Corps	United States Army Corps of Engineers
County	County of Monterey
CRPR	California Rare Plant Rank
CWA	Clean Water Act
DBH	Diameter at Breast Height
DPS	Distinct Population Segment
EFH	Essential Fish Habitat
ESA	Environmentally Sensitive Area
EO	Executive Order
FE	species that are formally listed as endangered under FESA
FESA	Federal Endangered Species Act
FHWA	Federal Highway Administration
FP	State fully protected animals
FT	species that are formally listed as threatened under FESA
HBP	Federal Highway Bridge Program
ISA	International Society of Arboriculture
MBTA	Migratory Bird Treaty Act

¹ CDFG is used only in reference to CDFW documents published prior to January 1, 2013.

Mg	Metz complex
MSA	Magnuson-Stevens Fishery Conservation and Management Act
NAVD	North American Vertical Datum
NCSC	Natural Community of Special Concern
NEPA	National Environmental Policy Act
NES	Natural Environment Study
NMFS	National Marine Fisheries Service
NPPA	Native Plant Protection Act
OHW	ordinary high water mark
POA	Plan of Action
Pr	Psammets and Fluents, occasionally flooded
proposed project	Bradley Road Bridge Scour Repair Project
Ps	Psammets and Fluents, frequently flooded
RWQCB	Regional Water Quality Control Board
SAA	Streambed Alteration Agreement
SSC	California Species of Special Concern
TCE	Temporary Construction Easement
U.S.	United States
USFWS	United States Fish and Wildlife Service

Chapter 1. Introduction

1.1. Project History

The County of Monterey (County) Public Works Department, with funding from the Federal Highway Administration (FHWA) and oversight by the California Department of Transportation (Caltrans), proposes to implement the Bradley Road Bridge Scour Repair Project (proposed project) by installing scour countermeasures to protect the Bradley Road Bridge piers that are currently exposed due to scour (Bridge No. 44C-0050). The proposed project will be funded by the Federal Highway Bridge Program (HBP) and a local County match.

The bridge identification information is listed as follows: 05-MON-0-CR, BHLO-5944(100), at latitude 35° 51' 51" and longitude 120° 48' 35".

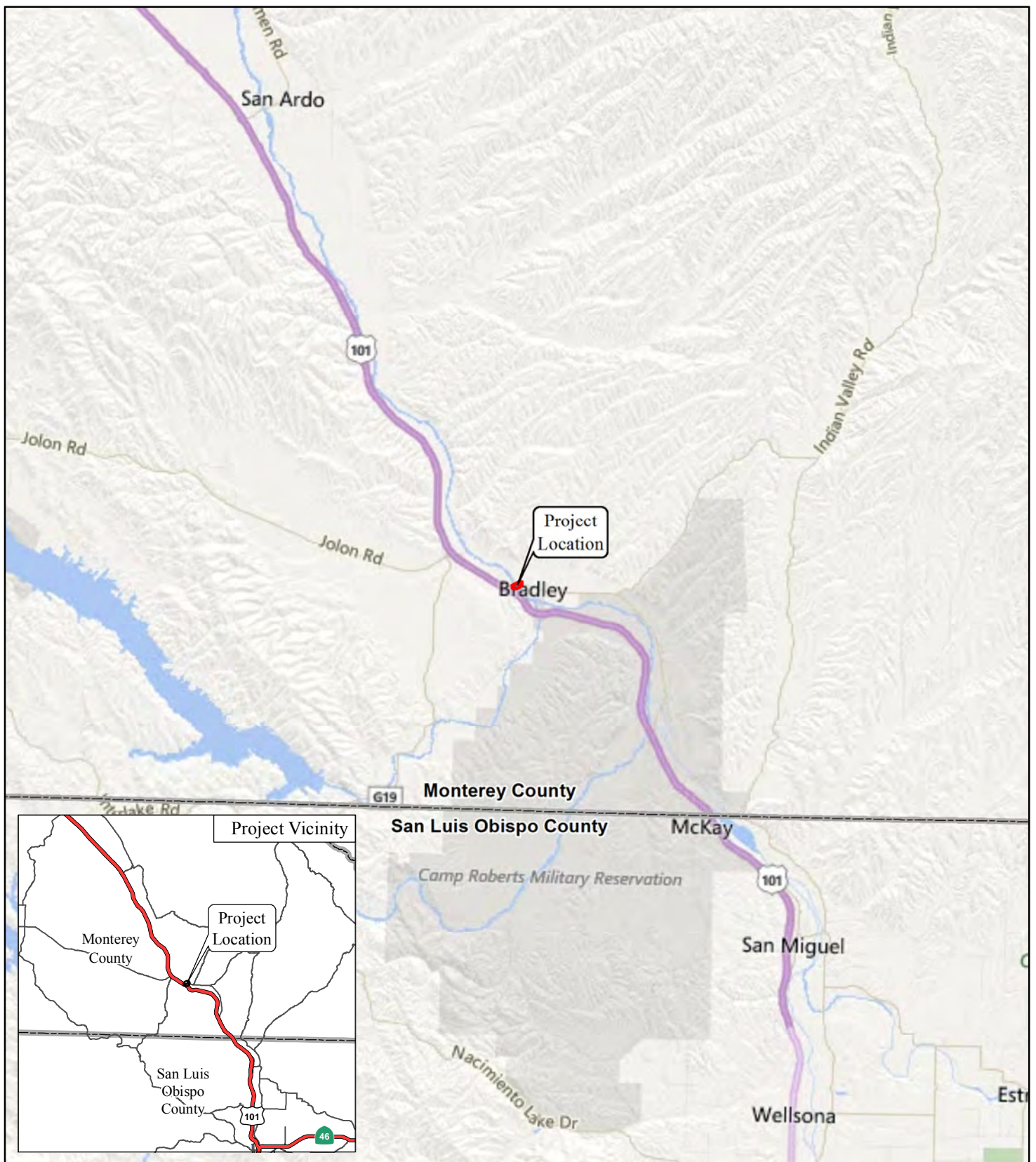
1.1.1. Existing Facility

The Bradley Road Bridge is approximately 5 miles north of the Monterey County/San Luis Obispo County border, just west of the unincorporated community of Bradley and approximately 0.25 mile east of Highway 101 (Figures 1, 2, and 3).

Bradley Road is an existing two-lane road (one lane in each direction) that is classified by the California Road System Maps as a Minor Collector. The bridge was originally constructed in 1931 and was widened in 1958. The Bradley Road Bridge is oriented generally in an east-west direction and crosses the Salinas River, which flows northwest through the project area and then northwesterly to Monterey Bay.

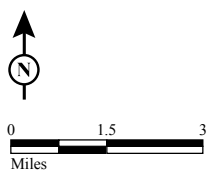
The existing bridge is approximately 1,668 feet long by 27 feet wide. The existing bridge is a 24-span steel truss and concrete girder bridge with 23 concrete piers (Piers 2 through 24) and two concrete abutments (Abutments 1 and 25) (Figure 4: General Bridge Plan). Spans 1–10 (the western-most spans) and spans 17–24 (the eastern-most spans) consist of supported, reinforced concrete, “T”-girders. Spans 11-16 (central spans) consist of five-panel, riveted steel, deck trusses.

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LEGEND

Project Location



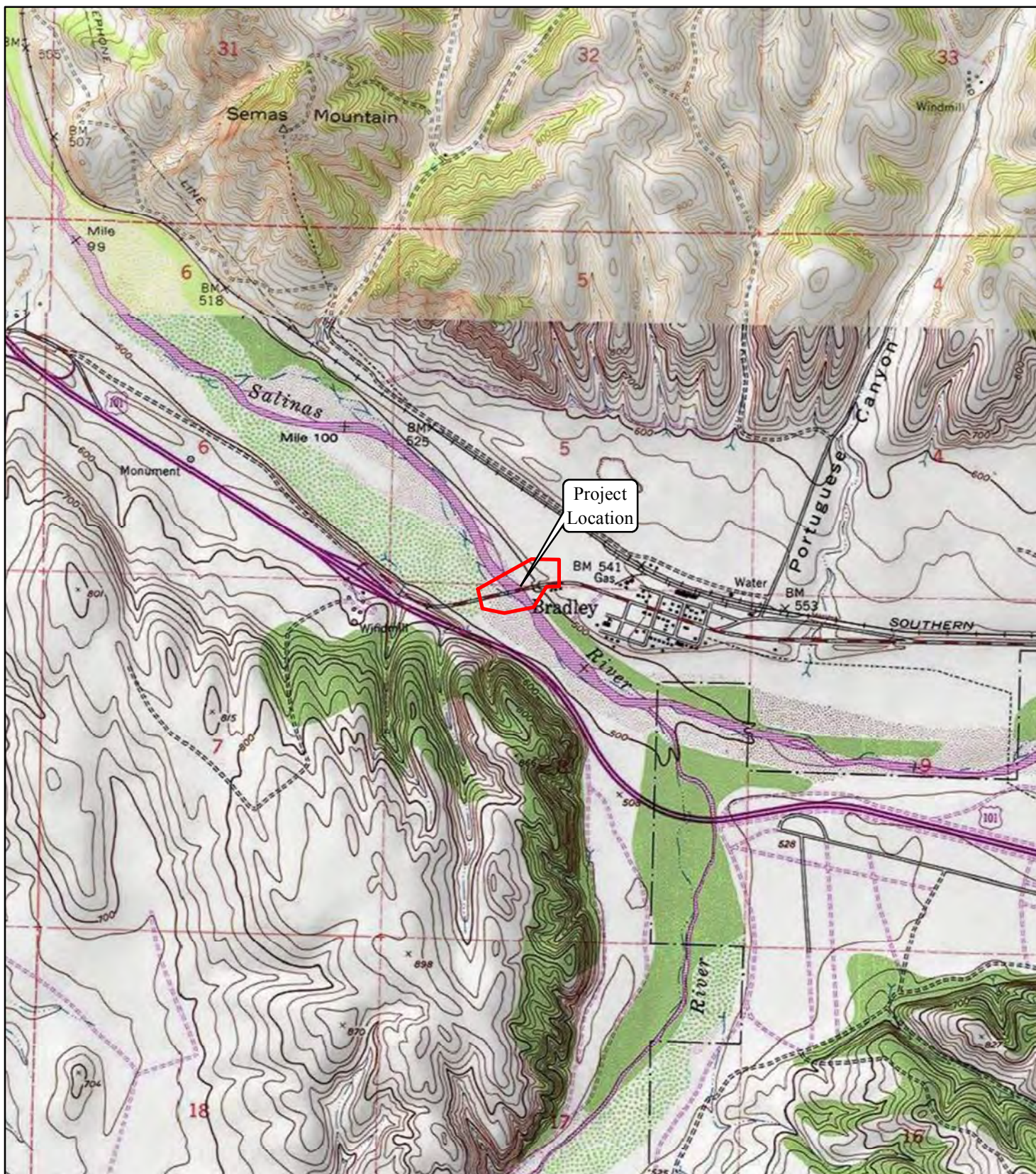
SOURCE: Bing Maps (2014)

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FIGURE 1

Bradley Road Bridge Scour Repair Project
Monterey County, California
Federal Project Number BHLO-5944(100)
Project Vicinity

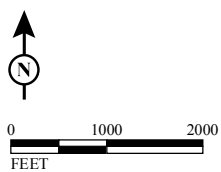
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LEGEND

Project Location

FIGURE 2



SOURCE: USGS 7.5' Quad., Bradley, CA (1979), Wunpost, CA (1979)

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*Bradley Road Bridge Scour Repair Project
Monterey County, California
Federal Project Number BHLO-5944(100)
Project Location*

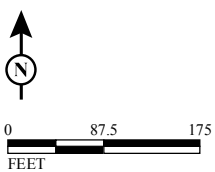
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LEGEND

Biological Study Area

FIGURE 3



SOURCE: Bing Aerial (2011)

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*Bradley Road Bridge Scour Repair Project
Monterey County, California
Federal Project Number BHLO-5944(100)
Biological Study Area*

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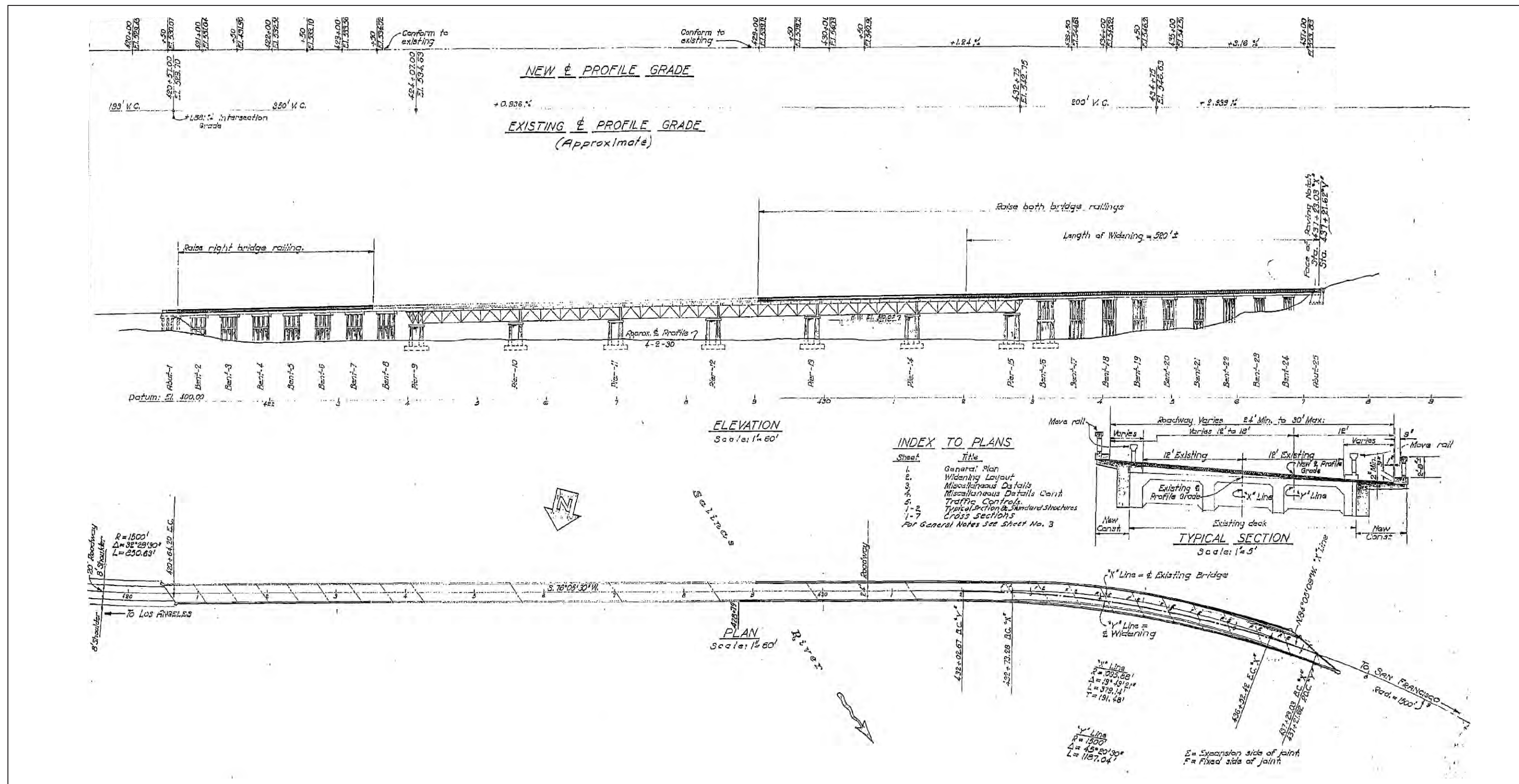
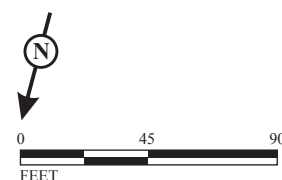


FIGURE 4



SOURCE: State of California Department of Public Works Division of Highways (7/9/1954)

I:\TRT1501\G\General Bridge Plan.cdr (8/5/2016)

Bradley Road Bridge Scour Repair Project
Monterey County, California
Federal Project Number BHLO-5944(100)
General Bridge Plan

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Overall, the existing bridge is in fair condition with minor deterioration. However, as discussed in more detail below, the bridge has a history of scour at the concrete piers in the low-flow channel of the Salinas River. Scour is currently undermining the foundations of Piers 16 through 19.

1.2. Project Description

1.2.1. Purpose and Need

The purpose of the proposed project is to install scour protection at the substructure of the bridge in order to reduce the potential for future scouring at the bridge foundations. The bridge has a history of scour at the concrete piers in the low-flow channel of the Salinas River. In the existing condition, scour is undermining the foundations of Piers 16 through 19.

The latest Caltrans bridge inspection report, dated October 16, 2013, gave the Bradley Road Bridge a scour critical bridge rating of “U,” which represents a bridge with unknown foundation that has not been evaluated for scour. Development of a plan of action is required. The bridge inspection report noted a scour hole at Pier 17 and undermining at Piers 18 and 19.

As a result of the findings of a bridge inspection report prior to 2013, the Monterey County Public Works Department prepared a *Bridge Scour Evaluation- Plan of Action* (POA) (February 2010). The POA summarized the scour history of the bridge from 1975 through 2007, which indicates a history of scour at Piers 18 and 19. The Bridge Scour POA recommended that Caltrans Bridge Maintenance engineers conduct biennial inspections to check for signs of degradation, settlement, and undermining of the bridge footings and monitor the bridge during a 50-year or greater storm event. The POA also recommended the installation of scour countermeasures.

The extent of the existing bridge scour at Piers 16 through 19 is provided in Table 1. Contraction scour occurs when water accelerates as it flows through an opening that is narrower than the channel upstream from the bridge. The Contractor Scour Depth shown in Table 1 is based on the depth of scour that would occur during a 100-year storm event. Short Term (Local) scour represents the predicted depth of scour that would occur during a 100-year storm event given the existing conditions. Long-term degradation is not associated with a specific storm event. The estimated long-term

Table 1: Scour Depths and Elevations for Existing Conditions without Scour Protection

Pier No.	Contraction Scour Depth (feet)	Long-Term Degradation (feet)	Local Scour Depth (feet)	Total Scour Depth (feet)¹	Total Scour Elevation (feet)²
16	1.2	2.8	21.5	25.5	462.0
17	1.2	2.8	27.8	31.8	455.7
18	1.2	2.8	15.4	19.4	468.1
19	1.2	2.8	13.7	17.7	469.8

Source: Wreco, 2016

¹ The total scour depth is the sum of the contraction scour, long-term degradation, and the local scour.² The total scour elevation references the existing channel thalweg elevation (i.e., the lowest elevation of the channel), which is 487.5 feet NAVD 88.

NAVD = North American Vertical Datum

degradation is projected based on a 50-year bridge service life. Scour at Piers 18 and 19 are depicted in the site photographs in Appendix A.

1.2.2. Scour Repair

Scour repair will involve installation of cast-in-drilled-hole (CIDH) piles and retrofit of the pier footing caps¹ at Piers 16 through 19 (Figure 5). Two large diameter (120 inches at Piers 16-17 and 96 inches at Piers 18-19) CIDH piles will be installed at the end of each existing pier footing. The piles will extend into the new reinforced concrete footing. The new footing will be connected through drill and bond dowels to the existing footing and pier wall. Retrofitting of the footing caps would involve fully enclosing the existing footings in new, larger concrete footing caps. The new footing retrofits will be 12 feet in width, 8 feet in height, and 66 feet in length at Pier 16. The new footing retrofits will be 12 feet in width, 8 feet in height, and 62 feet in length at Pier 17. The new footing retrofits will be 10 feet in width, 6 feet in height, and 62 feet in length at Piers 18 and 19. The new CIDH piles will be designed such that they resist the full loading demands from the existing super and substructures. Pile driving will not be required.

Table 2 summarizes the scour depths and elevations for conditions with the proposed scour retrofit.

¹ Footings are the large lower portion of the foundation that transfers weight from a bridge pier wall and columns to the deep foundation piles and soil below the original ground surface.

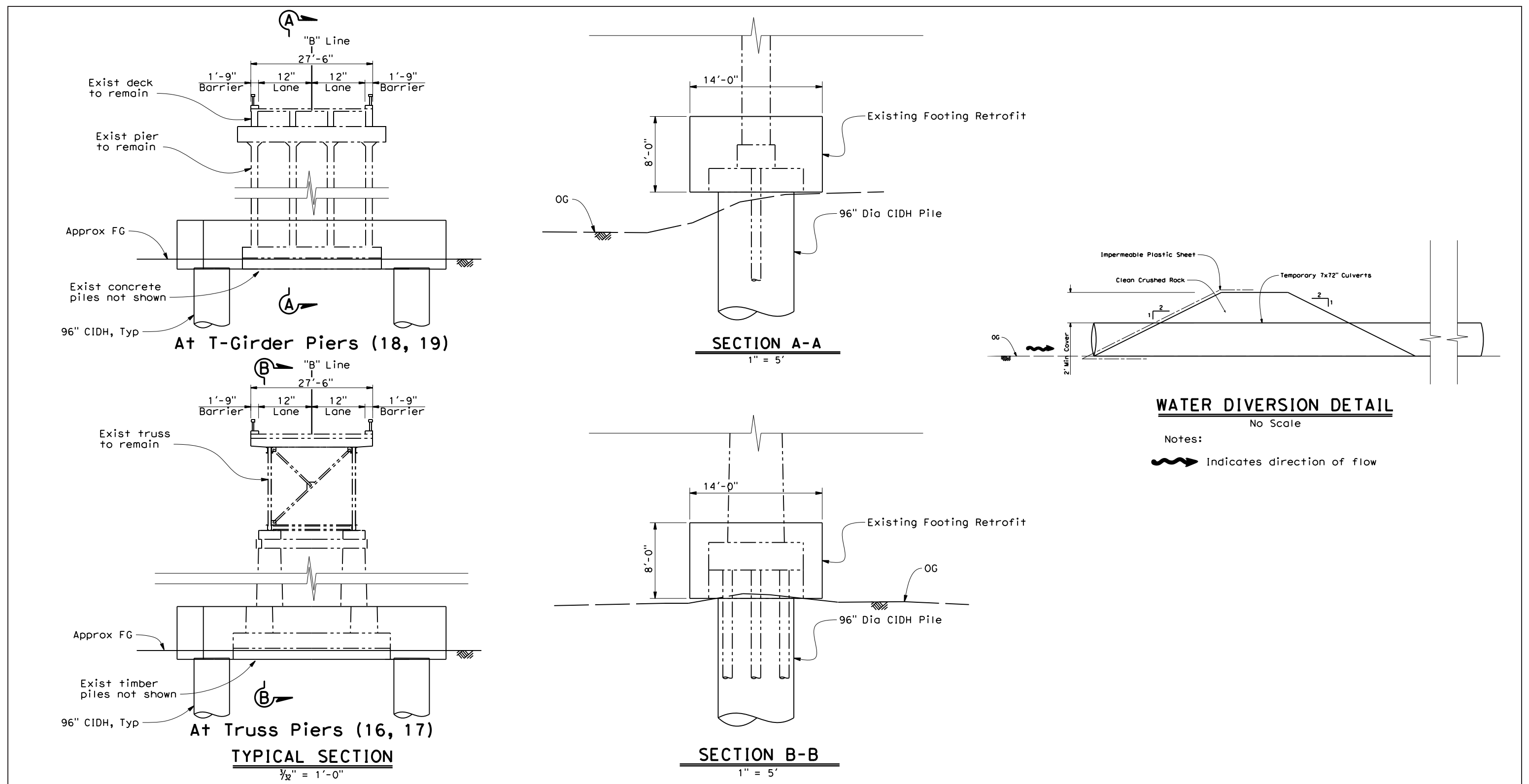


FIGURE 5

Bradley Road Bridge Scour Repair Project
 Monterey County, California
 Federal Project Number BHLO-5944(100)
 Construction Details

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Table 2: Scour Depths and Elevations for Proposed Conditions with Scour Retrofit

Pier No.	Contraction Scour Depth (feet)	Long-Term Degradation (feet)	Local Scour Depth (feet)	Total Scour Depth (feet)¹	Total Scour Elevation (feet)²
16	1.5	2.8	15.5	19.8	467.7
17	1.5	2.8	15.7	20.0	467.5
18	1.5	2.8	23.5	27.8	459.7
19	1.5	2.8	21.6	25.9	461.6

Source: Wreco, 2016

Notes:

¹ The total scour depth is the sum of the contraction scour, long-term degradation, and the local scour.² The total scour elevation references the existing channel thalweg elevation (i.e., the lowest elevation of the channel), which is 487.5 feet NAVD 88.

NAVD = North American Vertical Datum

1.2.3. Construction Schedule

Construction is expected to commence near the beginning of the dry season (i.e., June) and be completed early in the following rainy season (i.e., October), for a total construction duration of approximately 5 months. Construction activities in the low-flow portion of the Salinas River are planned to occur outside of the rainy season, when surface water in the river is at its seasonal minimum (July 1 through October 15).

1.2.4. Traffic Detours and Construction Signage

The Bradley Road Bridge will be open to public use during construction and no traffic detours will be required. Advanced and end-construction signage will be placed at the eastern and western approach of Bradley Road Bridge.

1.2.5. Construction Staging and Access

Materials and equipment that will be used during bridge construction will be staged at a designated staging area north of Bradley Road in the eastern portion of the Biological Study Area (BSA) (Figure 6). The staging area would occupy approximately 0.393 acre.

River access will be provided by a 12-foot-wide by 450-foot-long access road that will be constructed off Bradley Road at the northeast corner of the bridge (Figure 6). Approximately 4,000 cubic yards of fill will be required to construct the temporary access road. The temporary fill will consist of clean crushed river rock within the low-flow channel and will form the temporary berms upstream and downstream of the construction area.

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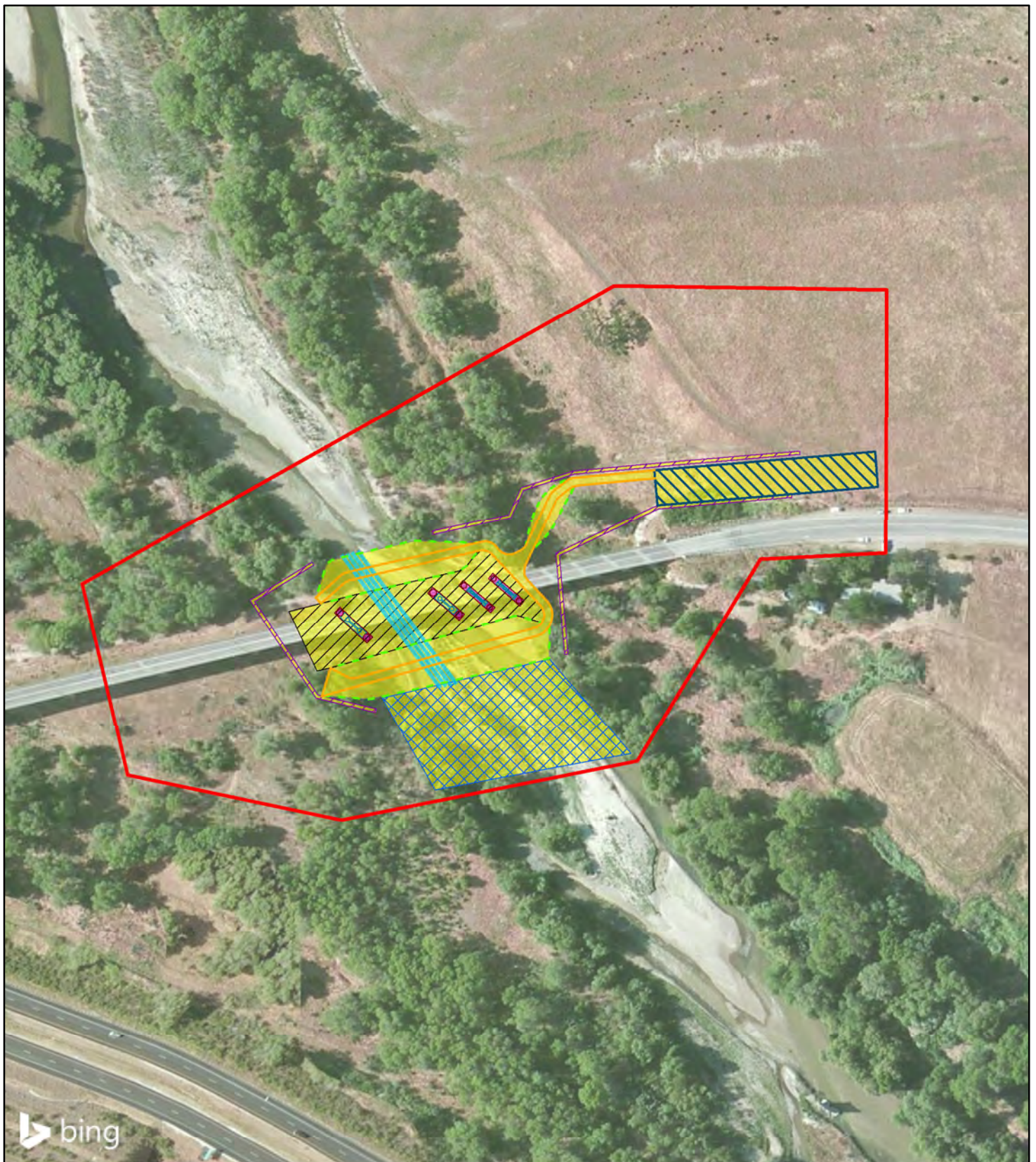
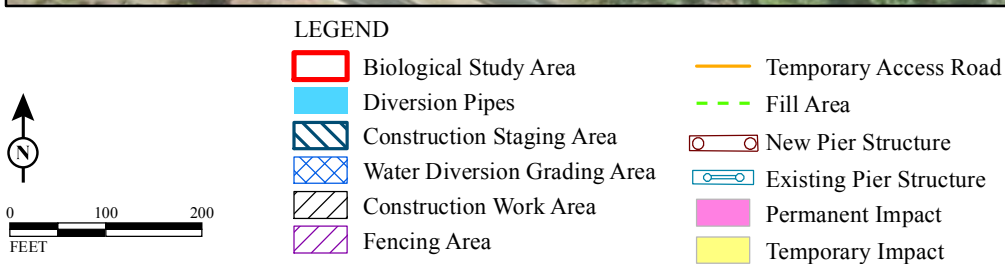


FIGURE 6



*Bradley Road Bridge Scour Repair Project
Monterey County, California
Federal Project Number BHLO-5944(100)
Project Details and Impacts*

SOURCE: Bing Aerial (2011); TRC (12/2015)

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A temporary construction easement (TCE) will be required for the construction of the access road and staging area on the northeast side of Bradley Road Bridge. The TCE will affect a single parcel (Assessor's Parcel No. 424-101-020-000).

1.2.6. Diversion and Dewatering

The Salinas River has perennial flow in the BSA and is expected to be flowing during construction. Construction within the river is planned to occur during the non-rainy season (between July 1 and October 15), when surface water within the Salinas River is at its seasonal minimum. Nevertheless, diversion of the river water and dewatering of the scour repair areas within the river will be required during construction, necessitating that perennial flow be diverted around the work area to a portion of the river where no work is being done.

A water diversion system will be required to divert the flow through the work area for the duration of construction. Temporary culverts, consisting of approximately four 60-inch corrugated steel pipes, will be used to divert flows around the work area and downstream. Trapezoidal shaped berms consisting of clean crushed river rock will be constructed over the culverts upstream and downstream of the bridge to divert water into the culverts, keep water out of the scour repair areas, and provide access across the low-flow channel for heavy equipment. Sump pumps may be used to pump water from the work areas through a filter, or other sediment settling method, and back into the Salinas River downstream of the work areas. Construction of the water diversion system will require grading and excavation in the Salinas River, particularly upstream of the bridge, to facilitate water diversion. After construction is complete, the contractor will remove the temporary berms and culverts and restore all disturbed areas within the river to preconstruction conditions.

1.2.7. Construction Equipment

Table 3 summarizes the types of construction equipment that are anticipated to be used during construction.

Table 3: Anticipated Construction Equipment

Equipment	Construction Purpose
Backhoe	soil manipulation and drainage work
Bobcat	fill distribution
Bulldozer/Loader	earthwork construction and clearing and grubbing
Crane	bridge construction
Dump Truck	fill material delivery

Table 3: Anticipated Construction Equipment

Equipment	Construction Purpose
Drill Rig	CIDH pile installation
Excavator	soil manipulation
Forklift	material transportation
Front-End Loader	dirt or gravel manipulation
Haul Truck	earthwork construction and clearing and grubbing
Truck with Seed Sprayer	BMP installation
Water Truck	earthwork construction and dust control

Source: Bradley Road Bridge Description of Project and Environmental Setting (Quincy Engineering, Inc. 2015).

BMP = Best Management Practices

CIDH = cast-in-drilled-hole

Chapter 2. Study Methods

2.1. Regulatory Requirements

2.1.1. Federal Endangered Species Act

The United States Fish and Wildlife Service (USFWS) has jurisdiction over species that are formally listed as threatened (FT) or endangered (FE) under the Federal Endangered Species Act (FESA). FESA protects listed wildlife species from harm or “take.” Critical habitat is defined under FESA as specific geographic areas within a listed species range that contain features considered essential for the conservation of the listed species. If a federal action or an action allowed by federal funding or a federal permit could adversely modify critical habitat for a listed species, the responsible federal agency is required to consult with the USFWS and/or National Marine Fisheries Service (NMFS).

As part of its National Environmental Policy Act (NEPA) assignment of federal responsibilities by the FHWA, effective October 1, 2012, and pursuant to United States Code Title 23, Part 326, Caltrans is acting as the lead federal agency for Section 7 of the FESA.

2.1.2. Magnuson-Stevens Fishery Conservation and Management Act

Under the Magnuson-Stevens Fishery Conservation and Management Act (MSA), Essential Fish Habitat (EFH) must be designated in every fishery management plan. EFH includes “...those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity.” The MSA requires consultation with the NMFS for projects that include a federal action or federal funding and may adversely modify EFH.

2.1.3. Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) (United States Code Title 16, Part 703) prohibits the taking, hunting, killing, selling, purchasing, etc., of migratory birds, parts of migratory birds, or their eggs and nests. In addition, the MBTA contains a clause that prohibits baiting or poisoning of these birds. Most of the native bird species that occur in the region of the BSA are covered by this act.

2.1.4. Clean Water Act

The U.S. Army Corps Engineers (Corps) is responsible under Section 404 of the Clean Water Act (CWA) to regulate the discharge of fill material into waters of the

United States (U.S.). The lateral limits of jurisdiction for a nontidal stream are measured at the line of the ordinary high water mark (OHWM) (Code of Federal Regulations Title 33, Part 328.3[e]) or the limit of adjacent wetlands (Code of Federal Regulations Title 33, Part 328.3[b]). Waters of the U.S. fall into two broad categories: wetlands and other waters. Wetlands include marshes, wet meadows, seep areas, floodplains, basins, and other areas experiencing extended seasonal soil saturation. For wetlands to be under the jurisdiction of the CWA they must have hydrophytic vegetation, hydric soils, and wetland hydrology. Permanently or seasonally inundated water bodies or watercourses that do not exhibit wetland characteristics are classified as other waters of the U.S. Other waters include unvegetated water bodies and watercourses (e.g., rivers, streams, lakes, springs, ponds, coastal waters, and estuaries). In general, a Corps permit must be obtained before placing fill or grading in jurisdictional wetlands or other waters of the U.S.

2.1.5. Executive Order 11988 – Floodplain Management

Executive Order (EO) 11988 is a flood hazard policy for all federal agencies that manage federal lands, sponsor federal projects, or provide federal funds to state or local projects. It requires that all federal agencies take necessary action to reduce the risk of flood loss; restore and preserve the natural and beneficial values served by floodplains; and minimize the impact of floods on human safety, health, and welfare. Specifically, EO 11988 dictates that all federal agencies avoid construction or management practices that would adversely affect floodplains unless that agency finds that there is no practical alternative and the proposed action has been designed or modified to minimize harm to or within the floodplain.

2.1.6. Executive Order 11990 – Protection of Wetlands

Projects requiring federal funds or located on federal land must comply with EO 11990 (May 24, 1977), which stipulates that such projects will be designed to minimize wetland impacts and impacts on wetlands must be identified in the environmental document. Each agency, to the extent permitted by law, shall avoid undertaking or providing assistance for new construction located in wetlands unless the head of the agency finds (1) that there is no practicable alternative to such construction and (2) that the proposed action includes all practicable measures to minimize harm to wetlands which may result from such use. In making this finding, the head of the agency may take into account economic, environmental, and other pertinent factors.

2.1.7. Executive Order 13112 – Invasive Species

Under EO 13112, an invasive species is defined as “an alien species (a species not native to a particular ecosystem) whose introduction does or is likely to cause economic and environmental harm or harm to human health.” Invasive species are determined by the National Invasive Species Council.

2.1.8. National Environmental Policy Act

The National Environmental Policy Act of 1969 as amended (United States Code Title 42, Part 4321 et seq.) established a mandate for federal agencies to consider the potential environmental consequences of their proposals, document the analysis, and make this information available to the public for comment prior to implementation. NEPA requires, to the fullest extent possible, that the policies, regulations, and laws of the federal government be interpreted and administered in accordance with its environmental protection goals. NEPA requires, and the FHWA and Caltrans are committed to, the examination and avoidance of potential effects to the social and natural environment when considering approval of proposed transportation projects.

2.1.9. California Endangered Species Act

Under the California Endangered Species Act (CESA), it is unlawful to “take” any species listed as rare, threatened, or endangered. CESA take provisions apply to fish, wildlife, and plant species. Take may result whenever activities occur in areas that support a listed species. A permit from the California Department of Fish and Wildlife (CDFW) is required if a project will result in “take” of a listed species.

2.1.10. Section 401 Water Quality Certification

Pursuant to Section 401 of the federal CWA, projects that require a permit from the Corps under Section 404 must also obtain Water Quality Certification from the Regional Water Quality Control Board (RWQCB). The RWQCB has adopted a policy requiring mitigation for any unavoidable loss of wetland, streambed, or other State jurisdictional waters.

2.1.11. California Fish and Game Code**2.1.11.1. SECTIONS 3503, 3503.5, AND 3513: BREEDING BIRDS**

The Fish and Game Code (cited sections) protects the nests and eggs of most birds, including raptors (Falconiformes and Strigiformes) and the bird species protected under the MBTA.

2.1.11.2. SECTION 4150: BAT MATERNITY COLONIES

Various regulations afford protections to bats, which are classified as indigenous non-game mammal species regardless of their listing status. These regulations include Title 14, Section 251.1 of the California Code of Regulations, which prohibits harassment (defined in that section as an intentional act that disrupts an animal's normal behavior patterns, including breeding, feeding, or sheltering) of nongame mammals (e.g., bats), and California Fish and Game Code Section 4150, which prohibits "take" or possession of all nongame mammals or parts thereof. Any activities resulting in bat mortality (e.g., the destruction of an occupied bat roost that results in the death of bats), disturbance that causes the loss of a maternity colony of bats (resulting in the death of young), or various modes of nonlethal harassment or capture may be considered "take" as defined in Section 86 by the CDFW. In addition, impacts to bat maternity colonies, which are considered native wildlife nursery sites, could be considered potentially significant under the California Environmental Quality Act (CEQA). Because bat species that form maternity colonies typically have only one young per year, recovery from population declines is very slow.

2.1.11.3. SECTIONS 1600-1616: LAKE AND STREAMBED ALTERATION

The CDFW administers the issuance of Lake and Streambed Alteration Agreements under Fish and Game Code Section 1600. Lake and Streambed Alteration Agreements are required when project activities would substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake designated as such by CDFW.

2.1.12. California Species of Special Concern

The CDFW maintains lists of "species of special concern" (SSC). These species are broadly defined as plants and animals that are of concern to CDFW because of population declines and restricted distributions and/or they are associated with habitats that are declining in California. The California Native Plant Society (CNPS), in conjunction with the CDFW, maintains lists of special-status plants for California. Lists of special animals are maintained by the CDFW (CDFW 2017a and b) and are defined by the CDFW as "a species, subspecies, or distinct population of an animal native to California that meet criteria defined in Comrack et al. (2008)."

2.1.13. Native Plant Protection Act

California's Native Plant Protection Act (NPPA) requires state agencies to utilize their authority to conserve endangered and rare native plants. Provisions of the NPPA prohibit the taking of listed plants and require notifying the CDFW at least 10 days in

advance of any change in land use. This allows CDFW to salvage listed plant species that would otherwise be destroyed. The project sponsor (i.e., the County) is required to conduct botanical inventories and consult with CDFW during project planning to comply with this act and the applicable sections of CEQA for rare or endangered plants.

2.1.14. Oak Woodlands Conservation Act (Senate Bill 1334)

Enacted in January 2005, County governments statewide must comply with Senate Bill (SB) 1334, which requires mitigation for projects with significant oak woodland impacts. A project must conform to both California's mandated program that established habitat mitigation standards, as well as local conservation measures adopted by the County.

2.1.15. County of Monterey Ordinance: Preservation of Oak and Other Protected Trees

Protected trees in the County are regulated by the County Zoning Ordinance, Title 21 (For Inland Areas), Chapter 21.64.260 – *Preservation of Oak and Other Protected Trees* (tree ordinance; 1997). The BSA is in the *South County Area Plan*, a section of the County that makes no provision to protect trees other than native oaks (*Quercus* spp.).

2.2. Studies Required

2.2.1. Literature Search

A literature review and records search were conducted to identify the existence or potential occurrence of sensitive or special-status plant and animal species in or within the vicinity of the BSA. Federal and State lists of special-status species were examined. For the purpose of this report, special-status species are those plants and animals listed, proposed for listing, or candidates for listing as threatened or endangered under FESA or CESA; animals designated as State SSC, or State fully protected (FP); and plants with California Rare Plant Ranks (CRPR) of 1 or 2, as designated by the CDFW and the CNPS.

Current database records reviewed by LSA included the following (results are included as Appendix B):

- CDFW, California Natural Diversity Database (CNDDB) Rarefind 5, search was conducted for records in the *Hames Valley, Wunpost, Valleton, Tierra Redonda Mountain, Bradley, San Miguel, Lime Mountain, Adelaida, and Paso Robles,*

California United States Geological Survey 7.5 minute quadrangles and specifically within a 2-mile radius of the BSA (*Bradley and Wunpost*).¹

- CNPS Inventory of Rare and Endangered Plants (online edition, v8-02).²
- NMFS Official Species list generated by LSA Senior Biologist Matthew Willis for the *Bradley* quadrangle on May 16, 2017 (NMFS 2017).
- USFWS letter, “List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project.” Letter dated May 16, 2017 (USFWS 2017).
- USFWS Critical Habitat Mapper.³

The scientific and vernacular nomenclature for the plant and animal species and vegetation communities used in this report are from the following sources: plants, Baldwin et al. (2012), Matthews and Mitchell (2015), and updates listed on the Jepson Herbarium website; vegetation, Sawyer et al. (2009); fishes, Page et al. (2013); amphibians and reptiles, Crother (2012) and AmphibiaWeb (2017); birds, American Ornithologists’ Union (1998) and supplements through 2017; and mammals, Reid (2006) and Bradley et al. (2014). In general, for animals, subspecies names are used only when a specific subspecies is considered a special-status species by one or more of the following resource agencies: the CDFW, the USFWS, or the NMFS.

2.3. Field Reviews

Initial field investigations were conducted in April 2015 to identify vegetative communities, habitats for special-status species, potential jurisdictional waters, and other biological resources. Based on the literature review and initial field investigations, the following field surveys were completed in the spring and summer of 2015:

- General biological survey
- Special-status plant surveys

¹ California Department of Fish and Wildlife. CNDDDB, Commercial Version April 2017. Biogeographic Data Branch, Sacramento, California.

² CNPS Inventory of Rare and Endangered Plants (online edition, v8-02). Sacramento, CA. Website: <http://www.rareplants.cnps.org>. Accessed May 15, 2017.

³ USFWS Critical Habitat Mapper. Website: <http://ecos.fws.gov/crithab/>. Accessed May 15, 2017.

- Protocol least Bell's vireo (*Vireo bellii pusillus*) surveys
- Protocol willow flycatcher (*Empidonax traillii extimus*) surveys
- Habitat assessment for California red-legged frog (*Rana draytonii*)
- Habitat assessment for San Joaquin kit fox (*Vulpes macrotis mutica*)
- Bat habitat assessment and nighttime emergence and acoustic survey
- Wetland delineation and assessment of potentially jurisdictional waters

A limited tree survey of the potential impact area and 20-foot buffer was conducted in the fall of 2016.

2.4. Biological Study Area

The BSA (Figure 3) was created to encompass the proposed project footprint and typical habitats in the immediate project vicinity that may be affected by the proposed project. The BSA includes all areas that could be impacted by the proposed project and a buffer to accommodate project changes that may occur during the project design and development. The BSA is approximately 13.98 acres.

2.5. Survey Methods

2.5.1. General Biological Survey

LSA biologists Eric Lichtwardt, Tim Milliken, Jodi Ross-Borrego, and Matthew Willis conducted the general biological field survey on April 14, 2015. The biologists noted general site conditions, mapped vegetation types, and assessed the suitability of habitats for special-status plant and animal species to occur on the site. The biologists recorded all plant and animal species observed or otherwise detected. Binoculars (10x42) were used to aid in the identification of birds and other wildlife.

2.5.2. Rare Plant Surveys

LSA botanists Tim Milliken and Matthew Willis conducted protocol-level rare plant surveys on April 14, May 28, and July 9, 2015. These surveys followed the California Department of Fish and Game's (CDFG) *Protocols for Surveying and Evaluating Impacts to Special Status Native Plants Population and Natural Communities* (CDFG 2009) and the USFWS's Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed, Proposed, and Candidate Plants (2000b). Three surveys were conducted to cover the blooming periods of all the species that could occur in the BSA.

2.5.3. Least Bell's Vireo and Willow Flycatcher Protocol Surveys

LSA biologists Eric Lichtwardt and Matthew Willis conducted surveys on April 14 and 29, May 12 and 28, June 8 and 23, and July 10 and 21, 2015. These surveys followed the USFWS *Least Bell's Vireo Survey Guidelines* (2001) and *Southwestern Willow Flycatcher Protocol Revision* (2000a). Chapter 4 includes discussion of the results of these surveys.

2.5.4. California Red-legged Frog Habitat Assessment

TRC Solutions, Inc. biologists Mark Cassady and Marla Despas conducted a habitat assessment for California red-legged frog on June 17, 2015, (TRC Solutions, Inc. 2016). The results of this assessment are discussed in Chapter 4 and the report is provided as Appendix C.

2.5.5. San Joaquin Kit Fox Habitat Assessment

LSA biologist Eric Lichtwardt conducted a habitat assessment in accordance with the USFWS' *Standardized Recommendations for Protection of the Endangered San Joaquin Kit Fox Prior to or During Ground Disturbance* (2011a) for San Joaquin kit fox on July 10, 2015. The results of this assessment are discussed in Chapter 4.

2.5.6. Nighttime Bat Survey

After conducting a daytime assessment of the habitats and structural features within the BSA, LSA biologist and bat specialist Jill Carpenter, with the assistance of LSA biologists Eric Lichtwardt and Matthew Willis, conducted a nighttime bat survey on July 10, 2015. The survey began 0.5 hour before sunset and continued for 4 hours. The survey consisted of counting bats as they exited the day roosts at the expansion joint crevices in the Bradley Road Bridge and using night vision equipment to observe night-roosting activity beneath the bridge. Acoustic recordings of bat calls were made using two ultrasonic detectors: the Pettersson D240X and the Wildlife Acoustics EchoMeter 3+. Recorded data was subsequently analyzed using SonoBat 2.9 acoustic analysis software to identify species.

2.5.7. Jurisdictional Delineation

A routine jurisdictional delineation of wetlands and waters of the U.S. was conducted by LSA soil scientist Chip Bouril on April 21, 2015, updated on June 14, 2016, and field verified by the Corps on August 11, 2016. The delineation was conducted using the routine determination method given in the Corps of Engineers Wetlands Delineation Manual (Environmental Laboratory 1987). The field investigations also used the revised procedures in the Regional Supplement to the Corps of Engineers

Wetland Delineation Manual: Arid West Region (Version 2.0) (Corps 2008). The OHWM was determined in accordance with the Corps Ordinary High Water Mark (OHWM) Field Guide (Lichvar and McColley 2008). The routine determination methodology entails examination of specific sample points in potential wetlands for hydrophytic vegetation (Lichvar 2016 et al. 2016), hydric soils, and wetland hydrology. By the federal definition, all three of these parameters must be present for an area to be considered a wetland. The results of this delineation are provided in Chapter 4 and Appendix D.

2.5.8. Tree Survey

LSA botanist and certified arborist Tim Milliken (International Society of Arboriculture [ISA] certification no. WE-5539A) conducted a tree survey on October 17 and 18, 2016. The tree survey area encompasses all areas of permanent and temporary impacts and a 20-foot buffer surrounding these areas. In the tree survey area, data was collected from all tree species 6 inches in diameter at breast height (DBH) or greater. Each tree was numbered and its location recorded with a global positioning system receiver. Tree condition, DBH, number of stems, and height were also recorded. If an individual tree had multiple trunks the circumference of all the trunks were totaled to determine the DBH. The locations of all numbered trees were plotted on an aerial photograph of the project site. Potential impacts to trees were determined through a geographic information system analysis by overlaying tree locations on a map of the tree survey area. The results of the tree survey are discussed in Chapter 4 and the report is provided as Appendix E.

2.6. Personnel and Survey Dates

LSA biologist Matthew Willis has over 11 years of experience conducting biological fieldwork, managing projects, and preparing biological technical reports and environmental documents for a wide variety of projects throughout California. Mr. Willis specializes in biological resource assessments, botanical surveys, special-status species surveys, construction monitoring, vegetation mapping, and regulatory compliance and permitting. He is authorized on federal and State permits to survey for and/or handle several listed species and has conducted focused surveys for a variety of special-status species including California red-legged frog, least Bell's vireo, burrowing owl (*Athene cunicularia*), and various plants.

LSA biologist Eric Lichtwardt has over 30 years of professional field experience conducting biological field studies in California and other western states and is a senior staff member (Associate/Senior Biologist) at LSA. His primary expertise is

vertebrate zoology. He has worked with a number of special-status vertebrate species including native freshwater fishes, amphibians, reptiles, birds, bats and other small mammals. He is authorized on federal and State permits to survey for and/or handle a number of federally listed species including California red-legged frog, California tiger salamanders (*Ambystoma californiense*), willow flycatcher, and least Bell's vireo. Mr. Lichtwardt has prepared a wide variety of environmental documents including NESs and Biological Assessments (BA).

Tim Milliken, an LSA botanist and certified arborist (ISA certification number WE-5539A), has 19 years of professional experience conducting botanical surveys for rare and special-status plant species, noxious weeds, wetland plants, trees, and non-vascular plants (lichens and bryophytes). Mr. Milliken has conducted botanical work for a variety of project types including NESs, BAs, biological resources surveys, preconstruction surveys, construction monitoring, mitigation banks, and wetland determinations. His work entails analyzing impacts to vegetation, mapping plant communities, conducting tree inventories, and conducting rare plant surveys. Mr. Milliken has been a Certified Arborist for over 12 years and has worked on projects with tree issues in the Bay Area and along the Central Coast of California.

Jodi Ross-Borrego has 12 years of professional experience conducting biological studies throughout the State of California. Ms. Borrego is primarily responsible for conducting and managing biological resource evaluations and assessments, management and oversight of construction compliance projects, preparing biological reports and environmental documentation including NESs and BAs for transportation projects, managing on-call service contracts, and environmental permitting. She works with resource and regulatory agencies to analyze impacts and recommend mitigation measures as part of the CEQA/NEPA documentation for both private- and public-sector projects. She has conducted biological studies in a variety of terrestrial and aquatic habitats, including special-status species surveys for a variety of special-status plant and animal species.

LSA soil scientist Chip Bouril has 18 years of experience in wetland delineation and wetland resource permitting at LSA. He also works on wetland mitigation design and implementation. Mr. Bouril has been the primary planner and designer for several wetland mitigation and mitigation bank projects. He also provides soil resource consultation for habitat creation and restoration projects.

LSA biologist and bat specialist Jill Carpenter has over 11 years of experience conducting various bat and other biological fieldwork. Focusing on bats and working extensively on transportation projects (i.e., bridges and overpasses), Ms. Carpenter performs bat habitat suitability surveys, conducts nighttime acoustic and emergence surveys, and prepares reports documenting findings and assessing impacts under CEQA. She possesses a Memorandum of Understanding with the CDFW to handle bats. She has extensive experience coordinating with resource agencies to determine mitigation strategies, installing humane exclusion devices to temporarily evict bats, and designing and installing successful alternate roosting habitat. In 2012, she was awarded the Caltrans District 12 Gold Partnership Award.

TRC Solutions, Inc. biologist Mark Cassady has over 20 years of experience providing project management and environmental planning services for the energy and infrastructure industries. He combines knowledge of construction practices with expertise in regulatory permitting, compliance management, and biological resource services. He has helped clients obtain regulatory permits and authorizations from the California Public Utilities Commission, the Bureau of Land Management, the Corps, the USFWS, the NMFS, the CDFW, and the RWQCB. Mr. Cassady has managed and conducted biological resource surveys and implemented protection plans for a variety of sensitive plant and animal species. He has been approved by the USFWS to monitor for and relocate giant garter snake, California red-legged frog, California tiger salamander, and tidewater goby. He also has expertise in stream and wetland crossings, erosion and sediment control, habitat restoration, mitigation plans, construction specifications, and biological reports.

Table 4 lists the survey data including survey type, date, and biologist(s) for the various surveys performed in the BSA.

Table 4: Survey Dates and Personnel

Date	Personnel	Purpose of Survey
April 14, 2015	Eric Lichtwardt, Tim Milliken, Jodi Ross-Borrego, and Matthew Willis (LSA)	General biological survey, including vegetation communities and habitat mapping, special-status species habitat assessments and surveys, general floral and faunal surveys
April 14, May 28, and July 9, 2015	Tim Milliken, and Matthew Willis (LSA)	Rare plant surveys
April 14 and 29, May 12 and 28, June 8 and 23, and July 10 and	Eric Lichtwardt and Matthew Willis (LSA)	Protocol surveys for least Bell's vireo and willow flycatcher

Table 4: Survey Dates and Personnel

Date	Personnel	Purpose of Survey
21, 2015		
April 21, 2015	Chip Bouril (LSA)	Wetland delineation
June 17, 2015	Mark Cassady (TRC Solutions, Inc.)	California red-legged frog habitat assessment
July 10, 2015	Eric Lichtwardt (LSA)	San Joaquin kit fox habitat assessment
July 10, 2015	Jill Carpenter, Eric Lichtwardt, and Matthew Willis (LSA)	Nighttime bat survey, including emergence count, night roost observation, and acoustic recordings
June 14, 2016	Chip Bouril (LSA)	Wetland delineation update
October 17 and 18, 2016	Tim Milliken (LSA)	Tree survey

2.7. Agency Coordination and Professional Contacts

LSA biologists made the following agency contacts to gather information to assist with technical aspects of the proposed project:

- July 14, 2016. Phone correspondence with Glen Knowles, Assistant Field Supervisor, USFWS Ventura Office. Discussion regarding findings of the California Red-legged Frog Habitat Assessment.
- August 11, 2016. Field meeting with Naomi Schowalter of the Corps, to verify Corps jurisdiction within the BSA.
- October 20, 2016. Phone correspondence with Bill Stevenson of NMFS. Discussion regarding project construction related to steelhead in the BSA.
- October 26, 2016. Phone correspondence with Joel Casagrande of NMFS. Discussion regarding project construction related to steelhead in the BSA.

2.8. Limitations That May Influence Results

Plant species populations naturally fluctuate from year to year in response to environmental variation and other ecological factors. Special-status plant species may flower earlier than usual, may not flower at all, may exhibit annual life cycles, or may be relatively short-lived following periods of abnormal rainfall. California has been experiencing a prolonged drought which may influence the study results.

Wildlife species may be cryptic, generally difficult to detect, transient, or migratory and may only occur within the BSA for short or fleeting periods. Wildlife species may only be active during particular times of the year, such as the breeding season, or may only use the BSA temporarily as a migration corridor between other areas of

more optimal habitat. For these reasons, wildlife species may be present, but not observed. This limitation may influence the study results.

No other limitations influenced the results of this study. Protocol-level surveys were conducted during the seasons when the special-status species that could occur on or in the vicinity of the BSA would have been observable if present. There was no access limitation and the entire BSA was covered on foot. A nighttime survey allowed for detection of a variety of nocturnal species; however, most of the special-status species addressed in the NES can be observed or their presence can be detected during the day. No limitations were encountered during the research, fieldwork, or document preparation that influenced the results presented herein.

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Chapter 3. Results: Environmental Setting

3.1. Description of the Existing Biological and Physical Conditions

3.1.1. Study Area

The proposed project is in southern Monterey County in the southern Salinas River Valley near Camp Roberts Military Reservation (Figure 1). Bradley Road runs east from Highway 101 and crosses the Salinas River on a two-lane bridge (Figure 3). The BSA is largely contained in the floodplain of the Salinas River. The river eventually drains into Monterey Bay. A corridor of riparian woodland occurs in the floodplain of the river, but most of the surrounding area is dominated by annual grassland, oak savanna, and the unincorporated community of Bradley. The BSA encompasses the entire proposed project footprint plus adjacent areas that could be affected by the proposed project.

3.1.2. Physical Conditions

The Bradley Road Bridge extends across the broad floodplain of the Salinas River. Topography in the BSA is mostly flat with gently sloping terraces along the western and eastern edges of the river channel. Elevations in the BSA range from approximately 490 to 530 feet above mean sea level. The river channel and associated floodplain is surrounded by flats and rolling hills primarily used for cattle ranching operations.

The Salinas River is the largest stream of the Central Coast Range of California and is about 155 miles in length with a watershed of approximately 4,200 square miles. The river flows from the south to the north, eventually emptying into Monterey Bay. Rainfall in the Salinas Valley is typically restricted to the winter months and rainfall events often consist of intense short-lived storms that result in flash floods. Winter flooding is a sporadic occurrence in the southern Salinas Valley including the section of the river at the Bradley Road Bridge. The Salinas River is a perennial stream within the BSA; surface water was present during all survey efforts. Inflows occur from agricultural runoff and discharge from upstream reservoirs during the dry season. Floods during winter storm events can scour out riparian vegetation and deposit fresh layers of sediment along the river channel. Such flood events promote a diverse mosaic of riparian vegetation with various seral stages of succession. The flow of the river is contained in several channels that fluctuate in size and location

depending on water levels and ongoing American beaver (*Castor canadensis*) activity.

The low-flow channel is defined in this document as the area typically occupied by the river during late spring, summer, and fall. The floodplain (i.e., high-flow channel) is generally equivalent to the area under CDFW jurisdiction. This includes the area between the terraces/upper banks and the edge of riparian canopy. During high flows, the river can fill the entire low-flow channel as evidenced by water-deposited debris in vegetation along the upper edge of the low-flow channel and according to the owner of the rural residence adjacent to the southeast corner of the BSA. The Salinas River may flood beyond the high-flow channel during extreme flood events.

The surficial geology in the BSA is composed of Quaternary alluvium. Soils on the study site are mapped as Chualar loam, 0 to 2 percent slopes (Soil Map Unit CbA); Metz complex (Mg); Psamments and Fluvents, occasionally flooded (Pr); and Psamments and Fluvents, frequently flooded (Ps) (NRCS 2016). Of these soil map units, only Psamments and Fluvents, frequently flooded is listed as predominantly hydric and the Psamments and Fluvents, occasionally flooded is listed as partially hydric (Cook 1978).

3.1.3. Habitat Connectivity

The BSA is not within or adjacent to California Essential Habitat Connectivity mapped Natural Landscape Block or Essential Connectivity Areas (CDFW 2017c). The Salinas River and its associated riparian vegetation within and near the BSA are not mapped by the CDFW as an important regional corridor for terrestrial animals; however, the river and associated riparian vegetation in this portion of the Salinas Valley provide a corridor of relatively natural habitat surrounded by annual grasslands and rangeland. Many species of terrestrial animals likely use this riparian corridor and high-flow channel for local and long distance movements. Additionally, steelhead and other fish species use the river channel during high flows when sufficient water levels are present to move up- or downstream. In regard to animal movement up and down the Salinas River corridor, the proposed project is not expected to have any adverse effects on animal movement because it will not result in permanent barriers to aquatic or terrestrial animals. Construction activity may result in temporary blockage of the low-flow channel to wildlife movement, but these effects would only be during the daylight hours during the 4 month construction season.

Bradley Road is a possible hazard to some species due to the high traffic volumes that increase collisions with wildlife that become trapped on the bridge because there is no exit except at the ends of the bridge. Much of the wildlife moving along the creek bed, however, would probably pass under the bridge and thus avoid any exposure to traffic. Increased human presence and environmentally sensitive area (ESA) fencing designed to keep crews out of the adjacent habitat could restrict some animal movement in the riparian corridor, but this restriction would be temporary.

3.1.4. Biological Conditions in the Biological Study Area

This section describes the vegetation types, habitats, and land uses in the BSA. The most biologically diverse area in the BSA is along the Salinas River channel. This area is dominated by native and naturalized vegetation types including annual brome grassland, Fremont cottonwood forest, and willow thickets. Outside the Salinas River floodplain, the BSA is dominated by annual brome grassland and developed areas (e.g., paved roads and a rural residence). These land cover types are shown on Figure 7 and the acreages of the cover types in the BSA are summarized in Table 5. The riparian corridor in the BSA is approximately 250 feet wide downstream of the bridge and approximately 325 feet wide upstream of the bridge.

Table 5: Acreages of Land Cover Types in the Biological Study Area

Land Cover Type	Acreage
Annual Brome Grassland	4.81
Fremont Cottonwood Forest*	4.00
Red Willow Thicket*	1.65
Sandbar Willow Thicket	1.15
Coyote Brush Scrub	0.44
Water Primrose Wetland	0.32
Developed Areas	0.86
Open Water	0.75
Total	13.98

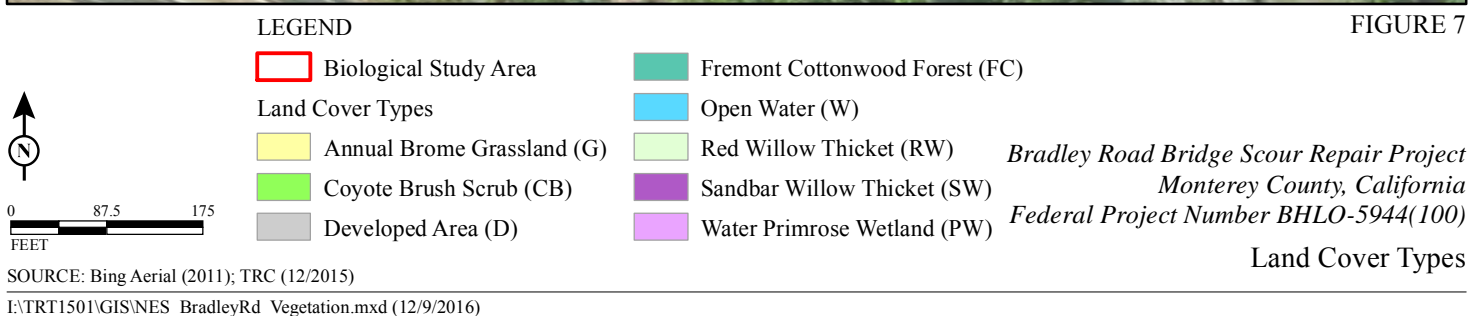
Source: LSA compiled, 2017

*Natural Community of Special Concern

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FIGURE 7



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3.1.4.1. ANNUAL BROME GRASSLAND (*BROMUS* [*DIANDRUS*, *HORDEACEUS*], *BRACHYPODIUM DISTACHYON* SEMI-NATURAL HERBACEOUS STANDS)

Annual brome grasslands are often found in rangelands, waste areas, and openings of woodlands and scrub communities. The northwestern portion of the BSA contains annual brome grassland associated with the vast rangelands to the north and east. The grassland intergrades with Fremont cottonwood forest in areas closer to the Salinas River in both the eastern and western portions of the BSA. The annual brome grassland in the BSA is a mixture of non-native weeds and grasses dominated by ripgut grass (*Bromus diandrus*) and foxtail chess (*Bromus madritensis* ssp. *rubens*), and interspersed with large patches of weedy species (e.g., black mustard [*Brassica nigra*], yellow star-thistle [*Centaurea solstitialis*], milk thistle [*Silybum marianum*], and oriental mustard [*Sisymbrium orientale*]). Native species (e.g., turkey-mullein [*Croton setiger*], vinegar weed [*Trichostema lanceolatum*], fascicled tarweed [*Deinandra fasciculata*], and Indian milkweed [*Asclepias eriocarpa*]) were also found in the annual brome grassland. While most of the annual brome grassland occurs outside the work area, potential impacts to annual brome grassland will primarily occur in the eastern portion of the BSA in the staging area and temporary access road. Annual brome grassland covers approximately 4.81 acres of the BSA.

Large tracts of grassland habitat provide foraging and/or breeding habitat and movement areas for many wildlife species. The extensive rangeland surrounding the BSA provides suitable habitat for numerous species. The annual brome grassland community in the BSA provides foraging habitat for wildlife species but very limited breeding habitat. No large burrow complexes or dens were observed. Commonly observed wildlife species include side-blotched lizard (*Uta stansburiana*), lark sparrow (*Calamospiza melanocorys*), mourning dove (*Zenaida macroura*), western bluebird (*Sialia mexicana*), western meadowlark (*Sturnella neglecta*), and California ground squirrel (*Otopermophilus beecheyi*).

3.1.4.2. FREMONT COTTONWOOD FOREST (*POPULUS FREMONTII* FOREST ALLIANCE)

Large stands of Fremont cottonwood forest occur in the central and western portions of the BSA above the Salinas River's low-flow channel. These stands contain mid-sized to large mature Fremont cottonwood (*Populus fremontii*) trees approximately 25 to 55 feet in height with a mostly open canopy due to spaces between the trees. Scattered arroyo willow (*Salix lasiolepis*), Southern California black walnut (*Juglans californica* var. *californica*), and red willow (*Salix laevigata*) are also present in these stands. Ripgut grass (*Bromus diandrus*) is the primary understory component. This

alliance intergrades with the annual brome grasslands in the eastern and western portions of the BSA and the willow thickets associated with the river channel in the center of the BSA. Fremont cottonwood forest covers approximately 4 acres of the BSA. Fremont cottonwood forest is considered a natural community of special concern (NCSC) by the CDFW.

The most abundant wildlife observed in this habitat during the field surveys were resident raptors and songbirds including house wren (*Troglodytes aedon*), western kingbird (*Tyrannus verticalis*), Nuttall's woodpecker (*Picoides nuttallii*), downy woodpecker (*Picoides pubescens*), violet-green swallow (*Tachycineta thalassina*), bushtit (*Psaltiriparus minimus*), American kestrel (*Falco sparverius*), and great horned owl (*Bubo virginianus*). A diverse assemblage of other resident and migratory riparian woodland birds was observed (Appendix F). Although no birds were observed to be actively nesting in the Fremont cottonwood forest in the BSA, nesting activity is highly likely to occur here.

3.1.4.3. RED WILLOW THICKET (*SALIX LAEVIGATA* WOODLAND ALLIANCE)

This is the dominant riparian woodland along the channel of the Salinas River and is primarily composed of red willow, arroyo willow, and boxelder (*Acer negundo*). Several white alder (*Alnus rhombifolia*) trees are also present on the western side of the river. The trees in these thickets form a multilayered canopy with the largest trees ranging from 30 to 55 feet tall. Poison oak (*Toxicodendron diversilobum*) is common in the understory where gaps in the canopy allow sunlight to reach the ground. The red willow thickets occur closer to the low flow-channel of the river than the Fremont cottonwood forest and in some areas of the BSA red willow thickets occur immediately adjacent to sections of open water. Red willow thicket covers approximately 1.65 acres of the BSA. Red willow thicket is considered an NCSC by the CDFW.

This vegetation provides deep shade along the river during the spring and summer season and is used as breeding and/or migration stopover habitat for a variety of migratory songbirds. Bird species observed in the BSA include yellow warbler (*Setophaga petechia*), Wilson's warbler (*Cardellina pusilla*), Pacific-slope flycatcher (*Empidonax difficilis*), black-headed grosbeak (*Pheucticus melanocephalus*), and song sparrow (*Melospiza melodia*). A song sparrow nest was observed in the southeastern portion of the BSA; nesting activity is expected to occur throughout this vegetation type.

3.1.4.4. SANDBAR WILLOW THICKET (*SALIX EXIGUA* SHRUBLAND ALLIANCE)

Within the BSA, sandbar willow thickets occur in the portion of the floodplain between the Fremont cottonwood forest and red willow thickets and the wetland vegetation along the low-flow channel of the Salinas River. Sandbar willow (*Salix exigua*) is a shrub or small tree that occurs along seasonally or temporarily flowing streams, rivers, seeps, and springs. After winter flood events when riparian vegetation has been scoured out and fresh sediment has been deposited, sandbar willow is often the first shrub or tree to colonize these barren habitats. Sandbar willows often form dense stands that through succession are slowly replaced by longer-lived willows, cottonwoods, and other riparian trees (Sawyer et al. 2009). Within the BSA, sandbar willow thickets, dominated by sandbar willow and mule fat (*Baccharis salicifolia*) to a lesser extent, occur in the portion of the river that regularly floods during high flows. The dynamic nature of the floodplain results in a mosaic of vegetated areas and bare ground. Open areas support a diversity of native and non-native forbs and grasses; natives include rush (*Juncus* spp.), hoary nettle (*Urtica dioica* ssp. *holosericea*), and annual bur-sage (*Ambrosia acanthicarpa*). Non-natives include weedy cudweed (*Pseudognaphalium luteoalbum*), perennial pepperweed (*Lepidium latifolium*), shortpod mustard (*Hirschfeldia incana*), and curly dock (*Rumex crispus*). Sandbar willow thicket covers approximately 1.15 acres in the BSA.

Wildlife using this vegetation is similar to that of red willow thicket. Although the sandbar willow thickets provide cover and foraging habitat for a variety of riparian wildlife, most riparian breeding birds (e.g., the warblers and black-headed grosbeak) prefer the taller multilayered habitat provided by the red willow thickets.

3.1.4.5. COYOTE BRUSH SCRUB (*BACCHARIS PILULARIS* SHRUBLAND ALLIANCE)

Within the BSA, this cover type is present in areas between Fremont cottonwood forest and annual brome grassland (e.g., along the northern slope of the eastern Bradley Road Bridge abutment). This alliance is dominated by coyote brush (*Baccharis pilularis*) with several weedy species associated with annual brome grassland. Coyote brush scrub occupies approximately 0.44 acre in the BSA.

This vegetation provides year-round shrub cover and could be used as breeding and/or foraging habitat for a variety of songbirds. Typical resident songbird species observed using this vegetation type in the BSA include California scrub jay (*Aphelocoma californica*), California thrasher (*Toxostoma redivivum*), and California towhee (*Melospiza crissalis*). Nesting behavior was observed by California scrub jay on the northern slope of the eastern Bradley Road Bridge abutment.

3.1.4.6. WATER PRIMROSE WETLAND (*LUDWIGIA* [*HEXAPETALA*, *PEPLOIDES*] PROVISIONAL SEMI-NATURAL HERBACEOUS STANDS)

Within the BSA, this cover type is present along the low-flow river channel between the open water and willow thickets. The water primrose wetlands are dominated by hydrophytic vegetation (e.g., Uruguayan primrose-willow [*Ludwigia hexapetala*], floating primrose-willow [*Ludwigia peploides* ssp. *peploides*], water speedwell [*Veronica anagallis-aquatica*], seep monkey flower [*Mimulus guttatus*], and to a lesser extent by annual beard grass [*Polypogon monspeliensis*], Chilean beard grass [*Polypogon australis*], and American cornmint [*Mentha canadensis*]). Water primrose wetland occupies approximately 0.32 acre in the BSA.

Wildlife observed using this vegetation is similar to that of red willow thicket and incorporated species more associated with aquatic habitats (e.g., an unidentified species of crayfish, pacific treefrog [*Hyla regilla*], and great blue heron [*Ardea herodias*]).

3.1.4.7. DEVELOPED AREA

Within the BSA, developed areas include the roadway (Bradley Road), the Bradley Road Bridge structure (deck, abutments, and piers), and the rural residence south of Bradley Road at the southeastern corner of the BSA. Within the BSA, developed areas occupy approximately 0.86 acre.

Most of these areas were devoid of vegetation or contained minimal amounts of ruderal species (e.g., horseweed [*Erigeron canadensis*]). These developed areas have negligible value as habitat for native plants and most animals. The only paved roadway in the BSA is Bradley Road, which likely has negative effects on local wildlife populations through mortality due to collisions with vehicles, particularly over the Salinas River channel where wildlife cannot escape the bridge or roadway. However, no roadkill was observed on the bridge during the field visits. A deer mouse (*Peromyscus maniculatus*) and a Salinas pocket mouse (*Perognathus inornatus psammophilus*) were both observed on the roadway. The various structural components of the Bradley Road Bridge provide nesting and roosting structure for several species of songbirds and raptors. Cliff swallow (*Petrochelidon pyrrhonota*) nests were observed in several sections of the bridge. Active black phoebe (*Sayornis nigricans*), barn owl (*Tyto alba*), and cliff swallow nests were each observed associated with various elements of the bridge structure at Pier 18. Additionally, the expansion joints and abutments of the bridge provide roosting habitat for several

species of bat. Both pallid bats (*Antrozous pallidus*) and Mexican free-tailed bats (*Tadarida brasiliensis mexicana*) were observed using the expansion joint of the bridge deck above Pier 15 as a day roost. This same roost also likely functions as a maternity roost.

3.1.4.8. OPEN WATER

Open water (aquatic habitat) in the BSA is limited to the perennial flows of the several braided channels of the Salinas River. As noted earlier, surface water fluctuates based on seasonal flows and drawdowns from nearby upstream reservoirs. Within the BSA, the Salinas River is a low-gradient stream flowing over a sandy bed. Aquatic habitats occupy approximately 0.75 acre in the BSA.

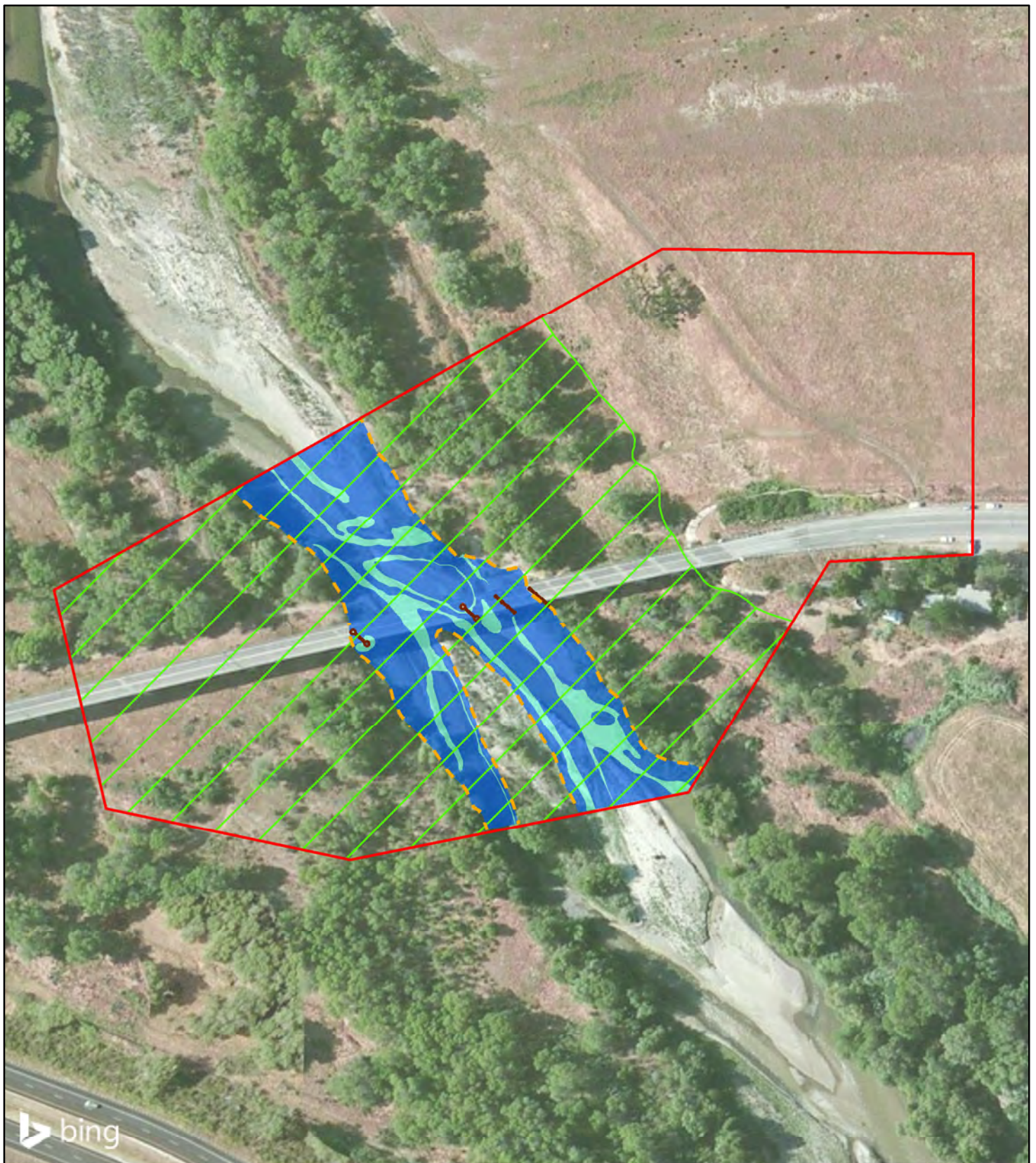
The Salinas River currently supports 14 species of native fishes including south-central Coast DPS steelhead (*Oncorhynchus mykiss irideus*) (Moyle 2002). Western mosquitofish (*Gambusia affinis*) and Sacramento pike minnow (*Ptychocheilus grandis*) were the only fish species observed in the BSA. The section of the river in the BSA does not provide suitable spawning or rearing habitat for steelhead; however, adult fish moving upstream to spawn and smolts moving downstream to the ocean pass through the section of river in the BSA during high flows in the winter and spring (NMFS 2016).

Several species of special-status semi-aquatic reptiles occur in the Salinas Valley, including the western pond turtle (*Emys marmorata*), which is known to occur in the Salinas River although it was not observed (CNDDDB records exist approximately 6 miles upstream of the BSA and downstream near King City), and is likely to occur in the BSA. Resident bird species observed using this vegetation type in the BSA include mallard (*Anas platyrhynchos*) and common merganser (*Mergus merganser*).

3.1.4.9. WETLANDS

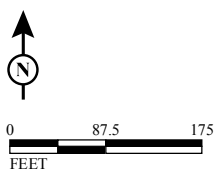
Waters of the U.S. (including wetlands) in the BSA include the areas along the low-flow channel of the Salinas River (Figure 8). The area in the OHWM of the Salinas River occupies approximately 2.37 acres of the BSA (0.46 acre of wetlands and 1.91 acres of open water and non-wetland waters [i.e., “other waters”]). A wetland delineation of the BSA was initially conducted on April 21, 2015, and was updated on June 14, 2016. The delineation was field verified by the Corps on August 11, 2016. The resulting delineation report is provided in Appendix D.

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LEGEND

- | | |
|---|--|
| Biological Study Area | Waters of the United States |
| CDFW Limits | Wetlands |
| Bridge Pier | Channel Wetland (0.46 acres) |
| Stream OHWM | Other Waters |
| | Salinas River (1.91 acres) |



SOURCE: Bing Aerial (2011); TRC (12/2015)

E:\TRT1501\GIS\NES_BradleyRd_Waters.mxd (12/1/2016)

FIGURE 8

*Bradley Road Bridge Scour Repair Project
Monterey County, California
Federal Project Number BHLO-5944(100)
Potential Jurisdictional Waters*

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In addition to the wetland delineation, an analysis of the functions and values of the wetlands in the BSA was conducted. Wetland functions and values as defined in the Caltrans Environmental Handbook Vol. 3 Biological Resources (Handbook; Caltrans 2009) were analyzed. The Caltrans Environmental Handbook defines functions as physical, chemical, and biological attributes of a wetland without regard to their importance to society; values are used to describe functions that are generally regarded as beneficial to society. Functions and values include the following categories: groundwater recharge, groundwater discharge, flood flow alteration, sediment stabilization, sediment/toxicant retention, nutrient removal/transformation, production export, wildlife habitat (aquatic and terrestrial), uniqueness/heritage, and recreation. Based on these functions and values, a given wetland is rated as high, medium, or low. Areas along the channels of the Salinas River are the only wetlands in the BSA and are rated below under the various functions and values categories.

Groundwater Recharge

High: The Salinas River is a perennial stream in the BSA and, thus, is likely an important source of groundwater recharge.

Groundwater Discharge

Low or Uncertain; the effects of groundwater pumping in the BSA are unknown; however, agricultural tiling and groundwater pumping for irrigation may lower the water table below the elevation of the river channel.

Flood Flow Alteration

High: The floodplain of the Salinas River carries surface floodwaters in and outside of the low-flow channel during high-flow events. Flow is regulated upstream where water is released during the spring through fall period (depending on drought and other conditions) from Lake Nacimiento into the Nacimiento River and San Antonio Lake into the San Antonio River; both rivers are tributaries to the Salinas River within 5 miles upstream of the BSA.

Sedimentation Stabilization

High: The floodplain of the Salinas River slows the velocity of over-bank floodwaters and captures fine sands and silts from the floodwaters. Additionally, beaver dams in and adjacent to the BSA assist with trapping sediment.

Sediment/Toxicant Retention

Low: The Salinas River channel contains temporarily captured sediments and can biologically denature toxicants.

Nutrient Removal/Transport

Moderate: During floods, the Salinas River in the BSA likely carries a moderate nutrient load from agricultural runoff and natural sources in the watershed.

Production Export

Moderate: The Salinas River high-flow channel in the BSA supports substantial amounts of vegetation; however, high flows that would contribute to organic matter productivity are relatively infrequent events after winter storms and, thus, production export over the long term would likely be moderate.

3.2. Regional Species and Habitats of Concern

Although all special-status plant and animal species, NCSCs, and critical habitats within a nine-quadrangle search area were evaluated for the proposed project (Appendix B), the large search area results in a variable geographic and topographic search area containing habitat types not found in or around the BSA. Therefore, the focus of the database query and subsequent surveys was reduced to a 2-mile radius around the BSA.

The special-status plant and animal species, NCSCs, and designated critical habitat which could occur within the vicinity of the BSA are listed and discussed in Table 6. This table includes special-status plants and animals with CNPS/CNDDDB records or critical habitat within 2 miles of the BSA (Figure 9), species included on the NMFS and USFWS official species lists for the project (Appendix B), and special-status species that have not been documented to occur within the BSA but were observed during the field surveys or may occur based on suitable habitat conditions in the BSA. CNDDDB and CNPS species lists for the entire nine-quadrangle search for the project are also included in Appendix B.

The determination of whether a species could occur within the BSA was based on the availability of suitable habitat or growing conditions within the species' known range, as well as known occurrences of the species in or adjacent to the BSA. Species requiring specific habitat or conditions not present in the vicinity of the BSA, such as serpentine soils, slopes, or chaparral vegetation were eliminated as potentially occurring and are not discussed further. Those species that could occur in the BSA based on habitat suitability or known occurrences in or within the vicinity of the BSA are discussed in Chapter 4.

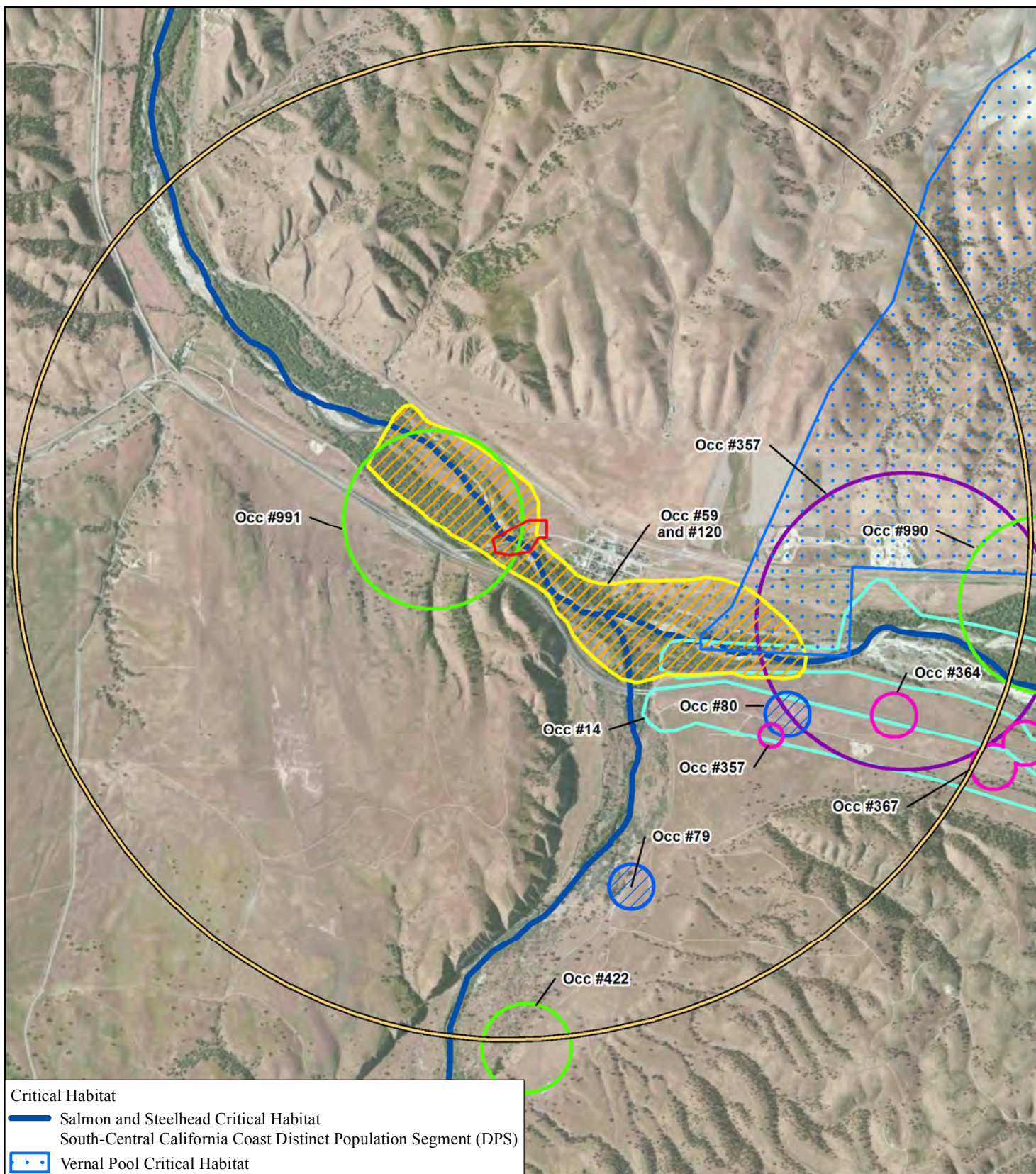
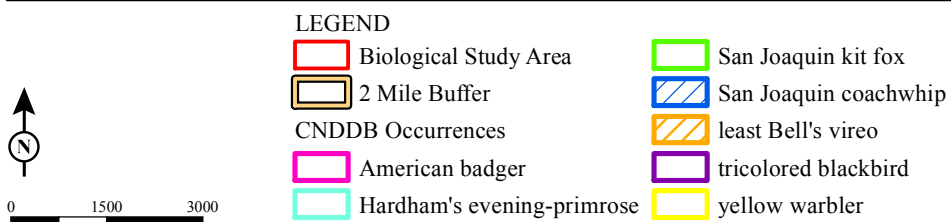


FIGURE 9



Bradley Road Bridge Scour Repair Project
Monterey County, California
Federal Project Number BHLO-5944(100)

Special-Status Species and Critical Habitat within 2 Miles of the BSA

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Table 6: Special-Status Species, Natural Communities of Special Concern, and Critical Habitat Potentially Occurring or Known to Occur in the Biological Study Area

Scientific Name	English Name	Status Federal/State/ Other†	General Habitat Description	Habitat Present/ Absent*	Rationale
PLANTS					
<i>Arenaria paludicola</i>	Marsh sandwort	FE/SE/1B.1	Bogs, fens, and freshwater marshes and swamps (5–250 meters). Blooming period May–August.	A	No suitable habitat is present within the BSA. There are no CNDDDB records within 2 miles of the BSA (Figure 9). This species is included on the USFWS species list for the proposed project (Appendix B), but was not observed during appropriately timed plant surveys. This species is not expected to occur in the BSA.
<i>Aristocapsa insignis</i>	Indian Valley spineflower	--/--/1B.2	Sandy substrates in cismontane woodland (300-600 meters). Blooming period May–September.	A	Sandy substrate present, but more associated with river floodplain. Species believed to be extirpated from Monterey County. There are no CNDDDB records within 2 miles of the BSA (Figure 9). This species was not observed during appropriately timed plant surveys. This species is not expected to occur in the BSA.
<i>Calycadenia villosa</i>	Dwarf calycadenia	--/--/1B.1	Open, dry meadows, rocky hillsides, and gravelly outwashes in chaparral, cismontane woodland, valley and foothill grassland, meadows and seeps (240-1350 meters). Blooming period May–October.	A	No suitable dry meadow habitat is present within the BSA. There are no CNDDDB records within 2 miles of the BSA (Figure 9). This species was not observed during appropriately timed plant surveys. This species is not expected to occur in the BSA.
<i>Camissoniopsis hardhamiae</i>	Hardham's evening-	--/--/1B.2	Sandy, decomposed carbonate, disturbed or burned areas in	HP	Suitable substrate is present in the BSA. The nearest CNDDDB occurrence

Table 6: Special-Status Species, Natural Communities of Special Concern, and Critical Habitat Potentially Occurring or Known to Occur in the Biological Study Area

Scientific Name	English Name	Status Federal/State/ Other†	General Habitat Description	Habitat Present/ Absent*	Rationale
	primrose		chaparral or cismontane woodland (240–610 meters). Blooming period April–May.		(No. 14) is from the Salinas River floodplain approximately 0.7 mile east of the BSA (Figure 9). However, this species was not observed during appropriately timed plant surveys. This species is not expected to occur in the BSA.
<i>Centromadia parryi</i> ssp. <i>congdonii</i>	Congdon's tarplant	--/--/1B.1	Valley and foothill grasslands and disturbed places with alkaline soil (1–230 meters). Blooming period May–November.	HP	Suitable growing conditions and habitat are present within the BSA. There are no CNDDDB records within 2 miles of the BSA (Figure 9). This species was not observed during appropriately timed plant surveys. This species is not expected to occur in the BSA.
<i>Chlorogalum purpureum</i> var. <i>purpureum</i>	Santa Lucia purple amole	FT/--/1B.1	Gravelly loamy clay soils with biological soil crust in grassy meadows, clay barrens, blue oak woodland, foothill woodland, cismontane woodland, and valley and foothill grasslands (240–340 meters). Blooming period April–June.	A	Marginally suitable growing conditions and habitat are present within the BSA. There are no CNDDDB records within 2 miles of the BSA (Figure 9). This species is included on the USFWS species list for the proposed project (Appendix B), but was not observed during appropriately timed plant surveys. This species is not expected to occur in the BSA.
<i>Entosthodon kochii</i>	Koch's cord moss	--/--/1B.3	Moss growing on soil on river banks in cismontane woodland and valley and foothill grasslands. Known from serpentine on the	HP	Suitable growing conditions and habitat are present within the BSA. There are no CNDDDB records within 2 miles of the BSA (Figure 9). This species was not

Table 6: Special-Status Species, Natural Communities of Special Concern, and Critical Habitat Potentially Occurring or Known to Occur in the Biological Study Area

Scientific Name	English Name	Status Federal/State/ Other†	General Habitat Description	Habitat Present/ Absent*	Rationale
			Plumas National Forest (500-1000 meters).		observed during appropriately timed plant surveys. This species is not expected to occur in the BSA.
<i>Juncus luciensis</i>	Santa Lucia dwarf rush	--/--/1B.2	Vernal pools, ephemeral drainages, wet meadow habitats, streamsides, lower montane coniferous forest, chaparral, and Great Basin scrub (300-2040 meters). Blooming period April-July.	HP	Suitable growing conditions and streamside habitat are present within the BSA. There are no CNDDDB records within 2 miles of the BSA (Figure 9). This species was not observed during appropriately timed plant surveys. This species is not expected to occur in the BSA.
<i>Malacothamnus abbottii</i>	Abbott's bush-mallow	--/--/1B.1	Associated with willows near rivers and along roadsides within riparian scrub (135-490 meters). Blooming period May–October.	HP	Suitable growing conditions and habitat are present within the BSA. There are no CNDDDB records within 2 miles of the BSA (Figure 9). This species was not observed during appropriately timed plant surveys. This species is not expected to occur in the BSA.
<i>Malacothamnus davidsonii</i>	Davidson's bush-mallow	--/--/1B.2	Coastal scrub, riparian woodland, chaparral, cismontane woodland, and sandy washes (185-855 meters). Blooming period June-January.	HP	Suitable growing conditions and habitat are present within the BSA. There are no CNDDDB records within 2 miles of the BSA (Figure 9). This species was not observed during appropriately timed plant surveys. This species is not expected to occur in the BSA.
<i>Navarretia nigelliformis</i> ssp. <i>radians</i>	Shining navarretia	--/--/1B.2	Cismontane woodland, valley and foothill grasslands, and vernal pools (200-1000 meters).	HP	Suitable growing conditions and habitat are present in the eastern portion of the BSA. There are no CNDDDB records

Table 6: Special-Status Species, Natural Communities of Special Concern, and Critical Habitat Potentially Occurring or Known to Occur in the Biological Study Area

Scientific Name	English Name	Status Federal/State/ Other†	General Habitat Description	Habitat Present/ Absent*	Rationale
			Blooming period April–July.		within 2 miles of the BSA (Figure 9). This species was not observed during appropriately timed plant surveys. This species is not expected to occur in the BSA.
ANIMALS					
Invertebrates					
<i>Branchinecta lynchi</i>	Vernal pool fairy shrimp	FT/--/--	Vernal pools and temporary ponds.	A	No suitable habitat (i.e., vernal pools or ponds) is present within the BSA. There are no CNDDDB records within 2 miles of the BSA (Figure 9). This species is included on the USFWS species list for the proposed project (Appendix B), but was not observed during the various survey efforts. Designated Critical Habitat for Four Vernal Pool Crustaceans and Eleven Vernal Pool Plants (No. 4833) does not occur in the BSA, but occurs approximately 0.7 mile east of the BSA. This species is not expected to occur in the BSA.
Fish					
<i>Oncorhynchus mykiss irideus</i>	South-Central California Coast DPS Steelhead	FT/--/SSC	Coastal Basin rivers and streams from the Pajaro River south to, but not including, the Santa Maria River.	HP	Suitable migration habitat is present in the BSA but no spawning habitat present. All CNDDDB records of occurrence more than 2 miles from the BSA (Figure 9). The Salinas River provides migration habitat to spawning

Table 6: Special-Status Species, Natural Communities of Special Concern, and Critical Habitat Potentially Occurring or Known to Occur in the Biological Study Area

Scientific Name	English Name	Status Federal/State/ Other†	General Habitat Description	Habitat Present/ Absent*	Rationale
					grounds further upstream. This species is included on the NMFS species list for the proposed project (Appendix B). This species was not observed during the various survey efforts, but may occur in the BSA during normal high-flow events in the rainy season.
Amphibians					
<i>Rana draytonii</i>	California red-legged frog	FT/--/SSC	Lowlands and foothills; in or near permanent or semipermanent bodies of water generally with dense emergent aquatic vegetation.	HP	Although elements of aquatic and upland habitat are present in the BSA, the site is not occupied by this species. There are no CNDDDB records within 2 miles of the BSA (Figure 9). This species is included on the USFWS species list for the proposed project (Appendix B), but was not detected during the various survey efforts. A USFWS protocol California Red-Legged Frog Site Assessment was completed for the site and concluded that this species does not occur in the BSA (TRC Solutions, Inc. 2016). USFWS agreed with this conclusion (personal communication with Glen Knowles 2016) that California red-legged frogs are unlikely to occur in the BSA.
<i>Spea hammondi</i>	Western spadefoot	--/--/SSC	Occurs primarily in grassland habitats, but can be found in	HP	Marginally suitable grassland habitat is present in the eastern portion of the

Table 6: Special-Status Species, Natural Communities of Special Concern, and Critical Habitat Potentially Occurring or Known to Occur in the Biological Study Area

Scientific Name	English Name	Status Federal/State/ Other†	General Habitat Description	Habitat Present/ Absent*	Rationale
			valley-foothill hardwood woodlands. Vernal pools are essential for breeding and egg laying.		BSA; however, no breeding habitat (i.e., vernal pool complexes) occurs in the BSA. There are no CNDDDB records within 2 miles of the BSA (Figure 9). This species was not observed or expected as it is mainly above ground during the rainy season when few surveys were conducted. This species is unlikely to occur in the BSA.
Reptiles					
<i>Emys marmorata</i>	Western pond turtle	--/--/SSC	Occurs in a wide variety of freshwater habitats with deep water, including slow flowing pools of rivers and streams, ponds, and marshes. Prefers aquatic habitats with a muddy or sand bottom but also occurs in areas with a rocky or cobble bottom. Generally most common in areas with abundant basking habitat (e.g., fallen trees). Must have access to upland areas with friable soils for egg laying.	HP	Although there are no CNDDDB records within 2 miles of the BSA (Figure 9), there are records of this species upstream in river. This species was not detected during the various survey efforts; however, suitable aquatic, basking, and upland habitat is present in the BSA. This species may occur in the BSA.
<i>Masticophis (Coluber) flagellum ruddocki</i>	San Joaquin coachwhip	--/--/SSC	Open dry habitats with little or no tree cover. Found in valley grassland and chenopod scrub in the San Joaquin Valley.	HP	Marginally suitable habitat is present in the eastern portion of the BSA, but most of the BSA is not suitable habitat (river floodplain and lack of mammal burrows). The nearest CNDDDB

Table 6: Special-Status Species, Natural Communities of Special Concern, and Critical Habitat Potentially Occurring or Known to Occur in the Biological Study Area

Scientific Name	English Name	Status Federal/State/ Other†	General Habitat Description	Habitat Present/ Absent*	Rationale
					occurrence (No. 80) is approximately 1.2 miles southeast of the BSA (Figure 9) in large contiguous grassland habitat. This species was not observed during the various survey efforts. If the species occurs in the BSA, it would likely just be moving through the area. This species is not expected to occur in the BSA.
<i>Thamnophis hammondi</i>	Two-striped garter snake	--/--/SSC	Found in and near permanent freshwater streams with rocky beds and riparian growth in coastal California from Salinas to northwest Baja, California. Found in elevations ranging from sea level to 2,130 meters.	HP	Marginally suitable habitat in the BSA due to open vegetation and lack of rocky substrate (mostly sand). There are no CNDDDB records within 2 miles of the BSA (Figure 9), but this species occurs in riparian systems in the Salinas valley (Thomson et al. 2016). This species was not detected during the various survey efforts, but could occur in the BSA.

Table 6: Special-Status Species, Natural Communities of Special Concern, and Critical Habitat Potentially Occurring or Known to Occur in the Biological Study Area

Scientific Name	English Name	Status Federal/State/ Other†	General Habitat Description	Habitat Present/ Absent*	Rationale
Birds					
<i>Agelaius tricolor</i>	Tricolored blackbird	--/SCE/SSC	Nests in extensive cattail or tule marsh, blackberry and wild rose thickets. Forages in open fields, cultivated lands, and farms with abundant insect populations.	A	No suitable breeding habitat within the BSA. This species may occasionally forage in the non-breeding season in the grasslands adjacent to the BSA. The nearest CNDDDB occurrence (No. 357) is approximately 1.4 miles east of the BSA. This species was not detected during the various survey efforts. This species is not expected to occur in the BSA.
<i>Aquila chrysaetos</i>	Golden eagle	--/--/FP	A variety of open habitats including coastal prairie, cismontane woodland, montane coniferous forest, and valley and foothill grasslands. Cliff-walled canyons provide nesting habitat in most parts of range, as well as large trees in open areas.	A	This species may occasionally forage in or fly over the BSA, but there is no suitable breeding/nesting habitat within the BSA. There are no CNDDDB records within 2 miles of the BSA (Figure 9) and this species was not detected during the various survey efforts. This species is not expected to occur in the BSA.
<i>Athene cunicularia</i>	Burrowing owl	--/--/SSC	Open, dry annual grasslands; deserts and scrublands with mammal burrows (e.g., ground squirrels) for nest sites and retreats.	A	This species may occur as a transient in the BSA, but there is no suitable breeding/nesting habitat (burrows) within the BSA. There are no CNDDDB records within 2 miles of the BSA (Figure 9) and this species was not detected during the various survey efforts. This species is not expected to occur in the BSA.

Table 6: Special-Status Species, Natural Communities of Special Concern, and Critical Habitat Potentially Occurring or Known to Occur in the Biological Study Area

Scientific Name	English Name	Status Federal/State/ Other†	General Habitat Description	Habitat Present/ Absent*	Rationale
<i>Empidonax traillii extimus</i>	Southwestern willow flycatcher	FE/SE/--	Riparian woodlands in Southern California. Nests and forages in riparian habitats dominated by willow thickets and other low riparian vegetation. Neotropical migrant, present during spring and summer, migrants in the fall.	HP	Although suitable habitat is present in the BSA and this species was known to historically nest along the Salinas River, this species is no longer known to nest in Monterey County and now occurs only as a rare but regular migrant (Roberson 2002). Also, the local breeding subspecies was most likely <i>E. t. brewsteri</i> , a State endangered species, but not a federally listed species (Roberson 2002). There are no CNDDDB records within 2 miles of the BSA (Figure 9). <i>E.t. extimus</i> is included on the USFWS species list for the proposed project (Appendix B), but this species was not detected during the various survey efforts, including protocol surveys for this species. This species is not expected to occur in the BSA.
<i>Gymnogyps californianus</i>	California condor	FE/SE/FP	Generally occurs in wild landscapes, searches for carrion while soaring over mountains, sea coasts, and grasslands, nests on cliffs or in cavities in tall trees.	HP	This species may occasionally forage in or fly over the BSA, but there is no suitable breeding/nesting habitat within the BSA. There are no CNDDDB records within 2 miles of the BSA (Figure 9). This species is included on the USFWS species list for the proposed project (Appendix B), but this species was not detected during the various survey

Table 6: Special-Status Species, Natural Communities of Special Concern, and Critical Habitat Potentially Occurring or Known to Occur in the Biological Study Area

Scientific Name	English Name	Status Federal/State/ Other†	General Habitat Description	Habitat Present/ Absent*	Rationale
					efforts. This species is not expected to occur in the BSA.
<i>Haliaeetus leucocephalus</i>	Bald eagle	FDE/SE/FP	Lower montane coniferous forest and old growth forests with most nests within 1 mile of ocean shore, lake margins, and rivers for both nesting and wintering.	P	This species was observed flying over the BSA. There is no suitable breeding/nesting habitat within the BSA, and this species is unlikely to forage in the BSA. There are no previous CNDDB records within 2 miles of the BSA (Figure 9). This species is unlikely to occur in the BSA.
<i>Setophaga petechia</i>	Yellow warbler	--/--/SSC	Nests in riparian habitats dominated by willows; also forages in other trees (e.g., cottonwoods, alders, and oaks). Neotropical migrant present during spring and summer, migrants in the fall.	P	This species was observed in the riparian areas of the BSA during various Spring 2015 survey efforts. Suitable nesting habitat occurs within the BSA along the Salinas River. CNDDB occurrence (No. 59) is documented within the BSA (Figure 9). This species is likely to occur in the BSA.
<i>Vireo bellii pusillus</i>	Least Bell's vireo	FE/SE/--	Nests in riparian habitats dominated by willow, forages in a variety of native riparian trees and shrubs and will sometime forage or nest in <i>Eucalyptus</i> adjacent to riparian areas. Neotropical migrant, present during spring and summer, migrants in the fall.	HP	CNDDB occurrence (No. 120) is documented within the BSA (Figure 9); however, this species has only been sporadically observed in the County in recent years (Roberson 2002). This species is included on the USFWS species list for the proposed project (Appendix B), but this species was not detected during the various survey efforts, including protocol surveys for

Table 6: Special-Status Species, Natural Communities of Special Concern, and Critical Habitat Potentially Occurring or Known to Occur in the Biological Study Area

Scientific Name	English Name	Status Federal/State/ Other†	General Habitat Description	Habitat Present/ Absent*	Rationale
					this species. This species is not expected to occur in the BSA.
Mammals					
<i>Antrozous pallidus</i>	Pallid bat	--/--/SSC	Deserts, grasslands, shrublands, woodlands and forests. Most common in open, dry habitats with rocky areas for roosting. Roosts must protect bats from high temperatures. Very sensitive to disturbance of roosting sites.	P	This species was observed during various survey efforts including the focused bat survey. The bridge expansion joints at Piers 13 and 15 serve as a shared day roost with Mexican free-tailed bats and the bridge abutments (primarily the western abutment) serve as a shared night roost with multiple species of bats. Both the bridge piers and abutments used by this species (and other bats) are outside the BSA. There are no previous CNDDDB records within 2 miles of the BSA (Figure 9). This species is likely to occur in the BSA.
<i>Lasiurus blossevillei</i>	Western red bat	--/--/SSC	Solitary tree roosting bat. Favors riparian areas dominated by cottonwoods. Prefers habitat edges and mosaics with trees that are protected from above and open below with open areas for foraging.	HP	Suitable roosting (riparian areas dominated by cottonwoods) and foraging habitat is present within the BSA. There are no CNDDDB records within 2 miles of the BSA (Figure 9) and this species was not detected during the focused bat survey. This bat may occur in the BSA.
<i>Perognathus inornatus</i>	Salinas pocket	--/--/SSC	Fine textured, sandy, and friable soils in annual grassland and	P	This species was observed on the deck of the Bradley Road Bridge in the BSA

Table 6: Special-Status Species, Natural Communities of Special Concern, and Critical Habitat Potentially Occurring or Known to Occur in the Biological Study Area

Scientific Name	English Name	Status Federal/State/ Other†	General Habitat Description	Habitat Present/ Absent*	Rationale
<i>psammophilus</i>	mouse		desert shrub communities within the Salinas Valley.		during the nighttime bat survey and suitable fine-textured sandy soils are present within the BSA. There are no previous CNDDDB records within 2 miles of the BSA (Figure 9). This species occurs in the BSA.
<i>Taxidea taxus</i>	American Badger	--/--/SSC	Open undeveloped country supporting grasslands, open woodlands, deserts, and valleys with abundant populations of prey (e.g., ground squirrels, pocket gophers, and voles)	HP	Suitable habitat is present within the eastern portion of the BSA. The nearest CNDDDB occurrence (No. 357) is approximately 1.2 miles southeast of the BSA. Prey (ground squirrels) was observed in low numbers within the BSA. However no badgers, their sign (i.e., tracks or scat), or suitable burrows were observed during the various survey efforts. This species is not expected to occur within the BSA.
<i>Vulpes macrotis mutica</i>	San Joaquin kit fox	FE/ST/--	Dry open grasslands and foothills.	HP	Open grassland is present within the eastern portion of the BSA. A CNDDDB occurrence (No. 991) from the period 1972 to 1975 is recorded as a non-specific, circular occurrence with a radius of approximately 2,000 feet (600 meters) centered downstream of the BSA (CDFW 2017a, 2017d). This non-specific occurrence overlaps the western half of the BSA. There is no detail in the record of any den or activity

Table 6: Special-Status Species, Natural Communities of Special Concern, and Critical Habitat Potentially Occurring or Known to Occur in the Biological Study Area

Scientific Name	English Name	Status Federal/State/ Other†	General Habitat Description	Habitat Present/ Absent*	Rationale
					center at this location. This species is included on the USFWS species list for the proposed project (Appendix B). The focused habitat assessment for this species resulted in no individuals, their sign (i.e., tracks or scat), or suitable burrows observed within or adjacent to the BSA. This species is not expected to occur within the BSA.
Critical Habitat and Natural Communities of Special Concern					
	Four Vernal Pool Crustaceans and Eleven Vernal Pool Plants Critical Habitat	Designated	Vernal pools and temporary ponds.	A	No critical habitat or physical and biological features of this critical habitat present within the BSA. Designated Critical Habitat for Four Vernal Pool Crustaceans and Eleven Vernal Pool Plants (Unit 29A) occurs approximately 0.7 mile east of the BSA, but not within the BSA (Figure 9).
	South-Central California Coast DPS Steelhead Critical Habitat	Designated	Coastal Basin rivers and streams from the Pajaro River south to, but not including, the Santa Maria River.	P	The Salinas River within the BSA is designated Critical Habitat (Salinas River Hydrologic Unit 3309) and provides suitable migration habitat to spawning grounds further upstream (Figure 9). This Critical Habitat is included on the NMFS species list for the proposed project (Appendix B).
	Fremont Cottonwood	--/--/NCSC	Occurs on floodplains along low gradient perennial and ephemeral	P	This community is present in the BSA above the low-flow channel of the river

Table 6: Special-Status Species, Natural Communities of Special Concern, and Critical Habitat Potentially Occurring or Known to Occur in the Biological Study Area

Scientific Name	English Name	Status Federal/State/ Other†	General Habitat Description	Habitat Present/Absent*	Rationale
	Forest		rivers and streams and other areas where there is dependable subsurface water.		(Figure 7).
	Red Willow Thicket	--/--/NCSC	Stream courses and other wetland habitats.	P	This community is present in the BSA along the low-flow channel of the river (Figure 7).
	Valley Oak Woodland	--/--/NCSC	Typically occupies valley bottoms that are subject to seasonal flooding; also occur on lower hill slopes and often with a grassy understory.	A	A single valley oak occurs in the northeast corner of the BSA, but this natural community type does not occur within the BSA.

† Status: Federal = Federally Delisted (FDE), Federal Endangered (FE), Federal Threatened (FT); State = State Candidate Endangered (SCE), State Endangered (SE), State Threatened (ST); Other = California Rare Plant Rank (1B), Species of Special Concern (SSC) (animals), California Fully Protected (FP) (animals). 1B = Rare or Endangered in California and elsewhere, .1 = Seriously Endangered in California, .2 = Moderately Threatened in California.

* Habitat Present/Absent. Absent (A) = no habitat present and no further work needed. Habitat Present (HP) = habitat is or may be present. The species may be present. Present (P) = the species is present. Critical Habitat (CH) = project footprint is located within a designated critical habitat unit, but does not necessarily mean that appropriate habitat is present.

BSA = Biological Study Area

CNDDDB = California Natural Diversity Database

County = County of Monterey

DPS = Distinct Population Segment

NCSC = Natural Community of Special Concern

NMFS = National Marine Fisheries Service

USFWS = United States Fish and Wildlife Service

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

4.1. Habitats and Natural Communities of Special Concern

4.1.1. Discussion of Fremont Cottonwood Forest (*Populus fremontii* Forest Alliance) and Red Willow Thicket (*Salix laevigata* Woodland Alliance)

4.1.1.1. SURVEY RESULTS

Fremont cottonwood forest and red willow thicket are considered sensitive in the State of California and have rarity ranks of S3; this means this natural community is considered vulnerable (Sawyer et al. 2009). The structure and species composition of these communities/vegetation alliance are described in Chapter 3. The stand of Fremont cottonwoods in the BSA includes midsized to large mature trees (with a DBH ranging between 12 and 36 inches) in the central and western portions of the BSA above the Salinas River's high-flow channel (Figure 10). Red willow thickets are primarily confined to the east and west banks of the main river channel.

4.1.1.2. PROJECT IMPACTS

While most of the Fremont cottonwood forest occurs outside the work areas, potential impacts (i.e., trimming or removal) to Fremont cottonwood forest will occur in the area associated with the temporary access road and water diversion grading area (Figure 6). Portions of the red willow thicket, mostly south of the bridge, occur within the work areas; potential impacts (i.e., trimming or removal) to red willow thicket will occur in the area associated with the temporary access road and water diversion grading area. Based on the tree map (Figure 11), the proposed project will result in impacts to 12 Fremont cottonwoods and 19 red willows in the BSA.

4.1.1.3. AVOIDANCE AND MINIMIZATION EFFORTS

BIO-1 To avoid and minimize impacts to Fremont cottonwoods and red willows, environmentally sensitive area (ESA) fencing will be placed along the edge of this habitat adjacent to the construction area to keep construction equipment, materials, and personnel out of adjacent areas supporting this vegetation. A qualified biologist will aid in the placement of the ESA fencing and will be on site to monitor tree removal.

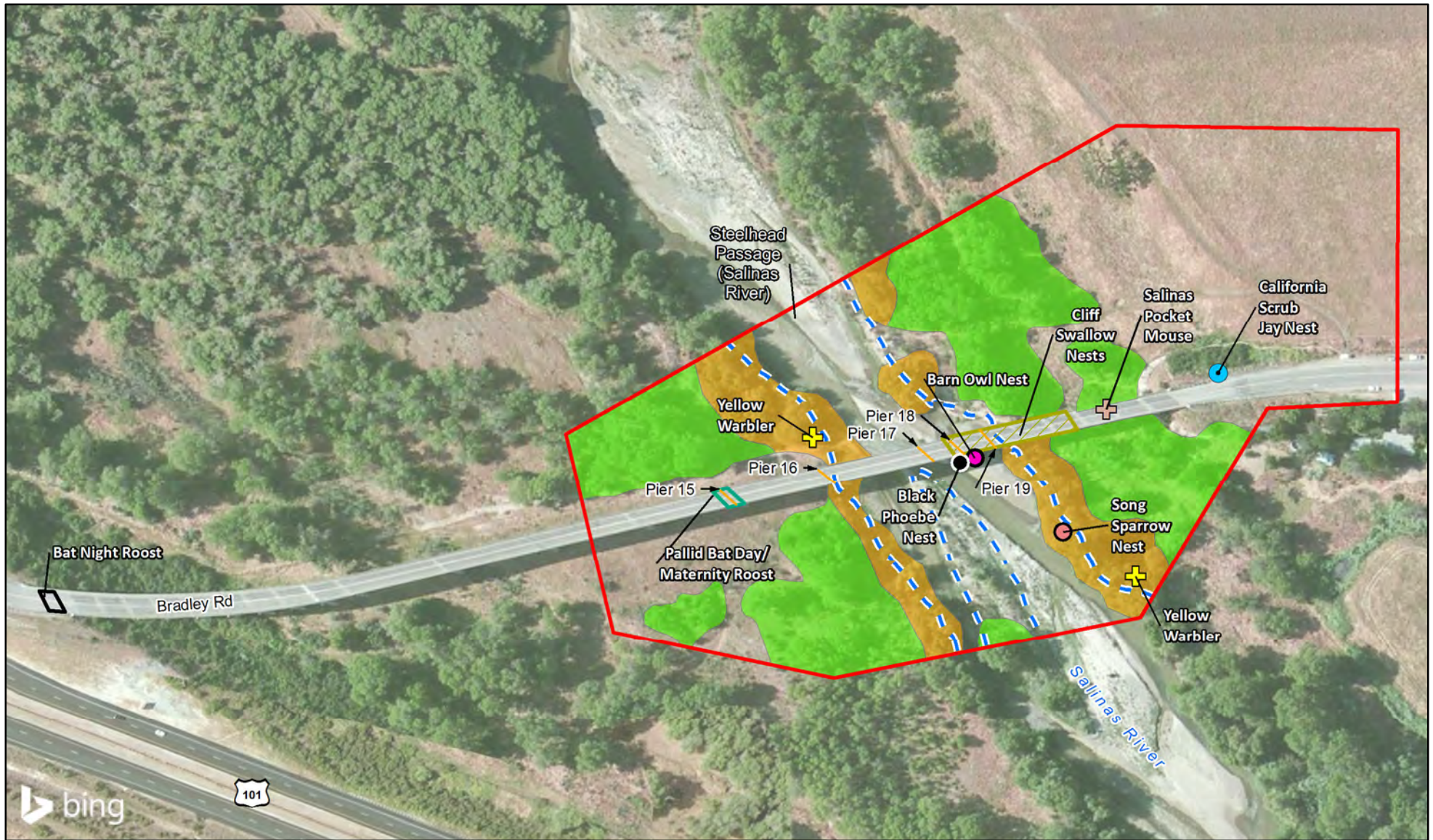
4.1.1.4. COMPENSATORY MITIGATION

The Salinas River high-flow channel is a naturally dynamic system and vegetation in the channel periodically changes depending on flood events and low-flow periods. Based on the dynamic nature of this system, cottonwoods and willows are expected to regenerate naturally in the high-flow channel after construction. Natural regeneration will be augmented by planting cuttings from nursery-grown trees of local stock. Trees will be planted at a 2:1 ratio (trees planted to trees removed) in similar habitat in and adjacent to the BSA where they would be exposed to light levels suitable for growth. A total of 24 Fremont cottonwoods and 38 red willows of local stock will be planted.

The cuttings should not be installed where they could interfere with future maintenance operations. Planted trees will be protected from beaver activity and other herbivory with ESA fencing. A revegetation plan will be developed to County and/or CDFW specifications. This plan would provide direction for implementation of the revegetation, maintenance, and performance standards for determining success. Restored areas will be monitored until the performance standards have been achieved (approximately 5 years). Annual reports will be prepared at the end of each year documenting the site conditions and progress toward achieving the performance standards.

4.1.1.5. CUMULATIVE EFFECTS

The proposed project would not result in cumulative effects to Fremont cottonwood forest or red willow thickets because impacts would be temporary and mitigation plantings would result in no loss of this habitat.



LSA



0 100 200
FEET

SOURCE: Bing Aerial (2011)

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LEGEND

- Biological Study Area
- Steelhead Passage (Salinas River)
- Fremont Cottonwood Forest
- Red Willow Thicket
- Pallid Bat Day/Maternity Roost
- Bat Night Roost

- Cliff Swallow Nests
- Barn Owl Nest
- Black Phoebe Nest
- California Scrub Jay Nest

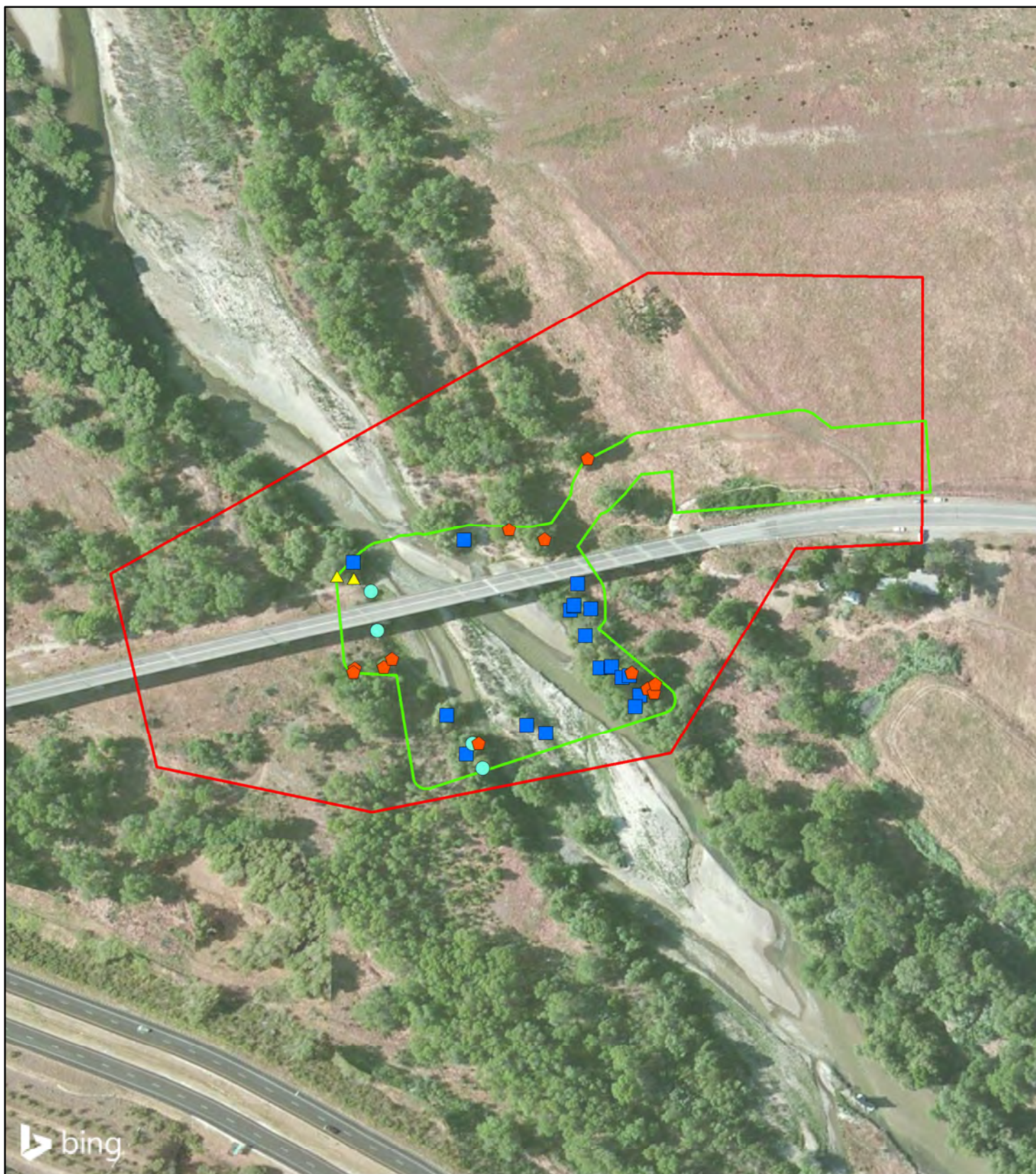
- Song Sparrow Nest
- + Yellow Warbler
- + Salinas Pocket Mouse
- Pier Location

FIGURE 10

*Bradley Road Bridge Scour Repair Project
Monterey County, California
Federal Project Number BHLO-5944(100)
Special-Status Biological Resources*

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Figure 11: Tree Map

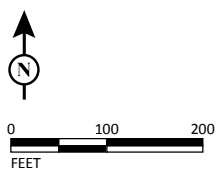


LEGEND

- ▭ Biological Survey Area
- ▭ Tree Survey Area

Tree Common Name

- ▲ Arroyo willow
- ▬ Box elder
- ▬ Fremont cottonwood
- ▬ Red willow
- White alder



SOURCE: Bing Aerial (2011); TRC (12/2015)

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FIGURE 11

*Bradley Road Bridge Scour Repair Project
Monterey County, California
Federal Project Number BHLO-5944(100)*

Tree Map

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4.1.2. Discussion of Waters of the United States and State Waters

4.1.2.1. SURVEY RESULTS

Within the BSA, potential waters of the U.S. under Corps jurisdiction consist of the areas in the OHWM of the Salinas River. In this case, waters (waters of the State) under section 401 of the CWA are equivalent. This includes approximately 0.46 acre of wetlands and 1.91 acres (650 linear feet) of open water and non-wetland waters for a total of 2.37 acres (Appendix D). A jurisdictional delineation, field verified by the Corps on August 11, 2016, was prepared for the proposed project. The field verified delineation is provided in Appendix D.

4.1.2.2. PROJECT IMPACTS

The proposed project will result in permanent impacts to approximately 0.03 acre and temporary impacts to approximately 1.642 acres of areas under Corps jurisdiction (waters of the U.S.) and RWQCB jurisdiction (waters of the State).

4.1.2.3. AVOIDANCE AND MINIMIZATION EFFORTS

BIO-2 During construction, all necessary Best Management Practices (BMP) will be implemented to ensure that no soil or other materials are discharged into the Salinas River. BMPs will include the use of wattles and silt fences along access roads and around staging and equipment storage areas. Construction mats, gravel, or other methods to reduce erosion will be incorporated into the design of the temporary road in the streambed work area.

BIO-3 Work within the river (i.e., in and adjacent to water) will be restricted to the low-flow season between July 1 and October 15. This work window coincides with the period when steelhead adults and juveniles are least likely to be in this portion of the river, thereby minimizing potential impacts to steelhead.

BIO-4 During construction, heavy equipment will be restricted to the demarcated work area. The work area within the Salinas River floodplain will be delineated by Environmentally Sensitive Area fencing, which will be placed between the work area adjacent jurisdictional areas to keep construction equipment and personnel out of these areas and prevent inadvertent impacts to the streambed outside the designated work area. A qualified biologist will assist construction personnel in fence placement.

- BIO-5** Following construction, the river channel will be returned to its original contour and condition to the greatest extent possible. All constructed ramps into the river channel for the temporary construction access road, construction mats, and other temporary material used for construction will be removed.
- BIO-6** A revegetation plan will be prepared to restore riparian vegetation impacted by the proposed project. The plan will specify the use of native tree species that were impacted during construction. Native trees will be of nursery stock from the local area and/or cuttings taken from within the Biological Study Area. The plan will specify a monitoring program and criteria to ensure successful revegetation. A 5-year monitoring and maintenance plan will be developed to ensure long-term survivorship of replacement plantings.
- BIO-7** Refueling, maintenance, and storage of construction equipment and materials will take place out of the river channel.

4.1.2.4. COMPENSATORY MITIGATION

No compensatory mitigation is proposed with implementation of the measures outlined above. The small area of impact to areas within the OHWM will be mostly temporary and the area of temporary disturbance will be returned to the natural stream channel elevation and grade when construction is finished. Soil compaction is not expected to be an issue because the stream channel substrate is composed of sand.

4.1.2.5. CUMULATIVE EFFECTS

The proposed project would not contribute to cumulative effects to waters of the U.S. although the completed project would involve minimal permanent impacts to the area within the OHWM. All temporary impacts to the streambed will be restored to preproject elevations and fill material will be removed.

4.1.3. Discussion of Streambed

4.1.3.1. SURVEY RESULTS

Areas in the Salinas River subject to jurisdiction under the Lake and Streambed Alteration Agreement (Section 1602 of the Fish and Game Code) in the BSA total 7.87 acres, including Fremont cottonwood forest, red willow thickets, sandbar willow thickets, water primrose wetland, and open water (Figure 7).

4.1.3.2. PROJECT IMPACTS

The proposed project will result in permanent impacts to 0.04 acre and temporary impacts to 2.71 acres of area in CDFW jurisdiction. These impacts would largely be due to removal of vegetation. Soil compaction is not expected to be an issue because the substrate in the CDFW jurisdictional area is largely composed of sand, which resists compaction.

4.1.3.3. AVOIDANCE AND MINIMIZATION EFFORTS

Measures BIO-2 through BIO-7 will be implemented to avoid and minimize impacts to the streambed and associated riparian vegetation.

4.1.3.4. COMPENSATORY MITIGATION

The streambed of the Salinas River is a naturally dynamic system and vegetation in the streambed periodically changes depending on flood events and low-flow periods. Based on the dynamic nature of this system, vegetation is expected to regenerate naturally in the streambed after construction. Natural regeneration will be augmented by planting cuttings from nursery-grown trees of local stock. Trees will be planted at a 2:1 ratio (74 trees planted to 37 trees removed) in similar habitat in and adjacent to the BSA where the trees would be exposed to light levels suitable for growth. The cuttings should not be installed where they could interfere with future maintenance operations. Planted trees would be protected from beaver activity and other herbivory with fencing. As mentioned in BIO-6, a revegetation plan will be developed to County and CDFW specifications. This plan would provide direction for implementation of the revegetation, maintenance, and performance standards for determining success. Restored areas will be monitored until the performance standards have been achieved (approximately 5 years). Annual reports will be prepared at the end of each year documenting the site conditions and progress toward achieving the performance standards.

4.1.3.5. CUMULATIVE EFFECTS

The proposed project will result in impacts to areas subject to CDFW jurisdiction. However, with implementation of the proposed compensatory mitigation, the proposed project would not contribute to a permanent loss of this habitat. Therefore the proposed project would not contribute to cumulative effects to areas under CDFW jurisdiction.

4.1.4. Discussion of Riparian Trees

4.1.4.1. SURVEY RESULTS

Native riparian trees observed in the BSA include Fremont cottonwood, red willow, arroyo willow, and white alder. A complete inventory of the trees within the tree survey area is included in Appendix E along with a tree table and map of the trees.

4.1.4.2. PROJECT IMPACTS

The proposed project would impact 37 trees, including 12 Fremont cottonwoods, 19 red willows, 2 arroyo willows, and 4 white alders (Figure 11). None of the tree species in the tree survey area are protected by the County Ordinance. Trees within 20 feet of the permanent and temporary impact areas could be impacted through direct removal or injury to roots or canopy branches by access road construction, equipment storage and movement, and staging. The access route was designed to avoid two large Fremont cottonwood trees near the staging area; however, impacts to trees become unavoidable closer to and around the river.

4.1.4.3. AVOIDANCE AND MINIMIZATION EFFORTS

BIO-8 To avoid and minimize impacts to riparian trees outside of permanent and temporary impact areas, Environmentally Sensitive Area (ESA) fencing will be placed at or beyond the drip-line of trees or groups of trees adjacent to the work area to delineate a tree protection zone. No construction equipment or storage of construction materials will be allowed to enter the tree protection zone. A qualified arborist will assist construction crews in the placement of the ESA fencing.

4.1.4.4. COMPENSATORY MITIGATION

Compensatory mitigation is proposed as described in Section 4.1.3.4.

4.1.4.5. CUMULATIVE EFFECTS

The loss of large mature trees will contribute to the cumulative effects to trees along the Salinas River. Riparian woodlands are dynamic habitat with large trees along the river periodically being washed out during flood events or cut down by beavers. As large trees are lost, they are continuously being replaced by newly established saplings. The removal of large trees during construction will be offset by the implementation of the mitigation measures.

4.1.5. Discussion of South-Central California Coast DPS Steelhead Critical Habitat

Critical habitat for the south-central California coast DPS steelhead includes the Salinas River in the BSA (Salinas River Hydrologic Unit 3309) (NMFS 2005) (Figure 9). At any given site within designated areas of critical habitat, certain physical and biological features must be present for the critical habitat designation to apply. Non-marine physical and biological features for steelhead include:

1. Freshwater spawning sites with water quantity and quality conditions and substrate supporting spawning, incubation, and larval development.
2. Freshwater rearing sites with:
 - (i) Water quantity and floodplain connectivity to form and maintain physical habitat conditions and support juvenile growth and mobility;
 - (ii) Water quality and forage supporting juvenile development; and
 - (iii) 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.
3. Freshwater migration corridors free of obstruction and excessive predation 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.
4. Estuarine areas free of obstruction and excessive predation with:
 - (i) Water quality, water quantity, and salinity conditions supporting juvenile and adult physiological transitions between fresh- and saltwater;
 - (ii) Natural cover such as submerged and overhanging large wood, aquatic vegetation, large rocks and boulders, side channels; and
 - (iii) Juvenile and adult forage.

Within these site descriptions, physical and biological features of critical habitat include adequate (1) substrate, (2) water quality, (3) water quantity, (4) water temperature, (5) water velocity, (6) cover/shelter, (7) food, (8) riparian vegetation, (9) space, and (10) safe passage conditions. Depending on season and water flow, all

these features occur in the BSA; however, the BSA only supports habitat features for juvenile migration and adult migration corridors.

4.1.5.1. SURVEY RESULTS

The BSA is included in the designated critical habitat for the south-central California coast DPS steelhead as identified by the National Oceanic and Atmospheric Administration (2006).

4.1.5.2. PROJECT IMPACTS

Suitable spawning habitat is not present in the BSA or immediate vicinity, but the main stem of the Salinas River in the BSA is a migration corridor for the steelhead spawning in the upper watershed and for young steelhead migrating downstream to the ocean during winter and spring flows. Construction activities in the riverbed could adversely affect steelhead critical habitat. However, the effects (channel diversion, removal of riparian vegetation, and increasing the size of the existing pier structures) to critical habitat in the BSA from the proposed project are primarily temporary and coincide with the period when the river channel is at its lowest level or dry and adult or juvenile steelhead are least likely to occur in this portion of the river. Construction activities may result in permanent impacts to essential features of critical habitat for steelhead. Given the avoidance and minimization measures proposed for this species and its critical habitat, the proposed project may affect, but is not likely to adversely affect, steelhead critical habitat.

4.1.5.3. AVOIDANCE AND MINIMIZATION EFFORTS

The suite of measures listed in Section 4.3.1 (Discussion of South-Central California Coast DPS Steelhead) will be implemented to avoid and minimize impacts to South-Central California Coast DPS Steelhead Critical Habitat.

4.1.5.4. COMPENSATORY MITIGATION

If the avoidance and minimization efforts provided for south/central California coast DPS steelhead are followed, no compensatory mitigation is required.

4.1.5.5. CUMULATIVE EFFECTS

The proposed project will not result in cumulative effects to critical habitat for steelhead.

4.1.6. Discussion of Invasive Species

4.1.6.1. SURVEY RESULTS

A total of 28 alien invasive plant species listed on the California Invasive Plant Council's (Cal-IPC) Invasive Plant Inventory¹ and/or other State and federal agencies (Baldwin et al. 2012) were identified within the BSA. Such species typically occur in areas that have been previously disturbed, such as along roadsides or in places that have periodic natural disturbances including areas subject to floods along the Salinas River. The BSA does not appear to be managed for weeds, and the existing cattle ranching operation may contribute to the establishment and potential spread of invasive species.

Each plant in the Cal IPC inventory is given an overall rating of high,² moderate,³ and limited⁴. Invasive plant species that have severe ecological impacts are given a high rating. Plants with a moderate rating have a substantial and apparent, but not severe, ecological impact. Plants with a limited rating are invasive but their ecological impacts are minor on a statewide level. The 5 invasive species identified in the BSA with a high rating include yellow star-thistle, perennial pepperweed, Uruguayan primrose-willow, saltcedar (*Tamarix ramosissima*), and foxtail chess. Fourteen species within the BSA have a moderate rating and nine other species in the BSA have a limited rating. All invasive plant and animal species in the BSA are indicated in Appendix F.

¹ California Invasive Plant Council (Cal-IPC). California Invasive Plant Inventory Database. Berkeley, California. Website: <http://www.cal-ipc.org/paf/>, accessed May 15, 2017.

² These species have severe ecological impacts on physical processes, plant and animal communities, and vegetation structure. Their reproductive biology and other attributes are conducive to moderate to high rates of dispersal and establishment. Most are widely distributed ecologically (Cal-IPC 2017).

³ These species have substantial and apparent—but generally not severe—ecological impacts on physical processes, plant and animal communities, and vegetation structure. Their reproductive biology and other attributes are conducive to moderate to high rates of dispersal, though establishment is generally dependent upon ecological disturbance. Ecological amplitude and distribution may range from limited to widespread (Cal-IPC 2017).

⁴ These species are invasive but their ecological impacts are minor on a Statewide level or there was not enough information to justify a higher score. Their reproductive biology and other attributes result in low to moderate rates of invasiveness. Ecological amplitude and distribution are generally limited, but these species may be locally persistent and problematic (Cal-IPC 2017).

4.1.6.2. PROJECT IMPACTS

Ground disturbance associated with project construction can create optimal conditions for the spread of invasive plants by removing and/or disturbing native vegetation and soil. Construction equipment contaminated with soil containing invasive plant seeds from other areas can result in the spread of such species to new areas such as the BSA.

In addition to invasive plants, the project could facilitate the movement or spread of invasive fish and wildlife species such as nonnative American bullfrog (*Lithobates catesbeianus*), crayfish (*Orconectes virilis*), nonnative turtles (i.e., red-eared sliders [*Trachemys scripta elegans*]), and centrarchid fishes. These species are undesirable in natural habitats and may compete with native species for resources including food, refuges, basking sites, and nest sites. In addition to being competitors with native species, nonnative species are often predators of native species. Through competition and predation, nonnative fish and wildlife may have a serious impact on native species and habitats.

4.1.6.3. AVOIDANCE AND MINIMIZATION EFFORTS

Measures addressing invasive species abatement and eradication will be included in the project design and contract specifications, and will be implemented and enforced by the construction contractor. At a minimum, this program would include the following:

- BIO-9** During construction, the construction contractor shall inspect and clean construction equipment at the beginning and end of each day and prior to transporting equipment from one project location to another.
- BIO-10** During construction, soil and vegetation disturbance will be minimized to the greatest extent feasible.
- BIO-11** During construction, to prevent excessive amounts of dust and seed dispersal, the construction contractor shall ensure that all material stockpiled is sufficiently watered or covered and ensure that all active portions of the construction site are watered a minimum of twice daily or more often when needed due to dry or windy conditions.
- BIO-12** During construction, soil/gravel/rock will be obtained from weed-free sources. Only certified weed-free straw, mulch, and/or fiber rolls will be used for erosion control.

- BIO-13** All invasive plant material removed from the BSA will be disposed of properly in a landfill or other suitable facility where it will be chipped and composted to prevent spreading viable seeds or propagules that could take root on another site.
- BIO-14** After construction, impacted areas adjacent to native vegetation will be revegetated with plant species approved by the County of Monterey and the California Department of Transportation District Biologist that are native to the vicinity.
- BIO-15** Eradication procedures (e.g., spraying and/or hand weeding) will be outlined should an infestation occur; the use of herbicides will be prohibited within and adjacent to native vegetation, except as specifically authorized and monitored by the County of Monterey and the California Department of Transportation District Biologist.
- BIO-16** Nonnative fish and wildlife will not be returned to the river or any other natural waterbody. During project construction, a qualified biologist will permanently remove individuals of nonnative, invasive wildlife species (e.g., bullfrogs, crayfish, nonnative turtles, and centrarchid fishes) from the Biological Study Area and dispatch them humanely.

4.1.6.4. COMPENSATORY MITIGATION

Given the avoidance and minimization efforts provided above, no compensatory mitigation is required.

4.1.6.5. CUMULATIVE EFFECTS

If the avoidance and minimization efforts provided above are followed, the project will not contribute to cumulative effects from invasive plant and animal species.

4.2. Special-Status Plant Species

4.2.1. Discussion of Special-Status Plant Species

The special-status plant species evaluated for this NES are listed on the species lists provided in Appendix B. Species known to occur or that could potentially occur within or around the BSA, as well as those on the USFWS official species list, are included in Table 6.

4.2.1.1. SURVEY RESULTS

Portions of the BSA provide marginal to suitable habitat or growing conditions for special-status species; however, none were observed during any of the survey efforts including the CDFW protocol rare plant surveys. Special-status species with marginal to fair habitat or growing conditions include Hardham's evening-primrose (*Camissoniopsis hardhamiae*), Congdon's tarplant (*Centromadia parryi* ssp. *congdonii*), Koch's cord moss (*Entosthodon kochii*), Santa Lucia dwarf rush (*Juncus luciensis*), Abbott's bush-mallow (*Malacothamnus abbottii*), Davidson's bush-mallow (*Malacothamnus davidsonii*), and shining navarretia (*Navarretia nigelliformis* ssp. *radians*). None of these species are federally or State-listed; but all have a California Rare Plant Rank of 1B. Of these species, only Hardham's evening-primrose is known to occur within 2 miles of the BSA (Figure 9).

Different species of *Centromadia* (common spikeweed [*C. pungens* ssp. *pungens*]) and *Navarretia* (holly leaf navarretia [*N. atractylodes*]) were found within the BSA; however, Congdon's tarplant and shining navarretia were not. Both Abbott's and Davidson's bush-mallow are perennial shrub species and would have been observed regardless of survey timing, yet no species of *Malacothamnus* were observed. Despite marginal to suitable habitat or growing conditions in the BSA, rare plants were not observed.

4.2.1.2. PROJECT IMPACTS

The project will have no effect on special-status plants as their presence in the BSA is not expected.

4.2.1.3. AVOIDANCE AND MINIMIZATION EFFORTS

No avoidance and minimization efforts are proposed.

4.2.1.4. COMPENSATORY MITIGATION

No compensatory mitigation is proposed because special-status plants are not expected to occur in the BSA.

4.2.1.5. CUMULATIVE IMPACTS

The project will not result in cumulative effects to special-status plants.

4.3. Special-Status Animal Species Occurrences

The special-status animal species that are known to occur or have a potential to occur in the BSA are discussed in this section. Bald eagle (*Haliaeetus leucocephalus*),

yellow warbler, pallid bat, and Salinas pocket mouse were all observed in the BSA. South-central California coast DPS steelhead occur upstream in the Salinas River and seasonally pass through the BSA. These occurrences are shown on Figure 10.

To protect special-status animals and other wildlife during construction, the following general avoidance and minimization efforts will be implemented:

BIO-17 Before construction begins, a qualified biologist will conduct an environmental training session for all construction and maintenance personnel. At a minimum, the training will include a description of the special-status species that may occur in the Biological Study Area, their habitat requirements, and the measures that are being implemented to avoid and minimize impacts to these species, the authority and responsibilities of the qualified biologist and qualified monitor, and procedures to follow if a listed or special-status species is observed. The environmental training will include a discussion of the boundaries within which the workers and equipment must remain. All attendees will sign a form acknowledging their attendance at an environmental training and their understanding of the measures being implemented. This form will be kept by the qualified biologist and provided with the final monitoring report.

BIO-18 A qualified biologist will be present at the work site until all ground-disturbing activities in all portions of the site and instruction of workers has been completed. After this time, the contractor will designate a qualified monitor that will ensure on-site compliance with all avoidance and minimization efforts when the qualified biologist is not on site. The qualified biologist will ensure that the qualified monitor is familiar with the avoidance and minimization efforts and is able to identify all the special-status species that may occur in the Biological Study Area. The qualified monitor and the qualified biologist will have the authority to halt any action that might result in impacts that exceed the levels anticipated by the United States Fish and Wildlife Service (USFWS) and the California Department of Fish and Wildlife (CDFW). If work is stopped, the County of Monterey (County) resident engineer for the proposed project will be notified immediately by the qualified biologist or the qualified on-site monitor. The County engineer will notify the California Department of

Transportation (Caltrans). If a federally listed species is found in the work area during construction and a Biological Opinion has not been issued for the project, the qualified biologist must stop work and immediately notify Caltrans. Caltrans will then consult with the USFWS or the National Marine Fisheries Service and will then advise the contractor on how to proceed. The County will contact the CDFW.

BIO-19 Prior to the start of construction in the Salinas River floodplain, the qualified biologist will identify locations for the placement of Environmentally Sensitive Area (ESA) fencing around the work area. ESA fencing will be installed 6 inches above ground level to allow small vertebrate species to move through the Biological Study Area. The qualified biologist will verify the correct placement and installation of the fence before work begins in the area.

BIO-20 Immediately before initial ground disturbance and/or vegetation clearing in the Biological Study Area, the biologist will conduct a survey of the work area for special-status species. If special-status species are found, they will be allowed to escape safely on their own, or if approved by the United States Fish and Wildlife Service and/or the California Department of Fish and Wildlife, they will be relocated by the biologist to a safe place outside the work area.

BIO-21 During vegetation removal and initial grading and other ground-disturbing activities in the Biological Study Area, a qualified biologist will monitor such activities for amphibians, reptiles, and other small wildlife exposed by such activities and will relocate them to a safe place outside the Environmentally Sensitive Area fencing.

BIO-22 To the greatest extent feasible, vegetation removal and trimming for the access road and construction areas within the Biological Study Area will be completed during the non-breeding season for birds (September 1 through January 31). This will discourage birds from nesting in construction areas and will greatly reduce the potential for nesting birds to delay the construction schedule.

BIO-23 If construction takes place during the bird nesting season (February 1 through August 31), all suitable nesting habitat within 50 feet of the limits of work will be surveyed by a qualified biologist no more than

14 days prior to ground-disturbing/vegetation removal activities and again within 2 days (48 hours) of such activities. Private property outside the public right-of-way will not be surveyed for active nests unless such areas are visible from the public right-of-way.

If an active nest is found, a qualified biologist will delineate an appropriate buffer using plastic construction fencing (Environmentally Sensitive Area fencing), pin flags, or other easily identified fencing material. If necessary, the biologist will consult with the United States Fish and Wildlife Service/California Department of Fish and Wildlife (CDFW) to determine an appropriate buffer size. Typically, buffers range from 250 to 500 feet depending on the species (passerines and raptors, respectively) and the location of the nest; however, smaller buffers have been accepted depending on the species, nest location, surrounding habitat, and the nature of the adjacent construction activity. In this case, buffers may apply vertically (according to the structure of the bridge) as well as horizontally. During construction, the qualified biologist will conduct regular monitoring (at CDFW-approved intervals) to evaluate the nest for potential disturbances associated with construction activities. Construction within the buffer will be prohibited until the qualified biologist determines that the nest is no longer active. If an active nest is found after completion of the preconstruction surveys and after construction begins, construction activities in the nest vicinity will stop until a qualified biologist has evaluated the nest and erected the appropriate buffer around the nest. If establishment of the buffer is not feasible, the CDFW will be contacted for further avoidance and minimization guidelines.

BIO-24 The number of access routes, number and size of staging areas, and the total area of the activity will be limited to the minimum necessary to achieve the proposed project goal. Routes and boundaries will be clearly demarcated both on plans and in the field.

BIO-25 If feasible, the qualified biologist will permanently remove individuals of exotic wildlife species (e.g., bullfrogs, crayfish, and centrarchid fishes) from the project area and dispatch them humanely.

4.3.1. Discussion of South-Central California Coast DPS Steelhead

The south-central California coast DPS steelhead is a federally listed threatened species and a State SSC (CDFW 2017b). This DPS includes populations spawning in the Pajaro, the Salinas, and the Carmel Rivers and the streams of the Big Sur coast south through San Luis Obispo County to Point Conception in Santa Barbara County. South-central California coast DPS steelhead are winter run; they enter their spawning streams during high flows after winter storms and move upstream to their spawning grounds. Most of the streams occupied by south-central California coast DPS steelhead also support resident fish (referred to as rainbow trout), which are genetically identical to the sea-run fish in their stream (NMFS 2016).

EFH has not been designated for this species (NMFS 2017 and the National Oceanic and Atmospheric Administration [NOAA] 2016). Therefore, no impact to EFH will occur and consultation with NMFS under the MSA is not required.

4.3.1.1. SURVEY RESULTS

This species was not directly observed in the BSA during the field surveys despite surface water being present during each survey effort. Steelhead in the BSA occur during normal high-flow events during the rainy season because the BSA encompasses a portion of the river the fish pass through on their way to spawning areas upstream of the BSA. Adults moving upstream to spawn and smolts moving downstream to the ocean pass through the BSA during high flows in the winter and early spring. The fine sandy bottom and warmer water in the BSA does not provide rearing habitat (no cobble bottom). This analysis was confirmed by both Mr. Stevenson and Mr. Casagrande (personal communication 2016).

4.3.1.2. PROJECT IMPACTS

Suitable spawning habitat is not present in the BSA or immediate vicinity, but the main stem of the Salinas River in the BSA is a migration corridor for the steelhead spawning in the upper Salinas River watershed. If water is present in the river channel during construction and the channel requires diversion, fish movements upstream and downstream could be restricted.

4.3.1.3. AVOIDANCE AND MINIMIZATION EFFORTS

The work area will be dewatered during construction, but a diversion through the work area will allow for unrestricted passage of adult and juvenile steelhead through the BSA. Protection measures to minimize water quality impacts in conformance with Section 7-1.01G of the Caltrans 2015 Standard Specifications – Water Pollution

Control and the Caltrans Construction Manual, Section 6-20 – Erosion Control and Highway Planting will be implemented by using Caltrans BMPs. The proposed project will minimize the mobilization of sediments during in-water work by using silt-trapping devices (e.g., curtains) during construction.

The following BMPs/measures in addition to BIO-3 and BIO-4 will be implemented to avoid and minimize impacts steelhead and other native fish species:

- BIO-26** No fill material, including asphalt or concrete, will be allowed to enter the stream, with the exception of clean river rock (see protection measure 7). Any concrete structures (e.g., pier footings) below the tops of banks will be poured in tightly sealed forms and will not be allowed contact with surface waters until the cement has fully cured. Poured concrete will be excluded from the wetted channel for a period of 30 days after it is poured. During that time, the poured concrete will be kept moist and runoff from the concrete will not be allowed to enter the river. Commercial sealants may be applied to the poured concrete surface in locations where the exclusion of water flow for a long period is difficult. If a sealant is used, water will be excluded from the site until the sealant is dry and fully cured according to the manufacturers' specifications.
- BIO-27** The pH of water downstream will be monitored by a qualified biologist before and after pouring of concrete until it cures. Water that contacts wet concrete and has a pH greater than 9.0 will be pumped out of the work area and disposed of outside the river channel. No substances toxic to aquatic life will be discharged into the Salinas River (e.g., diesel fuel, oil, hydraulic fluid, run-off from curing concrete, etc.). Goodhousekeeping Best Management Practices will be used to keep toxic substances and fill materials out of aquatic habitats.
- BIO-28** The proposed project's contractor will prepare an emergency response and cleanup plan prior to beginning work at the site. The plan will detail the methods to be used to contain and clean up spills of petroleum products or other hazardous materials in the work area.
- BIO-29** Prior to initial ground disturbance, the County of Monterey (County) or the Construction Contractor shall hire a qualified biologist with experience in steelhead biology and ecology, aquatic habitats,

biological monitoring (including diversion/dewatering), and capture, handling, and relocating fish species. The qualified biologist shall coordinate with the California Department of Transportation (Caltrans), as well as the County, to identify a suitable upstream or downstream location within the Salinas River where steelhead captured within the Biological Study Area (BSA) will be relocated. The qualified biologist shall be present at the work site daily until ground-disturbing activities in the BSA have been completed including installation and removal of the diversion structures. Once the dewatering and diversion structures have been installed, the qualified biologist will make periodic inspections of the site (weekly). A final inspection of the site will also be made by the qualified biologist after completion of the proposed action. After this time, an on-site qualified monitor shall ensure compliance with all avoidance and minimization efforts when the qualified biologist is not on site. The qualified biologist shall ensure that the on-site qualified monitor is familiar with the avoidance and minimization efforts and is able to identify all the potentially occurring special-status species in the BSA. Nonnative aquatic species such as American bullfrogs, crayfish, and centrarchid fishes found during the proposed action shall be removed and humanely dispatched by the qualified biologist, who will be responsible for ensuring his or her activities are in compliance with the California Fish and Game Code. The on-site qualified monitor and the qualified biologist shall have the authority to halt any action that might result in adverse effects that exceed the levels anticipated by the National Marine Fisheries Service (NMFS) at any point during construction. If work is stopped, either the qualified biologist or the on-site qualified monitor shall immediately notify Caltrans and the County. If a federally listed species is found in the work area during construction and a Biological Opinion has not been issued for the proposed action, then the qualified biologist must stop work and immediately notify Caltrans. Caltrans shall then consult with the United States Fish and Wildlife Service and/or NMFS and shall then advise the County and Construction Contractor on how to proceed before work can resume. After completion of the project, the qualified biologist will prepare a report providing the results of the removal/relocation effort for submittal to the NMFS. The report will

also include information on non-native species that were removed from the BSA.

- BIO-30** Prior to initial ground disturbance, the qualified biologist shall administer an environmental training session for all construction and maintenance personnel. At a minimum, the training shall include a description of the special-status species such as south-central California coast steelhead that may occur in the biological study area, their habitat requirements, the measures being implemented to avoid and minimize adverse effects to these species, the authority and responsibilities of the qualified biologist and qualified monitor, and procedures to follow if a listed or special-status species is observed. The environmental training shall include a discussion of the boundaries behind which the workers and equipment must remain. All attendees will sign a form acknowledging their attendance at an environmental training and their understanding of the measures being implemented. This form will be kept by the qualified biologist and provided with the final monitoring report.
- BIO-31** During construction, water diversions will allow unrestricted passage of adult and juvenile steelhead through the Biological Study Area. During dewatering of cofferdam areas, pump intakes will be screened with no larger than 0.2 inch (5 millimeter) wire mesh to prevent steelhead and other aquatic wildlife from entering the pump system. Pumped water will be released into a portable storage tank to allow suspended sediment to settle prior to being released back into the river. The qualified biologist will be on site to assist in the implementation of the dewatering and river diversions, to monitor the placement and removal of dewatering and diversion devices, and to capture and relocate stranded steelhead.
- BIO-32** If hydroseed mixes are used to stabilize disturbed areas, such mixes will not contain fertilizers.
- BIO-33** Equipment maintenance and fueling areas will be located at least 60 feet away from aquatic habitats and away from concentrated flows of storm water and drainage courses. Fueling of vehicles will take place with a containment area that will prevent any spilled or leaked fuel

from running into the river. All equipment servicing must occur within designated staging areas outside the high-flow river channel. All motorized equipment used during construction or demolition activities will be checked for oil, fuel, and coolant leaks prior to initiating work in the high-flow river channel. Any equipment found to be leaking fluids will not be used in or around aquatic habitat features in order to minimize the chances of contaminating the habitat and potentially effecting sensitive species, particularly steelhead.

4.3.1.4. COMPENSATORY MITIGATION

With implementation of measures BIO-3, BIO-4, and BIO-26 through BIO-33, no compensatory mitigation for steelhead is required.

4.3.1.5. CUMULATIVE EFFECTS

In general, degradation of steelhead habitat in the Salinas River watershed is the result of the construction of dams, water diversion, and an increase in urban and agricultural development in the watershed. The proposed project would not contribute to these adverse cumulative effects on steelhead because the completed project would not impede the natural flow dynamic or steelhead passage. The proposed project will not result in cumulative impacts to steelhead and will be consistent with recovery efforts as outlined in the South-Central California Coast Steelhead Recovery Plan (NMFS 2013).

4.3.2. Discussion of California Red-Legged Frog

California red-legged frog is a federally listed threatened species and a State SSC (CDFW 2017b). Although the BSA is within the presumed historic range of California red-legged frog, the only known record in the main branch of the Salinas River is 89 river miles downstream of the BSA (CNDDDB occurrence No. 997, recorded May 4, 2009). There are no CNDDDB records for California red-legged frog within 10 miles of the BSA.

4.3.2.1. SURVEY RESULTS

California red-legged frog was not detected in the BSA during any of the field surveys, although full protocol surveys were not conducted. As described in the California Red-Legged Frog Site Assessment (TRC Solutions, Inc. 2016) (Appendix C) prepared for this proposed project, and as was confirmed by Glen Knowles (USFWS), California red-legged frog is not likely to occur within the BSA. The habitat along the Salinas River in the BSA contains elements of suitable California

red-legged frog habitat and similar riparian/aquatic habitat extends upstream and downstream in the Salinas River. However, numerous predatory fish and crayfish were observed in the aquatic habitat and it is unlikely California red-legged frog would be able to successfully reproduce in this environment. No other aquatic habitat occurs within 1 mile of the BSA, and the BSA is not within designated Critical Habitat for California red-legged frog.¹

4.3.2.2. PROJECT IMPACTS

The proposed project may affect, but is not likely to adversely affect this species because its presence in the BSA is unlikely.

The types of impacts that could occur to CRLF if frogs were present include; temporary and/or permanent loss of breeding and tadpole development habitat in the river; direct mortality of frogs and/or tadpoles by equipment or vehicles being operated on the river bank or in the river; temporary and/or permanent impediments to movement along the river and river banks; mortality to tadpoles and frogs due to use of pumps during dewatering activities; increased risk of predation from predators drawn to the work area by trash accumulation; and introduction of parasites to frogs during handling for relocation outside the work area.

4.3.2.3. AVOIDANCE AND MINIMIZATION EFFORTS

The proposed project is not likely to adversely affect California red-legged frog. However, Caltrans must informally consult with USFWS under Section 7 of the FESA.

To ensure that adverse effects to California red-legged frog are avoided and minimized and to provide take coverage to the proposed action during construction, Caltrans will request that the project be appended to the *Programmatic Biological Opinion for Projects Funded or Approved under the Federal Highway Administration's Federal Aid Program (8-8-10-F-58)* (PBO) (Appendix G) (USFWS 2011b) via the Programmatic Letter of Concurrence. This concurrence does not authorize capture, handling, or relocation of California red-legged frogs. This NES and Appendix C provide the minimum project notification information required

¹ California Department of Fish and Wildlife. CNDDDB, Commercial Version April 2017. Biogeographic Data Branch, Sacramento, California.

by the PBO and satisfies the eligibility criterion for use of programmatic concurrence as described below:

Criterion 1: “California red-legged frogs are not known to occur at the proposed project site and were not found during surveys following the Guidelines for surveys and habitat assessments; however, the potential may exist for individuals to occur at the proposed project site because no barriers exist to preclude dispersal of California red-legged frog from nearby suitable habitat.”

The proposed project meets Criterion 1 because California red-legged frog is not known to occur in the BSA and was not detected during the habitat assessment, but elements of suitable habitat and no barriers exist within the BSA.

Criterion 2: “Any effects to critical habitat must be discountable, insignificant, or completely beneficial to the California red-legged frog.”

The proposed project meets Criterion 2 because the BSA does not contain critical habitat and the project effects would be considered discountable.

Criterion 3: “The measures to avoid adverse effects to California red-legged frog and its critical habitat, provided herein, must be implemented; these measures may be modified on a project-specific basis to achieve avoidance of adverse effects upon the agreement of Caltrans and USFWS.”

The proposed action meets Criterion 3 because the following avoidance measures (labeled as PBO-1 through PBO-16) in addition to measures BIO-2, BIO-6, BIO-14, BIO-16, BIO-27, BIO-28, and BIO-33 will be implemented to avoid adverse effects to California red-legged frog and their habitat:

PBO-1: A biologist with experience in the identification of all life stages of the California red-legged frog, and its critical habitat, 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 detected the USFWS will be notified prior to the start of construction. If Caltrans and the USFWS determine that adverse effects to the California red-legged frog or its critical habitat cannot be avoided, the proposed project will not commence until the Caltrans completes the appropriate level of consultation with the USFWS.

PBO-2: Work activities will take place during the dry season, between April 1 and November 1, when water levels are typically at their lowest, and

California red-legged frogs are likely to be more detectable. Should activities need to be conducted outside of this period, Caltrans may conduct or authorize such activities after obtaining the USFWS's written approval.

PBO-3: Before work begins on any proposed project, a biologist with experience in the ecology of the California red-legged frog, as well as the identification of all its life stages, will conduct a training session for all construction personnel, which will include a description of the California red-legged frog, its critical habitat, and specific measures that are being implemented to avoid adverse effects to the subspecies during the proposed project.

PBO-4: If any life stage of the California red-legged frog is detected in the project area during construction, work will cease immediately and the resident engineer, authorized biologist, or biological monitor will notify the Ventura Fish and Wildlife Office via telephone or electronic mail. If Caltrans and the USFWS determine that adverse effects to California red-legged frogs cannot be avoided, construction activities will remain suspended until Caltrans and the USFWS complete the appropriate level of consultation.

PBO-5: 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.

PBO-9: Habitat contours will be returned to their original configuration at the end of project activities in all areas that have been temporarily disturbed by activities associated with the project, unless Caltrans and the USFWS determine that it is not feasible or modification of original contours would benefit the California red-legged frog.

PBO-10: 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 confine access routes and construction areas to the minimum area necessary to complete construction, and minimize the impact to habitat for the California red-legged frog; this goal includes locating access routes and construction areas outside of aquatic habitat and riparian areas to the maximum extent practicable.

PBO-12: If a work site is to be temporarily dewatered by pumping, the intake will be screened with wire mesh not larger than 0.2 inch to prevent any California red-legged frogs not initially detected from entering the pump system. If California red-legged frogs are detected during dewatering, and adverse effects to California red-legged frogs cannot be avoided, construction activities will remain suspended until Caltrans and the USFWS complete the appropriate level of consultation.

PBO-13: 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 creek bed will be minimized to the maximum extent possible; any imported material will be removed from the stream bed upon completion of the project.

PBO-14: Unless approved by the USFWS, water will not be impounded in a manner that may attract California red-legged frogs.

PBO-16: To ensure that diseases are not conveyed between work sites by the USFWS-approved biologists, the fieldwork code of practice developed by the Declining Amphibian Populations Task Force will be followed at all times.

4.3.2.4. COMPENSATORY MITIGATION

No compensatory mitigation is proposed because this species is unlikely to occur in the BSA.

4.3.2.5. CUMULATIVE IMPACTS

The proposed project will not result in cumulative effects to the California red-legged frog.

4.3.3. Discussion of Western Pond Turtle

Western pond turtle is a State SSC (CDFW 2017b). These turtles generally prefer deep (greater than 2 feet) quiet pools along streams. Important habitat features include basking sites and suitable aquatic hiding areas (e.g., undercut banks, logs, rocks, aquatic vegetation, and/or mud and leaf-litter). Western pond turtles occupy permanent and intermittent ponds and creeks. An important element of suitable habitat is the presence of upland nesting and overwintering/estivation areas adjacent to aquatic habitat. These turtles have been documented to move 26 to 918 feet (8 to 280 meters, an average of 49.7 meters) overland to terrestrial sites. Turtles in ponds

tend to overwinter in aquatic habitat, while individuals in streams apparently winter mainly in terrestrial habitats (Ernst and Lovich 2009). This may be due to the fact that within the western pond turtle's range, many streams (e.g., the Salinas River) experience flash flows during winter storms that can displace, injure, or kill turtles. There are historic records of Western pond turtles along the Nacimiento River (a tributary of the Salinas River) approximately 6 miles southeast of the BSA.¹

4.3.3.1. SURVEY RESULTS

Although this species was not detected during the various survey efforts, suitable aquatic, basking, and upland habitat is present. Therefore, this species may occur in the BSA.

4.3.3.2. PROJECT IMPACTS

Despite suitable habitat in the BSA and multiple survey efforts, no western pond turtles were observed. Due to the apparent rarity of the western pond turtle in the BSA, the proposed project is unlikely to adversely affect this species.

4.3.3.3. AVOIDANCE AND MINIMIZATION EFFORTS

It is anticipated that western pond turtles present in the aquatic portions of the BSA during construction will move out of the area on their own. The following measure in addition to BIO-17 through BIO-20 will be implemented to avoid and minimize impacts to western pond turtles:

BIO-34 During river channel diversion activities, the approved biologist will monitor the activity to ensure that no direct impacts to turtles occur. Any turtles observed in the work area will be captured by hand or with a dip net and removed to a safe area downstream of the work area.

4.3.3.4. COMPENSATORY MITIGATION

With implementation of measures BIO-17 through BIO-20 and BIO-34, no compensatory mitigation is required.

4.3.3.5. CUMULATIVE EFFECTS

The proposed project will not result in cumulative effects to western pond turtles.

¹ California Department of Fish and Wildlife. CNDDDB, Commercial Version April 2017. Biogeographic Data Branch, Sacramento, California.

4.3.4. Discussion of San Joaquin Coachwhip

San Joaquin coachwhip (*Masticophis [Coluber] flagellum ruddocki*) is a State SSC (CDFW 2016). This large, extremely active, diurnal snake prefers open, dry habitats with little or no tree cover (Thomson et al. 2016). There are historic records of San Joaquin coachwhip approximately 1.2 miles southeast of the BSA in large contiguous grassland habitat.

4.3.4.1. SURVEY RESULTS

This species was not detected during the various survey efforts. Grasslands occur in the eastern portion of the BSA, but most of the BSA is not suitable habitat (river floodplain and lack of mammal burrows). If the species occurs in the BSA, it would likely just be moving through the area from the grassland habitat outside the BSA. This species is not expected to occur in the BSA.

4.3.4.2. PROJECT IMPACTS

The proposed project will not affect San Joaquin coachwhip.

4.3.4.3. AVOIDANCE AND MINIMIZATION EFFORTS

San Joaquin coachwhip would likely avoid areas of human activity. It is anticipated that any San Joaquin coachwhip present in the BSA during construction will move out of the area on its own. Measures BIO-17 through BIO-21 will be implemented to avoid and minimize impacts to San Joaquin coachwhip.

4.3.4.4. COMPENSATORY MITIGATION

No compensatory mitigation is proposed because this species is unlikely to occur in the BSA.

4.3.4.5. CUMULATIVE EFFECTS

The proposed project will not result in cumulative effects to San Joaquin coachwhip.

4.3.5. Discussion of Two-Stripe Garter Snake

Two-striped garter snake (*Thamnophis hammondi*) is a State SSC (CDFW 2017b). This diurnal mostly aquatic snake is found in and near permanent freshwater streams with rocky beds and riparian growth, but it also uses upland habitat adjacent to water bodies (Stebbins 2003). Albeit few, there are historic records of this species throughout the Salinas Valley (Thomson et al. 2016).

4.3.5.1. SURVEY RESULTS

Neither this species nor any other species of garter snake was detected during the various survey efforts. Although permanent freshwater and riparian growth is found in the BSA, the substrate is mostly sand, not the preferred rock and cobble. Based on the field surveys, marginally suitable habitat for two-striped garter snake is present in the BSA and this species could occur in the BSA.

4.3.5.2. PROJECT IMPACTS

The proposed project could result in temporary impacts to garter snake habitat by ground disturbance, removal of vegetation, and diversion of the river channel. The proposed construction access road will cut across the river channel through potential garter snake habitat. If snakes are sheltering in vegetation or in underground retreats in the work area they could be crushed by heavy equipment during vegetation removal or other ground-disturbing activities. However, due to the apparent rarity of two-striped garter snake in the BSA, the proposed project is unlikely to adversely affect this species.

4.3.5.3. AVOIDANCE AND MINIMIZATION EFFORTS

Measures BIO-17 through BIO-21 will be implemented to avoid and minimize impacts to two-striped garter snake.

4.3.5.4. COMPENSATORY MITIGATION

No compensatory mitigation is proposed because this species appears to not occur within the BSA.

4.3.5.5. CUMULATIVE EFFECTS

The proposed project will not result in cumulative effects to two-striped garter snakes.

4.3.6. Discussion of Least Bell's Vireo

Least Bell's vireo is a federally and State-listed endangered species (CDFW 2017b). Although this species has historically nested along the upper Salinas River in southern Monterey County, including in the BSA in 1985 (CNDDB occurrence No. 120), Roberson (2002) noted that it had only been sporadically observed in the County in recent years.

4.3.6.1. SURVEY RESULTS

As stipulated in the Least Bell's Vireo Survey Guidelines (USFWS 2001), a total of eight surveys were conducted between April 10 and July 31, 2015. No least Bell's

vireo were observed or heard, resulting in negative findings. Based on the current rarity in the County and negative survey results least Bell's vireo does not occur in the BSA.

4.3.6.2. PROJECT IMPACTS

The proposed project will not affect least Bell's vireo based on the results of protocol-level surveys, which did not find any least Bell's vireo in the BSA.

4.3.6.3. AVOIDANCE AND MINIMIZATION EFFORTS

Measures BIO-17 through BIO-25 will be implemented to avoid and minimize impacts to least Bell's vireo. No specific avoidance and minimization efforts (other than conducting a preconstruction survey during the nesting season [BIO-23]) for least Bell's vireo are proposed because it is unlikely that they occur or nest in the BSA.

4.3.6.4. COMPENSATORY MITIGATION

No compensatory mitigation is proposed because this species does not occur in the BSA.

4.3.6.5. CUMULATIVE IMPACTS

The proposed project will not result in cumulative impacts to least Bell's vireo.

4.3.7. Discussion of Willow Flycatcher

Willow flycatcher is a federally and State-listed endangered species (CDFW 2017b). The local breeding subspecies of willow flycatcher in Monterey County was most likely the little willow flycatcher (*Empidonax traillii brewsteri*), a State endangered species, but not a federally listed species, such as *E.t. extimus* (Roberson 2002).

4.3.7.1. SURVEY RESULTS

As stipulated in the Southwestern Willow Flycatcher Protocol Revision (USFWS 2000a), a total of five surveys were conducted between May 28 and July 31, 2015. No willow flycatcher were observed or heard, resulting in negative findings. Based on the current rarity in the County and negative survey results the willow flycatcher does not occur in the BSA.

4.3.7.2. PROJECT IMPACTS

The proposed project will not affect willow flycatcher based on the results of protocol-level surveys, which did not find any willow flycatcher in the BSA.

4.3.7.3. AVOIDANCE AND MINIMIZATION EFFORTS

Measures BIO-17 through BIO-25 will be implemented to avoid and minimize impacts to willow flycatcher. No specific avoidance and minimization efforts (other than conducting a preconstruction survey during the nesting season [BIO-23]) for willow flycatcher are proposed because this species does not occur or nest in the BSA.

4.3.7.4. COMPENSATORY MITIGATION

No compensatory mitigation is proposed because this species does not occur in the BSA.

4.3.7.5. CUMULATIVE IMPACTS

The proposed project will not result in cumulative impacts to willow flycatcher.

4.3.8. Discussion of Bald Eagle

Bald eagle is a federally delisted endangered species and a State-listed endangered species (CDFW 2017b). This species is a resident in Monterey County where they are typically associated with large permanent bodies of water with an ample supply of prey species (i.e., fish, waterfowl, etc.)

4.3.8.1. SURVEY RESULTS

Bald eagles were observed flying over the BSA during various survey efforts conducted between April 10 and July 31, 2015. Although bald eagles may nest along large river courses, the BSA does not provide suitable nesting habitat for bald eagles and no large stick nests (especially those large enough to support bald eagles) were observed in or around the BSA. It is also unlikely that bald eagles forage in the limited area of the BSA given the ample foraging opportunities provided by nearby Lake Nacimiento and San Antonio Lake. The eagles were almost certainly flying over the BSA en route to those areas.

4.3.8.2. PROJECT IMPACTS

The proposed project will not affect bald eagles based on the observations made during the various biological surveys conducted for the project. Bald eagles were only observed as occasional, incidental flyovers and were not observed foraging, roosting, or nesting on the site.

4.3.8.3. AVOIDANCE AND MINIMIZATION EFFORTS

No specific avoidance and minimization efforts for bald eagles are proposed because it is unlikely that they occur or nest in the BSA.

4.3.8.4. COMPENSATORY MITIGATION

No compensatory mitigation is proposed because this species does not occur in the BSA.

4.3.8.5. CUMULATIVE IMPACTS

The proposed project will not result in cumulative impacts to bald eagles.

4.3.9. Discussion of Yellow Warbler

Yellow warbler is a State SSC (CDFW 2017b and Shuford and Gardali 2008). This species is a neotropical migrant that is a common breeder in suitable riparian habitat (dominated by willows) along the larger streams of Monterey County (Roberson 2002).

4.3.9.1. SURVEY RESULTS

This species was observed in the riparian areas of the BSA and was heard singing during spring 2015 field surveys. CNDDDB occurrence (No. 59) is documented in the BSA (Figure 9). Suitable nesting habitat occurs in the BSA along the Salinas River. This species is likely to nest in the red willow thicket and/or Fremont cottonwood forest in the BSA.

4.3.9.2. PROJECT IMPACTS

The proposed project will result in impacts to 5.65 acres of potential yellow warbler nesting and foraging habitat (red willow thicket and Fremont cottonwood forest).

4.3.9.3. AVOIDANCE AND MINIMIZATION EFFORTS

Measures BIO-17 through BIO-25 will be implemented to avoid and minimize impacts to the yellow warbler. Measure BIO-23 specifically describes conducting a preconstruction survey during the nesting season and potentially establishing nest buffers.

4.3.9.4. COMPENSATORY MITIGATION

If the general and nesting bird avoidance and minimization efforts proposed for special-status animals and other wildlife are followed, no compensatory mitigation is required.

4.3.9.5. CUMULATIVE IMPACTS

The proposed project will not result in cumulative effects to yellow warbler.

4.3.10. Discussion of California Scrub Jay, Cliff Swallow, Barn Owl, Black Phoebe, Song Sparrow, and Other Migratory Nesting Birds (Class Aves)

4.3.10.1. SURVEY RESULTS

A total of 71 bird species were observed in the BSA during the field surveys (Appendix F); 67 of these species are native birds protected under the MBTA and the California Fish and Game Code. Five of these species (California scrub jay, cliff swallow, barn owl, black phoebe, and song sparrow) were all observed to be nesting in the BSA and a number of the other observed bird species potentially nest in the BSA (Figure 10). The California scrub jay nest was observed within the coyote brush scrub along the north shoulder of Bradley Road in the eastern portion of the BSA. Cliff swallow mud nests were observed along much of the bridge structure; however, in the BSA, the nests were primarily concentrated between Piers 18 and 20. The barn owl nest and chicks were observed below the bridge structure on the top of Pier 18. The black phoebe nest was observed in the scoured portion of Pier 18 just above the surface waters of the river. The song sparrow nest was observed in a scrubby patch of red willow thicket in the south-central portion of the BSA. The riparian vegetation in the BSA provides nesting habitat for the greatest number of species, but some species could nest in grassy areas along the temporary access road and staging area. No large stick nests (i.e., raptor nests) were observed within or adjacent to the BSA.

4.3.10.2. PROJECT IMPACTS

Disturbance of the active nests during the nesting season (February 1 to August 31) could result in “take,” which is prohibited under the MBTA and the California Fish and Game Code. Nesting birds may be affected by the proposed project during construction-related activities (e.g., vegetation clearing, vehicle access, and scour repair).

4.3.10.3. AVOIDANCE AND MINIMIZATION EFFORTS

Measures BIO-22 through BIO-23 will be implemented to avoid and minimize impacts to nesting birds.

4.3.10.4. COMPENSATORY MITIGATION

With implementation of measures BIO-22 through BIO-23, no compensatory mitigation is required.

4.3.10.5. CUMULATIVE IMPACTS

The proposed project will not result in cumulative effects to migratory nesting birds.

4.3.11. Discussion of Pallid Bat

The pallid bat is a State SSC (CDFW 2017b). The Salinas River Valley is in the range of the pallid bat (Reid 2006) and suitable roosting and foraging habitat is present in the BSA. Pallid bats roost in crevices and cavities of buildings, bridges, mines, and trees and often use bridges and other man-made structures as day or night roosts.

4.3.11.1. SURVEY RESULTS

The Bradley Road Bridge has two expansion joints which provide day-roosting habitat for bats: one at Pier 13, which is outside the BSA, and the other at Pier 15, which is in the BSA but is approximately 100 feet west of the closest anticipated work area. A combined total of approximately 400 pallid bats and Mexican free-tailed bats were observed emerging during the nighttime survey on July 10, 2015, thus confirming pallid bat use of the expansion joints for day roosting. The number and concentration of pallid bats present in each of these expansion joints during the summer season (when the focused survey was conducted) indicates maternity roosting by pallid bats (and Mexican free-tailed bats). Additionally, the western abutment of the Bradley Road Bridge (outside the BSA, Figure 10) serves as a night roost for several species of bats, including pallid bat, which was observed using this roost. Pallid bats were also acoustically detected throughout the BSA during the focused survey, indicating use of the BSA for foraging as well as roosting.

4.3.11.2. PROJECT IMPACTS

The proposed project will not result in direct impacts (e.g., removal) to existing pallid bat roosts associated with the Bradley Road bridge structure. However, there is potential for temporary indirect impacts to roosting bats at Pier 15 from construction-related noise and vibration. In addition, impacts to approximately 5.65 acres of additional potential pallid bat roosting habitat (Fremont cottonwood forest and red willow thickets) may occur because pallid bats may also roost in the crevices or cavities of the mature trees in that area.

4.3.11.3. AVOIDANCE AND MINIMIZATION EFFORTS

The proposed project activities are anticipated to occur during the bat maternity season. Although the maternity colony at Pier 15 is outside the work area and will not be directly impacted by the proposed activities, the maternity colony is approximately

100 feet from work that will occur at Pier 16. Therefore, the following avoidance and minimization efforts will be implemented:

- BIO-35** To avoid potential impacts including abandonment of the roost while it contains flightless juvenile pallid bats, a qualified bat biologist should monitor the Pier 15 roost during the initiation of cast-in-drilled-hole work and concrete drilling at Pier 16 and determine if the roosting bats are being disturbed by construction-related activities. If there is no evidence that the maternity colony is disturbed by project activities, no further monitoring will be necessary. If the bat biologist determines that there is evidence that the maternity colony is disturbed by project activities, adaptive management measures may be developed in coordination between the bat biologist and the contractor to avoid or minimize potential impacts to maternity-roosting bats, including flightless young.
- BIO-36** Construction equipment (especially with diesel or combustion engines) shall not be stored or operated beneath identified roost areas.
- BIO-37** To avoid potential impacts to roosting bats, no nighttime construction activities will occur for the project. No artificial lighting will be used.
- BIO-38** Airspace access to and from the roost features of the structure shall also not be obstructed except in direct work areas.
- BIO-39** Pallid bats may also roost in crevices or cavities of mature trees that will be trimmed or removed for project activities. If feasible, tree removal or trimming should be performed outside of the bat maternity season (April 1–August 31) to avoid potential mortality to flightless juvenile bats; this time period coincides with the clearing and grubbing restrictions typically associated with the bird nesting season.
- BIO-40** Impacts to bats can occur because bats roosting in trees during removal may be torpid and, thus, unable to flush while a tree is cut and processed. Therefore, to prevent direct mortality of pallid bats potentially roosting in cavities, crevices, or the exfoliating bark of trees, any mature trees (e.g., Fremont cottonwoods, and willows) that must be trimmed or removed for project activities shall be removed in two stages over 2 consecutive days as follows: on Day 1, branches and

limbs will be removed and placed in a pile adjacent to the tree in case bats are roosting on or within those branches. Direct mortality to flightless juvenile bats can occur if tree trimming or removal occurs during the bat maternity season, when they are unable to evacuate the roost. If tree trimming or tree removal during the bat maternity season cannot be avoided, a qualified bat biologist should be present during the limb removal process to inspect the limbs and branches before and after they are cut for the presence of bats, particularly flightless juvenile bats. The bat biologist will also inspect the main body of the trees for the presence of roosting bats. If flightless young bats are found, a buffer distance shall be established in consultation with the California Department of Fish and Wildlife (CDFW) and this buffer shall be maintained until the bats are capable of flight and have left the roost. If flightless juvenile bats are observed after the roost limb or branch has been cut, the CDFW shall be notified and an appropriate protocol for relocation established under a Memorandum of Understanding.

The following day (Day 2), the remainder of the tree may be removed, and all parts disposed if necessary. The presence of a qualified bat biologist is not necessary for this step of the removal process. The disturbance caused by chainsaw noise/vibration and alteration of the tree through limb removal, followed by an interval of one evening, will allow adult bats to abandon the tree roost(s) during nightly emergence and move to another location. Removal of the tree the day after its alteration prevents the bats from habituating to and reoccupying the altered tree.

4.3.11.4. COMPENSATORY MITIGATION

With implementation of measures BIO-35 through BIO-40, no compensatory mitigation is proposed.

4.3.11.5. CUMULATIVE EFFECTS

The proposed project will not result in cumulative effects to pallid bat due to the avoidance of direct impacts and the minimization of temporary indirect impacts to the day/maternal roost in the Bradley Road Bridge, and the small area of impact to potentially suitable roosting habitat in the crevices or cavities of mature trees.

In addition, most of the impacted area of Fremont cottonwood forest and willow thickets in the BSA will be restored through revegetation.

4.3.12. Discussion of Western Red Bat

The western red bat (*Lasiurus blossevillii*) is a State SSC (CDFW 2017b). There are records of western red bats throughout the Salinas Valley, though there is limited information about the distribution of breeding western red bats in the area (Pierson et al. 2006). Western red bats roost among the foliage of trees and favor riparian corridors for foraging. This species typically exhibits a solitary roosting behavior, with a roost site consisting of a single male, a single female, or a single female with juveniles.

4.3.12.1. SURVEY RESULTS

Suitable roosting and foraging habitat is present in the BSA; however, this species was not detected (visually or acoustically) during the focused bat survey. Western red bats could roost in the Fremont cottonwood forest in the BSA, but their roost sites can be difficult to detect due to the solitary roosting habits of this species.

4.3.12.2. PROJECT IMPACTS

The proposed project may result in impacts to approximately 5.65 acres of potential western red bat roosting habitat, including Fremont cottonwood forest and red willow thickets.

4.3.12.3. AVOIDANCE AND MINIMIZATION EFFORTS

Western red bats may roost in the foliage of mature trees that will be trimmed or removed for project activities. Due to the solitary roosting habits of this species, preconstruction (i.e., vegetation removal) surveys to identify roost locations would not be feasible. Measures BIO-35 through BIO-40 will be implemented to avoid and minimize impacts to western red bat.

4.3.12.4. COMPENSATORY MITIGATION

With implementation of measures BIO-35 through BIO-40, no compensatory mitigation is proposed.

4.3.12.5. CUMULATIVE EFFECTS

The proposed project will not result in cumulative effects to western red bat due to the small area of impact to suitable roosting habitat. In addition, most of the impacted area of Fremont cottonwood forest and willow thickets in the BSA will be restored through revegetation.

4.3.13. Discussion of Bridge- and Crevice-Dwelling Bats

4.3.13.1. SURVEY RESULTS

The Bradley Road Bridge has two expansion joints containing day-roosting habitat: one at Pier 13, which is outside the BSA, and the other at Pier 15, which is in the BSA but is approximately 100 feet west of the closest anticipated work area. A combined total of approximately 400 pallid bats and Mexican free-tailed bats were observed emerging during the nighttime survey on July 10, 2015, thus confirming use of the expansion joints for day roosting by multiple species. The number and concentration of bats present in each of these expansion joints during the summer season (when the focused survey was conducted) indicates maternity roosting by both species. Additionally, the western abutment of the Bradley Road Bridge (outside the BSA; Figure 10) serves as a night roost for pallid bat, Mexican free-tailed bat, big brown bat (*Eptesicus fuscus*), California myotis (*Myotis californicus*), and Yuma myotis (*Myotis yumanensis*), all of which were observed using this roost during the focused survey. Although no bats were observed night roosting at the eastern abutment of the Bradley Road Bridge (within the BSA) during the focused survey, the presence of bat sign (e.g., guano and urine staining) in that area indicates night roosting in this area, albeit to a lesser extent than at the western abutment. The close proximity of the Bradley Road Bridge to high-quality foraging habitat increases its desirability and importance as a both a day- and night-roosting site for bats.

4.3.13.2. PROJECT IMPACTS

The proposed project will not result in direct impacts (e.g., removal) to the existing day/maternal roosts associated with the Bradley Road Bridge structure because they are in expansion joints beneath the deck of the bridge where no work will occur. In addition, the proposed project activities will be confined to the pier walls and footings. However, there is potential for indirect impacts to roosting bats at Pier 15 from construction-related noise and vibration. The Pier 15 roost is approximately 100 horizontal feet and 50 vertical feet from the nearest anticipated work area. Although the bats roosting in the expansion joints of the bridge are habituated to a certain degree of disturbance from large farming equipment and military vehicles crossing the bridge, ongoing noise generated by construction equipment beneath the bridge for activities including water diversion earthwork, CIDH drilling, and the concrete drilling associated with the pier footing retrofit within 100 feet of the roost will still result in noise and vibration levels higher than ambient levels and may subject the bats roosting at Pier 15 to temporary direct impacts. It should be noted, however, that the use of CIDH piles substantially decreases the levels of noise and vibration that would otherwise occur with the use of steel piles.

4.3.13.3. AVOIDANCE AND MINIMIZATION EFFORTS

The proposed project activities are anticipated to occur during the bat maternity season. Although the maternity colony at Pier 15 is outside the work area and will not be directly impacted by the proposed activities, it is approximately 100 feet from work that will occur at Pier 16. Measures BIO-35 through BIO-40 will be implemented to avoid and minimize impacts to bridge- and crevice-dwelling bats.

4.3.13.4. COMPENSATORY MITIGATION

With implementation of measures BIO-35 through BIO-40, no compensatory mitigation is proposed.

4.3.13.5. CUMULATIVE EFFECTS

The proposed project will not result in cumulative effects to bats due to the avoidance of direct impacts to the day/maternal roost, and minimization of temporary indirect impacts through the use of CIDH rather than steel piles, monitoring of the initiation of drilling work, and the development of adaptive management strategies if needed.

4.3.14. Discussion of Salinas Pocket mouse

Salinas pocket mouse is a State SSC (CDFW 2017b). This species is associated with fine textured, sandy, and friable soils in annual grassland and desert shrub communities in the Salinas Valley (Williams 1986).

4.3.14.1. SURVEY RESULTS

This species was incidentally observed on the deck of the Bradley Road Bridge in the BSA during the nighttime bat survey and suitable habitat is present in the BSA. This species likely uses the BSA for breeding and foraging.

4.3.14.2. PROJECT IMPACTS

Vehicle and equipment access and staging could impact Salinas pocket mouse foraging habitat and could destroy burrows as well as directly kill individual mice.

4.3.14.3. AVOIDANCE AND MINIMIZATION EFFORTS

The following measures in addition to BIO-17 through BIO-25 will be implemented to avoid and minimize impacts to Salinas pocket mouse:

BIO-41 Before vegetation in the annual brome grassland is disturbed, the area will be surveyed by a qualified biologist for potential Salinas pocket mouse burrows. If any burrows are located within the work area, the

biologist will flag them (using pin flags or surveyor's tape) for avoidance.

BIO-42 The biological monitor will ensure vehicles and equipment avoid flagged burrows within the temporary access road and staging area.

4.3.14.4. COMPENSATORY MITIGATION

With implementation of measures BIO-41 through BIO-42, no compensatory mitigation is required.

4.3.14.5. CUMULATIVE EFFECTS

The proposed project will not result in cumulative effects to the Salinas pocket mouse.

4.3.15. Discussion of San Joaquin Kit Fox

San Joaquin kit fox is a federally listed endangered and State-listed threatened species (CDFW 2017b). The BSA is within the historic range of San Joaquin kit fox and CNDDDB occurrence (No. 991) is documented in the BSA. This 1975 record is recorded as a sighting that encompasses the BSA but there is no detail in the record of any den or activity center at this location. The most recent record within 2 miles of the BSA is from 1997 (No. 422) and was based on a nighttime spotlight survey.

4.3.15.1. SURVEY RESULTS

A focused habitat assessment per USFWS recommendations (2011a) for San Joaquin kit fox on July 10, 2015, resulted in no individuals, their sign (i.e., tracks or scat), or suitable burrows observed in or adjacent to the BSA. The only burrows found in the survey area were a cluster of old California ground squirrel (*Otospermophilus beecheyi*) burrows approximately 225 feet north of the eastern bridge abutment, but no burrows were large enough for San Joaquin kit fox and they did not show signs of recent activity (e.g., freshly excavated earth). No artificial burrows (e.g., culverts or pipes) were observed in the BSA. No coyote or other canid dens were observed in the BSA. The dry open grasslands and foothills habitat along the Salinas River in and adjacent to the BSA contains suitable San Joaquin kit fox habitat. San Joaquin kit fox may forage or pass through the BSA; however, the lack of San Joaquin kit fox potential dens or other signs, suggests this species appears does not occur in the BSA.

4.3.15.2. PROJECT IMPACTS

The proposed project will not adversely affect San Joaquin kit fox because it does not appear to occur in the BSA.

4.3.15.3. AVOIDANCE AND MINIMIZATION EFFORTS

No specific avoidance and minimization efforts for San Joaquin kit fox are proposed because it does not appear to occur in the BSA.

4.3.15.4. COMPENSATORY MITIGATION

With implementation of measures of BIO-17 through 25 and BIO-41 through BIO-42, no compensatory mitigation is required.

4.3.15.5. CUMULATIVE IMPACTS

The proposed project will not result in cumulative impacts to San Joaquin kit fox.

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Chapter 5. Results: Conclusions and Regulatory Determination

5.1. Federal Endangered Species Act Consultation Summary

Official species lists from the NMFS and the USFWS were most recently updated on May 16, 2017. As previously noted, the California Red-legged Frog Habitat Assessment (Appendix D) conducted for the proposed project concluded that suitable aquatic habitat is not present in the BSA or in adjacent areas and this species is not likely to occur in the BSA. The USFWS concurred with this conclusion. In a phone conversation with LSA, Glen Knowles, Assistant Field Supervisor, North Coast Division (personal communication 2016), agreed with the assessment that California red-legged frog does not likely occur in the BSA and are not likely to be adversely affected by the proposed project.

Least Bell's vireo, southwestern willow flycatcher, and San Joaquin kit fox appear to be absent from the BSA and thus are not likely to be adversely affected by the proposed project. All other federally listed species included on the species lists or analyzed in Table 6, except for south-central California coast DPS steelhead, will not be adversely affected by the proposed project. Table 7 below provides a summary of the effects determination for each federally listed species and critical habitat.

The BSA provides migration habitat for south-central California coast DPS steelhead, but does not contain suitable spawning or rearing habitat. Both Mr. Stevenson and Mr. Casagrande of NMFS (personal communication 2016) concurred with this conclusion. Because the proposed project may affect, and is likely to adversely affect, the federally listed south-central California coast DPS steelhead and its critical habitat, consultation with the NMFS will be required. To facilitate NMFS consultation, a BA will be prepared.

Table 7: Federally Listed Species and Critical Habitat Determinations

Species Name	Status	Determination
South-central California coast DPS steelhead (<i>Oncorhynchus mykiss irideus</i>)	FT	May affect, likely to adversely affect
Marsh sandwort (<i>Arenaria paludicola</i>)	FE	No effect
Santa Lucia purple amole (<i>Chlorogalum purpureum</i> var. <i>purpureum</i>)	FT	No effect
Vernal pool fairy shrimp	FT	No effect

Table 7: Federally Listed Species and Critical Habitat Determinations

Species Name	Status	Determination
<i>(Branchinecta lynchi)</i>		
California red-legged frog <i>(Rana draytonii)</i>	FT	May affect, not likely to adversely affect
California condor <i>(Gymnogyps californianus)</i>	FE	No effect
Least Bell's vireo <i>(Vireo bellii pusillus)</i>	FE	No effect
Southwestern willow flycatcher <i>(Empidonax traillii extimus)</i>	FE	No effect
San Joaquin kit fox <i>(Vulpes macrotis mutica)</i>	FE	No effect
Critical Habitat		
South-central California coast DPS steelhead Critical Habitat	Designated	May affect, likely to adversely affect

Source: LSA compiled, 2017

DPS = Distinct Population Segment

FE = federally listed as endangered

FT = federally listed as threatened

5.2. Magnuson-Stevens Fishery Conservation and Management Act Coordination Summary

There is no designated EFH within the BSA (NMFS 2017 and NOAA 2016), so no MSA consultation is required.

5.3. Migratory Bird Treaty Act Coordination Summary

Disturbance of migratory birds during their nesting season (February 15 to August 31) could result in “take” which is prohibited under the MBTA. Seventy-one species of birds were observed in the BSA during the field surveys (Appendix F); 67 of these species are native birds protected under the MBTA and a number of these species potentially nest in the BSA. The project includes avoidance and minimization efforts to comply with the MBTA and protect native birds and their active nests.

5.4. Clean Water Act Coordination Summary

A jurisdictional delineation was field verified by the Corps on August 11, 2016 (Appendix D). The proposed project will result in temporary and permanent fill of waters of the U.S. Approximately 1.67 acre subject to Corps jurisdiction pursuant to Section 404 of the CWA is expected to be impacted and will require a permit from the Corps.

5.5. Executive Order 11988 (Floodplain Management) Coordination Summary

The BSA is in a 100-year flood zone as depicted on a flood insurance rate map prepared by the Federal Emergency Management Agency. The proposed scour repair project will neither enhance nor reduce flooding in the BSA. Biological resources in the BSA are not likely to be adversely affected by occasional flooding.

5.6. Executive Order 11990 (Protection of Wetlands) Coordination Summary

EO 11990 established a national policy to avoid adverse impacts on wetlands whenever there is a practicable alternative. On federally funded projects, impacts on wetlands must be identified. Alternatives that avoid wetlands must be considered. If wetland impacts cannot be avoided, then all practicable measures to minimize harm must be included. This must be documented in a specific Wetlands Only Practicable Alternative Finding. The proposed project will affect the streambed of the Salinas River and associated wetlands and riparian vegetation, which are preliminarily determined to be waters of the U.S. These effects will be under the permit limits for the Corps' Nationwide Permit Program. Because the proposed project will comply with the Corps permit program and will include the avoidance and minimization measures provided in the waters of the U.S. and State Waters section (Chapter 4), the proposed project will comply with EO 11990. Most of the project effects will be temporary. Project effects to wetlands will be minimized.

5.7. Executive Order 13112 (Invasive Species) Coordination Summary

Alien (i.e., non-native) invasive plant species occur throughout the various land cover types in the BSA. The proposed project has the potential to introduce or enhance the habitat for invasive species. In compliance with EO 13112, a weed abatement program will be developed to minimize the importation of nonnative plant material during and after construction. Eradication strategies would need to be employed should an invasion occur. Measures addressing invasive species abatement and eradication will be included in the project design and contract specifications, and will be implemented and enforced by the construction contractor.

In addition, a program will be developed to remove and monitor invasive, nonnative fish and wildlife species during and after construction. Measures addressing invasive

species abatement and eradication will be included in the project design and contract specifications, and will be implemented and enforced by the construction contractor.

5.8. National Environmental Policy Act Consultation Summary

The proposed project is federally funded and will impact the natural environment along the Salinas River; therefore, it must comply with NEPA.

5.9. California Endangered Species Act Consultation Summary

Although bald eagle, listed as endangered under CESA, was observed flying over the BSA, no suitable breeding/nesting habitat is located in the BSA and this species is unlikely to forage in the BSA. No other species listed under CESA (e.g., least Bell's vireo, southwestern willow flycatcher, and San Joaquin kit fox) are expected to occur in the BSA. Therefore, no consultation with the CDFW regarding Incidental Take Permits for State-listed species is required.

5.10. Section 401 Water Quality Certification Coordination Summary

No additional coordination concerning the proposed project has occurred with the RWQCB. However, the proposed project will involve construction activities within the Salinas River, a water of the State and, therefore, will require a Section 401 Water Quality Certification.

5.11. California Fish and Game Code Coordination Summary

5.11.1. Sections 3503, 3503.5, and 3513: Breeding Birds

Disturbance of migratory birds during their nesting season (February 15 to August 31) could result in "take" which is prohibited under Section 3513 of the California Fish and Game Code. Section 3503 also prohibits take or destruction of bird nests or eggs. Seventy-one species of birds were observed in the BSA during the field surveys (Appendix F); 67 of these species are native birds protected under the California Fish and Game Code and a number of these species potentially nest in the BSA. The project includes avoidance and minimization efforts to comply with these statutes and protect native birds and their active nests.

5.11.2. Section 4150: Bat Maternity Colonies

Due to the presence of maternity-roosting bats in the pier expansion joints of Piers 13 and 15, the Bradley Road Bridge is considered a native wildlife nursery site and potential impacts should be minimized to the greatest extent practicable to avoid significant impacts to the viability of the local population.

5.11.3. Sections 1600-1616: Lake and Streambed Alteration

No additional coordination concerning the proposed project has occurred with the CDFW. However, the proposed project will occur in the river channel and bank and riparian vegetation will be removed. A total of approximately 2.75 acres subject to CDFW jurisdiction pursuant to Sections 1600-1616 of the California Fish and Game Code is expected to be impacted and will require a Streambed Alteration Agreement (SAA) from the CDFW.

5.12. California Species of Special Concern Coordination Summary

Eleven SSC were detected or have the potential to occur in the BSA. Measures will be implemented to avoid and minimize potential impacts to these species. Coordination with the CDFW regarding impacts to SSC may occur during the SAA process.

5.13. Native Plant Protection Act Coordination Summary

No listed or rare plant species are expected to occur within the BSA or be impacted by the proposed project. However, the proposed project will implement avoidance measures if rare or listed plants are found during the preconstruction survey, and the County would consult with CDFW.

5.14. Oak Woodlands Conservation Act (SB 1334) Coordination Summary

SB 1334 requires mitigation for projects with significant oak woodland impacts. The proposed project will not result in the removal of oak trees, therefore, mitigation for SB 1334 will not be required.

5.15. County of Monterey Ordinance: Preservation of Oaks and Other Protected Trees Coordination Summary

The BSA is located within the *South County Area Plan*, a section of the County that makes no provision to protect trees other than native oaks. No oak trees will be removed during construction of the proposed project; therefore, no permitting or mitigation for oak trees is required under the County Zoning Ordinance (Tree Ordinance Chapter 21.64.260).

Chapter 6. References

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6.1. Personal Communications

Phone correspondence with Glen Knowles, Assistant Field Supervisor, USFWS North Coast Division, Ventura Office, on July 14, 2016, regarding findings of the California red-legged frog habitat assessment.

Corps jurisdiction field meeting with Naomi Schowalter, Corps on August 11, 2016.

Phone correspondence with Bill Stevenson, NMFS, on October 20, 2016, regarding project construction related to steelhead in the BSA.

Phone correspondence with Joel Casagrande, NMFS, on October 26, 2016, regarding project construction related to steelhead in the BSA.

Appendix A Site Photographs

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Photo 1. Entry into the access route and staging area from Bradley Road, facing northwest. Photo taken on March 24, 2015.



Photo 2. Access route and staging area through annual brome grassland and into Fremont cottonwood forest vegetation, facing north. Photo taken on May 29, 2015.



Photo 3. Access route through annual brome grassland and into Fremont cottonwood forest vegetation showing a Fremont cottonwood that may be removed or trimmed, facing southwest. Photo taken on July 21, 2015.



Photo 4. Footpath and access route from the Bradley Road Bridge showing a Fremont cottonwood that may be removed or trimmed, facing west. Photo take on July 21, 2015

LSA

APPENDIX A

*Bradley Road Bridge Scour Repair Project
Monterey County, California
Federal Project Number BHLO-5944(100)
Site Photographs*



Photo 5. The Salinas River from the Bradley Road Bridge showing where temporary water diversions and crossings will be installed and trees that may be removed or trimmed, facing west. Photo taken on July 21, 2015



Photo 6. The Salinas River and primarily downstream of the BSA from the Bradley Road Bridge showing various land cover types, facing northwest. Note the presence of cattle. Photo taken on June 23, 2015.



Photo 7. The Salinas River upstream of the BSA showing various land cover types and the trees that may be removed or trimmed, facing south. Photo taken on June 23, 2015.



Photo 8. The Salinas River and upstream of the BSA from the Bradley Road Bridge showing various land cover types, facing south. The ponded water in the bottom right corner is caused by a beaver dam. Photo taken on June 23, 2015.

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APPENDIX A

*Bradley Road Bridge Scour Repair Project
Monterey County, California
Federal Project Number BHLO-5944(100)
Site Photographs*



Photo 9. The Salinas River from the Bradley Road Bridge showing trees that may be removed or trimmed, facing east. Photo taken on July 21, 2015.



Photo 10. The Salinas River at Pier 17 showing where temporary water diversions and crossings will be installed and trees that may be removed or trimmed, facing east. Photo taken on May 28, 2015.



Photo 11. Scour damage at Pier 19, facing southeast. Photo taken on March 24, 2015.



Photo 12. The Salinas River and scour damage at Pier 18, facing north. Photo taken on May 28, 2015.

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APPENDIX A

*Bradley Road Bridge Scour Repair Project
Monterey County, California
Federal Project Number BHLO-5944(100)
Site Photographs*



Photo 13. The Salinas River and scour damage at Piers 17 and 18, facing northwest. Photo taken on March 24, 2015.



Photo 14. Pooled water and water primrose wetland vegetation at Pier 16, facing southeast. Photo taken on May 28, 2015.



Photo 15. The Salinas River showing where temporary water diversions and crossings will be installed and trees that may be removed or trimmed, facing west. Photo taken on April 14, 2015.

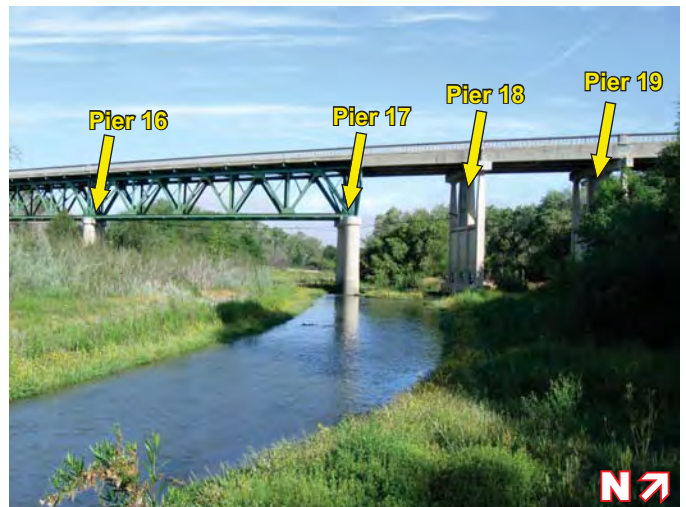


Photo 16. Piers 16, 17, 18, and 19 of the Bradley Road Bridge over the Salinas River from the southern edge of the BSA, facing northwest. Photo taken on April 29, 2015.

LSA

APPENDIX A

*Bradley Road Bridge Scour Repair Project
Monterey County, California
Federal Project Number BHLO-5944(100)
Site Photographs*



Photo 17. A beaver dam on a side channel of the Salinas River at the southern edge of the BSA, facing northwest. Photo taken on June 23, 2015.



Photo 18. A barn owl (*Tyto alba*) tending its nest on Pier 18. Note the presence of cliff swallow (*Petrochelidon fulva*) nests as well. Photo taken on April 29, 2015.



Photo 19. The expansion joint of the Bradley Road Bridge at Pier 15. The crevice of the expansion joint provides a bat day-roost habitat. Photo taken on July 9, 2015.



Photo 20. Cluster of pallid bats (*Antrozous pallidus*) and Mexican free-tailed bat (*Tadarida brasiliensis mexicana*) at the observed night roost at the western abutment of Bradley Road Bridge. This area is outside the BSA, but these and other bat species occur within the BSA. Photo taken on July 10, 2015.

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Appendix B NMFS, USFWS, CNDDB and CNPS Lists

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Selected Elements by Scientific Name

California Department of Fish and Wildlife

California Natural Diversity Database



Query Criteria: Quad> IS (Bradley (3512077) OR Adelaida (3512067) OR Hames Valley (3512088) OR Lime Mountain (3512068) OR Paso Robles (3512066) OR San Miguel (3512076) OR Tierra Redonda Mountain (3512078) OR Valleton (3512086) OR Wunpost (3512087))

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
<i>Abies bracteata</i> bristlecone fir	PGPIN01030	None	None	G2G3	S2S3	1B.3
<i>Agelaius tricolor</i> tricolored blackbird	ABPBXB0020	None	Candidate Endangered	G2G3	S1S2	SSC
<i>Agrostis hooveri</i> Hoover's bent grass	PMPOA040M0	None	None	G2	S2	1B.2
<i>Anniella pulchra pulchra</i> silvery legless lizard	ARACC01012	None	None	G3G4T3T4Q	S3	SSC
<i>Antirrhinum ovatum</i> oval-leaved snapdragon	PDSCR2K010	None	None	G3	S3	4.2
<i>Antrozous pallidus</i> pallid bat	AMACC10010	None	None	G5	S3	SSC
<i>Aquila chrysaetos</i> golden eagle	ABNKC22010	None	None	G5	S3	FP
<i>Arctostaphylos luciana</i> Santa Lucia manzanita	PDERI040N0	None	None	G3	S3	1B.2
<i>Ardea herodias</i> great blue heron	ABNGA04010	None	None	G5	S4	
<i>Aristocapsa insignis</i> Indian Valley spineflower	PDPGN0U010	None	None	G2?	S2?	1B.2
<i>Athene cunicularia</i> burrowing owl	ABNSB10010	None	None	G4	S3	SSC
<i>Branchinecta lynchi</i> vernal pool fairy shrimp	ICBRA03030	Threatened	None	G3	S3	
<i>Buteo regalis</i> ferruginous hawk	ABNKC19120	None	None	G4	S3S4	WL
<i>California macrophylla</i> round-leaved filaree	PDGER01070	None	None	G3?	S3?	1B.2
<i>Calochortus simulans</i> La Panza mariposa-lily	PMLIL0D170	None	None	G2	S2	1B.3
<i>Calycadenia villosa</i> dwarf calycadenia	PDAST1P0B0	None	None	G3	S3	1B.1
<i>Calyptidium parryi</i> var. <i>hesseae</i> Santa Cruz Mountains pussypaws	PDPOR09052	None	None	G3G4T2	S2	1B.1
<i>Camissoniopsis hardhamiae</i> Hardham's evening-primrose	PDONA030N0	None	None	G2	S2	1B.2



Selected Elements by Scientific Name
California Department of Fish and Wildlife
California Natural Diversity Database



Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
<i>Castilleja densiflora</i> var. <i>obispoensis</i> San Luis Obispo owl's-clover	PDSCR0D453	None	None	G5T2	S2	1B.2
<i>Caulanthus lemmonii</i> Lemmon's jewelflower	PDBRA0M0E0	None	None	G3	S3	1B.2
<i>Chlorogalum purpureum</i> var. <i>purpureum</i> Santa Lucia purple amole	PMLIL0G051	Threatened	None	G2T2	S2	1B.1
<i>Chorizanthe rectispina</i> straight-awned spineflower	PDPGN040N0	None	None	G2	S2	1B.3
<i>Clarkia jolonensis</i> Jolon clarkia	PDONA050L0	None	None	G2	S2	1B.2
<i>Collinsia antonina</i> San Antonio collinsia	PDSCR0H010	None	None	G2	S2	1B.2
<i>Corynorhinus townsendii</i> Townsend's big-eared bat	AMACC08010	None	None	G3G4	S2	SSC
<i>Delphinium umbraculorum</i> umbrella larkspur	PDRAN0B1W0	None	None	G3	S3	1B.3
<i>Emys marmorata</i> western pond turtle	ARAAD02030	None	None	G3G4	S3	SSC
<i>Entosthodon kochii</i> Koch's cord moss	NBMUS2P050	None	None	G1	S1	1B.3
<i>Eremophila alpestris actia</i> California horned lark	ABPAT02011	None	None	G5T4Q	S4	WL
<i>Eriastrum luteum</i> yellow-flowered eriastrum	PDPLM03080	None	None	G2	S2	1B.2
<i>Eriogonum temblorense</i> Temblor buckwheat	PDPGN085P0	None	None	G2	S2	1B.2
<i>Erythranthe hardhamiae</i> Santa Lucia monkeyflower	PDPHR01030	None	None	G1	S1	1B.1
<i>Falco mexicanus</i> prairie falcon	ABNKD06090	None	None	G5	S4	WL
<i>Haliaeetus leucocephalus</i> bald eagle	ABNKC10010	Delisted	Endangered	G5	S3	FP
<i>Horkelia cuneata</i> var. <i>sericea</i> Kellogg's horkelia	PDROS0W043	None	None	G4T1?	S1?	1B.1
<i>Juncus luciensis</i> Santa Lucia dwarf rush	PMJUN013J0	None	None	G3	S3	1B.2
<i>Lagophylla diabolensis</i> Diablo Range hare-leaf	PDAST5J060	None	None	G2G3	S2S3	1B.2
<i>Lasiurus cinereus</i> hoary bat	AMACC05030	None	None	G5	S4	
<i>Layia heterotricha</i> pale-yellow layia	PDAST5N070	None	None	G2	S2	1B.1



Selected Elements by Scientific Name
California Department of Fish and Wildlife
California Natural Diversity Database



Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
<i>Lepidium jaredii</i> ssp. <i>jaredii</i> Jared's pepper-grass	PDBRA1M0G1	None	None	G2T1T2	S1S2	1B.2
<i>Malacothamnus abbottii</i> Abbott's bush-mallow	PDMAL0Q010	None	None	G1	S1	1B.1
<i>Malacothamnus aboriginum</i> Indian Valley bush-mallow	PDMAL0Q020	None	None	G3	S3	1B.2
<i>Malacothamnus davidsonii</i> Davidson's bush-mallow	PDMAL0Q040	None	None	G2	S2	1B.2
<i>Malacothamnus palmeri</i> var. <i>involucratus</i> Carmel Valley bush-mallow	PDMAL0Q0B1	None	None	G3T3Q	S3	1B.2
<i>Malacothrix saxatilis</i> var. <i>arachnoidea</i> Carmel Valley malacothrix	PDAST660C2	None	None	G5T2	S2	1B.2
<i>Masticophis flagellum ruddocki</i> San Joaquin coachwhip	ARADB21021	None	None	G5T2T3	S2?	SSC
<i>Monolopia gracilens</i> woodland woollythreads	PDAST6G010	None	None	G3	S3	1B.2
<i>Navarretia nigelliformis</i> ssp. <i>radians</i> shining navarretia	PDPLM0C0J2	None	None	G4T2	S2	1B.2
<i>Navarretia prostrata</i> prostrate vernal pool navarretia	PDPLM0C0Q0	None	None	G2	S2	1B.1
<i>Nemacladus secundiflorus</i> var. <i>robbinsii</i> Robbins' nemacladus	PDCAM0F0B2	None	None	G3T2	S2	1B.2
<i>Neotoma macrotis luciana</i> Monterey dusky-footed woodrat	AMAFF08083	None	None	G5T3	S3	SSC
<i>Perognathus inornatus psammophilus</i> Salinas pocket mouse	AMAFD01062	None	None	G4T2?	S1	SSC
<i>Phrynosoma blainvillii</i> coast horned lizard	ARACF12100	None	None	G3G4	S3S4	SSC
<i>Plagiobothrys uncinatus</i> hooked popcornflower	PDBOR0V170	None	None	G2	S2	1B.2
<i>Polyphylla nubila</i> Atascadero June beetle	IICOL68040	None	None	G1	S1	
<i>Setophaga petechia</i> yellow warbler	ABPBX03010	None	None	G5	S3S4	SSC
<i>Spea hammondi</i> western spadefoot	AAABF02020	None	None	G3	S3	SSC
<i>Stebbinsoseris decipiens</i> Santa Cruz microseris	PDAST6E050	None	None	G2	S2	1B.2
<i>Streptanthus albidus</i> ssp. <i>peramoenus</i> most beautiful jewelflower	PDBRA2G012	None	None	G2T2	S2	1B.2
<i>Stylocline masonii</i> Mason's neststraw	PDAST8Y080	None	None	G1	S1	1B.1



Selected Elements by Scientific Name
California Department of Fish and Wildlife
California Natural Diversity Database



Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
<i>Sycamore Alluvial Woodland</i> Sycamore Alluvial Woodland	CTT62100CA	None	None	G1	S1.1	
<i>Taxidea taxus</i> American badger	AMAJF04010	None	None	G5	S3	SSC
<i>Trimerotropis occulens</i> Lompoc grasshopper	IIORT36310	None	None	G1G2	S1S2	
<i>Triteleia ixioides ssp. cookii</i> Cook's triteleia	PMLIL210A2	None	None	G5T2T3	S2S3	1B.3
<i>Valley Oak Woodland</i> Valley Oak Woodland	CTT71130CA	None	None	G3	S2.1	
<i>Vireo bellii pusillus</i> least Bell's vireo	ABPBW01114	Endangered	Endangered	G5T2	S2	
<i>Vulpes macrotis mutica</i> San Joaquin kit fox	AMAJA03041	Endangered	Threatened	G4T2	S2	

Record Count: 67



Plant List

Inventory of Rare and Endangered Plants

54 matches found. [Click on scientific name for details](#)

Search Criteria

California Rare Plant Rank is one of [1A, 1B, 2A, 2B, 3, 4],
FESA is one of [Endangered, Threatened, Candidate, Not Listed],
CESA is one of [Endangered, Threatened, Rare, Not Listed], Found in Quads 3512088, 3512087,
3512086, 3512078, 3512077, 3512076, 3512068 3512067 and 3512066;

[Modify Search Criteria](#) [Export to Excel](#) [Modify Columns](#) [Modify Sort](#) [Display Photos](#)

Scientific Name	Common Name	Family	Lifeform	Blooming Period	CA Rare Plant Rank	State Rank	Global Rank
Abies bracteata	bristlecone fir	Pinaceae	perennial evergreen tree		1B.3	S2S3	G2G3
Agrostis hooveri	Hoover's bent grass	Poaceae	perennial herb	Apr-Jul	1B.2	S2	G2
Amsinckia douglasiana	Douglas' fiddleneck	Boraginaceae	annual herb	Mar-May	4.2	S3	G3
Antirrhinum ovatum	oval-leaved snapdragon	Plantaginaceae	annual herb	May-Nov	4.2	S3	G3
Arctostaphylos hooveri	Hoover's manzanita	Ericaceae	perennial evergreen shrub	Feb-Jun	4.3	S3	G3
Aristocapsa insignis	Indian Valley spineflower	Polygonaceae	annual herb	May-Sep	1B.2	S2?	G2?
Astragalus macrodon	Salinas milk-vetch	Fabaceae	perennial herb	Apr-Jul	4.3	S4	G4
California macrophylla	round-leaved filaree	Geraniaceae	annual herb	Mar-May	1B.2	S3?	G3?
Calochortus simulans	La Panza mariposa lily	Liliaceae	perennial bulbiferous herb	Apr-Jun	1B.3	S2	G2
Calycadenia villosa	dwarf calycadenia	Asteraceae	annual herb	May-Oct	1B.1	S3	G3
Calyptridium parryi var. hesseae	Santa Cruz Mountains pussypaws	Montiaceae	annual herb	May-Aug	1B.1	S2	G3G4T2
Camissoniopsis hardhamiae	Hardham's evening-primrose	Onagraceae	annual herb	Mar-May	1B.2	S2	G2
Castilleja densiflora var. obispoensis	San Luis Obispo owl's-clover	Orobanchaceae	annual herb (hemiparasitic)	Mar-May	1B.2	S2	G5T2
Caulanthus lemmonii	Lemmon's jewelflower	Brassicaceae	annual herb	Feb-May	1B.2	S3	G3
Ceanothus cuneatus var. fascicularis	Lompoc ceanothus	Rhamnaceae	perennial evergreen shrub	Feb-Apr	4.2	S4	G5T4

<u>Chlorogalum purpureum var. purpureum</u>	Santa Lucia purple amole	Agavaceae	perennial bulbiferous herb	Apr-Jun	1B.1	S2	G2T2
<u>Chorizanthe douglasii</u>	Douglas' spineflower	Polygonaceae	annual herb	Apr-Jul	4.3	S4	G4
<u>Chorizanthe palmeri</u>	Palmer's spineflower	Polygonaceae	annual herb	Apr-Aug	4.2	S4	G4?
<u>Chorizanthe rectispina</u>	straight-awned spineflower	Polygonaceae	annual herb	Apr-Jul	1B.3	S2	G2
<u>Clarkia jolonensis</u>	Jolon clarkia	Onagraceae	annual herb	Apr-Jun	1B.2	S2	G2
<u>Clinopodium mimuloides</u>	monkey-flower savory	Lamiaceae	perennial herb	Jun-Oct	4.2	S3	G3
<u>Collinsia antonina</u>	San Antonio collinsia	Plantaginaceae	annual herb	Mar-May	1B.2	S2	G2
<u>Cryptantha rattanii</u>	Rattan's cryptantha	Boraginaceae	annual herb	Apr-Jul	4.3	S4	G4
<u>Delphinium gypsophilum ssp. parviflorum</u>	small-flowered gypsum-loving larkspur	Ranunculaceae	perennial herb	(Mar)Apr-Jun	3.2	S2S3	G4T2T3Q
<u>Delphinium umbracolorum</u>	umbrella larkspur	Ranunculaceae	perennial herb	Apr-Jun	1B.3	S3	G3
<u>Entosthodon kochii</u>	Koch's cord moss	Funariaceae	moss		1B.3	S1	G1
<u>Eriastrum luteum</u>	yellow-flowered eriastrum	Polemoniaceae	annual herb	May-Jun	1B.2	S2	G2
<u>Eriogonum elegans</u>	elegant wild buckwheat	Polygonaceae	annual herb	May-Nov	4.3	S3S4	G3G4
<u>Eriogonum temblorense</u>	Temblor buckwheat	Polygonaceae	annual herb	(Apr)May-Sep	1B.2	S2	G2
<u>Eriophyllum jepsonii</u>	Jepson's woolly sunflower	Asteraceae	perennial herb	Apr-Jun	4.3	S3	G3
<u>Erythranthe hardhamiae</u>	Santa Lucia monkeyflower	Phrymaceae	annual herb	Mar-May	1B.1	S1	G1
<u>Eschscholzia hypocoides</u>	San Benito poppy	Papaveraceae	annual herb	Mar-Jun	4.3	S4	G4
<u>Hesperevax caulescens</u>	hogwallow starfish	Asteraceae	annual herb	Mar-Jun	4.2	S3	G3
<u>Horkelia cuneata var. sericea</u>	Kellogg's horkelia	Rosaceae	perennial herb	Apr-Sep	1B.1	S1?	G4T1?
<u>Juncus luciensis</u>	Santa Lucia dwarf rush	Juncaceae	annual herb	Apr-Jul	1B.2	S3	G3
<u>Lagophylla diabolensis</u>	Diablo Range hare-leaf	Asteraceae	annual herb	Apr-Sep	1B.2	S2S3	G2G3
<u>Layia heterotricha</u>	pale-yellow layia	Asteraceae	annual herb	Mar-Jun	1B.1	S2	G2
<u>Lupinus ludovicianus</u>	San Luis Obispo County lupine	Fabaceae	perennial herb	Apr-Jul	1B.2	S1	G1
<u>Malacothamnus abbottii</u>	Abbott's bush-mallow	Malvaceae	perennial deciduous shrub	May-Oct	1B.1	S1	G1

<u>Malacothamnus aboriginum</u>	Indian Valley bush-mallow	Malvaceae	perennial deciduous shrub	Apr-Oct	1B.2	S3	G3
<u>Malacothamnus davidsonii</u>	Davidson's bush-mallow	Malvaceae	perennial deciduous shrub	Jun-Jan	1B.2	S2	G2
<u>Malacothamnus jonesii</u>	Jones' bush-mallow	Malvaceae	perennial deciduous shrub	(Mar)Apr-Oct	4.3	S4	G4
<u>Malacothamnus palmeri var. involucratus</u>	Carmel Valley bush-mallow	Malvaceae	perennial deciduous shrub	Apr-Oct	1B.2	S3	G3T3Q
<u>Malacothrix saxatilis var. arachnoidea</u>	Carmel Valley malacothrix	Asteraceae	perennial rhizomatous herb	(Mar)Jun-Dec	1B.2	S2	G5T2
<u>Monolopia gracilens</u>	woodland woollythreads	Asteraceae	annual herb	(Feb)Mar-Jul	1B.2	S3	G3
<u>Navarretia nigelliformis ssp. radians</u>	shining navarretia	Polemoniaceae	annual herb	(Mar)Apr-Jul	1B.2	S2	G4T2
<u>Navarretia prostrata</u>	prostrate vernal pool navarretia	Polemoniaceae	annual herb	Apr-Jul	1B.1	S2	G2
<u>Nemacladus secundiflorus var. robbinsii</u>	Robbins' nemacladus	Campanulaceae	annual herb	Apr-Jun	1B.2	S2	G3T2
<u>Nemacladus secundiflorus var. secundiflorus</u>	large-flowered nemacladus	Campanulaceae	annual herb	Apr-Jun	4.3	S3?	G3T3?
<u>Plagiobothrys uncinatus</u>	hooked popcornflower	Boraginaceae	annual herb	Apr-May	1B.2	S2	G2
<u>Senecio astephanus</u>	San Gabriel ragwort	Asteraceae	perennial herb	May-Jul	4.3	S3	G3
<u>Stebbinsoseris decipiens</u>	Santa Cruz microseris	Asteraceae	annual herb	Apr-May	1B.2	S2	G2
<u>Stylocline masonii</u>	Mason's neststraw	Asteraceae	annual herb	Mar-May	1B.1	S1	G1
<u>Triteleia ixioides ssp. cookii</u>	Cook's triteleia	Themidaceae	perennial bulbiferous herb	May-Jun	1B.3	S2S3	G5T2T3

Suggested Citation

California Native Plant Society, Rare Plant Program. 2017. Inventory of Rare and Endangered Plants of California (online edition, v8-03 0.39). Website <http://www.rareplants.cnps.org> [accessed 15 May 2017].

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Contributors

[The Calflora Database](#)

[The California Lichen Society](#)

Matthew Willis

From: Gabriella Machal
Sent: Monday, May 15, 2017 5:35 PM
To: nmfswcrca.specieslist@noaa.gov
Cc: Michaela Koenig; Tim Lacy; Matthew Willis
Subject: FHWA (Caltrans): Bradley Road Bridge Scour Repair Project (Salinas River) Official Species List Request

To Whom it May Concern;

On behalf of Caltrans District 5, I hereby request an Official Species List for the subject project. Please refer to the Google Earth Output below:

Quad Name **Bradley**
Quad Number **35120-G7**

ESA Anadromous Fish

SONCC Coho ESU (T) -
CCC Coho ESU (E) -
CC Chinook Salmon ESU (T) -
CVSR Chinook Salmon ESU (T) -
SRWR Chinook Salmon ESU (E) -
NC Steelhead DPS (T) -
CCC Steelhead DPS (T) -
SCCC Steelhead DPS (T) - **X**
SC Steelhead DPS (E) -
CCV Steelhead DPS (T) -
Eulachon (T) -
sDPS Green Sturgeon (T) -

ESA Anadromous Fish Critical Habitat

SONCC Coho Critical Habitat -
CCC Coho Critical Habitat -
CC Chinook Salmon Critical Habitat -
CVSR Chinook Salmon Critical Habitat -
SRWR Chinook Salmon Critical Habitat -
NC Steelhead Critical Habitat -

CCC Steelhead Critical Habitat -
SCCC Steelhead Critical Habitat -
SC Steelhead Critical Habitat -
CCV Steelhead Critical Habitat -
Eulachon Critical Habitat -
sDPS Green Sturgeon Critical Habitat -



ESA Marine Invertebrates

Range Black Abalone (E) -
Range White Abalone (E) -

ESA Marine Invertebrates Critical Habitat

Black Abalone Critical Habitat -

ESA Sea Turtles

East Pacific Green Sea Turtle (T) -
Olive Ridley Sea Turtle (T/E) -
Leatherback Sea Turtle (E) -
North Pacific Loggerhead Sea Turtle (E) -

ESA Whales

Blue Whale (E) -
Fin Whale (E) -
Humpback Whale (E) -
Southern Resident Killer Whale (E) -
North Pacific Right Whale (E) -
Sei Whale (E) -
Sperm Whale (E) -

ESA Pinnipeds

Guadalupe Fur Seal (T) -

Steller Sea Lion Critical Habitat -

Essential Fish Habitat

Coho EFH -

Chinook Salmon EFH -
Groundfish EFH -
Coastal Pelagics EFH -
Highly Migratory Species EFH -

MMPA Species (See list at left)

ESA and MMPA Cetaceans/Pinnipeds

**See list at left and consult the NMFS Long Beach office
[562-980-4000](tel:562-980-4000)**

MMPA Cetaceans -
MMPA Pinnipeds -

This Caltrans contact for this request is Michaela Koenig (District 5 Biologist) at:

California Department of Transportation

Environmental Stewardship Branch

50 Higuera Street, San Luis Obispo, CA 93401

michaela.koenig@dot.ca.gov

Phone: [805.549.3422](tel:805.549.3422) Cell: [805.748.4216](tel:805.748.4216)

Thank you,

Matt Willis | Senior Biologist

[LSA](#) | 285 South Street, Suite P

San Luis Obispo, CA 93401

[805-782-0745](tel:805-782-0745) Tel

[760-450-4071](tel:760-450-4071) Mobile

[Website](#)

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Darren Howe
Natural Resource Management Specialist
National Marine Fisheries Service
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777 Sonoma Ave., Room 325
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United States Department of the Interior

FISH AND WILDLIFE SERVICE

Ventura Fish And Wildlife Office

2493 Portola Road, Suite B

Ventura, CA 93003-7726

Phone: (805) 644-1766 Fax: (805) 644-3958



In Reply Refer To:

May 16, 2017

Consultation Code: 08EVEN00-2016-SLI-0425

Event Code: 08EVEN00-2017-E-00837

Project Name: Bradley Road Bridge Scour Repair Project

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

To Whom It May Concern:

The enclosed list identifies species listed as threatened and endangered, species proposed for listing as threatened or endangered, designated and proposed critical habitat, and species that are candidates for listing that may occur within the boundary of the area you have indicated using the U.S. Fish and Wildlife Service's (Service) Information Planning and Conservation System (IPaC). The species list fulfills the requirements under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 et seq.). Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the species list should be verified after 90 days. We recommend that verification be completed by visiting the IPaC website at regular intervals during project planning and implementation for updates to species lists following the same process you used to receive the enclosed list. Please include the Consultation Tracking Number in the header of this letter with any correspondence about the species list.

Due to staff shortages and excessive workload, we are unable to provide an official list more specific to your area. Numerous other sources of information are available for you to narrow the list to the habitats and conditions of the site in which you are interested. For example, we recommend conducting a biological site assessment or surveys for plants and animals that could help refine the list.

If a Federal agency is involved in the project, that agency has the responsibility to review its proposed activities and determine whether any listed species may be affected. If the project is a major construction project*, the Federal agency has the responsibility to prepare a biological assessment to make a determination of the effects of the action on the listed species or critical habitat. If the Federal agency determines that a listed species or critical habitat is likely to be adversely affected, it should request, in writing through our office, formal consultation pursuant to section 7 of the Act. Informal consultation may be used to exchange information and resolve conflicts with respect to threatened or endangered species or their critical habitat prior to a

written request for formal consultation. During this review process, the Federal agency may engage in planning efforts but may not make any irreversible commitment of resources. Such a commitment could constitute a violation of section 7(d) of the Act.

Federal agencies are required to confer with the Service, pursuant to section 7(a)(4) of the Act, when an agency action is likely to jeopardize the continued existence of any proposed species or result in the destruction or adverse modification of proposed critical habitat (50 CFR 402.10(a)). A request for formal conference must be in writing and should include the same information that would be provided for a request for formal consultation. Conferences can also include discussions between the Service and the Federal agency to identify and resolve potential conflicts between an action and proposed species or proposed critical habitat early in the decision-making process. The Service recommends ways to minimize or avoid adverse effects of the action. These recommendations are advisory because the jeopardy prohibition of section 7(a)(2) of the Act does not apply until the species is listed or the proposed critical habitat is designated. The conference process fulfills the need to inform Federal agencies of possible steps that an agency might take at an early stage to adjust its actions to avoid jeopardizing a proposed species.

When a proposed species or proposed critical habitat may be affected by an action, the lead Federal agency may elect to enter into formal conference with the Service even if the action is not likely to jeopardize or result in the destruction or adverse modification of proposed critical habitat. If the proposed species is listed or the proposed critical habitat is designated after completion of the conference, the Federal agency may ask the Service, in writing, to confirm the conference as a formal consultation. If the Service reviews the proposed action and finds that no significant changes in the action as planned or in the information used during the conference have occurred, the Service will confirm the conference as a formal consultation on the project and no further section 7 consultation will be necessary. Use of the formal conference process in this manner can prevent delays in the event the proposed species is listed or the proposed critical habitat is designated during project development or implementation.

Candidate species are those species presently under review by the Service for consideration for Federal listing. Candidate species should be considered in the planning process because they may become listed or proposed for listing prior to project completion. Preparation of a biological assessment, as described in section 7(c) of the Act, is not required for candidate species. If early evaluation of your project indicates that it is likely to affect a candidate species, you may wish to request technical assistance from this office.

Only listed species receive protection under the Act. However, sensitive species should be considered in the planning process in the event they become listed or proposed for listing prior to project completion. We recommend that you review information in the California Department of Fish and Wildlife's Natural Diversity Data Base. You can contact the California Department of Fish and Wildlife at (916) 324-3812 for information on other sensitive species that may occur in this area.

[*A Biological Assessment is required for construction projects (or other undertakings having

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

Attachment(s):

- Official Species List

Official Species List

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

This species list is provided by:

Ventura Fish And Wildlife Office

2493 Portola Road, Suite B

Ventura, CA 93003-7726

(805) 644-1766

Project Summary

Consultation Code: 08EVEN00-2016-SLI-0425

Event Code: 08EVEN00-2017-E-00837

Project Name: Bradley Road Bridge Scour Repair Project

Project Type: BRIDGE CONSTRUCTION / MAINTENANCE

Project Description: Monterey County, Bradley, CA

Project Location:

Approximate location of the project can be viewed in Google Maps:

<https://www.google.com/maps/place/35.86407834527972N120.81033016484858W>



Counties: Monterey, CA

Endangered Species Act Species

There is a total of 8 threatened, endangered, or candidate species on your species list. Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area. Please contact the designated FWS office if you have questions.

Mammals

NAME	STATUS
San Joaquin Kit Fox (<i>Vulpes macrotis mutica</i>) No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/2873	Endangered

Birds

NAME	STATUS
California Condor (<i>Gymnogyps californianus</i>) Population: U.S.A. only, except where listed as an experimental population There is a final critical habitat designated for this species. Your location is outside the designated critical habitat. Species profile: https://ecos.fws.gov/ecp/species/8193	Endangered
Least Bell's Vireo (<i>Vireo bellii pusillus</i>) There is a final critical habitat designated for this species. Your location is outside the designated critical habitat. Species profile: https://ecos.fws.gov/ecp/species/5945	Endangered
Southwestern Willow Flycatcher (<i>Empidonax traillii extimus</i>) There is a final critical habitat designated for this species. Your location is outside the designated critical habitat. Species profile: https://ecos.fws.gov/ecp/species/6749	Endangered

Amphibians

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

Crustaceans

NAME	STATUS
Vernal Pool Fairy Shrimp (<i>Branchinecta lynchi</i>) There is a final critical habitat designated for this species. Your location is outside the designated critical habitat. Species profile: https://ecos.fws.gov/ecp/species/498	Threatened

Flowering Plants

NAME

STATUS

Marsh Sandwort (*Arenaria paludicola*)

Endangered

No critical habitat has been designated for this species.

Species profile: <https://ecos.fws.gov/ecp/species/2229>

Purple Amole (*Chlorogalum purpureum*)

Threatened

There is a **final** [critical habitat](#) designated for this species. Your location is outside the designated critical habitat.

Species profile: <https://ecos.fws.gov/ecp/species/5531>

Critical habitats

There are no critical habitats within your project area.

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Appendix C California Red-legged Frog Site Assessment

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**CALIFORNIA RED-LEGGED FROG
SITE ASSESSMENT**

BRADLEY ROAD BRIDGE SCOUR REPAIR PROJECT

MONTEREY COUNTY, CALIFORNIA

May 23, 2016

Submitted To
**U.S. Fish and Wildlife Service Office
2493 Portola Road, Suite B
Ventura, California 93003**

Prepared For
**California Department of Transportation
District 5
50 Higuera Street
San Luis Obispo, California 93401-5415**

Prepared By

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TRC Project No. 226648

TABLE OF CONTENTS

INTRODUCTION	1
LOCATION OF THE BIOLOGICAL STUDY AREA	1
BIOLOGICAL STUDY AREA DESCRIPTION	1
PROJECT DESCRIPTION	1
CALIFORNIA RED-LEGGED FROG NATURAL HISTORY	1
METHODS	3
FINDINGS	5
CALIFORNIA RED-LEGGED FROG RECORDS	5
FIELD SURVEY	5
HABITAT AND COVER TYPES WITHIN THE BSA	5
HABITAT AND COVER TYPES WITHIN A MILE OF THE BSA	7
DISCUSSION AND CONCLUSION	9
LITERATURE CITED	11

APPENDICES

APPENDIX A: FIGURES

APPENDIX B: SITE PHOTOGRAPHS

APPENDIX C: DATA SHEETS AND FIELD NOTES

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INTRODUCTION

This report presents the results of a site assessment conducted by TRC for the California red-legged frog (*Rana draytonii*) at the Bradley Road Bridge Scour Repair Project Site, Monterey County, California. This assessment is being prepared as a supporting document for a Natural Environmental Study (NES) for Caltrans; therefore, the project area is referred to herein as the Biological Study Area (BSA) to be consistent with the NES. This assessment was conducted according to the United States Fish and Wildlife Service (USFWS) protocol for this federally listed threatened species (USFWS, 2005).

LOCATION OF THE BIOLOGICAL STUDY AREA

The BSA is located along Bradley Road, 0.40 mile east of Highway 101, 1.2 miles southeast of Jolon Road, in the community of Bradley, Monterey County, California within the United States Geological Survey 7.5 minute Bradley Quadrangle (see Figure 1 and 2 of Appendix A: Figures).

BIOLOGICAL STUDY AREA DESCRIPTION

The BSA includes half of the existing bridge (only the northeast section of the bridge, approximately 930 feet in length) and the Bradley Road right-of-way from approximately 0.40 mile through 0.60 mile northeast of the intersection of Bradley Road and Highway 101 (see Figure 1 of Appendix A: Figures). The BSA also extends 400 feet upstream and 450 feet downstream along the length of the east end of the existing bridge.

PROJECT DESCRIPTION

The County of Monterey Public Works Department proposes to repair the east section of the existing bridge (Bridge No. 44C-0050) that crosses over the Salinas River along Bradley Road. The existing bridge currently traverses the moderate flow channel of the river. The concrete pilings are submerged in the Salinas River, and over time, a scour problem developed at the base of the concrete pilings. While this is a natural phenomenon, the scour problem is beginning to threaten the stability of the bridge structure.

Monterey County proposes to repair the scouring at the base of the piers. The proposed work would replace the lost soils at the bridge foundations, and then install protection measures to reduce future scour, such as large rocks or a concrete slope. Protection measures would safeguard both the channel and foundations from high water velocities by dissipating energy, particularly during storm events. The reduced velocity slows or eliminates the erosion associated with scour damage.

CALIFORNIA RED-LEGGED FROG NATURAL HISTORY

California red-legged frogs occur primarily in perennial or ephemeral ponds, pools, and streams where water remains long enough (14 to 28 weeks) for breeding and metamorphosis of tadpoles (Fellers, 2005; Jennings and Hayes, 1994). Specific breeding sites include streams, creeks,

ponds, marshes, sag ponds, deep pools, backwater areas, dune ponds, lagoons, and estuaries. In addition, aquatic habitat that is not suitable for breeding may be used by California red-legged frog for shelter, foraging, and aquatic dispersal. California red-legged frogs may disperse from their aquatic breeding habitats to small mammal burrows, moist leaf litter, or other refugia for shelter and foraging during the dry season. However, if there is sufficient water at their breeding location, they may remain in aquatic habitats year-round instead of moving to adjacent uplands. Upland habitat may also be used for dispersal between occupied locations within approximately 1 mile of each other.

METHODS

TRC Solutions, Inc. (TRC) conducted a site assessment of the BSA on June 17, 2015. The field survey included an evaluation of aquatic habitats, including on-site wetlands and uplands as potential habitat for California red-legged frogs, within a 1-mile radius of the BSA. Also, LSA Associates, Inc. conducted a botanical survey and wetland delineation on April 20, 2015.¹

TRC biologists Mark Cassady and Marla Despas conducted the habitat assessment within the BSA and surrounding habitats. LSA botanist Tim Milliken conducted the plant identification survey and LSA soil scientist Chip Bouril conducted the wetland delineation. During the field visit the entire BSA was covered on foot. Observations were recorded in a field notebook and on-site habitats were photographed (see Appendix B: Site Photographs). The BSA within the Salinas River and adjacent riparian area extends approximately 70 feet upstream and 70 feet downstream of Bradley Road Bridge.

The upland and aquatic habitat types present within 1 mile of the BSA were identified using aerial imagery and during the field visit. Aquatic features along the length of the Salinas River, flowing at the time of survey, within 1 mile of the BSA were surveyed for California red-legged frogs during the site assessment. Most of the lands surrounding the BSA are private annual grassland, utilized for cattle grazing, and access was not allowed on these lands. However, portions of these areas could be viewed from public roads and aerial imagery.

The California Natural Diversity Database (CNDDB, 2014) was searched for records of California red-legged frogs within a 1-mile radius of the BSA (see Figure 2 of Appendix A: Figures). The intent of the database review was to determine the closest documented records of California red-legged frogs to the BSA. Additionally, the Recovery Plan for the California red-legged frog (USFWS, 2002) and other literature pertaining to the distribution and life history were reviewed.

¹ Additional focused wildlife and botanical surveys were conducted during the spring and summer of 2015 by LSA biologists.

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FINDINGS

CALIFORNIA RED-LEGGED FROG RECORDS

The BSA is within the historical geographic range of the California red-legged frog (Fellers, 2005; Jennings and Hayes, 1994; Stebbins, 2003; USFWS 2002), but there are few records of this species from the Salinas River. There are no records of California red-legged frog within 3 miles of the BSA (see Figure 2 of Appendix A: Figures). The only known record in the Salinas River is 89 river miles² downstream of the BSA, CNDDDB occurrence (#997) recorded on May 4, 2009, in a rainwater pool formed within a water diversion facility. There is also a record where one adult was observed along Vaqueros Creek, a tributary of the Salinas River, 39 miles northwest of the BSA, CNDDDB occurrence (# 1002) recorded on April 18, 2008 (CNDDDB, 2014). Other records for the species appear within tributaries to the upper Salina River north of Santa Margarita.

Protocol surveys for California red-legged frog were conducted for the Nacimiento Water Project that included one site on the Nacimiento River, and tributaries to the Salinas River near Wellsona, Templeton, and Atascadero. In addition, protocol surveys for arroyo toad (*Bufo californicus*) were conducted within the Salinas River near Paso Robles and Atascadero. These surveys identified bullfrog (*Rana catesbeiana*) and Pacific (Sierran) chorus frog (*Pseudacris regilla [sierra]*). They further reported that California red-legged frog has not been reported on the Camp Roberts military base (ESA, 2005). The Salina River passes through the military base approximately 0.6 mile upstream of the BSA.

FIELD SURVEY

A primary objective of the field survey was to determine if suitable California red-legged frog aquatic and upland habitat is present within the BSA and surrounding habitats within a 1-mile radius. The habitat assessment was conducted during the day under conditions favorable to the observation of California red-legged frogs and associated habitat; however, this species was not observed.

During the field survey numerous Sierran chorus frogs (*Pseudacris sierra*) were observed in the BSA along the bank of the Salinas River within floating and emergent vegetation. Fields notes are provided in Appendix C.

HABITAT AND COVER TYPES WITHIN THE BSA

Land cover types within the boundaries of the BSA are described below. The cover types supporting natural and/or semi-natural vegetation types were characterized according to *A Manual of California Vegetation* (Second Edition) (Sawyer et al. 2009). Photographs of the river and its features and upland habitat are included in Appendix B. Photograph 1 and 2 shows the river and its features, photographs 3 through 5 show upland habitats and features described in the text (see Appendix B: Site Photographs).

² A river mile is a measure of distance in miles along a river from its mouth.
Bradley Road Bridge Scour Repair Project
California Red-legged Frog Site Assessment

Terrestrial Habitats

Fremont Cottonwood Forest (*Populus fremontii* Forest Alliance). The Fremont cottonwood forest present in the BSA is a mature stand on the east and west side of the Salinas River and floodplain. This stand contains large trees in height with a mostly open canopy consisting of white alder (*Alnus rhombifolia*), oaks (*Quercus* spp.), southern black walnut (*Juglans californica*), and boxelder (*Acer negundo*). The understory is dominated by Italian thistle (*Carduus pycnocephalus*), white goosefoot (*Chenopodium album*), mustards (*Brassica* spp.), curly dock (*Rumex crispus*), ripgut (*Bromus diandrus*), poison oak (*Toxicodendron diversilobum*), and Turkey-mullein (*Croton setiger*) along the upper bank. Cottonwood forests are potential upland habitat for California red-legged frogs.

Red willow thickets (*Salix laevigata* Woodland Alliance). Within the BSA, red willow thickets co-dominate on the east and west side of the Salinas River upstream and downstream of the existing bridge. This stand includes a multi-layered canopy with willows (*Salix* spp.), Fremont cottonwoods, and oaks. Tall flatsedge (*Cyperus eragrostis*), broad leaf filaree (*Erodium botrys*), common horsetail (*Equisetum arvense*), irisleaf rush (*Juncus xiphioides*), plantain (*Plantago* spp.), Chilean rabbitsfoot grass (*Polypogon australis*), and stinging nettle (*Urtica dioica*) compose the understory. Willow thickets are potential upland habitat for California red-legged frogs when the river is not in flood.

Arroyo willow thickets (*Salix lasiolepis* Scrubland Alliance). Within the BSA, arroyo willow co-dominate the upper edge of the Salinas River and associated floodplain. Willow thickets are potential upland habitat for California red-legged frogs when the river is not in flood.

Sandbar willow thickets (*Salix exigua* Scrubland Alliance). Within the BSA, sandbar willow co-dominate on the upper edge of the Salinas River and associated floodplain. Willow thickets are potential upland habitat for California red-legged frogs when the river is not in flood.

Annual Grassland. The northeast portion of the BSA is annual grassland dominated by soft brome (*Bromus hordeaceus*), foxtail barley (*Hordeum murinum*), slender oat (*Avena barbata*), fescue (*Festuca* spp.), yellow star thistle (*Centaurea solstitialis*), mustards, and Italian thistle. The grassland is used primarily for cattle grazing. This habitat provides suitable dispersal and upland habitat for California red-legged frogs when the river is not in flood.

Aquatic Habitats

Salinas River. The Salinas River within the BSA is a low gradient stream flowing over a sandy and gravelly bed (see Photographs 1 through 3 in Appendix B: Site Photographs). The flow of the river varies from run, riffle, and glide along the BSA with multiple braided channels upstream that merge into one flowing channel downstream of the bridge. American beavers (*Castor canadensis*) occur in the Salinas River. An American beaver dam, located at the existing bridge along the southwestern corner of the BSA, has formed a shallow pool (about 1 to 2 feet deep) (see Photograph 5 of Appendix B: Site Photographs). In addition, multiple smaller pools, along the north side of the Salinas River, have resulted from beaver dams, and a backwater pool formed by scour around a piling from a defunct bridge located approximately 0.2 mile upstream

of the existing bridge. The low flows observed in the pools during the site visit showed little evidence of current and provide a still, warm water aquatic habitat. Upstream and downstream of the bridge pool the river is shallow and slow moving with moderate flow of clear water. Emergent and floating vegetation line the channel and pool edges and also forms broad shallow-water habitat in places supporting species such as tall cyperus (*Cyperus eragrostis*), pondweed (*Elodea canadensis*), field horsetail (*Equisetum arvense*), irisleaf rush (*Juncus xiphioides*), and duckweed (*Lemna* sp.).

Schools of fish were observed in the stream (they were not positively identified but believed to be Sacramento pike minnow [*Ptychocheilus grandis*] as observed with 10 by 40 binoculars). Also, a substantial number of non-native crayfish (*Procambarus clarkii*) were observed throughout aquatic habitat of the Salinas River, and are known to eat tadpoles and uproot plants that may contain egg masses (USFWS, 2002). The deeper pools within the BSA appeared suitable for adult and sub-adult California red-legged frogs, although very high flows during the winter and spring months would make the river risky for egg masses and tadpoles. The shallow water areas with emergent vegetation appeared suitable for juvenile frogs. These areas were carefully searched and numerous Sierran chorus frogs were identified. Due to the presence of predators, lack of nearby breeding habitat, the lack of records, and negative survey results, the Salinas River is unlikely to provide suitable aquatic habitat for California red-legged frogs.

HABITAT AND COVER TYPES WITHIN A MILE OF THE BSA

The habitat and cover types within 1 mile of the proposed project site are described below. The cover types were identified primarily from aerial photographs, as well as from those features that could be observed from public roads.

Fremont Cottonwood Forest (*Populus fremontii* Forest Alliance). As discussed above, Fremont cottonwood forest line the east and west side of the Salinas River and floodplain. Cottonwood forests are potential upland habitat for California red-legged frogs.

Red willow thickets (*Salix laevigata* Woodland Alliance). As discussed above, red willow thickets co-dominate the east and west side of the Salinas River upstream and downstream of the existing bridge. Willow thickets are potential upland habitat for California red-legged frogs when the river is not in flood.

Arroyo willow thickets (*Salix lasiolepis* Scrubland Alliance). As discussed above, arroyo willow co-dominate the upper edge of the Salinas River and floodplain. Willow thickets are potential upland habitat for California red-legged frogs when the river is not in flood.

Sandbar willow thickets (*Salix exigua* Scrubland Alliance). As discussed above, sandbar willow co-dominate the upper edge of the Salinas River and floodplain. Willow thickets are potential upland habitat for California red-legged frogs when the river is not in flood.

Oak Woodlands and Annual Grassland. Oak woodlands, dominated by oaks including, valley oak (*Quercus lobata*), blue oak (*Quercus douglassii*), and annual grassland occur in the hills surrounding the BSA. The area to the north of the BSA is dominated by annual grassland; such as brome, fescue, yellow star thistle, mustard, and Italian thistle. These plant communities

provide suitable upland habitat for California red-legged frogs.

Developed Lands and Roads. The community of Bradley is located in the eastern portion of the 1-mile buffer around the BSA. This developed area is primarily rural residential housing. As noted above the primary roadways in the area are Bradley Road and Highway 101. Bradley Road experiences relatively low traffic and Highway 101 experiences high traffic, including cars and trucks.

Rivers and Drainages. No ponds were identified within 1 mile of the BSA. The primary drainage within 1 mile of the BSA is the Salinas River. The San Antonio River merges with the Salinas River from the southwest (See Figure 3 of Appendix A: Figures). As noted above, the Salinas River is a low gradient stream flowing over a sandy and gravelly bed. Beavers create dams that form pools along the Salinas River. Both rivers are bordered by riparian habitat. There are ephemeral drainages within the valleys bordered by oak woodland, which are natural flow corridors during rain events. Due to aquatic predatory species within the rivers and absence of suitable aquatic habitat within the drainages, these aquatic features are unlikely to provide suitable habitat for California red-legged frogs.

DISCUSSION AND CONCLUSION

The BSA is within the presumed historic range of California red-legged frogs. There are no known CNDDDB records within 3 miles of the BSA (see Figure 2 of Appendix A: Figures). The only known record in the main branch of the Salinas River is 89 river miles downstream of the BSA, CNDDDB occurrence (#997) recorded May 4, 2009, in a rainwater pool formed within a water diversion facility. There is also a record of one adult observed along Vaqueros Creek, a tributary of the Salinas River, 39 miles northwest of the BSA, CNDDDB occurrence (#1002) recorded April 18, 2008. Though there are other occurrences within tributaries of the Salinas River, there are no other known records of California red-legged frog within the main branch of the Salinas River (CNDDDB 2014).

The habitat along the Salinas River in the BSA contains elements of suitable California red-legged frog habitat and similar riparian/aquatic habitat extends upstream and downstream in the Salinas River (e.g., pools 2 feet or greater in depth, emergent aquatic vegetation, and upland habitat). However, numerous predatory fish and crayfish were observed in the Salinas River and it is unlikely California red-legged frog would be able to successfully reproduce in this environment.

Other than the habitat described within the river, there is no aquatic habitat within 1 mile of the BSA that contain elements suitable for California red-legged frog, and there are no records of this species from the BSA and the surrounding area. Furthermore, California red-legged frogs were not detected within potentially suitable habitat during the habitat assessment.

Based on the above discussion, TRC believes that California red-legged frogs are not likely to occur within the BSA of the Bradley Road Bridge Replacement Project. While we believe that California red-legged frogs in this reach of the river are unlikely to occur, Caltrans may choose to seek coverage for this species under the Programmatic Biological Opinion due to the marginally suitable aquatic habitat.

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- ESA, 2005. Nacimiento Water Project. California Red-legged Frog and Arroyo Toad Survey Report. August 24, 2005. Prepared for the Environmental Programs Division, Department of Public Works, County of San Luis Obispo.
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- Jennings, M.R. and M.P. Hayes. 1994. Amphibian and Reptile Species of Special Concern in California. The California Department of Fish and Game, Inland Fisheries Division. Rancho Cordova, California.
- Sawyer, J.O., T. Keeler-Wolf, and J.M. Evens. 2009. A Manual of California Vegetation (Second Edition). California Native Plant Society in collaboration with the California Department of Fish and Game. Sacramento, California.
- U.S. Fish and Wildlife Service (USFWS). 2005. Revised Guidance on Site Assessment and Field Surveys for the California Red-legged Frog. U. S. Fish and Wildlife Service. Dated August, 2005.
- _____. 2002. Recovery Plan for the California Red-legged Frog (*Rana aurora draytonii*). U.S. Fish and Wildlife Service, Portland, Oregon. May 2002. 173 pp.

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APPENDIX A: FIGURES



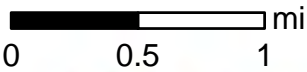
Figure 1
Project Location and
Biological Study Area

Bradley Road Bridge
Scour Repair Project



- ★ Project Location
- BSA Boundary

1:48,000



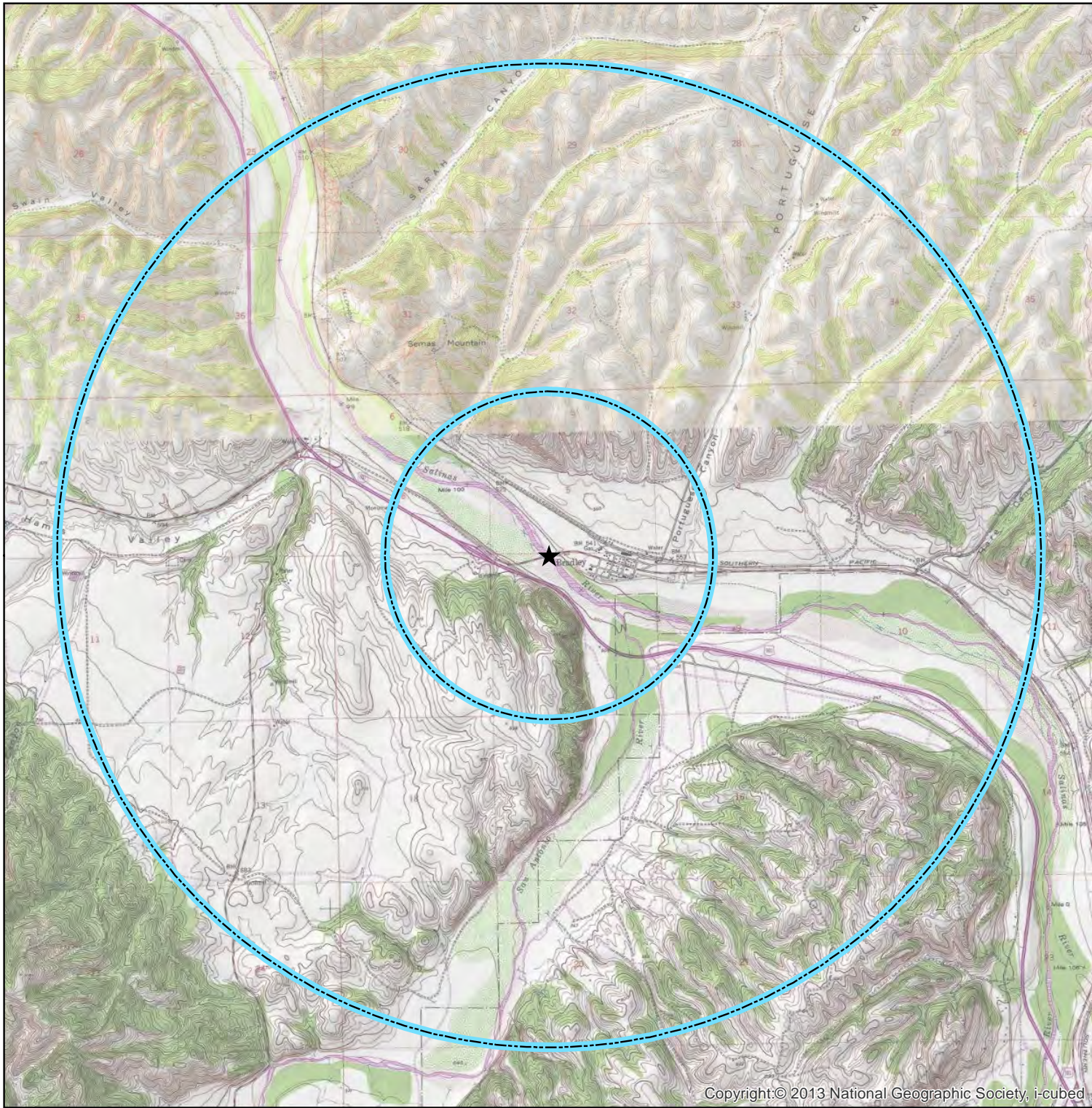


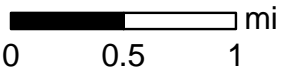
Figure 2
California Red-legged Frogs
CNDDB Occurrences within
1 and 3 miles

Bradley Road Bridge
Scour Repair Project

- ★ Project Location
- 1- & 3-mile Project Buffer

CNDDB version 09/2015. Please Note: The occurrences shown on this map represent the known locations of the species listed here as of the date of this version. There may be additional occurrences or additional species within this area which have not yet been surveyed and/or mapped. Lack of information in the CNDDB about a species or an area can never be used as proof that no special status species occur in an area.

1:54,000



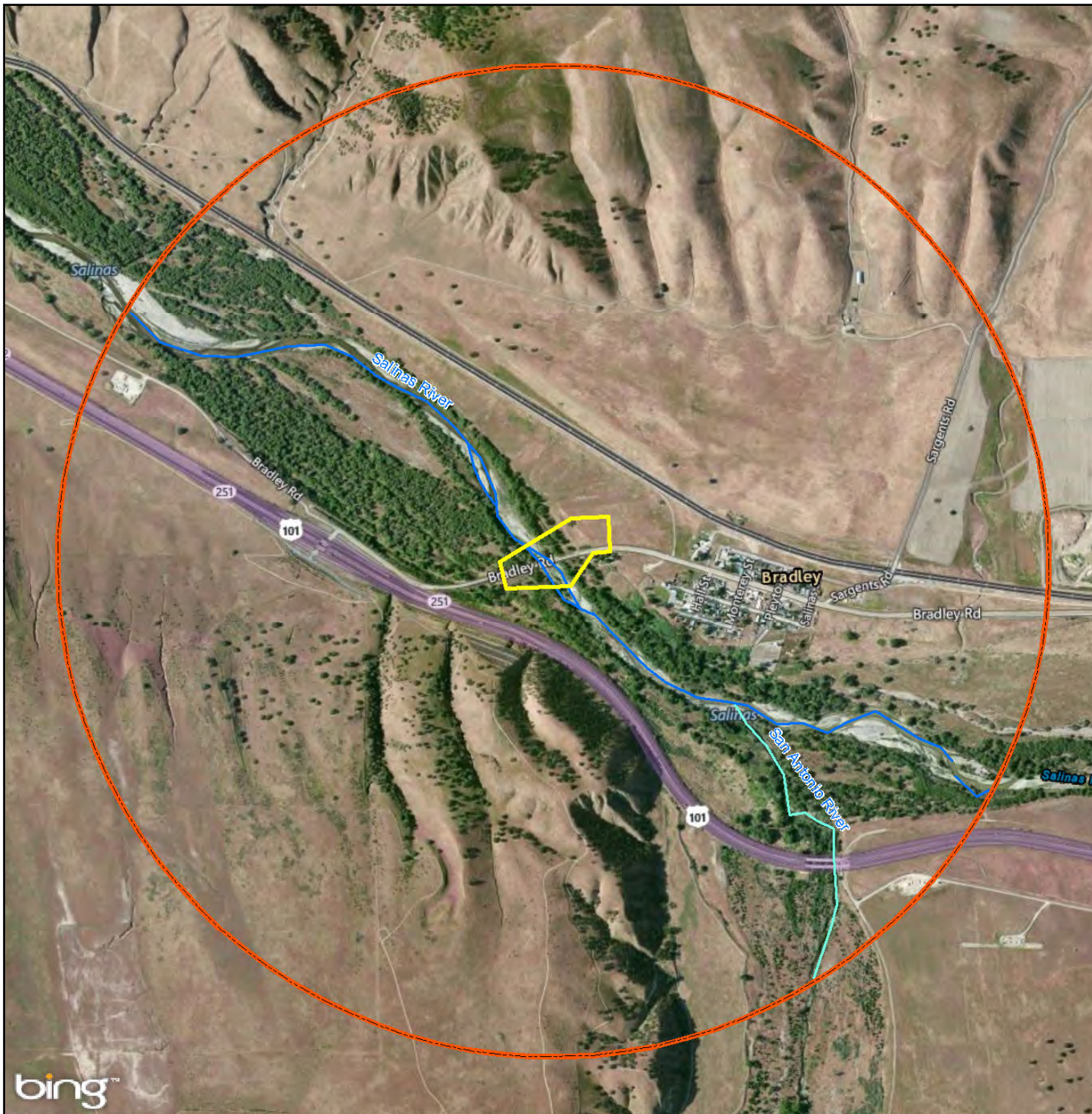






Figure 3
Waterways within 1 mile of
the Biological Study Area

Bradley Road Bridge
Scour Repair Project

-  Biological Study Area Boundary
-  1-mile Project Buffer
-  Salinas River
-  San Antonio River

1:18,000

0 0.2 0.4 mi



APPENDIX B: SITE PHOTOGRAPHS

APPENDIX B: SITE PHOTOGRAPHS



Photo 1: View of the east end of the Bradley Road Bridge from the Salinas River bed.



Photo 2: Salinas River from the bank under Bradley Road Bridge.



Photo 3: Downstream of Salinas River from the east end of Bradley Road Bridge.



Photo 4: Upland habitat near the Bradley Road Bridge.



Photo 5: Beaver dam upstream of the Biological Study Area.



Photo 6: Pooled water along the Salinas River within Biological Study Area.

APPENDIX C: DATA SHEETS AND FIELD NOTES

Appendix D.
California Red-legged Frog Habitat Site Assessment Data Sheet

STREAM:

Bank full width: 30 feet

Depth at bank full: 1.2 feet

Stream gradient: 40%

Are there pools (circle one)? YES NO

If yes,

Size of stream pools: 5-30 feet

Maximum depth of stream pools: 1-2 feet

Characterize non-pool habitat: run, riffle, glide, other: Salinas River varies
in flow from run, riffle, and glide. A few pools
were observed along river edges.

Vegetation: emergent, overhanging, dominant species: willow, cottonwood,
oaks, Rumex sp.

Substrate: gravel and sand

Bank description: vegetated-moderate

Perennial or Ephemeral (circle one). If ephemeral, date it goes dry: unknown

Other aquatic habitat characteristics, species observations, drawings, or comments:

Cliff swallows observed nesting under bridge above
Salinas River. Evidence of beavers along shore and dams.
Great blue heron, red swamp crayfish
Sierran treefrog - numerous along the shoreline.
Pools approx 9-15 inches deep
sting nettle along shore
grassland/oaks to the north

Necessary Attachments:

1. All field notes and other supporting documents
2. Site photographs
3. Maps with important habitat features and species location

Appendix D.
California Red-legged Frog Habitat Site Assessment Data Sheet

Site Assessment Worksheet

Date of Site Assessment: 06/18/2015
(mm/dd/yyyy)

Site Assessment Biologists: Cassady Mark
(Last name) (first name)

(Last name) (first name)

Despas Marla
(Last name) (first name)

(Last name) (first name)

Site Location: Monterey County, Bradley, 35.864059, -120.80977
(County, General location name, UTM Coordinates or Lat./Long. or T-R-S).

****ATTACH A MAP** (include habitat types, important features, and species locations)**

Proposed project name: Bradley Rd Bridge Scour Repair
Brief description of proposed action:

Repair erosion around bridge piers caused by the river.

1) Is this site within the current or historic range of the CRF (circle one)? YES NO

2) Are there known records of CRF within 1.6 km (1 mi) of the site (circle one)? YES NO
If yes, attach a list of all known CRF records with a map showing all locations.

GENERAL AQUATIC HABITAT CHARACTERIZATION
(if multiple ponds or streams are within the proposed action area, fill out one data sheet for each)

POND:

Size: _____

Maximum depth: _____

Vegetation: emergent, overhanging, dominant species: _____

Substrate: _____

Perennial or Ephemeral (circle one). If ephemeral, date it goes dry: _____

Appendix D Wetland Delineation

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July 8, 2015

Katerina Galacatos
South Branch Chief
U. S. Army Corps of Engineers
1455 Market Street, 16th Floor
San Francisco, CA 94103-1398

Subject: Request for Verification of Jurisdictional Delineation, Bradley Road Bridge Scour
Repair Project, Unincorporated Monterey County, California

Dear Katerina:

On behalf of the Monterey County Resource Management Agency - Public Works Department, LSA Associates, Inc. (LSA) is requesting verification of the extent of U.S. Army Corps of Engineers (Corps) jurisdiction under Section 404 of the Clean Water Act on the Bradley Road Bridge Scour Repair Project Study Site in unincorporated Monterey County near the Town of Bradley, California. This letter reports the results of a delineation performed by LSA of the potential extent of waters of the United States, including wetlands, on the study site.

SITE DESCRIPTION

The study site is located at the Bradley Road bridge over the Salinas River, along the eastern side of U. S. Highway 101, approximately 1/3 mile southeast of the Bradley Road/Jolon Road intersection with Highway 101 (Figures 1 and 2). The study site comprises a portion of APN 424-101-020-000 and has an area of approximately 13.96 acres. The site is located within the northwest ¼ Section 8, Townships 24 South, Range 11 East on the Bradley, California, 7.5 minute USGS quadrangle. The site is centered at approximately 35.864° N latitude and 120.810° W longitude.

The western portion of the study site is centered on the Salinas River channel, while the eastern portion of the study site includes a river terrace and a large potential staging area north of Bradley Road.

Vegetation in the river channel and the riparian channel banks includes Fremont cottonwood (*Populus fremontii*), red willow (*Salix laevigata*), mule-fat (*Baccharis salicifolia*), field horsetail (*Equisetum arvense*), watercress (*Nasturtium officinale*), water primrose (*Ludwigia peploides*), seep-spring monkeyflower (*Mimulus guttatus*), soft rush (*Juncus effuses*), iris-leaf rush (*J. xiphioides*). Vegetation on the portions of the study site away from the channel includes coast live oak (*Quercus agrifolia*), ruderal annual grasses and forbs, and coyote brush (*Baccharis pilularis*).

Soils on the study site are mapped as Chualar loam, 0 to 2 percent slopes (Soil Map Unit CbA); Psamments and Fluvents, occasionally flooded (Pr), and Psamments and Fluvents, frequently flooded

(Ps). Of these soil map units, only Psammets and Fluvents, frequently flooded is listed as predominantly hydric and the Psammets and Fluvents, occasionally flooded is listed as partially hydric.

The entire study site drains into the Salinas River, which drains northwestward to Monterey Bay in the Pacific Ocean approximately 83 miles northwest of the study site. The Pacific Ocean is a traditional navigable water of the United States.

REGULATORY BACKGROUND

Clean Water Act Jurisdiction

The Corps is responsible under Section 404 of the Clean Water Act (CWA) to regulate the discharge of fill material into waters of the United States. Waters of the United States and their lateral limits are defined in 33 CFR Part 328.3 (a) and include streams that are tributaries to navigable waters and their adjacent wetlands. The lateral limits of jurisdiction for a non-tidal stream are measured at the line of the Ordinary High Water Mark (OHWM) or the limit of adjacent wetlands. Any permanent extension of the limits of an existing water of the United States, whether natural or man-made, results in a similar extension of Corps jurisdiction.

Waters of the United States fall into two categories: wetlands and non-wetland waters. Wetlands include marshes, meadows, seep areas, floodplains, basins, and other areas experiencing extended seasonal soil saturation and dominated by wetland plant cover. Non-wetland waters include water bodies and watercourses such as rivers, streams, lakes, springs, ponds, coastal waters, and estuaries.

Waters and wetlands that cannot trace a continuous hydrological connection to a navigable water of the United States are not tributary to waters of the United States. These are termed "isolated wetlands." Isolated wetlands are jurisdictional when their destruction or degradation can affect interstate or foreign commerce.

In general, a Corps permit must be obtained before placing fill in wetlands or other waters of the United States. The type of permit depends on the acreage involved and the purpose of the proposed fill.

METHODS

The field investigations of potentially jurisdictional wetlands occurring on the study site were conducted using the routine determination method given in the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987) and the revised procedures in the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0)* (Arid West Supplement) (U.S. Army Corps of Engineers 2008). This methodology entails examination of specific sample points within potential wetlands for hydrophytic vegetation, hydric soils, and wetland hydrology. By the federal definition, all three parameters must be present for an area to be considered a wetland.

Hydrophytic plant species are listed by the U.S. Fish and Wildlife Service in *National List of Plant Species That Occur in Wetlands* (Reed 1988). The *National List* identifies five categories of plants according to their frequency of occurrence in wetlands. The categories are:

Obligate wetland plants (OBL)	Plants that occur almost always in wetlands
Facultative wetland plants (FACW)	Plants that usually occur in wetlands
Facultative plants (FAC)	Plants that are equally likely to occur in wetlands or non-wetlands
Facultative upland plants (FACU)	Plants that usually occur in uplands
Obligate upland plants (UPL)	Plants that occur almost always in non-wetlands

An area is generally considered to have hydrophytic vegetation when more than 50 percent of the dominant species in each stratum (tree, shrub, and herb) are in the obligate wetland, facultative wetland, or facultative categories.

Hydric soils are defined by criteria set forth by the National Technical Committee for Hydric Soils (NTCHS). These criteria are given in the *Wetlands Delineation Manual* and are based on depth and duration of soil saturation. Hydric soils are commonly identified in the field by using indirect indicators of saturated soil, technically known as redoximorphic features. These features are caused by anaerobic, reduced soil conditions that are brought about by prolonged soil saturation. The most common redoximorphic features are distinguished by soil color, which is strongly influenced by the frequency and duration of soil saturation. Hydric soils tend to have dark (low chroma) colors which are often accompanied by reddish mottles (iron mottles), reddish stains on root channels (oxidized rhizospheres), or gray colors (gleying). The Arid West Supplement contains descriptions of numerous federally-recognized hydric soil indicators.

Under natural conditions, development of hydrophytic vegetation and hydric soils are dependent on a third characteristic, wetland hydrology. This criterion is met if the area experiences inundation or soil saturation to the surface for a period equal to at least five (5) percent of the growing season (about 14 days in the region of the study site) in a year of median rainfall. In most cases, this criterion can only be measured directly by monitoring of the site through an entire wet season. In practice, the hydrological status of a particular area is usually evaluated using indirect indicators. Some of the indicators that are commonly used to identify wetland hydrology include biotic crusts and oxidized rhizospheres around roots. The Arid West Supplement gives thorough descriptions of numerous federally-recognized indicators of wetland hydrology.

FIELD METHODS

LSA soil scientist, Chip Bouril, investigated the site on April 21, 2015 and on June 14, 2016. The last significant rainfall occurred in early February 2015 and in March 2016.

Wetland boundaries and sample point locations were mapped using a global position system (GPS) receiver with sub-meter accuracy. Wetland boundaries were determined by following a combination of the limits of hydrophytic vegetation, the limits of observed wetland hydrology, topographic breaks, and aerial ortho-photo interpretation.

LSA established 8 sample points on the study site. Their locations are shown on Figure 3.

OBSERVATIONS

Other Waters of the United States – Salinas River Channel

At the project site, the Salinas River is somewhat braided with multiple low flow channels separated by gravel bars. The unvegetated low flow channels were flowing during the April 2015 and June 2016 site investigations. Most of the margins of these low flow channels were lined with hydrophytic vegetation, which, although they are within the ordinary high water mark OHWM of the Salinas River, are discussed separately as potential wetlands.

The OHWM edge of the Salinas River channel is mapped at the top of a 3 to 6-foot tall bank bounding the active channel. Above this OHWM, the soil is covered with a thick turf of non-hydrophytic grasses, while below, much of the soil is bare gravels or only partially vegetated. Mature riparian trees, primarily willows and cottonwoods, occur mostly above the OHWM and not below in the active channel.

The potential jurisdictional area of the Salinas River within its OHWM is mapped in three different categories: open water low-flow channels, channel margin wetlands as described below, and as dry land below the OHWM elevation which is mostly vegetated with non-hydrophytic plant species and does not show any other wetland characteristics, as illustrated by Sample Points 3, 7, and 8. Both the open water and non-wetland dry land below the OHWM elevation are delineated as Other Waters of the United States. The potential jurisdictional area of the open water is 27,575 sq. ft. (0.633 acre) and the potential jurisdictional area of the dry land below OHWM is 71,800 sq. ft. (1.648 acre), for a total of 99,375 sq. ft. (2.281 acres).

Wetlands – Streambed Wetlands

Many of the margins of the Salinas River low flow channels were lined with hydrophytic vegetation such as water primrose, watercress, seep-spring monkeyflower, rabbit's-foot grass (*Polypogon monspeliensis*), and Chilean rabbit's-foot grass (*Polypogon australis*) during the site investigations. If the river flow remains relatively constant through the summers (upstream reservoirs likely release a steady river maintenance flow), these bands of hydrophytic vegetation may persist through the dry seasons.

Sample Points 2 and 6 were placed in these hydrophytic vegetation bands. Both sample points were dominated by plant species which meet jurisdictional hydrophytic plant criteria. The coarse sand and gravel soils at both sample points do not contain any redoximorphic mottling or other hydric soil indicators, but the observed saturation and water table near the surface meets both hydric soil and wetland hydrology criteria. The bands of hydrophytic vegetation therefore meet jurisdictional wetland criteria and are mapped as wetlands.

A beaver dam in the southwestern-most channel blocks enough of its flow that the downstream channel has been colonized by hydrophytic vegetation and is mapped as wetland. A small gravel bar just upstream of the bridge is low enough that it is completely vegetated with hydrophytic plants and

is mapped as wetland. An abandoned channel to the southeast of the bridge contains a large area of emergent wetland vegetation and some open water. Other gravel bar areas are high enough above the low flow channel water table that their vegetation is dominated by non-hydrophytic species as illustrated by Sample Points 3 and 7, which do not meet jurisdictional wetland criteria.

A scour hole basin at the upstream end of the westernmost bridge pier and below the river's OHWM was vegetated with water primrose, seep-spring monkeyflower, and rabbit's-foot grass, and contained saturated soil during the 2015 site investigation and ponding during the 2016 site investigation, indicating the basin is near the elevation of the river channel's water table. This basin is also mapped as meeting jurisdictional wetland criteria and its area is included in the river channel wetland s.

The mapped river channel wetlands have a total potential jurisdictional area of 20,035 sq. ft. (0.460 acre). The Corps may choose to claim jurisdiction for these features as wetlands separate from the remainder of the Salinas River channel or instead include them as a portion of the Other Waters of the United States Salinas River channel.

Other Observations

Sample Point 5 was placed in a patch of soft rush located on a slight mound. Although the vegetation, dominated by soft rush, likely meets jurisdictional hydrophytic plant criteria, no hydric soil or wetland hydrology indicators were observed and the area does not meet jurisdictional wetland criteria.

Other than at the potential jurisdictional features described above, no wetland plant cover or potential watercourses were observed on portions of the study area beyond the limits of the Salinas River channel OHWM.

CONCLUSIONS

LSA has determined that the potential Section 404 waters of the United States on the Bradley Road Bridge Scour Repair Project Study Site are confined to the Salinas River, which contains Other Waters of the United States with an area of 2.281 acres and wetlands with an area of 0.460 acre, for a total jurisdictional area of 2.741 acres. These potential jurisdictional features, study site boundaries, and sample point locations are mapped on Figure 3, which is attached.

The findings and conclusions presented in this report, including the location and extent of other waters subject to regulatory jurisdiction, represent the professional opinion of LSA. These findings and conclusions should be considered preliminary until verified by the Corps.

Please contact me or Tim Lacy at (510) 236-6810 to schedule a verification visit.

Sincerely,

LSA ASSOCIATES, INC.



Chip Bouril
Wetland Scientist

Attachments: Figure 1: Regional Location Map
Figure 2: Site Location Map
Figure 3: Delineation Map
Data Sheets 1 through 8

cc: Tim Lacy, LSA
Pam Reading, LSA
Mark Imbriani, TRC
Enrique Saavedra, Monterey County
Michaela Koenig, Caltrans

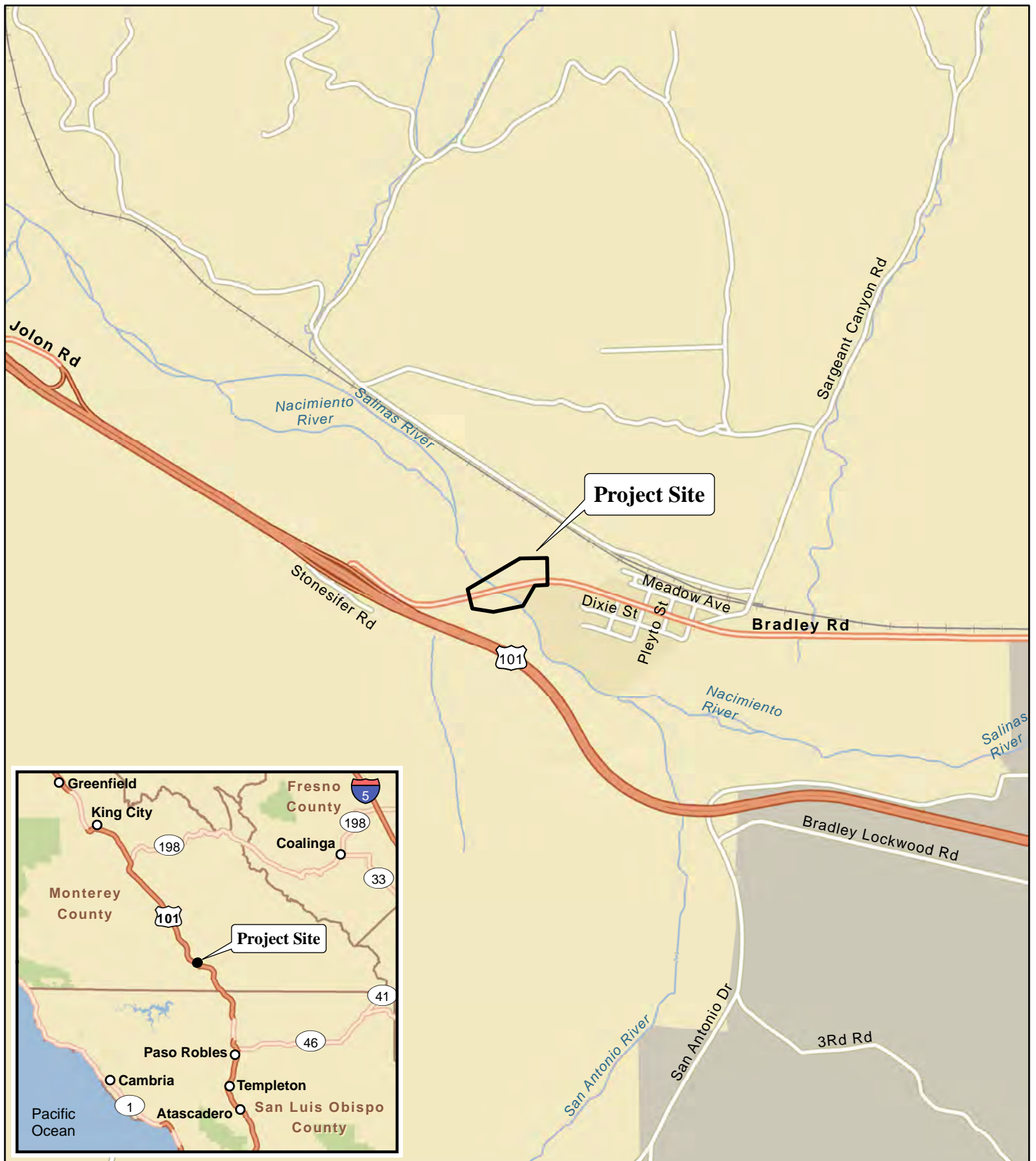
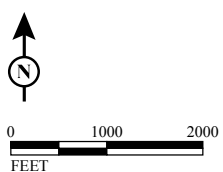


FIGURE 1

LSA



SOURCE: ESRI StreetMap North America (2012).

E:\TRT1501\GIS\Maps\Delineation\Figure 1_Regional Location.mxd (6/28/2016)

Bradley Road Bridge Scour Repair Project
Monterey County, California
Federal Project Number BHLO-5944(100)
Regional Location

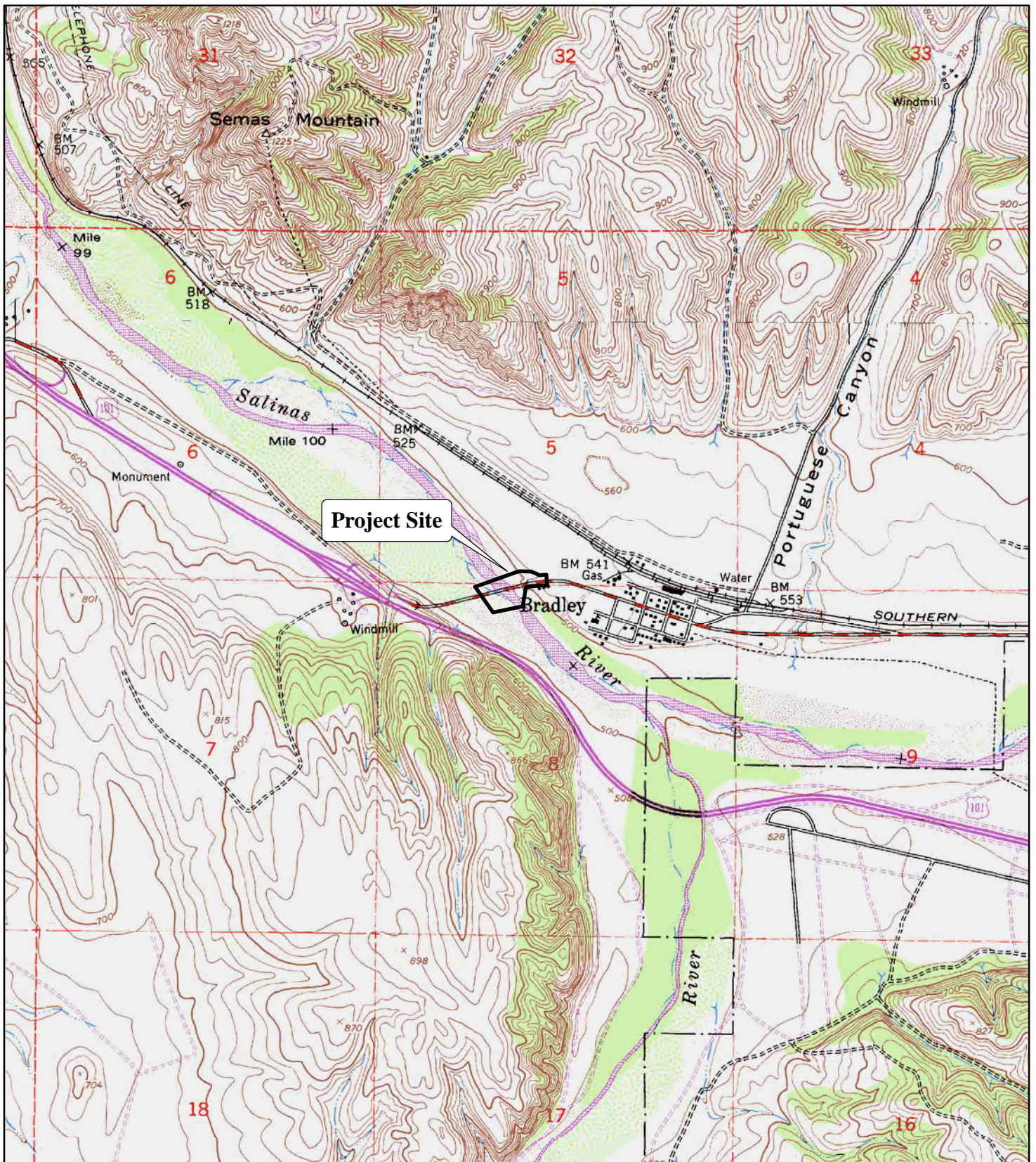
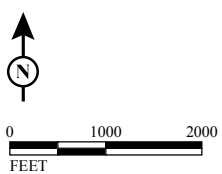


FIGURE 2

LSA

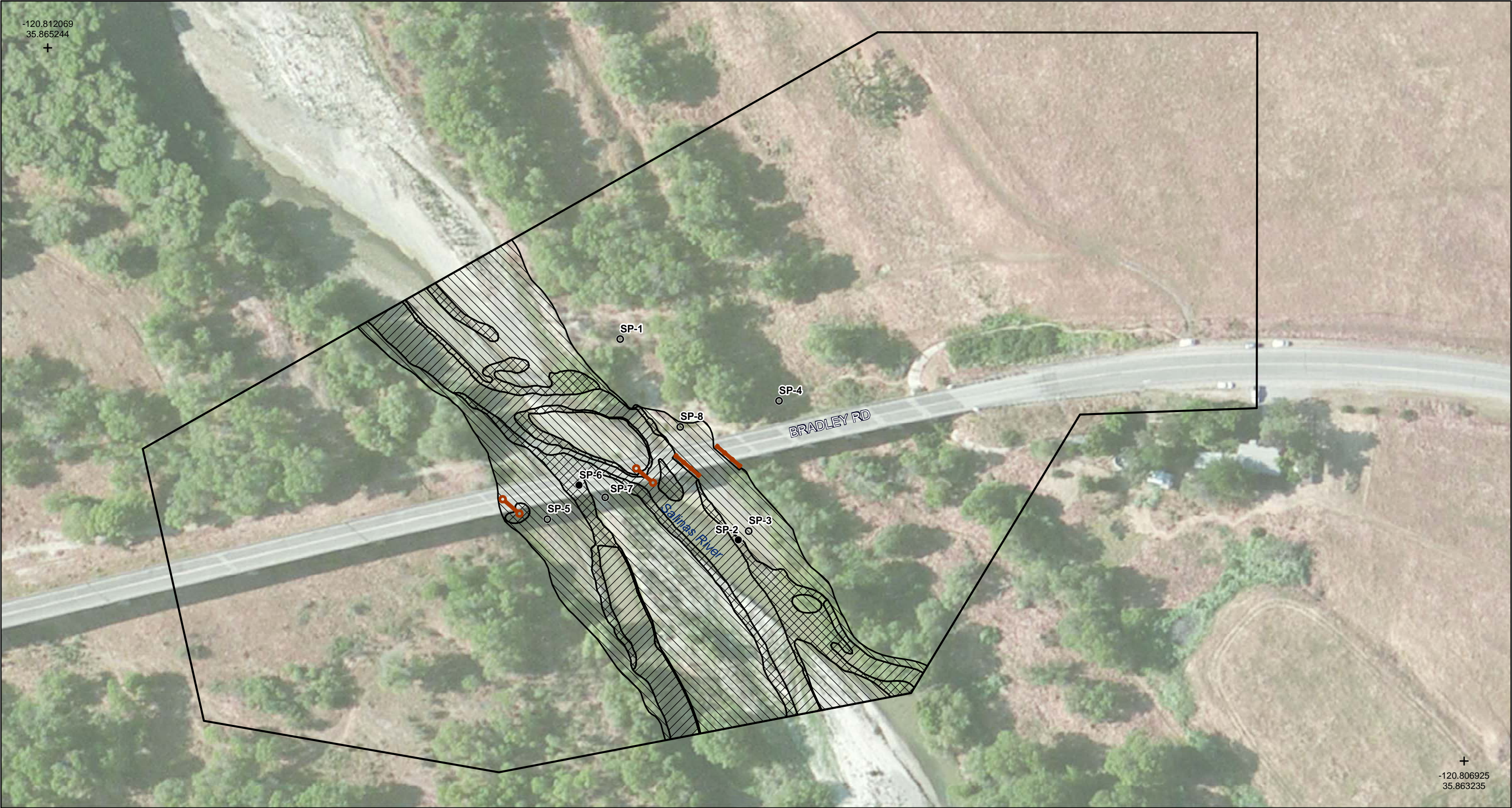


SOURCE: USGS 7.5-minute Topo Quads - Wunpost, Calif. (1979) and Bradley, Calif. (1979).

E:\TRT1501\GIS\Maps\Delineation\Figure 2_Site Location.mxd (6/28/2016)

Bradley Road Bridge Scour Repair Project
Monterey County, California
Federal Project Number BHLO-5944(100)

Site Location



LSA



1 in = 100 ft
0 50 100
FEET

MAP PREPARERS: Greg Gallagher, Pam van der Leeden
SOURCE: TRC (04/2015); Esri World Imagery Service - Microsoft (05/2010).

I:\TRT1501\GIS\Maps\Delineation\Figure 3_Potential Waters of the US (Bradley Road Bridge).mxd (7/8/2016)

LEGEND

- Delineation Study Area
- Bridge Pier

Other Features

- Wetland Sample Point
- Non-wetland Sample Point

POTENTIAL WATERS OF THE UNITED STATES

Wetlands

- Channel Wetland (0.460 ac.)

Other Waters

- Open Water (0.633 ac.)
- Ordinary High Water (1.648 ac.)

FIGURE 3

Bradley Road Bridge Scour Repair Project
Monterey County, California
Federal Project Number BHLO-5944(100)
Potential Waters of the United States

WETLAND DETERMINATION DATA FORM — Arid West Region

Project Site: Bradley Road Bridge, Salinas River City/County: Near Bradley/Monterey Sampling Date: 21 APR 15
 Applicant/Owner: Monterey County State: CA Sampling Point: 1
 Investigator(s): C. Bouril Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): <5
 Subregion (LRR): LRR C Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: _____ NWI classification: _____

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 <u>X</u>	No _____	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Hydric Soil Present?	Yes _____	No <u>X</u>	
Wetland Hydrology Present?	Yes _____	No <u>X</u>	
Remarks:			

VEGETATION

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____				Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A)
2. _____				Total Number of Dominant Species Across All Strata: <u>3</u> (B)
3. _____				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>67</u> (A/B)
4. _____				
Total Cover: _____				
Sapling/Shrub Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Prevalence Index worksheet:
1. <u>BACCHARIS SAUCITOLIA</u>	<u>50</u>	<u>X</u>	<u>FAC</u>	Total % Cover of: _____ Multiply by: OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
2. <u>SALIX LAEVIGATA</u>	<u>50</u>	<u>X</u>	<u>FACW</u>	
3. _____				
4. _____				
5. _____				
Total Cover: _____				
Herb Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators:
1. <u>BROMUS DIANDRUS</u>	<u>80</u>	<u>X</u>	<u>UPL</u>	— 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.
2. <u>B. MADRITENSIS</u>	<u>10</u>		<u>UPL</u>	
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
Total Cover: _____				
Woody Vine Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present? Yes <u>X</u> No _____
1. _____				
2. _____				
Total Cover: _____				
% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____				
Remarks:				

Sampling Point: _____

HYDROLOGY

06/18/09 (C:\Documents and Settings\ChipB\Desktop\Wetl Determination-AridWest DataForm Version 2.0.doc)

WETLAND DETERMINATION DATA FORM — Arid West Region

Project Site: Bradley Road Bridge, Salinas River City/County: Near Bradley/Monterey Sampling Date: 21 APR 15
 Applicant/Owner: Monterey County State: CA Sampling Point: 2
 Investigator(s): C. Bouril Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____
 Subregion (LRR): LRR C Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: _____ NWI classification: _____

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 <u>X</u>	No _____	Is the Sampled Area within a Wetland? Yes <u>X</u> No _____
Hydric Soil Present?	Yes <u>X</u>	No _____	
Wetland Hydrology Present?	Yes <u>X</u>	No _____	
Remarks: <u>E</u> <u>SP-3</u> <u>SP-2</u> <u>W</u>			

VEGETATION

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1.				Number of Dominant Species That Are OBL, FACW, or FAC: <u>4</u> (A)
2.				Total Number of Dominant Species Across All Strata: <u>5</u> (B)
3.				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>80</u> (A/B)
4.				
Total Cover: _____				
Sapling/Shrub Stratum (Plot size: _____)				Prevalence Index worksheet:
1.				Total % Cover of: _____ Multiply by:
2.				OBL species _____ x 1 = _____
3.				FACW species _____ x 2 = _____
4.				FAC species _____ x 3 = _____
5.				FACU species _____ x 4 = _____
Total Cover: _____				UPL species _____ x 5 = _____
Herb Stratum (Plot size: _____)				Column Totals: _____ (A) _____ (B)
1. <u>MIMULUS GUTTATUS</u>	<u>15</u>	<u>X</u>	<u>OBL</u>	Prevalence Index = B/A = _____
2. <u>POPULUS TREMONTII</u>	<u>15</u>	<u>X</u>	<u>FAC</u>	Hydrophytic Vegetation Indicators:
3. <u>PSEUDONAPHALUM LEOTEDACTYLOM</u>	<u>15</u>	<u>X</u>	<u>FAC</u>	— Dominance Test is >50%
4. <u>LUDWIGIA PELOIDEA</u>			<u>OBL</u>	— Prevalence Index is ≤3.0 ¹
5. <u>POLYPOGON MONSPERIENSIS</u>	<u>15</u>	<u>X</u>	<u>FAC</u>	— Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
6. <u>MECHLOPUS INDICUS</u>	<u>20</u>	<u>X</u>	<u>UPL</u>	— Problematic Hydrophytic Vegetation ¹ (Explain)
7. <u>BACCHARIS SOLICIFOLIA</u>	<u>10</u>		<u>FAC</u>	¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
8. <u>SALIX LAEVIGATA</u>	<u>10</u>		<u>FACW</u>	
Total Cover: _____				
Woody Vine Stratum (Plot size: _____)				Hydrophytic Vegetation Present? Yes <u>X</u> No _____
1. <u>POLYPOGON AUSTRALIS</u>	<u>10</u>		<u>FACW</u>	
2. <u>CYPERUS TRACOSTIS</u>	<u>5</u>		<u>FACW</u>	
Total Cover: _____				
% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____				
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		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-1/2	10YR 5/2						si/c	
1/2-10	10YR 5/2						co silt/clay	

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.)

Indicators for Problematic Hydric Soils³:

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

<input type="checkbox"/> 1 cm Muck (A9) (LRR C)
<input type="checkbox"/> 2 cm Muck (A10) (LRR B)
<input type="checkbox"/> Reduced Vertic (F18)
<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> 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:

ASSUME HYDRIC FROM OBS. WATER TABLE

HYDROLOGY

Wetland Hydrology Indicators:

Secondary Indicators (2 or more required)

Primary Indicators (any one indicator is sufficient)

<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Water Marks (B1) (Riverine)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Biotic Crust (B12)	<input type="checkbox"/> Sediment Deposits (B2) (Riverine)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Drift Deposits (B3) (Riverine)
<input type="checkbox"/> Water Marks (B1) (Nonriverine)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Sediment Deposits (B2) (Nonriverine)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Drift Deposits (B3) (Nonriverine)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Recent Iron Reduction in Plowed Soils (CS)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): _____Water Table Present? Yes ☐ No ☐ Depth (inches): 7"Saturation Present? Yes ☐ No ☒ Depth (inches): 7"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: Bradley Road Bridge, Salinas River City/County: Near Bradley/Monterey Sampling Date: 21 APR 15
 Applicant/Owner: Monterey County State: CA Sampling Point: 3
 Investigator(s): C. Bouril Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): 4
 Subregion (LRR): LRR C Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: _____ NWI classification: _____

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 <u>X</u>	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Hydric Soil Present?	Yes _____	No <u>X</u>	
Wetland Hydrology Present?	Yes _____	No <u>X</u>	
Remarks:			

VEGETATION

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50</u> (A/B)	
1.					
2.					
3.					
4.					
Total Cover: _____				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species <u>25</u> x 3 = <u>75</u> FACU species <u>2</u> x 4 = <u>8</u> UPL species <u>26</u> x 5 = <u>130</u> Column Totals: <u>53</u> (A) <u>213</u> (B) Prevalence Index = B/A = <u>4.01</u>	
Sapling/Shrub Stratum (Plot size: _____)					
1.					
2.					
3.					
4.					
5.					
Total Cover: _____					
Herb Stratum (Plot size: _____)				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.	
1.	LEPIDIUM LATIFOLIUM	15	X		FAC
2.	HORDEUM MURINUM	T			FACU
3.	PSEUDENANTHUM LEUCOPHYLLUM	5			FAC
4.	BROWNS DIANDRUS	25	X		UPL
5.	RUMEX CRISPUS	5			FAC
6.	BROWNS MADRITENSIS	T			UPL
7.	FESTUCA UTUROS	T			FACU
8.					
9.					
Total Cover: <u>50</u>					
Woody Vine Stratum (Plot size: _____)				Hydrophytic Vegetation Present? Yes _____ No <u>X</u>	
1.					
2.					
Total Cover: _____					
% Bare Ground in Herb Stratum _____		% Cover of Biotic Crust _____		Remarks:	

Sampling Point: 3

HYDROLOGY

06/18/09 (C:\Documents and Settings\ChipB\Desktop\Wetl Determination-AridWest DataForm Version 2.0.doc)

WETLAND DETERMINATION DATA FORM — Arid West Region

Project Site: Bradley Road Bridge, Salinas River City/County: Near Bradley/Monterey Sampling Date: 21 APR 15
 Applicant/Owner: Monterey County State: CA Sampling Point: 4
 Investigator(s): C. Bouril Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____
 Subregion (LRR): LRR C Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: _____ NWI classification: _____

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 <u>X</u>	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Hydric Soil Present?	Yes _____	No <u>X</u>	
Wetland Hydrology Present?	Yes _____	No <u>X</u>	
Remarks:			

VEGETATION

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across All Strata: <u>1</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A/B)
1.				
2.				
3.				
4.				
Total Cover: _____				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = <u>23</u>
Sapling/Shrub Stratum (Plot size: _____)				
1.				
2.				
3.				
4.				
5.				
Total Cover: _____				
Herb Stratum (Plot size: _____)				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.
1.	BROWNS DIANDRUS	70	X UPL	
2.	FESTUCA MYUROS	5	FACU	
3.	HORDEUM MURINUM	5	FACU	
4.	WILLOW NEGLECTA	10	UPL	
5.	CENTAUREA SOLSTITIUS?	5	UPL	
6.	SMALLERADIUM? NO UPL	5	—	
7.				
8.				
Total Cover: _____				
Woody Vine Stratum (Plot size: _____)				Hydrophytic Vegetation Present? Yes _____ No <u>X</u>
1.				
2.				
Total Cover: _____				
% Bare Ground in Herb Stratum _____		% Cover of Biotic Crust _____		
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		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-12	10TR4/2		—				FEL	
	4/10TR4/2		—				SCL	INCLUSIONS

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.)

Indicators for Problematic Hydric Soils³:

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)
<input type="checkbox"/> Stratified Layers (A5) (LRR C)	<input type="checkbox"/> Depleted Matrix (F3)
<input type="checkbox"/> 1 cm Muck (A9) (LRR D)	<input type="checkbox"/> Redox Dark Surface (F6)
<input type="checkbox"/> Depleted Below Dark Surface (All)	<input type="checkbox"/> Depleted Dark Surface (F7)
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Depressions (F8)
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Vernal Pools (F9)
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	

<input type="checkbox"/> 1 cm Muck (A9) (LRR C)
<input type="checkbox"/> 2 cm Muck (A10) (LRR B)
<input type="checkbox"/> Reduced Vertic (F18)
<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> 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 X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Secondary Indicators (2 or more required)

Primary Indicators (any one indicator is sufficient)

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

<input type="checkbox"/> Water Marks (B1) (Riverine)
<input type="checkbox"/> Sediment Deposits (B2) (Riverine)
<input type="checkbox"/> Drift Deposits (B3) (Riverine)
<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No <u>X</u>	Depth (inches): _____
Water Table Present?	Yes _____	No <u>X</u>	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No <u>X</u>	Depth (inches): _____

Wetland Hydrology Present?

Yes _____

No X

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


Remarks:

WETLAND DETERMINATION DATA FORM — Arid West Region

Project Site: Bradley Road Bridge, Salinas River City/County: Near Bradley/Monterey Sampling Date: 21 APR 15
 Applicant/Owner: Monterey County State: CA Sampling Point: 5
 Investigator(s): C. Bouril Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): 5
 Subregion (LRR): LRR C Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: _____ NWI classification: _____

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 <input checked="" type="checkbox"/>	No _____	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes _____	No <input checked="" type="checkbox"/>	
Wetland Hydrology Present?	Yes _____	No <input checked="" type="checkbox"/>	
Remarks: 			

VEGETATION

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1.				Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>1</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
2.				
3.				
4.				
Total Cover: _____				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot size: _____)				
1.				
2.				
3.				
Total Cover: _____				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.
Herb Stratum (Plot size: _____)				
1. <u>JUNCUS EFFUSIS</u>	<u>60</u>	<input checked="" type="checkbox"/>	<u>FACW</u>	
2. <u>? ZIGADENUS ? - NO I.D.</u>	<u>25</u>		<u>→</u>	
3.				
4.				
5.				
6.				
Total Cover: _____				Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____
Woody Vine Stratum (Plot size: _____)				
1.				
Total Cover: _____				
% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____				
Remarks:				

SOIL

Sampling Point: 5

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-10	10YR5/2		—				SAND	w/GRS

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.)

Indicators for Problematic Hydric Soils³:

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 1 cm Muck (A9) (LRR C)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> 2 cm Muck (A10) (LRR B)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> Reduced Vertic (F18)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Stratified Layers (A5) (LRR C)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> 1 cm Muck (A9) (LRR D)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Depressions (F8)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Vernal Pools (F9)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)		

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:

Secondary Indicators (2 or more required)

Primary Indicators (any one indicator is sufficient)

<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Water Marks (B1) (Riverine)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Biotic Crust (B12)	<input type="checkbox"/> Sediment Deposits (B2) (Riverine)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Drift Deposits (B3) (Riverine)
<input type="checkbox"/> Water Marks (B1) (Nonriverine)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Sediment Deposits (B2) (Nonriverine)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Drift Deposits (B3) (Nonriverine)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Recent Iron Reduction in Plowed Soils (CS)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ☒ Depth (inches): _____Water Table Present? Yes _____ No ☒ Depth (inches): _____Saturation Present? Yes _____ No ☒ Depth (inches): _____
(includes capillary fringe)Wetland Hydrology Present? Yes _____ No ☒

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

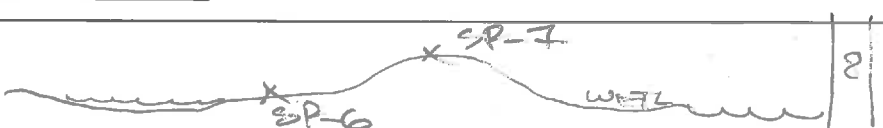
Remarks:

WETLAND DETERMINATION DATA FORM — Arid West Region

Project Site: Bradley Road Bridge, Salinas River City/County: Near Bradley/Monterey Sampling Date: 21 APR 15
 Applicant/Owner: Monterey County State: CA Sampling Point: 6
 Investigator(s): C. Bouril Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): 10
 Subregion (LRR): LRR C Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: _____ NWI classification: _____

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 <input checked="" type="checkbox"/>	No _____	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No _____
Hydric Soil Present?	Yes <input checked="" type="checkbox"/>	No _____	
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No _____	
Remarks: 			

VEGETATION

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1.				Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
2.				
3.				
4.				
Total Cover: _____				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot size: _____)				
1.				
2.				
3.				
Total Cover: _____				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.
Herb Stratum (Plot size: _____)				
1. <u>MILVUS GUTTATUS</u>	<u>35</u>	<u>X</u>	<u>OBL</u>	
2. <u>POLYPOGON MONSPELANSIS</u>	<u>25</u>	<u>X</u>	<u>FACW</u>	
3. <u>PSEUDONAPHALEUM LEUTEDORFII</u>	<u>10</u>		<u>FAC</u>	
4. <u>MECHLODUS INDICUS</u>	<u>5</u>		<u>FACU</u>	
5. <u>NO I.D. GRASS</u>	<u>5</u>		<u>—</u>	
6. <u>CYPERUS KRAEPOSTIS</u>	<u>2</u>		<u>FACW</u>	
7. <u>NO I.D. FORB</u>	<u>10</u>		<u>—</u>	
8.				
Total Cover: _____				Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____
Woody Vine Stratum (Plot size: _____)				
1.				
Total Cover: _____				
% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____				
Remarks:				

Sampling Point: 6

HYDROLOGY

06/18/09 (C:\Documents and Settings\ChipB\Desktop\Wet1 Determination-AridWest DataForm Version 2.0.doc)

WETLAND DETERMINATION DATA FORM — Arid West Region

Project Site: Bradley Road Bridge, Salinas River City/County: Near Bradley/Monterey Sampling Date: 21 APR 15
 Applicant/Owner: Monterey County State: CA Sampling Point: 7
 Investigator(s): C. Bouril Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____
 Subregion (LRR): LRR C Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: _____ NWI classification: _____

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 <u>X</u>	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Hydric Soil Present?	Yes _____	No <u>X</u>	
Wetland Hydrology Present?	Yes _____	No <u>X</u>	
Remarks:			

VEGETATION

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50</u> (A/B)
1.				
2.				
3.				
4.				
Total Cover: _____				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: OBL species _____ x 1 = _____ FACW species <u>20</u> x 2 = <u>40</u> FAC species <u>40</u> x 3 = <u>120</u> FACU species <u>10</u> x 4 = <u>40</u> UPL species <u>30</u> x 5 = <u>150</u> Column Totals: <u>100</u> (A) <u>350</u> (B) Prevalence Index = B/A = <u>3.5</u>
Sapling/Shrub Stratum (Plot size: <u>15'</u>)				
1. <u>BACCHARIS SALICIFOLIA</u>	<u>30</u>	<u>X</u>	<u>FAC</u>	
2. <u>SALIX LAEVIGATA</u>	<u>10</u>		<u>FACW</u>	
3.				
4.				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.
5.				
Total Cover: <u>40</u>				
Herb Stratum (Plot size: <u>15'</u>)				
1. <u>BROWNIUS DIANDRUS</u>	<u>30</u>	<u>X</u>	<u>UPL</u>	
2. <u>LEPIDIUM LATIFOLIUM</u>	<u>10</u>		<u>FAC</u>	Hydrophytic Vegetation Present? Yes _____ No <u>X</u>
3. <u>JUNCUS EFFUSUS</u>	<u>10</u>		<u>FACW</u>	
4. <u>MEDICAGO POLYTORA</u>	<u>5</u>		<u>FACU</u>	
5. <u>MELLOTUS INDICUS</u>	<u>5</u>		<u>FACU</u>	
6.				
7.				Hydrophytic Vegetation Present? Yes _____ No <u>X</u>
8.				
Total Cover: <u>60</u>				
Woody Vine Stratum (Plot size: _____)				
1.				
2.				Hydrophytic Vegetation Present? Yes _____ No <u>X</u>
Total Cover: _____				
% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____				
Remarks:				

SOIL

Sampling Point: 7

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)							
Depth (inches)	Matrix		Redox Features				Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	
0-3	10YR 5/2		—				CS w/GRUS
3-10	10YR 5/2		—				FINES
	4/2						

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.)

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (Fl)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)
<input type="checkbox"/> Stratified Layers (A5) (LRR C)	<input type="checkbox"/> Depleted Matrix (F3)
<input type="checkbox"/> 1 cm Muck (A9) (LRR D)	<input type="checkbox"/> Redox Dark Surface (F6)
<input type="checkbox"/> Depleted Below Dark Surface (All)	<input type="checkbox"/> Depleted Dark Surface (F7)
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Depressions (F8)
<input type="checkbox"/> Sandy Mucky Mineral (Sl)	<input type="checkbox"/> Vernal Pools (F9)
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	

Indicators for Problematic Hydric Soils³:

<input type="checkbox"/> 1 cm Muck (A9) (LRR C)
<input type="checkbox"/> 2 cm Muck (A10) (LRR B)
<input type="checkbox"/> Reduced Vertic (F18)
<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> 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 <u>X</u>
Remarks:	

HYDROLOGY

Wetland Hydrology Indicators:				Secondary Indicators (2 or more required)	
Primary Indicators (any one indicator is sufficient)					
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Water Marks (B1) (Riverine)			
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Biotic Crust (B12)	<input type="checkbox"/> Sediment Deposits (B2) (Riverine)			
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Drift Deposits (B3) (Riverine)			
<input type="checkbox"/> Water Marks (B1) (Nonriverine)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Drainage Patterns (B10)			
<input type="checkbox"/> Sediment Deposits (B2) (Nonriverine)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Dry-Season Water Table (C2)			
<input type="checkbox"/> Drift Deposits (B3) (Nonriverine)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Crayfish Burrows (C8)			
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Recent Iron Reduction in Plowed Soils (CS)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)			
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Shallow Aquitard (D3)			
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> FAC-Neutral Test (D5)			
Field Observations:					
Surface Water Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches):		Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Water Table Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches):			
Saturation Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches):			
(includes capillary fringe)					
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:					
Remarks:					

WETLAND DETERMINATION DATA FORM — Arid West Region

Project Site: Bradley Road Bridge, Salinas River City/County: Near Bradley/Monterey Sampling Date: 21 APR 15
 Applicant/Owner: Monterey County State: CA Sampling Point: 8
 Investigator(s): C. Bouril Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): <5
 Subregion (LRR): LRR C Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: _____ NWI classification: _____

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 <u>X</u>	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Hydric Soil Present?	Yes _____	No <u>X</u>	
Wetland Hydrology Present?	Yes _____	No <u>X</u>	
Remarks:			

VEGETATION

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across All Strata: <u>5</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A/B)
1.				
2.				
3.				
4.				
Total Cover: _____				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot size: _____)				
1.				
2.				
3.				
4.				
5.				
Total Cover: _____				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.
Herb Stratum (Plot size: _____)				
1.	<u>FESTUCA MYUROS</u>	<u>5</u>	<u>X</u> <u>FACW</u>	
2.	<u>WELIGTUS INDICUS</u>	<u>5</u>	<u>X</u> <u>FACU</u>	
3.	<u>BRASSICA NIGRA</u>	<u>10</u>	<u>X</u> <u>UPL</u>	
4.	<u>BROWNS DIANDRUS</u>	<u>5</u>	<u>X</u> <u>UPL</u>	
5.	<u>B. MADRITENSIS</u>	<u>5</u>	<u>X</u> <u>UPL</u>	
6.				
7.				
8.				
Total Cover: _____				
Woody Vine Stratum (Plot size: _____)				Hydrophytic Vegetation Present? Yes _____ No <u>X</u>
1.				
2.				
Total Cover: _____				
% Bare Ground in Herb Stratum _____		% Cover of Biotic Crust _____		Remarks:

Sampling Point: 8

[illegible]

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

No

_____ 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)

Wetland Hydrology Present? Yes ☐ No ☒

2

Appendix E Tree Survey Report

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MEMORANDUM

DATE: December 6, 2016

To: Jose Gomez
Monterey County Public Works Department

FROM: Tim Milliken
Certified Arborist WE-5539A

SUBJECT: Bradley Road Bridge Scour Repair Project
Arborist Report/Tree Survey Results

Introduction

This report was prepared by certified arborist Tim Milliken (ISA certification number WE-5539A). This document identifies trees associated with the Bradley Road Bridge Scour Repair Project (project) in Monterey County, California (Figure 1). The project site is situated within the South County Planning Area and just outside the Rural Center of the unincorporated community of Bradley.¹ The purpose of this report is to identify trees that could be impacted by the proposed project. This report provides an inventory of existing trees within the tree survey area and evaluates their condition, diameter at breast height (DBH), and height. The project is still in the conceptual stage and evaluation of tree losses are based on the assumption that all trees within the temporary and permanent impact areas plus the 20-foot buffer will be removed.

Regulatory Context

Monterey County. Monterey County Zoning Ordinance 21.4.260 – Preservation of Oaks and Other Protected Trees (Ordinance) regulates the removal of oaks and other specific types of trees as required in the Monterey General Plan, area plans, or master plans. The ordinance is applicable in unincorporated areas of the County outside of the Coastal Zone including the South County Planning Area. The ordinance only protects native oaks (*Quercus* spp.) six inches in diameter at breast height (DBH) or greater within the project area. The trees on the project site are not protected by Ordinance.

¹ Monterey County Resource Management Agency – Monterey General Plan 2010

Methods

Mr. Milliken conducted the tree survey on October 17 and 18, 2016. The tree survey area encompassed all areas of permanent and temporary impacts as they were understood prior to the field survey in October 2016 plus a 20-foot buffer around these areas (Figure 2). The survey involved identifying all tree species six inches DBH or greater within the tree survey area. In addition, the location of each identified tree was recorded with a GPS receiver and numbered. Tree condition, DBH, number of stems, and height was also recorded. If an individual tree had multiple trunks the circumference of all the trunks were totaled to determine the DBH. The location of all numbered trees was plotted on an aerial photo of the project site (Figure 2). All trees within the survey area would potentially be impacted by project activities (Figure 2).

Results

Thirty-seven trees were recorded within the tree survey area representing four species (Table A, Figure 2). All these species are native to the local region: white alder (*Alnus rhombifolia*), Fremont cottonwood (*Populus fremontii*), red willow (*Salix laevigata*), and arroyo willow (*S. lasiolepis*). Table B contains additional information on the trees identified within the tree survey area including tree number, scientific and common name, DBH, total number of stems, condition, and potential impacts. The proposed project could permanently impact (remove or damage) up to 37 trees.

Table A: Summary of Trees in the Tree Survey Area

Species Classification	Trees within the Tree Survey Area	Trees Potentially Impacted within the Tree Survey Area	Trees Not Impacted within the Tree Survey Area
White alder (<i>Alnus rhombifolia</i>)	4	4	0
Fremont cottonwood (<i>Populus fremontii</i>)	12	12	0
Red willow (<i>Salix laevigata</i>)	19	19	0
Arroyo willow (<i>Salix lasiolepis</i>)	2	2	0
Total	37	37	0

Impacts and Recommendations

The proposed project could impact 37 trees including 4 white alders, 12 Fremont cottonwoods, 19 red willows, and 2 arroyo willow (see Figure 2 and Tables A and B). Trees within the tree survey areas could be impacted through direct removal or injury to roots or canopy branches by road construction, equipment storage, and staging. None of the tree species within the tree survey area are protected by County Ordinance; however, Caltrans projects that impact trees typically mitigate for impacted trees at a 1:2 ratio (impacted:replaced).

The project should install 74 new riparian trees within the project area. Only genetically appropriate (e.g., from the Salinas Valley), native stock should be used. Mitigation tree installation should occur following construction during the winter season (December through February). The location of new trees will be determined by a certified arborist or qualified biologist. Planting locations will be located in areas where no flooding is anticipated.

Avoidance and Minimization Efforts

To avoid and minimize impacts to riparian trees outside of the tree survey area, environmentally sensitive areas fencing (ESA fencing) will be placed at or beyond the drip-line of trees or groups of trees adjacent to the work area to delineate tree protection zones. No construction equipment or storage of construction materials will be allowed to enter the tree protection zone. A qualified arborist will assist construction crews in the placement of the ESA fencing.

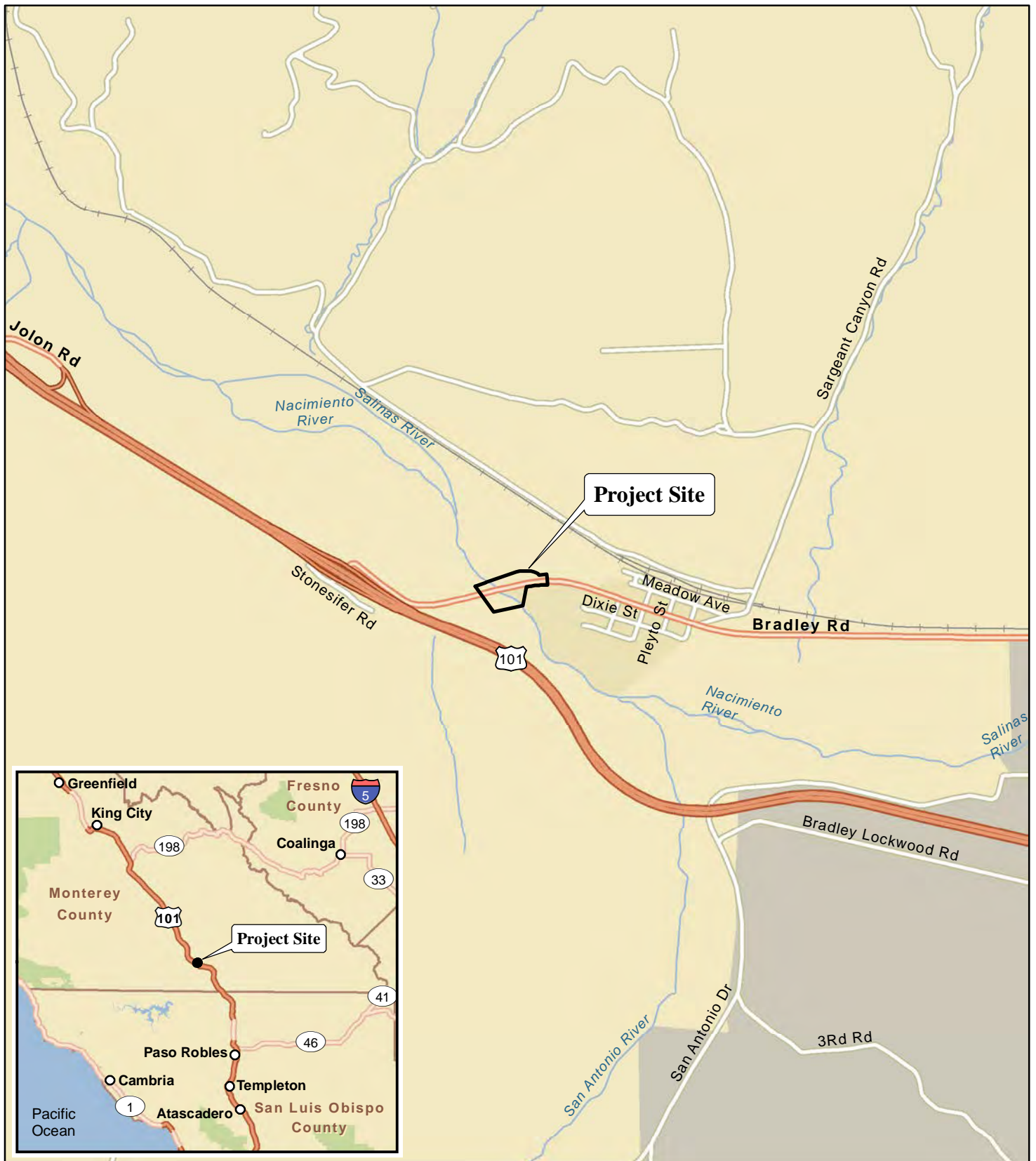
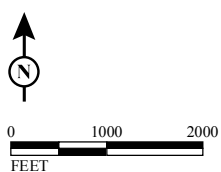


FIGURE 1

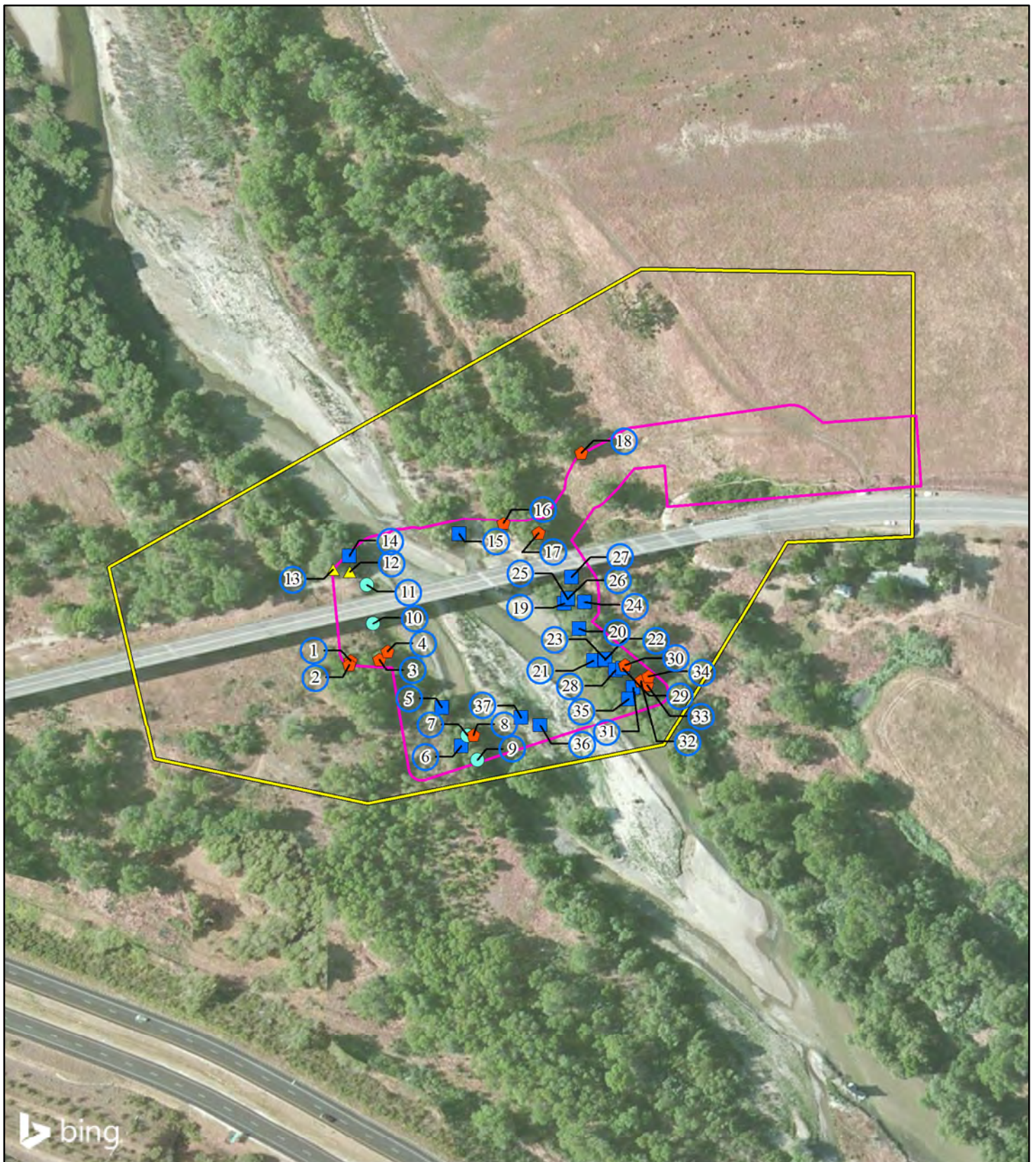
LSA



SOURCE: ESRI StreetMap North America (2012).

E:\TRT1501\GIS\Maps\Cultural\ASR\Figure 1_Regional Location.mxd (8/19/2016)

Bradley Road Bridge Scour Repair Project
Monterey County, California
Federal Project Number BHLO-5944(100)
Regional Location



LEGEND

- Biological Survey Area
- Tree Survey Area
- # Trees Potentially Removed or Impacted by the Project

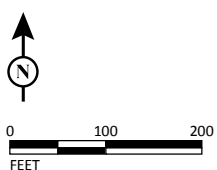
Tree Common Name

- ▲ Arroyo willow
- ◆ Fremont cottonwood
- Red willow
- White alder

FIGURE 2

*Bradley Road Bridge Scour Repair Project
Monterey County, California
Federal Project Number BHLO-5944(100)*

Tree Map



SOURCE: Bing Aerial (2011); TRC (12/2015)

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Table B: Detailed Tree Table, Bradley Road Bridge Scour Repair Project, October 2016

Tree ID	Species Classification	Total DBH (inches)	Number of Stems	Height (feet)	Condition	Potential Impact
1	Fremont cottonwood (<i>Populus fremontii</i>)	24	2	40	Good	Yes
2	Fremont cottonwood (<i>Populus fremontii</i>)	21	4	25	Good	Yes
3	Fremont cottonwood (<i>Populus fremontii</i>)	16	1	40	Good	Yes
4	Fremont cottonwood (<i>Populus fremontii</i>)	11	1	35	Good	Yes
5	Red willow (<i>Salix laevigata</i>)	43	4	35	Good	Yes
6	Red willow (<i>Salix laevigata</i>)	25	2	35	Good	Yes
7	White alder (<i>Alnus rhombifolia</i>)	26	2	45	Good	Yes
8	Fremont cottonwood (<i>Populus fremontii</i>)	12	1	45	Good	Yes
9	White alder (<i>Alnus rhombifolia</i>)	28	3	55	Good	Yes
10	White alder (<i>Alnus rhombifolia</i>)	11	1	35	Good	Yes
11	White alder (<i>Alnus rhombifolia</i>)	20	2	35	Good	Yes
12	Red willow (<i>Salix laevigata</i>)	18	3	25	Good	Yes
13	Red willow (<i>Salix laevigata</i>)	20	2	35	Good	Yes
14	Red willow (<i>Salix laevigata</i>)	17	2	30	Good	Yes
15	Red willow (<i>Salix laevigata</i>)	36	1	30	Good	Yes
16	Fremont cottonwood (<i>Populus fremontii</i>)	36	1	40	Good	Yes
17	Fremont cottonwood (<i>Populus fremontii</i>)	32	1	40	Good	Yes
18	Fremont cottonwood (<i>Populus fremontii</i>)	60	2	40	Good	Yes
19	Red willow (<i>Salix laevigata</i>)	15	2	15	Good	Yes
20	Red willow (<i>Salix laevigata</i>)	14	1	35	Good	Yes
21	Red willow (<i>Salix laevigata</i>)	23	2	25	Good	Yes
22	Red willow (<i>Salix laevigata</i>)	50	3	35	Good	Yes
23	Red willow (<i>Salix laevigata</i>)	14	1	35	Good	Yes
24	Red willow (<i>Salix laevigata</i>)	36	1	35	Good	Yes
25	Red willow (<i>Salix laevigata</i>)	54	2	35	Good	Yes
26	Red willow (<i>Salix laevigata</i>)	36	1	15	Good	Yes

Tree ID	Species Classification	Total DBH (inches)	Number of Stems	Height (feet)	Condition	Potential Impact
27	Red willow (<i>Salix laevigata</i>)	19	2	35	Good	Yes
28	Red willow (<i>Salix laevigata</i>)	9	1	20	Good	Yes
29	Red willow (<i>Salix laevigata</i>)	34	2	30	Good	Yes
30	Fremont cottonwood (<i>Populus fremontii</i>)	36	1	50	Good	Yes
31	Red willow (<i>Salix laevigata</i>)	31	2	15	Good	Yes
32	Fremont cottonwood (<i>Populus fremontii</i>)	24	1	50	Good	Yes
33	Fremont cottonwood (<i>Populus fremontii</i>)	14	1	25	Good	Yes
34	Fremont cottonwood (<i>Populus fremontii</i>)	24	1	55	Good	Yes
35	Red willow (<i>Salix laevigata</i>)	24	1	55	Good	Yes
36	Red willow (<i>Salix laevigata</i>)	19	2	35	Good	Yes
37	Red willow (<i>Salix laevigata</i>)	9	1	20	Good	Yes

Appendix F Species Observed in the BSA

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**Plant Species Observed in the Bradley Road Bridge Scour Repair Project
Biological Study Area, Monterey County, California
April 15 through July 31, 2015**

FAMILY/Species Scientific Name	FAMILY/Common Name	Cal-IPC Rating/Abundance in the BSA
FERNS and FERN ALLIES		
EQUISETACEAE	HORSETAIL FAMILY	
<i>Equisetum arvense</i>	Common horsetail	
EUDICOTS		
ADOXACEAE	MUSKROOT FAMILY	
<i>Sambucus nigra</i> ssp. <i>caerulea</i>	Blue elderberry	
AMARANTHACEAE	AMARANTH FAMILY	
<i>Amaranthus californicus</i>	California amaranth	
ANACARDIACEAE	SUMAC/CASHEW FAMILY	
<i>Toxicodendron diversilobum</i>	Poison oak	
APIACEAE	CARROT FAMILY	
<i>Apium graveolens</i> *	Celery	
<i>Anthriscus caucalis</i> *	Bur chervil	
<i>Conium maculatum</i> *	Poison hemlock	Moderate/Low
APOCYNACEAE	DOGBANE FAMILY	
<i>Asclepias eriocarpa</i>	Indian milkweed	
<i>Asclepias fascicularis</i>	Narrowleaf milkweed	
ASTERACEAE	SUNFLOWER FAMILY	
<i>Achillea millefolium</i>	Common yarrow	
<i>Ambrosia acanthicarpa</i>	Annual bur-sage	
<i>Ambrosia psilostachya</i>	Western ragweed	
<i>Artemisia californica</i>	California sagebrush	
<i>Artemisia douglasiana</i>	Mugwort	
<i>Artemisia dracunculus</i>	Tarragon	
<i>Baccharis pilularis</i>	Coyote brush	
<i>Baccharis salicifolia</i>	Mule fat	
<i>Carduus pycnocephalus</i> *	Italian thistle	Moderate/Low
<i>Centaurea benedicta</i> *	Blessed thistle	
<i>Centaurea melitensis</i> *	Tocalote	Moderate/Low
<i>Centaurea solstitialis</i> *	Yellow star-thistle	High/Low
<i>Centromadia pungens</i> ssp. <i>pungens</i>	Common spikeweed	
<i>Deinandra fasciculata</i>	Fascicled tarweed	
<i>Erigeron canadensis</i>	Horseweed	
<i>Euthamia occidentalis</i>	Western goldenrod	
<i>Helenium puberulum</i>	Sneezeweed	
<i>Helianthus annuus</i>	Common sunflower	
<i>Heterotheca grandiflora</i>	Telegraph weed	

FAMILY/Species Scientific Name	FAMILY/Common Name	Cal-IPC Rating/Abundance in the BSA
<i>Hypochaeris radicata</i> *	Hairy cat's ear	Moderate/Low
<i>Lactuca serriola</i> *	Prickly lettuce	
<i>Lepidospartum squamatum</i>	California broomshrub	
<i>Lessingia pectinata</i> var. <i>pectinata</i>	Common lessingia	
<i>Logfia gallica</i> *	Daggerleaf cottonrose	
<i>Matricaria discoidea</i> *	Pineapple weed	
<i>Pseudognaphalium luteoalbum</i> *	Weedy cudweed	
<i>Silybum marianum</i> *	Milk thistle	Limited/Low
<i>Sonchus asper</i> *	Prickly sow-thistle	
<i>Sonchus oleraceus</i> *	Common sow-thistle	
<i>Stephanomeria virgata</i> ssp. <i>virgata</i>	Rod wire-lettuce	
BETULACEAE	BIRCH FAMILY	
<i>Alnus rhombifolia</i>	White alder	
BORAGINACEAE	BORAGE FAMILY	
<i>Amsinckia menziesii</i>	Small-flowered fiddleneck	
<i>Eucrypta chrysanthemifolia</i>	Common eucrypta	
<i>Heliotropium curassavicum</i>	Seaside heliotrope	
BRASSICACEAE	MUSTARD FAMILY	
<i>Brassica nigra</i> *	Black mustard	Moderate/Low
<i>Cardamine oligosperma</i>	Western bittercress	
<i>Capsella bursa-pastoris</i> *	Shepherd's purse	
<i>Descurainia pinnata</i>	Western tansy mustard	
<i>Hirschfeldia incana</i> *	Shortpod mustard	Moderate/Low
<i>Lepidium coronopus</i> *	Swine cress	
<i>Lepidium latifolium</i> *	Perennial pepperweed	High/Low
<i>Lobularia maritima</i> *	Sweet alyssum	Limited/Low
<i>Nasturtium officinale</i>	Water cress	
<i>Sisymbrium irio</i> *	London rocket	Moderate/Low
<i>Sisymbrium orientale</i> *	Oriental mustard	
CACTACEAE	CACTUS FAMILY	
<i>Opuntia ficus-indica</i> *	Mission prickly-pear	
CHENOPODIACEAE	GOOSEFOOT FAMILY	
<i>Atriplex canescens</i> var. <i>linearis</i>	Slenderleaf saltbush	
<i>Atriplex lentiformis</i>	Big saltbush	
<i>Chenopodium album</i> *	Lamb's quarters	
CRASSULACEAE	STONECROP FAMILY	
<i>Crassula connata</i>	Pygmy-weed	
EUPHORBIACEAE	SPURGE FAMILY	
<i>Croton californicus</i>	California croton	
<i>Croton setiger</i>	Turkey-mullein	
<i>Euphorbia maculata</i> *	Spotted spurge	
<i>Euphorbia serpyllifolia</i>	Thyme-leaved spurge	
FABACEAE	LEGUME FAMILY	
<i>Glycyrrhiza lepidota</i>	Wild licorice	

FAMILY/Species Scientific Name	FAMILY/Common Name	Cal-IPC Rating/Abundance in the BSA
<i>Lotus corniculatus</i> *	Bird's-foot trefoil	
<i>Lupinus bicolor</i>	Miniature lupine	
<i>Lupinus succulentus</i>	Arroyo lupine	
<i>Medicago polymorpha</i> *	Bur-clover	Limited/Low
<i>Melilotus albus</i> *	White sweetclover	
<i>Melilotus indicus</i> *	Sourclover	
FAGACEAE	OAK FAMILY	
<i>Quercus lobata</i>	Valley oak	
HYDROCHARITACEAE	WATERWEED FAMILY	
<i>Elodea canadensis</i>	Common waterweed	
<i>Najas guadalupensis</i>	Common water-nymph	
GERANIACEAE	GERANIUM FAMILY	
<i>Erodium botrys</i> *	Long-beaked filaree	
<i>Erodium cicutarium</i> *	Redstem filaree	Limited/Low
JUGLANDACEAE	WALNUT FAMILY	
<i>Juglans californica</i> var. <i>californica</i>	Southern California black walnut	
LAMIACEAE	MINT FAMILY	
<i>Marrubium vulgare</i> *	Horehound	Limited/Low
<i>Mentha canadensis</i> *	American cornmint	
<i>Stachys ajugoides</i>	Bugle hedgenettle	
<i>Stachys albens</i>	Cobwebby hedgenettle	
<i>Trichostema lanceolatum</i>	Vinegar weed	
LYTHRACEAE	LOOSETRIFE FAMILY	
<i>Lythrum californicum</i>	California loosetrife	
MALVACEAE	MALLOW FAMILY	
<i>Malva parviflora</i> *	Cheeseweed	
<i>Malva neglecta</i> *	Common mallow	
MONTIACEAE	PURSLANE FAMILY	
<i>Claytonia perfoliata</i>	Miner's lettuce	
MYRSINACEAE	MYRSINE FAMILY	
<i>Lysimachia arvensis</i> *	Scarlet pimpernel	
ONAGRACEAE	EVENING PRIMROSE FAMILY	
<i>Clarkia affinis</i>	Chaparral clarkia	
<i>Epilobium brachycarpum</i>	Panicked willow-herb	
<i>Epilobium ciliatum</i> ssp. <i>watsonii</i>	San Francisco willowherb	
<i>Epilobium densiflorum</i>	Dense-flowered boisduvalia	
<i>Ludwigia hexapetala</i> *	Uruguayan primrose-willow	High/Low
<i>Ludwigia peploides</i> ssp. <i>peploides</i>	Floating primrose-willow	
OROBANCHACEAE	BROOMRAPE FAMILY	
<i>Castilleja exserta</i> ssp. <i>exserta</i>	Purple owl's clover	

FAMILY/Species Scientific Name	FAMILY/Common Name	Cal-IPC Rating/Abundance in the BSA
PHRYMACEAE		
<i>Mimulus guttatus</i>	Seep monkey flower	
PLANTAGINACEAE	PLANTIAN FAMILY	
<i>Kicksia spuria</i> *	Round-leaved fluellin	
<i>Plantago major</i> *	Common plantain	
<i>Plantago erecta</i>	California plantain	
<i>Veronica anagallis-aquatica</i> *	Water speedwell	
PLATANACEAE	SYCAMORE FAMILY	
<i>Platanus racemosa</i>	Western sycamore	
POLEMONIACEAE	PHLOX FAMILY	
<i>Leptosiphon parviflorus</i>	Variable linanthus	
<i>Navarretia atractylodes</i>	Holly leaf navarretia	
POLYGONACEAE	BUCKWHEAT FAMILY	
<i>Eriogonum fasciculatum</i>	California buckwheat	
<i>Eriogonum gracile</i> var. <i>gracile</i>	Slender wooly wild buckwheat	
<i>Persicaria punctata</i>	Dotted smartweed	
<i>Rumex crispus</i> *	Curly dock	Limited/Low
ROSACEAE	ROSE FAMILY	
<i>Rosa californica</i>	California rose	
SALICACEAE	WILLOW FAMILY	
<i>Populus fremontii</i>	Fremont cottonwood	
<i>Salix exigua</i>	Narrow-leaved willow	
<i>Salix laevigata</i>	Red willow	
<i>Salix lasiolepis</i>	Arroyo willow	
SAPINDACEAE	SOAPBERRY FAMILY	
<i>Acer negundo</i>	Boxelder	
SCROPHULARIACEAE	FIGWORT FAMILY	
<i>Scrophularia californica</i>	California figwort	
<i>Verbascum thapsus</i> *	Woolly mullein	Limited/Low
<i>Verbascum virgatum</i> *	Wand mullein	
SOLANACEAE	NIGHTSHADE FAMILY	
<i>Datura wrightii</i>	Western Jimson Weed	
<i>Nicotiana acuminata</i> var. <i>multiflora</i> *	Many-flowered tobacco	
<i>Nicotiana glauca</i> *	Tree tobacco	Moderate/Low
<i>Solanum americanum</i>	Small-flowered nightshade	
TAMARICACEAE	TAMARISK FAMILY	
<i>Tamarix ramosissima</i> *	Saltcedar	High/Low
URTICACEAE	NETTLE FAMILY	
<i>Urtica dioica</i> ssp. <i>holosericea</i>	Hoary nettle	
<i>Urtica urens</i>	Dwarf nettle	

FAMILY/Species Scientific Name	FAMILY/Common Name	Cal-IPC Rating/Abundance in the BSA
VISACEAE	MISTLETOE FAMILY	
<i>Phoradendron leucarpum</i>	American mistletoe	
MONOCOTS		
ARACEAE	ARUM FAMILY	
<i>Lemna minor</i>	Smaller duckweed	
CYPERACEAE	SEDGE FAMILY	
<i>Cyperus eragrostis</i>	Tall cyperus	
<i>Eleocharis macrostachya</i>	Pale spikerush	
<i>Schoenoplectus americanus</i>	Olney's three-square bulrush	
JUNCACEAE	RUSH FAMILY	
<i>Juncus balticus</i> ssp. <i>ater</i>	Baltic rush	
<i>Juncus bufonius</i> var. <i>occidentalis</i>	Western toad rush	
<i>Juncus effusus</i>	Common rush	
<i>Juncus mexicanus</i>	Mexican rush	
<i>Juncus torreyi</i>	Torrey's rush	
<i>Juncus xiphioides</i>	Iris-leaved rush	
POACEAE	GRASS FAMILY	
<i>Avena barbata</i> *	Slender wild oat	Moderate/Low
<i>Avena fatua</i> *	Wild oat	Moderate/Low
<i>Bromus diandrus</i> *	Ripgut grass	Moderate/Low
<i>Bromus hordeaceus</i> *	Soft chess	Limited/Low
<i>Bromus madritensis</i> ssp. <i>rubens</i> *	Foxtail chess	High/Low
<i>Cynodon dactylon</i> *	Bermuda Grass	Moderate/Low
<i>Distichlis spicata</i>	Salt grass	
<i>Festuca myuros</i> *	Rattail sixweeks grass	
<i>Festuca perennis</i> *	Rye grass	
<i>Hordeum marinum</i> ssp. <i>gussoneanum</i> *	Mediterranean barley	Moderate/Low
<i>Hordeum murinum</i> ssp. <i>leporinum</i> *	Hare barley	Moderate/Low
<i>Polypogon australis</i> *	Chilean beard grass	
<i>Polypogon monspeliensis</i> *	Annual beard grass	Limited/Low
<i>Stipa pulchra</i>	Purple needlegrass	

*Species not native to or naturally occurring in the BSA

BSA = Biological Study Area

Cal-IPC = California Invasive Plant Council

**Vertebrate Animal Species Observed in the Bradley Road Bridge Scour Repair
Project Biological Study Area, Monterey County, California
April 15 through July 31, 2015**

Common name	Scientific name	Seasonal occurrence/ nesting codes ¹
FISH		
Western mosquitofish*	<i>Gambusia affinis</i>	R
Sacramento pike minnow	<i>Ptychocheilus grandis</i>	R
AMPHIBIANS		
Pacific treefrog	<i>Hyla regilla</i>	R
REPTILES		
California whiptail	<i>Aspidoscelis tigris</i>	R
Northern pacific rattlesnake	<i>Crotalus oreganus</i>	R
Western fence lizard	<i>Sceloporus occidentalis</i>	R
Side-blotched lizard	<i>Uta stansburiana</i>	R
BIRDS		
Wood duck	<i>Aix sponsa</i>	R
Mallard	<i>Anas platyrhynchos</i>	R
Common merganser	<i>Mergus merganser</i>	T/R
California quail	<i>Callipepla californica</i>	R
Double-crested cormorant	<i>Phalacrocorax auritus</i>	R
Great blue heron	<i>Ardea herodias</i>	R
Green heron	<i>Butorides virescens</i>	R
Turkey vulture	<i>Cathartes aura</i>	R
Bald eagle	<i>Haliaeetus leucocephalus</i>	R
Red-shouldered hawk	<i>Buteo lineatus</i>	R
Red-tailed hawk	<i>Buteo jamaicensis</i>	R
Killdeer	<i>Charadrius vociferous</i>	R/W
Spotted sandpiper	<i>Actitis macularia</i>	S/W
Rock pigeon*	<i>Columba livia</i>	S
Mourning dove	<i>Zenaida macroura</i>	R
Eurasian collared-dove*	<i>Streptopelia decaocto</i>	R
Barn owl	<i>Tyto alba</i>	R
Great horned owl	<i>Bubo virginianus</i>	R
White-throated swift	<i>Aeronautes saxatalis</i>	R
Anna's hummingbird	<i>Calypte anna</i>	R
Belted kingfisher	<i>Ceryle alcyon</i>	R
Acorn woodpecker	<i>Melanerpes formicivorus</i>	R
Nuttall's woodpecker	<i>Picoides nuttallii</i>	R
Downy woodpecker	<i>Picoides pubescens</i>	R
Northern flicker	<i>Colaptes auratus</i>	R
American kestrel	<i>Falco sparverius</i>	R
Pacific-slope flycatcher	<i>Empidonax difficilis</i>	S
Ash-throated flycatcher	<i>Myiarchus cinerascens</i>	S
Black phoebe	<i>Sayornis nigricans</i>	R
Say's phoebe	<i>Sayornis saya</i>	W
Western kingbird	<i>Tyrannus verticalis</i>	S
Warbling vireo	<i>Vireo gilvus</i>	S
California scrub jay	<i>Apelocoma californica</i>	R
American crow	<i>Corvus brachyrhynchos</i>	R
Common raven	<i>Corvus corax</i>	R
Tree swallow	<i>Tachycineta bicolor</i>	S
Violet-green swallow	<i>Tachycineta thalassina</i>	S
Northern rough-winged swallow	<i>Stelgidopteryx serripennis</i>	S
Cliff swallow	<i>Petrochelidon pyrrhonota</i>	S
Barn swallow	<i>Hirundo rustica</i>	S

Common name	Scientific name	Seasonal occurrence/ nesting codes ¹
Oak titmouse	<i>Baeolophus inornatus</i>	R
Bushtit	<i>Psaltirparus minimus</i>	R
White-breasted nuthatch	<i>Sitta carolinensis</i>	R
House wren	<i>Troglodytes aedon</i>	S
Bewick's wren	<i>Thryomanes bewickii</i>	R
Western bluebird	<i>Sialia mexicana</i>	R
California thrasher	<i>Toxostoma redivivum</i>	R
Northern mockingbird	<i>Mimus polyglottos</i>	R
Wrentit	<i>Chamaea fasciata</i>	R
European starling*	<i>Sturnus vulgaris</i>	R
Phainopepla	<i>Phainopepla nitens</i>	T
Orange-crowned warbler	<i>Oreothlypis celata</i>	S/T
Yellow warbler	<i>Setophaga petechia</i>	S
Common yellowthroat	<i>Geothlypis trichas</i>	R
Wilson's warbler	<i>Cardellina pusilla</i>	S
Spotted towhee	<i>Pipilo maculatus</i>	R
California towhee	<i>Melospiza crissalis</i>	R
Chipping sparrow	<i>Spizella passerina</i>	R
Lark sparrow	<i>Calamospiza melanocorys</i>	S
Song sparrow	<i>Melospiza melodia</i>	R/W
Dark-eyed junco	<i>Junco hyemalis</i>	R/W
Western meadowlark	<i>Sturnella neglecta</i>	R/W
Brewer's blackbird	<i>Euphagus cyanocephalus</i>	R
Black-headed grosbeak	<i>Pheucticus melanocephalus</i>	S
Brown-headed cowbird	<i>Molothrus ater</i>	S
Bullock's oriole	<i>Icterus bullockii</i>	S
House finch	<i>Haemorhous mexicanus</i>	R
Lesser goldfinch	<i>Spinus psaltria</i>	R/T
Lawrence's goldfinch	<i>Spinus lawrencei</i>	T
American goldfinch	<i>Spinus tristis</i>	R
House sparrow*	<i>Passer domesticus</i>	R
MAMMALS		
Broad-footed mole	<i>Scapanus latimanus</i>	R
Mexican free-tailed bat	<i>Tadarida brasiliensis mexicana</i>	S/T
Pallid bat	<i>Antrozous pallidus</i>	S/T
Big brown bat	<i>Eptesicus fuscus</i>	S/T
California myotis	<i>Myotis californicus</i>	S/T
Yuma myotis	<i>Myotis yumanensis</i>	S/T
Bobcat	<i>Lynx rufus</i>	R
California ground squirrel	<i>Otopermophilus beecheyi</i>	R
American beaver	<i>Castor canadensis</i>	R
Deer mouse	<i>Peromyscus maniculatus</i>	R
Salinas pocket mouse	<i>Perognathus inornatus psammophilus</i>	R
Botta's pocket gopher	<i>Thomomys bottae</i>	R
Desert cottontail	<i>Sylvilagus audubonii</i>	R
Northern raccoon	<i>Procyon lotor</i>	R
Mule deer	<i>Odocoileus hemionus</i>	R

* = Species not native to the BSA.

¹The codes refer to the species presumed seasonal occurrence on the site and probable breeding/nesting status (breeding was not confirmed in most cases).

R = Year-round resident: resident/expected to nest/breed on-site or in the vicinity.
S = Spring/summer resident: May nest on-site or in the vicinity.
T = Transient: May use the site regularly but unlikely to nest on-site.
W = Winter visitor: Regularly present during winter; does not nest locally.

Appendix G Programmatic Biological Opinion for Projects Funded or Approved under the Federal Highway Administration's Federal Aid Program (8-8-10-F-58)

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United States Department of the Interior

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



IN REPLY REFER TO:
81440-2010-F-0382

May 4, 2011

Rich Krumholz, District Director
California Department of Transportation
50 Higuera Street
San Luis Obispo, California 93401-5415

Subject: Programmatic Biological Opinion for Projects Funded or Approved under the
Federal Highway Administration's Federal Aid Program (8-8-10-F-58)

Dear Mr. Krumholz:

This document transmits the U.S. Fish and Wildlife Service's (Service) biological opinion regarding projects funded under the Federal Highway Administration's (FHWA) Federal Aid Program that are likely to adversely affect the federally threatened California red-legged frog (*Rana draytonii*) and its designated critical habitat. This document also contains our programmatic concurrence for projects conducted under the Federal Aid Program that are not likely to adversely affect the California red-legged frog or its critical habitat. The development of this programmatic biological opinion and concurrence are the result of a collaborative effort between the California Department of Transportation (Caltrans) and the Service.

Pursuant to the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU), the FHWA assigned and Caltrans assumed responsibilities for consultation and coordination with resource agencies for most projects within the state of California (FHWA 2007). The delegation of authority stipulates that correspondence regarding consultations be addressed to Caltrans, even if the FHWA initiated the consultation. Consequently, we have developed this biological opinion in accordance with this direction.

This biological opinion, which has been prepared in accordance with section 7(a)(2) of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*) (Act), evaluates the effects of certain activities, authorized by Caltrans, on the California red-legged frog and its 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, California. We believe that California red-legged frog populations in Ventura and Los Angeles Counties are so isolated from other California red-legged frog populations, that they do not meet the eligibility criteria described in the Description of the Proposed Action section of this biological opinion (Criterion 4.).

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This biological opinion and programmatic concurrence were prepared primarily with information provided by the California Department of Transportation and information in our files. A complete record of this consultation can be made available upon request.

CONSULTATION HISTORY

Since the listing of the California red-legged frog in 1996, the FHWA, in conjunction with Caltrans, consulted with the Service's Ventura Fish and Wildlife Office on numerous projects that the FHWA determined were likely to adversely affect the California red-legged frog. The FHWA, Caltrans, and the Service recognized that many of these projects resulted in minor effects to the California red-legged frog and its habitat. Additionally, many of the protective measures included in our previous biological opinions were very similar. Consequently, the Service, FHWA, and Caltrans determined that a programmatic approach to the consultation process was appropriate. Staff from the Service's Ventura Fish and Wildlife Office, FHWA, and Caltrans coordinated extensively during the preparation of a programmatic biological opinion we issued to FHWA in 2003 (Service 2003).

The Service designated critical habitat for the California red-legged frog, on March 17, 2010, (75 Federal Register (FR) 12816). The 2003 programmatic biological opinion does not address critical habitat for the California red-legged frog, so any biological opinion tiered from the 2003 programmatic and issued after critical habitat was designated must include a complete analysis of the effects of the proposed action on critical habitat for the California red-legged frog. Therefore, to further streamline the consultation process achieved with the 2003 programmatic, a complete analysis of the effects of the proposed actions on critical habitat for the California red-legged frog is included in this biological opinion.

Since 2003, we have issued 26 biological opinions that are tiered off of our programmatic biological opinion (Service 2003). Construction on 16 of those projects is complete and we have included additional information on those projects in the Environmental Baseline section of this biological opinion. Caltrans and the Service consider this biological opinion a reinitiation of formal consultation on the 14 projects that have not been completed, or where the proposed action would adversely affect critical habitat for the California red-legged frog.

Although we have strived to issue biological opinions tiered from the 2003 programmatic in a much shorter timeframe than required by Federal regulation (50 CFR 402), at times the large number of formal consultations to be completed has limited our ability to provide these documents within expedited timeframes. Therefore, Caltrans and the Service recognize that we could further streamline the 2003 programmatic by avoiding tiered biological opinions, resulting in a more efficient process.

ADMINISTRATION OF THE PROGRAMMATIC BIOLOGICAL OPINION

Caltrans will prepare all required environmental documents for individual projects that would be conducted pursuant to this biological opinion, including those needed to satisfy its

responsibilities under the Act, the National Environmental Policy Act, and the California Environmental Quality Act.

For all proposed actions that Caltrans determine are likely to adversely affect the California red-legged frog or its critical habitat, Caltrans will consider whether the action:

1. Meets the suitability criteria, as described in the Description of the Proposed Action section of this biological opinion; and
2. Whether the proposed activities and anticipated effects to California red-legged frogs fall within the scope of this biological opinion.

At least 90 days prior to conducting any activities that it determines are likely to adversely affect the California red-legged frog or its critical habitat, Caltrans will notify the Ventura Fish and Wildlife Office, in writing, of projects they propose to conduct under the auspices of this biological opinion. If the Service determines that use of this programmatic biological opinion is not appropriate for the proposed action, we will notify Caltrans in writing within 30 days, and the standard provisions for section 7 consultation will apply. The regulations which implement section 7 allow the Service up to 90 days to conclude formal consultation and an additional 45 days to prepare our biological opinion. If we require additional information to complete our biological opinion, we will describe our needs in our letter; if additional information is not required, we will consider consultation to have been initiated on the date we received the original notification of Caltrans' intent to conduct their proposed project pursuant to the programmatic consultation.

At a minimum, the following information will accompany Caltrans' project notification to the Service:

1. A 7.5-minute topographic map (and aerial photographs if possible) of the proposed project site, as well as photographs of the project site;
2. A written description of the activity, including, but not limited to, construction methods, time of year the work would occur, a habitat restoration plan, and a construction monitoring plan;
3. One cross-section and a minimum of one plan view indicating water bodies, vegetation types, work areas, roads (including temporary construction access roads), restoration sites, refueling and staging areas that will be located within the existing or proposed public right-of-way or temporary construction easements, and environmentally sensitive areas proposed to protect habitat of the California red-legged frog;
4. The names and credentials of biologists who will conduct surveys for, monitor, and handle California red-legged frogs will be provided to the Service 30 days prior to the start of construction. Once the Service approves a biologist, Caltrans would not need to

provide their credentials for subsequent projects conducted pursuant to this consultation;
and

5. Information resulting from any site visits, surveys, or habitat assessments conducted for the proposed action.

By January 31 of each year this consultation is in effect, Caltrans will provide to the Service's Ventura Fish and Wildlife Office, a list of projects for which it used this consultation. Caltrans will provide sufficient information on the list to identify the projects that occurred in the previous year under the provisions of this biological opinion. The annual list will assist the Ventura Fish and Wildlife Office in ensuring that it has received the required Project Completion Reports that are described later in this document. Caltrans may also use the occasion of providing the list to recommend changes to the consultation that are more protective of the California red-legged frog and its habitat while simplifying compliance with the Act.

ADMINISTRATION OF THE PROGRAMMATIC INFORMAL CONSULTATION

For all proposed actions that Caltrans determines may affect, but are not likely to adversely affect, the California red-legged frog or its critical habitat, Caltrans will determine if the proposed action meets the suitability criteria for our programmatic concurrence, as described in the Description of the Proposed Action section of this biological opinion. If Caltrans determines the proposed action meets the suitability criteria for concurrence, it will notify our office in writing, at least 30 days prior to the start of construction. We will review Caltrans' notification and respond in writing, or via electronic mail, if we have concerns or questions regarding the proposed action, or if we have any additional information that we believe may influence Caltrans' determination.

At a minimum the following information will accompany the notification:

1. Caltrans must include a rationale in its notification to us, as to how adverse effects to the California red-legged frog and its critical habitat will be avoided.
2. A 7.5-minute topographic map and aerial photographs of the project site, as well as photographs of the project site. The location of the project, any restoration sites, and all known locations of California red-legged frogs within 2 miles of the project site will be identified on the map and photographs;
3. A written description of the activity, including, but not limited to, construction methods, avoidance measures in addition to those required under this programmatic biological opinion, time of year the work would occur, habitat restoration plans, and construction monitoring plans;
4. One cross-section and a minimum of one plan view indicating water bodies, vegetation types, work areas, roads (including temporary construction access roads), restoration

sites, refueling and staging areas that will be located within the existing or proposed public right-of-way or temporary construction easements, and Environmentally Sensitive Areas proposed to protect habitat of the California red-legged frog; and

5. The results of information gathered by following the procedures in the Service's guidance for assessing habitat quality and field surveys for the California red-legged frog.

Staff from the Service's Ventura Fish and Wildlife Office will be available to provide technical assistance during all phases of consultation. Technical assistance can include assisting Caltrans with determinations of effects, development of project-specific designs and protective measures, modifications of survey protocols, and any other issues that may arise. Technical assistance may be transmitted by the Service in the form of telephone calls, electronic mail, or written correspondence.

BIOLOGICAL OPINION

ANALYTICAL FRAMEWORK FOR THE JEOPARDY AND ADVERSE MODIFICATION DETERMINATIONS

Jeopardy Determination

The jeopardy analysis in this biological opinion relies on four components: (1) the *Status of the Species*, which evaluates the range-wide condition of the California red-legged frog, the factors responsible for that condition, and the species' survival and recovery needs; (2) the *Environmental Baseline*, which evaluates the condition of the California red-legged frog in the action area, the factors responsible for that condition, and the relationship of the action area to the survival and recovery of the California red-legged frog; (3) the *Effects of the Action*, which determines the direct and indirect impacts of the proposed Federal action and the effects of any interrelated or interdependent activities on the California red-legged frog; and (4) the *Cumulative Effects*, which evaluates the effects of future, non-Federal activities in the action area on the California red-legged frog.

In accordance with policy and regulation, the jeopardy determination is made by evaluating the effects of the proposed federal action in the context of the current status of the California red-legged frog, taking into account any cumulative effects, to determine if implementation of the proposed action is likely to cause an appreciable reduction in the likelihood of both the survival and recovery of the California red-legged frog.

The jeopardy analysis in this biological opinion places an emphasis on consideration of the range-wide survival and recovery needs of the California red-legged frog and the role of the action area in the survival and recovery of the subspecies as the context for evaluation of the significance of the effects of the proposed federal action, taken together with cumulative effects, for purposes of making the jeopardy determination.

Adverse Modification Determination

This biological opinion does not rely on the regulatory definition of “destruction or adverse modification” of critical habitat at 50 CFR 402.02. Instead, we have relied on the statutory provisions of the ESA to complete the following analysis with respect to critical habitat.

In accordance with policy and regulation, the adverse modification analysis in this biological opinion relies on four components: (1) the *Status of Critical Habitat*, which evaluates the range-wide condition of designated critical habitat for the California red-legged frog in terms of primary constituent elements (PCEs), the factors responsible for that condition, and the intended recovery function of the critical habitat overall; (2) the *Environmental Baseline*, which evaluates the condition of the critical habitat in the action area, the factors responsible for that condition, and the recovery role of the critical habitat in the action area; (3) the *Effects of the Action*, which determines the direct and indirect impacts of the proposed Federal action and the effects of any interrelated and interdependent activities on the PCEs and how that will influence the recovery role of the affected critical habitat units; and (4) *Cumulative Effects*, which evaluates the effects of future non-Federal activities in the action area on the PCEs and how that will influence the recovery role of affected critical habitat units.

For purposes of the adverse modification determination, the effects of the proposed federal action on the critical habitat of the California red-legged frog are evaluated in the context of the range-wide condition of the critical habitat, taking into account any cumulative effects, to determine if the critical habitat range-wide would remain functional (or would retain the current ability for the PCEs to be functionally established in areas of currently unsuitable but capable habitat) to serve its intended recovery role for the California red-legged frog.

The analysis in this biological opinion places an emphasis on using the intended range-wide recovery function of critical habitat for the California red-legged frog and the role of the action area relative to that intended function as the context for evaluating the significance of the effects of the proposed Federal action, taken together with cumulative effects, for purposes of making the adverse modification determination.

DESCRIPTION OF THE PROPOSED ACTION

Eligibility Criteria for the Programmatic Biological Opinion

To make use of this programmatic biological opinion, the Caltrans must ensure that a proposed project satisfies the following criteria:

Criterion 1: Actions that would be appropriately considered in this biological opinion are likely to result in adverse effects to the California red-legged frog and its critical habitat, but would not affect the long-term viability of the population in the action area. Caltrans and the Service have previously consulted on numerous projects that met these criteria. These projects include: retrofitting of bridges to reduce damage that may be caused by earthquakes; repair, widening,

and replacement of bridges; repair of stream bank protection; replacement of low-flow stream crossings with bridges; small-scale stabilization of stream slopes; minor improvement of drainage; replacement of culverts; rehabilitation of highway surfaces; and improvement of the safety and operation of highways.

Criterion 2: To qualify for use of this programmatic biological opinion, the measures to reduce or avoid adverse effects to the California red-legged frog and its critical habitat, provided herein, must be implemented; these measures may be modified on a project-specific basis upon the agreement of the Caltrans and the Service.

Criterion 3: The projects must be single and complete, and not part of larger actions or associated with other development projects including, but not limited to, housing subdivisions, commercial or industrial developments, or golf courses.

Criterion 4: The projects must not, in the Service's view, take place in areas where populations of California red-legged frogs are so isolated that even the small effects described in this biological opinion may have substantial impacts.

Minimization of Adverse Effects

Caltrans will ensure that projects implemented in accordance with this biological opinion will be designed to avoid or minimize adverse effects to the California red-legged frog and its critical habitat. At a minimum, the following measures will be incorporated into the projects:

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 confine 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 catesbeiana*), 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.
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 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 reinstitute 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 reinstitute 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.

Total acreages of dispersal habitat that may be adversely affected would be confined to the Caltrans or County rights-of-way that occur adjacent to roads, and would be linear in nature. Dispersal habitat for the California red-legged frog adjacent to roads and highways, within these rights-of-way, is generally less ecologically valuable to the California red-legged frog than larger blocks of habitat. Road corridors and associated disturbances may lead to reduced habitat quality resulting in decreased abundance or density of breeding individuals (Forman et al. 2003).

PROGRAMMATIC INFORMAL CONSULTATION

In addition to the numerous formal consultations we have conducted with Caltrans, we have also conducted many informal consultations and concurred that many of Caltrans' proposed projects are not likely to adversely affect the California red-legged frog or its critical habitat. Many of these projects are very similar to the type of projects we are considering in the subject formal consultation (e.g., bridge and culvert replacements). Because many of the avoidance measures associated with our previous concurrences are very similar, and we are often working on multiple concurrence letters simultaneously, Caltrans and the Service believe a programmatic approach to projects that are not likely to adversely affect the California red-legged frog or its critical habitat is appropriate.

Criteria for the Programmatic Concurrence

Projects that are not likely to adversely affect the California red-legged frog, or its critical habitat, must have only discountable, insignificant, or completely beneficial effects to the subspecies and its critical habitat. The Services (1998) defines the term discountable as extremely unlikely and unexpected; the term insignificant relates to the size of the impact (i.e., unable to meaningfully measure, detect, or evaluate). To make use of this programmatic informal consultation for actions that may affect, but are not likely to adversely affect the California red-legged frog or its critical habitat, Caltrans must demonstrate that the project satisfies the following criteria:

Criterion 1: California red-legged frogs are not known to occur at the proposed project site and were not found during surveys following the Guidelines for surveys and habitat assessments (Service 2007); however, the potential may exist for individuals to occur at the proposed project site because no barriers exist to preclude dispersal of California red-legged frog from nearby suitable habitat.

Criterion 2: Any effects to critical habitat must be discountable, insignificant, or completely beneficial to the California red-legged frog.

Criterion 3: The measures to avoid adverse effects to the California red-legged frog and its critical habitat, provided herein, must be implemented; these measures may be modified on a

project-specific basis to achieve avoidance of adverse effects upon the agreement of Caltrans and the Service.

Measures to Avoid Adverse Effects

For projects to qualify for the programmatic concurrence, at a minimum Caltrans will ensure that the following measures are implemented to avoid adverse effects to the California red-legged frog and its critical habitat:

1. A biologist with experience in the identification of all life stages of the California red-legged frog, and its critical habitat (75 FR 12816), 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 detected the Service will be notified prior to the start of construction. If Caltrans and the Service determine that adverse effects to the California red-legged frog or its critical habitat cannot be avoided, the proposed project will not commence until the Caltrans completes the appropriate level of consultation with the Service.

2. Work activities will take place during the dry season, between April 1 and November 1, when water levels are typically at their lowest, and California red-legged frogs are likely to be more detectable. Should activities need to be conducted outside of this period, Caltrans may conduct or authorize such activities after obtaining the Service's written approval.

3. Before work begins on any proposed project, a biologist with experience in the ecology of the California red-legged frog, as well as the identification of all its life stages, will conduct a training session for all construction personnel, which will include a description of the California red-legged frog, its critical habitat, and specific measures that are being implemented to avoid adverse effects to the subspecies during the proposed project.

4. If any life stage of the California red-legged frog is detected in the project area during construction, work will cease immediately and the resident engineer, authorized biologist, or biological monitor will notify the Ventura Fish and Wildlife Office via telephone or electronic mail. If Caltrans and the Service determine that adverse effects to California red-legged frogs cannot be avoided, construction activities will remain suspended until Caltrans and the Service complete the appropriate level of consultation.

5. 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.

6. 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 implement should a spill occur.

7. All refueling, maintenance, and staging of equipment and vehicles will occur at least 60 feet from aquatic or riparian habitat and not in a location from where a spill would drain directly toward aquatic habitat. The monitor will ensure contamination of aquatic or riparian habitat does not occur during such operations by implementing the spill response plan described in measure 6.

8. Plants used in re-vegetation will consist 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 Caltrans and the Service determine that it is not feasible or practical.

9. Habitat contours will be returned to their original configuration at the end of project activities in all areas that have been temporarily disturbed by activities associated with the project, unless Caltrans and the Service determine that it is not feasible or modification of original contours would benefit the California red-legged frog.

10. 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 confine access routes and construction areas to the minimum area necessary to complete construction, and minimize the impact to habitat for the California red-legged frog; this goal includes locating access routes and construction areas outside of aquatic habitat and riparian areas to the maximum extent practicable.

11. To control sedimentation during and after project implementation, Caltrans 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, the intake will be screened with wire mesh not larger than 0.2 inch to prevent any California red-legged frogs not initially detected from entering the pump system. If California red-legged frogs are detected during dewatering, and adverse effects to California red-legged frogs cannot be avoided, construction activities will remain suspended until Caltrans and the Service complete the appropriate level of consultation.

13. 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 creek bed will be minimized to the maximum extent possible; any imported material will be removed from the stream bed upon completion of the project.

14. Unless approved by the Service, water will not be impounded in a manner that may attract California red-legged frogs.

15. A qualified biologist will permanently remove any individuals of exotic species, such as bullfrogs, crayfish, and centrarchid fishes from the project area, to the maximum extent possible. The biologist will be responsible for ensuring his or her activities are in compliance with the California Fish and Game Code.

16. To ensure that diseases are not conveyed between work sites by the Service-approved biologist, the enclosed fieldwork code of practice developed by the Declining Amphibian Populations Task Force will be followed at all times.

This concurrence is based on the proposed avoidance measures, as well as the other criteria that a specific project must meet to qualify for use of this informal consultation. This concurrence does not authorize capture, handling, or relocation of California red-legged frogs. If at any time Caltrans determines: 1) their proposed action is likely to adversely affect the California red-legged frog or its critical habitat; and 2) the proposed project meets criteria for the programmatic biological opinion, Caltrans should notify our office immediately. If Caltrans is able to adhere to the protective measures described previously in the programmatic biological opinion, the work may continue and Caltrans will notify the Service in writing that they are proceeding with the project under the programmatic biological opinion. If at any time Caltrans or the Service conclude that the proposed action does not meet the suitability criteria for the programmatic biological opinion, all work must cease until the appropriate level of consultation has been completed.

STATUS OF THE SPECIES/CRITICAL HABITAT

California red-legged frog

The California red-legged frog was federally listed as threatened on May 23, 1996 (61 FR 25813). The Service has published a recovery plan (Service 2002).

The historical range of the California red-legged frog extended coastally from southern Mendocino County and inland from the vicinity of Redding, California, southward to northwestern Baja California, Mexico (Jennings and Hayes 1985; Storer 1925). The California red-legged frog has been extirpated or nearly extirpated from 70 percent of its former range. Historically, this species was found throughout the Central Valley and Sierra Nevada foothills. Four additional occurrences have been recorded in the Sierra Nevada foothills since listing, bringing the total to five extant populations, compared to approximately 26 historical records (71 FR 19244). Currently, California red-legged frogs are only known from 3 disjunct regions in 26 California counties and 1 disjunct region in Baja California, Mexico (Grismer 2002; Fidenci 2004; R. Smith and D. Krofta, in litt. 2005).

California red-legged frogs have been found at elevations that range from sea level to about 5,000 feet. In the Sierra Nevada Mountains, California red-legged frogs typically occur below 4,000 feet and occurrences above this elevation are atypical for the subspecies (71 FR 19244).

The California red-legged frog uses a variety of habitat types, including various aquatic systems, riparian, and upland habitats. The diet of California red-legged frogs is highly variable. Hayes and Tennant (1985) found invertebrates to be the most common food item of adults. Vertebrates, such as Pacific chorus frogs (*Pseudacris regilla*) and California mice (*Peromyscus californicus*), represented over half of the prey mass eaten by larger frogs (Hayes and Tennant 1985). Feeding activity occurs along the shoreline and on the surface of the water. Hayes and Tennant (1985) found juveniles to be active diurnally and nocturnally, whereas adults were largely nocturnal.

California red-legged frogs breed from November through March; earlier breeding has been recorded in southern localities (Storer 1925). Males appear at breeding sites from 2 to 4 weeks before females (Storer 1925). Female California red-legged frogs deposit egg masses on emergent vegetation so that the masses float on the surface of the water (Hayes and Miyamoto 1984). Egg masses contain about 2,000 to 5,000 moderate-sized, dark reddish brown eggs (Storer 1925; Jennings and Hayes 1985). Eggs hatch in 6 to 14 days (Storer 1925). Larvae undergo metamorphosis 3.5 to 7 months after hatching (Storer 1925; Wright and Wright 1949). Sexual maturity can be attained at 2 years of age by males and 3 years of age by females (Jennings and Hayes 1985); adults may live 8 to 10 years (Jennings et al. 1992) although the average life span is considered to be much lower. The California red-legged frog is a relatively large aquatic frog ranging from 1.5 to 5 inches from the tip of the snout to the vent (Stebbins 1985).

California red-legged frogs breed in aquatic habitats. Larvae, juveniles and adults have been collected from streams, creeks, ponds, marshes, plunge pools and backwaters within streams, dune ponds, lagoons, and estuaries. California red-legged frogs frequently breed in artificial impoundments, such as stock ponds, if conditions are appropriate. Although California red-legged frogs successfully breed in streams and riparian systems, high spring flows and cold temperatures in streams often make these sites risky environments for eggs and tadpoles. The importance of riparian vegetation for this species is not well understood. When riparian vegetation is present, California red-legged frogs spend considerable time resting and feeding in it; the moisture and camouflage provided by the riparian plant community likely provide good foraging habitat and may facilitate dispersal in addition to providing pools and backwater aquatic areas for breeding.

Juvenile and adult California red-legged frogs may disperse long distances from breeding sites throughout the year. They can be encountered living within streams at distances exceeding 1.8 miles from the nearest breeding site, and have been found up to 400 feet from water in adjacent dense riparian vegetation (Bulger et al. 2003). During periods of wet weather, starting with the first rains of fall, some individuals may make overland excursions through upland habitats. Most of these overland movements occur at night. Bulger et al. (2003) found marked California red-legged frogs in Santa Cruz County making overland movements of up to 2 miles over the course

of a wet season. These individual frogs were observed to make long-distance movements that are straight-line, point to point migrations over variable upland terrain rather than using riparian corridors for movement between habitats. For the California red-legged frog, suitable habitat is potentially all aquatic and riparian areas within the range of the species and includes any landscape features that provide cover and moisture (61 FR 25813).

Habitat loss and alteration, combined with over-exploitation and introduction of exotic predators, were important factors in the decline of the California red-legged frog in the early to mid-1900s. Continuing threats to the California red-legged frog include direct habitat loss due to stream alteration and loss of aquatic habitat, indirect effects of expanding urbanization, competition or predation from non-native species including the bullfrog, catfish (*Ictalurus* spp.), bass (*Micropterus* spp.), mosquito fish (*Gambusia affinis*), red swamp crayfish, and signal crayfish. Chytrid fungus (*Batrachochytrium dendrobatidis*) is a waterborne fungus that can decimate amphibian populations, and is considered a threat to California red-legged frog populations.

Critical Habitat for the California Red-legged Frog

On March 17, 2010, the Service designated critical habitat for the California red-legged frog (75 FR 12816). In total, 1,636,609 million acres was designated as critical habitat for the California red-legged frog in 27 California counties. The current designation better reflects the lands containing those essential habitat features necessary for the conservation of the California red-legged frog than did earlier designations that had been subject to litigation. A detailed discussion of the methods used in developing proposed critical habitat can be found in the final rule (75 FR 12816).

We have identified the physical or biological features essential to the conservation of the species, the Primary Constituent Elements (PCEs), that may require special management considerations or protection. Because not all life-history functions require all the PCEs, not all areas designated as critical habitat will contain all the PCEs. Based on our current knowledge of the life-history, biology, and ecology of the California red-legged frog, we determined the California red-legged frog's PCEs to consist of: 1) aquatic breeding habitat; 2) aquatic non-breeding habitat; 3) upland habitat; and 4) dispersal habitat. Detailed descriptions of these PCEs can be found in the final rule (75 FR 12816). The following is a brief summary of the PCEs:

- 1) Aquatic breeding habitat consists of standing bodies of fresh water (with salinities less than 4.5 part per thousand), including natural and manmade (stock) ponds, slow moving streams or pools within streams and other ephemeral or permanent water bodies that typically become inundated during winter rains and hold water for a minimum of 20 weeks in all but the driest of years.
- 2) Aquatic non-breeding habitat consists of the freshwater habitats as described for aquatic breeding habitat but which may or may not hold water long enough for the subspecies to complete the aquatic portion of its lifecycle but which provide for shelter, foraging,

predator avoidance, and aquatic dispersal habitat of juvenile and adult California red-legged frogs.

- 3) Upland habitat consists of upland areas adjacent to or surrounding breeding and non-breeding aquatic and riparian habitat up to a distance of one mile in most cases (i.e., depending on surrounding landscape and dispersal barriers) including various vegetation types such as grassland, woodland, forest, wetland, or riparian areas that provide shelter, forage, and predator avoidance for the California red-legged frog. Upland habitat should include structural features such as boulders, rocks and organic debris (e.g., downed trees, logs), small mammal burrows, or moist leaf litter.
- 4) Dispersal habitat consists of accessible upland or riparian habitat within and between occupied or previously occupied sites that are located within one mile of each other, and that support movement between such sites. Dispersal habitat includes various natural habitats, and altered habitats such as agricultural fields, that do not contain barriers (e.g., heavily traveled roads without bridges or culverts) to dispersal. Dispersal habitat does not include moderate- to high-density urban or industrial developments with large expanses of asphalt or concrete, nor does it include large lakes or reservoirs over 50 acres in size, or other areas that do not contain those features identified in PCE 1, 2, or 3 as essential to the conservation of the species.

ENVIRONMENTAL BASELINE

The implementing regulations for section 7(a)(2) of the Act define the “action area” as all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action (50 CFR 402.02). For the purposes of this biological opinion, we consider the action area to include the areas within Santa Cruz, San Benito Monterey, San Luis Obispo, Santa Barbara Counties that support the California red-legged frog, or its critical habitat, and that have the potential to be affected directly or indirectly by federally-funded projects. Caltrans projects that would be appropriately conducted pursuant to this biological opinion would occur within the Caltrans or County rights-of-way. Based on the anticipated impacts of the 26 projects we have consulted on and the documented effects of the 15 projects that Caltrans has completed under our previous programmatic biological opinion (Service 2003), we are not aware of any indirect effects which extend beyond the Caltrans or County right-of-way. Therefore, we assume the area within the right-of-way of each of the projects conducted pursuant to this programmatic biological opinion will encompass the direct and indirect effects of the proposed action.

All or portions of the following three recovery units (as defined in the Recovery Plan for the California red-legged frog (Service 2002) are included in the action area:

The Central Coast Recovery Unit includes, generally, the coastal portions of Santa Cruz, Monterey, and San Luis Obispo Counties. This recovery unit supports the greatest number of drainages currently occupied by the California red-legged frog.

The Diablo Range and Salinas Valley Recovery Unit includes, generally, San Benito County and the inland portions of Santa Cruz, Monterey, and San Luis Obispo Counties. This recovery unit supports “no more than 10 percent of the historic localities (of the California red-legged frog) within the Salinas basin and inner Coast Ranges” (Service 2002). Santa Barbara County and portions of San Luis Obispo Counties are within the Northern Transverse Ranges and Tehachapi Mountains Recovery Unit. California red-legged frogs are patchily distributed in the interior portion of this recovery unit and occur in numerous coastal streams in Santa Barbara County.

From April 2003 through June 2010, we issued 26 biological opinions that were tiered off of our previous programmatic biological opinion with FHWA (Service 2003). Under those 26 biological opinions we authorized the incidental take of 34 California red-legged frogs in the form of injury or mortality. Five tiered biological opinions authorized the incidental take of two California red-legged frogs, one biological opinion authorized the incidental take of four California red-legged frogs, and 20 biological opinions authorized the incidental take of one California red-legged frog.

Based on the information contained in the requests for consultation, we calculated the amount of aquatic and upland habitats that we estimate will be permanently lost and temporarily disturbed when construction of these projects has been completed (Appendix 1).

Construction has been completed on 15 projects (Appendix 2) that were conducted under the programmatic biological opinion (Service 2003). No California red-legged frogs were injured or killed during construction of these 15 projects. Five of the Project Completion Reports for these 15 projects did not include the amount of wetland or upland habitat impacts. Of the 10 other completed projects, none exceeded the reinitiation thresholds identified in our 2003 programmatic biological opinion (Service 2003).

Critical Habitat

Because our previous programmatic biological opinion (Service 2003) did not address critical habitat, the Project Completion Reports associated with that biological opinion do not include the amount of critical habitat affected by each completed project in terms of the PCEs. Instead, the Project Completion Reports require that the amount of wetland and riparian habitat temporarily and permanently affected by a project be reported. We interpret the amount of wetland habitat affected by a project to include either breeding, non-breeding habitat, or both, and the riparian habitat component to include upland habitat and/or dispersal habitat. The amount of critical habitat for the California red-legged frog that has been adversely affected as a result of the 15 completed projects consists of: 0.033-acre of aquatic habitat for the California red-legged frog that was permanently lost and 0.1-acre that was temporarily disturbed; 0.20-acre of upland habitat that were permanently lost and 0.12-acre that were temporarily disturbed.

Nineteen critical habitat units may be adversely affected by actions conducted pursuant to this biological opinion. These critical habitat units occur in Santa Cruz, San Benito, Monterey, San Luis Obispo, and Santa Barbara Counties. The physical and biological features important to the

conservation of the California red-legged frog are included in the following descriptions from the final rule 75(FR) 12816:

SCZ-1, North Coastal Santa Cruz County

This unit consists of approximately 72,249 acres of land and is located along the coastline of northern Santa Cruz County, plus a small area in southern San Mateo County, from approximately Green Oaks Creek to Wilder Creek. The unit includes the following watersheds: Green Oaks Creek, Waddell Creek, East Waddell Creek, Scott Creek, Big Creek, Little Creek, San Vicente Creek, Laguna Creek, and Majors Creek. The unit is mapped from occurrences recorded at the time of listing and subsequent to the time of listing and is currently occupied. SCZ-1 contains the features that are essential for the conservation of the species. The unit also contains aquatic habitat for breeding and non-breeding activities (PCE 1 and PCE 2), and upland habitat for foraging and dispersal activities (PCE 3 and PCE 4). SCZ-1 provides connectivity between occupied sites along the coast and farther inland. In addition, it contains high-quality habitat, indicated by high density of extant occurrences, permanent and ephemeral aquatic habitat suitable for breeding, and accessible upland areas for dispersal, shelter, and food. The unit represents one of two areas designated for critical habitat in Santa Cruz County and is the northern extent of the central coast recovery unit.

The physical and biological features essential to the conservation of California red-legged frog in the SCZ-1 unit may require special management considerations or protection due to water diversions, which may alter aquatic habitats and thereby result in the direct or indirect loss of egg masses, juveniles, or adults.

SCZ-2, Watsonville Slough

This unit consists of approximately 4,057 acres of land and is located along the coastal plain in southern Santa Cruz County, north of the mouth of the Pajaro River and seaward of California Highway 1. It includes locations in the Watsonville Slough system, including all or portions of Gallighan, Hanson, Harkins, Watsonville, Struve, and the West Branch of Struve sloughs. The unit includes portions of the Corralitos Lagoon and Mouth of the Pajaro River watersheds. The unit is mapped from occurrences recorded at the time of listing and subsequent to the time of listing. SCZ-2 contains the features that are essential for the conservation of the species. This unit is currently occupied, and contains permanent and ephemeral aquatic habitat for breeding and non-breeding activities (PCE 1 and PCE 2), and contains upland habitat for foraging, dispersal activities, and shelter (PCE 3 and PCE 4). SCZ-2 also provides connectivity between occupied sites along the coast and farther inland.

The physical and biological features essential to the conservation of California red-legged frog in the SCZ-2 unit may require special management considerations or protection due to predation by nonnative species, and due to urbanization and the presence of introduced invasive plants, both of which may alter aquatic or upland habitats and thereby result in the direct or indirect loss of egg masses or adults.

MNT-1, Elkhorn Slough

This unit consists of approximately 519 acres of land and is located along the coastal plain in northern Monterey County, inland from the town of Moss Landing, and it is mapped from occurrences recorded at the time of listing and subsequent to the time of listing. This unit is currently occupied. The unit includes the eastern edge of the Elkhorn Slough watershed and the western edge of the Strawberry Canyon watershed. MNT-1 contains the features that are essential for the conservation of the species. This unit contains aquatic habitat for breeding and non-breeding activities (PCE 1 and PCE 2), and upland habitat for foraging and dispersal activities (PCE 3 and PCE 4). The designation of MNT-1 is expected to prevent further fragmentation of habitat in this portion of the species' range, contains permanent and ephemeral aquatic habitats suitable for breeding, and contains upland areas for dispersal, shelter, and food. We have determined that these attributes are essential to the conservation of the species. Elkhorn Slough is unique in that it is a large estuary/freshwater slough system not typically found on the California coast. The unit consists entirely of private land.

The physical and biological features essential to the conservation of California red-legged frog in the MNT-1 unit may require special management considerations or protection due to pesticide exposure, trematode infestation, disease, and predation by nonnative species, which may affect aquatic or upland habitats and thereby result in the direct or indirect loss of egg masses or adults.

MNT-2, Carmel River

This unit consists of approximately 119,492 acres of land, is located south and southeast of the city of Monterey, and includes locations in the Carmel River drainage and nearby San Jose Creek. The unit includes the following watersheds and portions of watersheds: the southern portion of Carmel Bay, Carmel Valley, Robinson Canyon, San Jose Creek, Las Garces Creek, Hitchcock Canyon, the western portion of Lower Tularcitos Creek, Klondike Canyon, Black Rock Creek, Pine Creek, Danish Creek, Cachagua Creek, Lower Finch Creek, Bear Canyon, Bruce Fork, and Miller Canyon. It is mapped from occurrences recorded at the time of listing and subsequent to the time of listing. MNT-2 contains the features that are essential for the conservation of the species. The unit is currently occupied and contains permanent and ephemeral aquatic habitat for breeding and non-breeding activities (PCE 1 and PCE 2), and upland habitat for foraging, dispersal activities, and shelter (PCE 3 and PCE 4). The unit is the largest designated within Monterey County.

The physical and biological features essential to the conservation of California red-legged frog in the MNT-2 unit may require special management considerations or protection due to predation by nonnative species, urbanization, and water pumping and diversions, which may alter aquatic or upland habitats and thereby result in the direct or indirect loss of egg masses or adults.

MNT-3, Big Sur Coast

This unit consists of approximately 27,542 acres of land; is located along the Big Sur coastline in Monterey County, approximately from the mouth of the Little Sur River south to McWay Canyon; and includes locations in and around the Big Sur River drainage. The unit includes the following watersheds: Point Sur, Big Sur River, Ventana Creek, Sycamore Canyon, and Partington Creek. This unit was not known to be occupied at the time of listing, but surveys conducted subsequent to the time of listing show that this unit is currently occupied. Based on life history and population dynamics of the species we have determined that the area was most likely occupied at the time of listing. MNT-3 is essential for the conservation of the species because it contains the largest coastal habitat within Monterey Bay region and provides for connectivity to more interior units further north. MNT-3 also contains permanent and ephemeral aquatic habitat for breeding and non-breeding activities (PCE 1 and PCE 2), and upland habitat for foraging, dispersal activities, and shelter (PCE 3 and PCE 4). MNT-3 is currently occupied by the species.

The physical and biological features essential to the conservation of California red-legged frog in the MNT-3 unit may require special management considerations or protection due to predation by non-native species, urbanization, and water pumping and diversions, which may alter aquatic or upland habitats and thereby result in the direct or indirect loss of egg masses or adults.

SNB-1, Hollister Hills/San Benito River

This unit consists of approximately 36,294 acres of land and is located in northwestern San Benito County in the San Benito River drainage. The unit includes the following watersheds and portions of watersheds: the southern portions of San Justo Reservoir, Northeast Hollister Hills, and Upper Bird Creek; Left Fork Bird Creek; Sulfur Canyon; and the western portions of Arroyo Hondo, Willow Grove School, Paicines Ranch, and Lower Pescadero Creek. It is mapped from occurrences recorded at the time of listing and subsequent to the time of listing near Saint Frances Retreat, San Juan Oaks, Azalea Canyon, Bird Creek, Hollister Hills State Vehicle Recreation Area, Paicines Reservoir, and Tres Pinos Creek. SNB-1 contains the features that are essential for the conservation of the species. The unit contains aquatic habitat for breeding and non-breeding activities (PCE 1 and PCE 2), and upland habitat for foraging and dispersal activities (PCE 3 and PCE 4). SNB-1 also provides essential connectivity between sites on the coast plain and inner Coast Range. SNB-1 is occupied by the species, is expected to prevent further fragmentation of habitat in this portion of the species' range, and contains permanent and ephemeral aquatic habitats suitable for breeding and accessible upland areas for dispersal, shelter, and food.

The physical and biological features essential to the conservation of California red-legged frog in the SNB-1 unit may require special management considerations or protection due to predation by nonnative species, and habitat disturbance, which may alter aquatic and upland habitats and thereby result in the direct or indirect loss of egg masses or adults.

SNB-2, Antelope Creek/Upper Tres Pinos Creek

This unit consists of approximately 17,356 acres of land and is located in central San Benito County along the Tres Pinos Creek drainage within the Antelope Creek watershed. This unit was not known to be occupied at the time of listing, but surveys conducted subsequent to the time of listing show that this unit is currently occupied, and based on life history and population dynamics of the species we have determined that the area was most likely occupied at the time of listing. It is mapped from occurrence records in and along Tres Pinos Creek between the confluences of Boulder and Willow Springs Creeks. SNB-2 is essential for the conservation of the species because it provides aquatic habitat for breeding and non-breeding activities (PCE 1 and PCE 2), and upland habitat for foraging and dispersal activities (PCE 3 and PCE 4). SNB-2 is occupied by the species, is expected to prevent fragmentation of habitat in this portion of the species' range, and contains permanent and ephemeral aquatic habitats suitable for breeding and accessible upland areas for dispersal, shelter, and food. The unit consists entirely of private land. The physical and biological features essential to the conservation of California red-legged frog in the SNB-2 unit may require special management considerations or protection due to predation by nonnative species, overgrazing and trampling of aquatic and upland habitat by feral pigs, and recreational activities, which may alter aquatic and upland habitats and thereby result in the direct or indirect loss of egg masses or adults.

SNB-3, Pinnacles National Monument

This unit consists of approximately 63,753 acres of land; is located in the Gabilan Range at Pinnacles National Monument, about 3.5 miles west of the town of San Benito in southern San Benito County; and is mapped from occurrences recorded at the time of listing and subsequent to the time of listing. The unit includes the following watersheds: Gloria Lake, Bickmore Canyon, Sulfur Creek, and George Hansen Canyon. SNB-3 contains the features that are essential for the conservation of the species. The unit contains aquatic habitat for breeding and non-breeding activities (PCE 1 and PCE 2), and upland habitat for foraging and dispersal activities (PCE 3 and PCE 4). SNB-3 is expected to prevent further fragmentation of habitat in this portion of the species' range; contains permanent and ephemeral aquatic habitat suitable for breeding; contains accessible upland areas for dispersal, shelter, and food; and is occupied by the species.

The physical and biological features essential to the conservation of California red-legged frog in the SNB-3 unit may require special management considerations or protection due to predation by nonnative species, overgrazing and trampling of aquatic and upland habitat by feral pigs, and recreational activities, which may alter aquatic and upland habitats and thereby result in the direct or indirect loss of egg masses or adults.

SLO-1, Cholame

This unit consists of approximately 18,018 acres of land; and is located in northeastern San Luis Obispo, northwestern Kern, and southwestern Kings Counties; includes locations in the Cholame Creek drainage; and is mapped from occurrences recorded at time of listing and subsequent to

the time of listing. The unit includes portions of the following watersheds: the southern portion of Blue Point, the western portion of Jack Canyon, and the eastern portion of Palo Prieto Canyon. SLO-1 contains the features that are essential for the conservation of the species. The unit contains aquatic habitat for breeding and non-breeding activities (PCE 1 and PCE 2), and upland habitat for foraging and dispersal activities (PCE 3 and PCE 4). SLO-1 contains permanent and ephemeral aquatic habitats suitable for breeding; contains accessible upland areas for dispersal, shelter, and food; and is occupied by the species.

The physical and biological features essential to the conservation of California red-legged frog in the SLO-1 unit may require special management considerations or protection due to highway construction, overgrazing, and water diversions, which may alter aquatic or upland habitats and thereby result in the direct or indirect loss of egg masses or adults.

SLO-2, Piedras Blancas to Cayucos Creek

This unit consists of approximately 82,673 acres of land and is located along the coast in northwestern San Luis Obispo County from approximately Arroyo de Los Chinos southward to just before but not including Whale Rock Reservoir. The unit includes the following watersheds: Arroyo de los Chinos, Lower Arroyo de la Cruz, Arroyo del Corral, Oak Knoll Creek, Broken Bridge Creek, Pico Creek, Upper San Simeon Creek, Lower San Simeon Creek, Steiner Creek, Upper Santa Rosa Creek, Lower Santa Rosa Creek, and Lower Green Valley Creek. The unit is mapped from occurrences recorded at the time of listing and subsequent to the time of listing. SLO-2 contains the features that are essential for the conservation of the species. The unit contains aquatic habitat for breeding and non-breeding activities (PCE 1 and PCE 2), and upland habitat for foraging and dispersal activities (PCE 3 and PCE 4). SLO-2 provides connectivity within the Santa Lucia Range, and between this range and the inner Coast Range in San Luis Obispo County. This unit is occupied by the species. The unit contains high-quality habitat, indicated by high density of extant occurrences, permanent and ephemeral aquatic habitats suitable for breeding, and accessible upland areas for dispersal, shelter, and food.

The physical and biological features essential to the conservation of California red-legged frog in the SLO-2 unit may require special management considerations or protection due to predation by nonnative species, water diversion, overgrazing, and urbanization, which may alter aquatic or upland habitats and thereby result in the direct or indirect loss of egg masses or adults due to habitat modification.

SLO-3, Willow and Toro Creeks to San Luis Obispo

This unit consists of approximately 116,517 acres of land and is located near the coast in central San Luis Obispo County and extends about 1.9 miles north of the town of Morro Bay southward to just north and east of the city of San Luis Obispo. The unit includes the following watersheds: Old Creek, Whale Rock Reservoir, the southern portion of Hale Creek, Morro Bay, San Luisito Creek, the western and southern portions of Santa Margarita Creek, Choro Reservoir, Stenner Lake, Reservoir Canyon, Trout Creek, and Big Falls Canyon. The unit is mapped from

occurrences recorded at the time of listing and subsequent to the time of listing. SLO-3 contains the features that are essential for the conservation of the species. The unit is currently occupied and contains permanent and ephemeral aquatic habitat for breeding and non-breeding activities (PCE 1 and PCE 2), and upland habitat for foraging, dispersal, and shelter (PCE 3 and PCE 4). SLO-3 provides connectivity within the Santa Lucia Range, and between this range and the inner Coast Range in San Luis Obispo County.

The physical and biological features essential to the conservation of California red-legged frog in the SLO-3 unit may require special management considerations or protection due to predation by nonnative species, water diversion, overgrazing, and urbanization, which may alter aquatic or upland habitats and thereby result in the direct or indirect loss of egg masses or adults due to habitat modification.

SLO-4, Upper Salinas River

This unit consists of approximately 34,463 acres of land, is located at the base of Garcia Mountain about 17 miles east of the City of San Luis Obispo, is mapped from occurrences recorded subsequent to the time of listing, and is currently occupied by the species. Based on the life history and population dynamics of the species we have determined that the area was most likely occupied at the time of listing. The unit includes the following watersheds: Horse Mesa, Douglas Canyon, American Canyon, and Coyote Hole. This unit is essential for the conservation of the species because it is the only unit in San Luis Obispo County entirely within the interior Coast Range and provides connectivity between populations in the coastal areas and populations farther inland. SLO-4 also contains permanent and ephemeral aquatic habitats consisting of natural and manmade ponds surrounded by emergent vegetation and marshland with upland dispersal habitat comprised of riparian areas for dispersal, shelter, and foraging.

The physical and biological features essential to the conservation of California red-legged frog in the SLO-4 unit may require special management considerations or protection due to predation by nonnative species, and due to water diversion, overgrazing, and urbanization, which may alter aquatic or upland habitats and thereby result in the direct or indirect loss of egg masses or adults due to habitat modification.

STB-1, La Brea Creek

This unit consists of approximately 25,164 acres of land, is located in Los Padres National Forest in northern Santa Barbara County, and is mapped from occurrences recorded at the time of listing and subsequent to the time of listing. The unit includes the following watersheds: Bear Canyon, the southern portion of Smith Canyon, Rattlesnake Canyon, Lower South Fork La Brea Creek, and the eastern portion of Lower La Brea Creek. STB-1 contains the features that are essential for the conservation of the species. The unit contains aquatic habitat for breeding and non-breeding activities (PCE 1 and PCE 2), and upland habitat for foraging and dispersal activities (PCE 3 and PCE 4).

The physical and biological features essential to the conservation of California red-legged frog in the STB-1 unit may require special management considerations or protection due to recreational activities, which may alter aquatic or upland habitats and thereby result in the direct or indirect loss of egg masses or adults.

STB-2, San Antonio Terrace

This unit consists of approximately 12,066 acres of land, is located in northwestern Santa Barbara County near the coast, extends from about Casmalia south to the Santa Lucia Canyon near the Purisima Hills, and is mapped from occurrences recorded subsequent to the time of listing. Based on the life history and population dynamics of the species we have determined that the area was most likely occupied at the time of listing. The unit includes the following watersheds: Graciosa Canyon and Lions Head. STB-2 provides connectivity between coastal populations and populations in the Transverse Ranges. STB-2 also contains aquatic habitat for breeding and non-breeding activities (PCE 1 and PCE 2), and upland habitat for foraging and dispersal activities (PCE 3 and PCE 4). This unit is currently occupied by the species.

The physical and biological features essential to the conservation of California red-legged frog in the STB-2 unit may require special management considerations or protection due to recreational activities, which may alter aquatic or upland habitats and thereby result in the direct or indirect loss of egg masses or adults.

STB-3, Sisquoc River

This unit consists of approximately 47,559 acres of land and is located in northern Santa Barbara County and includes locations in the Sisquoc River drainage and is mapped from occurrences recorded at the time of listing and subsequent to the time of listing. The unit contains the following watersheds: the southern portion of Tunnel Canyon, Burro Canyon, Sulphur Creek, Lower Manzano Creek, Middle Manzano Creek, Fir Canyon, Upper Cachuma Creek, and the northern portion of Happy Canyon. STB-3 contains the features that are essential for the conservation of the species. The unit contains aquatic habitat for breeding and non-breeding activities (PCE 1 and PCE 2), and upland habitat for foraging and dispersal activities (PCE 3 and PCE 4). STB-3 is occupied by the species, provides connectivity between locations along the coast and the Transverse Ranges, and is essential in stabilizing populations of the species in tributaries to the Santa Ynez River.

The physical and biological features essential to the conservation of California red-legged frog in the STB-3 unit may require special management considerations or protection due to predation by nonnative species, recreational activities, and poor water management practices which may alter aquatic or upland habitats and thereby result in the direct or indirect loss of egg masses or adults.

STB-4, Jalama Creek

This unit consists of approximately 7,685 acres of land and is located along the coast in southwestern Santa Barbara County about 4.4 miles south of the City of Lompoc, and is mapped from occurrences recorded at the time of listing and subsequent to the time of listing. The unit includes the Casper Creek watershed. STB-4 contains the features that are essential for the conservation of the species. The unit includes aquatic habitat for breeding and non-breeding activities (PCE 1 and PCE 2), and upland habitat for foraging and dispersal activities (PCE 3 and PCE 4). STB-4 is occupied by the species and provides connectivity between locations along the coast and the Santa Ynez River watershed.

The physical and biological features essential to the conservation of California red-legged frog in the STB-4 unit may require special management considerations or protection due to predation by nonnative species and habitat disturbance, which may alter aquatic and upland habitats and thereby result in the direct or indirect loss of egg masses or adults.

STB-5, Gaviota Creek

This unit consists of approximately 12,888 acres of land, is located along the coast in southern Santa Barbara County about 3 miles southwest of the town of Buellton, and is mapped from occurrences recorded at the time of listing and subsequent to the time of listing. The unit includes the following watersheds: Cañada de las Cruces and Cañada de la Gavota. STB-5 contains the features that are essential for the conservation of the species. The unit contains aquatic habitat for breeding and non-breeding activities (PCE 1 and PCE 2), and upland habitat for shelter, foraging and dispersal activities (PCE 3 and PCE 4). STB-5 is occupied by the species and provides connectivity between locations along the coast and the Santa Ynez River watershed.

The physical and biological features essential to the conservation of California red-legged frog in the STB-5 unit may require special management considerations or protection due to predation by nonnative species and poor water management practices, which may alter aquatic or upland habitats and thereby result in the direct or indirect loss of egg masses or adults. Populations in this unit may also require special management or protection due to their potential importance in stabilizing California red-legged frog populations in tributaries to the Santa Ynez River.

STB-6, Arroyo Quemado to Refugio Creek

This unit consists of approximately 11,985 acres of land, is located along the coast in southern Santa Barbara County about 5 miles south of the town of Solvang, and is mapped from occurrences recorded at the time of listing and subsequent to the time of listing. The unit includes the Tajiguas Creek watershed. STB-6 contains the features that are essential for the conservation of the species. The unit contains aquatic habitat for breeding and non-breeding activities (PCE 1 and PCE 2), and upland habitat for foraging and dispersal activities (PCE 3 and PCE 4). STB-6 is occupied by the species, provides connectivity between locations along the

coast and the Santa Ynez River watershed, and contains permanent and ephemeral aquatic habitats suitable for breeding, and upland areas for dispersal, shelter, and food.

The physical and biological features essential to the conservation of California red-legged frog in the STB-6 unit may require special management considerations or protection due to predation by nonnative species and poor water management practices, which may alter aquatic or upland habitats and thereby result in the direct or indirect loss of egg masses or adults. Populations in this unit may also require special management or protection due to their potential importance in stabilizing California red-legged frog populations in tributaries to the Santa Ynez River.

STB-7, Upper Santa Ynez River and Matilija Creek

This unit consists of approximately 145,121 acres of land, is located in southeastern Santa Barbara County about 5 miles north of the City of Santa Barbara, and extends into western Ventura County at Matilija Creek. It is mapped from occurrences recorded at the time of listing and subsequent to the time of listing. The unit includes the following watersheds: Los Lauveles Canyon, Redrock Canyon, Oso Canyon, Buckhorn Creek, Camuesa Creek, Devils Canyon, Indian Creek Campground, Upper Mono Creek, Lower Mono Creek, Blue Canyon Upper Agua Caliente Canyon, Diablo Canyon, Lower Agua Caliente Canyon, Juncal Canyon, Lower Matilija Creek, North Fork Matilija Creek, and Cozy Dell Canyon. STB-7 contains the features that are essential for the conservation of the species. This unit contains aquatic habitat for breeding and non-breeding activities (PCE 1 and PCE 2), and upland habitat for foraging and dispersal activities (PCE 3 and PCE 4). STB-7 is occupied by the species and provides connectivity between locations along the coast, in the Sierra Madre Mountains, and in the Ventura River watershed. It is important to species conservation and the persistence of the species in the Matilija watershed because it contains permanent and ephemeral aquatic habitats suitable for breeding, and upland areas for dispersal, shelter, and food in that portion of the unit, which will provide connectivity between populations within the Transverse Ranges and will prevent further isolation of breeding locations near the limit of the geographic range of the species. The unit as a whole contains high-quality habitat, indicated by the high density of extant occurrences, permanent and ephemeral aquatic habitat suitable for breeding, and accessible upland areas for dispersal, shelter, and food.

The physical and biological features essential to the conservation of California red-legged frog in the STB-7 unit may require special management considerations or protection due to predation by nonnative species, flood control activities, road maintenance, and recreational activities, which may alter aquatic and upland habitats and thereby result in the direct or indirect loss of egg masses or direct death of adults.

EFFECTS OF THE ACTION

California Red-legged Frog

Activities that are evaluated under this biological opinion are those that would not cause ecosystem-scale changes and are not likely to contribute to the decline of the California red-legged frog. These activities would also not preclude any of the potentially affected critical habitat units from providing the primary constituent elements necessary to support the essential life history functions (i.e., reproduction, feeding, and sheltering) of the California red-legged frog.

Direct impacts to adults, sub-adults, tadpoles, and eggs of the California red-legged frog in the footprint of projects evaluated by this biological opinion may include injury or mortality from being crushed by earth moving equipment, construction debris, and worker foot traffic. These impacts will be reduced by minimizing and clearly demarcating the boundaries of the project areas and equipment access routes and locating staging areas outside of riparian areas or other water bodies. Scheduling work activities to avoid sensitive areas, such as breeding pools during the breeding season and isolated aquatic refuges during dry periods, as proposed by Caltrans, would substantially reduce adverse effects.

The capture and handling of California red-legged frogs to move them from a work area may result in injury or mortality. Mortality may occur as a result of improper handling, containment, or transport of individuals or from releasing them into unsuitable habitat. Improper handling, containment, or transport of individuals would be reduced or prevented by use of a Service-approved biologist. California red-legged frogs may attempt to return to the capture site, especially if it contains suitable breeding habitat and the relocation site is a different pond or creek than the capture site. California red-legged frogs attempting to return to capture sites are likely to be more susceptible to predation, exposure to the elements, and vehicle strikes if they attempt to return to the original capture site. Relocating California red-legged frogs within the same drainage or water body, if possible, will reduce this threat. Overall, relocation as proposed by Caltrans is intended to reduce the risk of injury or mortality from the direct effects described above.

Construction activities, including noise and vibration, may cause California red-legged frogs to temporarily abandon habitat adjacent to work areas. This disturbance may increase the potential for predation and desiccation when California red-legged frogs leave shelter sites.

Tadpoles may be entrained by pump intakes if such devices are used to dry out work areas. However, Caltrans will ensure that pump intakes are covered with wire mesh not larger than 0.2 inch to preclude juvenile California red-legged frogs and tadpoles from entering pump intakes.

Some potential also exists for disturbance of habitat to cause the spread or establishment of non-native invasive species, such as giant reed (*Arundo donax*) or salt cedar (*Tamarix* spp.). Once established, these species degrade habitat values through several mechanisms (Service 1999).

Breeding pools surrounded by large amounts of salt cedar and giant reed may dry faster because their rates of evapotranspiration are generally greater than those of native riparian species. The abundance and diversity of prey species are generally less in dense stands of giant reed and salt cedar than in areas dominated by native plants. Additionally, these invasive species can eventually out-compete native plant species and displace them; dense aggregations of salt cedar can cause soils to become hypersaline because these plants concentrate salt from water and then excrete it onto the surrounding ground. Caltrans has proposed measures to prevent the spread or introduction of these species, such as minimizing the number of access routes, size of staging areas, and the total area of the activity; restoring disturbed areas with native species. These measures should reduce or eliminate this adverse effect.

Some actions proposed by Caltrans may involve the use of herbicides to control or eliminate non-native plant species. There are currently 66 pesticides not approved for use in habitat for the California red-legged frog (Center for Biological Diversity v. Johnson and Nastri; case number C-02-1580-JSW). Caltrans has been exempted from this injunction for upland and riparian projects and projects that are 60 feet or more from bodies of water (G. Ruggerone pers. comm. 2007). However because California red-legged frogs may occur in upland habitat up to one mile from suitable aquatic habitat, there is still a potential for California red-legged frogs to be adversely affected by Caltrans' use of herbicides in uplands.

If Caltrans uses herbicides, Glyphosate (formulated as Rodeo[®] or Aquamaster[®]) is probably the most likely herbicide to be used. Glyphosate is the active ingredient in a variety of herbicides including Roundup[®], Rodeo[®], Aquamaster[®], Buccaneer[®], Glyfos[®], Honcho[®], Touchdown[®], Vision[®], Duramax[®], Rattler[®], and others. Glyphosate is a systemic herbicide that will kill broadleaf and grass species by inhibiting the production of aromatic amino acids in plants and some microorganisms that are necessary to build proteins (Devine et al. 1993). Because many animals lack the synthesis pathway that glyphosate disrupts, it is considered to have low potential to cause toxicity in animals (Devine et al. 1993). Most glyphosate products are formulated to contain surfactants that allow the active ingredients to spread over and penetrate the plant cuticles. Surfactants can be the most toxic portion of a pesticide product. The surfactant associated with many glyphosate products is a polyethoxylated tallowamine (POEA) surfactant.

California red-legged frog eggs, tadpoles, juveniles and adults can be exposed to glyphosate products and POEA surfactants in aquatic habitats through direct overspray of wetlands, drift from treated areas, or contaminated runoff from treated areas. The half-life of glyphosate in pond water ranges between 12 days and 10 weeks (Exttoxnet 1996). Additionally, juvenile and adult California red-legged frogs can also be exposed to glyphosate in terrestrial habitats that have been treated. Glyphosate and POEA readily binds to soil particles and can be degraded by microbes in 7 to 70 days depending on soil conditions (Giesy et al. 2000). The half-life of glyphosate in soil can range from three to 249 days and the POEA surfactant in Roundup has a soil half-life of less than one week (Forest Service 1997).

No information is available regarding the toxicity of glyphosate products specifically to California red-legged frogs. Studies exploring the lethal and sublethal effects of glyphosate products on other amphibians, including similar frog species classified in the same genus as the California red-legged frog (*Rana*) are available but are largely focused on aquatic life stages of the species and formulations of glyphosate that include surfactants. Roundup Original Max[®], a glyphosate product with POEA surfactant, was demonstrated to be moderately to highly toxic to nine species of frog and toad tadpoles including five *Rana* species: wood frog (*Rana sylvatica*), leopard frog (*Rana pipiens*), Cascades frog (*Rana cascadae*), green frog (*Rana clamitans*), and American bullfrog (*Rana catesbeiana*) (Relyea and Jones 2009). Because the biology of these species is very similar to the California red-legged frog, we assume the effects of POEA surfactants and glyphosate formulations containing POEA, would be the same on the California red-legged frog. Mann and Bidwell (1999) also found evidence of acute toxicity to four Australian frog species exposed to Roundup[®] while the isopropylamine (IPA) salt of glyphosate (the active constituent in Roundup[®]) was found to be non-toxic. The mortality of tadpoles is hypothesized to be caused by the lysis of gill cells from exposure to surfactants (Lajmanovich et al. 2003, Edington et al. 2004) resulting in either to asphyxiation or loss of osmotic stability (Able 1974) indicating that the life stage during which frogs and toads have gills may be particularly vulnerable. Glyphosate products containing POEA surfactants have also been shown to have sub-lethal effects to amphibians including decreased size, increased time to metamorphosis, tail malformations, and gonadal abnormalities (Govindarajulu 2008, Howe et al. 2004).

Several studies suggest that the toxicity of glyphosate products is linked with the surfactant, and not the glyphosate. Howe et al. (2004) compared the toxicity of glyphosate alone, to glyphosate with POEA surfactant, and POEA alone, on green frogs. Results indicated that the toxicity of glyphosate with POEA surfactant was similar to the POEA surfactant alone, which was much greater than glyphosate alone, indicating that the POEA was responsible for the toxic effects. In a comprehensive review of studies involving the effects of glyphosate on amphibians Govindarajulu (2008) concluded that the toxic effect of glyphosate products containing POEA are due to the POEA rather than the active glyphosate ingredient.

These studies indicate that glyphosate products formulated with POEA surfactants will likely kill or injure California red-legged frogs in aquatic habitats, with tadpoles being particularly vulnerable. Because glyphosate and POEA readily bind to soil and sediments, these chemicals may be less available to California red-legged frogs in terrestrial habitats; however, research is needed to determine toxicity mechanisms and thresholds from terrestrial exposure. Based on the literature (Howe 2004, Govindarajulu 2008), adverse effects to California red-legged frogs from the use of glyphosate products can be minimized through the use of products that do not contain a surfactant. Formulations that lack a surfactant include Rodeo and Aquamaster, which have been approved by the Environmental Protection Agency, through their registration process, for aquatic use.

A low-toxicity, non-POEA surfactant that works well with Rodeo[®] or Aquamaster[®] is Agri-Dex[®], produced by Helena Chemicals. We are not aware of any information regarding the

toxicity of Agri-Dex[®] on amphibians, but based on the data available, Monheit et al. (2004) concluded crop oil-based surfactants (i.e. Agri-Dex[®]) are probably less acutely toxic to fish, aquatic invertebrates and one frog species tested, than some other types of surfactants. The amount of Agri-Dex[®] that resulted in acute toxicity (i.e., >1000 parts per million (ppm) (Helena Chemical Company 2004, Washington State Department of Ecology and Agriculture 2004) was levels of magnitude higher than other surfactants tested including POEA (1.6 to 0.65ppm in Haller and Stocker 2003, Giesy et al. 2000, Folmar et al. 1979). It is important to note that so called crop oil-based surfactants, which suggest these products are vegetable-based, are actually petroleum products (Forest Service 1997). There could be sub-lethal adverse effects or long-term adverse effects to California red-legged frogs, from chronic exposure to these chemicals, that have not been documented. Overall, Agri-Dex[®] may be less toxic than other surfactants, but the use of glyphosate without a surfactant is probably even less toxic to the California red-legged frog.

The protective measures proposed by Caltrans, including surveys prior to the application of herbicides, capture and relocation of California red-legged frogs out of harm's way and restricting the use of herbicides to the non-breeding season (dry summer months) will greatly reduce the potential for injury or mortality of the California red-legged frog as a result of herbicide use.

If water that is impounded during or after work activities creates favorable habitat conditions for non-native predators, such as bullfrogs, crayfish, and centrarchid fishes, California red-legged frogs may suffer abnormally high rates of predation. Additionally, any time California red-legged frogs are concentrated in a small area at unusually high densities, native predators such as herons, egrets, opossums (*Didelphis virginiana*), and raccoons (*Procyon lotor*) may feed on them opportunistically. Finally, if impoundments occupied by California red-legged frogs were to dry out as a result of construction activity, California red-legged frogs may die of desiccation or be eaten by predators as they attempt to find other suitable habitat. Caltrans' proposal to avoid creating impoundments of water within project areas is likely to reduce these effects.

Trash left during or after project activities could attract predators to work sites, which could, in turn, prey on California red-legged frogs. For example, raccoons are attracted to trash and also prey opportunistically on California red-legged frogs. This potential impact will be reduced or avoided by careful control of waste products at all work sites as proposed by Caltrans.

Chytridiomycosis is an infectious disease that affects amphibians worldwide, and is caused by the chytrid fungus. Chytrid fungus is a water-borne fungus that can be spread through direct contact between aquatic animals and by a spore that can move short distances through the water. The fungus only attacks the parts of a frog's skin that have keratin (thickened skin), such as the mouthparts of tadpoles and the tougher parts of adults' skin, such as the toes. The fungus can decimate amphibian populations, causing fungal dermatitis which usually results in death in 1 to 2 weeks, but not before infected animals may have spread the fungal spores to other ponds and streams. Once a pond or waterway has become infected with chytrid fungus, the fungus stays in the water for an undetermined amount of time. Chytrid fungus could be spread if infected

California red-legged frogs are relocated and introduced into areas with healthy California red-legged frogs. It is also possible during the relocation of California red-legged frogs that infected equipment or clothing could introduce chytrid fungus into areas where it did not previously occur. Caltrans proposes to implement the fieldwork code of practice developed by the Declining Amphibian Populations Task Force which should reduce or eliminate the potential for movement of chytrid fungus.

Accidental spills of hazardous materials or careless fueling or oiling of vehicles or equipment could degrade aquatic or upland habitat to a degree where California red-legged frogs are adversely affected or killed. The potential for this impact to occur will be reduced by Caltrans' proposal to require: all refueling, maintenance, and staging of equipment and vehicles to occur at least 60 feet from riparian habitat or water bodies and not in a location from where a spill would drain directly toward aquatic habitat; the monitor to ensure contamination of habitat does not occur during such operations; that a plan is in place for prompt and effective response to any accidental spills; and all workers to be informed of the importance of preventing spills and of the appropriate measures to take should a spill occur.

Workers may intentionally or unintentionally disturb, injure, or kill California red-legged frogs. The potential for this impact to occur will be reduced by Caltrans' proposal to conduct pre-construction training informing workers of the presence and protected status of this species and the measures that are being implemented to protect it during project activities.

Work in streams or in floodplains could cause unusually high levels of siltation downstream. This siltation could smother eggs of the California red-legged frog and alter the quality of habitat to the extent that use by individuals of the species is precluded. Implementing best management practices and reducing the area to be disturbed to the minimum necessary, as proposed by Caltrans, will likely assist in reducing the amount of sediment that is washed downstream, as a result of project activities.

Caltrans has proposed that consultation would be reinitiated if 10 California red-legged frogs or 20 tadpoles are killed or injured in any given year, or if 50 California red-legged frogs are killed or injured in total. However, because of the measures that Caltrans has proposed to reduce the level of injury or mortality, we expect that few California red-legged frogs would be killed or injured in any given year. Additionally, based on reproductive biology the subspecies, loss of 10 California red-legged frogs or 20 tadpoles in any given year, throughout the seven counties covered by this consultation, is not likely to compromise the conservation of the subspecies because this number represents a very small portion of the total breeding individuals assumed to be present in this region.

Critical Habitat for the California Red-legged Frog

Actions conducted pursuant to this biological opinion may be located within any one of the 19 aforementioned critical habitat units in five counties. The PCEs of critical habitat for the

California red-legged frog include: (1) aquatic breeding habitat, (2) aquatic non-breeding habitat, (3) upland habitat, and (4) dispersal habitat.

The PCEs associated with individual project sites may be permanently or temporarily altered as a result of projects conducted pursuant to this biological opinion. However, we anticipate that the effects of those projects, which must meet the criteria for use of this biological opinion, will be of such a small scale that they will not preclude the PCEs from supporting the essential life history functions of the California red-legged frog. For example, a bridge retrofitted for earthquake safety may have slightly larger footings as a result of the project. Such a minor permanent loss of aquatic habitat is not likely to compromise the ability of a stream to support the aquatic life stages of the California red-legged frog.

The reinitiation thresholds that Caltrans has proposed will ensure that the conservation of the California red-legged frog is not compromised within the affected critical habitat units. These upper limits for permanent loss of aquatic, upland, and dispersal habitat (20 acres in any given year or 100 acres in total) and upland habitat (20 acres in any given year or 100 acres in total), and temporary disturbance (100 in any given year, or 500 acre total over the life of the biological opinion) would be spread across the 19 critical habitat units, in which the activities covered by this biological opinion would be implemented. Given the wide distribution of a relatively minor amount of disturbance or loss of aquatic, upland, and dispersal habitat, and the high potential that most disturbance would recover within a few years, we expect the PCEs in each of the affected critical habitat units to continue to provide the life history functions essential to the conservation of the California red-legged frog.

The protective measures included in the Description of the Proposed Action section of this biological opinion would minimize adverse effects to the PCEs of critical habitat for the California red-legged frog. Based on the suitability criteria to qualify for use of this biological opinion, and the protective measures Caltrans would implement, we anticipate that any effects to critical habitat for the California red-legged frog would be temporary or minor. We do not expect such minor or temporary effects to preclude a critical habitat unit from supporting the PCEs and associated life history functions (i.e., reproduction, dispersal, feeding, and sheltering) of critical habitat for the California red-legged frog.

CUMULATIVE EFFECTS

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

At this time, we do not know the specific locations of future projects that may be conducted pursuant to this biological opinion, other than that they would be sited within the Caltrans rights-of-way in San Benito, Santa Cruz, Monterey, San Luis Obispo, and Santa Barbara Counties. We

are unaware of any future non-Federal actions that are reasonably certain to occur within the action area.

CONCLUSION

After reviewing the current status of the California red-legged frog, its critical habitat, the environmental baseline, the effects of the action, projects that could be authorized under the provisions of this programmatic biological opinion, and the cumulative effects, it is the Service's biological opinion that the Caltrans' proposed action is not likely to jeopardize the continued existence of the California red-legged frog or destroy or adversely modify its critical habitat.

We have reached this conclusion because:

1. The notification process described previously allows us to review each proposed action to determine if it meets falls within the scope of this programmatic biological opinion, and to ensure the effects are not likely to be outside of the limited levels we anticipate;
2. Few California red-legged frogs are likely to be killed or injured during project activities;
3. Caltrans has established a threshold that will trigger reinitiation of formal consultation (based on a finite number of California red-legged frogs that would be injured or killed), which would not result in population level impacts to this species;
4. In comparison with the amount of critical habitat available to the California red-legged frog in San Benito, Santa Cruz, Monterey, San Luis Obispo, and Santa Barbara Counties, a relatively small amount of critical habitat would be permanently lost within each critical habitat unit and relative to the entire critical habitat designation;
5. Although we anticipate that some minor or temporary adverse effects to the PCEs in each of the 19 affected critical habitat units may occur, we do not anticipate effects of this nature to preclude those PCEs from providing the essential life history functions (i.e., reproduction, dispersal, feeding, and sheltering) necessary to ensure the conservation of the California red-legged frog because Caltrans has established a threshold of affected acres of habitat types that comprise the PCEs, that will trigger reinitiation of formal consultation; and
6. Caltrans has proposed numerous measures to reduce the adverse effects of the proposed activities on the California red-legged frog and its critical habitat.

INCIDENTAL TAKE STATEMENT

Section 9 of the Act and Federal regulation pursuant to section 4(d) of the Act prohibit the take of endangered and threatened species, respectively, without special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. Harm is further defined by the Service to include significant habitat

modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. Harass is defined by the Service as intentional or negligent actions that create the likelihood of injury to listed species by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the Act provided that such taking is in compliance with the terms and conditions of an incidental take statement contained in a biological opinion.

The measures described below are non-discretionary and Caltrans must make them binding conditions of any contract, permit, or funding to contractors or County Governments for the exemption in 7(o)(2) to apply. Caltrans has a continuing duty to regulate the activities covered by this incidental take statement. If Caltrans fails to adhere to the terms and conditions of the incidental take statement, the protective coverage of section 7(o)(2) may lapse. To monitor the impact of incidental take, Caltrans must report the progress of the action and its impact on the species to the Service as specified in the incidental take statement [50 CFR 402.14(i)(3)].

This biological opinion evaluates the effects of a certain scope and scale of actions that Caltrans may undertake in San Benito, Santa Cruz, Monterey, San Luis Obispo, and Santa Barbara Counties on the California red-legged frog, and its critical habitat. Because of the protective measures that Caltrans has proposed, we expect that few California red-legged frogs would be killed in any given year. All California red-legged frogs found within project areas that meet the suitability criteria described in this biological opinion may be captured and relocated. However, because capture and relocation is intended to reduce the potential for injury or mortality, and Caltrans will use biologists experienced in the capture and handling of California red-legged frogs, we anticipate that few, if any, California red-legged frogs will be injured or killed as a result of capture and relocation efforts. Finally, there is a potential for a number of California red-legged frogs to be taken as a result of exposure to herbicides, during which some may be killed or injured. The protective measures Caltrans has proposed, including conducting surveys prior to the application of herbicides, capture and relocating California red-legged frogs out of harm's way, and restricting the use of herbicides to the non-breeding season (dry summer months) of the California red-legged frog will greatly reduce the potential for injury or mortality as a result of herbicide use.

Based on the triggers for reinitiation of formal consultation that Caltrans has identified in their proposed action, we anticipate that no more than 10 adult or subadult California red-legged frogs, 10 egg masses, or 20 tadpoles would be injured or killed in a given year, or 50 California red-legged frogs during the life of this biological opinion, will be injured or killed as a result of the proposed action.

Incidental take of California red-legged frog adults, subadults, or tadpoles may be difficult to detect for the following reasons: (1) the California red-legged frog is generally difficult to detect

due to its small body size; (2) finding a dead or impaired specimen is unlikely; (3) losses may be masked by seasonal fluctuations in hydrology unrelated to the project. However, the maximum number of individuals proposed to be killed or injured each year is a relatively small portion of the population of California red-legged frogs in the action area. We do not expect the loss of these few California red-legged frog adults, subadults, egg masses, or tadpoles to compromise the ability of the species to survive and recover. Given the reproductive biology of the species, described in the Status of the Species section of this biological opinion, this number also represents a very small portion of the total number of individuals assumed to be present throughout the sub species' range. Given the wide distribution of a relatively minor amount of disturbance or temporary loss of habitat, the high potential that most disturbed areas would recover within a few years, and the ability of the California red-legged frog to survive in varying conditions, we expect the overall effect on the habitat of the California red-legged frog by the proposed activities to be minor.

This biological opinion does not exempt any activity from the prohibitions against take contained in section 9 of the Act that is not incidental to the action as described in this biological opinion. Take that occurs outside of demarcated work areas or from any activity not described in this biological opinion is not exempted from the prohibitions against take described in section 9 of the Act.

REASONABLE AND PRUDENT MEASURES

The Service believes the following reasonable and prudent measures are necessary and appropriate to minimize the take of California red-legged frogs:

1. Biologists must be authorized by the Service before they survey for, capture, and relocate California red-legged frogs from work areas.
2. Caltrans must further minimize the potential for transmitting Chytrid fungus to new locations.

The Service's evaluation of the effects of the proposed action includes consideration of the measures to minimize the adverse effects of the proposed action on the California red-legged frog that were developed by Caltrans and the Service and repeated in the Description of the Proposed Action portion of this biological opinion. Any subsequent changes in these measures proposed by Caltrans may constitute a modification of the proposed action and may warrant reinitiation of formal consultation, as specified at 50 CFR 402.16. These reasonable and prudent measures are intended to supplement the protective measures that were proposed by Caltrans as part of the proposed action.

TERMS AND CONDITIONS

To be exempt from the prohibitions of section 9 of the Act, Caltrans must comply with the following terms and conditions, which implement the reasonable and prudent measures described above. These terms and conditions are non-discretionary.

1. The following terms and conditions implement reasonable and prudent measure 1:
 - 1.1 Chuck Cesena, Mitch Dallas, Tom Edell, Jennifer Moonjian, Morgan Robertson, Lisa Schicker, Nancy Siepel, Jim Walth, Lisa Schicker, Cathy Stettler, and Sarah Paulson are authorized to capture, handle, relocate, survey and monitor for California red-legged frogs. Paul Holmes is authorized to independently survey and monitor for California red-legged frogs, and may capture, handle, and relocate California red-legged frogs under the direct supervision of the biologists authorized above. If Caltrans wishes to use additional biologists, it must provide their qualifications to the Service at least 30 days before they are to begin work. Additional biologists must not capture, handle, or monitor California red-legged frogs (unless under the direct, on-site supervision of the biologists authorized above) without written approval from the Service.
 - 1.2 Prior to the onset of grading and construction activities, Service-approved biologists must identify appropriate areas to receive translocated California red-legged frog adults and tadpoles in the action area. These areas must be in proximity to the capture site, outside of any area likely to be adversely impacted by construction activities, provide suitable habitat, and be free of exotic predatory species (e.g., bullfrogs, crayfish) to the best of the Service-approved biologist's knowledge.
 - 1.3 If the affected aquatic habitat includes a creek or river system, the relocation site must be within the same drainage.
 - 1.4 If the affected aquatic habitat includes a pond or other isolated water body, Caltrans must receive the Services approval, in writing, prior to relocating any California red-legged frogs.

If Chytrid fungus is known to occur in the drainage or pond where the proposed action would occur, California red-legged frogs must not be relocated into different drainages or ponds, without prior written approval from the Service.

REPORTING REQUIREMENTS

In addition to the pre-project notification, Caltrans must submit an annual list of projects they conducted under this programmatic concurrence and programmatic biological opinion, as described in the Description of the Proposed Action section of this document. In addition, the

enclosed Project Completion form describes the information that Caltrans must provide to the Ventura Fish and Wildlife Office upon the completion of each specific project conducted under this programmatic concurrence and programmatic biological opinion.

DISPOSITION OF DEAD OR INJURED SPECIMENS

Within 3 days of locating any dead or injured California red-legged frogs, Caltrans must notify the Ventura Fish and Wildlife Office by telephone [(805) 644-1766] and in writing (2493 Portola Road, Suite B, Ventura, California 93003). The report must include the date, time, and location of the carcass, a photograph, cause of death, if known, and any other pertinent information.

Care must be taken in handling dead specimens to preserve biological material in the best possible state for later analysis. Should any injured California red-legged frogs survive, the Service must be contacted regarding their final disposition.

The remains of California red-legged frogs found in San Benito, Santa Cruz, or Monterey Counties must be placed with the California Academy of Sciences Herpetology Department (Contact: Jens Vindum, Senior Collections Manager, California Academy of Sciences Herpetology Department (herpetology@calacademy.org), 55 Music Concourse Drive, San Francisco, California 94118).

The remains of California red-legged frogs found in San Luis Obispo, Santa Barbara, Ventura, or Los Angeles Counties must be placed with the Santa Barbara Natural History Museum (Contact: Paul Collins, Santa Barbara Natural History Museum, Vertebrate Zoology Department, 2559 Puesta Del Sol, Santa Barbara, California 93460, (805) 682-4711, extension 321). Caltrans must make arrangements regarding proper disposition of potential museum specimens prior to implementation of any actions conducted pursuant to this biological opinion.

CONSERVATION RECOMMENDATIONS

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

1. We recommend that Caltrans expand its regional planning efforts for the California red-legged frog to further facilitate an ecosystem approach to conservation while attempting to recognize, at an early stage of planning, where conflicts between conservation of the California red-legged frog and future transportation projects may arise.
2. We encourage Caltrans, biological consultants, and/or other researchers to participate in research on California red-legged frogs. Research topics could include, but are not limited to: metapopulation dynamics, dispersal and migration studies, and the effects of

predation and habitat quality on California red-legged frogs. We encourage Caltrans to coordinate with the Service and the California Department of Fish and Game to develop research proposals under the Service's Endangered Species Conservation Grants (Section 6 Traditional) Program.

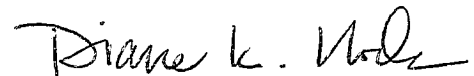
The Service requests notification of the implementation of any conservation recommendations, so we may be kept informed of actions that minimize or avoid adverse effects to or benefit the California red-legged frog and its habitat.

REINITIATION NOTICE

This concludes formal consultation on projects funded under the Federal Highway Administration's Federal Aid program that are likely to adversely affect the California red-legged frog, its critical habitat, or its proposed critical habitat. As provided in 50 CFR 402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been maintained (or is authorized by law), and if (1) the amount or extent of incidental take is exceeded, (2) new information reveals effects of the agency action may affect listed species or critical habitat in a manner or to an extent not considered in this opinion, (3) the agency action is subsequently modified in a manner that causes an effect on listed species or critical habitat that was not considered in this opinion, or (4) a new species is listed or critical habitat is designated that may be affected by the action.

If you have any questions, please contact Steve Kirkland of my staff at (805) 644-1766, extension 267.

Sincerely,

A handwritten signature in dark ink, appearing to read "Diane K. Noda". The signature is fluid and cursive, with the first name "Diane" written in a larger, more prominent script than the last name "Noda".

Diane K. Noda
Field Supervisor

Enclosures
Caltrans Project Completion Report
The Declining Amphibian Populations Task Force Fieldwork Code of Practice

Project	Biological Opinion	Permanent Aquatic	Permanent Upland	Temp Aquatic	Temp. Upland	Critical Habitat
Picachio Road Bridge	2006	.5	0.18		.39	no
Bob Jones Bike	2007	0	0		0.39	no
Chittendon Pass	2006	0	0.27	0	0.25	no
Harkin Slough Br. Over Struve slough	2006	0.004	0.12	.08	1.16	no
Harkin Slough Br. Over Watsonville Slough	2004	0.25	0.22	0	0.71	no
Cienega Rd. Bridge	2006	0.404	0.404	0	1.19	no
San Benito River Bridge	2006	0	0	0.002	0.159	no
Salinas Rd. Interchange	2006	0.9	0.09	0	0.43	no
Pfiefer Big Sur Left Turn Lane	2006	0.002	0.26	0.002	1.2	no
Hwy 101 widening-SR 135-166	2006	0	0.22	0.25	0	no
San Simeon Creek Bridges	2006	0.3	1.8	0.4	0.25	yes*
San Luis Bay Drive	2005	0	0.25	0.005	3	no
Hollister Ave. Interchange	2005	0	0.21	0	0.084	no
Lone Tree Rd. Bridge	2005	0.005	0.19	0.005	0.27	no
Breaker Point CURE	2004	0.06	0	0.006	0	no
Jalama Creek Bridge	2004	0	0	0.24	0	yes*
Murphy Rd. Bridge	2004	0	0	0	0.22	no
Paulsen-Whiting Bridge	2004	0	0.09	0.06	0.03	no
Hollister Road Bridge	2004	0.04	0.03	0.16	0.3	yes(proposed)
Amesti Road Repair (lost funding)	2003	0.04	0.03	0.16	0.323	no
Main Street Bridge Replacement, Cambria	2007	0.19	1.13	.03	0.03	yes*
Harmony Left turn lane	2007	0.1	0.8	0.029	0.28	no
Gilardi Road Bridge Replacement	2009	0	0.1	0.035	0.333	yes*
Los Osos Valley Road Widening	2008	0.35	1.75	0.5	4.2	yes*
California Coastal Trail Gaviota Segment	2009	0	0.15	0	0.5	yes*
Guadalupe Ditches Project	2010	0	0	3.42	0	no

Appendix 1. Amount of California red-legged frog habitat anticipated to be permanently lost and temporarily disturbed.

*Construction not completed and project within March 17, 2010 critical habitat designation

Project	Biological Opinion	Construction completed	Perm. Aquatic	Temp. Aquatic	Perm. Upland	Temp. Upland
Picachio Road Bridge	2006	2007	Not reported	Not reported	Not reported	Not reported
Bob Jones Bike Path #3	2007	2008	None reported	None reported	None reported	0.138
Chittendon Pass	2006	2009	None reported	Not reported	Not reported	Not reported
Harkin Slough Road over Struve slough	2006	2008	0.004	0.61	0.44	0.71
Harkin Slough Road over Watsonville Slough	2004	2007	0.007	2.88	0	0
Cienega Rd. Bridge	2006	2007	0.032	None reported	0.404	0.159
Pfiefer Big Sur Left Turn Lane	2006	2009	Not reported	Not reported	Not reported	Not reported
Lone Tree Rd. Bridge	2005	2008	0.005	0.005	0.19	None reported
Breaker Point CURE	2004	2006	0.138	0.219	(Included in acres of riparian)	1.33
Murphy Rd. Bridge	2004	2006	Not reported	Not reported	Not reported	Not reported
Paulsen-Whiting Bridge	2004	2006	Not reported	Not reported	Not reported	0.3
San Luis Bay Drive Bridge	2005	2007	0.002	0.034	0.238	0.562
Hollister Road Bridge	2004	2009	0.033	0.15	0.20	0.12
Harmony Left turn lane	2007	2008	0.37	.014	0.016	0.10
San Benito River Bridge Seismic Retrofit	2006	2007	Not reported	Not reported	Not reported	Not reported

Appendix 2. Amount of California red-legged Frog habitat permanently lost and temporarily disturbed as a result of the completed project.

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Project Completion Report for Caltrans projects that may affect California red-legged frogs

Caltrans must ensure that this form is completed or that the requested information is provided in a written report upon completion of the project and restoration activities.

Mail completed form or report to: U.S. Fish and Wildlife Service, Ventura Fish and Wildlife Office, 2493 Portola Road, Suite B, Ventura, California 93003

1. Project title and location:
2. Project Completion Dates A. Construction: B: Restoration:
3. Type of actions that occurred:
4.
5.
6.
7.
8.
9. Habitat type and number of acres affected (e.g., upland, riparian)
10.
11.
12.
13.
14.
15. Linear feet of work in a stream:
16. How the site was restored and a description of the area after completion of the action:
17.
18.
19.
20.
21.
22. If no restoration occurred, the justification for not conducting this work:
23.
24.
25.
26.
27.
28. Which measures were employed to protect California red-legged frogs:
29.
30.
31.
32.
33.
34. The number of California red-legged frogs taken and the form of take:
35.
36.
37.
38.
39.
I. The number of California red-legged frogs removed from work areas to nearby undisturbed habitat and the location of that habitat:
II.
III.
IV.
V.
VI. Recommendations of any modifications to future measures to enhance protection of the California red-legged frog while simplifying compliance with the Endangered Species Act:
VII.
VIII.
IX.

The Declining Amphibian Populations Task Force Fieldwork Code of Practice

1. Remove mud, snails, algae, and other debris from nets, traps, boots, vehicle tires, and all other surfaces. Rinse cleaned items with sterilized (e.g., boiled or treated) water before leaving each study site.
2. Scrub boots, nets, traps, and other types of equipment used in the aquatic environment with 70 percent ethanol solution or a bleach solution of one-half to one cup of bleach in one gallon of water and rinse clean with sterilized water between study sites. Avoid cleaning equipment in the immediate vicinity of a pond, wetland, or riparian area.
3. In remote locations, clean all equipment with 70 percent ethanol or a bleach solution, and rinse with sterile water upon return to the lab or a "base camp." Elsewhere, when laundry facilities are available, remove nets from poles and wash (in a protective mesh laundry bag) with bleach on a "delicate" cycle.
4. When working at sites with known or suspected disease problems, or when sampling populations of rare or isolated species, wear disposable vinyl¹ gloves and change them between handling each animal. Dedicate separate sets of nets, boots, traps, and other equipment to each site being visited. Clean and store them separately at the end of each field day.
5. Safely dispose of used cleaning materials and fluids. Do not dispose of cleaning materials and fluids in or near ponds, wetland, and riparian areas; if necessary, return them to the lab for proper disposal. Safely dispose of used disposable gloves in sealed bags.
6. When amphibians are collected, ensure the separation of animals from different sites and take great care to avoid indirect contact (e.g., via handling or reuse of containers) between them or with other captive animals. Do not expose animals to unsterilized vegetation or soils which have been taken from other sites. Always use disinfected and disposable husbandry equipment.
7. If a dead amphibian is found, place it in a sealable plastic bag and refrigerate (do not freeze). If any captured live amphibians appear unhealthy, retain each animal in a separate plastic container that allows air circulation and provides a moist environment from a damp sponge or sphagnum moss. For each collection of live or dead animals, record the date and time collected, location of collection, name of collector, condition of animal upon collection, and any other relevant environmental conditions observed at the time of collection. Immediately contact the Ventura Fish and Wildlife Office at (805) 644-1766 for further instructions.

The Fieldwork Code of Practice has been produced by the Declining Amphibian Populations Task Force with valuable assistance from Begona Arano, Andrew Cunningham, Tom Langton, Jamie Reaser, and Stan Sessions.

For further information on this Code, or on the Declining Amphibian Populations Task Force, contact John Wilkinson, Biology Department, the Open University, Walton Hall, Milton Keynes, MK7 6AA, UK. Email: DAPTF@open.ac.uk. Fax: +44 (0) 1908-65416

¹ Do not use latex gloves. Latex is toxic to amphibians.

NATURAL ENVIRONMENT STUDY ADDENDUM



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Natural Environment Study Addendum

Discussion of Biological Assessment, Jurisdictional Delineation,
Focused Species Surveys, and Habitat Assessments

Monterey County, California

Federal Project Number BHLO-5944 (100)

Bridge Number 44C-0050

August 2019

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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, District 5, 50 South Higuera Street, San Luis Obispo, CA 93401; (805) 549-3182 Voice, or use the California Relay Service TTY number, (800) 735-2929.

Table of Contents

Table of Contents	i
List of Tables	ii
Chapter 1. Introduction	1
1.1. Purpose of Natural Environment Study Addendum.....	1
1.2. Change in Project Description	1
1.3. Change in Environmental Setting.....	2
Chapter 2. Study Methods	3
2.1. Regulatory Requirements	3
2.1.1. Migratory Bird Treaty Act.....	3
2.2. Studies Required.....	4
2.2.1. Literature Review	4
2.2.2. 2019 Field Review.....	4
2.2.2.1. 2019 General Biological Survey	5
2.2.2.2. 2019 Rare Plant Survey.....	5
2.2.2.3. 2019 Tree Surveys.....	5
Chapter 3. Results: Environmental Setting	7
3.1. Description of Existing Biological and Physical Conditions	7
3.1.1. Study Area	7
3.1.2. Physical Conditions	7
3.1.3. Habitat Connectivity.....	7
3.1.4. Biological Conditions in the Biological Study Area	7
3.1.4.1. Blue Oak Woodland (<i>Quercus douglasii</i> Woodland Alliance).....	8
3.1.5. Wetlands.....	8
Chapter 4. Results: Biological Resources, Discussion of Impacts and Mitigation.....	11
4.1. Habitats and Natural Communities of Special Concern	11
4.2. Special-Status Plant Species.....	11
4.3. Special-Status Animal Species.....	11
4.4. Trees	12
Chapter 5. Results: Conclusions and Regulatory Determination.....	15
Chapter 6. References	17
Appendix A Figures.....	19
Appendix B NMFS and USFWS Lists	29
Appendix C Updated Tree Survey Report 2019.....	41

List of Tables

Table 1: Survey Dates and Personnel	5
Table 2: Acreages of Land Cover Types in the Biological Study Area (original plus expanded)	8

Chapter 1. Introduction

1.1. Purpose of Natural Environment Study Addendum

Following Caltrans' determination in August 2018 that the Bradley Road Bridge Scour Repair Project was categorically excluded from the requirements to prepare an Environmental Assessment (EA) or Environmental Impact Statement (EIS) pursuant to the requirements of the National Environmental Policy Act, the County of Monterey (County) re-evaluated the dewatering and diversion plan for the scour repair. In doing so, the County determined that the flows in the Salinas River would be much larger during the construction period than originally estimated, thereby requiring modifications to the dewatering and diversion design. The project design modifications require a new temporary access route and staging area outside of the previously analyzed Biological Study Area (BSA) as identified in the Natural Environment Study (NES) (LSA 2017). This NES Addendum was prepared to address the expanded BSA. The original BSA and expanded BSA are shown in Figure 1 (all figures in Appendix A). The original BSA and expanded BSA are referred to collectively in this NES Addendum as the BSA. This NES Addendum is not a stand-alone document and should be read in conjunction with the 2017 NES.

1.2. Change in Project Description

Modifications to the dewatering and diversion access plan were made in order to provide access, from both the east and west sides of the Salinas River, to the four bridge piers being retrofitted instead of only providing access from the east side as originally proposed (Figure 2). By providing access to the bridge piers from both the east and west banks of the river, the contractors will be able to gain access to and dewater one pier at a time during construction rather than dewater an entire section of the river to create a dry work area to retrofit all four piers at one time. By accessing and retrofitting one pier at a time, river flows will be maintained in the active river channel during construction. Installation of the sheet pile shoring will be achieved using predrilling and vibratory methods. After construction is complete, the contractor will remove the temporary berms and sheet pile shoring and restore all disturbed areas within the river to preconstruction conditions.

The project design modifications included the following components:

- The addition of a second access route from the west side of the project site using an existing dirt road that starts at the intersection of Bradley Road and the U.S.

101 On-Ramp, running parallel to Bradley Road and Bradley Road Bridge, and terminates near the west bank of the Salinas River;

- The addition of a temporary construction staging area on the south side of the new access road parallel to Bradley Road Bridge and adjacent to the west bank of the Salina River;
- Temporary berms made of clean crushed gravel constructed around the piers to be repaired combined with temporary sheet pile shoring around the perimeter of the berms to help channelize the flow of the active channel and keep the work area dry for construction; and
- Channelization of the flow between Piers 16 and 17.

1.3. Change in Environmental Setting

The original BSA has been expanded on the west side of the Salinas River for a distance of approximately 3,000 feet between the west bank of the river and the intersection of Bradley Road and U.S. 101 (Figure 1). The expanded BSA is an extension of the original BSA and therefore shares the same environmental setting. The proposed project's existing environmental setting and regulatory setting as described in the 2017 NES remains the same. Furthermore, construction equipment that will be used for the project in the expanded BSA would be similar to the equipment proposed for the project as analyzed in the 2017 NES, but for the addition of a vibratory hammer that would be used to vibrate sheet piling around each of the piers to help maintain a dry work area.

Chapter 2. Study Methods

Field investigations for this NES Addendum were conducted during the spring and early summer of 2019 and documented the vegetative communities, habitats for special-status plant and animal species, potential jurisdictional waters, trees, and other biological resources in the expanded BSA.

2.1. Regulatory Requirements

The regulatory requirements provided in the 2017 NES are still valid; however, updated guidance on the Migratory Bird Treaty Act is provided below.

2.1.1. Migratory Bird Treaty Act

The federal Migratory Bird Treaty Act (MBTA) (16 United States Code § 703), administered by the United States Fish and Wildlife Service (USFWS), states that it is unlawful to: pursue, hunt, take, capture, or kill; attempt to take, capture, or kill; possess, offer to sell, sell, barter, purchase, deliver; or cause to be shipped, exported, imported, transported, carried, or received any migratory bird, part, nest, egg, or product unless permitted by regulations. Most bird species within California fall under the provisions of the federal MBTA. Non-native species are excluded from protection under the MBTA.

A December 2017 opinion from the Office of the Solicitor for the United States Department of the Interior (M-opinion) concluded that the MBTA restrictions apply only to affirmative and purposeful actions, such as hunting and poaching migratory birds and their nests and eggs, and not incidental taking. April 2018 guidance from the Principal Deputy Director of the USFWS provides further guidance on revisions to past policies and guidance regarding the MBTA. This guidance concludes that the MBTA's prohibitions on take of migratory birds apply only when the purpose of the action is to take migratory birds, their eggs, or their nests. Therefore, under the MBTA otherwise lawful project activities such as clearing vegetation would not require preconstruction nesting bird surveys.

Nonetheless, as described in the Regulatory Requirements section of the 2017 NES, Section 3503 of the California Fish and Game Code (CFGF) prohibits the take, possession, or needless destruction of the nest or eggs of any bird. Subsection 3503.5 specifically prohibits the take, possession, or destruction of any birds in the orders Falconiformes (hawks and eagles) or Strigiformes (owls) and their nests. Therefore, under the CFGF otherwise lawful project activities such as clearing vegetation would

require preconstruction nesting bird surveys to prevent destruction of the nest or eggs of birds.

2.2. Studies Required

2.2.1. Literature Review

An updated literature review and records search were conducted to identify the existence or potential occurrence of sensitive or special-status plant and animal species on or within the vicinity of the expanded BSA. Federal and State lists of special-status species were examined.

Current database records reviewed by LSA in 2019 included the following:

- California Department of Fish and Wildlife (CDFW) California Natural Diversity Database (CNDDB) Rarefind 5 search for records in the *Hames Valley, Wunpost, Valleton, Tierra Redonda Mountain, Bradley, San Miguel, Lime Mountain, Adelaida, and Paso Robles, California* United States Geological Survey 7.5 minute quadrangles and specifically within a 2-mile radius of the expanded BSA (CDFW 2019).
- California Native Plant Society (CNPS) Inventory of Rare and Endangered Plants (online edition, v8-03 0.39) (CNPS 2019).
- National Marine Fisheries Service (NMFS) Official Species list generated by LSA Associate/Senior Biologist Eric Lichtwardt for the *Bradley* quadrangle on June 17, 2019 (NMFS 2019).
- USFWS letter, “Updated list of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project.” Letter dated June 13, 2019 (USFWS 2019a).
- USFWS Critical Habitat Mapper (USFWS 2019b).

The results of these database reviews were the same as those conducted for the 2017 NES. The NMFS and USFWS species lists are provided in Appendix B.

2.2.2. 2019 Field Review

A summary of field survey dates, survey purpose, and personnel is provided in Table 1.

2.2.2.1. 2019 GENERAL BIOLOGICAL SURVEY

LSA biologist Eric Lichtwardt conducted the general biological field update survey of the expanded BSA on May 9, 2019. Mr. Lichtwardt noted general site conditions, mapped vegetation types, and assessed the suitability of habitats for special-status plant and animal species to occur on the site. Mr. Lichtwardt checked the expanded BSA for potential burrows and dens of special-status mammals and the bat colony at piers 13 and 15. He also checked the original BSA to determine if any of the biological conditions initially documented in this area in 2015 and 2016 had changed. Mr. Lichtwardt recorded all plant and animal species observed or otherwise detected (i.e., tracks, scat). Binoculars (10x42) were used to aid in the identification of birds and other wildlife.

2.2.2.2. 2019 RARE PLANT SURVEY

LSA botanist Tim Milliken conducted the protocol-level rare plant survey update on April 8 and June 2, and 17, 2019. The surveys covered the expanded BSA. These surveys followed the *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities* (CDFW 2018) and the USFWS's Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed, Proposed, and Candidate Plants (USFWS 2000). Three surveys were conducted to cover the blooming periods of all the species that could occur in the expanded BSA.

2.2.2.3. 2019 TREE SURVEYS

LSA botanist Tim Milliken conducted a tree survey update on June 2, 17, and 24, 2019. The tree surveys included all the trees along the new proposed access road, within the staging area in the expanded BSA, and a portion of the original BSA that had not previously been surveyed.

Table 1: Survey Dates and Personnel

Date	Personnel	Purpose of Survey
April 8, 2019	Tim Milliken	Rare plant survey
May 9, 2019	Eric Lichtwardt	General biological and faunal survey, including vegetation communities and habitat mapping, special-status species habitat assessments and surveys.
June 2, 2019	Tim Milliken	Rare plant survey, tree survey.
June 17, 2019	Tim Milliken	Rare plant survey, tree survey.
June 24, 2019	Tim Milliken	Tree survey.

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Chapter 3. Results: Environmental Setting

3.1. Description of Existing Biological and Physical Conditions

3.1.1. Study Area

The proposed project is in southern Monterey County in the southern Salinas River Valley near Camp Roberts Military Reservation (Figure 1). Bradley Road runs east from U.S. 101 and crosses the Salinas River on a two-lane bridge (Figure 3). The expanded BSA is largely contained in the floodplain of the Salinas River; however, the northwestern edge extends onto the bench along the west side of the floodplain adjacent to U.S. 101. A corridor of riparian woodland occurs in the floodplain of the river; annual grassland, oak savanna, and the unincorporated community of Bradley dominate most of the surrounding area. The BSA encompasses the entire proposed project footprint plus adjacent areas that could be affected by the proposed project.

3.1.2. Physical Conditions

The physical conditions within the expanded BSA are the same as those conditions for the original BSA as described in the 2017 NES.

3.1.3. Habitat Connectivity

Habitat connectivity within the expanded BSA is similar to the original BSA as described in the 2017 NES.

3.1.4. Biological Conditions in the Biological Study Area

The vegetation types, habitats, and land uses within the expanded BSA are the same as those described in the 2017 NES with the exception of the presence of small patches of blue oak woodland as described below in Section 3.1.4.1. The most biologically diverse area in the BSA is along the Salinas River channel. Native and naturalized vegetation types including annual brome grassland, Fremont cottonwood forest, and willow thickets dominate this area. Annual brome grassland and developed areas (e.g., paved roads and a rural residence) dominate the expanded BSA outside the Salinas River floodplain. Land cover types in the expanded BSA are shown on Figure 3, and the acreages of the cover types in the BSA (expanded and original) are summarized in Table 2. The riparian corridor in the BSA is approximately 250 feet wide downstream of the bridge and approximately 325 feet wide upstream of the bridge.

3.1.4.1. BLUE OAK WOODLAND (*QUERCUS DOUGLASII* WOODLAND ALLIANCE)

Blue oak woodland occurs widely on the hillslopes along the southern Salinas Valley and in the inner Coast Range. This woodland is dominated by blue oak (*Quercus douglasii*) and is generally open and savanna-like with an understory of grasslands and sparse shrubs. Blue oak woodland does not occur in river floodplains. Blue oak woodland is present in small patches in the expanded BSA (0.32 acres) on the slope along the western edge of the Salinas River floodplain (Figure 3).

Wildlife observed in the expanded BSA within the blue oak woodland include ash-throated flycatcher (*Myiarchus cinerascens*), California scrub-jay (*Aphelocoma californica*), and oak titmouse (*Baeolophus inornatus*).

Table 2: Acreages of Land Cover Types in the Biological Study Area (original plus expanded)

Land Cover Type	Acreage
Annual Brome Grassland	9.49
Blue Oak Woodland	0.32
Fremont Cottonwood Forest*	4.88
Red Willow Thicket*	1.64
Sandbar Willow Thicket	1.14
Coyote Brush Scrub	2.73
Water Primrose Wetland	0.32
Developed Areas	1.63
Open Water	0.75
Total	22.90

Source: LSA compiled, 2017, 2019

*Natural Community of Special Concern

3.1.5. Wetlands

Waters of the United States (including wetlands) in the BSA include the areas along the low-flow channel of the Salinas River (Figure 4); based on the 2019 field survey, there has been no appreciable change to the waters of the United States within the BSA as described in the 2017 NES. Additionally, the functions and values including the following categories described in the 2017 NES are unchanged: groundwater recharge, groundwater discharge, flood flow alteration, sediment stabilization, sediment/toxicant retention, nutrient removal/transformation, production export, wildlife habitat (aquatic and terrestrial), uniqueness/heritage, and recreation. Since the fieldwork was completed for the 2017 NES, minor changes to the river channel have occurred including the washout of the beaver dam on the western side channel south of the bridge. There are no waters of the United States within the expanded BSA; however, much of the expanded BSA is within CDFW jurisdiction (Figure 4). The additional area in the expanded BSA within CDFW jurisdiction is 5.14 acres. Total

area in the expanded and original BSA within CDFW jurisdiction is 13.01 acres (Figure 4).

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

4.1. Habitats and Natural Communities of Special Concern

The natural communities and habitats of special concern in the expanded BSA are the same as in the original BSA and include Fremont cottonwood forest (*Populus fremontii* Forest Alliance) and red willow thicket (*Salix laevigata* Woodland Alliance) (Figure 3). In the expanded BSA, there are 4.88 acres of Fremont cottonwood forest and 1.64 acres of red willow thicket (Figure 3).

4.2. Special-Status Plant Species

Based on the updated special-status plant surveys conducted in the expanded BSA in the spring and early summer of 2019, one special-status plant species, Davidson's bush mallow (*Malacothamnus davidsonii*), is present in the expanded BSA. This species is not federally or State-listed, but has a California Rare Plant Rank of 1B¹. Only a single Davidson's bush mallow was found in the expanded BSA during the 2019 surveys, and this plant is not in an area of the BSA that will be affected by the proposed project (Figure 3). The 2017 NES concluded that the project would have no effect on special-status plant species because no special-status plant species were present in the BSA; therefore, no avoidance and minimization efforts for special-status plants were proposed. Because the single Davidson's bush mallow is not within an area affected by the proposed new temporary access route and staging areas (Figure 3), the conclusions of the 2017 NES are still valid.

4.3. Special-Status Animal Species

Based on the updated general field survey conducted in the expanded BSA in May 2019, the special-status animal species discussion for the 2017 NES remains valid.

The avoidance and minimization measures and compensatory mitigation pertaining to special-status animal species provided in the 2017 NES continue to be valid for the expanded BSA. Nonetheless, given the proximity of the new proposed access road

¹ CRPR 1B = Rare or endangered in California and elsewhere

and staging area relative to the bat roosts at piers 13 and 15 (Figure 3), it is recommended that Avoidance and Minimization Measure BIO-36 in the 2017 NES be revised to include environmentally sensitive area (ESA) fencing along the entire southern edge of the staging area on the western side of the river so construction equipment and personnel are excluded from the areas beneath these bat roost sites. Avoidance and Minimization Measure BIO-36 currently reads as follows “*Construction equipment (especially with diesel or combustion engines) shall not be stored or operated beneath identified roost areas.*” It is recommended that Avoidance and Minimization Measure BIO-36 be revised to read as follows “*Construction equipment (especially with diesel or combustion engines) shall not be stored or operated beneath identified roost areas. Orange ESA fencing shall be installed along the entire southern edge of the staging area on the western side of the river so construction equipment and personnel are excluded from the areas beneath these bat roost sites.*”

4.4. Trees

The expanded BSA includes 70 trees including 23 blue oak, 15 box elder (*Acer negundo*), 28 Fremont cottonwood, 3 red willow, and 1 tree of heaven (*Ailanthus altissima*), a non-native species (Figure 5). Also included in the 2019 tree survey were an additional 37 trees in the original BSA; these trees include 1 arroyo willow, 2 black walnut (*Juglans hindsii*), 1 box elder, 20 Fremont cottonwood, 12 red willow, and 1 white alder (*Alnus rhombifolia*) (Figure 5). These trees were not counted during tree surveys for the 2017 NES, because they were in an area not affected by the project as described in the 2017 NES. A detailed list of the trees within the expanded BSA and previously uncounted trees in the original BSA is provided in the Updated Tree Survey Report 2019 (Appendix C).

Most of the trees in the expanded BSA will be avoided during construction activities because the new temporary access road on the west side of the river is along an existing road and the temporary construction staging area west of the river is in an open grassy area north and south of the existing road and north of the bridge, which are areas that do not have trees (Figure 5). However, 6 trees may need to be removed along the west and east bank of the Salinas River in order to access the scour repair sites, including 1 Fremont cottonwood (# 4), 2 white alders (#10 and #11), and 3 red willows (#19, #25, and #26) (Figure 5). The County will mitigate for tree impacts as described in Section 4.1.3.4 in the 2017 NES; however, impact ratios will be based on the updated number of impacted trees (6) identified in this NES Addendum.

Additionally, all efforts will be made to minimize impacts to trees as described in Section 4.1.4.3 of the 2017 NES.

The small patches of blue oak woodland in the expanded BSA will not be affected by the new proposed access road (Figure 2) as the blue oak woodland is not adjacent to the proposed access road.

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Chapter 5. Results: Conclusions and Regulatory Determination

Based on the updated field surveys of the expanded BSA and the updated searches of the relevant databases for special-status species occurrences, the conclusions and regulatory determinations of the NES remain valid.

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Chapter 6. References

California Department of Fish and Wildlife (CDFW). 2018. Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities. Sacramento, California.

California Department of Fish and Wildlife (CDFW). 2019. California Natural Diversity Database (CNDDB), Commercial Version, June 2019. CDFW, Biogeographic Data Branch, Sacramento, California.

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LSA Associates, Inc. (LSA). 2017. Natural Environment Study, Bradley Road Bridge Scour Repair Project, Monterey County, California, 05-MON-0-CR, Bridge Number 44C-0050. Prepared for the Monterey County Department of Public Works and the California Department of Transportation.

National Marine Fisheries Service (NMFS). 2019. Official Species List. Generated by Eric Lichtwardt on June 17, 2019.

United States Fish and Wildlife Service (USFWS). 2000. Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed, Proposed, and Candidate Plants. Sacramento, California.

_____. 2019a. "Updated list of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project." Letter dated June 13, 2019.

_____. 2019b. Critical Habitat Mapper. Website: <http://ecos.fws.gov/crithab/>. Accessed June 24, 2019.

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Appendix A Figures

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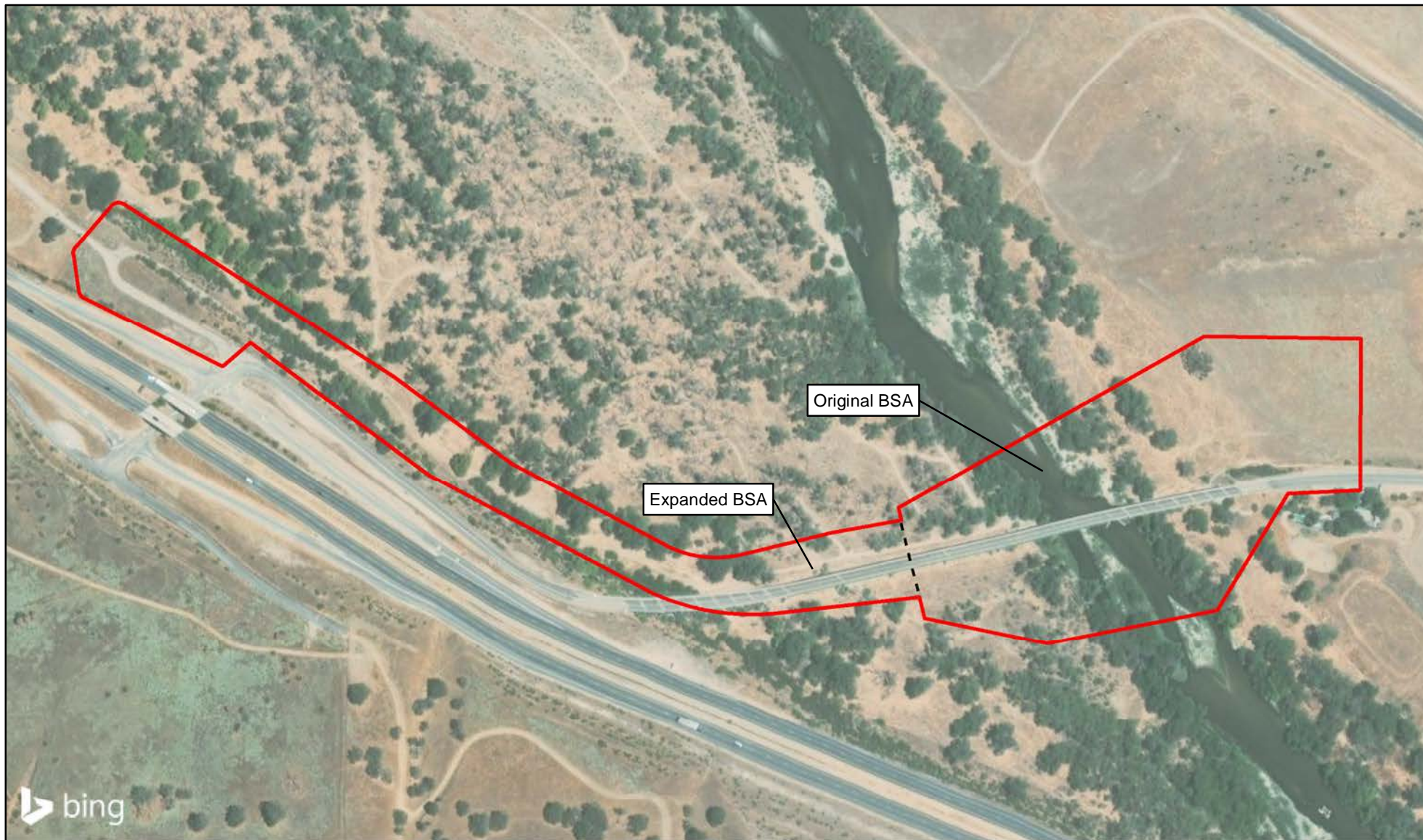


FIGURE 1

LEGEND

Biological Study Area



0 180 360
FEET

SOURCE: Bing Aerial (2011)

I:\TRT1501\GIS\NES_BradleyRd_BSA.mxd (6/28/2019)

*Bradley Road Bridge Scour Repair Project
Monterey County, California
Federal Project Number BHLO-5944(100)*

Biological Study Area

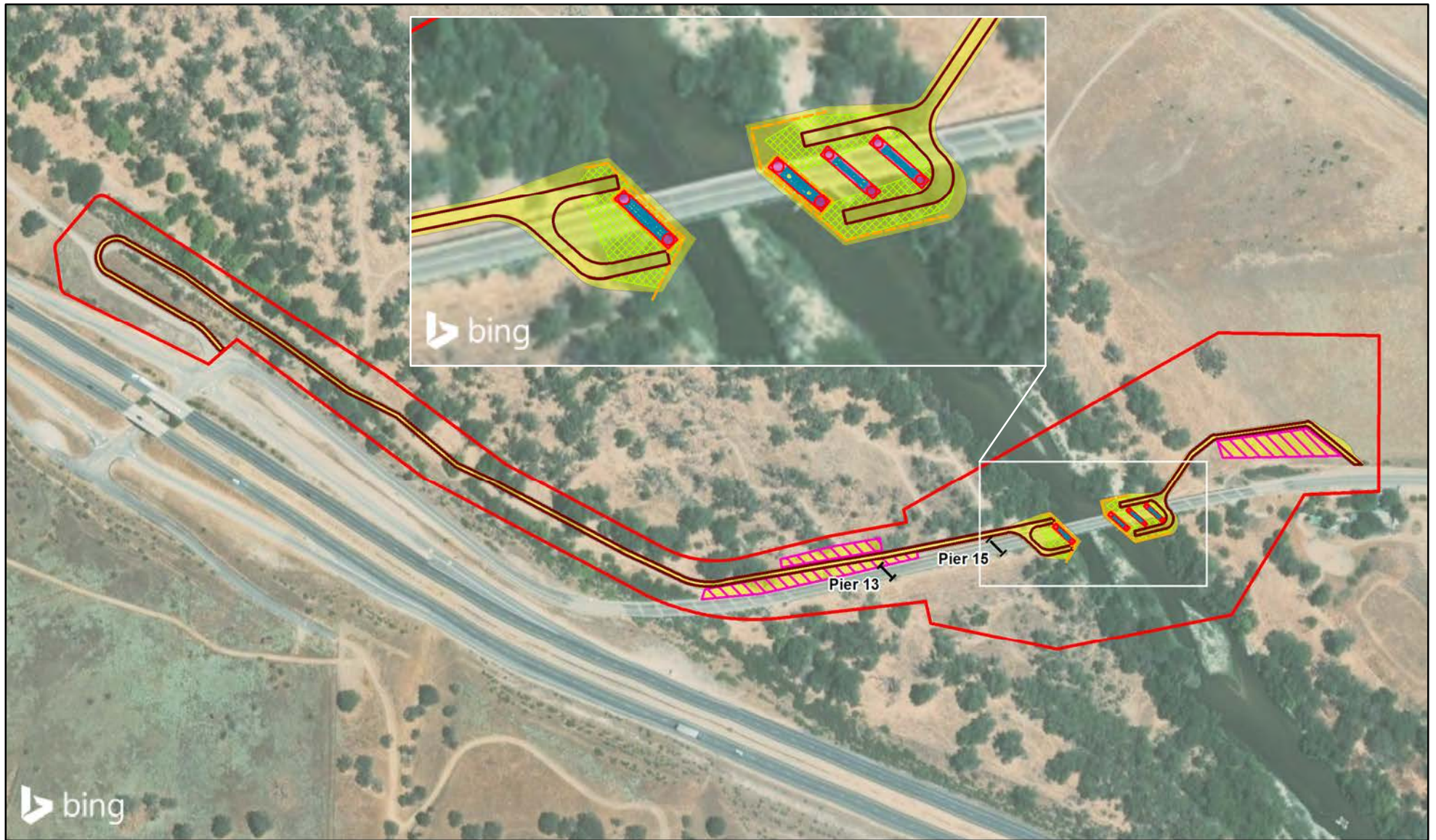


FIGURE 2

LEGEND

- | | |
|--|---|
| Biological Study Area | Temporary Sheet Pile Shoring |
| Temporary Access Road | Permanent New Pier Structure |
| Temporary Construction Staging Area | Existing Pier Structure |
| Temporary Construction Work Area | Permanent Impact |
| Expansion Joint Containing Bat Day-Roosting Habitat | Temporary Impact |



0 175 350
FEET

SOURCE: Bing Aerial (2011); TRC (12/2015)

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*Bradley Road Bridge Scour Repair Project
Monterey County, California
Federal Project Number BHLO-5944(100)*

Project Details and Impacts

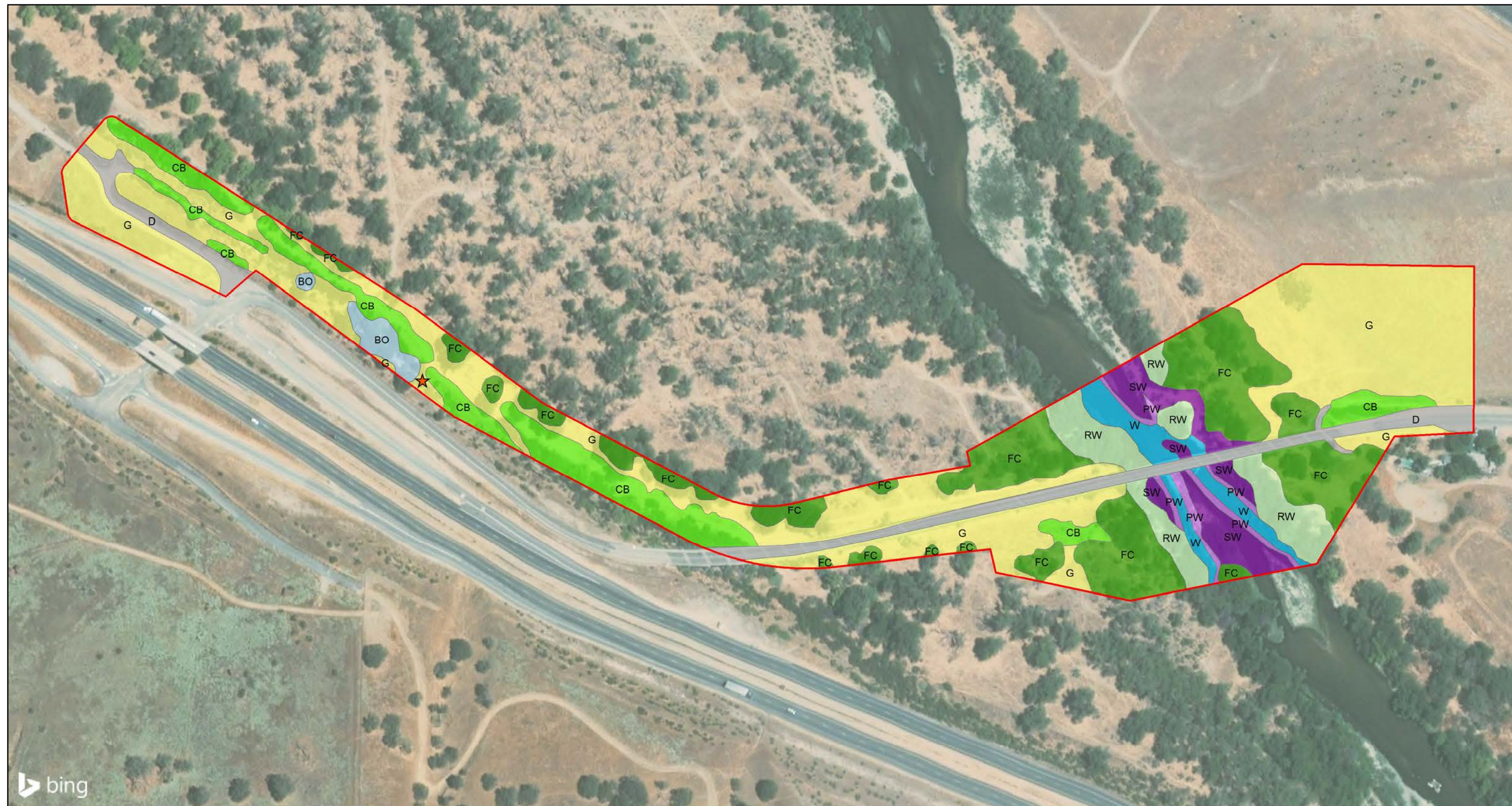


FIGURE 3

LEGEND

 Biological Study Area

Rare Plants

★ Davidson's bush-mallow

Cover Types

Annual Brome Grassland (G)

Blue Oak Woodland (BO)

Coyote Brush Scrub (CB)

Developed Area (D)

Fremont Cottonwood Forest (FC)

Open Water (W)

Red Willow Thicket (RW)

Sandbar Willow Thicket (SW)

Water Primrose Wetland (PW)



0 110 220
FEET

SOURCE: Bing Aerial (2011); TRC (12/2015)

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*Bradley Road Bridge Scour Repair Project
Monterey County, California
Federal Project Number BHLO-5944(100)*

Cover Types and Rare Plants



bing

LSA



0 110 220
FEET

LEGEND

- | | |
|---|--|
| Biological Study Area | Wetlands |
| Stream OHWM | Channel Wetland (0.46 acres) |
| CDFW Limits (13.01 acres) | Other Waters |
| Bridge Pier | Salinas River (1.91 acres) |

FIGURE 4

*Bradley Road Bridge Scour Repair Project
Monterey County, California
Federal Project Number BHLO-5944(100)*

Potential Jurisdictional Waters



LEGEND

- Biological Survey Area
- Tree Survey Area
- Permanent Impact
- Temporary Impact
- Possible Tree Removal*

*Possible trees to be removed include 4, 10, 11, 19, 25 and 26

Tree Common Name

- ▲ Arroyo willow
- Box elder
- Fremont cottonwood
- Red willow
- White alder

- ◆ Blue oak
- ☆ Tree of heaven
- ▲ Black walnut

FIGURE 5

Page 1 of 3

Bradley Road Bridge Scour Repair Project
Monterey County, California
Federal Project Number BHLO-5944(100)

Tree Map



0 75 150
FEET

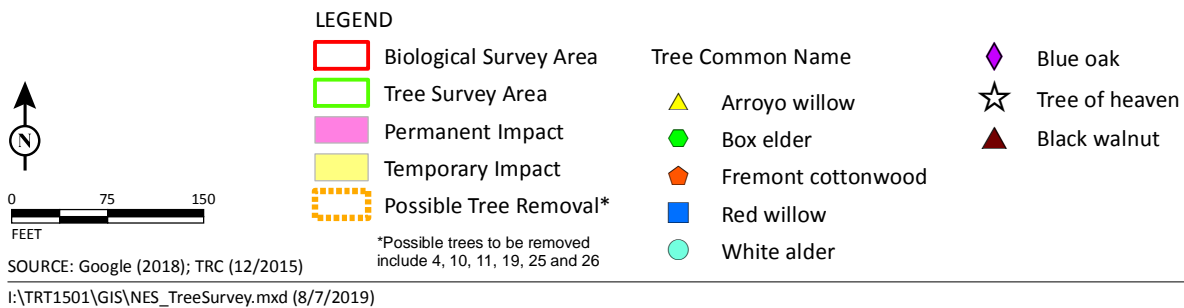
SOURCE: Google (2018); TRC (12/2015)

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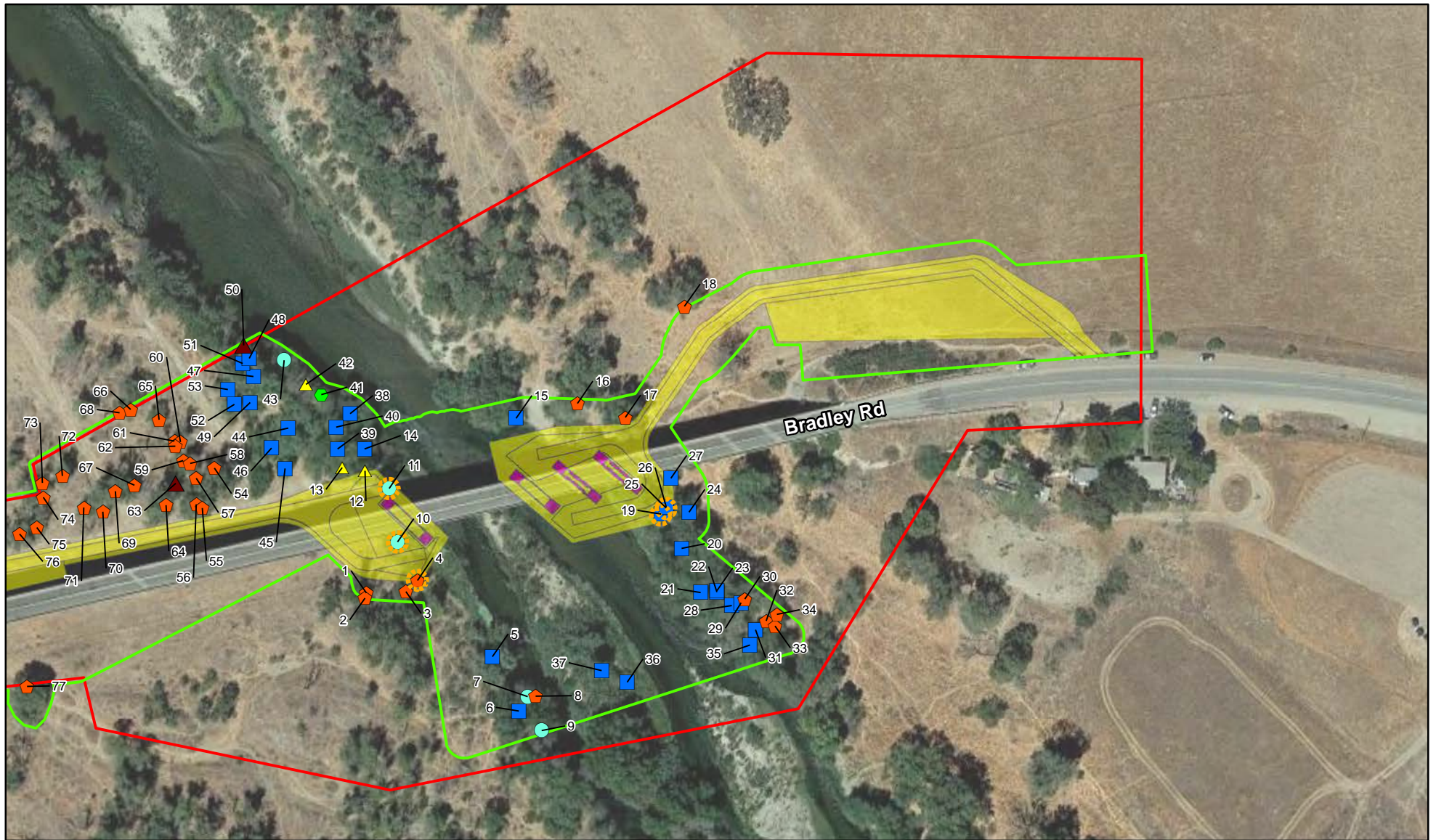
FIGURE 5

Page 2 of 3



*Bradley Road Bridge Scour Repair Project
Monterey County, California
Federal Project Number BHLO-5944(100)*

Tree Map



LEGEND

- Biological Survey Area
- Tree Survey Area
- Permanent Impact
- Temporary Impact
- Possible Tree Removal*

*Possible trees to be removed include 4, 10, 11, 19, 25 and 26

Tree Common Name

- ▲ Arroyo willow
- Box elder
- ⬠ Fremont cottonwood
- Red willow
- White alder

- ◆ Blue oak
- ☆ Tree of heaven
- ▲ Black walnut



0 75 150
FEET

SOURCE: Google (2018); TRC (12/2015)

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FIGURE 5

Page 3 of 3

*Bradley Road Bridge Scour Repair Project
Monterey County, California
Federal Project Number BHLO-5944(100)*

Tree Map

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Appendix B NMFS and USFWS Lists

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From: [Eric Lichtwardt](#)
To: nmfswcrca.specieslist@noaa.gov
Subject: FW: Request for species list for the Bradley Road Bridge
Date: Project; Monday, June 17, 2019 10:59:00 AM

From: Eric Lichtwardt
Sent: Monday, June 17, 2019 10:53 AM
To: nmfswcrca.specieslist@noaa.gov
Subject: Request for species list for the Bradley Road Bridge

To Whom it May Concern;

On behalf of Caltrans District 5, I hereby request an Official Species List for the Bradley Road Bridge Scour Repair Project Monterey County, California [Federal Project Number BHLO-5944 (100)] .

Please refer to the Google Earth Output below:

Quad Name **Bradley**

Quad Number **35120-G7**

[ESA Anadromous Fish](#)

SONCC Coho ESU (T) -

CCC Coho ESU (E) -

CC Chinook Salmon ESU (T) -

CVSR Chinook Salmon ESU (T) -

SRWR Chinook Salmon ESU (E) -

NC Steelhead DPS (T) -

CCC Steelhead DPS (T) -

SCCC Steelhead DPS (T) - X

SC Steelhead DPS (E) -

CCV Steelhead DPS (T) -

Eulachon (T) -

sDPS Green Sturgeon (T) -

[ESA Anadromous Fish Critical Habitat](#)

SONCC Coho Critical Habitat -

CCC Coho Critical Habitat -

CC Chinook Salmon Critical Habitat -

CVSR Chinook Salmon Critical Habitat -

SRWR Chinook Salmon Critical Habitat -

NC Steelhead Critical Habitat -

CCC Steelhead Critical Habitat -

SCCC Steelhead Critical Habitat - X

SC Steelhead Critical Habitat -

CCV Steelhead Critical Habitat -

Eulachon Critical Habitat -

sDPS Green Sturgeon Critical Habitat -

ESA Marine Invertebrates

Range Black Abalone (E) -

Range White Abalone (E) -

ESA Marine Invertebrates Critical Habitat

Black Abalone Critical Habitat -

ESA Sea Turtles

East Pacific Green Sea Turtle (T) -

Olive Ridley Sea Turtle (T/E) -

Leatherback Sea Turtle (E) -

North Pacific Loggerhead Sea Turtle (E) -

ESA Whales

Blue Whale (E) -

Fin Whale (E) -

Humpback Whale (E) -

Southern Resident Killer Whale (E) -

North Pacific Right Whale (E) -

Sei Whale (E) -

Sperm Whale (E) -

ESA Pinnipeds

Guadalupe Fur Seal (T) -

Steller Sea Lion Critical Habitat -

Essential Fish Habitat

Coho EFH -

Chinook Salmon EFH -

Groundfish EFH -

Coastal Pelagics EFH -

Highly Migratory Species EFH -

MMPA Species (See list at left)

ESA and MMPA Cetaceans/Pinnipeds

See list at left and consult the NMFS Long Beach office
562-980-4000

MMPA Cetaceans -

MMPA Pinnipeds -

This Caltrans contact for this request is Michaela Koenig (District 5 Biologist) at:

California Department of Transportation

Environmental Stewardship Branch

50 Higuera Street, San Luis Obispo, CA 93401

michaela.koenig@dot.ca.gov

Phone: 805.549.3422 Cell: 805.748.4216.

Eric Lichtwardt | Associate/Senior Biologist

LSA | 157 Park Place

Point Richmond, CA 94801

510-236-6810 Office

510-376-5694 Mobile

[Website](#)



United States Department of the Interior

FISH AND WILDLIFE SERVICE

Ventura Fish And Wildlife Office
2493 Portola Road, Suite B
Ventura, CA 93003-7726
Phone: (805) 644-1766 Fax: (805) 644-3958



In Reply Refer To:

June 13, 2019

Consultation Code: 08EVEN00-2019-SLI-0563

Event Code: 08EVEN00-2019-E-01452

Project Name: Bradley Road Bridge Scour Repair Project

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

To Whom It May Concern:

The enclosed list identifies species listed as threatened and endangered, species proposed for listing as threatened or endangered, designated and proposed critical habitat, and species that are candidates for listing that may occur within the boundary of the area you have indicated using the U.S. Fish and Wildlife Service's (Service) Information Planning and Conservation System (IPaC). The species list fulfills the requirements under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 et seq.). Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the species list should be verified after 90 days. We recommend that verification be completed by visiting the IPaC website at regular intervals during project planning and implementation for updates to species lists following the same process you used to receive the enclosed list. Please include the Consultation Tracking Number in the header of this letter with any correspondence about the species list.

Due to staff shortages and excessive workload, we are unable to provide an official list more specific to your area. Numerous other sources of information are available for you to narrow the list to the habitats and conditions of the site in which you are interested. For example, we recommend conducting a biological site assessment or surveys for plants and animals that could help refine the list.

If a Federal agency is involved in the project, that agency has the responsibility to review its proposed activities and determine whether any listed species may be affected. If the project is a major construction project*, the Federal agency has the responsibility to prepare a biological assessment to make a determination of the effects of the action on the listed species or critical habitat. If the Federal agency determines that a listed species or critical habitat is likely to be adversely affected, it should request, in writing through our office, formal consultation pursuant to section 7 of the Act. Informal consultation may be used to exchange information and resolve conflicts with respect to threatened or endangered species or their critical habitat prior to a

written request for formal consultation. During this review process, the Federal agency may engage in planning efforts but may not make any irreversible commitment of resources. Such a commitment could constitute a violation of section 7(d) of the Act.

Federal agencies are required to confer with the Service, pursuant to section 7(a)(4) of the Act, when an agency action is likely to jeopardize the continued existence of any proposed species or result in the destruction or adverse modification of proposed critical habitat (50 CFR 402.10(a)). A request for formal conference must be in writing and should include the same information that would be provided for a request for formal consultation. Conferences can also include discussions between the Service and the Federal agency to identify and resolve potential conflicts between an action and proposed species or proposed critical habitat early in the decision-making process. The Service recommends ways to minimize or avoid adverse effects of the action. These recommendations are advisory because the jeopardy prohibition of section 7(a)(2) of the Act does not apply until the species is listed or the proposed critical habitat is designated. The conference process fulfills the need to inform Federal agencies of possible steps that an agency might take at an early stage to adjust its actions to avoid jeopardizing a proposed species.

When a proposed species or proposed critical habitat may be affected by an action, the lead Federal agency may elect to enter into formal conference with the Service even if the action is not likely to jeopardize or result in the destruction or adverse modification of proposed critical habitat. If the proposed species is listed or the proposed critical habitat is designated after completion of the conference, the Federal agency may ask the Service, in writing, to confirm the conference as a formal consultation. If the Service reviews the proposed action and finds that no significant changes in the action as planned or in the information used during the conference have occurred, the Service will confirm the conference as a formal consultation on the project and no further section 7 consultation will be necessary. Use of the formal conference process in this manner can prevent delays in the event the proposed species is listed or the proposed critical habitat is designated during project development or implementation.

Candidate species are those species presently under review by the Service for consideration for Federal listing. Candidate species should be considered in the planning process because they may become listed or proposed for listing prior to project completion. Preparation of a biological assessment, as described in section 7(c) of the Act, is not required for candidate species. If early evaluation of your project indicates that it is likely to affect a candidate species, you may wish to request technical assistance from this office.

Only listed species receive protection under the Act. However, sensitive species should be considered in the planning process in the event they become listed or proposed for listing prior to project completion. We recommend that you review information in the California Department of Fish and Wildlife's Natural Diversity Data Base. You can contact the California Department of Fish and Wildlife at (916) 324-3812 for information on other sensitive species that may occur in this area.

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

Attachment(s):

- Official Species List

Official Species List

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

This species list is provided by:

Ventura Fish And Wildlife Office

2493 Portola Road, Suite B

Ventura, CA 93003-7726

(805) 644-1766

Project Summary

Consultation Code: 08EVEN00-2019-SLI-0563

Event Code: 08EVEN00-2019-E-01452

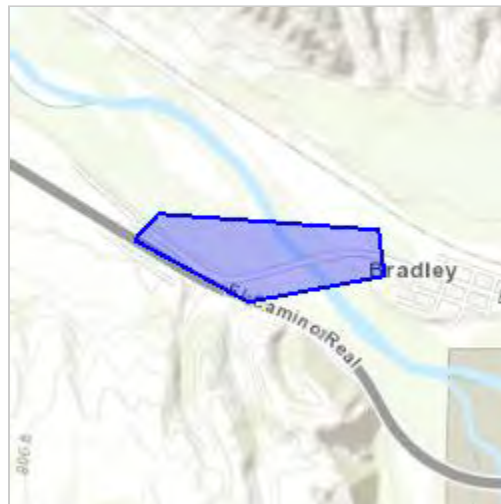
Project Name: Bradley Road Bridge Scour Repair Project

Project Type: BRIDGE CONSTRUCTION / MAINTENANCE

Project Description: Scour repair at bridge piers in Salinas River.

Project Location:

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/place/35.864221799135905N120.81142951521423W>



Counties: Monterey, CA

Endangered Species Act Species

There is a total of 8 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

-
1. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
San Joaquin Kit Fox <i>Vulpes macrotis mutica</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/2873	Endangered

Birds

NAME	STATUS
California Condor <i>Gymnogyps californianus</i> Population: U.S.A. only, except where listed as an experimental population There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/8193	Endangered
Least Bell's Vireo <i>Vireo bellii pusillus</i> There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/5945	Endangered
Southwestern Willow Flycatcher <i>Empidonax traillii extimus</i> There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/6749	Endangered

Amphibians

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

Crustaceans

NAME	STATUS
Vernal Pool Fairy Shrimp <i>Branchinecta lynchi</i> There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/498	Threatened

Flowering Plants

NAME	STATUS
Marsh Sandwort <i>Arenaria paludicola</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/2229	Endangered
Purple Amole <i>Chlorogalum purpureum</i> There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/5531	Threatened

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

Appendix C Updated Tree Survey Report 2019

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MEMORANDUM

DATE: August 9, 2019

To: Jose Gomez
RMA Public Works & Facilities

FROM: Tim Milliken
Certified Arborist WE-5539A

SUBJECT: Updated Tree Survey Report 2019, Bradley Road Bridge Scour Repair Project,
Monterey County, California

Introduction

LSA conducted a tree survey for the Bradley Road Bridge Scour Repair Project (proposed project) in 2016 (LSA 2016). However, subsequent project design modifications require a new temporary access route and staging area outside of the previously analyzed Biological Study Area (BSA) as identified in the project Natural Environment Study (NES) (LSA 2017). This updated tree survey memo was prepared to address the trees within the expanded BSA and includes all the trees addressed in the original tree survey area and an updated assessment of tree impacts within the original and expanded BSA.

Regulatory Context

Monterey County Zoning Ordinance 21.64.260 – Preservation of Oaks and Other Protected Trees (Ordinance) regulates the removal of oaks and other specific types of trees as required in the Monterey General Plan, area plans, or master plans. The Ordinance is applicable in unincorporated areas of the County outside of the Coastal Zone including the South County Planning Area. The Ordinance only protects native oaks (*Quercus* spp.) 6 inches in diameter at breast height (DBH) or greater within the project area. Some of the trees on the project site are protected by the Ordinance. As mandated by the Ordinance, no oak tree shall be removed without first obtaining a tree removal permit from the Director of Planning and Building Inspection.

Methods

Mr. Milliken conducted the updated tree survey on June 2, 17, and 24, 2019. The updated tree survey area (Figure 1 in Appendix A) is based on an updated project design provided to LSA in May 2019 and encompasses additional areas of permanent and temporary impacts on the west side of the Salinas River. The tree survey area includes the areas identified as permanent and temporary

impact areas plus a 50-foot buffer (Figure 1 in Appendix A). The survey involved identifying all tree species 6 inches DBH (about 4 feet above ground level) or greater within the tree survey area. In addition, the location of each identified tree was recorded with a global positioning system receiver and numbered. Tree condition and DBH were also recorded. If an individual tree had multiple trunks the circumference of all the trunks was totaled to determine the DBH. The location of all numbered trees was plotted on an aerial photograph of the BSA (Figure 1 in Appendix A). Trees within the survey area could potentially be impacted by project activities (Figure 1 in Appendix A).

Results

A total of 144 trees were recorded during the surveys: 37 during the 2016 survey (#s 1 – 37) and 107 within the tree survey area in the expanded BSA in 2019 (#s 38 – 144) (Table A in Appendix B). With the exception of the tree-of-heaven (*Ailanthus altissima*), all tree species observed in the BSA are native to the local region, including box elder (*Acer negundo*), white alder (*Alnus rhombifolia*), Northern California black walnut (*Juglans hindsii*), Fremont cottonwood (*Populus fremontii*), blue oak (*Quercus douglasii*), red willow (*Salix laevigata*), and arroyo willow (*S. lasiolepis*). Tables B and C in Appendix B contain additional information on the trees identified within the tree survey area, including tree number, scientific and common name, DBH, condition, and potential impacts from the proposed project.

Impacts and Recommendations

The proposed project could impact a small number of riparian trees including 1 Fremont cottonwood (#4), 2 white alders (#10 and #11), and 3 red willows (#19, #25, and #26) (Figure 1 in Appendix A and Tables B and C in Appendix B). These trees could be impacted through direct removal or by injuring roots or canopy branches during construction of the access roads, equipment storage, and staging. With the exception of blue oak, none of the tree species within the BSA are protected by the Ordinance; however, no blue oaks or other oak species will be impacted by the proposed project.

The County will mitigate for tree impacts as described in Section 4.1.3.4 in the 2017 NES; however, impact ratios will be based on the updated number (6) of impacted trees identified in this report and the 2019 NES Addendum (LSA 2019). A 2 to 1 mitigation ratio (2 planted:1 impacted) would require 2 Fremont cottonwoods, 4 white alders, and 6 red willows to be planted to mitigate for the loss of the impacted trees.

Recommendations for tree replacement shall be of genetically appropriate native stock (e.g., from the Salinas Valley). Mitigation tree installation should occur following construction during the winter season (December through February). The location of new trees will be determined by a certified arborist or qualified biologist. Planting locations will be in areas where no flooding is anticipated.

Avoidance and Minimization Efforts

To avoid and minimize impacts to trees that will not be directly impacted by the proposed project, environmentally sensitive area fencing (ESA fencing) will be placed at or beyond the drip-line of trees or groups of trees adjacent to the work area to delineate tree protection zones. No

construction equipment or storage of construction materials will be allowed in the tree protection zone. A qualified arborist will assist construction crews in the placement of the ESA fencing.

References

LSA Associates, Inc. (LSA). 2016. Bradley Road Bridge Scour Repair Project Arborist Report/Tree Survey Results. A memorandum to Jose Gomez, Monterey County Public Works Department. Dated December 6, 2016.

LSA Associates, Inc. (LSA). 2017. Natural Environment Study, Bradley Road Bridge Scour Repair Project, Monterey County, California, 05-MON-0-CR, Bridge Number 44C-0050. Prepared for the Monterey County Department of Public Works and the California Department of Transportation.

LSA Associates, Inc. (LSA). 2019. Natural Environment Study Addendum, Bradley Road Bridge Scour Repair Project, Monterey County, California, Federal Project Number BHLO-5944(100), Bridge Number 44C-0050. Prepared for the Monterey County Department of Public Works and the California Department of Transportation.

Attachments: Appendix A – Figures
Appendix B – Tables

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APPENDIX A

FIGURES

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LEGEND

- Biological Survey Area
- Tree Survey Area
- Permanent Impact
- Temporary Impact
- Possible Tree Removal*

*Possible trees to be removed include 4, 10, 11, 19, 25 and 26

Tree Common Name

- ▲ Arroyo willow
- Box elder
- ▱ Fremont cottonwood
- Red willow
- White alder

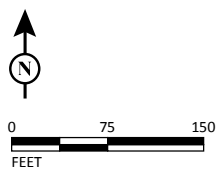
- ◆ Blue oak
- ☆ Tree of heaven
- ▲ Black walnut

FIGURE 1

Page 1 of 3

*Bradley Road Bridge Scour Repair Project
Monterey County, California
Federal Project Number BHLO-5944(100)*

Tree Map



SOURCE: Google (2018); TRC (12/2015)

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LEGEND

- Biological Survey Area
- Tree Survey Area
- Permanent Impact
- Temporary Impact
- Possible Tree Removal*

Tree Common Name

- ▲ Arroyo willow
- Box elder
- ▲ Fremont cottonwood
- Red willow
- White alder

- ◆ Blue oak
- ☆ Tree of heaven
- ▲ Black walnut

*Possible trees to be removed include 4, 10, 11, 19, 25 and 26



0 75 150
FEET

SOURCE: Google (2018); TRC (12/2015)

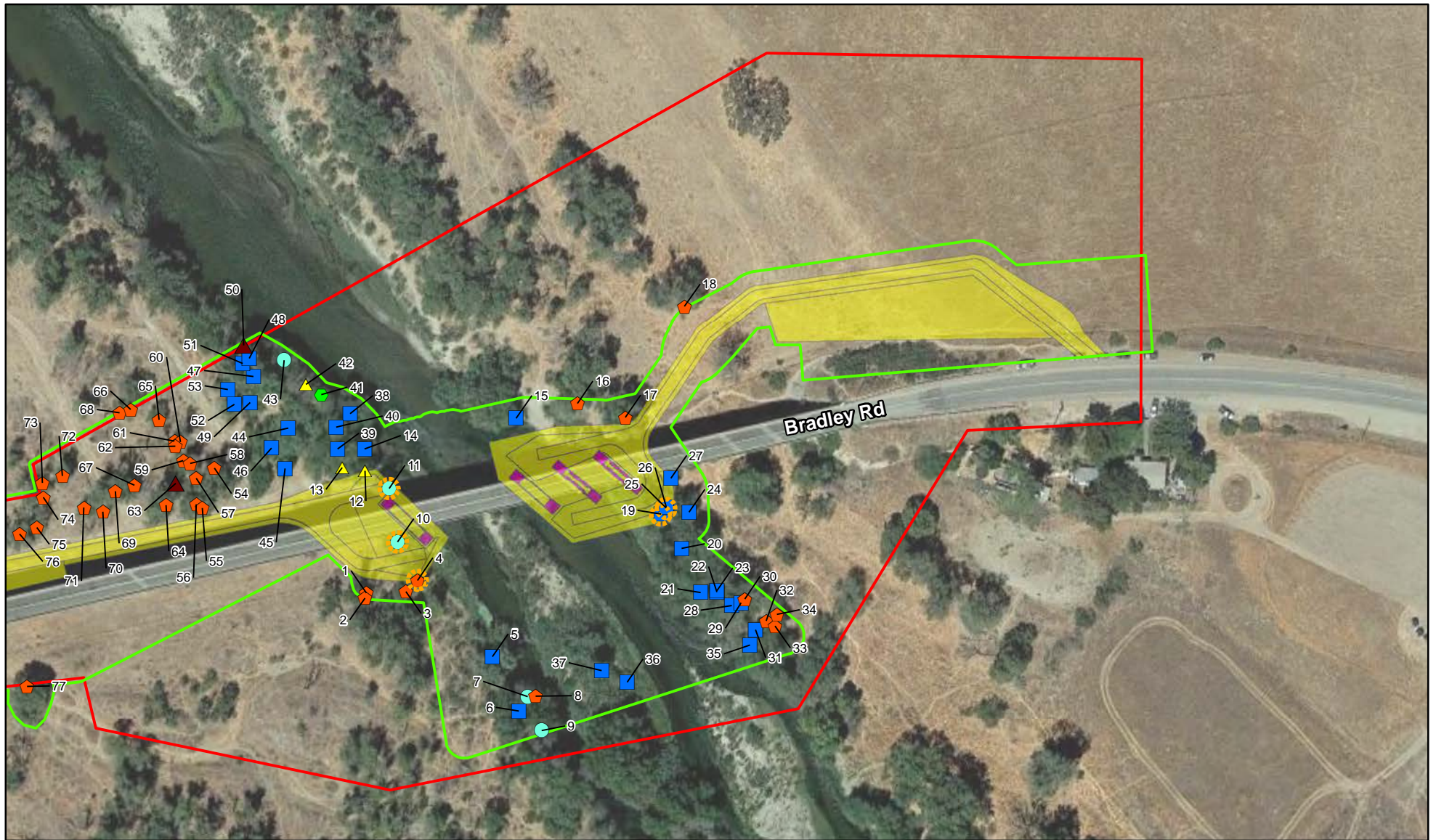
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FIGURE 1

Page 2 of 3

*Bradley Road Bridge Scour Repair Project
Monterey County, California
Federal Project Number BHLO-5944(100)*

Tree Map



LEGEND

- Biological Survey Area
- Tree Survey Area
- Permanent Impact
- Temporary Impact
- Possible Tree Removal*

*Possible trees to be removed include 4, 10, 11, 19, 25 and 26

Tree Common Name

- ▲ Arroyo willow
- Box elder
- ⬠ Fremont cottonwood
- Red willow
- White alder

- ◆ Blue oak
- ☆ Tree of heaven
- ▲ Black walnut



0 75 150
FEET

SOURCE: Google (2018); TRC (12/2015)

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FIGURE 1

Page 3 of 3

*Bradley Road Bridge Scour Repair Project
Monterey County, California
Federal Project Number BHLO-5944(100)*

Tree Map

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APPENDIX B

TABLES

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Table A: Summary of Trees in the Tree Survey Area (Original and Expanded BSA)

Species Classification	Trees within the 2016 Tree Survey Area	Trees within the 2019 Tree Survey Area	Total Trees within the Project's Tree Survey Area
Box elder (<i>Acer negundo</i>)	0	16	16
Tree of Heaven (<i>Ailanthus altissima</i>)	0	1	1
White alder (<i>Alnus rhombifolia</i>)	4	1	5
Northern California black walnut (<i>Juglans hindsii</i>)	0	2	2
Fremont cottonwood (<i>Populus fremontii</i>)	12	48	60
Blue oak (<i>Quercus douglasii</i>)	0	23	23
Red willow (<i>Salix laevigata</i>)	19	15	34
Arroyo willow (<i>Salix lasiolepis</i>)	2	1	3
Total	37	107	144

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Table B: Detailed Tree Table, Bradley Road Bridge Scour Repair Project

Tree ID	Species Classification	Total DBH (inches)	Number of Stems	Height (feet)	Condition	Potential Impact
1	Fremont cottonwood (<i>Populus fremontii</i>)	24	2	40	Good	No
2	Fremont cottonwood (<i>Populus fremontii</i>)	21	4	25	Good	No
3	Fremont cottonwood (<i>Populus fremontii</i>)	16	1	40	Good	No
4	Fremont cottonwood (<i>Populus fremontii</i>)	11	1	35	Good	Yes
5	Red willow (<i>Salix laevigata</i>)	43	4	35	Good	No
6	Red willow (<i>Salix laevigata</i>)	25	2	35	Good	No
7	White alder (<i>Alnus rhombifolia</i>)	26	2	45	Good	No
8	Fremont cottonwood (<i>Populus fremontii</i>)	12	1	45	Good	No
9	White alder (<i>Alnus rhombifolia</i>)	28	3	55	Good	No
10	White alder (<i>Alnus rhombifolia</i>)	11	1	35	Good	Yes
11	White alder (<i>Alnus rhombifolia</i>)	20	2	35	Good	Yes
12	Red willow (<i>Salix laevigata</i>)	18	3	25	Good	No
13	Red willow (<i>Salix laevigata</i>)	20	2	35	Good	No
14	Red willow (<i>Salix laevigata</i>)	17	2	30	Good	No
15	Red willow (<i>Salix laevigata</i>)	36	1	30	Good	No
16	Fremont cottonwood (<i>Populus fremontii</i>)	36	1	40	Good	No
17	Fremont cottonwood (<i>Populus fremontii</i>)	32	1	40	Good	No
18	Fremont cottonwood (<i>Populus fremontii</i>)	60	2	40	Good	No
19	Red willow (<i>Salix laevigata</i>)	15	2	15	Good	Yes
20	Red willow (<i>Salix laevigata</i>)	14	1	35	Good	No
21	Red willow (<i>Salix laevigata</i>)	23	2	25	Good	No
22	Red willow (<i>Salix laevigata</i>)	50	3	35	Good	No
23	Red willow (<i>Salix laevigata</i>)	14	1	35	Good	No
24	Red willow (<i>Salix laevigata</i>)	36	1	35	Good	No
25	Red willow (<i>Salix laevigata</i>)	54	2	35	Good	Yes
26	Red willow (<i>Salix laevigata</i>)	36	1	15	Good	Yes

Tree ID	Species Classification	Total DBH (inches)	Number of Stems	Height (feet)	Condition	Potential Impact
27	Red willow (<i>Salix laevigata</i>)	19	2	35	Good	No
28	Red willow (<i>Salix laevigata</i>)	9	1	20	Good	No
29	Red willow (<i>Salix laevigata</i>)	34	2	30	Good	No
30	Fremont cottonwood (<i>Populus fremontii</i>)	36	1	50	Good	No
31	Red willow (<i>Salix laevigata</i>)	31	2	15	Good	No
32	Fremont cottonwood (<i>Populus fremontii</i>)	24	1	50	Good	No
33	Fremont cottonwood (<i>Populus fremontii</i>)	14	1	25	Good	No
34	Fremont cottonwood (<i>Populus fremontii</i>)	24	1	55	Good	No
35	Red willow (<i>Salix laevigata</i>)	24	1	55	Good	No
36	Red willow (<i>Salix laevigata</i>)	19	2	35	Good	No
37	Red willow (<i>Salix laevigata</i>)	9	1	20	Good	No

Table C: Detailed Tree Table, Bradley Road Bridge Scour Repair Project

Tree ID	Species Classification	Total DBH (inches)	Number of Stems	Height (feet)	Condition	Potential Impact
38	Red willow (<i>Salix laevigata</i>)	54	4	35	Good	No
39	Red willow (<i>Salix laevigata</i>)	57	4	45	Good	No
40	Red willow (<i>Salix laevigata</i>)	24	2	40	Good	No
41	Box elder (<i>Acer negundo</i>)	10	1	12	Good	No
42	Arroyo willow (<i>Salix lasiolepis</i>)	38	3	35	Good	No
43	White alder (<i>Alnus rhombifolia</i>)	12	1	40	Good	No
44	Red willow (<i>Salix laevigata</i>)	52	1	30	Good	No
45	Red willow (<i>Salix laevigata</i>)	30	3	30	Good	No
46	Red willow (<i>Salix laevigata</i>)	12	1	25	Good	No
47	Red willow (<i>Salix laevigata</i>)	34	2	35	Good	No
48	Red willow (<i>Salix laevigata</i>)	30	1	35	Good	No
49	Red willow (<i>Salix laevigata</i>)	9	1	25	Good	No

Tree ID	Species Classification	Total DBH (inches)	Number of Stems	Height (feet)	Condition	Potential Impact
50	Northern California black walnut (<i>Juglans hindsii</i>)	12	1	30	Good	No
51	Red willow (<i>Salix laevigata</i>)	24	1	25	Good	No
52	Red willow (<i>Salix laevigata</i>)	6	1	35	Good	No
53	Red willow (<i>Salix laevigata</i>)	6	1	35	Good	No
54	Fremont cottonwood (<i>Populus fremontii</i>)	144	7	45	Fair	No
55	Fremont cottonwood (<i>Populus fremontii</i>)	14	1	45	Fair	No
56	Fremont cottonwood (<i>Populus fremontii</i>)	28	2	40	Fair	No
57	Fremont cottonwood (<i>Populus fremontii</i>)	16	1	40	Fair	No
58	Fremont cottonwood (<i>Populus fremontii</i>)	14	1	40	Fair	No
59	Fremont cottonwood (<i>Populus fremontii</i>)	10	1	35	Fair	No
60	Fremont cottonwood (<i>Populus fremontii</i>)	24	2	50	Fair	No
61	Fremont cottonwood (<i>Populus fremontii</i>)	20	1	40	Fair	No
62	Fremont cottonwood (<i>Populus fremontii</i>)	14	1	35	Fair	No
63	Northern California black walnut (<i>Juglans hindsii</i>)	10	1	35	Good	No
64	Fremont cottonwood (<i>Populus fremontii</i>)	50	2	45	Good	No
65	Fremont cottonwood (<i>Populus fremontii</i>)	32	2	50	Fair	No
66	Fremont cottonwood (<i>Populus fremontii</i>)	18	1	40	Fair	No
67	Fremont cottonwood (<i>Populus fremontii</i>)	28	2	40	Fair	No
68	Fremont cottonwood (<i>Populus fremontii</i>)	12	1	50	Fair	No
69	Fremont cottonwood (<i>Populus fremontii</i>)	36	3	40	Fair	No
70	Fremont cottonwood (<i>Populus fremontii</i>)	24	2	50	Good	No
71	Fremont cottonwood (<i>Populus fremontii</i>)	10	1	50	Good	No
72	Fremont cottonwood (<i>Populus fremontii</i>)	12	1	40	Good	No
73	Fremont cottonwood (<i>Populus fremontii</i>)	10	1	50	Good	No
74	Fremont cottonwood (<i>Populus fremontii</i>)	14	1	40	Good	No
75	Fremont cottonwood (<i>Populus fremontii</i>)	20	1	50	Good	No

Tree ID	Species Classification	Total DBH (inches)	Number of Stems	Height (feet)	Condition	Potential Impact
76	Fremont cottonwood (<i>Populus fremontii</i>)	46	4	45	Good	No
77	Fremont cottonwood (<i>Populus fremontii</i>)	78	9	45	Good	No
78	Fremont cottonwood (<i>Populus fremontii</i>)	72	3	35	Good	No
79	Fremont cottonwood (<i>Populus fremontii</i>)	24	1	35	Good	No
80	Red willow (<i>Salix laevigata</i>)	100	14	30	Good	No
81	Box elder (<i>Acer negundo</i>)	65	3	30	Good	No
82	Fremont cottonwood (<i>Populus fremontii</i>)	30	1	40	Good	No
83	Fremont cottonwood (<i>Populus fremontii</i>)	48	1	40	Good	No
84	Fremont cottonwood (<i>Populus fremontii</i>)	36	1	45	Good	No
85	Fremont cottonwood (<i>Populus fremontii</i>)	100	4	50	Good	No
86	Fremont cottonwood (<i>Populus fremontii</i>)	64	2	45	Good	No
87	Fremont cottonwood (<i>Populus fremontii</i>)	24	1	45	Good	No
88	Fremont cottonwood (<i>Populus fremontii</i>)	24	1	50	Good	No
89	Box elder (<i>Acer negundo</i>)	9	1	30	Good	No
90	Fremont cottonwood (<i>Populus fremontii</i>)	24	1	45	Good	No
91	Fremont cottonwood (<i>Populus fremontii</i>)	24	1	50	Good	No
92	Box elder (<i>Acer negundo</i>)	9	1	35	Good	No
93	Box elder (<i>Acer negundo</i>)	42	4	35	Good	No
94	Box elder (<i>Acer negundo</i>)	42	4	30	Good	No
95	Box elder (<i>Acer negundo</i>)	6	1	35	Good	No
96	Fremont cottonwood (<i>Populus fremontii</i>)	24	1	50	Good	No
97	Fremont cottonwood (<i>Populus fremontii</i>)	24	1	45	Good	No
98	Fremont cottonwood (<i>Populus fremontii</i>)	24	1	45	Good	No
99	Fremont cottonwood (<i>Populus fremontii</i>)	9	1	50	Good	No
100	Red willow (<i>Salix laevigata</i>)	10	1	35	Good	No
101	Fremont cottonwood (<i>Populus fremontii</i>)	24	1	50	Good	No
102	Box elder (<i>Acer negundo</i>)	70	4	35	Good	No
103	Blue oak (<i>Quercus douglasii</i>)	14	1	35	Good	No
104	Fremont cottonwood (<i>Populus fremontii</i>)	24	1	40	Good	No
105	Fremont cottonwood (<i>Populus fremontii</i>)	24	1	45	Good	No

Tree ID	Species Classification	Total DBH (inches)	Number of Stems	Height (feet)	Condition	Potential Impact
106	Fremont cottonwood (<i>Populus fremontii</i>)	24	1	50	Good	No
107	Fremont cottonwood (<i>Populus fremontii</i>)	24	1	50	Good	No
108	Fremont cottonwood (<i>Populus fremontii</i>)	12	1	55	Good	No
109	Blue oak (<i>Quercus douglasii</i>)	48	1	30	Good	No
110	Fremont cottonwood (<i>Populus fremontii</i>)	36	1	45	Good	No
111	Box elder (<i>Acer negundo</i>)	55	2	40	Good	No
112	Blue oak (<i>Quercus douglasii</i>)	6	1	35	Good	No
113	Blue oak (<i>Quercus douglasii</i>)	9	1	35	Good	No
114	Fremont cottonwood (<i>Populus fremontii</i>)	60	2	45	Good	No
115	Fremont cottonwood (<i>Populus fremontii</i>)	24	1	50	Good	No
116	Blue oak (<i>Quercus douglasii</i>)	9	1	30	Good	No
117	Blue oak (<i>Quercus douglasii</i>)	9	1	30	Good	No
118	Blue oak (<i>Quercus douglasii</i>)	9	1	35	Good	No
119	Blue oak (<i>Quercus douglasii</i>)	9	1	35	Good	No
120	Blue oak (<i>Quercus douglasii</i>)	16	1	35	Good	No
121	Blue oak (<i>Quercus douglasii</i>)	36	1	35	Good	No
122	Blue oak (<i>Quercus douglasii</i>)	6	1	35	Good	No
123	Box elder (<i>Acer negundo</i>)	9	1	30	Good	No
124	Blue oak (<i>Quercus douglasii</i>)	6	1	30	Good	No
125	Blue oak (<i>Quercus douglasii</i>)	60	2	35	Good	No
126	Blue oak (<i>Quercus douglasii</i>)	9	1	35	Good	No
127	Blue oak (<i>Quercus douglasii</i>)	46	1	35	Good	No
128	Blue oak (<i>Quercus douglasii</i>)	48	1	35	Good	No
129	Box elder (<i>Acer negundo</i>)	60	1	35	Fair	No
130	Blue oak (<i>Quercus douglasii</i>)	10	1	30	Good	No
131	Blue oak (<i>Quercus douglasii</i>)	18	1	30	Good	No
132	Blue oak (<i>Quercus douglasii</i>)	23	2	35	Good	No
133	Box elder (<i>Acer negundo</i>)	18	1	35	Good	No
134	Blue oak (<i>Quercus douglasii</i>)	24	1	35	Good	No
135	Fremont cottonwood (<i>Populus fremontii</i>)	24	1	45	Good	No

Tree ID	Species Classification	Total DBH (inches)	Number of Stems	Height (feet)	Condition	Potential Impact
136	Tree of heaven (<i>Ailanthus altissima</i>)	9	1	35	Good	No
137	Blue oak (<i>Quercus douglasii</i>)	35	2	30	Good	No
138	Red willow (<i>Salix laevigata</i>)	10	1	30	Good	No
139	Blue oak (<i>Quercus douglasii</i>)	12	1	35	Good	No
140	Box elder (<i>Acer negundo</i>)	24	1	35	Good	No
141	Blue oak (<i>Quercus douglasii</i>)	9	1	35	Good	No
142	Box elder (<i>Acer negundo</i>)	24	1	35	Good	No
143	Box elder (<i>Acer negundo</i>)	24	1	35	Good	No
144	Box elder (<i>Acer negundo</i>)	9	1	3	Good	No

APPENDIX C

FOUNDATION REPORT



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**FOUNDATION REPORT
BRADLEY ROAD BRIDGE AT SALINAS RIVER
SCOUR REPAIR PROJECT
MONTEREY COUNTY, CALIFORNIA
(BRIDGE NO. 44C0050)**

For

TRC
10680 White Rock Road, Suite 100
Rancho Cordova, CA 95670



PARIKH CONSULTANTS, INC.
2360 Qume Drive, Suite A
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May 22, 2019

Job No. 2015-109-BRD

TABLE OF CONTENTS**PAGE**

1.0	INTRODUCTION.....	1
2.0	SCOPE OF WORK.....	1
3.0	PROJECT DESCRIPTION	1
4.0	EXCEPTIONS TO POLICY.....	2
5.0	FIELD INVESTIGATION AND TESTING PROGRAM	2
6.0	LABORATORY TESTING PROGRAM	3
7.0	SITE GEOLOGY AND SUBSURFACE CONDITIONS.....	3
7.1	Site Geology.....	3
7.2	Subsurface Conditions.....	3
8.0	SCOUR EVALUATION.....	5
9.0	CORROSION EVALUATION	6
10.0	SEISMIC RECOMMENDATIONS	7
10.1	Seismic Sources	7
10.2	Seismic Design Criteria	7
10.3	Seismic Hazard	8
11.0	AS-BUILT FOUNDATION DATA	9
12.0	FOUNDATION RECOMMENDATIONS.....	9
12.1	General.....	9
12.2	Foundations.....	10
12.3	Geotechnical Parameters for Lateral Load Analysis	12
13.0	CONSTRUCTION CONSIDERATIONS.....	13
13.1	General.....	13
13.2	CIDH Piles.....	14
13.3	Waiting Period	15
13.4	Construction Dewatering	15
13.5	Temporary Excavation and Shoring	16
13.6	Working Platform	16
14.0	NOTES TO DESIGNER.....	17
15.0	PLAN REVIEW	17
16.0	INVESTIGATION LIMITATIONS.....	17
17.0	REFERENCES.....	19



LIST OF PLATES

Plate No. 1: Project Location Map
Plate No. 2: Site Plan
Plate No. 3: Geologic Map
Plate No. 4: Caltrans ARS Online Map
Plate No. 5A: ARS Comparison Curves
Plate No. 5B: Recommended ARS Curve

APPENDICES

APPENDIX A: Log of Test Borings
APPENDIX B: Laboratory Test Results
APPENDIX C: Calculations



**FOUNDATION REPORT
BRADLEY ROAD BRIDGE AT SALINAS RIVER
SCOUR REPAIR PROJECT
MONTEREY COUNTY, CALIFORNIA
(BRIDGE NO. 44C0050)**

1.0 INTRODUCTION

This report presents the results of our geotechnical engineering investigation for the proposed Bradley Road Bridge (Br. No. 44C0050) scour repair project (Project) in Monterey County, California. The Project is on Bradley Road at Salinas River, just east of Highway 101 and west of Bradley community. The approximate Project location is shown on the Project Location Map, Plate No. 1.

The geotechnical recommendations presented in this report are intended for design input and are not intended to be used directly as specifications. These recommendations should not be used directly for bidding purposes.

2.0 SCOPE OF WORK

The purpose of this investigation was to evaluate the general soil and groundwater conditions at the Project site, to evaluate their engineering properties, and to provide foundation design recommendations for the proposed Project. The scope of work performed for this investigation included a review of the readily available geologic literature pertaining to the site, obtaining representative soil samples and logging materials encountered in the exploratory borings, laboratory testing of the collected soil samples, engineering analysis of the field and laboratory data, and preparation of this report.

3.0 PROJECT DESCRIPTION

The existing Bradley Road Bridge (Br. No. 44C0050) was built in 1931, and widened once in 1954. Scour impact on the bridge foundations was observed and noted in the Caltrans Bridge Inspection Report (2009). The County plans to perform scour repair to Piers 16 through 19 (This is a new numbering system and counted from the west to the east. The numbering system shown on the as-built general plan of 1930 is counted from the east to the west). According to the information provided by Quincy Engineering (Designer), cast-in-drilled-hole (CIDH) concrete piles with diameters of 8 and 10 feet are proposed for scour retrofit at the four pier locations. The large diameter piles will be placed adjacent to the footings of the piers. Two construction alternatives were considered. Alternative 1 would construct a new pile cap at the existing pier cap



TRC

Bradley Road Bridge at Salinas River

Job No. 2015-109-BRD

May 22, 2019

Page 2

level and the existing piers and columns would be removed. Alternative 2 would install a new pile cap at the existing footing cap level and the existing piers and columns would remain. Alternative 2 has been selected. The Project does not include structure seismic retrofit.

4.0 EXCEPTIONS TO POLICY

Normal procedures were assumed for construction of the bridge structure throughout our analysis and represent one of the bases of recommendations presented herein. The investigation for the proposed foundations has generally followed Caltrans guidelines.

5.0 FIELD INVESTIGATION AND TESTING PROGRAM

Two borings (R-15-001 and R-15-002) were drilled to a depth of approximately 80 feet below grade with a track-mounted drill rig between September 30 and October 2, 2015. The borings were placed at the north side of the bridge near Pier 16 (R-15-001) and Pier 20 (R-15-002) in the riverbed. Rotary wash drilling method was used. Selected soil samples were obtained from either a 2.5-inch I.D. Modified California (MC) or 1.4-inch I.D. Standard Penetration Test (SPT) sampler at various depths. The samplers were driven into subsurface soils under the impact of a 140-pound hammer having a free fall of 30 inches. The blow counts required to drive the sampler for the last 12 inches are presented on the Log of Test Borings (LOTB) in Appendix A. The drilling subcontractor was Taber Drilling from West Sacramento, California. Based on the hammer energy calibration information provided, the hammer energy of the drill rig (CME 55) used is approx. 87%. Using a method suggested by Daniel, Howie and Sy (2003), when correlating standard penetration data, the blow counts for the Modified California Sampler may be converted to equivalent SPT blow counts by multiplying a conversion factor of 0.6. The soil samples were sealed and transported to our laboratory for further evaluation and testing. The field investigation was conducted under the supervision of our field engineer who logged the test borings and prepared the samples for subsequent laboratory testing and evaluation. The approximate boring locations are shown on the Site Plan, Plate No. 2.



TRC

Bradley Road Bridge at Salinas River

Job No. 2015-109-BRD

May 22, 2019

Page 3

6.0 LABORATORY TESTING PROGRAM

Laboratory tests were performed on selected samples to evaluate the physical and engineering properties of the soils. The tests performed for this study included the following: Moisture Content (ASTM D 2216), Atterberg Limits (ASTM D 4318), Grain Size (ASTM D 422), Unconfined Compressive Strength (ASTM C 42), and Corrosion (California Test Methods 643, 417 and 422). The corrosion tests were performed by Sunland Analytical in Rancho Cordova, California. The laboratory test results are included in Appendix B.

7.0 SITE GEOLOGY AND SUBSURFACE CONDITIONS**7.1 Site Geology**

General geologic features pertaining to the bridge site were evaluated by reference to Geologic Map of the Bradley Quadrangle, Monterey & San Luis Obispo Counties, California, by Dibblee, T. W., and Minch, J. A. (ed.) (2006). Based on the publication, the Project site and its vicinity is generally underlain by the following Quaternary geologic units:

- Qa - Alluvial clay and sand of valley areas (Holocene), unduated, undissected alluvial surficial sediments.
- Qg - Alluvial gravel and sand of stream channels (Holocene), unduated, undissected alluvial surficial sediments.
- Qoa2 - Younger lower terraces (Holocene to Pleistocene), dissected alluvial gravel and sand, older surficial sediments.
- QTp - Alluvial conglomerate of pebbles (Pleistocene to Pliocene), mostly of white siliceous shale from Monterey Formation in a matrix of sand and clay.

A portion of the published Geologic Map covering the Project site is attached as Plate No. 3.

7.2 Subsurface Conditions

The subsurface soil conditions are based on the field exploration. Based on a topographic map provided (2016), the existing ground surface elevations are estimated at around 495 and 498 feet,



TRC

Bradley Road Bridge at Salinas River

Job No. 2015-109-BRD

May 22, 2019

Page 4

at the boring locations of R-15-001 and R-15-002, respectively. Both borings were placed in the riverbed.

In general, Boring R-15-001 encountered predominately sandy and gravelly soils to about 39 feet deep underlain by mostly silty and clayey soils to the maximum depth drilled, approximately 80 feet below grade. The apparent densities of granular soils range from loose to very dense, with density increasing with depth. The consistencies of silty and clayey soils are generally hard. Below about 70 feet deep, the clayey soils appear to be soft claystone and siltstone. In Boring R-15-002, loose sandy materials were encountered from the ground surface to about 7 feet deep followed by predominantly hard silty and clayey soils to the maximum depth drilled, approximately 80 feet below grade.

Groundwater was encountered at about 3 feet deep in both borings during drilling. Groundwater may vary with the passage of time due to seasonal groundwater fluctuation, local irrigation practice, water level in the river, surface and subsurface flows, ground surface run-off, and other factors that may not be present at the time of investigation.

Groundwater elevation could significantly vary in the event of a 'normal' rainfall period or following an El Niño period. Also groundwater may take time to recharge or react to such changes and therefore seasonal fluctuations or the extreme conditions as noted above may or may not affect the groundwater immediately following such event. Therefore, it is all the more important to not rely on such transient measurements of groundwater for the design and construction of any underground improvements. It may be prudent to make conservative assumptions in the design and construction program.

The boring logs presented in Appendix A were prepared from the field logs which were edited after visual re-examination of the soil samples in the laboratory and results of classification tests on selected soil samples as indicated on the logs. The abrupt stratum changes shown on these logs may be gradual and relatively minor changes in soil types within a stratum may not be noted on the logs due to field limitations.

Due to limitations inherent in geotechnical investigations, it is neither uncommon to encounter unforeseen variations in the soil conditions during construction nor is it practical to determine all such variations during an acceptable program of drilling and sampling for a project of this scope.



TRC

Bradley Road Bridge at Salinas River

Job No. 2015-109-BRD

May 22, 2019

Page 5

Such variations, when encountered, generally require additional engineering services to attain a properly constructed project. Therefore, it is recommended that a contingency fund be provided to accommodate any additional charges resulting from technical services that may be required during construction.

8.0 SCOUR EVALUATION

Caltrans Bridge Inspection Reports dating as far back as 2009 have indicated that the pile cap is entirely exposed at Pier 18 and partially exposed at Pier 19. The footings at these two locations are horizontally undermined due to scour. Debris is beginning to collect and get caught along the undermined portion of the footing at Pier 18. According to the site geologic map and explorative boring data, the top portion of the channel subsurface profile consists of mostly alluvial materials including loose to medium dense sandy deposits followed by alternate denser sandy soils and hard silty and clayey soils. Some of these materials could have been scoured out and re-deposited. Such subsurface materials have less scour resistance. The scour potential at the bridge should be determined by the Project hydraulic study. The pile capacities above scour elevations should be ignored.

According to the Caltrans Amendments to the AASHTO LRFD Bridge Design Specifications (BDS) – Sixth Edition (2012), the effects due to 100% channel degradation/aggradation and contraction scour plus 100% local scour shall be considered at the Service limit state; 100% channel degradation/aggradation and contraction scour plus 50% local scour shall be considered in Strength limit state load combinations. For the Extreme Event I limit state, 100% degradation/aggradation and 100% contraction scour should be considered, but local scour should not be included in structural or geotechnical design.

The scour elevations presented in Table 8.1 are provided by the Designer and have been incorporated into foundation design.



TABLE 8.1 – SCOUR AT SUPPORTS: TOP OF SOIL ELEVATIONS*

Support No.	Service Limit State Scour Elevation (ft)	Strength Limit State Scour Elevation (ft)	Extreme Event I Limit State Scour Elevation (ft)
Pier 16	467.70	475.45	483.20
Pier 17	467.50	475.35	483.20
Pier 18	459.70	471.45	483.20
Pier 19	461.60	472.40	483.20

* Data is provided by the Designer (2016)

9.0 CORROSION EVALUATION

The corrosion investigation was performed on selected soil samples in general accordance with the provisions of California Test Methods 643, 417 and 422. Table 9.1 presents a summary of the corrosion test results.

TABLE 9.1 - CORROSION TEST RESULTS

Boring No.	Depth (ft)	pH	Minimum Resistivity (ohm-cm)	Chloride Content (ppm)	Sulfate Content (ppm)
R-15-001	16	8.58	6,700	8.1	19.2
R-15-002	21	7.83	1,290	22.8	52.6

The Caltrans Corrosion Guidelines (2015) states that a site is corrosive to foundation elements if one or more of the following conditions exist:

- Chloride concentration is greater than or equal to 500 ppm,
- Sulfate concentration is greater than or equal to 2,000 ppm, or
- The pH is 5.5 or less.

Based on the test results, the on-site subsurface materials are considered non-corrosive. Standard Type II modified or Type I-P (MS) modified cement may be used for the concrete substructures. The guidelines presented in the California Amendments to the AASHTO BDS (2012), Section 5.12.3, for the minimum cement factor and cover thickness maybe used for the bridge substructure.



TRC

Bradley Road Bridge at Salinas River

Job No. 2015-109-BRD

May 22, 2019

Page 7

10.0 SEISMIC RECOMMENDATIONS**10.1 Seismic Sources**

The Project site is located in a seismically active part of northern California. Many faults in the region are capable of producing earthquakes, which may cause moderate to strong ground shaking at the site. The proposed bridge is located at coordinates of approximately 35.8640 degrees north latitude and 120.8098 degrees west longitude (Google Earth 2015). The Caltrans Fault Database (V2b, 2012) and ARS Online (V2, 2012) contain known active faults (if there is evidence of surface displacement in the past 700,000 years) in the State. The information of the active faults in the area, based on the Caltrans ARS Online (V2, 2012), is summarized in Table 10.1. The maximum magnitudes (M_{max}) represent the largest earthquake that a fault is capable of generating and are related to the seismic moment. The attached Caltrans ARS Online Map, Plate No. 4, presents the location of the fault system relative to the Project site.

TABLE 10.1 - CALTRANS ARS ONLINE INFORMATION

Fault	Fault ID	Maximum Magnitude, M_{max}	Fault Type	Approx. Distance R_{rup}/R_x (miles)
San Andreas (Creeping Section) 2011 CFM	182	7.9	SS	16.67/16.67
Rinconada 2011 CFM	209	7.4	SS	6.35/6.35
Oceanic – West Huasna	223	6.9	R	21.37/21.37
San Simeon fault zone (Arroyo Laguna Section)	418	7.3	SS	25.69/26.00

 R_{rup} = Closest distance to the fault rupture plane R_x = Horizontal distance to the fault trace or surface projection of the top of rupture plane

SS = Strike-slip fault

R = Reverse fault

10.2 Seismic Design Criteria

The Caltrans ARS Online program (2012) was used for producing acceleration response spectra (ARS). Development of the design ARS curve is based on several input parameters, including site location (longitude/latitude), average shear wave velocity for the top 100 feet (V_{s30}) of soils, and other site parameters, such as fault characteristics, site-to-fault distances. The design methods incorporate both deterministic and probabilistic seismic hazards to produce the design response spectrum. The probabilistic response spectrum to be used for design of structures is based on the data from the USGS Interactive Deaggregations (Beta) program (2008) for a 5 percent in 50 years



TRC

Bradley Road Bridge at Salinas River

Job No. 2015-109-BRD

May 22, 2019

Page 8

probability of exceedance (975-year return period) or the Caltrans ARS Online program (2012). The controlling spectrum (upper envelope) is adopted for the design response spectrum.

The average shear wave velocity for the top 100 feet of soils at the project site was estimated by using the established correlations and guidelines in Caltrans Methodology for Developing Design Response Spectrum for Use in Seismic Design Recommendations (2012). An average shear wave velocity of 280 m/s was adopted. According to the Caltrans guidelines, the USGS Beta program should be checked and compared with the Caltrans ARS Online program for four spectral probabilistic values (at periods of 0, 0.3, 1 and 3 sec.). If the discrepancy between the USGS spectral acceleration values and the Caltrans Online results is less than 10 percent, then the probabilistic ARS curve generated by Caltrans ARS Online tool is acceptable for design. Otherwise, the probabilistic curve obtained from the USGS Beta program should be used. For this Project, the Caltrans Online probabilistic ARS curve governs. The spectral acceleration values corresponding to periods of one second and greater have been increased by 20 percent to account for near fault effect, and linearly tapered to zero at 0.5 sec. No adjustment is required for basin effect. The Acceleration Response Spectrum Comparison Curves are presented on Plate No. 5A and the Recommended ARS Curve is presented on Plate No. 5B.

10.3 Seismic Hazard

Faulting

The Project site is located outside the designated State of California “Alquist-Priolo Earthquake Fault Zones” for active faulting and no mapped evidence of active or potentially active faulting was found for the site. The potential for fault rupture at the Project site is considered to be low.

Liquefaction

Liquefaction is a phenomenon in which saturated cohesionless soils are subject to a temporary but essentially total loss of shear strength under the reversing, cyclic shear stresses associated with earthquake shaking. Submerged cohesionless sands and low-plastic silts of low relative density are the type of soils that usually are susceptible to liquefaction. Clay is generally not susceptible to liquefaction. The liquefaction potential at the site was evaluated according to the procedure proposed by Youd et al. (2001). According to the California Amendments to the AASHTO BDS



(2012), Section 10.5.4.2, saturated sand and non-plastic silt with corrected SPT blow counts of 25 or less are considered potentially liquefiable.

Using the Caltrans ARS Online (V2, 2012) and referencing to the USGS Beta program (2008), the peak ground acceleration at the bridge site was estimated to be 0.5g and the mean moment magnitude was estimated to be 6.7 at zero period, representing a hazardous level of 5 percent exceedance in 50 years. The above seismic parameters were incorporated into the liquefaction analysis. Liquefaction potential calculations suggest that the loose and medium dense granular soils encountered in the top about 7 to 15 feet thick in the borings are potentially liquefiable. This portion of soils is also susceptible to scour. The pile capacities in this portion of soils have to be ignored.

Ground Subsidence

Ground subsidence can occur as a result of "shakedown" when dry, low cohesion soils are subjected to earthquake vibrations of high amplitude. In general, significant deposits of loose sandy soils do not exist at the site; therefore, seismic induced ground subsidence is not considered a geologic hazard on the site.

11.0 AS-BUILT FOUNDATION DATA

The existing bridge (Br. No. 44C0050) was built in 1931 and widened once in 1954. The as-built general plan (1930) indicates that Piers 10 through 17 (as-built Piers 9 through 16) are supported on Douglas fir timber piles with minimum penetration of 20 feet. Bents 2 through 9 (as-built Bents 17 through 24) and 18 through 25 (as-built Bents 1 through 8) are supported on Class "F" reinforced concrete piles with minimum penetration of 20 to 30 feet. The as-built pile cut-off elevations and tip elevations are unknown.

12.0 FOUNDATION RECOMMENDATIONS

12.1 General

This report was prepared specifically for the proposed Project as described earlier. Normal procedures were assumed for construction of the bridge structure throughout our analysis and



TRC

Bradley Road Bridge at Salinas River

Job No. 2015-109-BRD

May 22, 2019

Page 10

represent one of the bases of recommendations presented herein. The design criteria have been based upon the materials encountered at the site. Therefore, we should be notified in the event that these conditions are changed, so as to modify or amend our recommendations.

12.2 Foundations

Based on the subsurface soil conditions, CIDH concrete piles appear to be feasible for the proposed pier foundations. Two CIDH piles are proposed for each pier. Due to presence of sandy soils and groundwater, cave-in condition should be anticipated. Temporary casing and slurry displacement method should be planned for CIDH pile construction. Soft bedrocks were encountered in Boring R-15-001 below an elevation of approximately 425 feet. Hard drilling/coring conditions should be anticipated for drilling into the bedrocks. Special tool or drilling/coring equipment maybe needed to drill into the bedrocks.

Per Caltrans MTD 3-1 (2014), design of deep foundations should be performed using LRFD method in accordance with the California Amendments to the AASHTO BDS (2012). Loads from the LRFD Strength and Extreme Event limit states will be used for estimating pile tip elevation. A minimum pile spacing of three times the pile diameter, center to center, is recommended. The pertinent foundation design information provided by the Designer, including Foundation Design Data and Foundation Design Loads, is tabulated in Tables 12.1 and 12.2.

TABLE 12.1 - FOUNDATION DESIGN DATA

Support No.	Design Method	Pile Type	Finish Grade Elev. (ft)	Pile Cut-off Elev. (ft)	Pile Cap Size (ft)		Permissible Settlement (in)	No. of Piles per Support
					B	L		
Pier 16	LRFD	10' CIDH	490	484.07	12	66	1	2
Pier 17	LRFD	10' CIDH	486	484.07	12	62	1	2
Pier 18	LRFD	8' CIDH	487.5	492.57	10	62	1	2
Pier 19	LRFD	8' CIDH	490	494.57	10	62	1	2



TRC

Bradley Road Bridge at Salinas River

Job No. 2015-109-BRD

May 22, 2019

Page 11

TABLE 12.2 - FOUNDATION DESIGN LOADS

Support No.	Service-I Limit State (kips)			Strength Limit State (Controlling Group, kips)				Extreme Limit State (Controlling Group, kips)			
	Total Load		Perm. Loads	Compression		Tension		Compression		Tension	
	Per Support	Max. Per Pile	Per Support	Per Support*	Max. Per Pile*	Per Support	Max. Per Pile	Per Support	Max. Per Pile	Per Support	Max. Per Pile
Pier 16	3820	1910	2970	7900	3950	n/a	n/a	2980	1490	n/a	n/a
Pier 17	3820	1910	2970	7900	3950	n/a	n/a	2980	1490	n/a	n/a
Pier 18	1920	960	1670	3660	1830	n/a	n/a	1680	840	n/a	n/a
Pier 19	1920	960	1670	3660	1830	n/a	n/a	1680	840	n/a	n/a

*The Values include a resistance factor of $\phi = 0.7$.

A computer program SHAFT by Ensoft Inc. (2007) was used for axial pile capacity analysis. The capacity of CIDH piles is estimated based on the procedures presented in the publication of U.S. Department of Transportation, Drilled Shafts: Construction Procedures and LRFD Design Methods (FHWA, 2010). The procedures are proposed by O'Neil and Reese (1999), which utilize α factor for clay and β factor for sand. The α factor is a function of the undrained shear strength normalized with the atmospheric pressure. The β factor is a function of the effective overburden stress. The undrained shear strengths of the clayey materials were estimated to be about 4 to 5 ksf, and the friction angles of the sandy soils were estimated to be about 28 to 38 degrees. The pile capacity of CIDH piles is derived primarily from frictional resistance along the pile shaft, and the end bearing is not included when estimating the pile capacity. The scour information presented in Section 8.0 has been incorporated into the pile capacity calculations. The soil resistance contributions above scour elevations were ignored at corresponding limit states. Under the design service load, pile settlement was estimated to be less than 0.25 inches. Based on the calculations, it appears that the loads at the strength limit state control the design tip elevations. The SHAFT computer calculation results of axial pile capacities at the strength limit state are presented in Appendix C. The recommended pile tip elevations are presented in Tables 12.3A and 12.3B. The design pile tip elevations based on lateral pile capacity analysis are provided by the Designer.



TRC

Bradley Road Bridge at Salinas River

Job No. 2015-109-BRD

May 22, 2019

Page 12

TABLE 12.3A - FOUNDATION DESIGN RECOMMENDATIONS

Support No.	Pile Type	Cut-off Elev. (ft)	Service-I Limit State Load (kips) per Support		Total Permissible Support Settlement (in)	Required Factored Nominal Resistance (kips)			
						Strength/Constr.		Extreme Event	
			Total	Perm.		Comp.* ($\phi=0.7$)	Tension ($\phi=0.7$)	Comp. ($\phi=1.0$)	Tension ($\phi=1.0$)
Pier 16	10' CIDH	484.07	3820	2970	1	3950	n/a	1490	n/a
Pier 17	10' CIDH	484.07	3820	2970	1	3950	n/a	1490	n/a
Pier 18	8' CIDH	492.57	1920	1670	1	1830	n/a	840	n/a
Pier 19	8' CIDH	494.57	1920	1670	1	1830	n/a	840	n/a

*The Values include a resistance factor of $\phi = 0.7$.**TABLE 12.3B – PILE DATA TABLE**

Support No.	Pile Type	Nominal Resistance (kips)		Design Tip Elev. (ft)	Specified Tip Elev. (ft)
		Compression	Tension		
Pier 16	10' CIDH	3950	n/a	434.0 (a) 408.0 (b) 444.0 (c) 418.0 (d)	408.0
Pier 17	10' CIDH	3950	n/a	434.0 (a) 408.0 (b) 444.0 (c) 418.0 (d)	408.0
Pier 18	8' CIDH	1830	n/a	440.0 (a) 434.0 (b) 465.0 (c) 426.0 (d)	426.0
Pier 19	8' CIDH	1830	n/a	440.0 (a) 434.0 (b) 465.0 (c) 426.0 (d)	426.0

Note: Design tip elevations are controlled by: (a) Compression (Service limit), (b) Compression (Strength limit), (c) Compression (Extreme Event), and (d) Lateral Load (determined by the Designer).

12.3 Geotechnical Parameters for Lateral Load Analysis

The lateral pile capacity analysis is performed by the Designer using a LPILE program. The geotechnical parameters presented in Tables 12.4 and 12.5 are adopted for the lateral pile capacity analysis. According to the AASHTO BDS (2012), the group efficiency p -multipliers of 0.65, 0.9 and 1.0 should be applied for a load direction parallel to the row of piles, if the pile spacing is 3, 5 and 7 times the pile diameter, respectively. P -multipliers of 0.9 and 1.0 can be used for a load direction perpendicular to the row of piles, if the pile spacing is 3 and 4 times the pile diameter, respectively. The y -multiplier is taken as 1.0. The soil resistances above the scour elevation have to be ignored. The lateral pile top displacement under a service limit state load should generally



TRC

Bradley Road Bridge at Salinas River

Job No. 2015-109-BRD

May 22, 2019

Page 13

be limited to 0.25 inches. However, the final allowable pile top movement should be determined by the structure designer considering overall structural performance at differ design states.

TABLE 12.4 - LPILE PARAMETERS (Boring R-15-001, close to Pier 16)

Approx. Elevation (ft)	Generalized Soil Profile	LPILE Soil Type	Soil Strength	K (pci)	E ₅₀ (in/in)	Effective Unit Wt. (pcf)
495 to 480	Sand w/ gravel	Sand (Reese) (no liquefaction)	$\phi = 30^\circ$	20	N/A	65
		Soft Clay (Matlock) (liquefied)	C = 150 psf	N/A	0.05	65
480 to 456	Gravel, Sand	Sand (Reese)	$\phi = 38^\circ$	Default	N/A	65
456 to 415	Lean Clay, Silt	Stiff Clay w/o Free Water (Reese)	C = 5,000 psf	N/A	Default	65

TABLE 12.5 - LPILE PARAMETERS (Boring R-15-002, close to Pier 19)

Approx. Elevation (ft)	Generalized Soil Profile	LPILE Soil Type	Soil Strength	K (pci)	E ₅₀ (in/in)	Effective Unit Wt. (pcf)
498 to 491	Sand w/ silt	Sand (Reese) (no liquefaction)	$\phi = 28^\circ$	20	N/A	65
		Soft Clay (Matlock) (liquefied)	C = 100 psf	N/A	0.05	65
491 to 484	Sandy Silt	Sand (Reese)	$\phi = 34^\circ$	Default	N/A	65
484 to 418	Lean Clay, Silt	Stiff Clay w/o Free Water (Reese)	C = 4,000 psf	N/A	Default	65

13.0 CONSTRUCTION CONSIDERATIONS**13.1 General**

To a degree, the performance of any structure is dependent upon construction procedures and quality. Hence, observation of pile construction operations should be carried out by the geotechnical engineer. If the encountered subsurface conditions differ from those forming the



basis of our recommendations, this office should be informed in order to assess the need for design changes. Therefore, the recommendations presented in this report are contingent upon good quality control and these geotechnical observations during construction.

13.2 CIDH Piles

The Caltrans standard specifications (2015) for “Cast-in-Place Concrete Piling” should be used for construction of CIDH piles. The contractor should carefully examine the subsurface conditions and make their own interpretation and perform independent study on the constructability of the piles.

Vertical inspection pipes for acceptance testing should be provided in all CIDH piles that are 24 inches in diameter or larger, except when the holes are dry or when the holes are dewatered without use of temporary casing to control groundwater. The acceptance test should include Gamma-Gamma Logging and may also include cross-hole sonic logging. Gamma-Gamma Logging should be performed in accordance with California Test Method 233 Standard (CT 233) to check the integrity of CIDH piles. CT 233 defines pile rejection criteria based on the statistical principles of mean and three standard deviations to analyze the homogeneity of a pile. Anomalies detected should be evaluated by the designer for their significance and potential impact on design and to see if mitigation plans are required. Details of the acceptance testing and Gamma-Gamma Logging are contained in Caltrans specifications and CT 233.

Due to presence of granular material and groundwater, raveling or caving is expected, which may require additional drilling and cleaning effort and may increase the concrete volume for the piles. The use of temporary steel casing and/or slurry displacement method should be anticipated at all times to maintain the integrity of the piles. It is prudent to make the contractor aware of these conditions so that they take appropriate steps to comply with the standards and maintain the integrity of the CIDH concrete piles. Mitigation and repair procedures for CIDH anomaly should be anticipated. All pile excavations should be observed by a geotechnical engineer prior to the placement of reinforcement and concrete so that if conditions differ from those anticipated, appropriate recommendations can be made.



13.3 Waiting Period

Only minor grading is expected to repair scour undermined portion at the piers. Since soft, saturated soils were generally not encountered in the borings, consolidation settlement is not anticipated. Therefore, waiting period is not required.

13.4 Construction Dewatering

Based on the available data, groundwater may cause instability of excavation walls and bottom (piping, erosion, blow-outs, etc.) and difficult working conditions. For excavation below the groundwater table, construction dewatering will be required. The contractor should evaluate the subsurface conditions before selecting a dewatering method, which may include shoring, sumps or tremie slabs. Groundwater should be lowered to at least 2 feet below the bottom of excavation to provide workable condition. Designing dewatering system should be the contractor's responsibility. The Caltrans Standard Specifications (2015), Section 19, provides guidelines for water control and foundation treatment.

A temporary sheet pile shoring is planned to dewater the project area during construction. Due to the very dense and hard soils encountered starting about 10 feet below the existing ground surface during our field investigation, it may not be feasible to vibrate these sheet piles into the ground. The sheet piling contractor may choose to predrill to loosen the soils before the installation of the sheet piles with vibratory hammer. Predrilling details such as predrill locations, depth and rate are the contractor's means and methods.

All dewatering systems should be properly designed to prevent pumping soil fines with the discharge water. The contractor should sample and test the groundwater for soil fines content from the discharge, as needed. If soil fines are pumped, the contractor should revise his dewatering operations. Otherwise, failure of shoring, partial instability of trench bottom resulting in intolerable ground settlement/ movement of existing utilities and unsafe working conditions may occur. The contractor should provide discharge sampling locations for each pump. The contractor is encouraged to perform their own investigation, test program, etc. prior to construction in order to satisfy their design requirements for an effective dewatering program. Contractor should confirm the design groundwater level (for shoring) prior to actual construction.



TRC

Bradley Road Bridge at Salinas River

Job No. 2015-109-BRD

May 22, 2019

Page 16

13.5 Temporary Excavation and Shoring

Excavation will be required for construction of footing/pile cap. It is possible that unknown old buried utilities are located at the site. It might require special equipment and additional efforts to remove these buried objects.

According to OSHA Safety Standards, temporary excavations with personnel working within the excavations should be sloped or shored if the excavations are deeper than 5 feet. All excavations for the Project should be made and supported in accordance with OSHA standards. For excavations up to 20 feet deep in homogenous soils, OSHA guidelines state that the maximum allowable slope should be 3/4H:1V, 1H:1V and 1-1/2H:1V for Types A, B and C soil, respectively (In general, Type A soils are stronger; Type B soils are intermediate, and Type C soils are weaker). The boring data suggest that most on-site soils should be considered as OSHA Type C materials. It should be noted that the slope ratio recommended by OSHA is for temporary, unsurcharged slopes and properly dewatered conditions. Traffic and surcharge loads should be set back at least 15 feet from the top of the excavations unless they are accounted for in the design.

The excavation should be closely monitored during construction to detect any evidence of instability, soil creep, settlement, etc. Appropriate mitigation measures should be implemented to correct such situations that may cause or lead to future damage to facilities, utilities and other improvements.

13.6 Working Platform

Groundwater should be expected during excavation. Soft and loose, saturated native soil deposits may be encountered at the bottom of excavation. In such case, working conditions at the bottom of excavation may become difficult; equipment used at the bottom of the excavation may lose mobility, etc. The contractor should take adequate measures to minimize the disturbance of the sensitive deposits at the excavation subgrade. The contractor may minimize the disturbance of sensitive deposits or mitigate existing soft ground conditions by constructing a working platform at the bottom of the excavation. The working platform may be installed by 1) over excavating about 2 feet below the planned subgrade; 2) placing a stabilizing subgrade enhancement geotextile at the bottom of the resulting excavation; and 3) backfilling with 2-inch crushed rock, compacted



TRC

Bradley Road Bridge at Salinas River

Job No. 2015-109-BRD

May 22, 2019

Page 17

AB or other such approved bridging material. The contractor may use other methods of subgrade stabilization. The contractor's proposed method should be reviewed by the geotechnical engineer.

14.0 NOTES TO DESIGNER

The foundation recommendations presented in Section 12.2 are based on the load demands at limits states. The lateral pile capacity analysis is conducted by the structural engineer. It is recommended that the structure engineer verify the pile tip elevations when finalizing the pile data table. Final specified pile tip elevations should be the lower of the design tip elevations resulting from the axial and the lateral pile capacity analysis.

Should there be any alterations of the proposed construction that will affect the stated bases of our recommendations, we should be informed so that we can review such changes and amend or submit additional recommendations.

15.0 PLAN REVIEW

This report is prepared for the proposed Bradley Road Bridge scour repair project. It is recommended that the final foundation plans for the subject project be reviewed by this office prior to construction so that the intent of our recommendations is included in the Project plans and specifications and to further see that no misunderstandings or misinterpretations have occurred.

16.0 INVESTIGATION LIMITATIONS

Our services consist of professional opinions and recommendations made in accordance with generally accepted geotechnical engineering principles and practices and are based on our site reconnaissance and the assumption that the subsurface conditions do not deviate from observed conditions. All work done is in accordance with generally accepted geotechnical engineering principles and practices. No warranty, expressed or implied, of merchantability or fitness, is made or intended in connection with our work or by the furnishing of oral or written reports or findings.



TRC

Bradley Road Bridge at Salinas River

Job No. 2015-109-BRD

May 22, 2019

Page 18

The scope of our services did not include any environmental assessment or investigation for the presence or absence of hazardous or toxic materials in structures, soil, surface water, groundwater or air, below or around this site.

Unanticipated soil conditions are commonly encountered and cannot be fully determined by taking soil samples and excavating test borings; different soil conditions may require that additional expenditures be made during construction to attain a properly constructed project. Some contingency fund is thus recommended to accommodate these possible extra costs.

This report has been prepared for the proposed Project as described earlier, to assist the engineer in the design of this Project. In the event any changes in the design or location of the facilities are planned, or if any variations or undesirable conditions are encountered during construction, our conclusions and recommendations shall not be considered valid unless the changes or variations are reviewed and our recommendations modified or approved by us in writing.

This report is issued with the understanding that it is the Designer's responsibility to ensure that the information and recommendations contained herein are incorporated into the Project and that necessary steps are also taken to see that the recommendations are carried out in the field.

The findings in this report are valid as of the present date. However, changes in the subsurface conditions can occur with the passage of time, whether they are due to natural processes or to the works of man, on this or adjacent properties. In addition, changes in applicable or appropriate standards occur, whether they result from legislation or from the broadening of knowledge. Accordingly, the findings in this report might be invalidated, wholly or partially, by changes outside of our control.

Respectfully submitted,

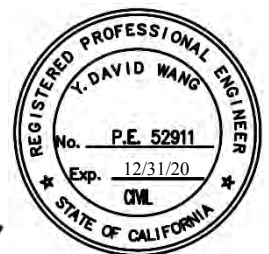
PARIKH CONSULTANTS, INC.



A. Emre Ortakci, PE, GE 3067
Project Engineer



Y. David Wang, PhD. PE 52911
Project Manager



TRC

Bradley Road Bridge at Salinas River

Job No. 2015-109-BRD

May 22, 2019

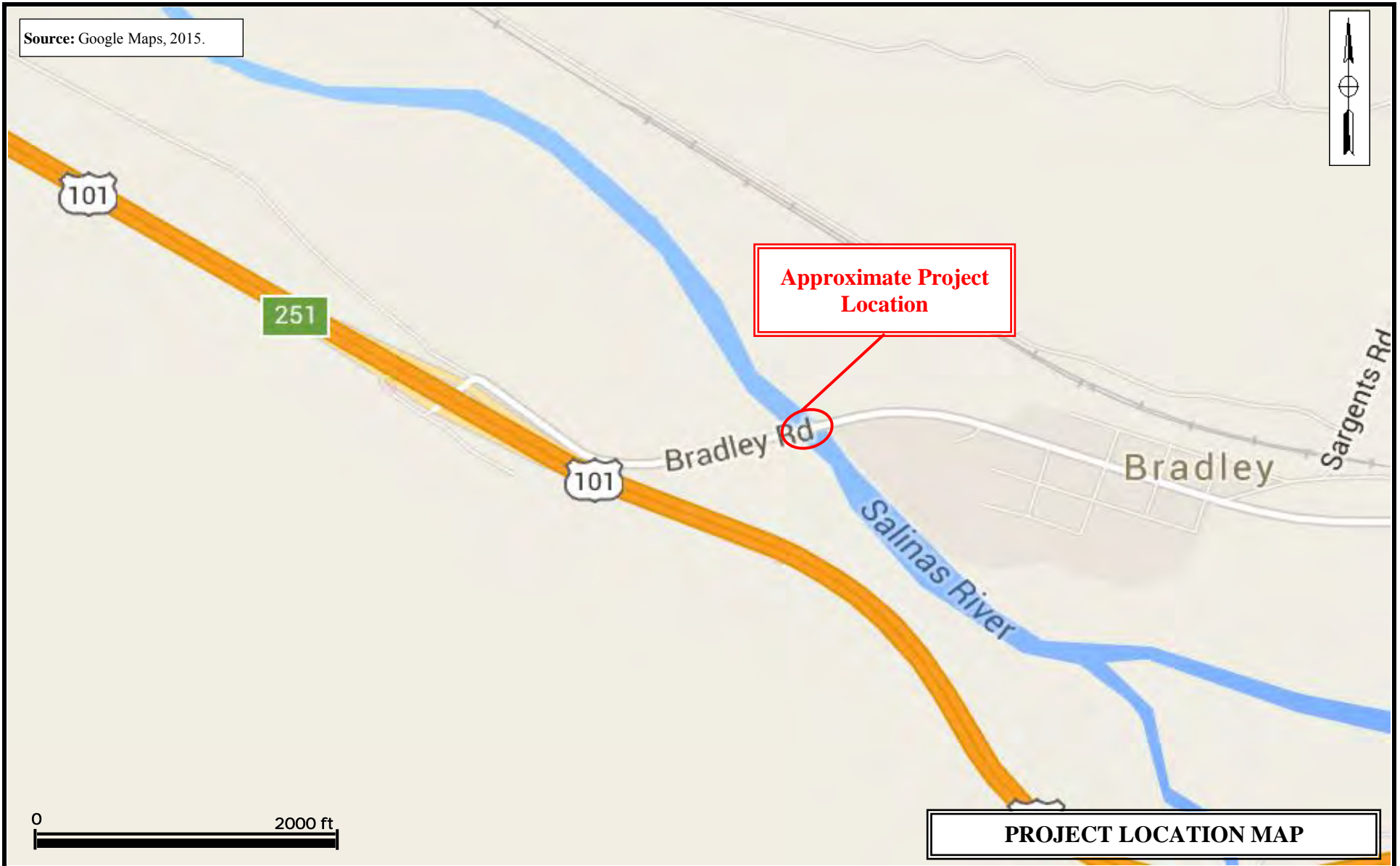
Page 19

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Source: Google Maps, 2015.



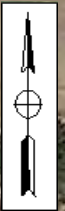
PARIKH CONSULTANTS, INC.
GEOTECHNICAL CONSULTANTS
MATERIALS TESTING

**BRADLEY ROAD BRIDGE AT SALINAS RIVER
MONTEREY COUNTY, CALIFORNIA**

JOB NO.: 2015-109-BRD

PLATE NO.: 1

Source: Google Earth 2016



SITE PLAN



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GEOTECHNICAL CONSULTANTS
MATERIALS TESTING

**BRADLEY ROAD BRIDGE AT SALINAS RIVER
MONTEREY COUNTY, CALIFORNIA**

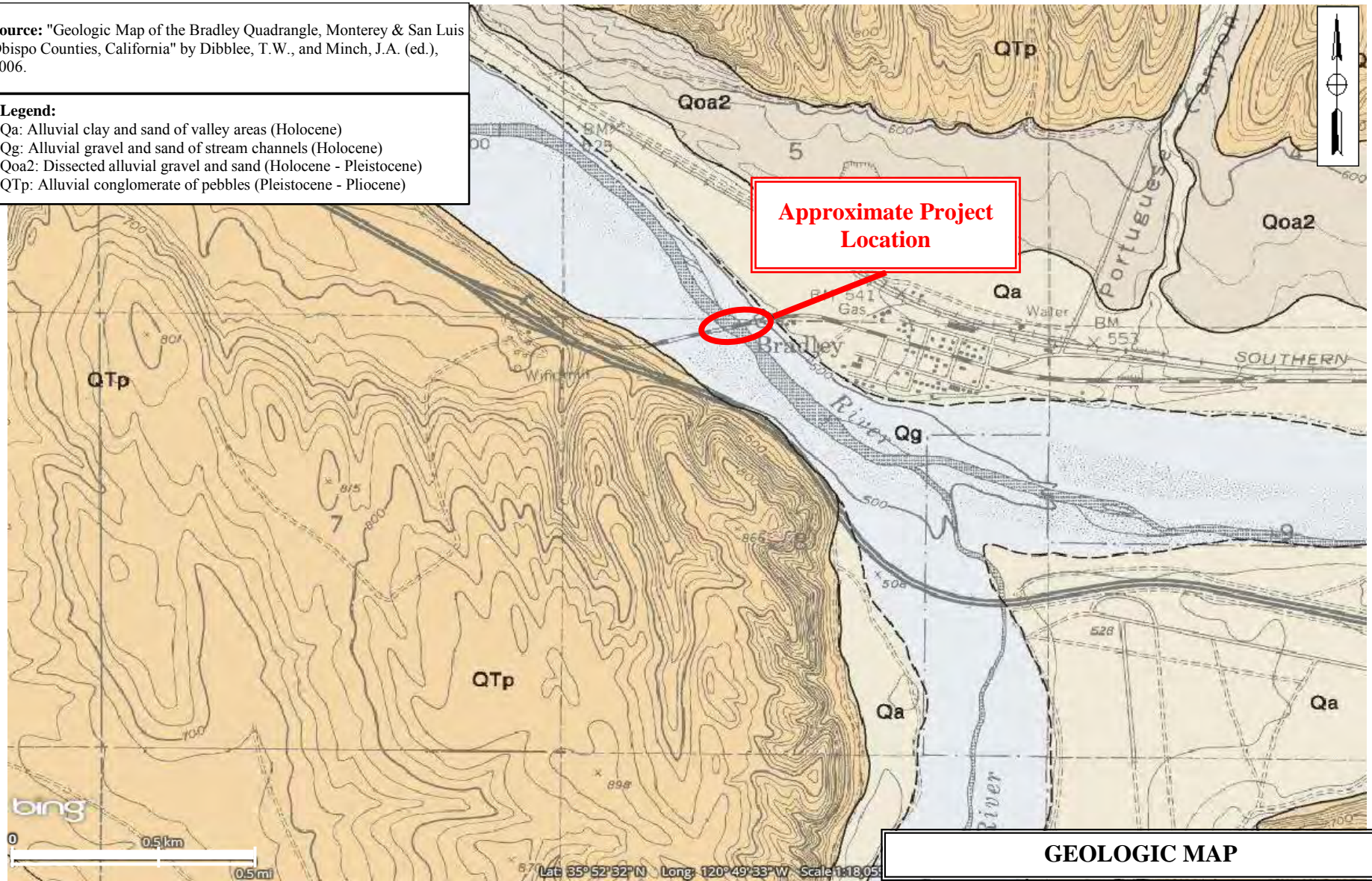
JOB NO.:2015-109-BRD

PLATE NO.: 2

Source: "Geologic Map of the Bradley Quadrangle, Monterey & San Luis Obispo Counties, California" by Dibblee, T.W., and Minch, J.A. (ed.), 2006.

Legend:

- Qa: Alluvial clay and sand of valley areas (Holocene)
- Qg: Alluvial gravel and sand of stream channels (Holocene)
- Qoa2: Dissected alluvial gravel and sand (Holocene - Pleistocene)
- QTp: Alluvial conglomerate of pebbles (Pleistocene - Pliocene)



GEOLOGIC MAP



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MATERIALS TESTING

BRADLEY ROAD BRIDGE AT SALINAS RIVER
MONTEREY COUNTY, CALIFORNIA

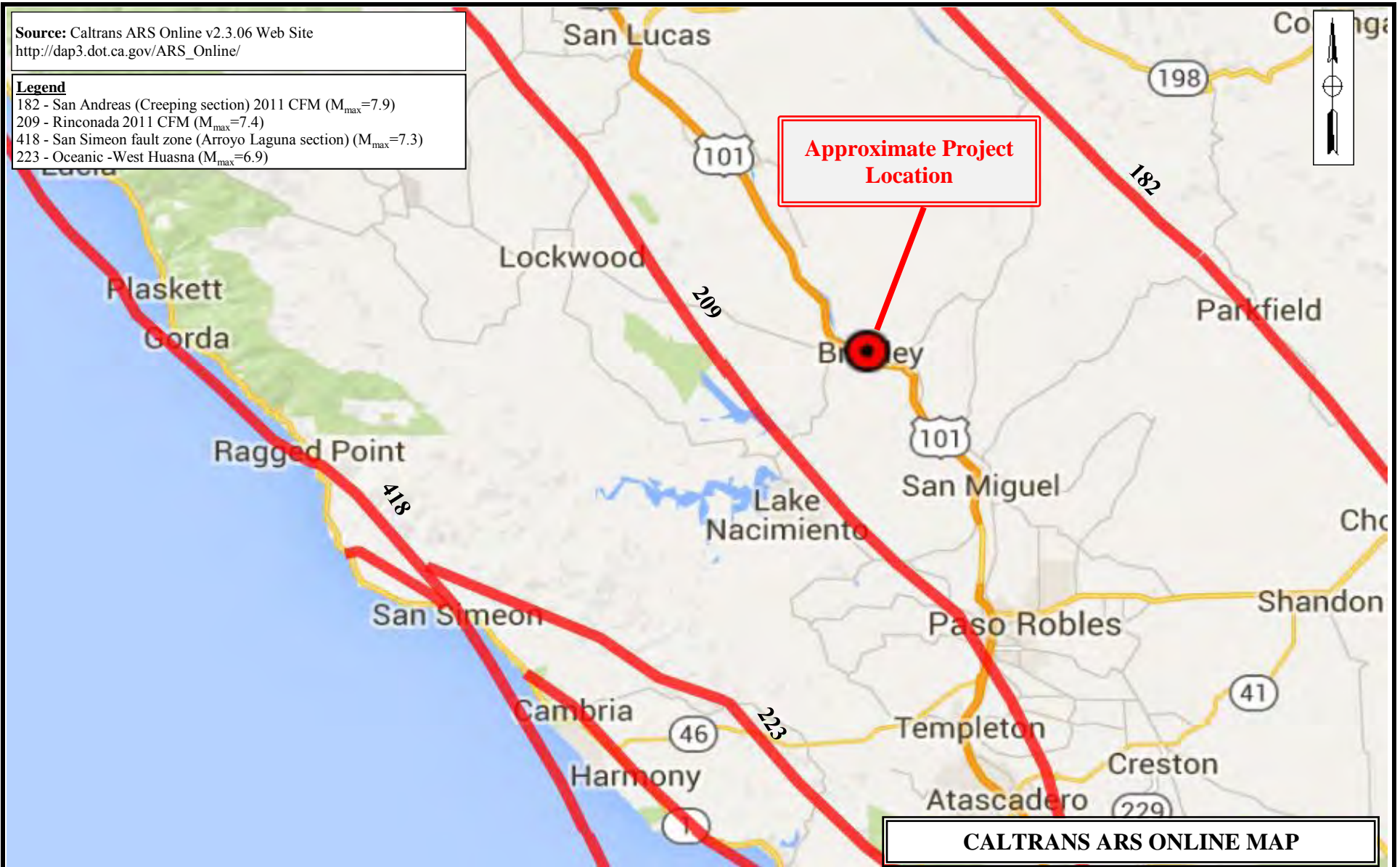
JOB NO.: 2015-109-BRD

PLATE NO.: 3

Source: Caltrans ARS Online v2.3.06 Web Site
http://dap3.dot.ca.gov/ARS_Online/

Legend

182 - San Andreas (Creeping section) 2011 CFM ($M_{\max}=7.9$)
209 - Rinconada 2011 CFM ($M_{\max}=7.4$)
418 - San Simeon fault zone (Arroyo Laguna section) ($M_{\max}=7.3$)
223 - Oceanic -West Huasna ($M_{\max}=6.9$)



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MATERIALS TESTING

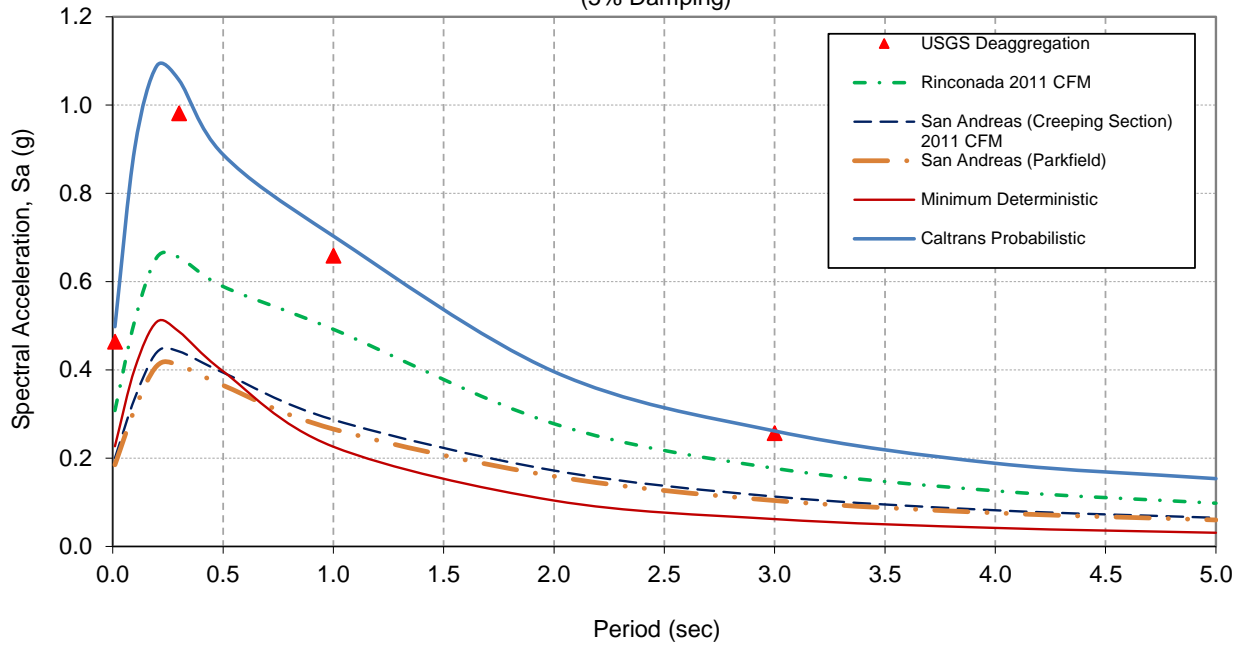
**BRADLEY ROAD BRIDGE AT SALINAS RIVER
MONTEREY COUNTY, CALIFORNIA**

JOB NO.: 2015-109-BRD

PLATE NO.: 4

ACCELERATION RESPONSE SPECTRUM COMPARISON

(Deterministic & Probabilistic Curves)
(5% Damping)



Site Information

Latitude: 35.8640
 Longitude: -120.8098
 V_{S30} (m/s) = 280
 $Z_{1.0}$ (m) = N/A
 $Z_{2.5}$ (km) = N/A
 Near Fault Factor,
 Derived from USGS
 Deagg. Dist (km) = 19.4

Final Adjusted Spectral Accelerations (g)

Period (sec)	Rinconada 2011 CFM	San Andreas (Creeping Section) 2011 CFM	San Andreas (Parkfield)	Minimum Deterministic	Caltrans Probabilistic	USGS Deaggregation
0.0	0.308	0.200	0.185	0.227	0.498	0.464
0.1	0.512	0.336	0.311	0.403	0.903	
0.2	0.655	0.440	0.409	0.509	1.089	
0.3	0.655	0.442	0.411	0.487	1.057	0.981
0.5	0.589	0.394	0.365	0.397	0.888	
1.0	0.492	0.287	0.266	0.226	0.703	0.659
2.0	0.278	0.172	0.159	0.104	0.396	
3.0	0.177	0.113	0.104	0.062	0.262	0.257
4.0	0.126	0.082	0.076	0.042	0.188	
5.0	0.098	0.065	0.060	0.031	0.154	

Source:

- Caltrans ARS Online tool (V.2, http://dap3.dot.ca.gov/ARS_Online/)
- USGS Deaggregation 2008 beta (<http://eqint.cr.usgs.gov/deaggint/2008/index.php>)
- Caltrans Methodology for Developing Design Response Spectrum for Use in Seismic Design Recommendations, November 2012



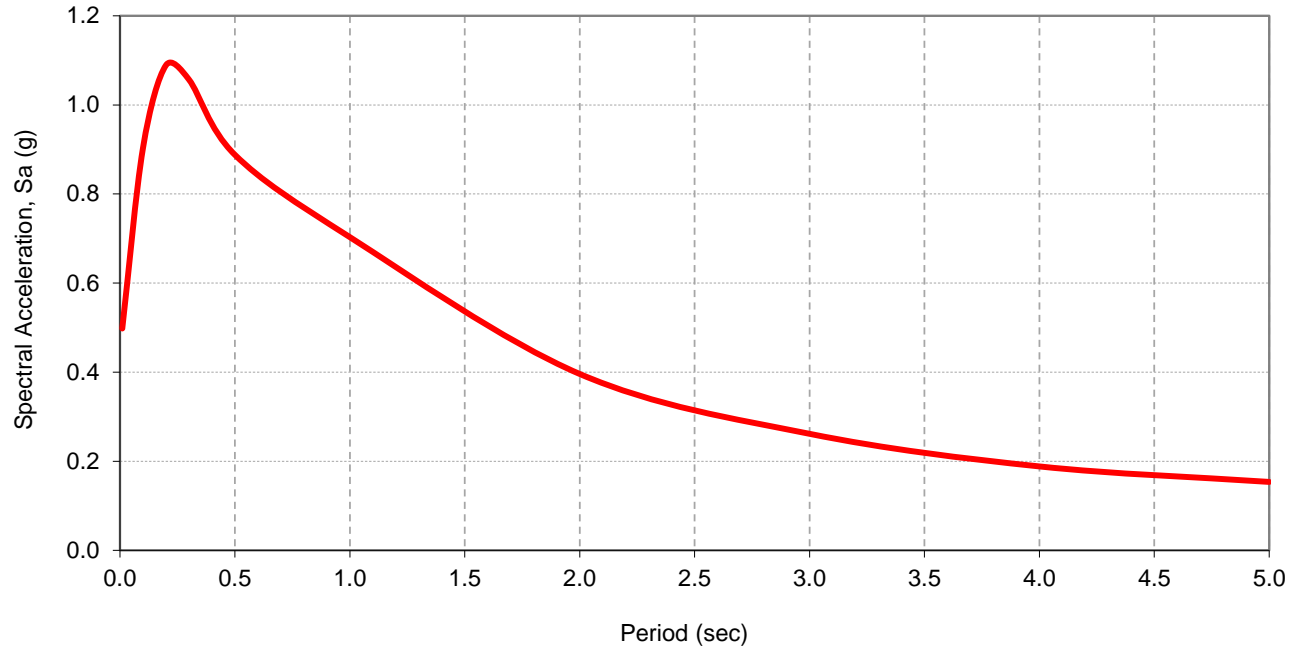
Bradley Road Bridge at Salinas River
 Monterey County, California

Project No.: 2015-109-BRD

Plate No.: 5A

RECOMMENDED ACCELERATION RESPONSE SPECTRUM

(5% Damping)



Site Information

Latitude: 35.8640
 Longitude: -120.8098
 V_{S30} (m/s) = 280
 Z_{1.0} (m) = N/A
 Z_{2.5} (km) = N/A
 Near Fault Factor,
 Derived from USGS
 Deagg. Dist (km) = 19.4

Governing Curve:

Caltrans Online Probabilistic ARS

Recommended Response Spectrum

Period (sec)	Caltrans Online Probabilistic Spectral Acceleration (g)	Adjusted for Near Fault Effect	Adjusted For Basin Effect	Final Adjusted Spectral Acceleration (g)
0.0	0.498	1	1	0.498
0.1	0.903	1	1	0.903
0.2	1.089	1	1	1.089
0.3	1.057	1	1	1.057
0.5	0.888	1	1	0.888
1.0	0.586	1.2	1	0.703
2.0	0.33	1.2	1	0.396
3.0	0.218	1.2	1	0.262
4.0	0.157	1.2	1	0.188
5.0	0.128	1.2	1	0.154

Source:

1. Caltrans ARS Online tool (V.2, http://dap3.dot.ca.gov/ARS_Online/)
2. USGS Deaggregation 2008 beta (<http://eqint.cr.usgs.gov/deaggint/2008/index.php>)
3. Caltrans Methodology for Developing Design Response Spectrum for Use in Seismic Design Recommendations, November 2012



**Bradley Road Bridge at Salinas River
 Monterey County, California**

Project No.: 2015-109-BRD

Plate No.: 5B

APPENDIX A

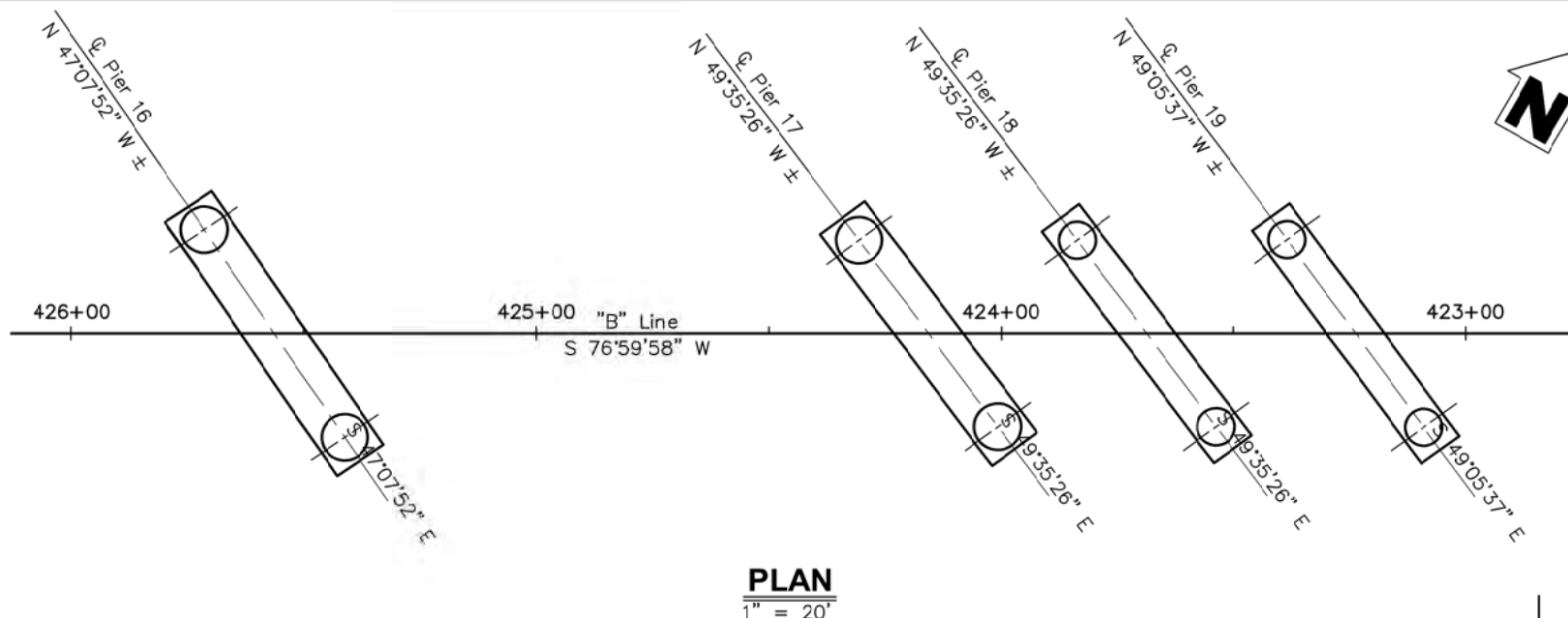
Notes:
Standard Penetration Test Sampler: I.D. = 1.4"; O.D. = 2"
Modified California Sampler: I.D. = 2.5"; O.D. = 3"
Hammer Assembly: A 140 lb hammer with a 30" drop
(Automatic Hammer)

This LOTB sheet was prepared in accordance with the
Caltrans Soil & Rock, Logging, Classification, and
Presentation Manual (2010)

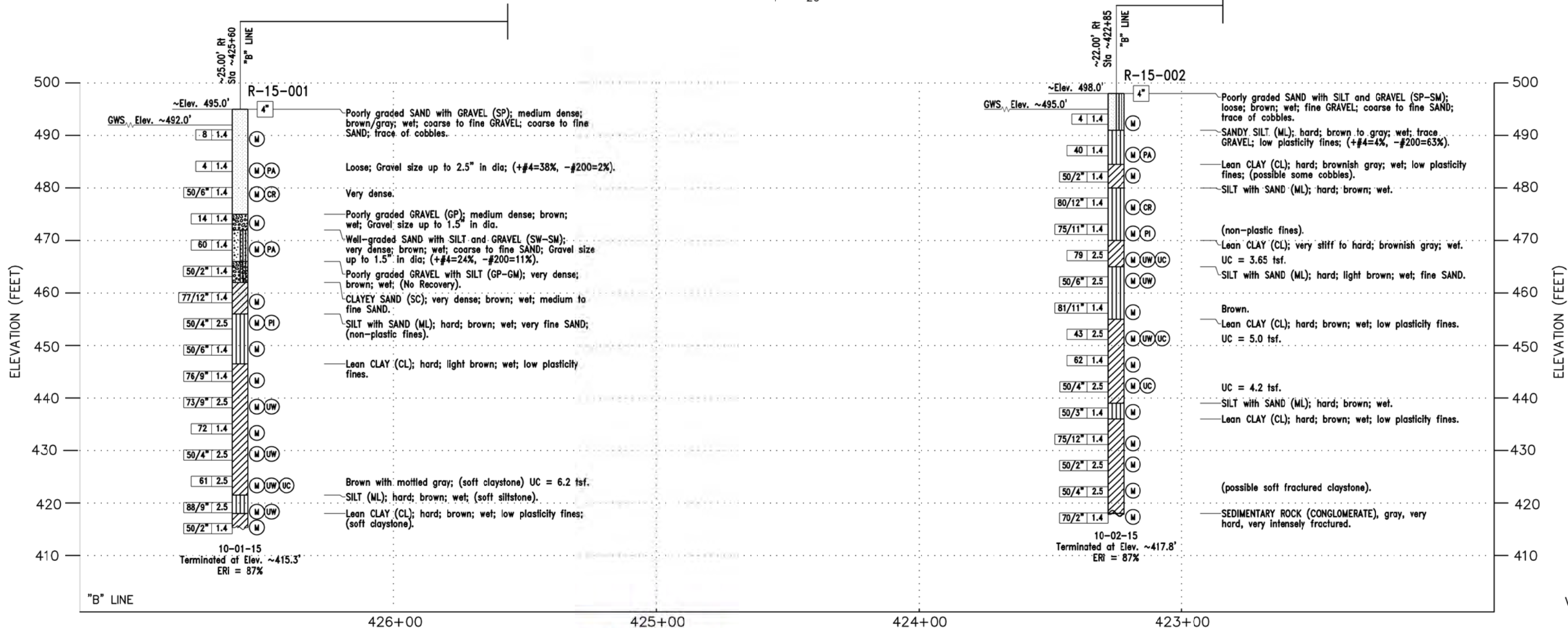
See Caltrans 2015 Standard plans A10F, A10G, and
A10H for Soil and Rock Legends.

All dimensions are in feet unless otherwise shown.

Basemap is prepared by QUINCY Engineering 2016.



PLAN
1" = 20'



PROFILE
Vert. : 1" = 10'
Hor. : 1" = 20'

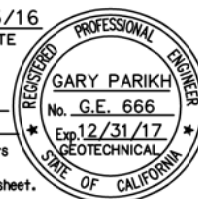
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
5	MON				

12/5/16
GEO TECHNICAL PROFESSIONAL DATE

PLANS APPROVAL DATE

The County of Monterey or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

PARIKH CONSULTANTS, INC.
2360 QUME DRIVE, SUITE A
SAN JOSE, CA 95131



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KIM OUYANG <td colspan="2">FIELD INVESTIGATION BY:<td colspan="2">PROJECT ENGINEER</td></td>		FIELD INVESTIGATION BY: <td colspan="2">PROJECT ENGINEER</td>		PROJECT ENGINEER	
CHECKED BY		DATE: SEP AND OCT 2015			
PETER WEI					

NO.	DATE	REVISION	DESCRIPTION	APPROVED
1				
2				
3				
4				
5				

QUINCY ENGINEERING	
11017 COEBLEROCK DRIVE, SUITE 100 RANCHO CORDOVA, CA 95670 P: 916.368.9181	
ORIGINAL SCALE IN INCHES FOR REDUCED PLANS	

COUNTY OF MONTEREY RESOURCE MGMT. AGENCY, DEPT. OF PUBLIC WORKS	
168 WEST ALISAL STREET SALINAS, CALIFORNIA 93901 (831) 755-4800/FAX (831) 755-4958	

BRADLEY RD BRIDGE SCOUR RETROFIT PROJECT LOG OF TEST BRINGS			
FEDERAL PROJECT NO. XXXXXXXX COUNTY BRIDGE NO. XXX			
DATE	FILE	PROJECT NO.	SHEET
SCALE	CONTRACT NO.		OF SHEETS

APPENDIX B

LABORATORY TESTS

Classification Tests

The field classification of the samples was visually verified in the laboratory according to the Unified Soil Classification System. The results are presented in “Log of Test Borings”, Appendix A.

Moisture-Density

The natural moisture contents and dry unit weights were determined for selected undisturbed samples of the soils in general accordance with ASTM D 2216. This information was used to classify and correlate the soils. The results are presented in the summary table on Plate B-2.

Atterberg Limits

The Atterberg Limits (ASTM D 4318) were determined on selected samples of the fine-grained materials. These results were used to classify the soils, as well as to obtain an indication of the effective strength characteristics and expansion potential. The tests results are presented on Plate B-3, Plasticity Chart.

Grain Size Classification

Grain size classification tests (ASTM D 422) were performed on selected samples of granular soil to aid in the classification. The results are presented on Plate B-4, Grain Size Distribution Curves.

Unconfined Compression Tests

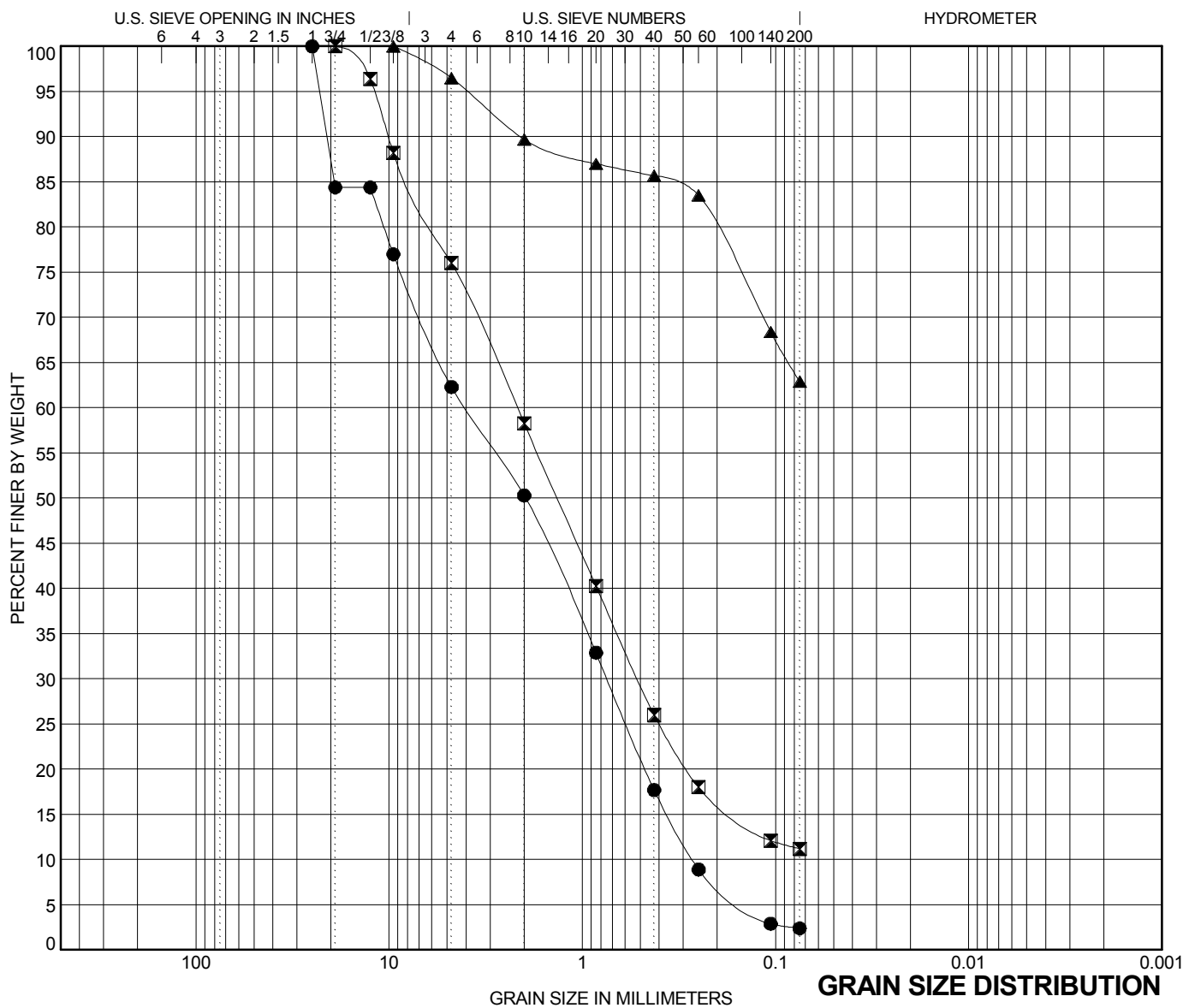
Strength tests were performed on selected samples. Unconfined compression tests were performed in general accordance with ASTM D 2166. The results are presented on Plates B-5A through B-5D.

Corrosion Tests

Corrosion tests were performed on selected samples to determine the corrosion potential of the soils according to California Test Methods 643, 417 and 422. The tests were performed by Sunland Analytical. The test results are presented on Plates B-6A and B-6B.

Borehole	Sample Number	Depth	Classification	Water Content	Dry Density	Liquid Limit	Plastic Limit	Plasticity Index	% > Sieve 4	% < Sieve 200	Shear Strength (tsf)
R-15-001	1	5.0	SP	8.5	-						
R-15-001	2	11.0	SP	8.7	-				37.7	2.4	
R-15-001	3	15.5	SP	10.7	-						
R-15-001	4	21.0	GP	1.5	-						
R-15-001	5	26.0	SW-SM	12.7	-				24.0	11.2	
R-15-001	6	31.0	GP-GM	-	-						
R-15-001	7	36.0	SC	23.5	-						
R-15-001	8	40.0	ML	18.1	-	NP	NP	NP			
R-15-001	9	45.0	CL	19.6	-						
R-15-001	10	51.0	CL	26.7	-						
R-15-001	11	56.0	CL	17.9	95.5						
R-15-001	12	61.0	ML	22.3	-						
R-15-001	13	65.0	CL	19.7	108.5						
R-15-001	14	71.0	CL	17.6	109.9						UC = 3.1
R-15-001	15	76.0	ML	14.7	120.1						
R-15-001	16	79.0	CL	19.6	-						
R-15-002	1	5.0	SP-SM	4.8	-						
R-15-002	2	11.0	ML	23.3	-				3.5	62.9	
R-15-002	3	15.0	CL	25.9	-						
R-15-002	4	21.0	ML	21.8	-						
R-15-002	5	26.0	ML	19.7	-	NP	NP	NP			
R-15-002	6	31.0	CL	18.4	115.0						UC = 1.8
R-15-002	7	35.0	ML	19.6	107.9						
R-15-002	8	41.0	ML	20.6	-						
R-15-002	9	46.0	CL	23.1	104.6						UC = 2.5
R-15-002	10	51.0	CL	27.4	-						
R-15-002	11	55.0	CL	19.5	-						UC = 2.1
R-15-002	12	60.0	ML	21.2	-						
R-15-002	13	66.0	CL	26.2	-						
R-15-002	14	70.0	CL	27.3	-						
R-15-002	15	75.0	CL	22.1	-						
R-15-002	16	80.0	-	13.8	-						

[illegible]



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

BORING	SAMPLE #	DEPTH	Classification				LL	PL	PI	Cc	Cu
●	R-15-001	2	11.0	Poorly graded SAND with GRAVEL						0.52	15.06
⊠	R-15-001	5	26.0	Well-graded SAND with SILT and GRAVEL						2.59	45.96
▲	R-15-002	2	11.0	SANDY SILT							
BORING	SAMPLE #	DEPTH	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay	
●	R-15-001	2	11.0	25	4.024	0.745	0.267	37.7	59.9	2.4	
⊠	R-15-001	5	26.0	19	2.173	0.516		24.0	64.8	11.2	
▲	R-15-002	2	11.0	9.5				3.5	33.6	62.9	

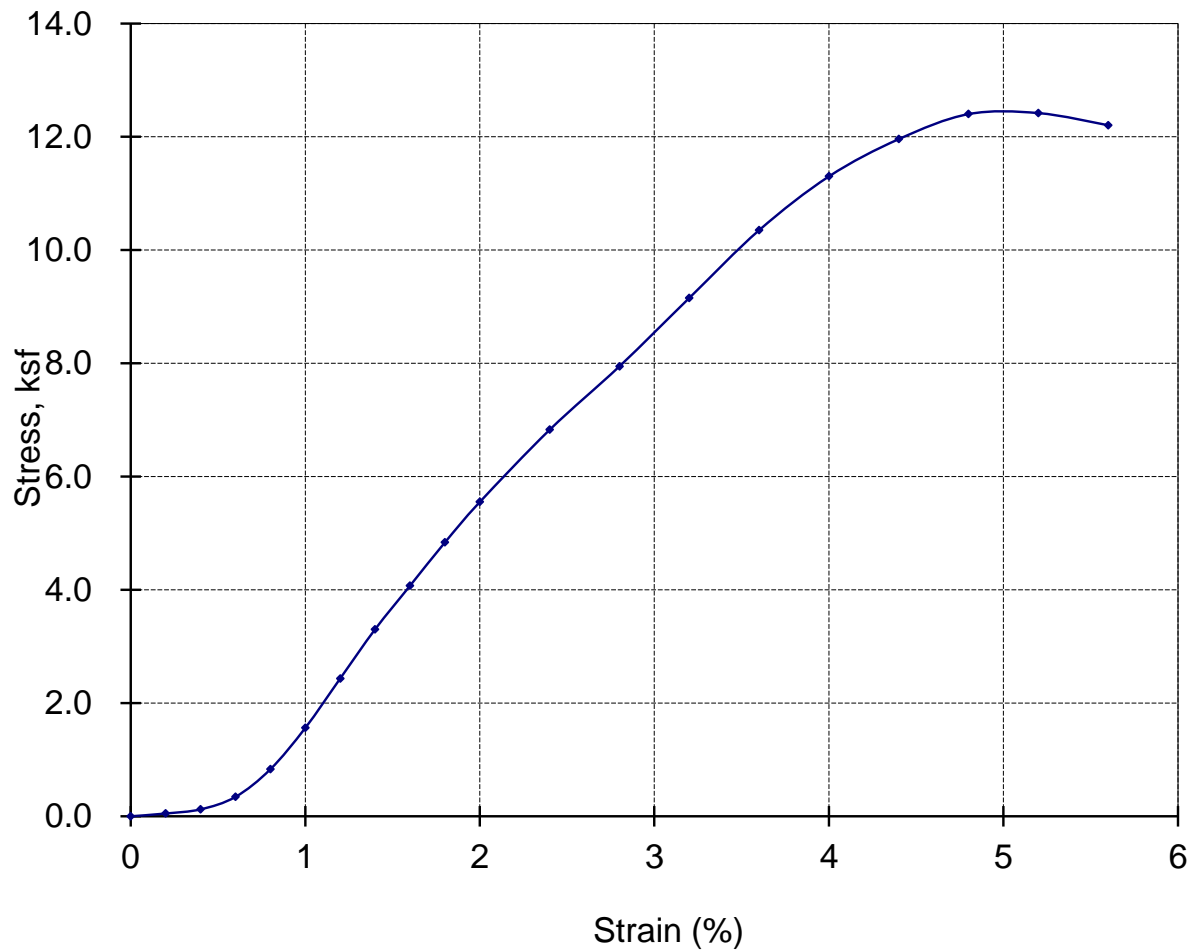


BRADLEY ROAD BRIDGE AT SALINAS RIVER
MONTEREY COUNTY, CALIFORNIA

JOB NO: 2015-109-BRD

PLATE NO: B-4

UNCONFINED COMPRESSION TEST



Boring No.: B-1

Sample No. : 14

Depth (feet): 71

Maximum Strength (ksf) 12.42

Strain @ Failure (%): 5.00

Material Description:
Lean Clay



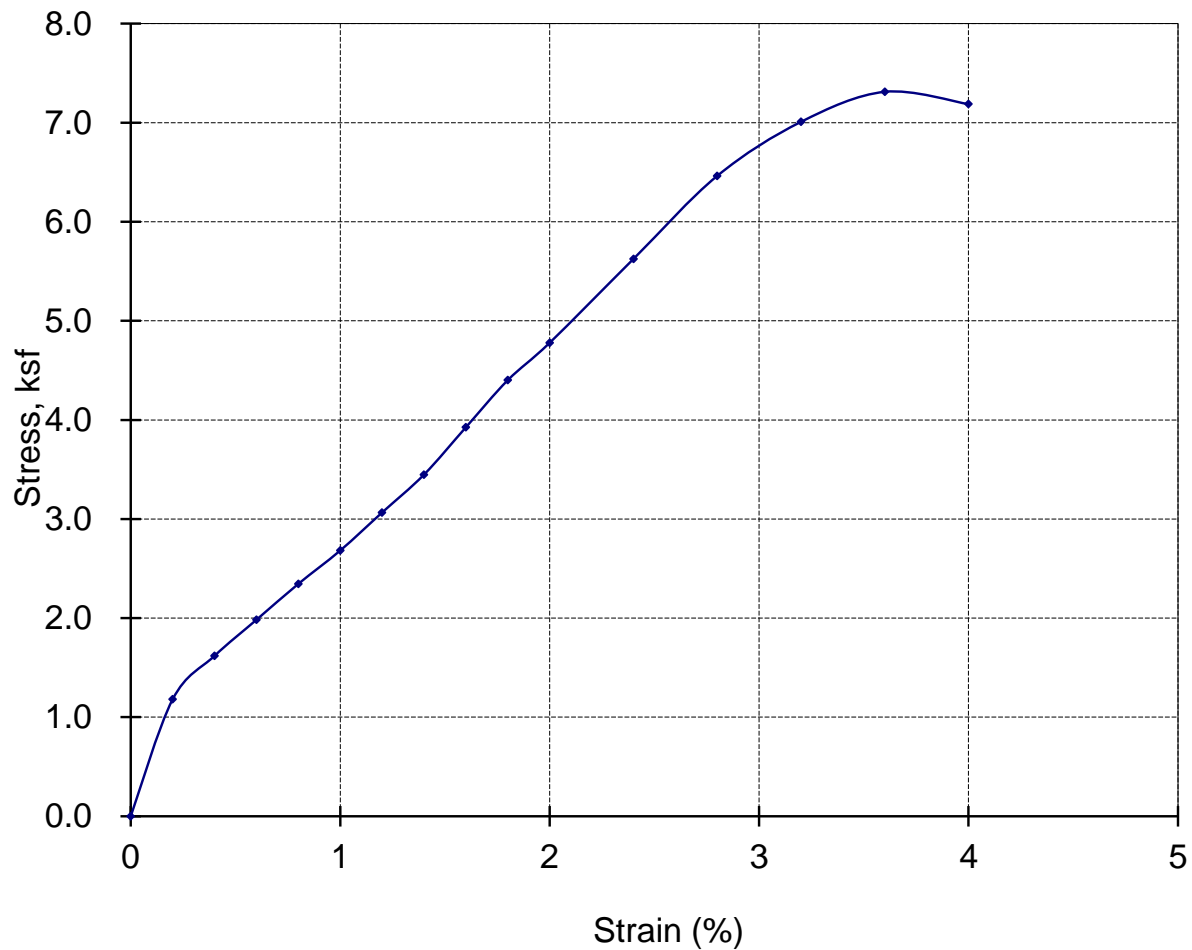
PARIKH CONSULTANTS, INC.
GEOTECHNICAL CONSULTANTS
MATERIALS TESTING

BRADLEY ROAD BRIDGE AT SALINAS RIVER
MONTEREY COUNTY, CALIFORNIA

JOB NO.: 2015-109-BRD

PLATE NO.: B-5A

UNCONFINED COMPRESSION TEST



Boring No.: B-2

Sample No. : 6

Maximum Strength (ksf) 7.31

Depth (feet): 31

Strain @ Failure (%): 3.50

Material Description:
Lean Clay



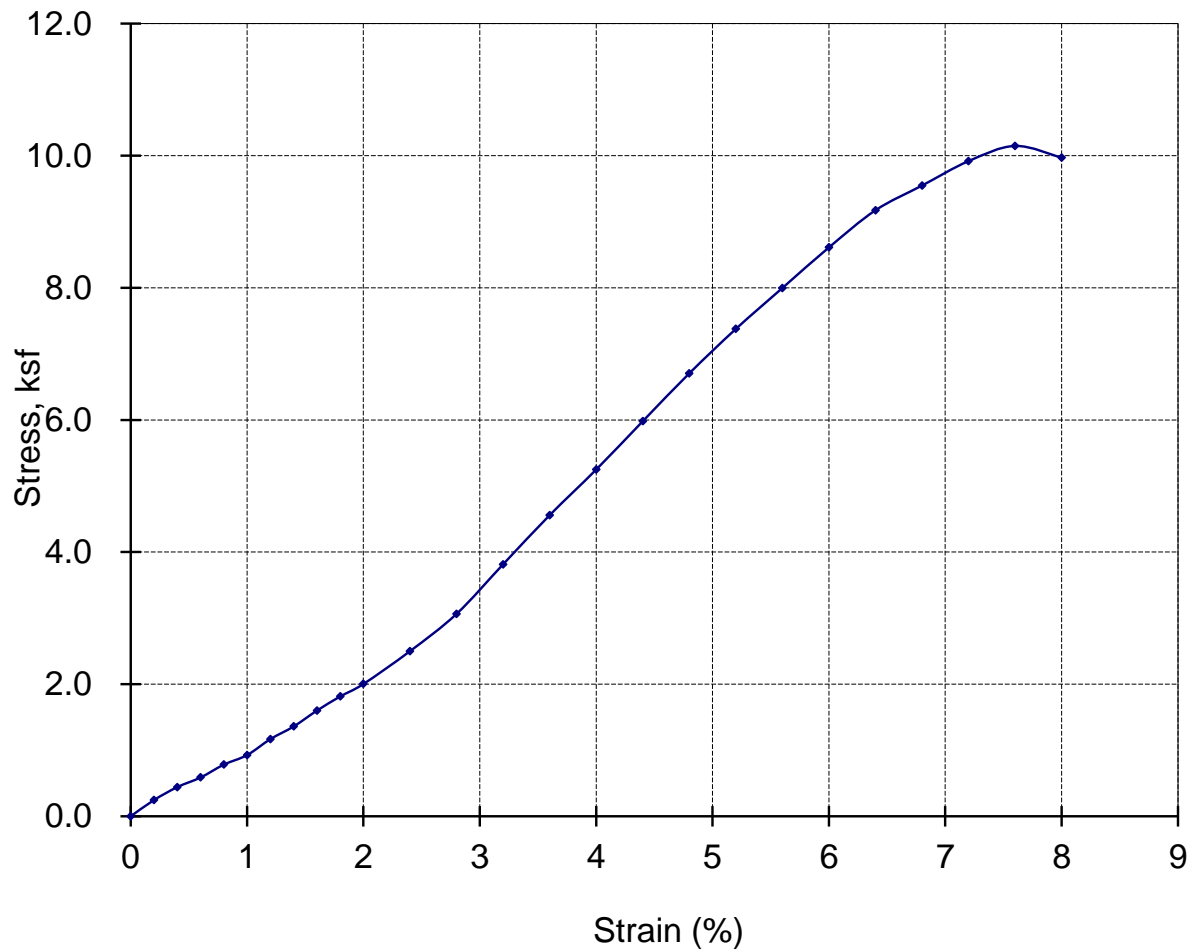
PARIKH CONSULTANTS, INC.
GEOTECHNICAL CONSULTANTS
MATERIALS TESTING

BRADLEY ROAD BRIDGE AT SALINAS RIVER
MONTEREY COUNTY, CALIFORNIA

JOB NO.: 2015-109-BRD

PLATE NO.: B-5B

UNCONFINED COMPRESSION TEST



Boring No.: B2

Sample No. : 9

Depth (feet): 46

Maximum Strength (ksf) 10.15

Strain @ Failure (%): 7.50

Material Description:
Lean Clay



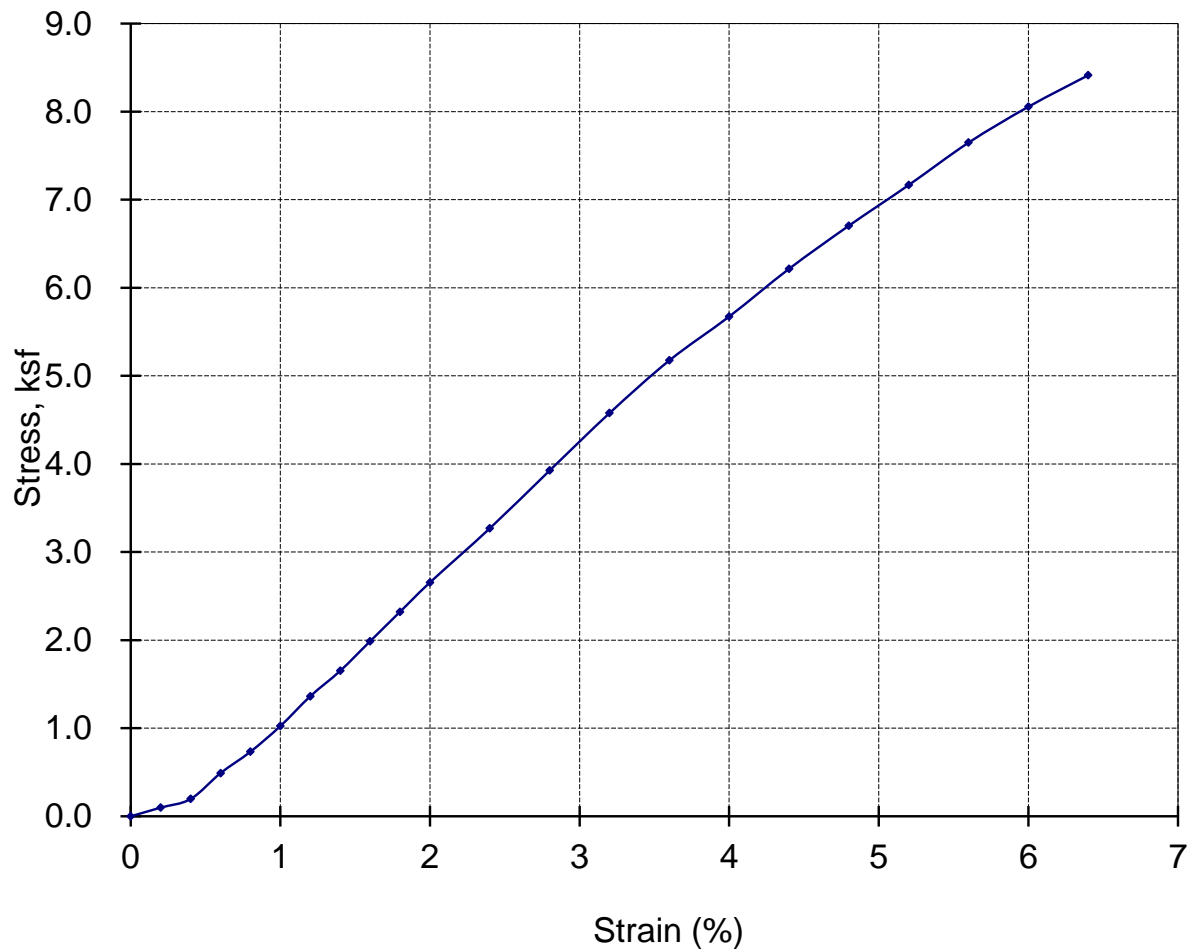
PARIKH CONSULTANTS, INC.
GEOTECHNICAL CONSULTANTS
MATERIALS TESTING

BRADLEY ROAD BRIDGE AT SALINAS RIVER
MONTEREY COUNTY, CALIFORNIA

JOB NO.: 2015-109-BRD

PLATE NO.: B-5C

UNCONFINED COMPRESSION TEST



Boring No.: B2

Sample No. : 11

Maximum Strength (ksf) 8.41

Depth (feet): 55

Strain @ Failure (%): 6.50

Material Description:
Lean Clay

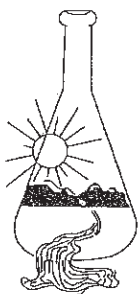


PARIKH CONSULTANTS, INC.
GEOTECHNICAL CONSULTANTS
MATERIALS TESTING

BRADLEY ROAD BRIDGE AT SALINAS RIVER
MONTEREY COUNTY, CALIFORNIA

JOB NO.: 2015-109-BRD

PLATE NO.: B-5D



Sunland Analytical

11419 Sunrise Gold Circle, #10
Rancho Cordova, CA 95742
(916) 852-8557

Date Reported 10/14/2015
Date Submitted 10/09/2015

To: Nasir Ahmad
Parikh Consultants, Inc.
2360 Qume Dr. Suite A
San Jose, CA 95131

From: Gene Oliphant, Ph.D. \ Randy Horney
General Manager \ Lab Manager

The reported analysis was requested for the following location:
Location : 2015-109-BRD Site ID : R-15-001 @ 16 FT
Thank you for your business.

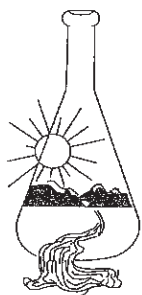
* For future reference to this analysis please use SUN # 70630-147381.

EVALUATION FOR SOIL CORROSION

Soil pH	8.58		
Minimum Resistivity	6.70	ohm-cm (x1000)	
Chloride	8.1 ppm	00.00081	%
Sulfate	19.2 ppm	00.00192	%

METHODS

pH and Min. Resistivity CA DOT Test #643
Sulfate CA DOT Test #417, Chloride CA DOT Test #422



Sunland Analytical

11419 Sunrise Gold Circle, #10
Rancho Cordova, CA 95742
(916) 852-8557

Date Reported 10/14/2015
Date Submitted 10/09/2015

To: Nasir Ahmad
Parikh Consultants, Inc.
2360 Qume Dr. Suite A
San Jose, CA 95131

From: Gene Oliphant, Ph.D. \ Randy Horney
General Manager \ Lab Manager

The reported analysis was requested for the following location:
Location : 2015-109-BRD Site ID : R-15-002 @ 21 FT
Thank you for your business.

* For future reference to this analysis please use SUN # 70630-147382.

EVALUATION FOR SOIL CORROSION

Soil pH	7.83		
Minimum Resistivity	1.29	ohm-cm (x1000)	
Chloride	22.8 ppm	00.00228	%
Sulfate	52.6 ppm	00.00526	%

METHODS

pH and Min. Resistivity CA DOT Test #643

Sulfate CA DOT Test #417, Chloride CA DOT Test #422

APPENDIX C

LIQUEFACTION POTENTIAL ANALYSIS (SPT procedures per Youd et al, 2001)

PROJECT NAME **BRADLEY ROAD BRIDGE AT SALINAS RIVER**
PROJECT NO. **2015-109-BRD**
BORING NO. **R-15-001**

SOIL GROUPS
1. GRAVELS, SANDS AND NONPLASTIC SILTS
2. CLAYS AND PLASTIC SILTS

FAULT INFO
HAYWARD FAULT
 $a_{max}(g) = 0.5$
FAULT $M_w = 6.7$

GW DEPTH (ft)= 3 BOREHOLE DIA (in)= 4
HAMMER ENERGY = 87% CUT(-)/FILL(+) (ft) = 0
DESIGN GW DEPTH (ft)= 3 (below OG) MSF = 1.33

SOIL STRATA						LIQUEFACTION RESISTANCE (CRR _{7.5})												CYCLIC STRESS RATIO (CSR)				F.S.=(CRR _{7.5} /CSR)*MSF*K _s *K _a			POST-LIQ. SETTLEMENT		
Layer Thickness from	to	Sample No	Depth (ft)	Soil Type	Blow Count	Sampler Type	SPT-N _{eq}	C _E	C _R	C _S	C _B	N ₆₀	σ' _v (psf)	C _N	(N ₁) ₆₀	F.C.	(N ₁) _{60,CS}	CRR _{7.5}	σ _v (psf)	σ' _v (psf)	r _d	CSR	K _s	K _a	F.S.	Vol. Strain (%)	ΔD (in)
0	8.0	1	5	1	8	SPT	8.0	1.5	0.80	1.2	1.00	11.1	450.2	1.7	18.9		18.9	0.2	575.0	450.2	1.0	0.4	1.0	1.0	(0.66)	1.46%	1.40
8.0	13.0	2	11	1	4	SPT	4.0	1.5	0.85	1.2	1.00	5.9	780.8	1.6	9.5	2%	9.5	0.1	1280.0	780.8	1.0	0.5	1.0	1.0	(0.28)	2.45%	1.47
13.0	20.0	3	15.5	1	50	SPT	50.0	1.5	0.95	1.2	1.00	82.7	1040.0	1.4	114.6		114.6		1820.0	1040.0	1.0	0.6	1.0	1.0	NON-LIQ.		
20.0	23.0	4	21.5	1	14	SPT	14.0	1.5	0.95	1.2	1.00	23.1	1385.6	1.2	27.8		27.8	0.4	2540.0	1385.6	1.0	0.6	1.0	1.0	NON-LIQ.		
23.0	29.0	5	26.5	1	60	SPT	60.0	1.5	1.00	1.2	1.00	104.4	1673.6	1.1	114.1	11%	118.4		3140.0	1673.6	0.9	0.6	1.0	1.0	NON-LIQ.		
29.0	33.0	6	30	1	100	SPT	100.0	1.5	1.00	1.2	1.00	174.0	1875.2	1.0	179.7		179.7		3560.0	1875.2	0.9	0.6	1.0	1.0	NON-LIQ.		
33.0	39.0	7	36	1	77	SPT	77.0	1.5	1.00	1.2	1.00	134.0	2220.8	0.9	127.1		127.1		4280.0	2220.8	0.9	0.6	1.0	1.0	NON-LIQ.		
39.0	43.0	8	40.5	2	75	MC	48.8	1.5	1.00	1.0	1.00	70.7	2480.0	0.9	63.5												
43.0	48.5	9	45.5	2	75	SPT	75.0	1.5	1.00	1.2	1.00	130.5	2768.0	0.9	110.9												
48.5	53.0	10	51	2	76	SPT	76.0	1.5	1.00	1.2	1.00	132.2	3084.8	0.8	106.5												
53.0	58.0	11	56	2	73	MC	47.5	1.5	1.00	1.0	1.00	68.8	3375.8	0.8	53.0												
58.0	63.0	12	61	2	72	SPT	72.0	1.5	1.00	1.2	1.00	125.3	3671.8	0.7	92.5												
63.0	68.0	13	65.5	2	75	MC	48.8	1.5	1.00	1.0	1.00	70.7	3942.5	0.7	50.3												
68.0	73.5	14	71	2	61	MC	39.7	1.5	1.00	1.0	1.00	57.5	4278.8	0.7	39.3												
73.5	77.0	15	76	2	88	MC	57.2	1.5	1.00	1.0	1.00	82.9	4589.3	0.7	54.8												
77.0	81.0	16	79	2	83	SPT	83.0	1.5	1.00	1.2	1.00	144.4	4779.1	0.6	93.4												

Notes:

- The correction factors C_E (Energy Ratio), C_B (Borehole Diameter), C_R (Rod Length) and C_S (Sampling Method-liner) are per Youd et al. (2001).
- For correction of overburden, $C_N = (1/\sigma_v')^{0.5}$ with a maximum value of 1.7.
- The influence of Fines Contents are expressed by the following correction: $(N_1)_{60CS} = a + b (N_1)_{60}$
where a and b = coefficients determined from the following relationships
for $FC \leq 5\%$ $a = 0$, $b = 1.0$
for $5\% < FC < 35\%$ $a = \exp(1.76 - (190/FC^2))$, $b = (0.99 + (FC^{1.5}/1000))$
for $FC \geq 35\%$ $a = 5.0$, $b = 1.2$
- For $(N_1)_{60CS}$ greater than 30, clean granular soils are too dense to liquefy and are classed as non-liquefiable.

Reference:

Liquefaction Resistance of Soils: Summary Report from the 1996 NCEER and 1998 NCEER Workshops on Evaluation of Liquefaction Resistance of Soils, Youd, et al., ASCE Journal of Geotechnical and Geoenvironmental Engineering, October 2001, Vol. 127 No. 10

LIQUEFACTION POTENTIAL ANALYSIS (SPT procedures per Youd et al, 2001)

PROJECT NAME **BRADLEY ROAD BRIDGE AT SALINAS RIVER**
PROJECT NO. **2015-109-BRD**
BORING NO. **R-15-002**

SOIL GROUPS
1. GRAVELS, SANDS AND NONPLASTIC SILTS
2. CLAYS AND PLASTIC SILTS

FAULT INFO
HAYWARD FAULT
 $a_{max} (g) = 0.5$
FAULT $M_w = 6.7$

GW DEPTH (ft)= 3 BOREHOLE DIA (in)= 4
HAMMER ENERGY = 87% CUT(-)/FILL(+) (ft) = 0
DESIGN GW DEPTH (ft)= 3 (below OG) MSF = 1.33

SOIL STRATA						LIQUEFACTION RESISTANCE ($CRR_{7.5}$)											CYCLIC STRESS RATIO (CSR)				$F.S.=(CRR_{7.5}/CSR)*MSF*K_s*K_a$			POST-LIQ. SETTLEMENT			
Layer Thickness from to	Sample No	Depth (ft)	Soil Type	Blow Count	Sampler Type	SPT- N_{eq}	C_E	C_R	C_S	C_B	N_{60}	σ_v' (psf)	C_N	$(N_1)_{60}$	F.C.	$(N_1)_{60,CS}$	$CRR_{7.5}$	σ_v (psf)	σ_v' (psf)	r_d	CSR	Ks	Ka	F.S.	Vol. Strain (%)	ΔD (in)	
0 7.0	1	6	1	4	SPT	4.0	1.5	0.80	1.2	1.00	5.6	502.8	1.7	9.5	63%	9.5	0.1	690.0	502.8	1.0	0.4	1.0	1.0	(0.33)	2.45%	2.06	
7.0 13.5	2	11	2	40	SPT	40.0	1.5	0.85	1.2	1.00	59.2	785.8	1.6	94.4													
13.5 18.0	3	15	2	100	SPT	100.0	1.5	0.95	1.2	1.00	165.3	1016.2	1.4	231.9													
18.0 23.0	4	21	2	80	SPT	80.0	1.5	0.95	1.2	1.00	132.2	1361.8	1.2	160.3													
23.0 28.0	5	26	2	80	SPT	80.0	1.5	1.00	1.2	1.00	139.2	1649.8	1.1	153.3													
28.0 33.0	6	31	2	79	MC	51.4	1.5	1.00	1.0	1.00	74.5	1937.8	1.0	75.6													
33.0 38.0	7	35	2	100	MC	65.0	1.5	1.00	1.0	1.00	94.3	2168.2	1.0	90.5													
38.0 43.0	8	41	2	88	SPT	88.0	1.5	1.00	1.2	1.00	153.1	2513.8	0.9	136.6													
43.0 48.0	9	46	2	43	MC	28.0	1.5	1.00	1.0	1.00	40.5	2801.8	0.8	34.2													
48.0 53.0	10	51	2	62	SPT	62.0	1.5	1.00	1.2	1.00	107.9	3089.8	0.8	86.8													
53.0 59.0	11	55.5	2	90	MC	58.5	1.5	1.00	1.0	1.00	84.8	3351.5	0.8	65.5													
59.0 62.0	12	60	2	100	SPT	100.0	1.5	1.00	1.2	1.00	174.0	3616.2	0.7	129.4													
62.0 68.0	13	66	2	75	SPT	75.0	1.5	1.00	1.2	1.00	130.5	3977.8	0.7	92.5													
68.0 73.0	14	70	2	100	MC	65.0	1.5	1.00	1.0	1.00	94.3	4222.2	0.7	64.9													
73.0 77.0	15	75	2	100	MC	65.0	1.5	1.00	1.0	1.00	94.3	4532.2	0.7	62.6													
77.0 81.0	16	80	2	100	SPT	100.0	1.5	1.00	1.2	1.00	174.0	4848.2	0.6	111.8													

Notes:

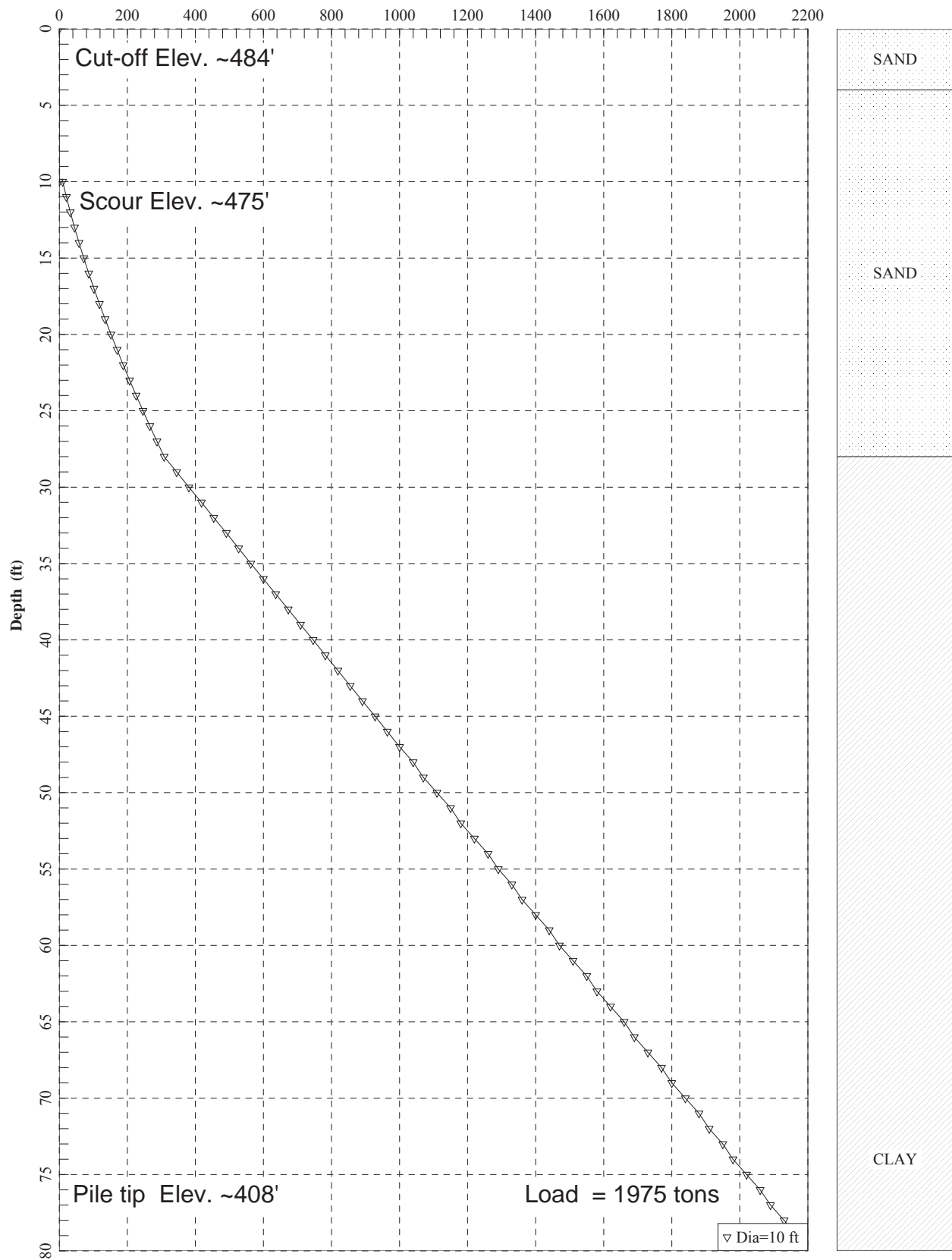
- The correction factors C_E (Energy Ratio), C_B (Borehole Diameter), C_R (Rod Length) and C_S (Sampling Method-liner) are per Youd et al. (2001).
- For correction of overburden, $C_N = (1/\sigma_v')^{0.5}$ with a maximum value of 1.7.
- The influence of Fines Contents are expressed by the following correction: $(N_1)_{60CS} = a + b (N_1)_{60}$
where a and b = coefficients determined from the following relationships
for $FC \leq 5\%$ $a = 0$, $b = 1.0$
for $5\% < FC < 35\%$ $a = \exp(1.76 - (190/FC^2))$, $b = (0.99 + (FC^{1.5}/1000))$
for $FC \geq 35\%$ $a = 5.0$, $b = 1.2$
- For $(N_1)_{60CS}$ greater than 30, clean granular soils are too dense to liquefy and are classed as non-liquefiable.

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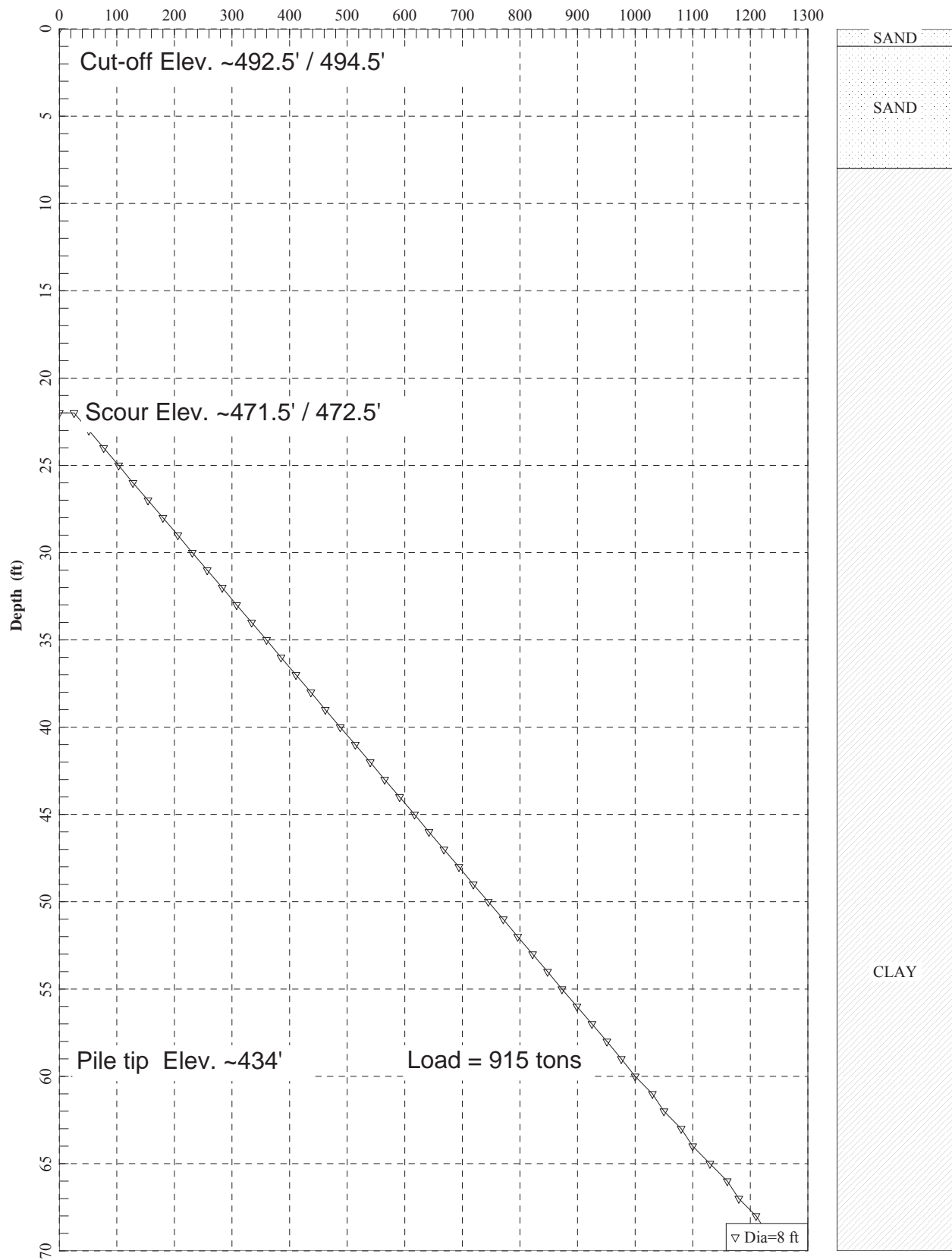
PIERS 16 AND 17, CIDH DIA = 10 FT
Strength Limit State (Controlling Group)

Ultimate Skin Friction (tons)



PIERS 18 AND 19, CIDH DIA = 8 FT
Strength Limit State (Controlling Group)

Ultimate Skin Friction (tons)



APPENDIX D

EDR RADIUS MAP REPORT WITH GEOCHECK



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Bradley Road Bridge Scour Countermeasure Project

Bradley Road Over Salinas River

San Ardo, CA 93450

Inquiry Number: 5090003.2s

October 27, 2017

The EDR Radius Map™ Report with GeoCheck®



6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

TABLE OF CONTENTS

<u>SECTION</u>	<u>PAGE</u>
Executive Summary	ES1
Overview Map	2
Detail Map	3
Map Findings Summary	4
Map Findings	8
Orphan Summary	19
Government Records Searched/Data Currency Tracking	GR-1
 <u>GEOCHECK ADDENDUM</u>	
Physical Setting Source Addendum	A-1
Physical Setting Source Summary	A-2
Physical Setting SSURGO Soil Map	A-5
Physical Setting Source Map	A-13
Physical Setting Source Map Findings	A-15
Physical Setting Source Records Searched	PSGR-1

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

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EXECUTIVE SUMMARY

A search of available environmental records was conducted by Environmental Data Resources, Inc (EDR). The report was designed to assist parties seeking to meet the search requirements of EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), the ASTM Standard Practice for Environmental Site Assessments (E 1527-13) or custom requirements developed for the evaluation of environmental risk associated with a parcel of real estate.

TARGET PROPERTY INFORMATION

ADDRESS

BRADLEY ROAD OVER SALINAS RIVER
SAN ARDO, CA 93450

COORDINATES

Latitude (North):	35.8641670 - 35° 51' 51.00"
Longitude (West):	120.8097220 - 120° 48' 34.99"
Universal Transverse Mercator:	Zone 10
UTM X (Meters):	697762.4
UTM Y (Meters):	3970897.8
Elevation:	492 ft. above sea level

USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property Map:	5620030 BRADLEY, CA
Version Date:	2012
North Map:	5603496 WUNPOST, CA
Version Date:	2012

AERIAL PHOTOGRAPHY IN THIS REPORT

Portions of Photo from:	20140604
Source:	USDA

MAPPED SITES SUMMARY

Target Property Address:
BRADLEY ROAD OVER SALINAS RIVER
SAN ARDO, CA 93450

Click on Map ID to see full detail.

MAP ID	SITE NAME	ADDRESS	DATABASE ACRONYMS	RELATIVE ELEVATION	DIST (ft. & mi.)
					DIRECTION
Reg	CAMP ROBERTS MILITAR		DOD	Same	2292, 0.434, ESE
1	BRADLEY MINERALS 2-6	65100 BRADLEY RD	CUPA Listings	Lower	1 ft.
A2	BRADLEY TRANSFER STA	OFF EL CAMINO-BRADLE	SWF/LF	Higher	431, 0.082, East
A3	BRADLEY SANITARY LAN	OFF EL CAMINO-BRADLE	SWF/LF	Higher	431, 0.082, East
4	HANSON AGGREGATES MI		US MINES	Higher	459, 0.087, South
B5		65789 BRADLEY RD	AST	Higher	1293, 0.245, East
B6	DEPT OF FORESTRY BRA	65789 BRADLEY RD	AST, CUPA Listings	Higher	1293, 0.245, East
B7	BRADLEY SOLID WASTE	BRADLEY AT US 101 AN	ENVIROSTOR	Higher	1304, 0.247, East

EXECUTIVE SUMMARY

TARGET PROPERTY SEARCH RESULTS

The target property was not listed in any of the databases searched by EDR.

DATABASES WITH NO MAPPED SITES

No mapped sites were found in EDR's search of available ("reasonably ascertainable ") government records either on the target property or within the search radius around the target property for the following databases:

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL..... National Priority List
Proposed NPL..... Proposed National Priority List Sites
NPL LIENS..... Federal Superfund Liens

Federal Delisted NPL site list

Delisted NPL..... National Priority List Deletions

Federal CERCLIS list

FEDERAL FACILITY..... Federal Facility Site Information listing
SEMS..... Superfund Enterprise Management System

Federal CERCLIS NFRAP site list

SEMS-ARCHIVE..... Superfund Enterprise Management System Archive

Federal RCRA CORRACTS facilities list

CORRACTS..... Corrective Action Report

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF..... RCRA - Treatment, Storage and Disposal

Federal RCRA generators list

RCRA-LQG..... RCRA - Large Quantity Generators
RCRA-SQG..... RCRA - Small Quantity Generators
RCRA-CESQG..... RCRA - Conditionally Exempt Small Quantity Generator

Federal institutional controls / engineering controls registries

LUCIS..... Land Use Control Information System
US ENG CONTROLS..... Engineering Controls Sites List

EXECUTIVE SUMMARY

US INST CONTROL..... Sites with Institutional Controls

Federal ERNS list

ERNS..... Emergency Response Notification System

State- and tribal - equivalent NPL

RESPONSE..... State Response Sites

State and tribal leaking storage tank lists

LUST..... Geotracker's Leaking Underground Fuel Tank Report

INDIAN LUST..... Leaking Underground Storage Tanks on Indian Land

SLIC..... Statewide SLIC Cases

State and tribal registered storage tank lists

FEMA UST..... Underground Storage Tank Listing

UST..... Active UST Facilities

INDIAN UST..... Underground Storage Tanks on Indian Land

State and tribal voluntary cleanup sites

INDIAN VCP..... Voluntary Cleanup Priority Listing

VCP..... Voluntary Cleanup Program Properties

State and tribal Brownfields sites

BROWNFIELDS..... Considered Brownfields Sites Listing

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS..... A Listing of Brownfields Sites

Local Lists of Landfill / Solid Waste Disposal Sites

WMUDS/SWAT..... Waste Management Unit Database

SWRCY..... Recycler Database

HAULERS..... Registered Waste Tire Haulers Listing

INDIAN ODI..... Report on the Status of Open Dumps on Indian Lands

DEBRIS REGION 9..... Torres Martinez Reservation Illegal Dump Site Locations

ODI..... Open Dump Inventory

IHS OPEN DUMPS..... Open Dumps on Indian Land

Local Lists of Hazardous waste / Contaminated Sites

US HIST CDL..... Delisted National Clandestine Laboratory Register

HIST Cal-Sites..... Historical Calsites Database

SCH..... School Property Evaluation Program

CDL..... Clandestine Drug Labs

Toxic Pits..... Toxic Pits Cleanup Act Sites

EXECUTIVE SUMMARY

US CDL..... National Clandestine Laboratory Register

Local Lists of Registered Storage Tanks

SWEEPS UST..... SWEEPS UST Listing
HIST UST..... Hazardous Substance Storage Container Database
CA FID UST..... Facility Inventory Database

Local Land Records

LIENS..... Environmental Liens Listing
LIENS 2..... CERCLA Lien Information
DEED..... Deed Restriction Listing

Records of Emergency Release Reports

HMIRS..... Hazardous Materials Information Reporting System
CHMIRS..... California Hazardous Material Incident Report System
LDS..... Land Disposal Sites Listing
MCS..... Military Cleanup Sites Listing
SPILLS 90..... SPILLS 90 data from FirstSearch

Other Ascertainable Records

RCRA NonGen / NLR..... RCRA - Non Generators / No Longer Regulated
FUDS..... Formerly Used Defense Sites
SCRD DRYCLEANERS..... State Coalition for Remediation of Drycleaners Listing
US FIN ASSUR..... Financial Assurance Information
EPA WATCH LIST..... EPA WATCH LIST
2020 COR ACTION..... 2020 Corrective Action Program List
TSCA..... Toxic Substances Control Act
TRIS..... Toxic Chemical Release Inventory System
SSTS..... Section 7 Tracking Systems
ROD..... Records Of Decision
RMP..... Risk Management Plans
RAATS..... RCRA Administrative Action Tracking System
PRP..... Potentially Responsible Parties
PADS..... PCB Activity Database System
ICIS..... Integrated Compliance Information System
FTTS..... FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
MLTS..... Material Licensing Tracking System
COAL ASH DOE..... Steam-Electric Plant Operation Data
COAL ASH EPA..... Coal Combustion Residues Surface Impoundments List
PCB TRANSFORMER..... PCB Transformer Registration Database
RADINFO..... Radiation Information Database
HIST FTTS..... FIFRA/TSCA Tracking System Administrative Case Listing
DOT OPS..... Incident and Accident Data
CONSENT..... Superfund (CERCLA) Consent Decrees
INDIAN RESERV..... Indian Reservations
FUSRAP..... Formerly Utilized Sites Remedial Action Program
UMTRA..... Uranium Mill Tailings Sites
LEAD SMELTERS..... Lead Smelter Sites
US AIRS..... Aerometric Information Retrieval System Facility Subsystem
ABANDONED MINES..... Abandoned Mines

EXECUTIVE SUMMARY

FINDS.....	Facility Index System/Facility Registry System
UXO.....	Unexploded Ordnance Sites
ECHO.....	Enforcement & Compliance History Information
DOCKET HWC.....	Hazardous Waste Compliance Docket Listing
FUELS PROGRAM.....	EPA Fuels Program Registered Listing
CA BOND EXP. PLAN.....	Bond Expenditure Plan
Cortese.....	"Cortese" Hazardous Waste & Substances Sites List
DRYCLEANERS.....	Cleaner Facilities
EMI.....	Emissions Inventory Data
ENF.....	Enforcement Action Listing
Financial Assurance.....	Financial Assurance Information Listing
HAZNET.....	Facility and Manifest Data
ICE.....	ICE
HIST CORTESE.....	Hazardous Waste & Substance Site List
HWP.....	EnviroStor Permitted Facilities Listing
HWT.....	Registered Hazardous Waste Transporter Database
MINES.....	Mines Site Location Listing
MWMP.....	Medical Waste Management Program Listing
NPDES.....	NPDES Permits Listing
PEST LIC.....	Pesticide Regulation Licenses Listing
PROC.....	Certified Processors Database
Notify 65.....	Proposition 65 Records
UIC.....	UIC Listing
WASTEWATER PITS.....	Oil Wastewater Pits Listing
WDS.....	Waste Discharge System
WIP.....	Well Investigation Program Case List

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP.....	EDR Proprietary Manufactured Gas Plants
EDR Hist Auto.....	EDR Exclusive Historic Auto Stations
EDR Hist Cleaner.....	EDR Exclusive Historic Cleaners

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

RGA LF.....	Recovered Government Archive Solid Waste Facilities List
RGA LUST.....	Recovered Government Archive Leaking Underground Storage Tank

SURROUNDING SITES: SEARCH RESULTS

Surrounding sites were identified in the following databases.

Elevations have been determined from the USGS Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified. Sites with an elevation equal to or higher than the target property have been differentiated below from sites with an elevation lower than the target property.

Page numbers and map identification numbers refer to the EDR Radius Map report where detailed data on individual sites can be reviewed.

Sites listed in ***bold italics*** are in multiple databases.

Unmappable (orphan) sites are not considered in the foregoing analysis.

EXECUTIVE SUMMARY

STANDARD ENVIRONMENTAL RECORDS

State- and tribal - equivalent CERCLIS

ENVIROSTOR: The Department of Toxic Substances Control's (DTSC's) Site Mitigation and Brownfields Reuse Program's (SMBRP's) EnviroStor database identifies sites that have known contamination or sites for which there may be reasons to investigate further. The database includes the following site types: Federal Superfund sites (National Priorities List (NPL)); State Response, including Military Facilities and State Superfund; Voluntary Cleanup; and School sites. EnviroStor provides similar information to the information that was available in CalSites, and provides additional site information, including, but not limited to, identification of formerly-contaminated properties that have been released for reuse, properties where environmental deed restrictions have been recorded to prevent inappropriate land uses, and risk characterization information that is used to assess potential impacts to public health and the environment at contaminated sites.

A review of the ENVIROSTOR list, as provided by EDR, and dated 07/31/2017 has revealed that there is 1 ENVIROSTOR site within approximately 1 mile of the target property.

<u>Equal/Higher Elevation</u>	<u>Address</u>	<u>Direction / Distance</u>	<u>Map ID</u>	<u>Page</u>
BRADLEY SOLID WASTE Facility Id: 27490022 Status: Refer: RWQCB	BRADLEY AT US 101 AN	E 1/8 - 1/4 (0.247 mi.)	B7	17

State and tribal landfill and/or solid waste disposal site lists

SWF/LF: The Solid Waste Facilities/Landfill Sites records typically contain an inventory of solid waste disposal facilities or landfills in a particular state. The data come from the Integrated Waste Management Board's Solid Waste Information System (SWIS) database.

A review of the SWF/LF list, as provided by EDR, has revealed that there are 2 SWF/LF sites within approximately 0.5 miles of the target property.

<u>Equal/Higher Elevation</u>	<u>Address</u>	<u>Direction / Distance</u>	<u>Map ID</u>	<u>Page</u>
BRADLEY TRANSFER STA Database: SWF/LF (SWIS), Date of Government Version: 08/14/2017 Facility ID: 27-AA-0017 Operational Status: Active Regulation Status: Notification	OFF EL CAMINO-BRADLE	E 0 - 1/8 (0.082 mi.)	A2	8
BRADLEY SANITARY LAN Database: SWF/LF (SWIS), Date of Government Version: 08/14/2017 Facility ID: 27-AA-0002 Operational Status: Closed Regulation Status: Permitted	OFF EL CAMINO-BRADLE	E 0 - 1/8 (0.082 mi.)	A3	9

EXECUTIVE SUMMARY

State and tribal registered storage tank lists

AST: A listing of aboveground storage tank petroleum storage tank locations.

A review of the AST list, as provided by EDR, and dated 07/06/2016 has revealed that there are 2 AST sites within approximately 0.25 miles of the target property.

<u>Equal/Higher Elevation</u>	<u>Address</u>	<u>Direction / Distance</u>	<u>Map ID</u>	<u>Page</u>
Not reported	65789 BRADLEY RD	E 1/8 - 1/4 (0.245 mi.)	B5	16
DEPT OF FORESTRY BRA	65789 BRADLEY RD	E 1/8 - 1/4 (0.245 mi.)	B6	16

ADDITIONAL ENVIRONMENTAL RECORDS

Other Ascertainable Records

DOD: Consists of federally owned or administered lands, administered by the Department of Defense, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.

A review of the DOD list, as provided by EDR, and dated 12/31/2005 has revealed that there is 1 DOD site within approximately 1 mile of the target property.

<u>Equal/Higher Elevation</u>	<u>Address</u>	<u>Direction / Distance</u>	<u>Map ID</u>	<u>Page</u>
CAMP ROBERTS MILITAR		ESE 1/4 - 1/2 (0.434 mi.)	0	8

US MINES: Mines Master Index File. The source of this database is the Dept. of Labor, Mine Safety and Health Administration.

A review of the US MINES list, as provided by EDR, has revealed that there is 1 US MINES site within approximately 0.25 miles of the target property.

<u>Equal/Higher Elevation</u>	<u>Address</u>	<u>Direction / Distance</u>	<u>Map ID</u>	<u>Page</u>
HANSON AGGREGATES MI		S 0 - 1/8 (0.087 mi.)	4	10
Database: US MINES, Date of Government Version: 07/31/2017				

CUPA Listings: A listing of sites included in the county's Certified Unified Program Agency database. California's Secretary for Environmental Protection established the unified hazardous materials and hazardous waste regulatory program as required by chapter 6.11 of the California Health and Safety Code. The Unified Program consolidates the administration, permits, inspections, and enforcement activities.

A review of the CUPA Listings list, as provided by EDR, has revealed that there are 2 CUPA Listings sites within approximately 0.25 miles of the target property.

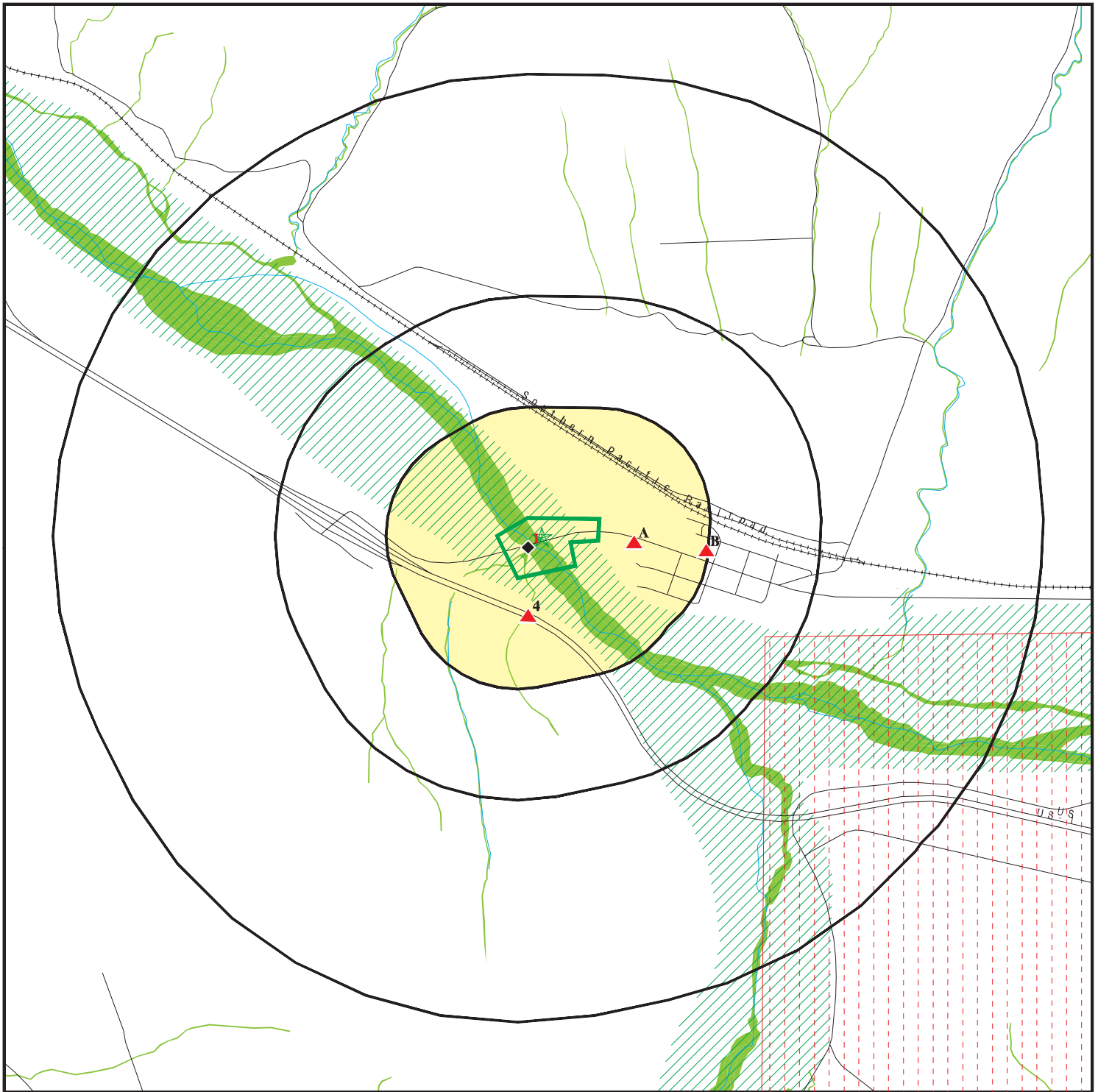
<u>Equal/Higher Elevation</u>	<u>Address</u>	<u>Direction / Distance</u>	<u>Map ID</u>	<u>Page</u>
DEPT OF FORESTRY BRA	65789 BRADLEY RD	E 1/8 - 1/4 (0.245 mi.)	B6	16
Database: CUPA MONTEREY, Date of Government Version: 06/22/2017				

<u>Lower Elevation</u>	<u>Address</u>	<u>Direction / Distance</u>	<u>Map ID</u>	<u>Page</u>
BRADLEY MINERALS 2-6	65100 BRADLEY RD	0 - 1/8 (0.000 mi.)	1	8
Database: CUPA MONTEREY, Date of Government Version: 06/22/2017				

EXECUTIVE SUMMARY

There were no unmapped sites in this report.

OVERVIEW MAP - 5090003.2S



Target Property

Sites at elevations higher than or equal to the target property

Sites at elevations lower than the target property

Manufactured Gas Plants

National Priority List Sites

Dept. Defense Sites

Indian Reservations BIA

100-year flood zone

500-year flood zone

National Wetland Inventory

State Wetlands

Upgradient Area

Areas of Concern

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: Bradley Road Bridge Scour Countermeasure Project
ADDRESS: Bradley Road Over Salinas River
San Ardo CA 93450
LAT/LONG: 35.864167 / 120.809722

CLIENT: LSA Associates
CONTACT: Amber Long
INQUIRY #: 5090003.2s
DATE: October 27, 2017 3:08 pm

DETAIL MAP - 5090003.2S



Target Property

Sites at elevations higher than or equal to the target property

Sites at elevations lower than the target property

Manufactured Gas Plants

Sensitive Receptors

National Priority List Sites

Dept. Defense Sites

Indian Reservations BIA

100-year flood zone

500-year flood zone

National Wetland Inventory

State Wetlands

Areas of Concern

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: Bradley Road Bridge Scour Countermeasure Project
ADDRESS: Bradley Road Over Salinas River
San Ardo CA 93450
LAT/LONG: 35.864167 / 120.809722

CLIENT: LSA Associates
CONTACT: Amber Long
INQUIRY #: 5090003.2s
DATE: October 27, 2017 3:15 pm

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
STANDARD ENVIRONMENTAL RECORDS								
<i>Federal NPL site list</i>								
NPL	1.000		0	0	0	0	NR	0
Proposed NPL	1.000		0	0	0	0	NR	0
NPL LIENS	0.001		0	NR	NR	NR	NR	0
<i>Federal Delisted NPL site list</i>								
Delisted NPL	1.000		0	0	0	0	NR	0
<i>Federal CERCLIS list</i>								
FEDERAL FACILITY	0.500		0	0	0	NR	NR	0
SEMS	0.500		0	0	0	NR	NR	0
<i>Federal CERCLIS NFRAP site list</i>								
SEMS-ARCHIVE	0.500		0	0	0	NR	NR	0
<i>Federal RCRA CORRACTS facilities list</i>								
CORRACTS	1.000		0	0	0	0	NR	0
<i>Federal RCRA non-CORRACTS TSD facilities list</i>								
RCRA-TSDF	0.500		0	0	0	NR	NR	0
<i>Federal RCRA generators list</i>								
RCRA-LQG	0.250		0	0	NR	NR	NR	0
RCRA-SQG	0.250		0	0	NR	NR	NR	0
RCRA-CESQG	0.250		0	0	NR	NR	NR	0
<i>Federal institutional controls / engineering controls registries</i>								
LUCIS	0.500		0	0	0	NR	NR	0
US ENG CONTROLS	0.500		0	0	0	NR	NR	0
US INST CONTROL	0.500		0	0	0	NR	NR	0
<i>Federal ERNS list</i>								
ERNS	0.001		0	NR	NR	NR	NR	0
<i>State- and tribal - equivalent NPL</i>								
RESPONSE	1.000		0	0	0	0	NR	0
<i>State- and tribal - equivalent CERCLIS</i>								
ENVIROSTOR	1.000		0	1	0	0	NR	1
<i>State and tribal landfill and/or solid waste disposal site lists</i>								
SWF/LF	0.500		2	0	0	NR	NR	2
<i>State and tribal leaking storage tank lists</i>								
LUST	0.500		0	0	0	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
INDIAN LUST	0.500		0	0	0	NR	NR	0
SLIC	0.500		0	0	0	NR	NR	0
State and tribal registered storage tank lists								
FEMA UST	0.250		0	0	NR	NR	NR	0
UST	0.250		0	0	NR	NR	NR	0
AST	0.250		0	2	NR	NR	NR	2
INDIAN UST	0.250		0	0	NR	NR	NR	0
State and tribal voluntary cleanup sites								
INDIAN VCP	0.500		0	0	0	NR	NR	0
VCP	0.500		0	0	0	NR	NR	0
State and tribal Brownfields sites								
BROWNFIELDS	0.500		0	0	0	NR	NR	0
ADDITIONAL ENVIRONMENTAL RECORDS								
Local Brownfield lists								
US BROWNFIELDS	0.500		0	0	0	NR	NR	0
Local Lists of Landfill / Solid Waste Disposal Sites								
WMUDS/SWAT	0.500		0	0	0	NR	NR	0
SWRCY	0.500		0	0	0	NR	NR	0
HAULERS	0.001		0	NR	NR	NR	NR	0
INDIAN ODI	0.500		0	0	0	NR	NR	0
DEBRIS REGION 9	0.500		0	0	0	NR	NR	0
ODI	0.500		0	0	0	NR	NR	0
IHS OPEN DUMPS	0.500		0	0	0	NR	NR	0
Local Lists of Hazardous waste / Contaminated Sites								
US HIST CDL	0.001		0	NR	NR	NR	NR	0
HIST Cal-Sites	1.000		0	0	0	0	NR	0
SCH	0.250		0	0	NR	NR	NR	0
CDL	0.001		0	NR	NR	NR	NR	0
Toxic Pits	1.000		0	0	0	0	NR	0
US CDL	0.001		0	NR	NR	NR	NR	0
Local Lists of Registered Storage Tanks								
SWEEPS UST	0.250		0	0	NR	NR	NR	0
HIST UST	0.250		0	0	NR	NR	NR	0
CA FID UST	0.250		0	0	NR	NR	NR	0
Local Land Records								
LIENS	0.001		0	NR	NR	NR	NR	0
LIENS 2	0.001		0	NR	NR	NR	NR	0
DEED	0.500		0	0	0	NR	NR	0
Records of Emergency Release Reports								
HMIRS	0.001		0	NR	NR	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
CHMIRS	0.001		0	NR	NR	NR	NR	0
LDS	0.001		0	NR	NR	NR	NR	0
MCS	0.001		0	NR	NR	NR	NR	0
SPILLS 90	0.001		0	NR	NR	NR	NR	0
Other Ascertainable Records								
RCRA NonGen / NLR	0.250		0	0	NR	NR	NR	0
FUDS	1.000		0	0	0	0	NR	0
DOD	1.000		0	0	1	0	NR	1
SCRD DRYCLEANERS	0.500		0	0	0	NR	NR	0
US FIN ASSUR	0.001		0	NR	NR	NR	NR	0
EPA WATCH LIST	0.001		0	NR	NR	NR	NR	0
2020 COR ACTION	0.250		0	0	NR	NR	NR	0
TSCA	0.001		0	NR	NR	NR	NR	0
TRIS	0.001		0	NR	NR	NR	NR	0
SSTS	0.001		0	NR	NR	NR	NR	0
ROD	1.000		0	0	0	0	NR	0
RMP	0.001		0	NR	NR	NR	NR	0
RAATS	0.001		0	NR	NR	NR	NR	0
PRP	0.001		0	NR	NR	NR	NR	0
PADS	0.001		0	NR	NR	NR	NR	0
ICIS	0.001		0	NR	NR	NR	NR	0
FTTS	0.001		0	NR	NR	NR	NR	0
MLTS	0.001		0	NR	NR	NR	NR	0
COAL ASH DOE	0.001		0	NR	NR	NR	NR	0
COAL ASH EPA	0.500		0	0	0	NR	NR	0
PCB TRANSFORMER	0.001		0	NR	NR	NR	NR	0
RADINFO	0.001		0	NR	NR	NR	NR	0
HIST FTTS	0.001		0	NR	NR	NR	NR	0
DOT OPS	0.001		0	NR	NR	NR	NR	0
CONSENT	1.000		0	0	0	0	NR	0
INDIAN RESERV	0.001		0	NR	NR	NR	NR	0
FUSRAP	1.000		0	0	0	0	NR	0
UMTRA	0.500		0	0	0	NR	NR	0
LEAD SMELTERS	0.001		0	NR	NR	NR	NR	0
US AIRS	0.001		0	NR	NR	NR	NR	0
US MINES	0.250		1	0	NR	NR	NR	1
ABANDONED MINES	0.001		0	NR	NR	NR	NR	0
FINDS	0.001		0	NR	NR	NR	NR	0
UXO	1.000		0	0	0	0	NR	0
ECHO	0.001		0	NR	NR	NR	NR	0
DOCKET HWC	0.001		0	NR	NR	NR	NR	0
FUELS PROGRAM	0.250		0	0	NR	NR	NR	0
CA BOND EXP. PLAN	1.000		0	0	0	0	NR	0
Cortese	0.500		0	0	0	NR	NR	0
CUPA Listings	0.250		1	1	NR	NR	NR	2
DRYCLEANERS	0.250		0	0	NR	NR	NR	0
EMI	0.001		0	NR	NR	NR	NR	0
ENF	0.001		0	NR	NR	NR	NR	0
Financial Assurance	0.001		0	NR	NR	NR	NR	0
HAZNET	0.001		0	NR	NR	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
ICE	0.001		0	NR	NR	NR	NR	0
HIST CORTESE	0.500		0	0	0	NR	NR	0
HWP	1.000		0	0	0	0	NR	0
HWT	0.250		0	0	NR	NR	NR	0
MINES	0.001		0	NR	NR	NR	NR	0
MWMP	0.250		0	0	NR	NR	NR	0
NPDES	0.001		0	NR	NR	NR	NR	0
PEST LIC	0.001		0	NR	NR	NR	NR	0
PROC	0.500		0	0	0	NR	NR	0
Notify 65	1.000		0	0	0	0	NR	0
UIC	0.001		0	NR	NR	NR	NR	0
WASTEWATER PITS	0.500		0	0	0	NR	NR	0
WDS	0.001		0	NR	NR	NR	NR	0
WIP	0.250		0	0	NR	NR	NR	0

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP	1.000		0	0	0	0	NR	0
EDR Hist Auto	0.125		0	NR	NR	NR	NR	0
EDR Hist Cleaner	0.125		0	NR	NR	NR	NR	0

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

RGA LF	0.001		0	NR	NR	NR	NR	0
RGA LUST	0.001		0	NR	NR	NR	NR	0

- Totals --		0	4	4	1	0	0	9
-------------	--	---	---	---	---	---	---	---

NOTES:

TP = Target Property

NR = Not Requested at this Search Distance

Sites may be listed in more than one database

Map ID
Direction
Distance
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number
EPA ID Number

DOD
Region
ESE
1/4-1/2
2292 ft.

CAMP ROBERTS MILITARY RESERVATION
CAMP ROBERTS MILITARY RES (County), CA

DOD **CUSA138318**
N/A

DOD:
Feature 1: Army DOD
Feature 2: Not reported
Feature 3: Not reported
URL: Not reported
Name 1: Camp Roberts Military Reservation
Name 2: Not reported
Name 3: Not reported
State: CA
DOD Site: Yes
Tile name: CASAN_LUIS_OBISPO

1
BRADLEY MINERALS 2-6
65100 BRADLEY RD
BRADLEY, CA 93426

< 1/8
1 ft.

CUPA Listings **S110741169**
N/A

Relative:
Lower

Actual:
489 ft.

CUPA MONTEREY:
Facility Id: FA0821850
Region: MONTEREY
Program/Element Code: 5040
Program/Element: BASE FEE-HAZARDOUS MATERIALS REGISTRATION
Billing Status: ACTIVE, BILLABLE
EDR Link ID: FA0821850
Record ID: PR0625439
Last Activity Date: 11/06/2015
Current Inspection Date: 11/06/2016
Mailing Address: 1350 Kern St.
Mailing City State Zip: Taft, ca 93268
Program Identifier: HAZMAT
Prior Inspection Date: 08/10/2017
Owner ID: OW0809111
Last Billing Date: 05/26/2016
Last Payment Date: 06/30/2015
Last Payment Amount: 555.00
Total Fee Amount: 548.00
Total Amount Paid: Not reported
Units: Not reported
Financial Status: (none)

A2
East
< 1/8
0.082 mi.
431 ft.

BRADLEY TRANSFER STATION
OFF EL CAMINO-BRADLEY RD
BRADLEY, CA

Site 1 of 2 in cluster A

SWF/LF **S102361349**
N/A

Relative:
Higher

Actual:
529 ft.

SWF/LF (SWIS):
Region: STATE
Facility ID: 27-AA-0017
Lat/Long: 35.86408 / -120.80606
Owner Name: Orradre M T - Estate
Owner Telephone: 4086272339

Map ID
Direction
Distance
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number
EPA ID Number

BRADLEY TRANSFER STATION (Continued)

S102361349

Owner Address: Not reported
Owner Address2: Star Route, Box 65
Owner City,St,Zip: San Ardo, CA 93450
Operational Status: Active
Operator: County Of Monterey Public Works
Operator Phone: 8317554800
Operator Address: Not reported
Operator Address2: 337 Melody Lane
Operator City,St,Zip: Salinas, CA 93901
Permit Date: 10/16/1996
Permit Status: Notification
Permitted Acreage: Not reported
Activity: Limited Volume Transfer Operation
Regulation Status: Notification
Landuse Name: Open Space - Irrigated
GIS Source: GPS
Category: Transfer/Processing
Unit Number: 01
Inspection Frequency: Quarterly
Accepted Waste: Mixed municipal
Closure Date: Not reported
Closure Type: Not reported
Disposal Acreage: Not reported
SWIS Num: 27-AA-0017
Waste Discharge Requirement Num: Not reported
Program Type: Not reported
Permitted Throughput with Units: 60
Actual Throughput with Units: Cu Yards/day
Permitted Capacity with Units: Not reported
Remaining Capacity: Not reported
Remaining Capacity with Units: Not reported
Lat/Long: 35.86408 / -120.80606

A3
East
< 1/8
0.082 mi.
431 ft.

BRADLEY SANITARY LANDFILL
OFF EL CAMINO-BRADLEY/1/2 MI W BRADLEY
BRADLEY, CA

SWF/LF S102361339
N/A

Site 2 of 2 in cluster A

Relative:
Higher

SWF/LF (SWIS):
Region: STATE
Facility ID: 27-AA-0002
Lat/Long: 35.86339 / -120.80761
Owner Name: Orradre M T - Estate
Owner Telephone: 4086272339
Owner Address: Not reported
Owner Address2: Star Route, Box 65
Owner City,St,Zip: San Ardo, CA 93450
Operational Status: Closed
Operator: Not reported
Operator Phone: Not reported
Operator Address: Not reported
Operator Address2: Not reported
Operator City,St,Zip: Not reported
Permit Date: Not reported
Permit Status: Not reported
Permitted Acreage: \$0.00
Activity: Solid Waste Disposal Site

Actual:
529 ft.

Map ID
Direction
Distance
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number
EPA ID Number

BRADLEY SANITARY LANDFILL (Continued)

S102361339

Regulation Status: Permitted
Landuse Name: Not reported
GIS Source: GPS
Category: Disposal
Unit Number: 01
Inspection Frequency: Quarterly
Accepted Waste: Not reported
Closure Date: Not reported
Closure Type: Not reported
Disposal Acreage: \$0.00
SWIS Num: 27-AA-0002
Waste Discharge Requirement Num: Not reported
Program Type: Not reported
Permitted Throughput with Units: 0
Actual Throughput with Units: Not reported
Permitted Capacity with Units: 0
Remaining Capacity: 0
Remaining Capacity with Units: Not reported
Lat/Long: 35.86339 / -120.80761

4
South
< 1/8
0.087 mi.
459 ft.

HANSON AGGREGATES MID-PACIFIC, INC.

US MINES 1011125751
N/A

SAN LUIS OBISPO (County), CA

Relative:
Higher

US MINES:
Mine ID: 0401616
SIC code(s): 144200 000000 000000 000000 000000 000000
Entity name: SANTA MARGARITA QUARRY
Company: HANSON AGGREGATES MID-PACIFIC, INC.
Status: 1
Status date: 19740423
Operation Class: non-Coal Mining
Number of shops: 0
Number of plants: 0
Latitude: 35 51 42
Longitude: 120 48 37

Actual:
511 ft.

Violations Details:
Violation Number: 6440967
Date Issued: 12/03/2008
Mine Status: Active
Status Date: 04/23/1974
Action Type: 104(a)
Date Abated: 12/03/2008
Citation/Order: Citation
Sig and Sub Designation: Y
Proposed Penalty: 285.00
Paid Penalty: 285.00
Assessment Status code: Closed
Assess. Case Status code: Proposed
Assessment Amount: 285.00
Year: 2008

Violation Number: 6440968
Date Issued: 12/03/2008

Map ID
Direction
Distance
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number
EPA ID Number

HANSON AGGREGATES MID-PACIFIC, INC. (Continued)

1011125751

Mine Status: Active
Status Date: 04/23/1974
Action Type: 104(a)
Date Abated: 12/03/2008
Citation/Order: Citation
Sig and Sub Designation: N
Proposed Penalty: 100.00
Paid Penalty: 100.00
Assessment Status code: Closed
Assess. Case Status code: Proposed
Assessment Amount: 100.00
Year: 2008

Violation Number: 6440966
Date Issued: 12/03/2008
Mine Status: Active
Status Date: 04/23/1974
Action Type: 104(a)
Date Abated: 12/03/2008
Citation/Order: Citation
Sig and Sub Designation: N
Proposed Penalty: 100.00
Paid Penalty: 100.00
Assessment Status code: Closed
Assess. Case Status code: Proposed
Assessment Amount: 100.00
Year: 2008

Violation Number: 6484683
Date Issued: 10/15/2015
Mine Status: Active
Status Date: 04/23/1974
Action Type: 104(a)
Date Abated: 10/15/2015
Citation/Order: Citation
Sig and Sub Designation: N
Proposed Penalty: 285.00
Paid Penalty: 285.00
Assessment Status code: Closed
Assess. Case Status code: Proposed
Assessment Amount: 285.00
Year: 2015

Violation Number: 6484681
Date Issued: 10/14/2015
Mine Status: Active
Status Date: 04/23/1974
Action Type: 104(a)
Date Abated: 10/14/2015
Citation/Order: Citation
Sig and Sub Designation: N
Proposed Penalty: 285.00
Paid Penalty: 0.00
Assessment Status code: Received
Assess. Case Status code: Proposed
Assessment Amount: 285.00
Year: 2015

Map ID
Direction
Distance
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number
EPA ID Number

HANSON AGGREGATES MID-PACIFIC, INC. (Continued)

1011125751

Violation Number: 6484680
Date Issued: 10/14/2015
Mine Status: Active
Status Date: 04/23/1974
Action Type: 104(a)
Date Abated: 10/14/2015
Citation/Order: Citation
Sig and Sub Designation: N
Proposed Penalty: 285.00
Paid Penalty: 285.00
Assessment Status code: Closed
Assess. Case Status code: Proposed
Assessment Amount: 285.00
Year: 2015

Violation Number: 6484679
Date Issued: 10/14/2015
Mine Status: Active
Status Date: 04/23/1974
Action Type: 104(a)
Date Abated: 10/14/2015
Citation/Order: Citation
Sig and Sub Designation: Y
Proposed Penalty: 1,412.00
Paid Penalty: 1,412.00
Assessment Status code: Closed
Assess. Case Status code: Proposed
Assessment Amount: 1,412.00
Year: 2015

Violation Number: 6484682
Date Issued: 10/14/2015
Mine Status: Active
Status Date: 04/23/1974
Action Type: 104(a)
Date Abated: 10/14/2015
Citation/Order: Citation
Sig and Sub Designation: Y
Proposed Penalty: 1,412.00
Paid Penalty: 1,412.00
Assessment Status code: Closed
Assess. Case Status code: Proposed
Assessment Amount: 1,412.00
Year: 2015

Violation Number: 8689634
Date Issued: 10/02/2012
Mine Status: Active
Status Date: 04/23/1974
Action Type: 104(a)
Date Abated: 10/23/2012
Citation/Order: Citation
Sig and Sub Designation: N
Proposed Penalty: 263
Paid Penalty: 263
Assessment Status code: Closed
Assess. Case Status code: Proposed

Map ID
Direction
Distance
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number
EPA ID Number

HANSON AGGREGATES MID-PACIFIC, INC. (Continued)

1011125751

Assessment Amount: 263
Year: 2012

Violation Number: 8689632
Date Issued: 10/02/2012
Mine Status: Active
Status Date: 04/23/1974
Action Type: 104(a)
Date Abated: 10/03/2012
Citation/Order: Citation
Sig and Sub Designation: Y
Proposed Penalty: 2901
Paid Penalty: 2901
Assessment Status code: Closed
Assess. Case Status code: Proposed
Assessment Amount: 2901
Year: 2012

Violation Number: 8689633
Date Issued: 10/02/2012
Mine Status: Active
Status Date: 04/23/1974
Action Type: 104(a)
Date Abated: 10/03/2012
Citation/Order: Citation
Sig and Sub Designation: N
Proposed Penalty: 176
Paid Penalty: 176
Assessment Status code: Closed
Assess. Case Status code: Proposed
Assessment Amount: 176
Year: 2012

Violation Number: 6354815
Date Issued: 09/23/2003
Mine Status: Active
Status Date: 04/23/1974
Action Type: 104(a)
Date Abated: 09/23/2003
Citation/Order: Citation
Sig and Sub Designation: N
Proposed Penalty: 60
Paid Penalty: 60
Assessment Status code: Closed
Assess. Case Status code: Proposed
Assessment Amount: 60
Year: 2003

Violation Number: 6339799
Date Issued: 09/11/2002
Mine Status: Active
Status Date: 04/23/1974
Action Type: 104(a)
Date Abated: 09/11/2002
Citation/Order: Citation
Sig and Sub Designation: N
Proposed Penalty: 55.00

Map ID
Direction
Distance
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number
EPA ID Number

HANSON AGGREGATES MID-PACIFIC, INC. (Continued)

1011125751

Paid Penalty: 55.00
Assessment Status code: Closed
Assess. Case Status code: Proposed
Assessment Amount: 55.00
Year: 2002

Violation Number: 6339798
Date Issued: 09/11/2002
Mine Status: Active
Status Date: 04/23/1974
Action Type: 104(a)
Date Abated: Not reported
Citation/Order: Citation
Sig and Sub Designation: Y
Proposed Penalty: Not reported
Paid Penalty: Not reported
Assessment Status code: Not reported
Assess. Case Status code: Not reported
Assessment Amount: Not reported
Year: 2002

Violation Number: 6339797
Date Issued: 09/11/2002
Mine Status: Active
Status Date: 04/23/1974
Action Type: 104(a)
Date Abated: 09/11/2002
Citation/Order: Citation
Sig and Sub Designation: N
Proposed Penalty: 55.00
Paid Penalty: 55.00
Assessment Status code: Closed
Assess. Case Status code: Proposed
Assessment Amount: 55.00
Year: 2002

Violation Number: 6339800
Date Issued: 09/11/2002
Mine Status: Active
Status Date: 04/23/1974
Action Type: 104(a)
Date Abated: 09/11/2002
Citation/Order: Citation
Sig and Sub Designation: N
Proposed Penalty: 55.00
Paid Penalty: 55.00
Assessment Status code: Closed
Assess. Case Status code: Proposed
Assessment Amount: 55.00
Year: 2002

Violation Number: 8781516
Date Issued: 09/04/2014
Mine Status: Active
Status Date: 04/23/1974
Action Type: 104(a)
Date Abated: 09/09/2014

Map ID
Direction
Distance
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number
EPA ID Number

HANSON AGGREGATES MID-PACIFIC, INC. (Continued)

1011125751

Citation/Order: Citation
Sig and Sub Designation: N
Proposed Penalty: 100.00
Paid Penalty: 100.00
Assessment Status code: Closed
Assess. Case Status code: Proposed
Assessment Amount: 100.00
Year: 2014

Violation Number: 8781515
Date Issued: 09/04/2014
Mine Status: Active
Status Date: 04/23/1974
Action Type: 104(a)
Date Abated: 09/09/2014
Citation/Order: Citation
Sig and Sub Designation: N
Proposed Penalty: 100.00
Paid Penalty: 100.00
Assessment Status code: Closed
Assess. Case Status code: Proposed
Assessment Amount: 100.00
Year: 2014

Violation Number: 8781513
Date Issued: 09/04/2014
Mine Status: Active
Status Date: 04/23/1974
Action Type: 104(a)
Date Abated: 09/04/2014
Citation/Order: Citation
Sig and Sub Designation: N
Proposed Penalty: 127.00
Paid Penalty: 127.00
Assessment Status code: Closed
Assess. Case Status code: Proposed
Assessment Amount: 127.00
Year: 2014

Violation Number: 8781514
Date Issued: 09/04/2014
Mine Status: Active
Status Date: 04/23/1974
Action Type: 104(a)
Date Abated: 09/04/2014
Citation/Order: Citation
Sig and Sub Designation: Y
Proposed Penalty: 634.00
Paid Penalty: 634.00
Assessment Status code: Closed
Assess. Case Status code: Proposed
Assessment Amount: 634.00
Year: 2014

Map ID
Direction
Distance
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number
EPA ID Number

HANSON AGGREGATES MID-PACIFIC, INC. (Continued)

1011125751

[Click this hyperlink](#) while viewing on your computer to access
67 additional US_MINES: record(s) in the EDR Site Report.

B5
East
1/8-1/4
0.245 mi.
1293 ft.

65789 BRADLEY RD
BRADLEY, CA
Site 1 of 3 in cluster B

AST A100323578
N/A

Relative:
Higher

AST:

Actual:
546 ft.

Certified Unified Program Agencies: Monterey
Owner: DEPT OF FORESTRY BRADLEY FFS
Total Gallons: 2,000
CERSID: Not reported
Facility ID: Not reported
Business Name: Not reported
Phone: Not reported
Fax: Not reported
Mailing Address: Not reported
Mailing Address City: Not reported
Mailing Address State: Not reported
Mailing Address Zip Code: Not reported
Operator Name: Not reported
Operator Phone: Not reported
Owner Phone: Not reported
Owner Mail Address: Not reported
Owner State: Not reported
Owner Zip Code: Not reported
Owner Country: Not reported
Property Owner Name: Not reported
Property Owner Phone: Not reported
Property Owner Mailing Address: Not reported
Property Owner City: Not reported
Property Owner Stat : Not reported
Property Owner Zip Code: Not reported
Property Owner Country: Not reported
EPAID: Not reported

B6
East
1/8-1/4
0.245 mi.
1293 ft.

DEPT OF FORESTRY BRADLEY FFS
65789 BRADLEY RD
BRADLEY, CA 93426
Site 2 of 3 in cluster B

AST S110739507
CUPA Listings N/A

Relative:
Higher

AST:

Actual:
546 ft.

Certified Unified Program Agencies: Not reported
Owner: STATE OF CALIFORNIA
Total Gallons: Not reported
CERSID: 10431091
Facility ID: Not reported
Business Name: DEPT OF FORESTRY BRADLEY FFS
Phone: (805) 472-2244
Fax: (831) 333-2655
Mailing Address: 2221 GARDEN RD
Mailing Address City: MONTEREY
Mailing Address State: CA

Map ID
Direction
Distance
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number
EPA ID Number

DEPT OF FORESTRY BRADLEY FFS (Continued)

S110739507

Mailing Address Zip Code: Not reported
Operator Name: STATE OF CALIFORNIA
Operator Phone: (831) 333-2600
Owner Phone: 831-333-2600
Owner Mail Address: 2221 GARDEN RD
Owner State: CA
Owner Zip Code: 93940
Owner Country: United States
Property Owner Name: Not reported
Property Owner Phone: Not reported
Property Owner Mailing Address: Not reported
Property Owner City: Not reported
Property Owner Stat : Not reported
Property Owner Zip Code: Not reported
Property Owner Country: Not reported
EPAID: Not reported

CUPA MONTEREY:

Facility Id: FA0811593
Region: MONTEREY
Program/Element Code: 5040
Program/Element: BASE FEE-HAZARDOUS MATERIALS REGISTRATION
Billing Status: ACTIVE, EXEMPT FROM BILLING
EDR Link ID: FA0811593
Record ID: PR0601452
Last Activity Date: 11/18/2015
Current Inspection Date: 11/17/2016
Mailing Address: 2221 GARDEN RD
Mailing City State Zip: MONTEREY, CA 93940-0000
Program Identifier: HAZMAT
Prior Inspection Date: 11/18/2016
Owner ID: OW0800903
Last Billing Date: 05/26/2016
Last Payment Date: 06/18/2015
Last Payment Amount: 774.00
Total Fee Amount: 499.00
Total Amount Paid: 510.00
Units: 1
Financial Status: Financially compliant

B7
East
1/8-1/4
0.247 mi.
1304 ft.

BRADLEY SOLID WASTE LANDFILL
BRADLEY AT US 101 AND SALINAS ROAD
MONTEREY, CA 93940

ENVIROSTOR **S101481331**
N/A

Site 3 of 3 in cluster B

Relative:
Higher

ENVIROSTOR:
Facility ID: 27490022
Status: Refer: RWQCB
Status Date: 06/08/1994
Site Code: Not reported
Site Type: Historical
Site Type Detailed: * Historical
Acres: Not reported
NPL: NO
Regulatory Agencies: NONE SPECIFIED
Lead Agency: NONE SPECIFIED

Actual:
546 ft.

Map ID
Direction
Distance
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number
EPA ID Number

BRADLEY SOLID WASTE LANDFILL (Continued)

S101481331

Program Manager: Not reported
Supervisor: Referred - Not Assigned
Division Branch: Cleanup Berkeley
Assembly: Not reported
Senate: Not reported
Special Program: Not reported
Restricted Use: NO
Site Mgmt Req: NONE SPECIFIED
Funding: Not reported
Latitude: 35.86325
Longitude: -120.8032
APN: NONE SPECIFIED
Past Use: NONE SPECIFIED
Potential COC: * HOUSEHOLD WASTES
Confirmed COC: NONE SPECIFIED
Potential Description: NONE SPECIFIED
Alias Name: 27490022
Alias Type: Envirostor ID Number

Completed Info:

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Site Screening
Completed Date: 09/28/1987
Comments: SITE SCREENING DONE RWQCB REQUIRED CLOSURE IN 1978 ON RWQCB CALDERON
SWAT #5

Future Area Name: Not reported
Future Sub Area Name: Not reported
Future Document Type: Not reported
Future Due Date: Not reported
Schedule Area Name: Not reported
Schedule Sub Area Name: Not reported
Schedule Document Type: Not reported
Schedule Due Date: Not reported
Schedule Revised Date: Not reported

Count: 0 records.

ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
NO SITES FOUND					

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

To maintain currency of the following federal and state databases, EDR contacts the appropriate governmental agency on a monthly or quarterly basis, as required.

Number of Days to Update: Provides confirmation that EDR is reporting records that have been updated within 90 days from the date the government agency made the information available to the public.

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL: National Priority List

National Priorities List (Superfund). The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As such, EDR provides polygon coverage for over 1,000 NPL site boundaries produced by EPA's Environmental Photographic Interpretation Center (EPIC) and regional EPA offices.

Date of Government Version: 05/30/2017	Source: EPA
Date Data Arrived at EDR: 06/08/2017	Telephone: N/A
Date Made Active in Reports: 09/15/2017	Last EDR Contact: 10/05/2017
Number of Days to Update: 99	Next Scheduled EDR Contact: 01/15/2018
	Data Release Frequency: Quarterly

NPL Site Boundaries

Sources:

EPA's Environmental Photographic Interpretation Center (EPIC)
Telephone: 202-564-7333

EPA Region 1
Telephone 617-918-1143

EPA Region 6
Telephone: 214-655-6659

EPA Region 3
Telephone 215-814-5418

EPA Region 7
Telephone: 913-551-7247

EPA Region 4
Telephone 404-562-8033

EPA Region 8
Telephone: 303-312-6774

EPA Region 5
Telephone 312-886-6686

EPA Region 9
Telephone: 415-947-4246

EPA Region 10
Telephone 206-553-8665

Proposed NPL: Proposed National Priority List Sites

A site that has been proposed for listing on the National Priorities List through the issuance of a proposed rule in the Federal Register. EPA then accepts public comments on the site, responds to the comments, and places on the NPL those sites that continue to meet the requirements for listing.

Date of Government Version: 05/30/2017	Source: EPA
Date Data Arrived at EDR: 06/09/2017	Telephone: N/A
Date Made Active in Reports: 09/15/2017	Last EDR Contact: 10/05/2017
Number of Days to Update: 98	Next Scheduled EDR Contact: 01/15/2018
	Data Release Frequency: Quarterly

NPL LIENS: Federal Superfund Liens

Federal Superfund Liens. Under the authority granted the USEPA by CERCLA of 1980, the USEPA has the authority to file liens against real property in order to recover remedial action expenditures or when the property owner received notification of potential liability. USEPA compiles a listing of filed notices of Superfund Liens.

Date of Government Version: 10/15/1991	Source: EPA
Date Data Arrived at EDR: 02/02/1994	Telephone: 202-564-4267
Date Made Active in Reports: 03/30/1994	Last EDR Contact: 08/15/2011
Number of Days to Update: 56	Next Scheduled EDR Contact: 11/28/2011
	Data Release Frequency: No Update Planned

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Federal Delisted NPL site list

Delisted NPL: National Priority List Deletions

The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425(e), sites may be deleted from the NPL where no further response is appropriate.

Date of Government Version: 05/30/2017	Source: EPA
Date Data Arrived at EDR: 06/09/2017	Telephone: N/A
Date Made Active in Reports: 09/15/2017	Last EDR Contact: 10/05/2017
Number of Days to Update: 98	Next Scheduled EDR Contact: 01/15/2018
	Data Release Frequency: Quarterly

Federal CERCLIS list

FEDERAL FACILITY: Federal Facility Site Information listing

A listing of National Priority List (NPL) and Base Realignment and Closure (BRAC) sites found in the Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) Database where EPA Federal Facilities Restoration and Reuse Office is involved in cleanup activities.

Date of Government Version: 11/07/2016	Source: Environmental Protection Agency
Date Data Arrived at EDR: 01/05/2017	Telephone: 703-603-8704
Date Made Active in Reports: 04/07/2017	Last EDR Contact: 10/06/2017
Number of Days to Update: 92	Next Scheduled EDR Contact: 01/15/2018
	Data Release Frequency: Varies

SEMS: Superfund Enterprise Management System

SEMS (Superfund Enterprise Management System) tracks hazardous waste sites, potentially hazardous waste sites, and remedial activities performed in support of EPA's Superfund Program across the United States. The list was formerly known as CERCLIS, renamed to SEMS by the EPA in 2015. The list contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). This dataset also contains sites which are either proposed to or on the National Priorities List (NPL) and the sites which are in the screening and assessment phase for possible inclusion on the NPL.

Date of Government Version: 07/11/2017	Source: EPA
Date Data Arrived at EDR: 07/21/2017	Telephone: 800-424-9346
Date Made Active in Reports: 10/06/2017	Last EDR Contact: 10/20/2017
Number of Days to Update: 77	Next Scheduled EDR Contact: 01/29/2018
	Data Release Frequency: Quarterly

Federal CERCLIS NFRAP site list

SEMS-ARCHIVE: Superfund Enterprise Management System Archive

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

SEMS-ARCHIVE (Superfund Enterprise Management System Archive) tracks sites that have no further interest under the Federal Superfund Program based on available information. The list was formerly known as the CERCLIS-NFRAP, renamed to SEMS ARCHIVE by the EPA in 2015. EPA may perform a minimal level of assessment work at a site while it is archived if site conditions change and/or new information becomes available. Archived sites have been removed and archived from the inventory of SEMS sites. Archived status indicates that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list the site on the National Priorities List (NPL), unless information indicates this decision was not appropriate or other considerations require a recommendation for listing at a later time. The decision does not necessarily mean that there is no hazard associated with a given site; it only means that, based upon available information, the location is not judged to be potential NPL site.

Date of Government Version: 07/11/2017	Source: EPA
Date Data Arrived at EDR: 07/28/2017	Telephone: 800-424-9346
Date Made Active in Reports: 10/06/2017	Last EDR Contact: 10/20/2017
Number of Days to Update: 70	Next Scheduled EDR Contact: 01/29/2018
	Data Release Frequency: Quarterly

Federal RCRA CORRACTS facilities list

CORRACTS: Corrective Action Report

CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

Date of Government Version: 09/13/2017	Source: EPA
Date Data Arrived at EDR: 09/26/2017	Telephone: 800-424-9346
Date Made Active in Reports: 10/06/2017	Last EDR Contact: 09/26/2017
Number of Days to Update: 10	Next Scheduled EDR Contact: 01/08/2018
	Data Release Frequency: Quarterly

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF: RCRA - Treatment, Storage and Disposal

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Transporters are individuals or entities that move hazardous waste from the generator offsite to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

Date of Government Version: 09/13/2017	Source: Environmental Protection Agency
Date Data Arrived at EDR: 09/26/2017	Telephone: (415) 495-8895
Date Made Active in Reports: 10/06/2017	Last EDR Contact: 09/26/2017
Number of Days to Update: 10	Next Scheduled EDR Contact: 01/08/2018
	Data Release Frequency: Quarterly

Federal RCRA generators list

RCRA-LQG: RCRA - Large Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Large quantity generators (LQGs) generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month.

Date of Government Version: 09/13/2017	Source: Environmental Protection Agency
Date Data Arrived at EDR: 09/26/2017	Telephone: (415) 495-8895
Date Made Active in Reports: 10/06/2017	Last EDR Contact: 09/26/2017
Number of Days to Update: 10	Next Scheduled EDR Contact: 01/08/2018
	Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

RCRA-SQG: RCRA - Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month.

Date of Government Version: 09/13/2017	Source: Environmental Protection Agency
Date Data Arrived at EDR: 09/26/2017	Telephone: (415) 495-8895
Date Made Active in Reports: 10/06/2017	Last EDR Contact: 09/26/2017
Number of Days to Update: 10	Next Scheduled EDR Contact: 01/08/2018
	Data Release Frequency: Quarterly

RCRA-CESQG: RCRA - Conditionally Exempt Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Conditionally exempt small quantity generators (CESQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month.

Date of Government Version: 09/13/2017	Source: Environmental Protection Agency
Date Data Arrived at EDR: 09/26/2017	Telephone: (415) 495-8895
Date Made Active in Reports: 10/06/2017	Last EDR Contact: 09/26/2017
Number of Days to Update: 10	Next Scheduled EDR Contact: 01/08/2018
	Data Release Frequency: Quarterly

Federal institutional controls / engineering controls registries

LUCIS: Land Use Control Information System

LUCIS contains records of land use control information pertaining to the former Navy Base Realignment and Closure properties.

Date of Government Version: 05/22/2017	Source: Department of the Navy
Date Data Arrived at EDR: 06/13/2017	Telephone: 843-820-7326
Date Made Active in Reports: 09/15/2017	Last EDR Contact: 08/10/2017
Number of Days to Update: 94	Next Scheduled EDR Contact: 11/27/2017
	Data Release Frequency: Varies

US ENG CONTROLS: Engineering Controls Sites List

A listing of sites with engineering controls in place. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health.

Date of Government Version: 08/10/2017	Source: Environmental Protection Agency
Date Data Arrived at EDR: 08/30/2017	Telephone: 703-603-0695
Date Made Active in Reports: 10/13/2017	Last EDR Contact: 08/30/2017
Number of Days to Update: 44	Next Scheduled EDR Contact: 12/11/2017
	Data Release Frequency: Varies

US INST CONTROL: Sites with Institutional Controls

A listing of sites with institutional controls in place. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls.

Date of Government Version: 08/10/2017	Source: Environmental Protection Agency
Date Data Arrived at EDR: 08/30/2017	Telephone: 703-603-0695
Date Made Active in Reports: 10/13/2017	Last EDR Contact: 08/30/2017
Number of Days to Update: 44	Next Scheduled EDR Contact: 12/11/2017
	Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Federal ERNS list

ERNS: Emergency Response Notification System

Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances.

Date of Government Version: 09/18/2017

Date Data Arrived at EDR: 09/21/2017

Date Made Active in Reports: 10/13/2017

Number of Days to Update: 22

Source: National Response Center, United States Coast Guard

Telephone: 202-267-2180

Last EDR Contact: 09/21/2017

Next Scheduled EDR Contact: 01/08/2018

Data Release Frequency: Quarterly

State- and tribal - equivalent NPL

RESPONSE: State Response Sites

Identifies confirmed release sites where DTSC is involved in remediation, either in a lead or oversight capacity.

These confirmed release sites are generally high-priority and high potential risk.

Date of Government Version: 07/31/2017

Date Data Arrived at EDR: 08/01/2017

Date Made Active in Reports: 08/15/2017

Number of Days to Update: 14

Source: Department of Toxic Substances Control

Telephone: 916-323-3400

Last EDR Contact: 08/01/2017

Next Scheduled EDR Contact: 11/13/2017

Data Release Frequency: Quarterly

State- and tribal - equivalent CERCLIS

ENVIROSTOR: EnviroStor Database

The Department of Toxic Substances Control's (DTSC's) Site Mitigation and Brownfields Reuse Program's (SMBRP's) EnviroStor database identifies sites that have known contamination or sites for which there may be reasons to investigate further. The database includes the following site types: Federal Superfund sites (National Priorities List (NPL)); State Response, including Military Facilities and State Superfund; Voluntary Cleanup; and School sites. EnviroStor provides similar information to the information that was available in CalSites, and provides additional site information, including, but not limited to, identification of formerly-contaminated properties that have been released for reuse, properties where environmental deed restrictions have been recorded to prevent inappropriate land uses, and risk characterization information that is used to assess potential impacts to public health and the environment at contaminated sites.

Date of Government Version: 07/31/2017

Date Data Arrived at EDR: 08/01/2017

Date Made Active in Reports: 08/15/2017

Number of Days to Update: 14

Source: Department of Toxic Substances Control

Telephone: 916-323-3400

Last EDR Contact: 08/01/2017

Next Scheduled EDR Contact: 11/13/2017

Data Release Frequency: Quarterly

State and tribal landfill and/or solid waste disposal site lists

SWF/LF (SWIS): Solid Waste Information System

Active, Closed and Inactive Landfills. SWF/LF records typically contain an inventory of solid waste disposal facilities or landfills. These may be active or inactive facilities or open dumps that failed to meet RCRA Section 4004 criteria for solid waste landfills or disposal sites.

Date of Government Version: 08/14/2017

Date Data Arrived at EDR: 08/17/2017

Date Made Active in Reports: 09/21/2017

Number of Days to Update: 35

Source: Department of Resources Recycling and Recovery

Telephone: 916-341-6320

Last EDR Contact: 08/17/2017

Next Scheduled EDR Contact: 11/27/2017

Data Release Frequency: Quarterly

State and tribal leaking storage tank lists

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

LUST: Leaking Underground Fuel Tank Report (GEOTRACKER)

Leaking Underground Storage Tank (LUST) Sites included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 06/12/2017
Date Data Arrived at EDR: 06/14/2017
Date Made Active in Reports: 08/22/2017
Number of Days to Update: 69

Source: State Water Resources Control Board
Telephone: see region list
Last EDR Contact: 09/12/2017
Next Scheduled EDR Contact: 12/25/2017
Data Release Frequency: Quarterly

LUST REG 2: Fuel Leak List

Leaking Underground Storage Tank locations. Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, Sonoma counties.

Date of Government Version: 09/30/2004
Date Data Arrived at EDR: 10/20/2004
Date Made Active in Reports: 11/19/2004
Number of Days to Update: 30

Source: California Regional Water Quality Control Board San Francisco Bay Region (2)
Telephone: 510-622-2433
Last EDR Contact: 09/19/2011
Next Scheduled EDR Contact: 01/02/2012
Data Release Frequency: Quarterly

LUST REG 9: Leaking Underground Storage Tank Report

Orange, Riverside, San Diego counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 03/01/2001
Date Data Arrived at EDR: 04/23/2001
Date Made Active in Reports: 05/21/2001
Number of Days to Update: 28

Source: California Regional Water Quality Control Board San Diego Region (9)
Telephone: 858-637-5595
Last EDR Contact: 09/26/2011
Next Scheduled EDR Contact: 01/09/2012
Data Release Frequency: No Update Planned

LUST REG 8: Leaking Underground Storage Tanks

California Regional Water Quality Control Board Santa Ana Region (8). For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 02/14/2005
Date Data Arrived at EDR: 02/15/2005
Date Made Active in Reports: 03/28/2005
Number of Days to Update: 41

Source: California Regional Water Quality Control Board Santa Ana Region (8)
Telephone: 909-782-4496
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: Varies

LUST REG 7: Leaking Underground Storage Tank Case Listing

Leaking Underground Storage Tank locations. Imperial, Riverside, San Diego, Santa Barbara counties.

Date of Government Version: 02/26/2004
Date Data Arrived at EDR: 02/26/2004
Date Made Active in Reports: 03/24/2004
Number of Days to Update: 27

Source: California Regional Water Quality Control Board Colorado River Basin Region (7)
Telephone: 760-776-8943
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

LUST REG 6V: Leaking Underground Storage Tank Case Listing

Leaking Underground Storage Tank locations. Inyo, Kern, Los Angeles, Mono, San Bernardino counties.

Date of Government Version: 06/07/2005
Date Data Arrived at EDR: 06/07/2005
Date Made Active in Reports: 06/29/2005
Number of Days to Update: 22

Source: California Regional Water Quality Control Board Victorville Branch Office (6)
Telephone: 760-241-7365
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: No Update Planned

LUST REG 6L: Leaking Underground Storage Tank Case Listing

For more current information, please refer to the State Water Resources Control Board's LUST database.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 09/09/2003
Date Data Arrived at EDR: 09/10/2003
Date Made Active in Reports: 10/07/2003
Number of Days to Update: 27

Source: California Regional Water Quality Control Board Lahontan Region (6)
Telephone: 530-542-5572
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: No Update Planned

LUST REG 5: Leaking Underground Storage Tank Database

Leaking Underground Storage Tank locations. Alameda, Alpine, Amador, Butte, Colusa, Contra Costa, Calveras, El Dorado, Fresno, Glenn, Kern, Kings, Lake, Lassen, Madera, Mariposa, Merced, Modoc, Napa, Nevada, Placer, Plumas, Sacramento, San Joaquin, Shasta, Solano, Stanislaus, Sutter, Tehama, Tulare, Tuolumne, Yolo, Yuba counties.

Date of Government Version: 07/01/2008
Date Data Arrived at EDR: 07/22/2008
Date Made Active in Reports: 07/31/2008
Number of Days to Update: 9

Source: California Regional Water Quality Control Board Central Valley Region (5)
Telephone: 916-464-4834
Last EDR Contact: 07/01/2011
Next Scheduled EDR Contact: 10/17/2011
Data Release Frequency: No Update Planned

LUST REG 4: Underground Storage Tank Leak List

Los Angeles, Ventura counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 09/07/2004
Date Data Arrived at EDR: 09/07/2004
Date Made Active in Reports: 10/12/2004
Number of Days to Update: 35

Source: California Regional Water Quality Control Board Los Angeles Region (4)
Telephone: 213-576-6710
Last EDR Contact: 09/06/2011
Next Scheduled EDR Contact: 12/19/2011
Data Release Frequency: No Update Planned

LUST REG 3: Leaking Underground Storage Tank Database

Leaking Underground Storage Tank locations. Monterey, San Benito, San Luis Obispo, Santa Barbara, Santa Cruz counties.

Date of Government Version: 05/19/2003
Date Data Arrived at EDR: 05/19/2003
Date Made Active in Reports: 06/02/2003
Number of Days to Update: 14

Source: California Regional Water Quality Control Board Central Coast Region (3)
Telephone: 805-542-4786
Last EDR Contact: 07/18/2011
Next Scheduled EDR Contact: 10/31/2011
Data Release Frequency: No Update Planned

LUST REG 1: Active Toxic Site Investigation

Del Norte, Humboldt, Lake, Mendocino, Modoc, Siskiyou, Sonoma, Trinity counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 02/01/2001
Date Data Arrived at EDR: 02/28/2001
Date Made Active in Reports: 03/29/2001
Number of Days to Update: 29

Source: California Regional Water Quality Control Board North Coast (1)
Telephone: 707-570-3769
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

INDIAN LUST R6: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in New Mexico and Oklahoma.

Date of Government Version: 04/24/2017
Date Data Arrived at EDR: 07/27/2017
Date Made Active in Reports: 10/06/2017
Number of Days to Update: 71

Source: EPA Region 6
Telephone: 214-665-6597
Last EDR Contact: 07/27/2017
Next Scheduled EDR Contact: 11/08/2017
Data Release Frequency: Varies

INDIAN LUST R7: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Iowa, Kansas, and Nebraska

Date of Government Version: 04/14/2017
Date Data Arrived at EDR: 07/27/2017
Date Made Active in Reports: 10/06/2017
Number of Days to Update: 71

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 07/27/2017
Next Scheduled EDR Contact: 11/08/2017
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

INDIAN LUST R8: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Colorado, Montana, North Dakota, South Dakota, Utah and Wyoming.

Date of Government Version: 05/01/2017	Source: EPA Region 8
Date Data Arrived at EDR: 07/27/2017	Telephone: 303-312-6271
Date Made Active in Reports: 10/13/2017	Last EDR Contact: 07/27/2017
Number of Days to Update: 78	Next Scheduled EDR Contact: 11/08/2017
	Data Release Frequency: Varies

INDIAN LUST R9: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Arizona, California, New Mexico and Nevada

Date of Government Version: 04/13/2017	Source: Environmental Protection Agency
Date Data Arrived at EDR: 07/27/2017	Telephone: 415-972-3372
Date Made Active in Reports: 10/13/2017	Last EDR Contact: 07/27/2017
Number of Days to Update: 78	Next Scheduled EDR Contact: 11/08/2017
	Data Release Frequency: Varies

INDIAN LUST R10: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Alaska, Idaho, Oregon and Washington.

Date of Government Version: 10/07/2016	Source: EPA Region 10
Date Data Arrived at EDR: 01/26/2017	Telephone: 206-553-2857
Date Made Active in Reports: 05/05/2017	Last EDR Contact: 07/27/2017
Number of Days to Update: 99	Next Scheduled EDR Contact: 11/08/2017
	Data Release Frequency: Quarterly

INDIAN LUST R1: Leaking Underground Storage Tanks on Indian Land

A listing of leaking underground storage tank locations on Indian Land.

Date of Government Version: 04/14/2017	Source: EPA Region 1
Date Data Arrived at EDR: 07/27/2017	Telephone: 617-918-1313
Date Made Active in Reports: 10/06/2017	Last EDR Contact: 07/27/2017
Number of Days to Update: 71	Next Scheduled EDR Contact: 11/08/2017
	Data Release Frequency: Varies

INDIAN LUST R5: Leaking Underground Storage Tanks on Indian Land

Leaking underground storage tanks located on Indian Land in Michigan, Minnesota and Wisconsin.

Date of Government Version: 04/26/2017	Source: EPA, Region 5
Date Data Arrived at EDR: 07/27/2017	Telephone: 312-886-7439
Date Made Active in Reports: 10/13/2017	Last EDR Contact: 07/27/2017
Number of Days to Update: 78	Next Scheduled EDR Contact: 11/08/2017
	Data Release Frequency: Varies

INDIAN LUST R4: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Florida, Mississippi and North Carolina.

Date of Government Version: 10/14/2016	Source: EPA Region 4
Date Data Arrived at EDR: 01/27/2017	Telephone: 404-562-8677
Date Made Active in Reports: 05/05/2017	Last EDR Contact: 07/28/2017
Number of Days to Update: 98	Next Scheduled EDR Contact: 11/08/2017
	Data Release Frequency: Semi-Annually

SLIC: Statewide SLIC Cases (GEOTRACKER)

Cleanup Program Sites (CPS; also known as Site Cleanups [SC] and formerly known as Spills, Leaks, Investigations, and Cleanups [SLIC] sites) included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 06/12/2017	Source: State Water Resources Control Board
Date Data Arrived at EDR: 06/14/2017	Telephone: 866-480-1028
Date Made Active in Reports: 08/23/2017	Last EDR Contact: 09/12/2017
Number of Days to Update: 70	Next Scheduled EDR Contact: 12/25/2017
	Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

SLIC REG 1: Active Toxic Site Investigations

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/03/2003
Date Data Arrived at EDR: 04/07/2003
Date Made Active in Reports: 04/25/2003
Number of Days to Update: 18

Source: California Regional Water Quality Control Board, North Coast Region (1)
Telephone: 707-576-2220
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

SLIC REG 2: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/30/2004
Date Data Arrived at EDR: 10/20/2004
Date Made Active in Reports: 11/19/2004
Number of Days to Update: 30

Source: Regional Water Quality Control Board San Francisco Bay Region (2)
Telephone: 510-286-0457
Last EDR Contact: 09/19/2011
Next Scheduled EDR Contact: 01/02/2012
Data Release Frequency: Quarterly

SLIC REG 3: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 05/18/2006
Date Data Arrived at EDR: 05/18/2006
Date Made Active in Reports: 06/15/2006
Number of Days to Update: 28

Source: California Regional Water Quality Control Board Central Coast Region (3)
Telephone: 805-549-3147
Last EDR Contact: 07/18/2011
Next Scheduled EDR Contact: 10/31/2011
Data Release Frequency: Semi-Annually

SLIC REG 4: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 11/17/2004
Date Data Arrived at EDR: 11/18/2004
Date Made Active in Reports: 01/04/2005
Number of Days to Update: 47

Source: Region Water Quality Control Board Los Angeles Region (4)
Telephone: 213-576-6600
Last EDR Contact: 07/01/2011
Next Scheduled EDR Contact: 10/17/2011
Data Release Frequency: Varies

SLIC REG 5: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/01/2005
Date Data Arrived at EDR: 04/05/2005
Date Made Active in Reports: 04/21/2005
Number of Days to Update: 16

Source: Regional Water Quality Control Board Central Valley Region (5)
Telephone: 916-464-3291
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: Semi-Annually

SLIC REG 6V: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 05/24/2005
Date Data Arrived at EDR: 05/25/2005
Date Made Active in Reports: 06/16/2005
Number of Days to Update: 22

Source: Regional Water Quality Control Board, Victorville Branch
Telephone: 619-241-6583
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: Semi-Annually

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

SLIC REG 6L: SLIC Sites

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/07/2004
Date Data Arrived at EDR: 09/07/2004
Date Made Active in Reports: 10/12/2004
Number of Days to Update: 35

Source: California Regional Water Quality Control Board, Lahontan Region
Telephone: 530-542-5574
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

SLIC REG 7: SLIC List

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 11/24/2004
Date Data Arrived at EDR: 11/29/2004
Date Made Active in Reports: 01/04/2005
Number of Days to Update: 36

Source: California Regional Quality Control Board, Colorado River Basin Region
Telephone: 760-346-7491
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

SLIC REG 8: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/03/2008
Date Data Arrived at EDR: 04/03/2008
Date Made Active in Reports: 04/14/2008
Number of Days to Update: 11

Source: California Region Water Quality Control Board Santa Ana Region (8)
Telephone: 951-782-3298
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: Semi-Annually

SLIC REG 9: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/10/2007
Date Data Arrived at EDR: 09/11/2007
Date Made Active in Reports: 09/28/2007
Number of Days to Update: 17

Source: California Regional Water Quality Control Board San Diego Region (9)
Telephone: 858-467-2980
Last EDR Contact: 08/08/2011
Next Scheduled EDR Contact: 11/21/2011
Data Release Frequency: Annually

State and tribal registered storage tank lists

FEMA UST: Underground Storage Tank Listing

A listing of all FEMA owned underground storage tanks.

Date of Government Version: 05/15/2017
Date Data Arrived at EDR: 05/30/2017
Date Made Active in Reports: 10/13/2017
Number of Days to Update: 136

Source: FEMA
Telephone: 202-646-5797
Last EDR Contact: 10/13/2017
Next Scheduled EDR Contact: 01/22/2018
Data Release Frequency: Varies

UST: Active UST Facilities

Active UST facilities gathered from the local regulatory agencies

Date of Government Version: 06/12/2017
Date Data Arrived at EDR: 06/14/2017
Date Made Active in Reports: 08/23/2017
Number of Days to Update: 70

Source: SWRCB
Telephone: 916-341-5851
Last EDR Contact: 09/12/2017
Next Scheduled EDR Contact: 12/25/2017
Data Release Frequency: Semi-Annually

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

AST: Aboveground Petroleum Storage Tank Facilities

A listing of aboveground storage tank petroleum storage tank locations.

Date of Government Version: 07/06/2016	Source: California Environmental Protection Agency
Date Data Arrived at EDR: 07/12/2016	Telephone: 916-327-5092
Date Made Active in Reports: 09/19/2016	Last EDR Contact: 09/25/2017
Number of Days to Update: 69	Next Scheduled EDR Contact: 01/08/2018
	Data Release Frequency: Quarterly

INDIAN UST R5: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 5 (Michigan, Minnesota and Wisconsin and Tribal Nations).

Date of Government Version: 04/26/2017	Source: EPA Region 5
Date Data Arrived at EDR: 07/27/2017	Telephone: 312-886-6136
Date Made Active in Reports: 10/06/2017	Last EDR Contact: 07/27/2017
Number of Days to Update: 71	Next Scheduled EDR Contact: 11/08/2017
	Data Release Frequency: Varies

INDIAN UST R4: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 4 (Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee and Tribal Nations)

Date of Government Version: 10/14/2016	Source: EPA Region 4
Date Data Arrived at EDR: 01/27/2017	Telephone: 404-562-9424
Date Made Active in Reports: 05/05/2017	Last EDR Contact: 07/28/2017
Number of Days to Update: 98	Next Scheduled EDR Contact: 11/08/2017
	Data Release Frequency: Semi-Annually

INDIAN UST R7: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 7 (Iowa, Kansas, Missouri, Nebraska, and 9 Tribal Nations).

Date of Government Version: 05/02/2017	Source: EPA Region 7
Date Data Arrived at EDR: 07/27/2017	Telephone: 913-551-7003
Date Made Active in Reports: 10/06/2017	Last EDR Contact: 07/27/2017
Number of Days to Update: 71	Next Scheduled EDR Contact: 11/08/2017
	Data Release Frequency: Varies

INDIAN UST R10: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 10 (Alaska, Idaho, Oregon, Washington, and Tribal Nations).

Date of Government Version: 04/25/2017	Source: EPA Region 10
Date Data Arrived at EDR: 07/27/2017	Telephone: 206-553-2857
Date Made Active in Reports: 10/13/2017	Last EDR Contact: 07/27/2017
Number of Days to Update: 78	Next Scheduled EDR Contact: 11/08/2017
	Data Release Frequency: Varies

INDIAN UST R9: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 9 (Arizona, California, Hawaii, Nevada, the Pacific Islands, and Tribal Nations).

Date of Government Version: 04/13/2017	Source: EPA Region 9
Date Data Arrived at EDR: 07/27/2017	Telephone: 415-972-3368
Date Made Active in Reports: 10/13/2017	Last EDR Contact: 07/27/2017
Number of Days to Update: 78	Next Scheduled EDR Contact: 11/08/2017
	Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

INDIAN UST R8: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 8 (Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming and 27 Tribal Nations).

Date of Government Version: 05/01/2017	Source: EPA Region 8
Date Data Arrived at EDR: 07/27/2017	Telephone: 303-312-6137
Date Made Active in Reports: 10/13/2017	Last EDR Contact: 07/27/2017
Number of Days to Update: 78	Next Scheduled EDR Contact: 11/08/2017
	Data Release Frequency: Varies

INDIAN UST R6: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 6 (Louisiana, Arkansas, Oklahoma, New Mexico, Texas and 65 Tribes).

Date of Government Version: 10/01/2016	Source: EPA Region 6
Date Data Arrived at EDR: 01/26/2017	Telephone: 214-665-7591
Date Made Active in Reports: 05/05/2017	Last EDR Contact: 07/27/2017
Number of Days to Update: 99	Next Scheduled EDR Contact: 11/08/2017
	Data Release Frequency: Semi-Annually

INDIAN UST R1: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 1 (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont and ten Tribal Nations).

Date of Government Version: 04/14/2017	Source: EPA, Region 1
Date Data Arrived at EDR: 07/27/2017	Telephone: 617-918-1313
Date Made Active in Reports: 10/06/2017	Last EDR Contact: 07/27/2017
Number of Days to Update: 71	Next Scheduled EDR Contact: 11/08/2017
	Data Release Frequency: Varies

State and tribal voluntary cleanup sites

VCP: Voluntary Cleanup Program Properties

Contains low threat level properties with either confirmed or unconfirmed releases and the project proponents have request that DTSC oversee investigation and/or cleanup activities and have agreed to provide coverage for DTSC's costs.

Date of Government Version: 07/31/2017	Source: Department of Toxic Substances Control
Date Data Arrived at EDR: 08/01/2017	Telephone: 916-323-3400
Date Made Active in Reports: 08/15/2017	Last EDR Contact: 08/01/2017
Number of Days to Update: 14	Next Scheduled EDR Contact: 11/13/2017
	Data Release Frequency: Quarterly

INDIAN VCP R7: Voluntary Cleanup Priority Listing

A listing of voluntary cleanup priority sites located on Indian Land located in Region 7.

Date of Government Version: 03/20/2008	Source: EPA, Region 7
Date Data Arrived at EDR: 04/22/2008	Telephone: 913-551-7365
Date Made Active in Reports: 05/19/2008	Last EDR Contact: 04/20/2009
Number of Days to Update: 27	Next Scheduled EDR Contact: 07/20/2009
	Data Release Frequency: Varies

INDIAN VCP R1: Voluntary Cleanup Priority Listing

A listing of voluntary cleanup priority sites located on Indian Land located in Region 1.

Date of Government Version: 07/27/2015	Source: EPA, Region 1
Date Data Arrived at EDR: 09/29/2015	Telephone: 617-918-1102
Date Made Active in Reports: 02/18/2016	Last EDR Contact: 09/25/2017
Number of Days to Update: 142	Next Scheduled EDR Contact: 01/08/2018
	Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

State and tribal Brownfields sites

BROWNFIELDS: Considered Brownfields Sites Listing

A listing of sites the SWRCB considers to be Brownfields since these are sites have come to them through the MOA Process.

Date of Government Version: 06/27/2017
Date Data Arrived at EDR: 06/28/2017
Date Made Active in Reports: 09/21/2017
Number of Days to Update: 85

Source: State Water Resources Control Board
Telephone: 916-323-7905
Last EDR Contact: 09/21/2017
Next Scheduled EDR Contact: 01/08/2018
Data Release Frequency: Varies

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS: A Listing of Brownfields Sites

Brownfields are real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. Cleaning up and reinvesting in these properties takes development pressures off of undeveloped, open land, and both improves and protects the environment. Assessment, Cleanup and Redevelopment Exchange System (ACRES) stores information reported by EPA Brownfields grant recipients on brownfields properties assessed or cleaned up with grant funding as well as information on Targeted Brownfields Assessments performed by EPA Regions. A listing of ACRES Brownfield sites is obtained from Cleanups in My Community. Cleanups in My Community provides information on Brownfields properties for which information is reported back to EPA, as well as areas served by Brownfields grant programs.

Date of Government Version: 06/19/2017
Date Data Arrived at EDR: 06/20/2017
Date Made Active in Reports: 09/15/2017
Number of Days to Update: 87

Source: Environmental Protection Agency
Telephone: 202-566-2777
Last EDR Contact: 09/20/2017
Next Scheduled EDR Contact: 01/01/2018
Data Release Frequency: Semi-Annually

Local Lists of Landfill / Solid Waste Disposal Sites

WMUDS/SWAT: Waste Management Unit Database

Waste Management Unit Database System. WMUDS is used by the State Water Resources Control Board staff and the Regional Water Quality Control Boards for program tracking and inventory of waste management units. WMUDS is composed of the following databases: Facility Information, Scheduled Inspections Information, Waste Management Unit Information, SWAT Program Information, SWAT Report Summary Information, SWAT Report Summary Data, Chapter 15 (formerly Subchapter 15) Information, Chapter 15 Monitoring Parameters, TPCA Program Information, RCRA Program Information, Closure Information, and Interested Parties Information.

Date of Government Version: 04/01/2000
Date Data Arrived at EDR: 04/10/2000
Date Made Active in Reports: 05/10/2000
Number of Days to Update: 30

Source: State Water Resources Control Board
Telephone: 916-227-4448
Last EDR Contact: 08/03/2017
Next Scheduled EDR Contact: 11/20/2017
Data Release Frequency: No Update Planned

SWRCY: Recycler Database

A listing of recycling facilities in California.

Date of Government Version: 09/11/2017
Date Data Arrived at EDR: 09/12/2017
Date Made Active in Reports: 09/21/2017
Number of Days to Update: 9

Source: Department of Conservation
Telephone: 916-323-3836
Last EDR Contact: 09/12/2017
Next Scheduled EDR Contact: 12/25/2017
Data Release Frequency: Quarterly

HAULERS: Registered Waste Tire Haulers Listing

A listing of registered waste tire haulers.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 05/30/2017
Date Data Arrived at EDR: 05/31/2017
Date Made Active in Reports: 08/15/2017
Number of Days to Update: 76

Source: Integrated Waste Management Board
Telephone: 916-341-6422
Last EDR Contact: 08/10/2017
Next Scheduled EDR Contact: 11/27/2017
Data Release Frequency: Varies

INDIAN ODI: Report on the Status of Open Dumps on Indian Lands

Location of open dumps on Indian land.

Date of Government Version: 12/31/1998
Date Data Arrived at EDR: 12/03/2007
Date Made Active in Reports: 01/24/2008
Number of Days to Update: 52

Source: Environmental Protection Agency
Telephone: 703-308-8245
Last EDR Contact: 08/01/2017
Next Scheduled EDR Contact: 11/13/2017
Data Release Frequency: Varies

ODI: Open Dump Inventory

An open dump is defined as a disposal facility that does not comply with one or more of the Part 257 or Part 258 Subtitle D Criteria.

Date of Government Version: 06/30/1985
Date Data Arrived at EDR: 08/09/2004
Date Made Active in Reports: 09/17/2004
Number of Days to Update: 39

Source: Environmental Protection Agency
Telephone: 800-424-9346
Last EDR Contact: 06/09/2004
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

DEBRIS REGION 9: Torres Martinez Reservation Illegal Dump Site Locations

A listing of illegal dump sites location on the Torres Martinez Indian Reservation located in eastern Riverside County and northern Imperial County, California.

Date of Government Version: 01/12/2009
Date Data Arrived at EDR: 05/07/2009
Date Made Active in Reports: 09/21/2009
Number of Days to Update: 137

Source: EPA, Region 9
Telephone: 415-947-4219
Last EDR Contact: 10/20/2017
Next Scheduled EDR Contact: 02/05/2018
Data Release Frequency: No Update Planned

IHS OPEN DUMPS: Open Dumps on Indian Land

A listing of all open dumps located on Indian Land in the United States.

Date of Government Version: 04/01/2014
Date Data Arrived at EDR: 08/06/2014
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 176

Source: Department of Health & Human Services, Indian Health Service
Telephone: 301-443-1452
Last EDR Contact: 08/29/2017
Next Scheduled EDR Contact: 11/13/2017
Data Release Frequency: Varies

Local Lists of Hazardous waste / Contaminated Sites

US HIST CDL: National Clandestine Laboratory Register

A listing of clandestine drug lab locations that have been removed from the DEAs National Clandestine Laboratory Register.

Date of Government Version: 07/13/2017
Date Data Arrived at EDR: 09/06/2017
Date Made Active in Reports: 10/06/2017
Number of Days to Update: 30

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 08/30/2017
Next Scheduled EDR Contact: 12/11/2017
Data Release Frequency: No Update Planned

HIST CAL-SITES: Calsites Database

The Calsites database contains potential or confirmed hazardous substance release properties. In 1996, California EPA reevaluated and significantly reduced the number of sites in the Calsites database. No longer updated by the state agency. It has been replaced by ENVIROSTOR.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 08/08/2005
Date Data Arrived at EDR: 08/03/2006
Date Made Active in Reports: 08/24/2006
Number of Days to Update: 21

Source: Department of Toxic Substance Control
Telephone: 916-323-3400
Last EDR Contact: 02/23/2009
Next Scheduled EDR Contact: 05/25/2009
Data Release Frequency: No Update Planned

SCH: School Property Evaluation Program

This category contains proposed and existing school sites that are being evaluated by DTSC for possible hazardous materials contamination. In some cases, these properties may be listed in the CalSites category depending on the level of threat to public health and safety or the environment they pose.

Date of Government Version: 07/31/2017
Date Data Arrived at EDR: 08/01/2017
Date Made Active in Reports: 08/15/2017
Number of Days to Update: 14

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 08/01/2017
Next Scheduled EDR Contact: 11/13/2017
Data Release Frequency: Quarterly

CDL: Clandestine Drug Labs

A listing of drug lab locations. Listing of a location in this database does not indicate that any illegal drug lab materials were or were not present there, and does not constitute a determination that the location either requires or does not require additional cleanup work.

Date of Government Version: 06/30/2017
Date Data Arrived at EDR: 08/18/2017
Date Made Active in Reports: 09/21/2017
Number of Days to Update: 34

Source: Department of Toxic Substances Control
Telephone: 916-255-6504
Last EDR Contact: 10/10/2017
Next Scheduled EDR Contact: 01/22/2018
Data Release Frequency: Varies

TOXIC PITS: Toxic Pits Cleanup Act Sites

Toxic PITS Cleanup Act Sites. TOXIC PITS identifies sites suspected of containing hazardous substances where cleanup has not yet been completed.

Date of Government Version: 07/01/1995
Date Data Arrived at EDR: 08/30/1995
Date Made Active in Reports: 09/26/1995
Number of Days to Update: 27

Source: State Water Resources Control Board
Telephone: 916-227-4364
Last EDR Contact: 01/26/2009
Next Scheduled EDR Contact: 04/27/2009
Data Release Frequency: No Update Planned

US CDL: Clandestine Drug Labs

A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 07/13/2017
Date Data Arrived at EDR: 09/06/2017
Date Made Active in Reports: 10/06/2017
Number of Days to Update: 30

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 08/30/2017
Next Scheduled EDR Contact: 12/11/2017
Data Release Frequency: Quarterly

Local Lists of Registered Storage Tanks

SWEEPS UST: SWEEPS UST Listing

Statewide Environmental Evaluation and Planning System. This underground storage tank listing was updated and maintained by a company contacted by the SWRCB in the early 1990's. The listing is no longer updated or maintained. The local agency is the contact for more information on a site on the SWEEPS list.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 06/01/1994
Date Data Arrived at EDR: 07/07/2005
Date Made Active in Reports: 08/11/2005
Number of Days to Update: 35

Source: State Water Resources Control Board
Telephone: N/A
Last EDR Contact: 06/03/2005
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

UST MENDOCINO: Mendocino County UST Database

A listing of underground storage tank locations in Mendocino County.

Date of Government Version: 06/02/2017
Date Data Arrived at EDR: 06/06/2017
Date Made Active in Reports: 08/25/2017
Number of Days to Update: 80

Source: Department of Public Health
Telephone: 707-463-4466
Last EDR Contact: 08/24/2017
Next Scheduled EDR Contact: 12/11/2017
Data Release Frequency: Annually

HIST UST: Hazardous Substance Storage Container Database

The Hazardous Substance Storage Container Database is a historical listing of UST sites. Refer to local/county source for current data.

Date of Government Version: 10/15/1990
Date Data Arrived at EDR: 01/25/1991
Date Made Active in Reports: 02/12/1991
Number of Days to Update: 18

Source: State Water Resources Control Board
Telephone: 916-341-5851
Last EDR Contact: 07/26/2001
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

CA FID UST: Facility Inventory Database

The Facility Inventory Database (FID) contains a historical listing of active and inactive underground storage tank locations from the State Water Resource Control Board. Refer to local/county source for current data.

Date of Government Version: 10/31/1994
Date Data Arrived at EDR: 09/05/1995
Date Made Active in Reports: 09/29/1995
Number of Days to Update: 24

Source: California Environmental Protection Agency
Telephone: 916-341-5851
Last EDR Contact: 12/28/1998
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

Local Land Records

LIENS: Environmental Liens Listing

A listing of property locations with environmental liens for California where DTSC is a lien holder.

Date of Government Version: 06/02/2017
Date Data Arrived at EDR: 06/06/2017
Date Made Active in Reports: 08/22/2017
Number of Days to Update: 77

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 08/31/2017
Next Scheduled EDR Contact: 12/18/2017
Data Release Frequency: Varies

LIENS 2: CERCLA Lien Information

A Federal CERCLA ('Superfund') lien can exist by operation of law at any site or property at which EPA has spent Superfund monies. These monies are spent to investigate and address releases and threatened releases of contamination. CERCLIS provides information as to the identity of these sites and properties.

Date of Government Version: 07/11/2017
Date Data Arrived at EDR: 07/26/2017
Date Made Active in Reports: 10/13/2017
Number of Days to Update: 79

Source: Environmental Protection Agency
Telephone: 202-564-6023
Last EDR Contact: 07/26/2017
Next Scheduled EDR Contact: 11/08/2017
Data Release Frequency: Semi-Annually

DEED: Deed Restriction Listing

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Site Mitigation and Brownfields Reuse Program Facility Sites with Deed Restrictions & Hazardous Waste Management Program Facility Sites with Deed / Land Use Restriction. The DTSC Site Mitigation and Brownfields Reuse Program (SMBRP) list includes sites cleaned up under the program's oversight and generally does not include current or former hazardous waste facilities that required a hazardous waste facility permit. The list represents deed restrictions that are active. Some sites have multiple deed restrictions. The DTSC Hazardous Waste Management Program (HWMP) has developed a list of current or former hazardous waste facilities that have a recorded land use restriction at the local county recorder's office. The land use restrictions on this list were required by the DTSC HWMP as a result of the presence of hazardous substances that remain on site after the facility (or part of the facility) has been closed or cleaned up. The types of land use restriction include deed notice, deed restriction, or a land use restriction that binds current and future owners.

Date of Government Version: 06/05/2017	Source: DTSC and SWRCB
Date Data Arrived at EDR: 06/06/2017	Telephone: 916-323-3400
Date Made Active in Reports: 08/10/2017	Last EDR Contact: 09/06/2017
Number of Days to Update: 65	Next Scheduled EDR Contact: 12/18/2017
	Data Release Frequency: Semi-Annually

Records of Emergency Release Reports

HMIRS: Hazardous Materials Information Reporting System

Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

Date of Government Version: 09/21/2017	Source: U.S. Department of Transportation
Date Data Arrived at EDR: 09/21/2017	Telephone: 202-366-4555
Date Made Active in Reports: 10/13/2017	Last EDR Contact: 09/21/2017
Number of Days to Update: 22	Next Scheduled EDR Contact: 01/08/2018
	Data Release Frequency: Quarterly

CHMIRS: California Hazardous Material Incident Report System

California Hazardous Material Incident Reporting System. CHMIRS contains information on reported hazardous material incidents (accidental releases or spills).

Date of Government Version: 05/09/2017	Source: Office of Emergency Services
Date Data Arrived at EDR: 07/26/2017	Telephone: 916-845-8400
Date Made Active in Reports: 09/21/2017	Last EDR Contact: 07/26/2017
Number of Days to Update: 57	Next Scheduled EDR Contact: 11/08/2017
	Data Release Frequency: Varies

LDS: Land Disposal Sites Listing (GEOTRACKER)

Land Disposal sites (Landfills) included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 06/12/2017	Source: State Water Quality Control Board
Date Data Arrived at EDR: 06/14/2017	Telephone: 866-480-1028
Date Made Active in Reports: 08/18/2017	Last EDR Contact: 09/12/2017
Number of Days to Update: 65	Next Scheduled EDR Contact: 12/25/2017
	Data Release Frequency: Quarterly

MCS: Military Cleanup Sites Listing (GEOTRACKER)

Military sites (consisting of: Military UST sites; Military Privatized sites; and Military Cleanup sites [formerly known as DoD non UST]) included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 06/12/2017	Source: State Water Resources Control Board
Date Data Arrived at EDR: 06/14/2017	Telephone: 866-480-1028
Date Made Active in Reports: 08/22/2017	Last EDR Contact: 09/12/2017
Number of Days to Update: 69	Next Scheduled EDR Contact: 12/25/2017
	Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

SPILLS 90: SPILLS90 data from FirstSearch

Spills 90 includes those spill and release records available exclusively from FirstSearch databases. Typically, they may include chemical, oil and/or hazardous substance spills recorded after 1990. Duplicate records that are already included in EDR incident and release records are not included in Spills 90.

Date of Government Version: 06/06/2012

Source: FirstSearch

Date Data Arrived at EDR: 01/03/2013

Telephone: N/A

Date Made Active in Reports: 02/22/2013

Last EDR Contact: 01/03/2013

Number of Days to Update: 50

Next Scheduled EDR Contact: N/A

Data Release Frequency: No Update Planned

Other Ascertainable Records

RCRA NonGen / NLR: RCRA - Non Generators / No Longer Regulated

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Non-Generators do not presently generate hazardous waste.

Date of Government Version: 09/13/2017

Source: Environmental Protection Agency

Date Data Arrived at EDR: 09/26/2017

Telephone: (415) 495-8895

Date Made Active in Reports: 10/06/2017

Last EDR Contact: 09/26/2017

Number of Days to Update: 10

Next Scheduled EDR Contact: 01/08/2018

Data Release Frequency: Quarterly

FUDS: Formerly Used Defense Sites

The listing includes locations of Formerly Used Defense Sites properties where the US Army Corps of Engineers is actively working or will take necessary cleanup actions.

Date of Government Version: 01/31/2015

Source: U.S. Army Corps of Engineers

Date Data Arrived at EDR: 07/08/2015

Telephone: 202-528-4285

Date Made Active in Reports: 10/13/2015

Last EDR Contact: 08/25/2017

Number of Days to Update: 97

Next Scheduled EDR Contact: 12/04/2017

Data Release Frequency: Varies

DOD: Department of Defense Sites

This data set consists of federally owned or administered lands, administered by the Department of Defense, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.

Date of Government Version: 12/31/2005

Source: USGS

Date Data Arrived at EDR: 11/10/2006

Telephone: 888-275-8747

Date Made Active in Reports: 01/11/2007

Last EDR Contact: 10/13/2017

Number of Days to Update: 62

Next Scheduled EDR Contact: 01/22/2018

Data Release Frequency: Semi-Annually

FEDLAND: Federal and Indian Lands

Federally and Indian administrated lands of the United States. Lands included are administrated by: Army Corps of Engineers, Bureau of Reclamation, National Wild and Scenic River, National Wildlife Refuge, Public Domain Land, Wilderness, Wilderness Study Area, Wildlife Management Area, Bureau of Indian Affairs, Bureau of Land Management, Department of Justice, Forest Service, Fish and Wildlife Service, National Park Service.

Date of Government Version: 12/31/2005

Source: U.S. Geological Survey

Date Data Arrived at EDR: 02/06/2006

Telephone: 888-275-8747

Date Made Active in Reports: 01/11/2007

Last EDR Contact: 10/11/2017

Number of Days to Update: 339

Next Scheduled EDR Contact: 01/22/2018

Data Release Frequency: N/A

SCRD DRYCLEANERS: State Coalition for Remediation of Drycleaners Listing

The State Coalition for Remediation of Drycleaners was established in 1998, with support from the U.S. EPA Office of Superfund Remediation and Technology Innovation. It is comprised of representatives of states with established drycleaner remediation programs. Currently the member states are Alabama, Connecticut, Florida, Illinois, Kansas, Minnesota, Missouri, North Carolina, Oregon, South Carolina, Tennessee, Texas, and Wisconsin.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 01/01/2017
Date Data Arrived at EDR: 02/03/2017
Date Made Active in Reports: 04/07/2017
Number of Days to Update: 63

Source: Environmental Protection Agency
Telephone: 615-532-8599
Last EDR Contact: 08/18/2017
Next Scheduled EDR Contact: 11/27/2017
Data Release Frequency: Varies

US FIN ASSUR: Financial Assurance Information

All owners and operators of facilities that treat, store, or dispose of hazardous waste are required to provide proof that they will have sufficient funds to pay for the clean up, closure, and post-closure care of their facilities.

Date of Government Version: 05/10/2017
Date Data Arrived at EDR: 05/17/2017
Date Made Active in Reports: 09/15/2017
Number of Days to Update: 121

Source: Environmental Protection Agency
Telephone: 202-566-1917
Last EDR Contact: 09/26/2017
Next Scheduled EDR Contact: 01/08/2018
Data Release Frequency: Quarterly

EPA WATCH LIST: EPA WATCH LIST

EPA maintains a "Watch List" to facilitate dialogue between EPA, state and local environmental agencies on enforcement matters relating to facilities with alleged violations identified as either significant or high priority. Being on the Watch List does not mean that the facility has actually violated the law only that an investigation by EPA or a state or local environmental agency has led those organizations to allege that an unproven violation has in fact occurred. Being on the Watch List does not represent a higher level of concern regarding the alleged violations that were detected, but instead indicates cases requiring additional dialogue between EPA, state and local agencies - primarily because of the length of time the alleged violation has gone unaddressed or unresolved.

Date of Government Version: 08/30/2013
Date Data Arrived at EDR: 03/21/2014
Date Made Active in Reports: 06/17/2014
Number of Days to Update: 88

Source: Environmental Protection Agency
Telephone: 617-520-3000
Last EDR Contact: 08/07/2017
Next Scheduled EDR Contact: 11/20/2017
Data Release Frequency: Quarterly

2020 COR ACTION: 2020 Corrective Action Program List

The EPA has set ambitious goals for the RCRA Corrective Action program by creating the 2020 Corrective Action Universe. This RCRA cleanup baseline includes facilities expected to need corrective action. The 2020 universe contains a wide variety of sites. Some properties are heavily contaminated while others were contaminated but have since been cleaned up. Still others have not been fully investigated yet, and may require little or no remediation. Inclusion in the 2020 Universe does not necessarily imply failure on the part of a facility to meet its RCRA obligations.

Date of Government Version: 04/22/2013
Date Data Arrived at EDR: 03/03/2015
Date Made Active in Reports: 03/09/2015
Number of Days to Update: 6

Source: Environmental Protection Agency
Telephone: 703-308-4044
Last EDR Contact: 08/24/2017
Next Scheduled EDR Contact: 11/20/2017
Data Release Frequency: Varies

TSCA: Toxic Substances Control Act

Toxic Substances Control Act. TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site.

Date of Government Version: 12/31/2012
Date Data Arrived at EDR: 01/15/2015
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 14

Source: EPA
Telephone: 202-260-5521
Last EDR Contact: 09/22/2017
Next Scheduled EDR Contact: 01/01/2018
Data Release Frequency: Every 4 Years

TRIS: Toxic Chemical Release Inventory System

Toxic Release Inventory System. TRIS identifies facilities which release toxic chemicals to the air, water and land in reportable quantities under SARA Title III Section 313.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 12/31/2014
Date Data Arrived at EDR: 11/24/2015
Date Made Active in Reports: 04/05/2016
Number of Days to Update: 133

Source: EPA
Telephone: 202-566-0250
Last EDR Contact: 08/23/2017
Next Scheduled EDR Contact: 12/04/2017
Data Release Frequency: Annually

SSTS: Section 7 Tracking Systems

Section 7 of the Federal Insecticide, Fungicide and Rodenticide Act, as amended (92 Stat. 829) requires all registered pesticide-producing establishments to submit a report to the Environmental Protection Agency by March 1st each year. Each establishment must report the types and amounts of pesticides, active ingredients and devices being produced, and those having been produced and sold or distributed in the past year.

Date of Government Version: 12/31/2009
Date Data Arrived at EDR: 12/10/2010
Date Made Active in Reports: 02/25/2011
Number of Days to Update: 77

Source: EPA
Telephone: 202-564-4203
Last EDR Contact: 07/28/2017
Next Scheduled EDR Contact: 11/08/2017
Data Release Frequency: Annually

ROD: Records Of Decision

Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid in the cleanup.

Date of Government Version: 09/27/2017
Date Data Arrived at EDR: 10/12/2017
Date Made Active in Reports: 10/20/2017
Number of Days to Update: 8

Source: EPA
Telephone: 703-416-0223
Last EDR Contact: 09/08/2017
Next Scheduled EDR Contact: 12/18/2017
Data Release Frequency: Annually

RMP: Risk Management Plans

When Congress passed the Clean Air Act Amendments of 1990, it required EPA to publish regulations and guidance for chemical accident prevention at facilities using extremely hazardous substances. The Risk Management Program Rule (RMP Rule) was written to implement Section 112(r) of these amendments. The rule, which built upon existing industry codes and standards, requires companies of all sizes that use certain flammable and toxic substances to develop a Risk Management Program, which includes a(n): Hazard assessment that details the potential effects of an accidental release, an accident history of the last five years, and an evaluation of worst-case and alternative accidental releases; Prevention program that includes safety precautions and maintenance, monitoring, and employee training measures; and Emergency response program that spells out emergency health care, employee training measures and procedures for informing the public and response agencies (e.g the fire department) should an accident occur.

Date of Government Version: 02/01/2017
Date Data Arrived at EDR: 02/09/2017
Date Made Active in Reports: 04/07/2017
Number of Days to Update: 57

Source: Environmental Protection Agency
Telephone: 202-564-8600
Last EDR Contact: 10/23/2017
Next Scheduled EDR Contact: 02/05/2018
Data Release Frequency: Varies

RAATS: RCRA Administrative Action Tracking System

RCRA Administration Action Tracking System. RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA. For administration actions after September 30, 1995, data entry in the RAATS database was discontinued. EPA will retain a copy of the database for historical records. It was necessary to terminate RAATS because a decrease in agency resources made it impossible to continue to update the information contained in the database.

Date of Government Version: 04/17/1995
Date Data Arrived at EDR: 07/03/1995
Date Made Active in Reports: 08/07/1995
Number of Days to Update: 35

Source: EPA
Telephone: 202-564-4104
Last EDR Contact: 06/02/2008
Next Scheduled EDR Contact: 09/01/2008
Data Release Frequency: No Update Planned

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

PRP: Potentially Responsible Parties

A listing of verified Potentially Responsible Parties

Date of Government Version: 10/25/2013	Source: EPA
Date Data Arrived at EDR: 10/17/2014	Telephone: 202-564-6023
Date Made Active in Reports: 10/20/2014	Last EDR Contact: 08/08/2017
Number of Days to Update: 3	Next Scheduled EDR Contact: 11/20/2017
	Data Release Frequency: Quarterly

PADS: PCB Activity Database System

PCB Activity Database. PADS Identifies generators, transporters, commercial storers and/or brokers and disposers of PCB's who are required to notify the EPA of such activities.

Date of Government Version: 06/01/2017	Source: EPA
Date Data Arrived at EDR: 06/09/2017	Telephone: 202-566-0500
Date Made Active in Reports: 10/13/2017	Last EDR Contact: 10/13/2017
Number of Days to Update: 126	Next Scheduled EDR Contact: 01/22/2018
	Data Release Frequency: Annually

ICIS: Integrated Compliance Information System

The Integrated Compliance Information System (ICIS) supports the information needs of the national enforcement and compliance program as well as the unique needs of the National Pollutant Discharge Elimination System (NPDES) program.

Date of Government Version: 11/18/2016	Source: Environmental Protection Agency
Date Data Arrived at EDR: 11/23/2016	Telephone: 202-564-2501
Date Made Active in Reports: 02/10/2017	Last EDR Contact: 10/11/2017
Number of Days to Update: 79	Next Scheduled EDR Contact: 01/22/2018
	Data Release Frequency: Quarterly

FTTS: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)

FTTS tracks administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA and EPCRA (Emergency Planning and Community Right-to-Know Act). To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 04/09/2009	Source: EPA/Office of Prevention, Pesticides and Toxic Substances
Date Data Arrived at EDR: 04/16/2009	Telephone: 202-566-1667
Date Made Active in Reports: 05/11/2009	Last EDR Contact: 08/18/2017
Number of Days to Update: 25	Next Scheduled EDR Contact: 12/04/2017
	Data Release Frequency: Quarterly

FTTS INSP: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)

A listing of FIFRA/TSCA Tracking System (FTTS) inspections and enforcements.

Date of Government Version: 04/09/2009	Source: EPA
Date Data Arrived at EDR: 04/16/2009	Telephone: 202-566-1667
Date Made Active in Reports: 05/11/2009	Last EDR Contact: 08/18/2017
Number of Days to Update: 25	Next Scheduled EDR Contact: 12/04/2017
	Data Release Frequency: Quarterly

MLTS: Material Licensing Tracking System

MLTS is maintained by the Nuclear Regulatory Commission and contains a list of approximately 8,100 sites which possess or use radioactive materials and which are subject to NRC licensing requirements. To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 08/30/2016	Source: Nuclear Regulatory Commission
Date Data Arrived at EDR: 09/08/2016	Telephone: 301-415-7169
Date Made Active in Reports: 10/21/2016	Last EDR Contact: 10/16/2017
Number of Days to Update: 43	Next Scheduled EDR Contact: 11/20/2017
	Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

COAL ASH DOE: Steam-Electric Plant Operation Data

A listing of power plants that store ash in surface ponds.

Date of Government Version: 12/31/2005	Source: Department of Energy
Date Data Arrived at EDR: 08/07/2009	Telephone: 202-586-8719
Date Made Active in Reports: 10/22/2009	Last EDR Contact: 10/03/2017
Number of Days to Update: 76	Next Scheduled EDR Contact: 12/18/2017
	Data Release Frequency: Varies

COAL ASH EPA: Coal Combustion Residues Surface Impoundments List

A listing of coal combustion residues surface impoundments with high hazard potential ratings.

Date of Government Version: 07/01/2014	Source: Environmental Protection Agency
Date Data Arrived at EDR: 09/10/2014	Telephone: N/A
Date Made Active in Reports: 10/20/2014	Last EDR Contact: 09/08/2017
Number of Days to Update: 40	Next Scheduled EDR Contact: 12/18/2017
	Data Release Frequency: Varies

PCB TRANSFORMER: PCB Transformer Registration Database

The database of PCB transformer registrations that includes all PCB registration submittals.

Date of Government Version: 02/01/2011	Source: Environmental Protection Agency
Date Data Arrived at EDR: 10/19/2011	Telephone: 202-566-0517
Date Made Active in Reports: 01/10/2012	Last EDR Contact: 07/28/2017
Number of Days to Update: 83	Next Scheduled EDR Contact: 11/08/2017
	Data Release Frequency: Varies

RADINFO: Radiation Information Database

The Radiation Information Database (RADINFO) contains information about facilities that are regulated by U.S. Environmental Protection Agency (EPA) regulations for radiation and radioactivity.

Date of Government Version: 10/02/2017	Source: Environmental Protection Agency
Date Data Arrived at EDR: 10/05/2017	Telephone: 202-343-9775
Date Made Active in Reports: 10/13/2017	Last EDR Contact: 10/05/2017
Number of Days to Update: 8	Next Scheduled EDR Contact: 01/15/2018
	Data Release Frequency: Quarterly

HIST FTTS: FIFRA/TSCA Tracking System Administrative Case Listing

A complete administrative case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006	Source: Environmental Protection Agency
Date Data Arrived at EDR: 03/01/2007	Telephone: 202-564-2501
Date Made Active in Reports: 04/10/2007	Last EDR Contact: 12/17/2007
Number of Days to Update: 40	Next Scheduled EDR Contact: 03/17/2008
	Data Release Frequency: No Update Planned

HIST FTTS INSP: FIFRA/TSCA Tracking System Inspection & Enforcement Case Listing

A complete inspection and enforcement case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2008
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

DOT OPS: Incident and Accident Data

Department of Transportation, Office of Pipeline Safety Incident and Accident data.

Date of Government Version: 07/31/2012
Date Data Arrived at EDR: 08/07/2012
Date Made Active in Reports: 09/18/2012
Number of Days to Update: 42

Source: Department of Transportation, Office of Pipeline Safety
Telephone: 202-366-4595
Last EDR Contact: 08/01/2017
Next Scheduled EDR Contact: 11/13/2017
Data Release Frequency: Varies

CONSENT: Superfund (CERCLA) Consent Decrees

Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites. Released periodically by United States District Courts after settlement by parties to litigation matters.

Date of Government Version: 06/30/2017
Date Data Arrived at EDR: 08/03/2017
Date Made Active in Reports: 10/20/2017
Number of Days to Update: 78

Source: Department of Justice, Consent Decree Library
Telephone: Varies
Last EDR Contact: 09/25/2017
Next Scheduled EDR Contact: 01/08/2018
Data Release Frequency: Varies

BRS: Biennial Reporting System

The Biennial Reporting System is a national system administered by the EPA that collects data on the generation and management of hazardous waste. BRS captures detailed data from two groups: Large Quantity Generators (LQG) and Treatment, Storage, and Disposal Facilities.

Date of Government Version: 12/31/2015
Date Data Arrived at EDR: 02/22/2017
Date Made Active in Reports: 09/28/2017
Number of Days to Update: 218

Source: EPA/NTIS
Telephone: 800-424-9346
Last EDR Contact: 09/21/2017
Next Scheduled EDR Contact: 12/04/2017
Data Release Frequency: Biennially

INDIAN RESERV: Indian Reservations

This map layer portrays Indian administered lands of the United States that have any area equal to or greater than 640 acres.

Date of Government Version: 12/31/2014
Date Data Arrived at EDR: 07/14/2015
Date Made Active in Reports: 01/10/2017
Number of Days to Update: 546

Source: USGS
Telephone: 202-208-3710
Last EDR Contact: 10/11/2017
Next Scheduled EDR Contact: 01/22/2018
Data Release Frequency: Semi-Annually

FUSRAP: Formerly Utilized Sites Remedial Action Program

DOE established the Formerly Utilized Sites Remedial Action Program (FUSRAP) in 1974 to remediate sites where radioactive contamination remained from Manhattan Project and early U.S. Atomic Energy Commission (AEC) operations.

Date of Government Version: 12/23/2016
Date Data Arrived at EDR: 12/27/2016
Date Made Active in Reports: 02/17/2017
Number of Days to Update: 52

Source: Department of Energy
Telephone: 202-586-3559
Last EDR Contact: 08/03/2017
Next Scheduled EDR Contact: 11/20/2017
Data Release Frequency: Varies

UMTRA: Uranium Mill Tailings Sites

Uranium ore was mined by private companies for federal government use in national defense programs. When the mills shut down, large piles of the sand-like material (mill tailings) remain after uranium has been extracted from the ore. Levels of human exposure to radioactive materials from the piles are low; however, in some cases tailings were used as construction materials before the potential health hazards of the tailings were recognized.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 09/14/2010
Date Data Arrived at EDR: 10/07/2011
Date Made Active in Reports: 03/01/2012
Number of Days to Update: 146

Source: Department of Energy
Telephone: 505-845-0011
Last EDR Contact: 10/10/2017
Next Scheduled EDR Contact: 12/04/2017
Data Release Frequency: Varies

LEAD SMELTER 1: Lead Smelter Sites

A listing of former lead smelter site locations.

Date of Government Version: 05/30/2017
Date Data Arrived at EDR: 06/09/2017
Date Made Active in Reports: 09/15/2017
Number of Days to Update: 98

Source: Environmental Protection Agency
Telephone: 703-603-8787
Last EDR Contact: 10/05/2017
Next Scheduled EDR Contact: 01/15/2018
Data Release Frequency: Varies

LEAD SMELTER 2: Lead Smelter Sites

A list of several hundred sites in the U.S. where secondary lead smelting was done from 1931 and 1964. These sites may pose a threat to public health through ingestion or inhalation of contaminated soil or dust

Date of Government Version: 04/05/2001
Date Data Arrived at EDR: 10/27/2010
Date Made Active in Reports: 12/02/2010
Number of Days to Update: 36

Source: American Journal of Public Health
Telephone: 703-305-6451
Last EDR Contact: 12/02/2009
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

US AIRS (AFS): Aerometric Information Retrieval System Facility Subsystem (AFS)

The database is a sub-system of Aerometric Information Retrieval System (AIRS). AFS contains compliance data on air pollution point sources regulated by the U.S. EPA and/or state and local air regulatory agencies. This information comes from source reports by various stationary sources of air pollution, such as electric power plants, steel mills, factories, and universities, and provides information about the air pollutants they produce. Action, air program, air program pollutant, and general level plant data. It is used to track emissions and compliance data from industrial plants.

Date of Government Version: 10/12/2016
Date Data Arrived at EDR: 10/26/2016
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 100

Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 09/26/2017
Next Scheduled EDR Contact: 01/08/2018
Data Release Frequency: Annually

US AIRS MINOR: Air Facility System Data

A listing of minor source facilities.

Date of Government Version: 10/12/2016
Date Data Arrived at EDR: 10/26/2016
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 100

Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 09/26/2017
Next Scheduled EDR Contact: 01/08/2018
Data Release Frequency: Annually

US MINES: Mines Master Index File

Contains all mine identification numbers issued for mines active or opened since 1971. The data also includes violation information.

Date of Government Version: 07/31/2017
Date Data Arrived at EDR: 08/30/2017
Date Made Active in Reports: 10/13/2017
Number of Days to Update: 44

Source: Department of Labor, Mine Safety and Health Administration
Telephone: 303-231-5959
Last EDR Contact: 08/30/2017
Next Scheduled EDR Contact: 12/11/2017
Data Release Frequency: Semi-Annually

US MINES 2: Ferrous and Nonferrous Metal Mines Database Listing

This map layer includes ferrous (ferrous metal mines are facilities that extract ferrous metals, such as iron ore or molybdenum) and nonferrous (Nonferrous metal mines are facilities that extract nonferrous metals, such as gold, silver, copper, zinc, and lead) metal mines in the United States.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 12/05/2005
Date Data Arrived at EDR: 02/29/2008
Date Made Active in Reports: 04/18/2008
Number of Days to Update: 49

Source: USGS
Telephone: 703-648-7709
Last EDR Contact: 09/01/2017
Next Scheduled EDR Contact: 12/11/2017
Data Release Frequency: Varies

US MINES 3: Active Mines & Mineral Plants Database Listing

Active Mines and Mineral Processing Plant operations for commodities monitored by the Minerals Information Team of the USGS.

Date of Government Version: 04/14/2011
Date Data Arrived at EDR: 06/08/2011
Date Made Active in Reports: 09/13/2011
Number of Days to Update: 97

Source: USGS
Telephone: 703-648-7709
Last EDR Contact: 09/01/2017
Next Scheduled EDR Contact: 12/11/2017
Data Release Frequency: Varies

ABANDONED MINES: Abandoned Mines

An inventory of land and water impacted by past mining (primarily coal mining) is maintained by OSMRE to provide information needed to implement the Surface Mining Control and Reclamation Act of 1977 (SMCRA). The inventory contains information on the location, type, and extent of AML impacts, as well as, information on the cost associated with the reclamation of those problems. The inventory is based upon field surveys by State, Tribal, and OSMRE program officials. It is dynamic to the extent that it is modified as new problems are identified and existing problems are reclaimed.

Date of Government Version: 09/25/2017
Date Data Arrived at EDR: 09/26/2017
Date Made Active in Reports: 10/20/2017
Number of Days to Update: 24

Source: Department of Interior
Telephone: 202-208-2609
Last EDR Contact: 09/25/2017
Next Scheduled EDR Contact: 12/25/2017
Data Release Frequency: Quarterly

FINDS: Facility Index System/Facility Registry System

Facility Index System. FINDS contains both facility information and 'pointers' to other sources that contain more detail. EDR includes the following FINDS databases in this report: PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), C-DOCKET (Criminal Docket System used to track criminal enforcement actions for all environmental statutes), FFIS (Federal Facilities Information System), STATE (State Environmental Laws and Statutes), and PADS (PCB Activity Data System).

Date of Government Version: 07/23/2017
Date Data Arrived at EDR: 09/06/2017
Date Made Active in Reports: 09/15/2017
Number of Days to Update: 9

Source: EPA
Telephone: (415) 947-8000
Last EDR Contact: 09/06/2017
Next Scheduled EDR Contact: 12/18/2017
Data Release Frequency: Quarterly

UXO: Unexploded Ordnance Sites

A listing of unexploded ordnance site locations

Date of Government Version: 10/25/2016
Date Data Arrived at EDR: 06/02/2017
Date Made Active in Reports: 10/13/2017
Number of Days to Update: 133

Source: Department of Defense
Telephone: 703-704-1564
Last EDR Contact: 10/16/2017
Next Scheduled EDR Contact: 01/29/2018
Data Release Frequency: Varies

ECHO: Enforcement & Compliance History Information

ECHO provides integrated compliance and enforcement information for about 800,000 regulated facilities nationwide.

Date of Government Version: 09/02/2017
Date Data Arrived at EDR: 09/06/2017
Date Made Active in Reports: 10/20/2017
Number of Days to Update: 44

Source: Environmental Protection Agency
Telephone: 202-564-2280
Last EDR Contact: 09/06/2017
Next Scheduled EDR Contact: 12/18/2017
Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

DOCKET HWC: Hazardous Waste Compliance Docket Listing

A complete list of the Federal Agency Hazardous Waste Compliance Docket Facilities.

Date of Government Version: 06/02/2016	Source: Environmental Protection Agency
Date Data Arrived at EDR: 06/03/2016	Telephone: 202-564-0527
Date Made Active in Reports: 09/02/2016	Last EDR Contact: 09/21/2017
Number of Days to Update: 91	Next Scheduled EDR Contact: 12/11/2017
	Data Release Frequency: Varies

FUELS PROGRAM: EPA Fuels Program Registered Listing

This listing includes facilities that are registered under the Part 80 (Code of Federal Regulations) EPA Fuels Programs. All companies now are required to submit new and updated registrations.

Date of Government Version: 08/17/2017	Source: EPA
Date Data Arrived at EDR: 08/17/2017	Telephone: 800-385-6164
Date Made Active in Reports: 09/15/2017	Last EDR Contact: 08/17/2017
Number of Days to Update: 29	Next Scheduled EDR Contact: 12/04/2017
	Data Release Frequency: Quarterly

CA BOND EXP. PLAN: Bond Expenditure Plan

Department of Health Services developed a site-specific expenditure plan as the basis for an appropriation of Hazardous Substance Cleanup Bond Act funds. It is not updated.

Date of Government Version: 01/01/1989	Source: Department of Health Services
Date Data Arrived at EDR: 07/27/1994	Telephone: 916-255-2118
Date Made Active in Reports: 08/02/1994	Last EDR Contact: 05/31/1994
Number of Days to Update: 6	Next Scheduled EDR Contact: N/A
	Data Release Frequency: No Update Planned

CORTESE: "Cortese" Hazardous Waste & Substances Sites List

The sites for the list are designated by the State Water Resource Control Board (LUST), the Integrated Waste Board (SWF/LS), and the Department of Toxic Substances Control (Cal-Sites).

Date of Government Version: 09/21/2017	Source: CAL EPA/Office of Emergency Information
Date Data Arrived at EDR: 09/21/2017	Telephone: 916-323-3400
Date Made Active in Reports: 10/13/2017	Last EDR Contact: 09/21/2017
Number of Days to Update: 22	Next Scheduled EDR Contact: 01/01/2018
	Data Release Frequency: Quarterly

DRYCLEANERS: Cleaner Facilities

A list of drycleaner related facilities that have EPA ID numbers. These are facilities with certain SIC codes: power laundries, family and commercial; garment pressing and cleaner's agents; linen supply; coin-operated laundries and cleaning; drycleaning plants, except rugs; carpet and upholster cleaning; industrial launderers; laundry and garment services.

Date of Government Version: 08/02/2017	Source: Department of Toxic Substance Control
Date Data Arrived at EDR: 08/08/2017	Telephone: 916-327-4498
Date Made Active in Reports: 10/16/2017	Last EDR Contact: 08/08/2017
Number of Days to Update: 69	Next Scheduled EDR Contact: 12/18/2017
	Data Release Frequency: Annually

EMI: Emissions Inventory Data

Toxics and criteria pollutant emissions data collected by the ARB and local air pollution agencies.

Date of Government Version: 12/31/2015	Source: California Air Resources Board
Date Data Arrived at EDR: 03/21/2017	Telephone: 916-322-2990
Date Made Active in Reports: 08/15/2017	Last EDR Contact: 09/22/2017
Number of Days to Update: 147	Next Scheduled EDR Contact: 01/01/2018
	Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

ENF: Enforcement Action Listing

A listing of Water Board Enforcement Actions. Formal is everything except Oral/Verbal Communication, Notice of Violation, Expedited Payment Letter, and Staff Enforcement Letter.

Date of Government Version: 08/18/2017	Source: State Water Resources Control Board
Date Data Arrived at EDR: 08/22/2017	Telephone: 916-445-9379
Date Made Active in Reports: 10/24/2017	Last EDR Contact: 10/23/2017
Number of Days to Update: 63	Next Scheduled EDR Contact: 02/05/2018
	Data Release Frequency: Varies

Financial Assurance 1: Financial Assurance Information Listing

Financial Assurance information

Date of Government Version: 07/21/2017	Source: Department of Toxic Substances Control
Date Data Arrived at EDR: 07/25/2017	Telephone: 916-255-3628
Date Made Active in Reports: 10/17/2017	Last EDR Contact: 10/23/2017
Number of Days to Update: 84	Next Scheduled EDR Contact: 02/05/2018
	Data Release Frequency: Varies

Financial Assurance 2: Financial Assurance Information Listing

A listing of financial assurance information for solid waste facilities. Financial assurance is intended to ensure that resources are available to pay for the cost of closure, post-closure care, and corrective measures if the owner or operator of a regulated facility is unable or unwilling to pay.

Date of Government Version: 08/15/2017	Source: California Integrated Waste Management Board
Date Data Arrived at EDR: 08/22/2017	Telephone: 916-341-6066
Date Made Active in Reports: 10/25/2017	Last EDR Contact: 08/10/2017
Number of Days to Update: 64	Next Scheduled EDR Contact: 11/27/2017
	Data Release Frequency: Varies

HAZNET: Facility and Manifest Data

Facility and Manifest Data. The data is extracted from the copies of hazardous waste manifests received each year by the DTSC. The annual volume of manifests is typically 700,000 - 1,000,000 annually, representing approximately 350,000 - 500,000 shipments. Data are from the manifests submitted without correction, and therefore many contain some invalid values for data elements such as generator ID, TSD ID, waste category, and disposal method. This database begins with calendar year 1993.

Date of Government Version: 12/31/2016	Source: California Environmental Protection Agency
Date Data Arrived at EDR: 07/12/2017	Telephone: 916-255-1136
Date Made Active in Reports: 10/17/2017	Last EDR Contact: 10/10/2017
Number of Days to Update: 97	Next Scheduled EDR Contact: 01/22/2018
	Data Release Frequency: Annually

ICE: ICE

Contains data pertaining to the Permitted Facilities with Inspections / Enforcements sites tracked in Envirostor.

Date of Government Version: 08/21/2017	Source: Department of Toxic Substances Control
Date Data Arrived at EDR: 08/22/2017	Telephone: 877-786-9427
Date Made Active in Reports: 10/25/2017	Last EDR Contact: 08/22/2017
Number of Days to Update: 64	Next Scheduled EDR Contact: 12/04/2017
	Data Release Frequency: Quarterly

HIST CORTESE: Hazardous Waste & Substance Site List

The sites for the list are designated by the State Water Resource Control Board [LUST], the Integrated Waste Board [SWF/LS], and the Department of Toxic Substances Control [CALSITES]. This listing is no longer updated by the state agency.

Date of Government Version: 04/01/2001	Source: Department of Toxic Substances Control
Date Data Arrived at EDR: 01/22/2009	Telephone: 916-323-3400
Date Made Active in Reports: 04/08/2009	Last EDR Contact: 01/22/2009
Number of Days to Update: 76	Next Scheduled EDR Contact: N/A
	Data Release Frequency: No Update Planned

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

HWP: EnviroStor Permitted Facilities Listing

Detailed information on permitted hazardous waste facilities and corrective action ("cleanups") tracked in EnviroStor.

Date of Government Version: 08/21/2017
Date Data Arrived at EDR: 08/22/2017
Date Made Active in Reports: 10/25/2017
Number of Days to Update: 64

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 08/22/2017
Next Scheduled EDR Contact: 12/04/2017
Data Release Frequency: Quarterly

HWT: Registered Hazardous Waste Transporter Database

A listing of hazardous waste transporters. In California, unless specifically exempted, it is unlawful for any person to transport hazardous wastes unless the person holds a valid registration issued by DTSC. A hazardous waste transporter registration is valid for one year and is assigned a unique registration number.

Date of Government Version: 10/10/2017
Date Data Arrived at EDR: 10/10/2017
Date Made Active in Reports: 10/17/2017
Number of Days to Update: 7

Source: Department of Toxic Substances Control
Telephone: 916-440-7145
Last EDR Contact: 10/10/2017
Next Scheduled EDR Contact: 01/22/2018
Data Release Frequency: Quarterly

MINES: Mines Site Location Listing

A listing of mine site locations from the Office of Mine Reclamation.

Date of Government Version: 09/12/2016
Date Data Arrived at EDR: 09/14/2016
Date Made Active in Reports: 10/14/2016
Number of Days to Update: 30

Source: Department of Conservation
Telephone: 916-322-1080
Last EDR Contact: 09/12/2017
Next Scheduled EDR Contact: 12/25/2017
Data Release Frequency: Varies

MWMP: Medical Waste Management Program Listing

The Medical Waste Management Program (MWMP) ensures the proper handling and disposal of medical waste by permitting and inspecting medical waste Offsite Treatment Facilities (PDF) and Transfer Stations (PDF) throughout the state. MWMP also oversees all Medical Waste Transporters.

Date of Government Version: 05/25/2017
Date Data Arrived at EDR: 06/06/2017
Date Made Active in Reports: 08/23/2017
Number of Days to Update: 78

Source: Department of Public Health
Telephone: 916-558-1784
Last EDR Contact: 09/06/2017
Next Scheduled EDR Contact: 12/18/2017
Data Release Frequency: Varies

NPDES: NPDES Permits Listing

A listing of NPDES permits, including stormwater.

Date of Government Version: 08/14/2017
Date Data Arrived at EDR: 08/17/2017
Date Made Active in Reports: 10/17/2017
Number of Days to Update: 61

Source: State Water Resources Control Board
Telephone: 916-445-9379
Last EDR Contact: 08/17/2017
Next Scheduled EDR Contact: 11/27/2017
Data Release Frequency: Quarterly

PEST LIC: Pesticide Regulation Licenses Listing

A listing of licenses and certificates issued by the Department of Pesticide Regulation. The DPR issues licenses and/or certificates to: Persons and businesses that apply or sell pesticides; Pest control dealers and brokers; Persons who advise on agricultural pesticide applications.

Date of Government Version: 06/05/2017
Date Data Arrived at EDR: 06/07/2017
Date Made Active in Reports: 08/25/2017
Number of Days to Update: 79

Source: Department of Pesticide Regulation
Telephone: 916-445-4038
Last EDR Contact: 09/06/2017
Next Scheduled EDR Contact: 12/18/2017
Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

PROC: Certified Processors Database

A listing of certified processors.

Date of Government Version: 09/11/2017
Date Data Arrived at EDR: 09/12/2017
Date Made Active in Reports: 10/18/2017
Number of Days to Update: 36

Source: Department of Conservation
Telephone: 916-323-3836
Last EDR Contact: 09/12/2017
Next Scheduled EDR Contact: 12/25/2017
Data Release Frequency: Quarterly

NOTIFY 65: Proposition 65 Records

Listings of all Proposition 65 incidents reported to counties by the State Water Resources Control Board and the Regional Water Quality Control Board. This database is no longer updated by the reporting agency.

Date of Government Version: 06/16/2017
Date Data Arrived at EDR: 06/20/2017
Date Made Active in Reports: 10/17/2017
Number of Days to Update: 119

Source: State Water Resources Control Board
Telephone: 916-445-3846
Last EDR Contact: 09/18/2017
Next Scheduled EDR Contact: 01/01/2018
Data Release Frequency: No Update Planned

UIC: UIC Listing

A listing of wells identified as underground injection wells, in the California Oil and Gas Wells database.

Date of Government Version: 01/20/2017
Date Data Arrived at EDR: 03/14/2017
Date Made Active in Reports: 05/03/2017
Number of Days to Update: 50

Source: Department of Conservation
Telephone: 916-445-2408
Last EDR Contact: 09/12/2017
Next Scheduled EDR Contact: 12/25/2017
Data Release Frequency: Varies

WASTEWATER PITS: Oil Wastewater Pits Listing

Water officials discovered that oil producers have been dumping chemical-laden wastewater into hundreds of unlined pits that are operating without proper permits. Inspections completed by the Central Valley Regional Water Quality Control Board revealed the existence of previously unidentified waste sites. The water board's review found that more than one-third of the region's active disposal pits are operating without permission.

Date of Government Version: 04/15/2015
Date Data Arrived at EDR: 04/17/2015
Date Made Active in Reports: 06/23/2015
Number of Days to Update: 67

Source: RWQCB, Central Valley Region
Telephone: 559-445-5577
Last EDR Contact: 10/13/2017
Next Scheduled EDR Contact: 01/22/2018
Data Release Frequency: Varies

WDS: Waste Discharge System

Sites which have been issued waste discharge requirements.

Date of Government Version: 06/19/2007
Date Data Arrived at EDR: 06/20/2007
Date Made Active in Reports: 06/29/2007
Number of Days to Update: 9

Source: State Water Resources Control Board
Telephone: 916-341-5227
Last EDR Contact: 08/18/2017
Next Scheduled EDR Contact: 12/04/2017
Data Release Frequency: Quarterly

WIP: Well Investigation Program Case List

Well Investigation Program case in the San Gabriel and San Fernando Valley area.

Date of Government Version: 07/03/2009
Date Data Arrived at EDR: 07/21/2009
Date Made Active in Reports: 08/03/2009
Number of Days to Update: 13

Source: Los Angeles Water Quality Control Board
Telephone: 213-576-6726
Last EDR Contact: 09/25/2017
Next Scheduled EDR Contact: 01/08/2018
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP: EDR Proprietary Manufactured Gas Plants

The EDR Proprietary Manufactured Gas Plant Database includes records of coal gas plants (manufactured gas plants) compiled by EDR's researchers. Manufactured gas sites were used in the United States from the 1800's to 1950's to produce a gas that could be distributed and used as fuel. These plants used whale oil, rosin, coal, or a mixture of coal, oil, and water that also produced a significant amount of waste. Many of the byproducts of the gas production, such as coal tar (oily waste containing volatile and non-volatile chemicals), sludges, oils and other compounds are potentially hazardous to human health and the environment. The byproduct from this process was frequently disposed of directly at the plant site and can remain or spread slowly, serving as a continuous source of soil and groundwater contamination.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

EDR Hist Auto: EDR Exclusive Historic Auto Stations

EDR has searched selected national collections of business directories and has collected listings of potential gas station/filling station/service station sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include gas station/filling station/service station establishments. The categories reviewed included, but were not limited to gas, gas station, gasoline station, filling station, auto, automobile repair, auto service station, service station, etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR Hist Cleaner: EDR Exclusive Historic Cleaners

EDR has searched selected national collections of business directories and has collected listings of potential dry cleaner sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include dry cleaning establishments. The categories reviewed included, but were not limited to dry cleaners, cleaners, laundry, laundromat, cleaning/laundry, wash & dry etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

RGA LF: Recovered Government Archive Solid Waste Facilities List

The EDR Recovered Government Archive Landfill database provides a list of landfills derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the Department of Resources Recycling and Recovery in California.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 01/13/2014
Number of Days to Update: 196

Source: Department of Resources Recycling and Recovery
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

RGA LUST: Recovered Government Archive Leaking Underground Storage Tank

The EDR Recovered Government Archive Leaking Underground Storage Tank database provides a list of LUST incidents derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the State Water Resources Control Board in California.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 12/30/2013
Number of Days to Update: 182

Source: State Water Resources Control Board
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

COUNTY RECORDS

ALAMEDA COUNTY:

Contaminated Sites

A listing of contaminated sites overseen by the Toxic Release Program (oil and groundwater contamination from chemical releases and spills) and the Leaking Underground Storage Tank Program (soil and ground water contamination from leaking petroleum USTs).

Date of Government Version: 09/22/2017
Date Data Arrived at EDR: 09/22/2017
Date Made Active in Reports: 10/10/2017
Number of Days to Update: 18

Source: Alameda County Environmental Health Services
Telephone: 510-567-6700
Last EDR Contact: 09/21/2017
Next Scheduled EDR Contact: 01/22/2018
Data Release Frequency: Semi-Annually

Underground Tanks

Underground storage tank sites located in Alameda county.

Date of Government Version: 07/07/2017
Date Data Arrived at EDR: 07/11/2017
Date Made Active in Reports: 08/23/2017
Number of Days to Update: 43

Source: Alameda County Environmental Health Services
Telephone: 510-567-6700
Last EDR Contact: 10/10/2017
Next Scheduled EDR Contact: 04/24/2047
Data Release Frequency: Semi-Annually

AMADOR COUNTY:

CUPA Facility List

Cupa Facility List

Date of Government Version: 06/20/2017
Date Data Arrived at EDR: 06/21/2017
Date Made Active in Reports: 08/09/2017
Number of Days to Update: 49

Source: Amador County Environmental Health
Telephone: 209-223-6439
Last EDR Contact: 08/31/2017
Next Scheduled EDR Contact: 12/18/2017
Data Release Frequency: Varies

BUTTE COUNTY:

CUPA Facility Listing

Cupa facility list.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 04/21/2017
Date Data Arrived at EDR: 04/25/2017
Date Made Active in Reports: 08/09/2017
Number of Days to Update: 106

Source: Public Health Department
Telephone: 530-538-7149
Last EDR Contact: 09/18/2017
Next Scheduled EDR Contact: 10/23/2017
Data Release Frequency: No Update Planned

CALVERAS COUNTY:

CUPA Facility Listing Cupa Facility Listing

Date of Government Version: 04/25/2017
Date Data Arrived at EDR: 04/27/2017
Date Made Active in Reports: 08/09/2017
Number of Days to Update: 104

Source: Calveras County Environmental Health
Telephone: 209-754-6399
Last EDR Contact: 09/05/2017
Next Scheduled EDR Contact: 01/08/2018
Data Release Frequency: Quarterly

COLUSA COUNTY:

CUPA Facility List Cupa facility list.

Date of Government Version: 08/07/2017
Date Data Arrived at EDR: 08/08/2017
Date Made Active in Reports: 10/16/2017
Number of Days to Update: 69

Source: Health & Human Services
Telephone: 530-458-0396
Last EDR Contact: 08/03/2017
Next Scheduled EDR Contact: 11/20/2017
Data Release Frequency: Semi-Annually

CONTRA COSTA COUNTY:

Site List

List includes sites from the underground tank, hazardous waste generator and business plan/2185 programs.

Date of Government Version: 08/17/2017
Date Data Arrived at EDR: 08/22/2017
Date Made Active in Reports: 10/25/2017
Number of Days to Update: 64

Source: Contra Costa Health Services Department
Telephone: 925-646-2286
Last EDR Contact: 07/31/2017
Next Scheduled EDR Contact: 11/13/2017
Data Release Frequency: Semi-Annually

DEL NORTE COUNTY:

CUPA Facility List Cupa Facility list

Date of Government Version: 08/02/2017
Date Data Arrived at EDR: 08/08/2017
Date Made Active in Reports: 10/13/2017
Number of Days to Update: 66

Source: Del Norte County Environmental Health Division
Telephone: 707-465-0426
Last EDR Contact: 10/25/2017
Next Scheduled EDR Contact: 02/12/2018
Data Release Frequency: Varies

EL DORADO COUNTY:

CUPA Facility List CUPA facility list.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 08/18/2017
Date Data Arrived at EDR: 08/22/2017
Date Made Active in Reports: 10/24/2017
Number of Days to Update: 63

Source: El Dorado County Environmental Management Department
Telephone: 530-621-6623
Last EDR Contact: 07/31/2017
Next Scheduled EDR Contact: 11/13/2017
Data Release Frequency: Varies

FRESNO COUNTY:

CUPA Resources List

Certified Unified Program Agency. CUPA's are responsible for implementing a unified hazardous materials and hazardous waste management regulatory program. The agency provides oversight of businesses that deal with hazardous materials, operate underground storage tanks or aboveground storage tanks.

Date of Government Version: 06/30/2017
Date Data Arrived at EDR: 07/05/2017
Date Made Active in Reports: 08/04/2017
Number of Days to Update: 30

Source: Dept. of Community Health
Telephone: 559-445-3271
Last EDR Contact: 09/27/2017
Next Scheduled EDR Contact: 01/15/2018
Data Release Frequency: Semi-Annually

GLENN COUNTY:

CUPA Facility List

Cupa facility list

Date of Government Version: 07/26/2017
Date Data Arrived at EDR: 07/28/2017
Date Made Active in Reports: 10/13/2017
Number of Days to Update: 77

Source: Glenn County Air Pollution Control District
Telephone: 830-934-6500
Last EDR Contact: 10/23/2017
Next Scheduled EDR Contact: 02/05/2018
Data Release Frequency: Varies

HUMBOLDT COUNTY:

CUPA Facility List

CUPA facility list.

Date of Government Version: 08/03/2017
Date Data Arrived at EDR: 08/08/2017
Date Made Active in Reports: 10/16/2017
Number of Days to Update: 69

Source: Humboldt County Environmental Health
Telephone: N/A
Last EDR Contact: 08/03/2017
Next Scheduled EDR Contact: 12/04/2017
Data Release Frequency: Semi-Annually

IMPERIAL COUNTY:

CUPA Facility List

Cupa facility list.

Date of Government Version: 07/21/2017
Date Data Arrived at EDR: 07/25/2017
Date Made Active in Reports: 10/16/2017
Number of Days to Update: 83

Source: San Diego Border Field Office
Telephone: 760-339-2777
Last EDR Contact: 10/23/2017
Next Scheduled EDR Contact: 02/05/2018
Data Release Frequency: Varies

INYO COUNTY:

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

CUPA Facility List

Cupa facility list.

Date of Government Version: 06/08/2017

Date Data Arrived at EDR: 06/09/2017

Date Made Active in Reports: 08/04/2017

Number of Days to Update: 56

Source: Inyo County Environmental Health Services

Telephone: 760-878-0238

Last EDR Contact: 08/31/2017

Next Scheduled EDR Contact: 12/04/2017

Data Release Frequency: Varies

KERN COUNTY:

Underground Storage Tank Sites & Tank Listing

Kern County Sites and Tanks Listing.

Date of Government Version: 08/07/2017

Date Data Arrived at EDR: 08/08/2017

Date Made Active in Reports: 09/21/2017

Number of Days to Update: 44

Source: Kern County Environment Health Services Department

Telephone: 661-862-8700

Last EDR Contact: 08/03/2017

Next Scheduled EDR Contact: 11/20/2017

Data Release Frequency: Quarterly

KINGS COUNTY:

CUPA Facility List

A listing of sites included in the county's Certified Unified Program Agency database. California's Secretary for Environmental Protection established the unified hazardous materials and hazardous waste regulatory program as required by chapter 6.11 of the California Health and Safety Code. The Unified Program consolidates the administration, permits, inspections, and enforcement activities.

Date of Government Version: 09/22/2017

Date Data Arrived at EDR: 09/22/2017

Date Made Active in Reports: 10/16/2017

Number of Days to Update: 24

Source: Kings County Department of Public Health

Telephone: 559-584-1411

Last EDR Contact: 09/22/2017

Next Scheduled EDR Contact: 12/04/2017

Data Release Frequency: Varies

LAKE COUNTY:

CUPA Facility List

Cupa facility list

Date of Government Version: 08/03/2017

Date Data Arrived at EDR: 08/03/2017

Date Made Active in Reports: 10/16/2017

Number of Days to Update: 74

Source: Lake County Environmental Health

Telephone: 707-263-1164

Last EDR Contact: 10/16/2017

Next Scheduled EDR Contact: 01/29/2018

Data Release Frequency: Varies

LASSEN COUNTY:

CUPA Facility List

Cupa facility list

Date of Government Version: 07/24/2017

Date Data Arrived at EDR: 07/26/2017

Date Made Active in Reports: 10/16/2017

Number of Days to Update: 82

Source: Lassen County Environmental Health

Telephone: 530-251-8528

Last EDR Contact: 10/23/2017

Next Scheduled EDR Contact: 02/05/2018

Data Release Frequency: Varies

LOS ANGELES COUNTY:

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

San Gabriel Valley Areas of Concern

San Gabriel Valley areas where VOC contamination is at or above the MCL as designated by region 9 EPA office.

Date of Government Version: 03/30/2009
Date Data Arrived at EDR: 03/31/2009
Date Made Active in Reports: 10/23/2009
Number of Days to Update: 206

Source: EPA Region 9
Telephone: 415-972-3178
Last EDR Contact: 09/18/2017
Next Scheduled EDR Contact: 01/01/2018
Data Release Frequency: No Update Planned

HMS: Street Number List

Industrial Waste and Underground Storage Tank Sites.

Date of Government Version: 10/11/2017
Date Data Arrived at EDR: 10/12/2017
Date Made Active in Reports: 10/17/2017
Number of Days to Update: 5

Source: Department of Public Works
Telephone: 626-458-3517
Last EDR Contact: 10/10/2017
Next Scheduled EDR Contact: 01/22/2018
Data Release Frequency: Semi-Annually

List of Solid Waste Facilities

Solid Waste Facilities in Los Angeles County.

Date of Government Version: 07/17/2017
Date Data Arrived at EDR: 07/18/2017
Date Made Active in Reports: 09/21/2017
Number of Days to Update: 65

Source: La County Department of Public Works
Telephone: 818-458-5185
Last EDR Contact: 10/17/2017
Next Scheduled EDR Contact: 01/29/2018
Data Release Frequency: Varies

City of Los Angeles Landfills

Landfills owned and maintained by the City of Los Angeles.

Date of Government Version: 01/01/2017
Date Data Arrived at EDR: 04/21/2017
Date Made Active in Reports: 10/09/2017
Number of Days to Update: 171

Source: Engineering & Construction Division
Telephone: 213-473-7869
Last EDR Contact: 10/16/2017
Next Scheduled EDR Contact: 01/29/2018
Data Release Frequency: Varies

Site Mitigation List

Industrial sites that have had some sort of spill or complaint.

Date of Government Version: 03/29/2016
Date Data Arrived at EDR: 04/06/2016
Date Made Active in Reports: 06/13/2016
Number of Days to Update: 68

Source: Community Health Services
Telephone: 323-890-7806
Last EDR Contact: 10/24/2017
Next Scheduled EDR Contact: 01/29/2018
Data Release Frequency: Annually

City of El Segundo Underground Storage Tank

Underground storage tank sites located in El Segundo city.

Date of Government Version: 01/21/2017
Date Data Arrived at EDR: 04/19/2017
Date Made Active in Reports: 05/10/2017
Number of Days to Update: 21

Source: City of El Segundo Fire Department
Telephone: 310-524-2236
Last EDR Contact: 10/16/2017
Next Scheduled EDR Contact: 01/29/2018
Data Release Frequency: Semi-Annually

City of Long Beach Underground Storage Tank

Underground storage tank sites located in the city of Long Beach.

Date of Government Version: 03/09/2017
Date Data Arrived at EDR: 03/10/2017
Date Made Active in Reports: 05/03/2017
Number of Days to Update: 54

Source: City of Long Beach Fire Department
Telephone: 562-570-2563
Last EDR Contact: 10/23/2017
Next Scheduled EDR Contact: 02/05/2018
Data Release Frequency: Annually

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

City of Torrance Underground Storage Tank

Underground storage tank sites located in the city of Torrance.

Date of Government Version: 07/11/2017

Date Data Arrived at EDR: 07/14/2017

Date Made Active in Reports: 09/21/2017

Number of Days to Update: 69

Source: City of Torrance Fire Department

Telephone: 310-618-2973

Last EDR Contact: 10/10/2017

Next Scheduled EDR Contact: 01/22/2018

Data Release Frequency: Semi-Annually

MADERA COUNTY:

CUPA Facility List

A listing of sites included in the county's Certified Unified Program Agency database. California's Secretary for Environmental Protection established the unified hazardous materials and hazardous waste regulatory program as required by chapter 6.11 of the California Health and Safety Code. The Unified Program consolidates the administration, permits, inspections, and enforcement activities.

Date of Government Version: 06/01/2017

Date Data Arrived at EDR: 06/02/2017

Date Made Active in Reports: 08/04/2017

Number of Days to Update: 63

Source: Madera County Environmental Health

Telephone: 559-675-7823

Last EDR Contact: 08/21/2017

Next Scheduled EDR Contact: 12/04/2017

Data Release Frequency: Varies

MARIN COUNTY:

Underground Storage Tank Sites

Currently permitted USTs in Marin County.

Date of Government Version: 07/03/2017

Date Data Arrived at EDR: 09/06/2017

Date Made Active in Reports: 09/21/2017

Number of Days to Update: 15

Source: Public Works Department Waste Management

Telephone: 415-473-6647

Last EDR Contact: 09/27/2017

Next Scheduled EDR Contact: 01/15/2018

Data Release Frequency: Semi-Annually

MERCED COUNTY:

CUPA Facility List

CUPA facility list.

Date of Government Version: 10/02/2017

Date Data Arrived at EDR: 10/03/2017

Date Made Active in Reports: 10/17/2017

Number of Days to Update: 14

Source: Merced County Environmental Health

Telephone: 209-381-1094

Last EDR Contact: 09/27/2017

Next Scheduled EDR Contact: 12/04/2017

Data Release Frequency: Varies

MONO COUNTY:

CUPA Facility List

CUPA Facility List

Date of Government Version: 08/08/2017

Date Data Arrived at EDR: 09/06/2017

Date Made Active in Reports: 10/16/2017

Number of Days to Update: 40

Source: Mono County Health Department

Telephone: 760-932-5580

Last EDR Contact: 08/08/2017

Next Scheduled EDR Contact: 12/11/2017

Data Release Frequency: Varies

MONTEREY COUNTY:

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

CUPA Facility Listing

CUPA Program listing from the Environmental Health Division.

Date of Government Version: 06/22/2017
Date Data Arrived at EDR: 06/23/2017
Date Made Active in Reports: 08/09/2017
Number of Days to Update: 47

Source: Monterey County Health Department
Telephone: 831-796-1297
Last EDR Contact: 08/21/2017
Next Scheduled EDR Contact: 12/04/2017
Data Release Frequency: Varies

NAPA COUNTY:

Sites With Reported Contamination

A listing of leaking underground storage tank sites located in Napa county.

Date of Government Version: 01/09/2017
Date Data Arrived at EDR: 01/11/2017
Date Made Active in Reports: 03/02/2017
Number of Days to Update: 50

Source: Napa County Department of Environmental Management
Telephone: 707-253-4269
Last EDR Contact: 08/24/2017
Next Scheduled EDR Contact: 12/11/2017
Data Release Frequency: No Update Planned

Closed and Operating Underground Storage Tank Sites

Underground storage tank sites located in Napa county.

Date of Government Version: 05/31/2017
Date Data Arrived at EDR: 06/01/2017
Date Made Active in Reports: 08/25/2017
Number of Days to Update: 85

Source: Napa County Department of Environmental Management
Telephone: 707-253-4269
Last EDR Contact: 08/24/2017
Next Scheduled EDR Contact: 12/11/2017
Data Release Frequency: No Update Planned

NEVADA COUNTY:

CUPA Facility List

CUPA facility list.

Date of Government Version: 08/04/2017
Date Data Arrived at EDR: 08/08/2017
Date Made Active in Reports: 10/16/2017
Number of Days to Update: 69

Source: Community Development Agency
Telephone: 530-265-1467
Last EDR Contact: 10/25/2017
Next Scheduled EDR Contact: 02/12/2018
Data Release Frequency: Varies

ORANGE COUNTY:

List of Industrial Site Cleanups

Petroleum and non-petroleum spills.

Date of Government Version: 08/07/2017
Date Data Arrived at EDR: 08/11/2017
Date Made Active in Reports: 10/11/2017
Number of Days to Update: 61

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 08/07/2017
Next Scheduled EDR Contact: 11/20/2017
Data Release Frequency: Annually

List of Underground Storage Tank Cleanups

Orange County Underground Storage Tank Cleanups (LUST).

Date of Government Version: 08/07/2017
Date Data Arrived at EDR: 08/11/2017
Date Made Active in Reports: 09/21/2017
Number of Days to Update: 41

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 08/07/2017
Next Scheduled EDR Contact: 11/20/2017
Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

List of Underground Storage Tank Facilities

Orange County Underground Storage Tank Facilities (UST).

Date of Government Version: 08/07/2017

Date Data Arrived at EDR: 08/09/2017

Date Made Active in Reports: 09/21/2017

Number of Days to Update: 43

Source: Health Care Agency

Telephone: 714-834-3446

Last EDR Contact: 08/09/2017

Next Scheduled EDR Contact: 11/20/2017

Data Release Frequency: Quarterly

PLACER COUNTY:

Master List of Facilities

List includes aboveground tanks, underground tanks and cleanup sites.

Date of Government Version: 06/02/2017

Date Data Arrived at EDR: 06/06/2017

Date Made Active in Reports: 08/22/2017

Number of Days to Update: 77

Source: Placer County Health and Human Services

Telephone: 530-745-2363

Last EDR Contact: 08/31/2017

Next Scheduled EDR Contact: 12/18/2017

Data Release Frequency: Semi-Annually

PLUMAS COUNTY:

CUPA Facility List

Plumas County CUPA Program facilities.

Date of Government Version: 06/19/2017

Date Data Arrived at EDR: 07/05/2017

Date Made Active in Reports: 08/09/2017

Number of Days to Update: 35

Source: Plumas County Environmental Health

Telephone: 530-283-6355

Last EDR Contact: 10/23/2017

Next Scheduled EDR Contact: 02/05/2018

Data Release Frequency: Varies

RIVERSIDE COUNTY:

Listing of Underground Tank Cleanup Sites

Riverside County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 07/11/2017

Date Data Arrived at EDR: 07/14/2017

Date Made Active in Reports: 09/21/2017

Number of Days to Update: 69

Source: Department of Environmental Health

Telephone: 951-358-5055

Last EDR Contact: 09/18/2017

Next Scheduled EDR Contact: 01/01/2018

Data Release Frequency: Quarterly

Underground Storage Tank Tank List

Underground storage tank sites located in Riverside county.

Date of Government Version: 07/11/2017

Date Data Arrived at EDR: 07/14/2017

Date Made Active in Reports: 09/21/2017

Number of Days to Update: 69

Source: Department of Environmental Health

Telephone: 951-358-5055

Last EDR Contact: 09/18/2017

Next Scheduled EDR Contact: 01/01/2018

Data Release Frequency: Quarterly

SACRAMENTO COUNTY:

Toxic Site Clean-Up List

List of sites where unauthorized releases of potentially hazardous materials have occurred.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 08/02/2017
Date Data Arrived at EDR: 10/03/2017
Date Made Active in Reports: 10/06/2017
Number of Days to Update: 3

Source: Sacramento County Environmental Management
Telephone: 916-875-8406
Last EDR Contact: 10/03/2017
Next Scheduled EDR Contact: 01/15/2018
Data Release Frequency: Quarterly

Master Hazardous Materials Facility List

Any business that has hazardous materials on site - hazardous material storage sites, underground storage tanks, waste generators.

Date of Government Version: 05/03/2017
Date Data Arrived at EDR: 07/06/2017
Date Made Active in Reports: 08/22/2017
Number of Days to Update: 47

Source: Sacramento County Environmental Management
Telephone: 916-875-8406
Last EDR Contact: 10/03/2017
Next Scheduled EDR Contact: 01/15/2018
Data Release Frequency: Quarterly

SAN BENITO COUNTY:

CUPA Facility List

Cupa facility list

Date of Government Version: 08/08/2017
Date Data Arrived at EDR: 08/11/2017
Date Made Active in Reports: 10/16/2017
Number of Days to Update: 66

Source: San Benito County Environmental Health
Telephone: N/A
Last EDR Contact: 08/03/2017
Next Scheduled EDR Contact: 11/20/2017
Data Release Frequency: Varies

SAN BERNARDINO COUNTY:

Hazardous Material Permits

This listing includes underground storage tanks, medical waste handlers/generators, hazardous materials handlers, hazardous waste generators, and waste oil generators/handlers.

Date of Government Version: 05/30/2017
Date Data Arrived at EDR: 06/01/2017
Date Made Active in Reports: 08/25/2017
Number of Days to Update: 85

Source: San Bernardino County Fire Department Hazardous Materials Division
Telephone: 909-387-3041
Last EDR Contact: 08/07/2017
Next Scheduled EDR Contact: 11/20/2017
Data Release Frequency: Quarterly

SAN DIEGO COUNTY:

Hazardous Materials Management Division Database

The database includes: HE58 - This report contains the business name, site address, business phone number, establishment 'H' permit number, type of permit, and the business status. HE17 - In addition to providing the same information provided in the HE58 listing, HE17 provides inspection dates, violations received by the establishment, hazardous waste generated, the quantity, method of storage, treatment/disposal of waste and the hauler, and information on underground storage tanks. Unauthorized Release List - Includes a summary of environmental contamination cases in San Diego County (underground tank cases, non-tank cases, groundwater contamination, and soil contamination are included.)

Date of Government Version: 06/05/2017
Date Data Arrived at EDR: 06/07/2017
Date Made Active in Reports: 08/15/2017
Number of Days to Update: 69

Source: Hazardous Materials Management Division
Telephone: 619-338-2268
Last EDR Contact: 09/06/2017
Next Scheduled EDR Contact: 12/18/2017
Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Solid Waste Facilities

San Diego County Solid Waste Facilities.

Date of Government Version: 10/31/2015
Date Data Arrived at EDR: 11/07/2015
Date Made Active in Reports: 01/04/2016
Number of Days to Update: 58

Source: Department of Health Services
Telephone: 619-338-2209
Last EDR Contact: 10/23/2017
Next Scheduled EDR Contact: 02/05/2018
Data Release Frequency: Varies

Environmental Case Listing

The listing contains all underground tank release cases and projects pertaining to properties contaminated with hazardous substances that are actively under review by the Site Assessment and Mitigation Program.

Date of Government Version: 03/23/2010
Date Data Arrived at EDR: 06/15/2010
Date Made Active in Reports: 07/09/2010
Number of Days to Update: 24

Source: San Diego County Department of Environmental Health
Telephone: 619-338-2371
Last EDR Contact: 08/31/2017
Next Scheduled EDR Contact: 12/18/2017
Data Release Frequency: No Update Planned

SAN FRANCISCO COUNTY:

Local Oversight Facilities

A listing of leaking underground storage tank sites located in San Francisco county.

Date of Government Version: 09/19/2008
Date Data Arrived at EDR: 09/19/2008
Date Made Active in Reports: 09/29/2008
Number of Days to Update: 10

Source: Department Of Public Health San Francisco County
Telephone: 415-252-3920
Last EDR Contact: 08/07/2017
Next Scheduled EDR Contact: 11/20/2017
Data Release Frequency: Quarterly

Underground Storage Tank Information

Underground storage tank sites located in San Francisco county.

Date of Government Version: 05/03/2017
Date Data Arrived at EDR: 05/08/2017
Date Made Active in Reports: 08/25/2017
Number of Days to Update: 109

Source: Department of Public Health
Telephone: 415-252-3920
Last EDR Contact: 08/21/2017
Next Scheduled EDR Contact: 11/20/2017
Data Release Frequency: Quarterly

SAN JOAQUIN COUNTY:

San Joaquin Co. UST

A listing of underground storage tank locations in San Joaquin county.

Date of Government Version: 10/03/2017
Date Data Arrived at EDR: 10/06/2017
Date Made Active in Reports: 10/10/2017
Number of Days to Update: 4

Source: Environmental Health Department
Telephone: N/A
Last EDR Contact: 08/28/2017
Next Scheduled EDR Contact: 01/01/2018
Data Release Frequency: Semi-Annually

SAN LUIS OBISPO COUNTY:

CUPA Facility List

Cupa Facility List.

Date of Government Version: 08/18/2017
Date Data Arrived at EDR: 08/22/2017
Date Made Active in Reports: 10/25/2017
Number of Days to Update: 64

Source: San Luis Obispo County Public Health Department
Telephone: 805-781-5596
Last EDR Contact: 08/18/2017
Next Scheduled EDR Contact: 12/04/2017
Data Release Frequency: Varies

SAN MATEO COUNTY:

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Business Inventory

List includes Hazardous Materials Business Plan, hazardous waste generators, and underground storage tanks.

Date of Government Version: 09/15/2017

Date Data Arrived at EDR: 09/19/2017

Date Made Active in Reports: 10/17/2017

Number of Days to Update: 28

Source: San Mateo County Environmental Health Services Division

Telephone: 650-363-1921

Last EDR Contact: 09/07/2017

Next Scheduled EDR Contact: 12/25/2017

Data Release Frequency: Annually

Fuel Leak List

A listing of leaking underground storage tank sites located in San Mateo county.

Date of Government Version: 06/15/2017

Date Data Arrived at EDR: 06/19/2017

Date Made Active in Reports: 08/22/2017

Number of Days to Update: 64

Source: San Mateo County Environmental Health Services Division

Telephone: 650-363-1921

Last EDR Contact: 09/07/2017

Next Scheduled EDR Contact: 12/25/2017

Data Release Frequency: Semi-Annually

SANTA BARBARA COUNTY:

CUPA Facility Listing

CUPA Program Listing from the Environmental Health Services division.

Date of Government Version: 09/08/2011

Date Data Arrived at EDR: 09/09/2011

Date Made Active in Reports: 10/07/2011

Number of Days to Update: 28

Source: Santa Barbara County Public Health Department

Telephone: 805-686-8167

Last EDR Contact: 08/18/2017

Next Scheduled EDR Contact: 12/04/2017

Data Release Frequency: Varies

SANTA CLARA COUNTY:

Cupa Facility List

Cupa facility list

Date of Government Version: 08/07/2017

Date Data Arrived at EDR: 08/10/2017

Date Made Active in Reports: 10/16/2017

Number of Days to Update: 67

Source: Department of Environmental Health

Telephone: 408-918-1973

Last EDR Contact: 08/07/2017

Next Scheduled EDR Contact: 12/04/2017

Data Release Frequency: Varies

HIST LUST - Fuel Leak Site Activity Report

A listing of open and closed leaking underground storage tanks. This listing is no longer updated by the county. Leaking underground storage tanks are now handled by the Department of Environmental Health.

Date of Government Version: 03/29/2005

Date Data Arrived at EDR: 03/30/2005

Date Made Active in Reports: 04/21/2005

Number of Days to Update: 22

Source: Santa Clara Valley Water District

Telephone: 408-265-2600

Last EDR Contact: 03/23/2009

Next Scheduled EDR Contact: 06/22/2009

Data Release Frequency: No Update Planned

LOP Listing

A listing of leaking underground storage tanks located in Santa Clara county.

Date of Government Version: 03/03/2014

Date Data Arrived at EDR: 03/05/2014

Date Made Active in Reports: 03/18/2014

Number of Days to Update: 13

Source: Department of Environmental Health

Telephone: 408-918-3417

Last EDR Contact: 08/24/2017

Next Scheduled EDR Contact: 12/11/2017

Data Release Frequency: Annually

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Hazardous Material Facilities

Hazardous material facilities, including underground storage tank sites.

Date of Government Version: 08/07/2017
Date Data Arrived at EDR: 08/15/2017
Date Made Active in Reports: 10/24/2017
Number of Days to Update: 70

Source: City of San Jose Fire Department
Telephone: 408-535-7694
Last EDR Contact: 08/03/2017
Next Scheduled EDR Contact: 11/20/2017
Data Release Frequency: Annually

SANTA CRUZ COUNTY:

CUPA Facility List

CUPA facility listing.

Date of Government Version: 01/21/2017
Date Data Arrived at EDR: 02/22/2017
Date Made Active in Reports: 05/23/2017
Number of Days to Update: 90

Source: Santa Cruz County Environmental Health
Telephone: 831-464-2761
Last EDR Contact: 08/18/2017
Next Scheduled EDR Contact: 12/04/2017
Data Release Frequency: Varies

SHASTA COUNTY:

CUPA Facility List

Cupa Facility List.

Date of Government Version: 06/15/2017
Date Data Arrived at EDR: 06/19/2017
Date Made Active in Reports: 08/09/2017
Number of Days to Update: 51

Source: Shasta County Department of Resource Management
Telephone: 530-225-5789
Last EDR Contact: 08/21/2017
Next Scheduled EDR Contact: 12/04/2017
Data Release Frequency: Varies

SOLANO COUNTY:

Leaking Underground Storage Tanks

A listing of leaking underground storage tank sites located in Solano county.

Date of Government Version: 06/15/2017
Date Data Arrived at EDR: 06/20/2017
Date Made Active in Reports: 08/22/2017
Number of Days to Update: 63

Source: Solano County Department of Environmental Management
Telephone: 707-784-6770
Last EDR Contact: 09/25/2017
Next Scheduled EDR Contact: 12/25/2017
Data Release Frequency: Quarterly

Underground Storage Tanks

Underground storage tank sites located in Solano county.

Date of Government Version: 06/15/2017
Date Data Arrived at EDR: 06/21/2017
Date Made Active in Reports: 08/29/2017
Number of Days to Update: 69

Source: Solano County Department of Environmental Management
Telephone: 707-784-6770
Last EDR Contact: 09/25/2017
Next Scheduled EDR Contact: 12/25/2017
Data Release Frequency: Quarterly

SONOMA COUNTY:

Cupa Facility List

Cupa Facility list

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 06/23/2017
Date Data Arrived at EDR: 06/27/2017
Date Made Active in Reports: 08/09/2017
Number of Days to Update: 43

Source: County of Sonoma Fire & Emergency Services Department
Telephone: 707-565-1174
Last EDR Contact: 09/25/2017
Next Scheduled EDR Contact: 01/01/2018
Data Release Frequency: Varies

Leaking Underground Storage Tank Sites

A listing of leaking underground storage tank sites located in Sonoma county.

Date of Government Version: 07/05/2017
Date Data Arrived at EDR: 07/06/2017
Date Made Active in Reports: 08/22/2017
Number of Days to Update: 47

Source: Department of Health Services
Telephone: 707-565-6565
Last EDR Contact: 09/25/2017
Next Scheduled EDR Contact: 01/08/2018
Data Release Frequency: Quarterly

STANISLAUS COUNTY:

CUPA Facility List

Cupa facility list

Date of Government Version: 08/17/2017
Date Data Arrived at EDR: 08/22/2017
Date Made Active in Reports: 10/25/2017
Number of Days to Update: 64

Source: Stanislaus County Department of Environmental Protection
Telephone: 209-525-6751
Last EDR Contact: 10/16/2017
Next Scheduled EDR Contact: 01/29/2018
Data Release Frequency: Varies

SUTTER COUNTY:

Underground Storage Tanks

Underground storage tank sites located in Sutter county.

Date of Government Version: 06/02/2017
Date Data Arrived at EDR: 06/06/2017
Date Made Active in Reports: 08/25/2017
Number of Days to Update: 80

Source: Sutter County Department of Agriculture
Telephone: 530-822-7500
Last EDR Contact: 08/31/2017
Next Scheduled EDR Contact: 12/18/2017
Data Release Frequency: Semi-Annually

TEHAMA COUNTY:

CUPA Facility List

Cupa facilities

Date of Government Version: 07/19/2017
Date Data Arrived at EDR: 08/11/2017
Date Made Active in Reports: 10/16/2017
Number of Days to Update: 66

Source: Tehama County Department of Environmental Health
Telephone: 530-527-8020
Last EDR Contact: 08/03/2017
Next Scheduled EDR Contact: 11/20/2017
Data Release Frequency: Varies

TRINITY COUNTY:

CUPA Facility List

Cupa facility list

Date of Government Version: 07/21/2017
Date Data Arrived at EDR: 07/25/2017
Date Made Active in Reports: 10/16/2017
Number of Days to Update: 83

Source: Department of Toxic Substances Control
Telephone: 760-352-0381
Last EDR Contact: 10/23/2017
Next Scheduled EDR Contact: 02/05/2018
Data Release Frequency: Varies

TULARE COUNTY:

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

CUPA Facility List

Cupa program facilities

Date of Government Version: 09/27/2017
Date Data Arrived at EDR: 09/28/2017
Date Made Active in Reports: 10/16/2017
Number of Days to Update: 18

Source: Tulare County Environmental Health Services Division
Telephone: 559-624-7400
Last EDR Contact: 09/22/2017
Next Scheduled EDR Contact: 11/20/2017
Data Release Frequency: Varies

TUOLUMNE COUNTY:

CUPA Facility List

Cupa facility list

Date of Government Version: 08/21/2017
Date Data Arrived at EDR: 08/22/2017
Date Made Active in Reports: 10/25/2017
Number of Days to Update: 64

Source: Divison of Environmental Health
Telephone: 209-533-5633
Last EDR Contact: 10/23/2017
Next Scheduled EDR Contact: 02/05/2018
Data Release Frequency: Varies

VENTURA COUNTY:

Business Plan, Hazardous Waste Producers, and Operating Underground Tanks

The BWT list indicates by site address whether the Environmental Health Division has Business Plan (B), Waste Producer (W), and/or Underground Tank (T) information.

Date of Government Version: 06/26/2017
Date Data Arrived at EDR: 08/03/2017
Date Made Active in Reports: 10/16/2017
Number of Days to Update: 74

Source: Ventura County Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 10/23/2017
Next Scheduled EDR Contact: 02/05/2018
Data Release Frequency: Quarterly

Inventory of Illegal Abandoned and Inactive Sites

Ventura County Inventory of Closed, Illegal Abandoned, and Inactive Sites.

Date of Government Version: 12/01/2011
Date Data Arrived at EDR: 12/01/2011
Date Made Active in Reports: 01/19/2012
Number of Days to Update: 49

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 09/27/2017
Next Scheduled EDR Contact: 01/15/2018
Data Release Frequency: Annually

Listing of Underground Tank Cleanup Sites

Ventura County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 05/29/2008
Date Data Arrived at EDR: 06/24/2008
Date Made Active in Reports: 07/31/2008
Number of Days to Update: 37

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 08/10/2017
Next Scheduled EDR Contact: 11/27/2017
Data Release Frequency: Quarterly

Medical Waste Program List

To protect public health and safety and the environment from potential exposure to disease causing agents, the Environmental Health Division Medical Waste Program regulates the generation, handling, storage, treatment and disposal of medical waste throughout the County.

Date of Government Version: 06/26/2017
Date Data Arrived at EDR: 08/03/2017
Date Made Active in Reports: 10/17/2017
Number of Days to Update: 75

Source: Ventura County Resource Management Agency
Telephone: 805-654-2813
Last EDR Contact: 10/23/2017
Next Scheduled EDR Contact: 02/05/2018
Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Underground Tank Closed Sites List

Ventura County Operating Underground Storage Tank Sites (UST)/Underground Tank Closed Sites List.

Date of Government Version: 08/28/2017
Date Data Arrived at EDR: 09/12/2017
Date Made Active in Reports: 09/21/2017
Number of Days to Update: 9

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 09/12/2017
Next Scheduled EDR Contact: 12/25/2017
Data Release Frequency: Quarterly

YOLO COUNTY:

Underground Storage Tank Comprehensive Facility Report

Underground storage tank sites located in Yolo county.

Date of Government Version: 06/29/2017
Date Data Arrived at EDR: 07/05/2017
Date Made Active in Reports: 08/25/2017
Number of Days to Update: 51

Source: Yolo County Department of Health
Telephone: 530-666-8646
Last EDR Contact: 09/27/2017
Next Scheduled EDR Contact: 01/15/2018
Data Release Frequency: Annually

YUBA COUNTY:

CUPA Facility List

CUPA facility listing for Yuba County.

Date of Government Version: 07/31/2017
Date Data Arrived at EDR: 08/03/2017
Date Made Active in Reports: 10/16/2017
Number of Days to Update: 74

Source: Yuba County Environmental Health Department
Telephone: 530-749-7523
Last EDR Contact: 10/25/2017
Next Scheduled EDR Contact: 02/12/2018
Data Release Frequency: Varies

OTHER DATABASE(S)

Depending on the geographic area covered by this report, the data provided in these specialty databases may or may not be complete. For example, the existence of wetlands information data in a specific report does not mean that all wetlands in the area covered by the report are included. Moreover, the absence of any reported wetlands information does not necessarily mean that wetlands do not exist in the area covered by the report.

CT MANIFEST: Hazardous Waste Manifest Data

Facility and manifest data. Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a tsd facility.

Date of Government Version: 07/30/2013
Date Data Arrived at EDR: 08/19/2013
Date Made Active in Reports: 10/03/2013
Number of Days to Update: 45

Source: Department of Energy & Environmental Protection
Telephone: 860-424-3375
Last EDR Contact: 08/18/2017
Next Scheduled EDR Contact: 11/27/2017
Data Release Frequency: No Update Planned

NJ MANIFEST: Manifest Information

Hazardous waste manifest information.

Date of Government Version: 12/31/2016
Date Data Arrived at EDR: 04/11/2017
Date Made Active in Reports: 07/27/2017
Number of Days to Update: 107

Source: Department of Environmental Protection
Telephone: N/A
Last EDR Contact: 10/05/2017
Next Scheduled EDR Contact: 01/22/2018
Data Release Frequency: Annually

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

NY MANIFEST: Facility and Manifest Data

Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a TSD facility.

Date of Government Version: 07/31/2017
Date Data Arrived at EDR: 08/03/2017
Date Made Active in Reports: 10/12/2017
Number of Days to Update: 70

Source: Department of Environmental Conservation
Telephone: 518-402-8651
Last EDR Contact: 08/03/2017
Next Scheduled EDR Contact: 11/13/2017
Data Release Frequency: Quarterly

PA MANIFEST: Manifest Information

Hazardous waste manifest information.

Date of Government Version: 12/31/2016
Date Data Arrived at EDR: 07/25/2017
Date Made Active in Reports: 09/25/2017
Number of Days to Update: 62

Source: Department of Environmental Protection
Telephone: 717-783-8990
Last EDR Contact: 10/16/2017
Next Scheduled EDR Contact: 01/29/2018
Data Release Frequency: Annually

RI MANIFEST: Manifest information

Hazardous waste manifest information

Date of Government Version: 12/31/2013
Date Data Arrived at EDR: 06/19/2015
Date Made Active in Reports: 07/15/2015
Number of Days to Update: 26

Source: Department of Environmental Management
Telephone: 401-222-2797
Last EDR Contact: 08/21/2017
Next Scheduled EDR Contact: 12/04/2017
Data Release Frequency: Annually

WI MANIFEST: Manifest Information

Hazardous waste manifest information.

Date of Government Version: 12/31/2016
Date Data Arrived at EDR: 04/13/2017
Date Made Active in Reports: 07/14/2017
Number of Days to Update: 92

Source: Department of Natural Resources
Telephone: N/A
Last EDR Contact: 09/11/2017
Next Scheduled EDR Contact: 12/25/2017
Data Release Frequency: Annually

Oil/Gas Pipelines

Source: PennWell Corporation

Petroleum Bundle (Crude Oil, Refined Products, Petrochemicals, Gas Liquids (LPG/NGL), and Specialty Gases (Miscellaneous)) N = Natural Gas Bundle (Natural Gas, Gas Liquids (LPG/NGL), and Specialty Gases (Miscellaneous)). This map includes information copyrighted by PennWell Corporation. This information is provided on a best effort basis and PennWell Corporation does not guarantee its accuracy nor warrant its fitness for any particular purpose. Such information has been reprinted with the permission of PennWell.

Electric Power Transmission Line Data

Source: PennWell Corporation

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Sensitive Receptors: There are individuals deemed sensitive receptors due to their fragile immune systems and special sensitivity to environmental discharges. These sensitive receptors typically include the elderly, the sick, and children. While the location of all sensitive receptors cannot be determined, EDR indicates those buildings and facilities - schools, daycares, hospitals, medical centers, and nursing homes - where individuals who are sensitive receptors are likely to be located.

AHA Hospitals:

Source: American Hospital Association, Inc.
Telephone: 312-280-5991

The database includes a listing of hospitals based on the American Hospital Association's annual survey of hospitals.

Medical Centers: Provider of Services Listing

Source: Centers for Medicare & Medicaid Services
Telephone: 410-786-3000

A listing of hospitals with Medicare provider number, produced by Centers of Medicare & Medicaid Services, a federal agency within the U.S. Department of Health and Human Services.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Nursing Homes

Source: National Institutes of Health

Telephone: 301-594-6248

Information on Medicare and Medicaid certified nursing homes in the United States.

Public Schools

Source: National Center for Education Statistics

Telephone: 202-502-7300

The National Center for Education Statistics' primary database on elementary and secondary public education in the United States. It is a comprehensive, annual, national statistical database of all public elementary and secondary schools and school districts, which contains data that are comparable across all states.

Private Schools

Source: National Center for Education Statistics

Telephone: 202-502-7300

The National Center for Education Statistics' primary database on private school locations in the United States.

Daycare Centers: Licensed Facilities

Source: Department of Social Services

Telephone: 916-657-4041

Flood Zone Data: This data was obtained from the Federal Emergency Management Agency (FEMA). It depicts 100-year and 500-year flood zones as defined by FEMA. It includes the National Flood Hazard Layer (NFHL) which incorporates Flood Insurance Rate Map (FIRM) data and Q3 data from FEMA in areas not covered by NFHL.

Source: FEMA

Telephone: 877-336-2627

Date of Government Version: 2003, 2015

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005 and 2010 from the U.S. Fish and Wildlife Service.

State Wetlands Data: Wetland Inventory

Source: Department of Fish & Game

Telephone: 916-445-0411

Current USGS 7.5 Minute Topographic Map

Source: U.S. Geological Survey

STREET AND ADDRESS INFORMATION

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GEOCHECK[®] - PHYSICAL SETTING SOURCE ADDENDUM

TARGET PROPERTY ADDRESS

BRADLEY ROAD BRIDGE SCOUR COUNTERMEASURE PROJECT
BRADLEY ROAD OVER SALINAS RIVER
SAN ARDO, CA 93450

TARGET PROPERTY COORDINATES

Latitude (North):	35.864167 - 35° 51' 51.00"
Longitude (West):	120.809722 - 120° 48' 35.00"
Universal Transverse Mercator:	Zone 10
UTM X (Meters):	697762.4
UTM Y (Meters):	3970897.8
Elevation:	492 ft. above sea level

USGS TOPOGRAPHIC MAP

Target Property Map:	5620030 BRADLEY, CA
Version Date:	2012
North Map:	5603496 WUNPOST, CA
Version Date:	2012

EDR's GeoCheck Physical Setting Source Addendum is provided to assist the environmental professional in forming an opinion about the impact of potential contaminant migration.

Assessment of the impact of contaminant migration generally has two principal investigative components:

1. Groundwater flow direction, and
2. Groundwater flow velocity.

Groundwater flow direction may be impacted by surface topography, hydrology, hydrogeology, characteristics of the soil, and nearby wells. Groundwater flow velocity is generally impacted by the nature of the geologic strata.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW DIRECTION INFORMATION

Groundwater flow direction for a particular site is best determined by a qualified environmental professional using site-specific well data. If such data is not reasonably ascertainable, it may be necessary to rely on other sources of information, such as surface topographic information, hydrologic information, hydrogeologic data collected on nearby properties, and regional groundwater flow information (from deep aquifers).

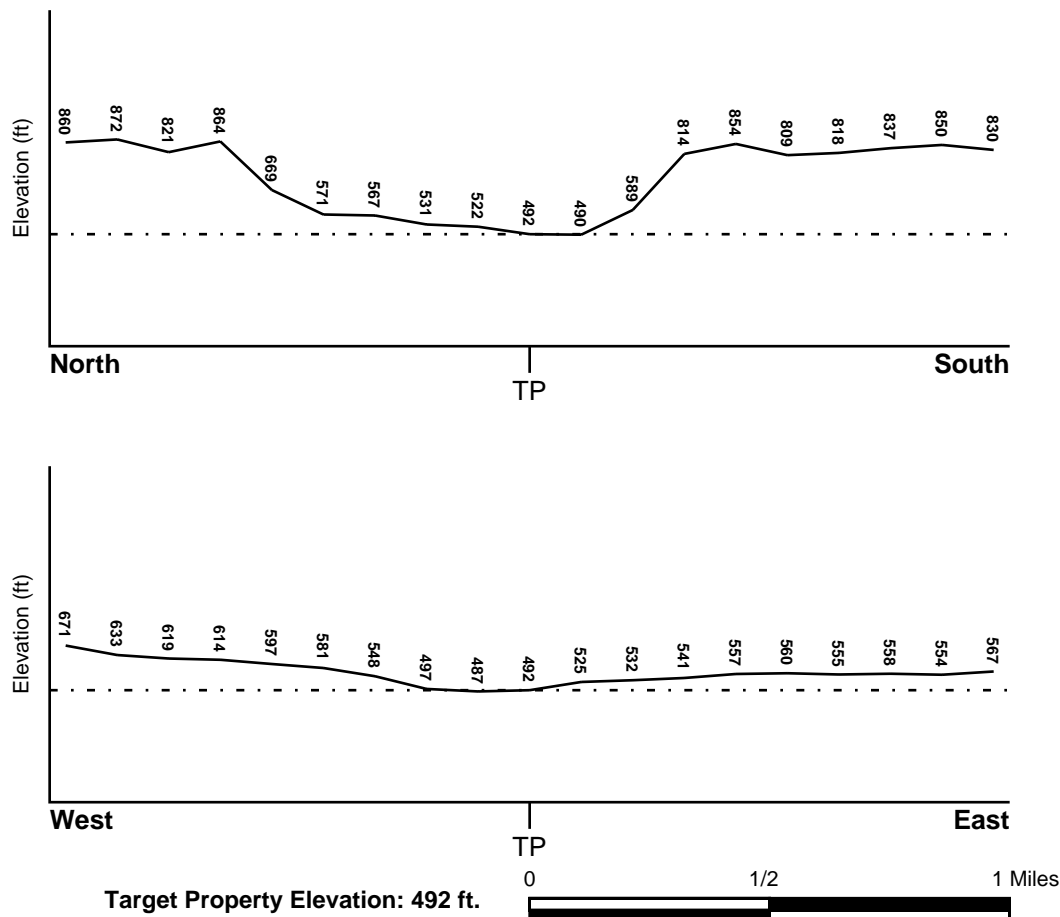
TOPOGRAPHIC INFORMATION

Surface topography may be indicative of the direction of surficial groundwater flow. This information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

TARGET PROPERTY TOPOGRAPHY

General Topographic Gradient: General NNW

SURROUNDING TOPOGRAPHY: ELEVATION PROFILES



Source: Topography has been determined from the USGS 7.5' Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

HYDROLOGIC INFORMATION

Surface water can act as a hydrologic barrier to groundwater flow. Such hydrologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Refer to the Physical Setting Source Map following this summary for hydrologic information (major waterways and bodies of water).

FEMA FLOOD ZONE

<u>Flood Plain Panel at Target Property</u>	<u>FEMA Source Type</u>
06079C0125G	FEMA FIRM Flood data
<u>Additional Panels in search area:</u>	<u>FEMA Source Type</u>
06053C1650G	FEMA FIRM Flood data
06053C1925G	FEMA FIRM Flood data

NATIONAL WETLAND INVENTORY

<u>NWI Quad at Target Property</u>	<u>NWI Electronic Data Coverage</u>
BRADLEY	YES - refer to the Overview Map and Detail Map

HYDROGEOLOGIC INFORMATION

Hydrogeologic information obtained by installation of wells on a specific site can often be an indicator of groundwater flow direction in the immediate area. Such hydrogeologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Site-Specific Hydrogeological Data*:

Search Radius:	1.25 miles
Status:	Not found

AQUIFLOW®

Search Radius: 1.000 Mile.

EDR has developed the AQUIFLOW Information System to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted by environmental professionals to regulatory authorities at select sites and has extracted the date of the report, groundwater flow direction as determined hydrogeologically, and the depth to water table.

<u>MAP ID</u>	<u>LOCATION FROM TP</u>	<u>GENERAL DIRECTION GROUNDWATER FLOW</u>
Not Reported		

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW VELOCITY INFORMATION

Groundwater flow velocity information for a particular site is best determined by a qualified environmental professional using site specific geologic and soil strata data. If such data are not reasonably ascertainable, it may be necessary to rely on other sources of information, including geologic age identification, rock stratigraphic unit and soil characteristics data collected on nearby properties and regional soil information. In general, contaminant plumes move more quickly through sandy-gravelly types of soils than silty-clayey types of soils.

GEOLOGIC INFORMATION IN GENERAL AREA OF TARGET PROPERTY

Geologic information can be used by the environmental professional in forming an opinion about the relative speed at which contaminant migration may be occurring.

ROCK STRATIGRAPHIC UNIT

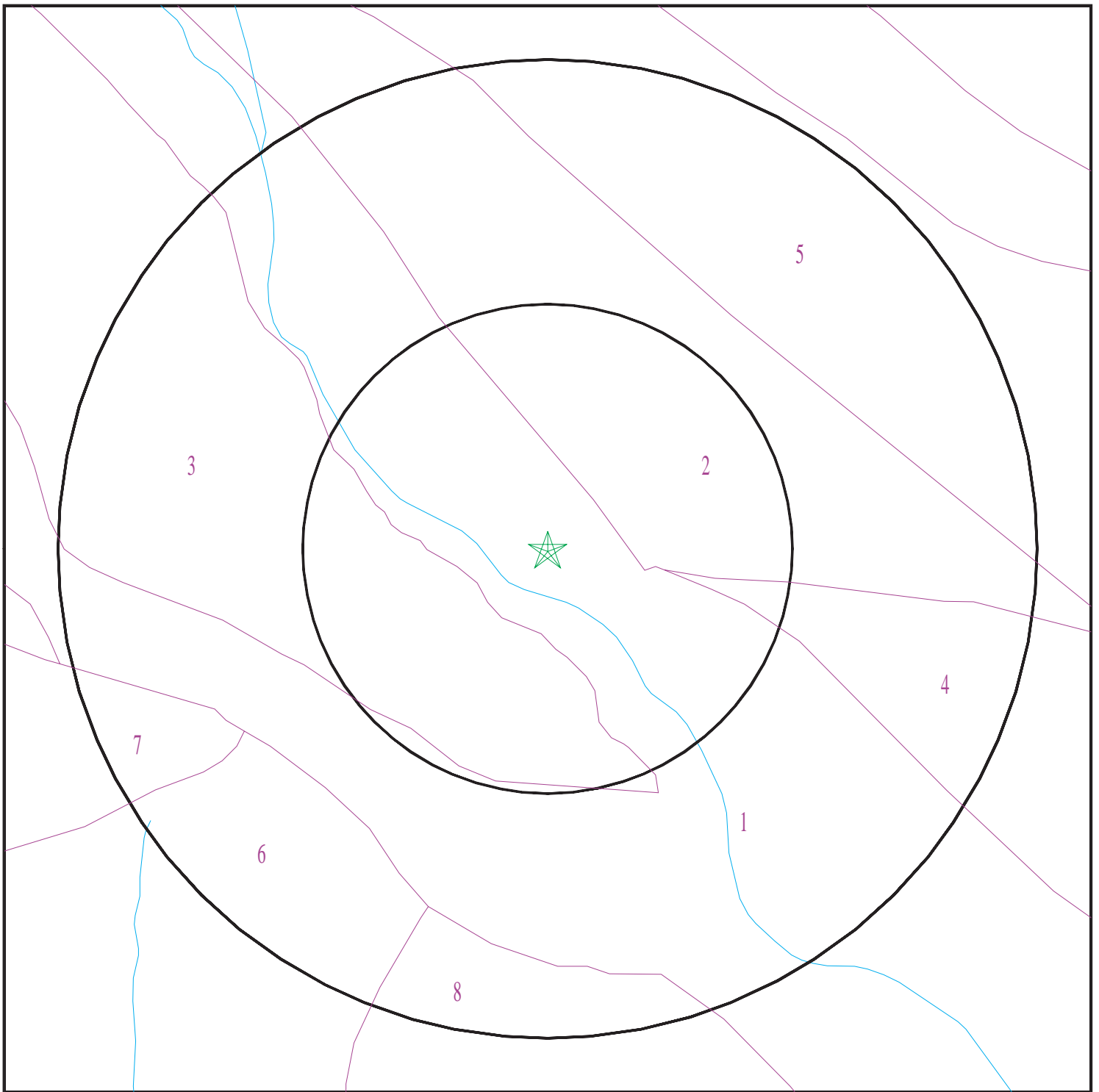
Era:	Cenozoic
System:	Tertiary
Series:	Pliocene
Code:	Tpc (<i>decoded above as Era, System & Series</i>)

GEOLOGIC AGE IDENTIFICATION

Category: Continental Deposits

Geologic Age and Rock Stratigraphic Unit Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - a digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

SSURGO SOIL MAP - 5090003.2s



- ★ Target Property
- ∩ SSURGO Soil
- ∩ Water



SITE NAME: Bradley Road Bridge Scour Countermeasure Project
ADDRESS: Bradley Road Over Salinas River
San Ardo CA 93450
LAT/LONG: 35.864167 / 120.809722

CLIENT: LSA Associates
CONTACT: Amber Long
INQUIRY #: 5090003.2s
DATE: October 27, 2017 3:18 pm

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

DOMINANT SOIL COMPOSITION IN GENERAL AREA OF TARGET PROPERTY

The U.S. Department of Agriculture's (USDA) Soil Conservation Service (SCS) leads the National Cooperative Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. The following information is based on Soil Conservation Service SSURGO data.

Soil Map ID: 1

Soil Component Name: Psamments

Soil Surface Texture: sand

Hydrologic Group: Class A - High infiltration rates. Soils are deep, well drained to excessively drained sands and gravels.

Soil Drainage Class: Excessively drained

Hydric Status: Partially hydric

Corrosion Potential - Uncoated Steel: Low

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
Layer	Boundary		Soil Texture Class	Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower		AASHTO Group	Unified Soil		
1	0 inches	59 inches	sand	Not reported	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 141 Min: 42	Max: 7.3 Min: 6.6

Soil Map ID: 2

Soil Component Name: Chualar

Soil Surface Texture: loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Well drained

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
Layer	Boundary		Soil Texture Class	Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower		AASHTO Group	Unified Soil		
1	0 inches	20 inches	loam	Not reported	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 14 Min: 4	Max: 7.8 Min: 6.1
2	20 inches	44 inches	sandy clay loam	Not reported	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand.	Max: 4 Min: 1.4	Max: 8.4 Min: 6.1
3	44 inches	59 inches	gravelly sandy loam	Not reported	COARSE-GRAINED SOILS, Gravels, Gravels with fines, Silty Gravel	Max: 4 Min: 1.4	Max: 8.4 Min: 6.1
4	59 inches	79 inches	gravelly coarse sand	Not reported	COARSE-GRAINED SOILS, Sands, Clean Sands, Well-graded sand. COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 42 Min: 14	Max: 8.4 Min: 6.6

Soil Map ID: 3

Soil Component Name: Psamments

Soil Surface Texture: sand

Hydrologic Group: Class A - High infiltration rates. Soils are deep, well drained to excessively drained sands and gravels.

Soil Drainage Class: Excessively drained

Hydric Status: Partially hydric

Corrosion Potential - Uncoated Steel: Low

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 122 inches

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	59 inches	sand	Not reported	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 141 Min: 42	Max: 7.3 Min: 6.6

Soil Map ID: 4

Soil Component Name: Metz

Soil Surface Texture: fine sandy loam

Hydrologic Group: Class A - High infiltration rates. Soils are deep, well drained to excessively drained sands and gravels.

Soil Drainage Class: Somewhat excessively drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	11 inches	fine sandy loam	Not reported	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 42 Min: 14	Max: 8.4 Min: 6.6
2	11 inches	98 inches	stratified sand to very fine sandy loam	Not reported	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 14 Min: 4	Max: 8.4 Min: 6.6

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Map ID: 5

Soil Component Name: Rincon

Soil Surface Texture: clay loam

Hydrologic Group: Class C - Slow infiltration rates. Soils with layers impeding downward movement of water, or soils with moderately fine or fine textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
Layer	Boundary		Soil Texture Class	Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower		AASHTO Group	Unified Soil		
1	0 inches	14 inches	clay loam	Not reported	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 4 Min: 1.4	Max: 7.3 Min: 6.1
2	14 inches	48 inches	clay	Not reported	FINE-GRAINED SOILS, Silts and Clays (liquid limit 50% or more), Fat Clay.	Max: 1.4 Min: 0.42	Max: 8.4 Min: 6.6
3	48 inches	59 inches	clay loam	Not reported	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 4 Min: 1.4	Max: 8.4 Min: 7.4

Soil Map ID: 6

Soil Component Name: Garey

Soil Surface Texture: sandy loam

Hydrologic Group: Class C - Slow infiltration rates. Soils with layers impeding downward movement of water, or soils with moderately fine or fine textures.

Soil Drainage Class: Well drained

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
Layer	Boundary		Soil Texture Class	Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower		AASHTO Group	Unified Soil		
1	0 inches	29 inches	sandy loam	Not reported	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 14 Min: 4	Max: 6.5 Min: 5.1
2	29 inches	55 inches	sandy loam	Not reported	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 4 Min: 1.4	Max: 7.3 Min: 6.1
3	55 inches	64 inches	loamy sand	Not reported	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 42 Min: 14	Max: 7.3 Min: 6.1

Soil Map ID: 7

Soil Component Name: Garey

Soil Surface Texture: sandy loam

Hydrologic Group: Class C - Slow infiltration rates. Soils with layers impeding downward movement of water, or soils with moderately fine or fine textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
Layer	Boundary		Soil Texture Class	Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower		AASHTO Group	Unified Soil		
1	0 inches	29 inches	sandy loam	Not reported	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 14 Min: 4	Max: 6.5 Min: 5.1
2	29 inches	55 inches	sandy loam	Not reported	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 4 Min: 1.4	Max: 7.3 Min: 6.1
3	55 inches	64 inches	loamy sand	Not reported	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 42 Min: 14	Max: 7.3 Min: 6.1

Soil Map ID: 8

Soil Component Name: Nacimiento

Soil Surface Texture: silty clay loam

Hydrologic Group: Class C - Slow infiltration rates. Soils with layers impeding downward movement of water, or soils with moderately fine or fine textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
Layer	Boundary		Soil Texture Class	Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower		AASHTO Group	Unified Soil		
1	0 inches	31 inches	silty clay loam	Not reported	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 4 Min: 1.4	Max: 8.4 Min: 7.9

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
Layer	Boundary		Soil Texture Class	Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower		AASHTO Group	Unified Soil		
2	31 inches	35 inches	weathered bedrock	Not reported	Not reported	Max: 1.4 Min: 0	Max: Min:

LOCAL / REGIONAL WATER AGENCY RECORDS

EDR Local/Regional Water Agency records provide water well information to assist the environmental professional in assessing sources that may impact ground water flow direction, and in forming an opinion about the impact of contaminant migration on nearby drinking water wells.

WELL SEARCH DISTANCE INFORMATION

<u>DATABASE</u>	<u>SEARCH DISTANCE (miles)</u>
Federal USGS	1.000
Federal FRDS PWS	Nearest PWS within 0.001 miles
State Database	1.000

FEDERAL USGS WELL INFORMATION

<u>MAP ID</u>	<u>WELL ID</u>	<u>LOCATION FROM TP</u>
No Wells Found		

FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION

<u>MAP ID</u>	<u>WELL ID</u>	<u>LOCATION FROM TP</u>
No PWS System Found		

Note: PWS System location is not always the same as well location.

STATE DATABASE WELL INFORMATION

<u>MAP ID</u>	<u>WELL ID</u>	<u>LOCATION FROM TP</u>
1	15730	1/8 - 1/4 Mile ESE
2	15731	1/4 - 1/2 Mile East

OTHER STATE DATABASE INFORMATION

STATE OIL/GAS WELL INFORMATION

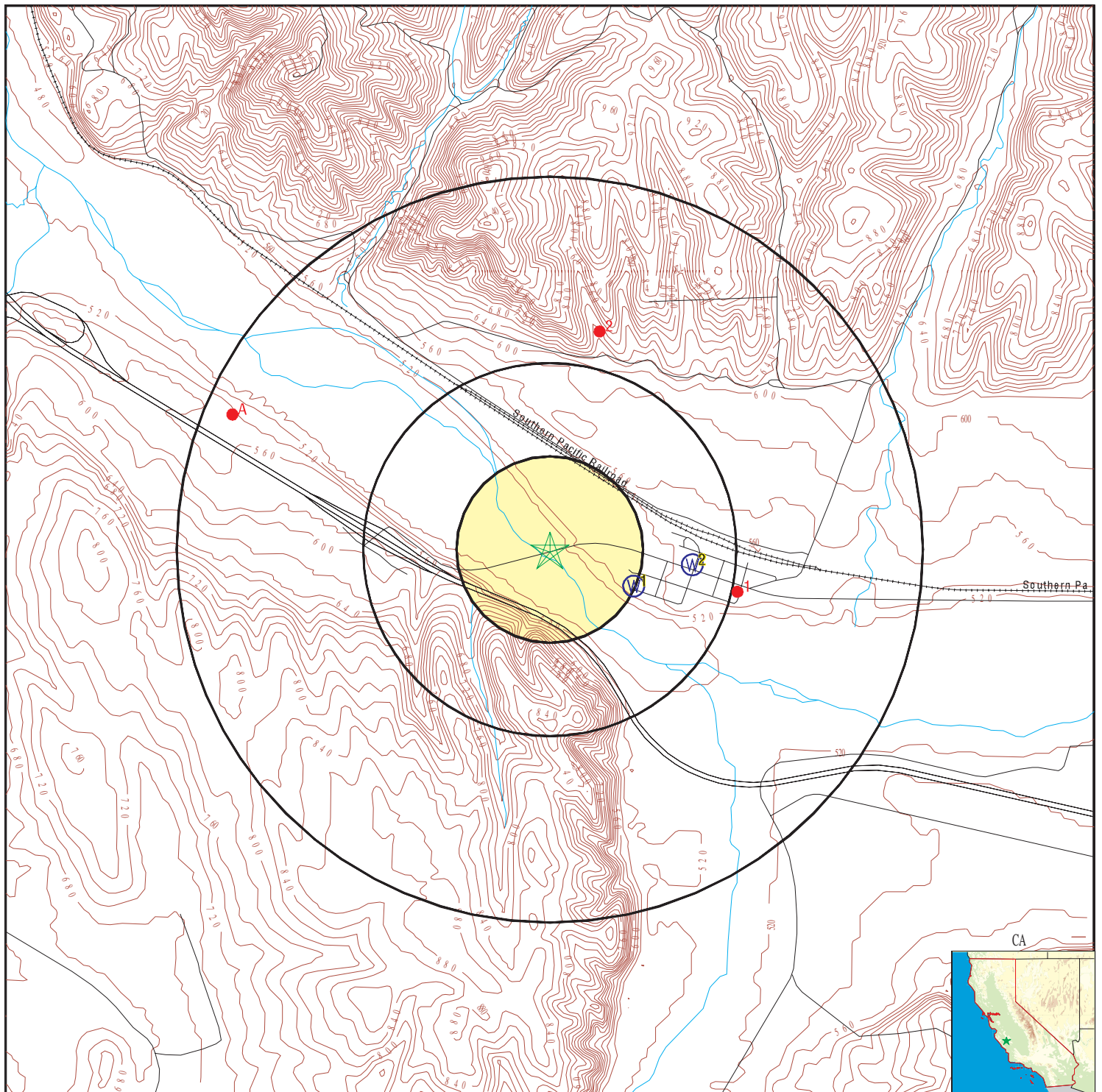
<u>MAP ID</u>	<u>WELL ID</u>	<u>LOCATION FROM TP</u>
1	CAOG11000255833	1/2 - 1 Mile ESE

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

STATE OIL/GAS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
2	CAOG11000260319	1/2 - 1 Mile NNE
A3	CAOG11000246441	1/2 - 1 Mile WNW
A4	CAOG11000258308	1/2 - 1 Mile WNW
A5	CAOG11000252772	1/2 - 1 Mile WNW

PHYSICAL SETTING SOURCE MAP - 5090003.2s



- County Boundary
- Major Roads
- Contour Lines
- Earthquake Fault Lines
- Earthquake epicenter, Richter 5 or greater
- Water Wells
- Public Water Supply Wells
- Cluster of Multiple Icons

- Groundwater Flow Direction
- Indeterminate Groundwater Flow at Location
- Groundwater Flow Varies at Location
- Closest Hydrogeological Data
- Oil, gas or related wells



SITE NAME: Bradley Road Bridge Scour Countermeasure Project
 ADDRESS: Bradley Road Over Salinas River
 San Ardo CA 93450
 LAT/LONG: 35.864167 / 120.809722

CLIENT: LSA Associates
 CONTACT: Amber Long
 INQUIRY #: 5090003.2s
 DATE: October 27, 2017 3:17 pm

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation

Database EDR ID Number

1
ESE
1/8 - 1/4 Mile
Higher

CA WELLS 15730

Water System Information:

Prime Station Code:	24S/11E-08B01 M	User ID:	27C
FRDS Number:	2700964001	County:	Monterey
District Number:	57	Station Type:	WELL/AMBNT/MUN/INTAKE
Water Type:	Well/Groundwater	Well Status:	Active Raw
Source Lat/Long:	355146.0 1204817.5	Precision:	1,000 Feet (10 Seconds)
Source Name:	WELL 01		
System Number:	2700964		
System Name:	BRADLEY UNION SCHOOL DISTRICT		
Organization That Operates System:	Not Reported		
Pop Served:	Unknown, Small System	Connections:	Unknown, Small System
Area Served:	Not Reported		
Sample Collected:	03-JAN-12	Findings:	8.1 MG/L
Chemical:	NITRATE (AS N)		
Sample Collected:	03-JAN-12	Findings:	8.2 MG/L
Chemical:	NITRATE (AS N)		
Sample Collected:	02-FEB-12	Findings:	9.3 MG/L
Chemical:	NITRATE (AS N)		
Sample Collected:	02-FEB-12	Findings:	9.4 MG/L
Chemical:	NITRATE (AS N)		
Sample Collected:	03-APR-12	Findings:	8.8 MG/L
Chemical:	NITRATE (AS N)		
Sample Collected:	03-APR-12	Findings:	8.8 MG/L
Chemical:	NITRATE (AS N)		
Sample Collected:	05-JUN-12	Findings:	9.6 MG/L
Chemical:	NITRATE (AS N)		
Sample Collected:	05-JUN-12	Findings:	9.7 MG/L
Chemical:	NITRATE (AS N)		
Sample Collected:	06-SEP-12	Findings:	9.8 MG/L
Chemical:	NITRATE (AS N)		
Sample Collected:	06-SEP-12	Findings:	10. MG/L
Chemical:	NITRATE (AS N)		
Sample Collected:	11-DEC-12	Findings:	10. MG/L
Chemical:	NITRATE (AS N)		
Sample Collected:	11-DEC-12	Findings:	10. MG/L
Chemical:	NITRATE (AS N)		
Sample Collected:	05-FEB-13	Findings:	9.5 MG/L
Chemical:	NITRATE (AS N)		
Sample Collected:	05-FEB-13	Findings:	7. PCI/L
Chemical:	GROSS ALPHA		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Sample Collected:	05-FEB-13	Findings:	2.8 PCI/L
Chemical:	GROSS ALPHA COUNTING ERROR		
Sample Collected:	05-FEB-13	Findings:	2.4 PCI/L
Chemical:	GROSS ALPHA MDA95		
Sample Collected:	05-MAR-13	Findings:	6.8 PCI/L
Chemical:	URANIUM (PCI/L)		
Sample Collected:	05-MAR-13	Findings:	1. PCI/L
Chemical:	URANIUM COUNTING ERROR		
Sample Collected:	05-MAR-13	Findings:	0.87 PCI/L
Chemical:	URANIUM MDA95		
Sample Collected:	07-MAR-13	Findings:	9.7 MG/L
Chemical:	NITRATE (AS N)		
Sample Collected:	09-APR-13	Findings:	9.6 MG/L
Chemical:	NITRATE (AS N)		
Sample Collected:	07-MAY-13	Findings:	9.7 MG/L
Chemical:	NITRATE (AS N)		
Sample Collected:	04-JUN-13	Findings:	10. MG/L
Chemical:	NITRATE (AS N)		
Sample Collected:	04-JUN-13	Findings:	4.7 MG/L
Chemical:	NITRATE (AS N)		
Sample Collected:	09-JUL-13	Findings:	10. MG/L
Chemical:	NITRATE (AS N)		
Sample Collected:	03-OCT-13	Findings:	9.7 MG/L
Chemical:	NITRATE (AS N)		
Sample Collected:	03-OCT-13	Findings:	75. UNITS
Chemical:	COLOR		
Sample Collected:	03-OCT-13	Findings:	6.8 MG/L
Chemical:	NITRATE (AS N)		
Sample Collected:	03-OCT-13	Findings:	0.4 MG/L
Chemical:	FLUORIDE (F) (NATURAL-SOURCE)		
Sample Collected:	03-OCT-13	Findings:	2.1 UG/L
Chemical:	ARSENIC		
Sample Collected:	03-OCT-13	Findings:	9. UG/L
Chemical:	VANADIUM		
Sample Collected:	03-OCT-13	Findings:	21. PCI/L
Chemical:	GROSS ALPHA		
Sample Collected:	03-OCT-13	Findings:	4.1 PCI/L
Chemical:	GROSS ALPHA COUNTING ERROR		
Sample Collected:	03-OCT-13	Findings:	9.5 PCI/L
Chemical:	URANIUM (PCI/L)		
Sample Collected:	03-OCT-13	Findings:	1.5 UG/L
Chemical:	CHLOROFORM (THM)		
Sample Collected:	03-OCT-13	Findings:	6.16 NTU
Chemical:	TURBIDITY, LABORATORY		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Sample Collected:	03-OCT-13	Findings:	1.5 UG/L
Chemical:	TOTAL TRIHALOMETHANES		
Sample Collected:	03-OCT-13	Findings:	1.3 PCI/L
Chemical:	URANIUM COUNTING ERROR		
Sample Collected:	03-OCT-13	Findings:	6.8 MG/L
Chemical:	NITRATE + NITRITE (AS N)		
Sample Collected:	03-OCT-13	Findings:	2.2 PCI/L
Chemical:	GROSS ALPHA MDA95		
Sample Collected:	03-OCT-13	Findings:	0.88 PCI/L
Chemical:	URANIUM MDA95		
Sample Collected:	04-FEB-14	Findings:	8.9 MG/L
Chemical:	NITRATE (AS N)		
Sample Collected:	03-APR-14	Findings:	8.9 MG/L
Chemical:	NITRATE (AS N)		
Sample Collected:	11-JUN-14	Findings:	20. PCI/L
Chemical:	GROSS ALPHA		
Sample Collected:	11-JUN-14	Findings:	4.1 PCI/L
Chemical:	GROSS ALPHA COUNTING ERROR		
Sample Collected:	11-JUN-14	Findings:	7.2 PCI/L
Chemical:	URANIUM (PCI/L)		
Sample Collected:	11-JUN-14	Findings:	1.1 PCI/L
Chemical:	URANIUM COUNTING ERROR		
Sample Collected:	11-JUN-14	Findings:	2.5 PCI/L
Chemical:	GROSS ALPHA MDA95		
Sample Collected:	11-JUN-14	Findings:	0.88 PCI/L
Chemical:	URANIUM MDA95		
Sample Collected:	05-AUG-14	Findings:	9.7 MG/L
Chemical:	NITRATE (AS N)		
Sample Collected:	02-SEP-14	Findings:	9.4 MG/L
Chemical:	NITRATE (AS N)		
Sample Collected:	02-OCT-14	Findings:	9. MG/L
Chemical:	NITRATE (AS N)		
Sample Collected:	02-OCT-14	Findings:	9.2 MG/L
Chemical:	NITRATE (AS N)		
Sample Collected:	04-NOV-14	Findings:	1.6 UG/L
Chemical:	CHROMIUM, HEXAVALENT		
Sample Collected:	04-NOV-14	Findings:	9.1 MG/L
Chemical:	NITRATE (AS N)		
Sample Collected:	16-DEC-14	Findings:	9.2 MG/L
Chemical:	NITRATE (AS N)		
Sample Collected:	13-JAN-15	Findings:	8.7 MG/L
Chemical:	NITRATE (AS N)		
Sample Collected:	13-JAN-15	Findings:	9.7 MG/L
Chemical:	NITRATE (AS N)		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Sample Collected:	03-MAR-15	Findings:	8.9 MG/L
Chemical:	NITRATE (AS N)		
Sample Collected:	03-MAR-15	Findings:	15. PCI/L
Chemical:	GROSS ALPHA		
Sample Collected:	03-MAR-15	Findings:	3.5 PCI/L
Chemical:	GROSS ALPHA COUNTING ERROR		
Sample Collected:	03-MAR-15	Findings:	7.5 PCI/L
Chemical:	URANIUM (PCI/L)		
Sample Collected:	03-MAR-15	Findings:	1.2 PCI/L
Chemical:	URANIUM COUNTING ERROR		
Sample Collected:	03-MAR-15	Findings:	2.1 PCI/L
Chemical:	GROSS ALPHA MDA95		
Sample Collected:	03-MAR-15	Findings:	0.88 PCI/L
Chemical:	URANIUM MDA95		
Sample Collected:	09-APR-15	Findings:	0.185 PCI/L
Chemical:	RADIUM 226 COUNTING ERROR		
Sample Collected:	09-APR-15	Findings:	0.548 PCI/L
Chemical:	RADIUM 228 COUNTING ERROR		
Sample Collected:	09-APR-15	Findings:	0.363 PCI/L
Chemical:	RADIUM 226 MDA95		
Sample Collected:	09-APR-15	Findings:	0.2 PCI/L
Chemical:	RADIUM 228 MDA95		
Sample Collected:	09-APR-15	Findings:	8.6 MG/L
Chemical:	NITRATE (AS N)		
Sample Collected:	05-MAY-15	Findings:	8.4 MG/L
Chemical:	NITRATE (AS N)		
Sample Collected:	05-MAY-15	Findings:	8.4 MG/L
Chemical:	NITRATE (AS N)		
Sample Collected:	21-MAY-15	Findings:	1.2 UG/L
Chemical:	CHROMIUM, HEXAVALENT		
Sample Collected:	07-JUL-15	Findings:	8. MG/L
Chemical:	NITRATE (AS N)		
Sample Collected:	07-JUL-15	Findings:	8. MG/L
Chemical:	NITRATE (AS N)		
Sample Collected:	10-NOV-15	Findings:	8. MG/L
Chemical:	NITRATE (AS N)		
Sample Collected:	08-DEC-15	Findings:	8. MG/L
Chemical:	NITRATE (AS N)		
Sample Collected:	08-DEC-15	Findings:	8.8 MG/L
Chemical:	NITRATE (AS N)		
Sample Collected:	12-JAN-16	Findings:	8.3 MG/L
Chemical:	NITRATE (AS N)		
Sample Collected:	12-JAN-16	Findings:	8.5 MG/L
Chemical:	NITRATE (AS N)		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Sample Collected:	02-FEB-16	Findings:	8.1 MG/L
Chemical:	NITRATE (AS N)		
Sample Collected:	01-MAR-16	Findings:	8. MG/L
Chemical:	NITRATE (AS N)		
Sample Collected:	05-APR-16	Findings:	8. MG/L
Chemical:	NITRATE (AS N)		
Sample Collected:	12-JUL-16	Findings:	8.9 MG/L
Chemical:	NITRATE (AS N)		
Sample Collected:	06-SEP-16	Findings:	9.1 MG/L
Chemical:	NITRATE (AS N)		
Sample Collected:	04-OCT-16	Findings:	8.9 MG/L
Chemical:	NITRATE (AS N)		
Sample Collected:	06-DEC-16	Findings:	7.4 MG/L
Chemical:	NITRATE (AS N)		
Sample Collected:	06-DEC-16	Findings:	7.5 PCI/L
Chemical:	GROSS ALPHA		
Sample Collected:	06-DEC-16	Findings:	3. PCI/L
Chemical:	GROSS ALPHA COUNTING ERROR		
Sample Collected:	06-DEC-16	Findings:	7.8 PCI/L
Chemical:	URANIUM (PCI/L)		
Sample Collected:	06-DEC-16	Findings:	1.2 PCI/L
Chemical:	URANIUM COUNTING ERROR		
Sample Collected:	06-DEC-16	Findings:	2.4 PCI/L
Chemical:	GROSS ALPHA MDA95		
Sample Collected:	06-DEC-16	Findings:	0.88 PCI/L
Chemical:	URANIUM MDA95		
Sample Collected:	10-JAN-17	Findings:	7. MG/L
Chemical:	NITRATE (AS N)		
Sample Collected:	30-MAR-17	Findings:	7.4 MG/L
Chemical:	NITRATE (AS N)		
Sample Collected:	30-MAR-17	Findings:	8.7 PCI/L
Chemical:	GROSS ALPHA		
Sample Collected:	30-MAR-17	Findings:	3.6 PCI/L
Chemical:	GROSS ALPHA COUNTING ERROR		
Sample Collected:	30-MAR-17	Findings:	8.1 PCI/L
Chemical:	URANIUM (PCI/L)		
Sample Collected:	30-MAR-17	Findings:	1.3 PCI/L
Chemical:	URANIUM COUNTING ERROR		
Sample Collected:	30-MAR-17	Findings:	2.7 PCI/L
Chemical:	GROSS ALPHA MDA95		
Sample Collected:	30-MAR-17	Findings:	0.89 PCI/L
Chemical:	URANIUM MDA95		
Sample Collected:	30-MAR-17	Findings:	0.177 PCI/L
Chemical:	RADIUM 226 COUNTING ERROR		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Sample Collected:	30-MAR-17	Findings:	0.251 PCI/L
Chemical:	RADIUM 228 COUNTING ERROR		
Sample Collected:	30-MAR-17	Findings:	0.363 PCI/L
Chemical:	RADIUM 226 MDA95		
Sample Collected:	30-MAR-17	Findings:	0.191 PCI/L
Chemical:	RADIUM 228 MDA95		
Sample Collected:	02-MAY-17	Findings:	8.3 MG/L
Chemical:	NITRATE (AS N)		
Sample Collected:	02-MAY-17	Findings:	6.7 PCI/L
Chemical:	GROSS ALPHA		
Sample Collected:	02-MAY-17	Findings:	3.3 PCI/L
Chemical:	GROSS ALPHA COUNTING ERROR		
Sample Collected:	02-MAY-17	Findings:	7.5 PCI/L
Chemical:	URANIUM (PCI/L)		
Sample Collected:	02-MAY-17	Findings:	1.2 PCI/L
Chemical:	URANIUM COUNTING ERROR		
Sample Collected:	02-MAY-17	Findings:	3. PCI/L
Chemical:	GROSS ALPHA MDA95		
Sample Collected:	02-MAY-17	Findings:	0.88 PCI/L
Chemical:	URANIUM MDA95		
Sample Collected:	02-MAY-17	Findings:	0.187 PCI/L
Chemical:	RADIUM 226 COUNTING ERROR		
Sample Collected:	02-MAY-17	Findings:	0.29 PCI/L
Chemical:	RADIUM 228 COUNTING ERROR		
Sample Collected:	02-MAY-17	Findings:	0.363 PCI/L
Chemical:	RADIUM 226 MDA95		
Sample Collected:	02-MAY-17	Findings:	0.192 PCI/L
Chemical:	RADIUM 228 MDA95		

2
East
1/4 - 1/2 Mile
Higher

CA WELLS 15731

Water System Information:

Prime Station Code:	24S/11E-08B02 M	User ID:	27C
FRDS Number:	2702141001	County:	Monterey
District Number:	57	Station Type:	WELL/AMBNT/MUN/INTAKE
Water Type:	Well/Groundwater	Well Status:	Active Raw
Source Lat/Long:	355149.0 1204807.5	Precision:	1,000 Feet (10 Seconds)
Source Name:	WELL 01		
System Number:	2702141		
System Name:	BRADLEY FORESTRY STATION		
Organization That Operates System:	Not Reported		
Pop Served:	Unknown, Small System	Connections:	Unknown, Small System
Area Served:	Not Reported		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

1
ESE
1/2 - 1 Mile

OIL_GAS CAOG11000255833

District nun:	3	Api number:	05301278
Blm well:	N	Redrill can:	Not Reported
Dryhole:	Y	Well status:	P
Operator name:	Oak Ridge Oil Co.		
County name:	Monterey	Fieldname:	Any Field
Area name:	Any Area	Section:	8
Township:	24S	Range:	11E
Base meridian:	MD	Elevation:	Not Reported
Gissourcec:	hud		
Comments:	Not Reported		
Leasename:	Not Reported	Wellnumber:	1
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0		
Redrillfoo:	0		
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Not Directionally drilled	Gissymbol:	POG
Site id:	CAOG11000255833		

2
NNE
1/2 - 1 Mile

OIL_GAS CAOG11000260319

District nun:	3	Api number:	05320346
Blm well:	N	Redrill can:	Not Reported
Dryhole:	Y	Well status:	P
Operator name:	Hilliard Oil & Gas, Inc.		
County name:	Monterey	Fieldname:	Any Field
Area name:	Any Area	Section:	5
Township:	24S	Range:	11E
Base meridian:	MD	Elevation:	Not Reported
Gissourcec:	hud		
Comments:	Not Reported		
Leasename:	Tri-Valley-Orradre	Wellnumber:	1-5
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0		
Redrillfoo:	0		
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Not Directionally drilled	Gissymbol:	POG
Site id:	CAOG11000260319		

A3
WNW
1/2 - 1 Mile

OIL_GAS CAOG11000246441

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

District nun:	3	Api number:	05321232
Blm well:	N	Redrill can:	Not Reported
Dryhole:	Y	Well status:	P
Operator name:	BP Exploration Inc.		
County name:	Monterey	Fieldname:	Any Field
Area name:	Any Area	Section:	6
Township:	24S	Range:	11E
Base meridian:	MD	Elevation:	Not Reported
Gissourcec:	opr		
Comments:	Not Reported		
Leasename:	Bradley Minerals	Wellnumber:	1-6
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0		
Redrillfoo:	0		
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Not Directionally drilled	Gissymbol:	POG
Site id:	CAOG11000246441		

A4 WNW 1/2 - 1 Mile

OIL_GAS

CAOG11000258308

District nun:	3	Api number:	05322029
Blm well:	N	Redrill can:	Not Reported
Dryhole:	N	Well status:	I
Operator name:	Venoco, Inc.		
County name:	Monterey	Fieldname:	Any Field
Area name:	Any Area	Section:	6
Township:	24S	Range:	11E
Base meridian:	MD	Elevation:	563
Gissourcec:	gps		
Comments:	Not Reported		
Leasename:	Bradley Minerals	Wellnumber:	2-6
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	Not Reported
Welldeptha:	0		
Redrillfoo:	0		
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Not Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000258308		

A5 WNW 1/2 - 1 Mile

OIL_GAS

CAOG11000252772

District nun:	3	Api number:	05322123
Blm well:	N	Redrill can:	Not Reported
Dryhole:	N	Well status:	N
Operator name:	Venoco, Inc.		
County name:	Monterey	Fieldname:	Any Field
Area name:	Any Area	Section:	6
Township:	24S	Range:	11E
Base meridian:	MD	Elevation:	Not Reported
Gissourcec:	gps		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Comments:	Not Reported	Wellnumber:	3-6
Leasename:	Hames Valley	Hydraulica:	N
Epawell:	N	Spuddate:	Not Reported
Confidenti:	N		
Welldeptha:	0		
Redrillfoo:	0		
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	AOG
Site id:	CAOG11000252772		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

RADON

AREA RADON INFORMATION

State Database: CA Radon

Radon Test Results

Zipcode	Num Tests	> 4 pCi/L
93450	1	0

Federal EPA Radon Zone for MONTEREY County: 2

Note: Zone 1 indoor average level > 4 pCi/L.
 : Zone 2 indoor average level >= 2 pCi/L and <= 4 pCi/L.
 : Zone 3 indoor average level < 2 pCi/L.

Federal Area Radon Information for MONTEREY COUNTY, CA

Number of sites tested: 16

Area	Average Activity	% <4 pCi/L	% 4-20 pCi/L	% >20 pCi/L
Living Area - 1st Floor	0.788 pCi/L	94%	6%	0%
Living Area - 2nd Floor	Not Reported	Not Reported	Not Reported	Not Reported
Basement	2.133 pCi/L	67%	33%	0%

PHYSICAL SETTING SOURCE RECORDS SEARCHED

TOPOGRAPHIC INFORMATION

USGS 7.5' Digital Elevation Model (DEM)

Source: United States Geologic Survey

EDR acquired the USGS 7.5' Digital Elevation Model in 2002 and updated it in 2006. The 7.5 minute DEM corresponds to the USGS 1:24,000- and 1:25,000-scale topographic quadrangle maps. The DEM provides elevation data with consistent elevation units and projection.

Current USGS 7.5 Minute Topographic Map

Source: U.S. Geological Survey

HYDROLOGIC INFORMATION

Flood Zone Data: This data was obtained from the Federal Emergency Management Agency (FEMA). It depicts 100-year and 500-year flood zones as defined by FEMA. It includes the National Flood Hazard Layer (NFHL) which incorporates Flood Insurance Rate Map (FIRM) data and Q3 data from FEMA in areas not covered by NFHL.

Source: FEMA

Telephone: 877-336-2627

Date of Government Version: 2003, 2015

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005 and 2010 from the U.S. Fish and Wildlife Service.

State Wetlands Data: Wetland Inventory

Source: Department of Fish & Game

Telephone: 916-445-0411

HYDROGEOLOGIC INFORMATION

AQUIFLOW^R Information System

Source: EDR proprietary database of groundwater flow information

EDR has developed the AQUIFLOW Information System (AIS) to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted to regulatory authorities at select sites and has extracted the date of the report, hydrogeologically determined groundwater flow direction and depth to water table information.

GEOLOGIC INFORMATION

Geologic Age and Rock Stratigraphic Unit

Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - A digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

STATSGO: State Soil Geographic Database

Source: Department of Agriculture, Natural Resources Conservation Service (NRCS)

The U.S. Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS) leads the national Conservation Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps.

SSURGO: Soil Survey Geographic Database

Source: Department of Agriculture, Natural Resources Conservation Service (NRCS)

Telephone: 800-672-5559

SSURGO is the most detailed level of mapping done by the Natural Resources Conservation Service, mapping scales generally range from 1:12,000 to 1:63,360. Field mapping methods using national standards are used to construct the soil maps in the Soil Survey Geographic (SSURGO) database. SSURGO digitizing duplicates the original soil survey maps. This level of mapping is designed for use by landowners, townships and county natural resource planning and management.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

LOCAL / REGIONAL WATER AGENCY RECORDS

FEDERAL WATER WELLS

PWS: Public Water Systems

Source: EPA/Office of Drinking Water

Telephone: 202-564-3750

Public Water System data from the Federal Reporting Data System. A PWS is any water system which provides water to at least 25 people for at least 60 days annually. PWSs provide water from wells, rivers and other sources.

PWS ENF: Public Water Systems Violation and Enforcement Data

Source: EPA/Office of Drinking Water

Telephone: 202-564-3750

Violation and Enforcement data for Public Water Systems from the Safe Drinking Water Information System (SDWIS) after August 1995. Prior to August 1995, the data came from the Federal Reporting Data System (FRDS).

USGS Water Wells: USGS National Water Inventory System (NWIS)

This database contains descriptive information on sites where the USGS collects or has collected data on surface water and/or groundwater. The groundwater data includes information on wells, springs, and other sources of groundwater.

STATE RECORDS

Water Well Database

Source: Department of Water Resources

Telephone: 916-651-9648

California Drinking Water Quality Database

Source: Department of Public Health

Telephone: 916-324-2319

The database includes all drinking water compliance and special studies monitoring for the state of California since 1984. It consists of over 3,200,000 individual analyses along with well and water system information.

OTHER STATE DATABASE INFORMATION

California Oil and Gas Well Locations

Source: Department of Conservation

Telephone: 916-323-1779

Oil and Gas well locations in the state.

RADON

State Database: CA Radon

Source: Department of Health Services

Telephone: 916-324-2208

Radon Database for California

Area Radon Information

Source: USGS

Telephone: 703-356-4020

The National Radon Database has been developed by the U.S. Environmental Protection Agency (USEPA) and is a compilation of the EPA/State Residential Radon Survey and the National Residential Radon Survey. The study covers the years 1986 - 1992. Where necessary data has been supplemented by information collected at private sources such as universities and research institutions.

EPA Radon Zones

Source: EPA

Telephone: 703-356-4020

Sections 307 & 309 of IRAA directed EPA to list and identify areas of U.S. with the potential for elevated indoor radon levels.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

OTHER

Airport Landing Facilities: Private and public use landing facilities
Source: Federal Aviation Administration, 800-457-6656

Epicenters: World earthquake epicenters, Richter 5 or greater
Source: Department of Commerce, National Oceanic and Atmospheric Administration

California Earthquake Fault Lines: The fault lines displayed on EDR's Topographic map are digitized quaternary fault lines, prepared in 1975 by the United State Geological Survey. Additional information (also from 1975) regarding activity at specific fault lines comes from California's Preliminary Fault Activity Map prepared by the California Division of Mines and Geology.

STREET AND ADDRESS INFORMATION

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APPENDIX E

WATER QUALITY MEMORANDUM



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BERKELEY
CARLSBAD
FRESNO
IRVINE
PALM SPRINGS
POINT RICHMOND
RIVERSIDE
ROCKLIN
SAN LUIS OBISPO

MEMORANDUM

DATE: June 28, 2019

To: Caltrans District 5

FROM: Nicole West, CPSWQ, QSD/QSP

SUBJECT: Water Quality Memorandum for the Bradley Road Bridge Scour Repair Project (LSA Project No. TRT1501)

1.0 INTRODUCTION

The County of Monterey (County) RMA - Public Works & Facilities proposes to implement the Bradley Road Bridge Scour Repair Project (proposed project) to address existing scour issues by installing scour countermeasures to protect the Bradley Road Bridge (bridge) piers that are currently exposed due to scour (Bridge No. 44C0050). The proposed project will involve installation of cast in drilled hole (CIDH) piles and retrofit of the pier footing caps at Piers 16 through 19.

The purpose of this water quality memorandum is to fulfill the requirements of the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA), and to provide information, to the extent possible, for National Pollution Discharge Elimination System (NPDES) permitting. This memorandum 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 in the project area and the water quality of these waters, describes water quality impairments and beneficial uses, identifies potential water quality impacts/benefits associated with the proposed project, and recommends avoidance and/or minimization measures for potentially adverse impacts.

This water quality memorandum determines whether the construction and operation of the Bradley Road Bridge Scour Repair Project would have an adverse impact on water quality. The determination of impacts is based on introduction of pollutants of concern and the anticipated change in pollutant loads. The analysis includes consideration of Best Management Practices (BMPs) to be implemented as part of the proposed project. This assessment also discusses existing water quality regulations and how the proposed project would comply with those regulations.



2.0 PROJECT DESCRIPTION

2.1 Introduction

The County of Monterey (County) RMA - Public Works & Facilities proposes to implement the Bradley Road Bridge Scour Repair Project (proposed project) to address existing scour issues by installing scour countermeasures to protect the Bradley Road Bridge (bridge) piers that are currently exposed due to scour (Bridge No. 44C0050). The bridge identification information is listed below:

05-MON-0-CR
BRLS-5944(100)
Bradley Road Bridge, No. 44C-0050
Latitude: 35° 51' 51"
Longitude: 120° 48' 35"

The project will be funded by the Federal Highway Bridge Program (HBP) and a local County match.

Existing Facility

The bridge is located approximately 5 miles north of the Monterey County/San Luis Obispo County border, just west of Bradley and approximately ¼ mile east of U.S. Route 101 (US-101) (refer to Figure 2.1: Project Location and Figure 2.2: Project Area).

Bradley Road is an existing two-lane road (one lane in each direction) that is classified by the California Road System (CRS) Maps as a Minor Collector. The bridge was originally constructed in 1931 and widened in 1958. The bridge is oriented generally in an east-west direction and crosses the Salinas River, which flows northwest through the project area and then northwesterly to Monterey Bay.

The existing bridge is approximately 1,668 feet (ft) long by 27 ft wide. The existing bridge is a twenty-four-span steel truss and concrete girder bridge with 23 concrete piers (Piers 2 through 24) and two concrete abutments (Abutments 1 and 25) (refer to Figure 2.3: General Bridge Plan). Spans 1–10 (the westernmost spans) and spans 17–24 (the easternmost spans) consist of supported, reinforced concrete, T-girders. Spans 11–16 consist of five-panel, riveted steel, deck trusses.

Overall, the existing bridge is in fair condition with minor deterioration. However, as discussed in more detail below, the bridge has a history of scour erosion of soil or sediment at the concrete piers in the low-flow channel of the Salinas River. Scour is currently undermining the foundations of Piers 16 through 19.

2.2 Purpose and Need

Purpose

The purpose of the project is to install scour retrofits at the substructure of the bridge in order to reduce the potential for scour damage to the existing bridge pier foundations.

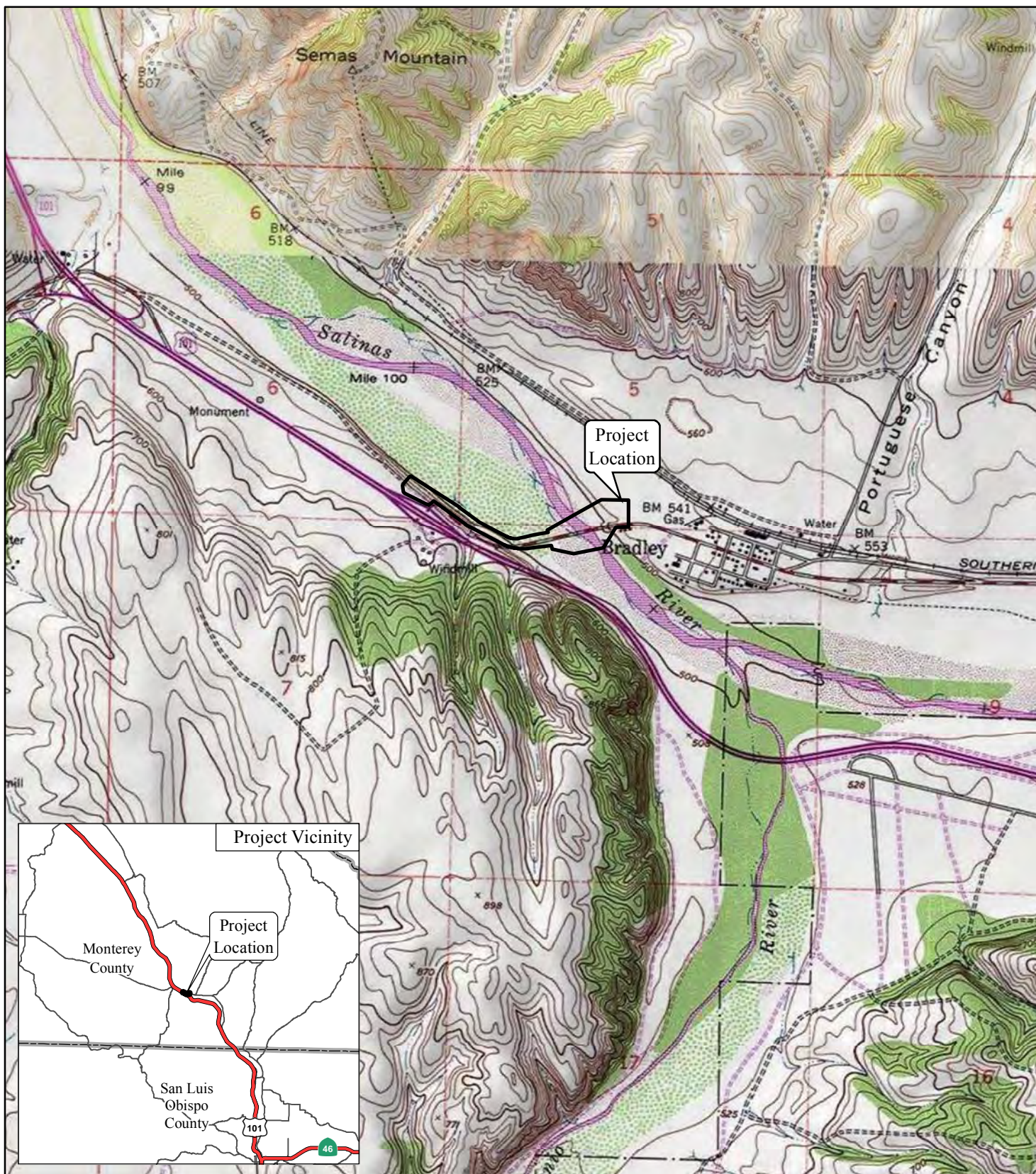
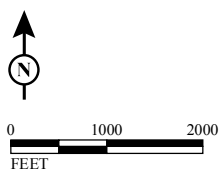


FIGURE 2.1

LEGEND

Project Study Area



SOURCE: USGS 7.5' Quad., Bradley, CA (1979), Wunpost, CA (1979)
 E:\TRT1501\GIS\PD_BradleyRd_ProjectLocation.mxd (5/3/2019)

Bradley Road Bridge Scour Repair Project
Monterey County, California
Federal Project Number BHLO-5944(100)
Project Location



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LEGEND


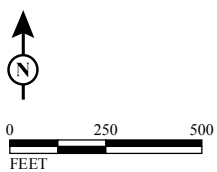
 Project Study Area

FIGURE 2.2



SOURCE: Bing Aerial (10/2017); Quincy (12/2015)

E:\TRT1501\GIS\PD_BradleyRd_ProjectStudyArea.mxd (5/6/2019)

Bradley Road Bridge Scour Repair Project
Monterey County, California
Federal Project Number BHLO-5944(100)
Project Study Area



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Need

As mentioned previously, the bridge has a history of scour at the concrete piers in the low-flow channel of the Salinas River. In the existing condition, scour is undermining the foundations of Piers 16 through 19.

The latest California Department of Transportation (Caltrans) bridge inspection report, dated October 10, 2018, gave the bridge a scour critical bridge rating of “U,” which represents a bridge with unknown foundation that has not been evaluated for scour and development of a plan of action is required. The bridge inspection report noted a scour hole at Pier 17 and undermining at Piers 18 and 19.

As a result of the findings of a previous bridge inspection report, the County prepared a *Bridge Scour Evaluation Plan of Action* (POA) (February 2010). The POA summarized the scour history of the bridge from 1975 through 2007, which indicates a history of scour at Piers 18 and 19. The Bridge Scour POA recommended that Caltrans Bridge Maintenance engineers conduct biennial inspections to check for signs of degradation, settlement, and undermining of the bridge footings and monitor the bridge during a 50-year or greater storm event. The POA also recommended the installation of scour countermeasures.

The extent of the existing bridge scour at Piers 16 through 19 is provided in Table 2.A. Contraction scour occurs when water accelerates as it flows through an opening that is narrower than the channel upstream from the bridge. The Contraction Scour Depth shown in Table 2.A is based a 100-year storm event. Short term (Local) scour represents the predicted depth of scour that would occur during a 100-year storm event given the existing conditions. Long Term Degradation is not associated with a specific storm event. The estimated long-term degradation is projected based on a 50-year bridge service life. Scour at Piers 18 and 19 are depicted in Figure 2.4a and b, Scour Photographs.

Table 2.A: Scour Depths and Elevations for Existing Conditions Without Scour Protection

Pier No.	Contraction Scour Depth (feet)	Long-Term Degradation (feet)	Local Scour Depth (feet)	Total Scour Depth (feet) ¹	Total Scour Elevation (feet) ²
16	1.2	2.8	21.5	25.5	462.0
17	1.2	2.8	27.8	31.8	455.7
18	1.2	2.8	15.4	19.4	468.1
19	1.2	2.8	13.7	17.7	469.8

Source: Wreco, 2016

Notes:

¹ The total scour depth is the sum of the contraction scour, long-term degradation, and the local scour.

² The total scour elevation references the existing channel thalweg elevation (i.e., the lowest elevation of the channel), which is 487.5 feet NAVD 88.

2.3 Project Alternatives

The proposed project includes evaluation of one Build Alternative and the No Build Alternative. The Build Alternative would install scour retrofits at Piers 16 through 19.



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Exposed and Undermined Footing at Pier 16.



Exposed and Undermined Footing at Pier 16.



Exposed and Undermined Footing at Pier 17.



Exposed and Undermined Footing at Pier 17.

LSA

FIGURE 2.4a

Page 1 of 2

*Bradley Road Bridge Scour Repair Project
Monterey County, California
Federal Project Number BHLO-5944(100)*

Scour Photographs



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Exposed and Undermined Footing at Pier 18 (Span 17 Side).



Exposed and Undermined Footing at Pier 19 (Span 18 Side).



Exposed and Undermined Footing Cap at Bent 19.



Exposed and Undermined Footing Cap at Pier 19.



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No Build Alternative: No Action is Taken to Address Existing Scour Issues at Bradley Road Bridge

In the No Build Alternative, no scour protection or retrofit will be installed and the bridge would remain at risk for continued erosion/scour, which would further compromise the structural integrity of the bridge.

Build Alternative: Install Super Piles at the Pier Caps of the Bradley Road Bridge

The Build Alternative would install cast-in-drilled-hole (CIDH) piles and retrofit of the pier footing caps¹ at Piers 16 through 19 (Refer to Figure 2.5, General Construction Plan). Two large diameter (120 inches at Piers 16/17 and 96 inches at Piers 18/19) CIDH piles would be installed at the end of each existing pier footing. The piles would extend into the new reinforced concrete footing. The new footing would be connected through drill and bond dowels to the existing footing and pier wall. Retrofitting of the footing caps would involve fully enclosing the existing footings in new, larger concrete footing caps. The new footing retrofits would be 12 ft in width, 8 ft in height, and 66 ft in length at Pier 16. The new footing retrofits would be 12 ft in width, 8 ft in height, and 62 ft in length at Pier 17. The new footing retrofits would be 10 ft in width, 6 ft in height, and 62 ft in length at Piers 18 and 19. The new CIDH piles would be designed such that they resist the full loading demands from the existing superstructure, existing substructure, and new pile caps.

Table 2.B summarizes the scour depths and elevations for conditions with the proposed scour retrofit.

Table 2.B: Scour Depths and Elevations for Proposed Conditions with Scour Protection

Pier No.	Contraction Scour Depth (feet)	Long-Term Degradation (feet)	Local Scour Depth (feet)	Total Scour Depth (feet) ¹	Total Scour Elevation (feet) ²
16	1.5	2.8	15.5	19.8	467.7
17	1.5	2.8	15.7	20.0	467.5
18	1.5	2.8	23.5	27.8	459.7
19	1.5	2.8	21.6	26.0	461.6

Source: Wreco, 2016

Notes:

¹ The total scour depth is the sum of the contraction scour, long-term degradation, and the local scour.

² The total scour elevation references the existing channel thalweg elevation (i.e., the lowest elevation of the channel), which is 487.5 feet NAVD 88.

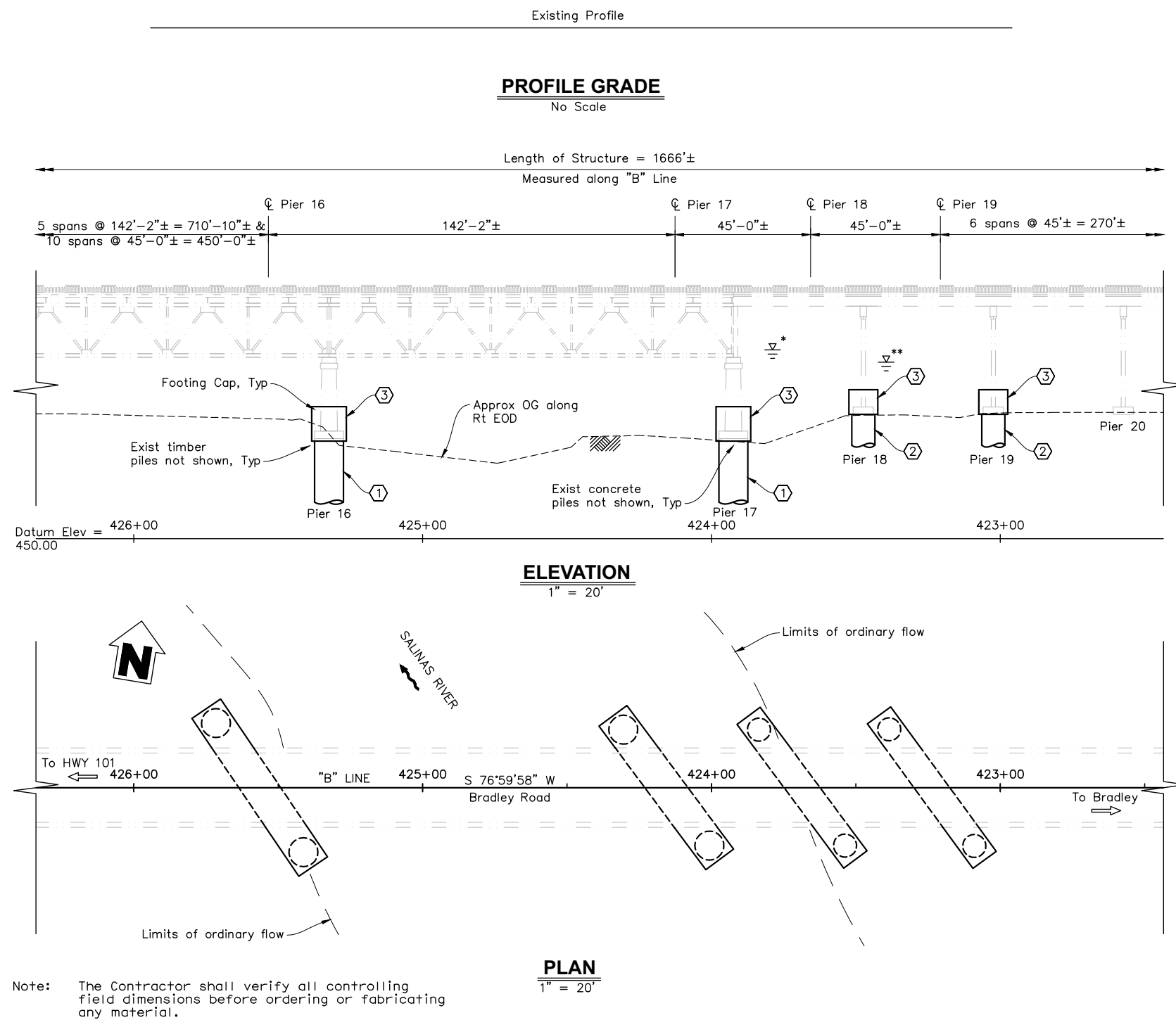
Construction Details

Scheduling. Construction will begin during the spring of 2021, to be completed by the fall of 2021, for a total construction duration of approximately five (5) months. Construction activities within the Salinas River are planned to occur between July 1 through October 15.

¹ Footings are the large lower portion of the foundation that transfers weight from a bridge pier wall and columns to the deep foundation piles and soil below the original ground surface.



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INDEX TO PLANS

<u>Sheet</u> <u>No.</u>	<u>Title</u>
1	General Plan
2	General Notes
3	Foundation Plan
4	Pier Details No. 1
5	Pier Details No. 2
6	Pier Details No. 3
7	Pier Details No. 4
8	CIDH Pile Details
9	Log of Test Borings

RETROFIT LEGEND

- ① Install 120" diameter CIDH piles
- ② Install 96" diameter CIDH piles
- ③ Install new footing retrofit

- Notes:
1. Entire length of bridge not shown. Plan and Elevation only show piers consisting of scour retrofit.

-  Indicates direction of travel.
-  Indicates direction of flow.
-  Indicates existing structure.
-  100 Yr base floodwater elevation,
see Note 3.
-  50 Yr design floodwater elevation,
see Note 3.

2. For General Notes and Quantities, see "General Notes" sheet.
3. For Pile Data Table, Hydrologic Summary, and Scour Data Table, see "Foundation Plan" sheet.

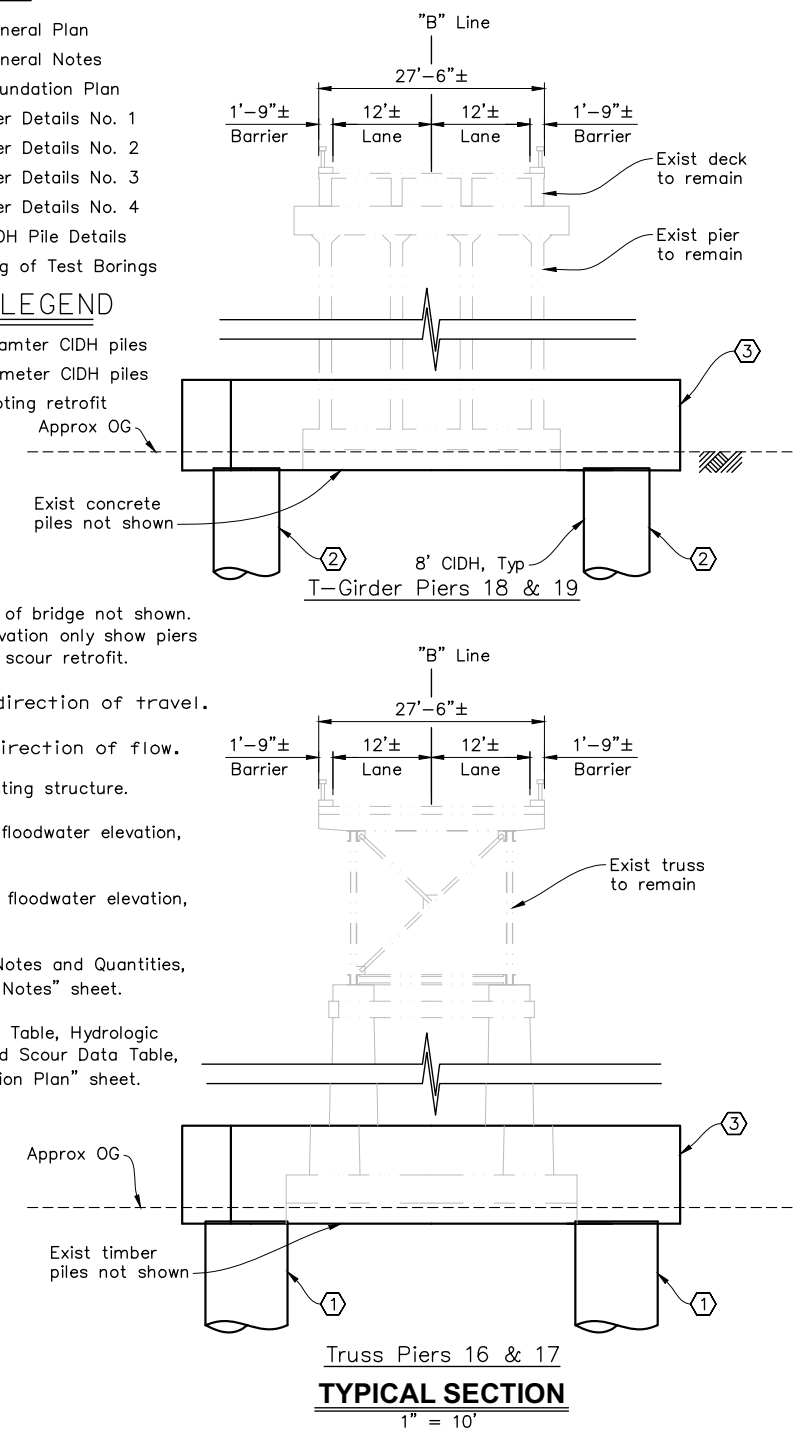


FIGURE 2.5

Bradley Road Bridge Scour Repair Project
Monterey County, California
Federal Project Number BHLO-5944(100)
General Construction Plan



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Traffic Detours and Construction Signage. The bridge will be open to public use during construction and no traffic detours will be required. Advanced and end-construction signage will be placed at the eastern and western approaches of Bradley Road Bridge.

Water Diversion. The Salinas River has perennial flow and is expected to be flowing within the project area year round. A water diversion system will be required to divert the summer flow to provide contractor access to all the piers in need of retrofit. The water diversion will channelize the flow between Pier 16 and Pier 17. Contractor access will consist of temporary berms made of clean crushed gravel constructed around the piers. It is anticipated that temporary sheet pile shoring will be installed around the perimeter of the berms to help channelize the flow of the active channel and keep the work area dry for construction. It is anticipated that the contract language will only allow one pier to be worked on at a time and both footings will not have sheet piling around them at the same time. Therefore, there will not be significant channelization of the flow. Installation of the sheet pile shoring can be achieved using predrilling and vibratory methods. After construction is complete, the contractor will remove the temporary berms and sheet pile shoring and restore all disturbed areas within the river to pre-construction conditions.

Construction Staging and Access. Materials and equipment that will be used during bridge construction will be staged at a designated staging area located northeast of the project area. (Refer to Figure 2.6, Project Construction Details.)

River access will be provided on both sides of the channel. A 12 ft wide 450 ft long access road will be constructed off of Bradley Road at the northeast corner of the bridge (refer to Figure 6). A temporary construction easement (TCE) will be required for the construction of the access road and staging area on the northeast side of Bradley Road Bridge. The TCE will affect a single parcel (Assessor's Parcel Number [APN] 424-101-020).

Additional access from the west will be obtained from the use of an existing private dirt road that starts at the intersection of Bradley Road and the US 101 On-Ramp. The dirt road runs north of and parallel to Bradley Road and the Bradley Road Bridge for approximately 3,000 feet. The existing dirt road will need to be improved (e.g., vegetation clearing and grading) for use as an access route for construction vehicles. The access route will be approximately 12-feet wide. The following additional parcels are anticipated to be affected by this new contractor access alternative and would require temporary easements for construction – Assessor's Parcel Numbers [APN] 424-101-010, 424-101-021, and 424-101-004.

Construction Equipment. Table 2.C summarizes the types of construction equipment that are anticipated to be used during construction.



Table 2.C: Anticipated Construction Equipment

Equipment	Construction Purpose
Backhoe	soil manipulation and drainage work
Bobcat	fill distribution
Bulldozer/Loader	earthwork construction and clearing and grubbing
Crane	bridge construction, sheet piling installation
Dump Truck	fill material delivery
Drill Rig	CIDH pile installation
Excavator	soil manipulation
Forklift	material transportation
Front-End Loader	dirt or gravel manipulation
Haul Truck	earthwork construction and clearing and grubbing
Truck with Seed Sprayer	BMP installation
Water Truck	earthwork construction and dust control
Vibratory Hammer	Vibrating sheet piling in the ground

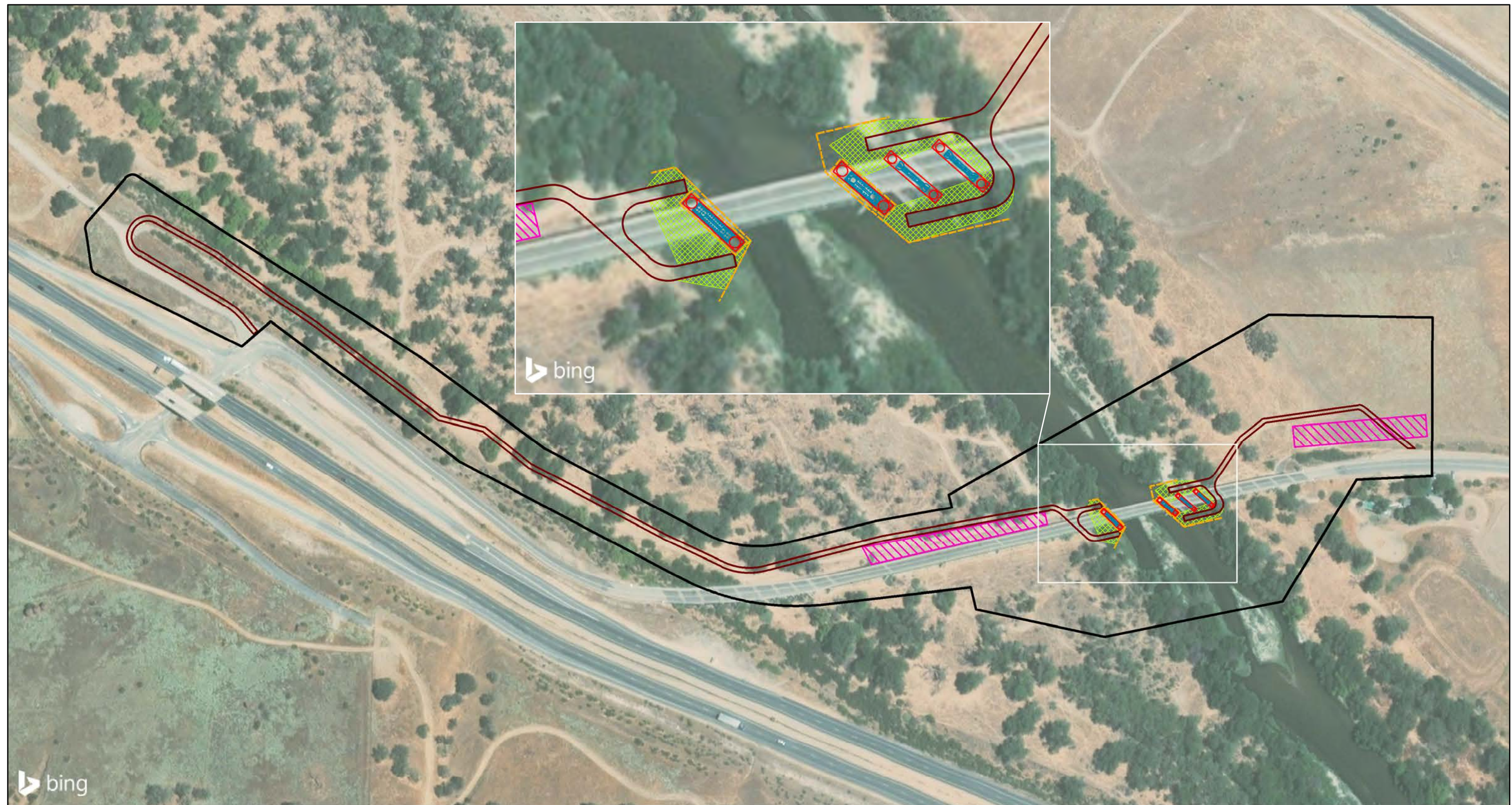
Source: *Bradley Road Bridge Description of Project and Environmental Setting* (Quincy 2015)
 CIDH = cast in drilled hole

3.0 REGULATORY SETTING

3.1 Federal Laws and Requirements

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:



LEGEND

- | | | | |
|---|-------------------------------------|---|------------------------------|
|  | Project Study Area |  | Permanent New Pier Structure |
|  | Temporary Access Road |  | Existing Pier Structure |
|  | Temporary Construction Staging Area |  | Temporary Sheet Pile Shoring |
|  | Temporary Construction Work Area | | |



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SOURCE: Bing Aerial (10/2017); Quincy (04/26/2017)

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FIGURE 2.6

*Bradley Road Bridge Scour Repair Project
Monterey County, California
Federal Project Number BHLO-5944(100)*

Project Construction Details



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- 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.”

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 permits, 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.

3.2 State Laws and Requirements

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.” 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 criteria necessary to protect these uses. Consequently, the water quality standards developed for particular water 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.

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. RWQCBs are responsible for protecting beneficial uses of water resources within their regional jurisdiction using planning, permitting, and enforcement authorities to meet this responsibility.



National Pollution 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 storm water 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 Department as an owner/operator of an MS4 pursuant to federal regulations. The Department’s MS4 permit covers all Department rights-of-way, properties, facilities, and activities in the state. The SWRCB or the RWQCB issues NPDES permits for five years, and permit requirements remain active until a new permit has been adopted.

Because the project area is not within Caltrans right-of-way, it is not subject to the requirements of the Department MS4 Permit.

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 Caltrans Statewide MS4.

In accordance with SWMP, a Water Pollution Control Plan (WPCP) is necessary for construction of a Caltrans project not covered by the CGP.

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.

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.

Low Threat Discharge Permit. The California SWRCB's Water Quality Order 2003-0003-DWQ, *Statewide General Waste Discharge Requirements for Discharges to Land with a Low Threat to Water Quality*, addresses potential discharges of low-water-quality-threat wastewater, which include construction dewatering discharges. In accordance with this permit, all dischargers must comply with all applicable provisions in the relevant Basin Plan, including any prohibitions and water quality objectives governing the discharge. In addition, the discharge of waste may not cause the spread of groundwater contamination. Discharges must be made to land owned or controlled by the discharger, unless the discharger has a written lease or agreement with the landowner. A Notice of Intent must be filed with the appropriate RWQCB before the activities that would have low-water-quality-threat discharges can proceed.

3.3 Regional and Local Requirements

MS4 Permit Requirements

The Municipal Storm Water Permitting Program regulates storm water discharges from MS4s. The NPDES MS4 permits are issued in two phases by the SWRCB and RWQCBs. Phase I MS4 permits are issued to medium (serving between 100,000 and 250,000 people) and large (serving more than 250,000 people) municipalities. Most of these permits are issued to a group of co-permittees encompassing an entire metropolitan area. The Phase II MS4 Permits are issued to smaller



municipalities (populations of less than 100,000 people), including the County, and nontraditional small MS4s (e.g., military bases, public campuses, and prison and hospital complexes). The Phase II Small MS4 Permit (Order No. 2013-0001-DWQ, NPDES No. CAS000004) covers Phase II permittees statewide and became effective on July 1, 2013. The Phase I and Phase II MS4 permits require the permittees to develop a storm water management program and individual dischargers to develop and implement a Storm Water Management Plan.

The CGP (Order No. 2009-0009-DWQ, NPDES No. CAS000002, as amended by Order Nos. 2010-0014-DWQ and 2012-12-0006-DWQ) identifies post-construction requirements for areas outside of the Phase I and Phase II Permit areas, which includes the project area. The CGP regulates storm water discharges from construction sites which result in a land disturbance of 1 acre or greater, and/or are smaller sites that are part of a larger common plan of development. The post-construction requirements establish storm water performance standards to avoid, minimize, and/or mitigate post-construction storm water runoff impacts on water bodies and watersheds. The performance standards specify runoff reduction requirements to address water quality and channel protection for both hydrologic-based and pollution impacts. The CGP also mandates that post-construction runoff match pre-project runoff for the 85th percentile storm event or the smallest storm event that generates runoff, whichever is larger. These performance standards are intended to ensure that post-construction conditions at the project area do not cause or contribute to direct or indirect water quality impacts upstream and downstream, including channel bank degradation, water pollution, flooding, and impacts to the physical and biological integrity of aquatic ecosystems. The post-construction requirements specify that construction is not deemed complete until post-construction storm water management measures are installed and a long-term maintenance plan is prepared. Sites with a disturbed area greater than 2 acres are required to preserve pre-construction drainage density, defined as the miles of stream length per square mile of drainage area, for all drainage areas in the area serving a first order stream (stream with no tributaries) or a larger stream.

Monterey County Municipal Code

Chapter 16.08 of the Monterey County Municipal Code regulates grading activities and requires disturbed surfaces from grading operations be prepared and maintained to control erosion. Chapter 16.12 of the Municipal Code requires that an Erosion Control Plan that identifies the proposed methods for controlling runoff, erosion, and sediment movement be prepared for construction projects. The Erosion Control Plan is to be submitted to the County for review and approval by the appropriate director.

4.0 AFFECTED ENVIRONMENT

4.1 General Setting

The project area is located in Bradley, an unincorporated Census-designated place within Monterey County. Bradley Road Bridge is located approximately 0.5 miles east of Highway 101. The existing bridge crosses the Salinas River and is within the Upper Salinas River Watershed.



Population and Land Use

The project site is located within a rural area of the County with a low population density. The land use surrounding the project area is primarily farmland and grazing land. The developed area of Bradley is located just east of the project area and comprises primarily residential uses with some commercial uses.

According to the United States Census Bureau, in 2018 the population of Monterey County was an estimated 435,594 people (U.S. Census Bureau, 2019). The estimated population of Bradley in 2018 was 93 people.

Topography

Topography in the project area is mostly flat with gently sloping terraces along the western and eastern edges of the Salinas River channel. Elevations within the project area range from approximately 490 to 530 feet above mean sea level (amsl) (United States Geological Survey [USGS], 1979).

Hydrology

Regional Hydrology. The project area is located within the Salinas River Watershed (refer to Figure 4.1), which covers approximately 4,600 square miles (sq mi) within San Luis Obispo County and Monterey County and is the Central Coast Region's third-largest watershed (Central Coast Regional Water Quality Control Board [RWQCB], 2002).

The Salinas River is the largest river in California Central Coast region. The 170-mile long Salinas River originates in the southern end of the Salinas Valley in San Luis Obispo County, flows northwest, and drains into the Salinas River Lagoon (North) (refer to Figure 4.2). The Salinas River is a shallow river with most of its water flow running underground.

There are two subwatersheds that make up the Salinas River Watershed: the Upper Salinas River Watershed and the Lower Salinas River Watershed. The project area is located in the Upper Salinas River Watershed (refer to Figure 4.1). The Upper Salinas River Watershed begins in the La Panza Range, southeast of Santa Margarita Lake and extends northwestward past the confluences of the Nacimiento and San Antonio Rivers to where the Salinas River narrows just north of Bradley (RWQCB, 2002). The Upper Salinas River Watershed is located within both Monterey and San Luis Obispo Counties.

The project area is within the jurisdiction of the Central Coast RWQCB, which covers a 300-mile long by 40-mile wide section of the California Central Coast (RWQCB, 2015). For regulatory purposes, within the Central Coast Regional Hydrologic Planning Area, watersheds are designated as Hydrologic Units (HUs), which are further divided into Hydrological Areas (HAs) and Hydrologic Subareas (HSAs). As designated by the RWQCB, the project area is located within the Salinas River HU, the Paso Robles HA, and the Atascadero HSA (refer to Figure 4.1).

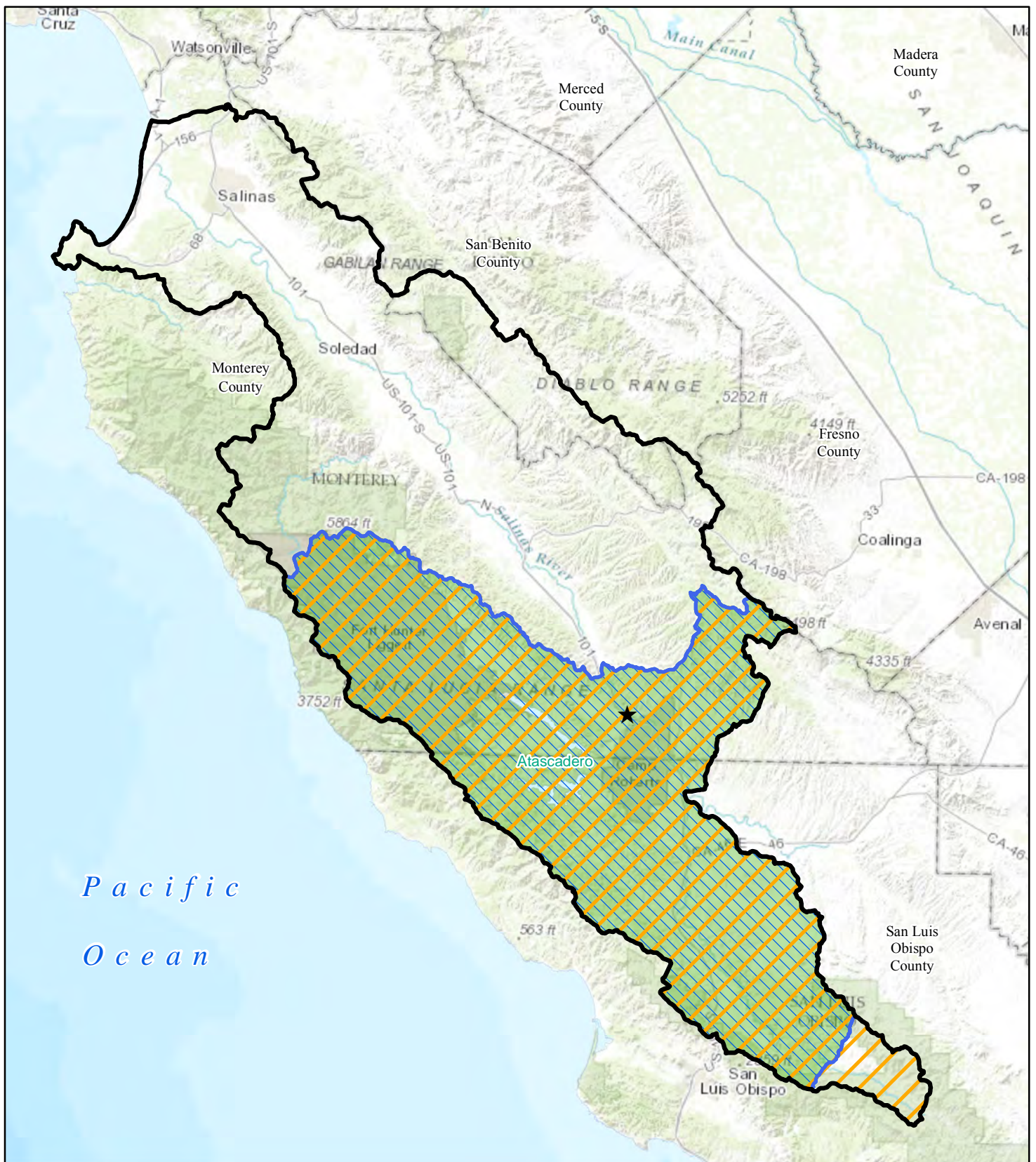
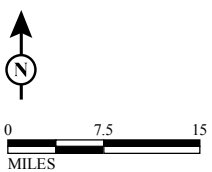


FIGURE 4.1

LEGEND

- ★ Project Location
- ▭ Salinas River Watershed/Salinas Hydrologic Unit
- ▨ Upper Salinas River Watershed
- ▨ Paso Robles Hydrologic Area
- ▨ Atascadero Hydrologic Sub Area



SOURCE: Esri; LSA (2015); CalWaters (2004)

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*Bradley Road Bridge Scour Repair Project
Monterey County, California
Federal Project Number BHLO-5944(100)
Watersheds/Hydrologic Areas*



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Local Hydrology. The Salinas River flows in a northwesterly direction underneath the Bradley Road Bridge and is the primary receiving water for storm water originating from the project area (refer to Figure 4.2). The Salinas River is a perennial stream within the study area; surface water is present year-round.

Within the project area, the Salinas River carries surface floodwaters in and outside of the active channel during high-flow events. Additionally, flow is regulated upstream of the project area where water is released into the Salinas River during the spring-fall period (depending on drought and other conditions) from Lake Nacimiento into the Nacimiento River and San Antonio Lake into the San Antonio River (both rivers are tributaries to the Salinas River within 5 miles upstream of the project area).

Precipitation and Climate. The climate of Monterey County is characterized as Mediterranean, with warm, dry summers and cool moist winters. The average annual precipitation recorded at the Paso Robles Municipal Airport Climatological Station¹ is 12.53 inches per year (in/yr). Most rainfall occurs from November through March. The annual mean temperature is 59.7 degrees Fahrenheit (°F) with an average annual maximum temperature of 76.1°F and the average annual minimum of 43.3°F (Western Regional Climate Center, 2016).

Surface Streams. Within the project area, the Salinas River has a broad, mostly flat floodplain with gently sloping terraces along the western and eastern edges of the river channel. Vegetation along the Salinas River channel in the project area is dominated by relatively natural vegetation types including brome grassland, Fremont cottonwood forest, and willow thickets.

Floodplains. According to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRM) No. 06053C1925G (April 2, 2009), the project area lies within Zone A and Zone X (refer to Figure 4.3). The Salinas River floodplain is designated as Zone A, which comprises areas that are subject to inundation by the 1 percent annual chance flood event (100-year floodplain) with base flood elevations not determined. The project area to the east and west of the Salinas River are designated as Zone X, which are areas determined to be outside the 0.2 percent annual chance flood event (500-year floodplain).

Municipal Supply. Monterey County receives no imported water (i.e., no water from the State Water Project or other water sources imported from outside its boundaries) except for water from the Salinas River, which originates in San Luis Obispo County (Regional Water Management Group, 2013). Municipal, industrial, domestic, and agricultural water use in the Paso Robles Area Groundwater Subbasin, including Bradley, relies exclusively on groundwater (Paso Robles Groundwater Basin—Groundwater Advisory Committee, 2011). Water supply is derived from private groundwater wells and mutual water companies, which drill groundwater wells that service two or

¹ The Paso Robles Municipal Airport Climatological Station is the closest operational climatological station from the project area. The station is located approximately 15 miles southeast of the project area.



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LEGEND

- ★ Project Location
- Surface Waters



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MILES

SOURCE: Bing Maps (2014); ESRI (2014); USGS Salinas (1975) and Marina (1974) Quads; TRC (12/2015); NHD (2013); CCoWS (2007)

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FIGURE 4.2

*Bradley Road Bridge Scour Repair Project
Monterey County, California
Federal Project Number BHLO-5944(100)
Surface Waters*



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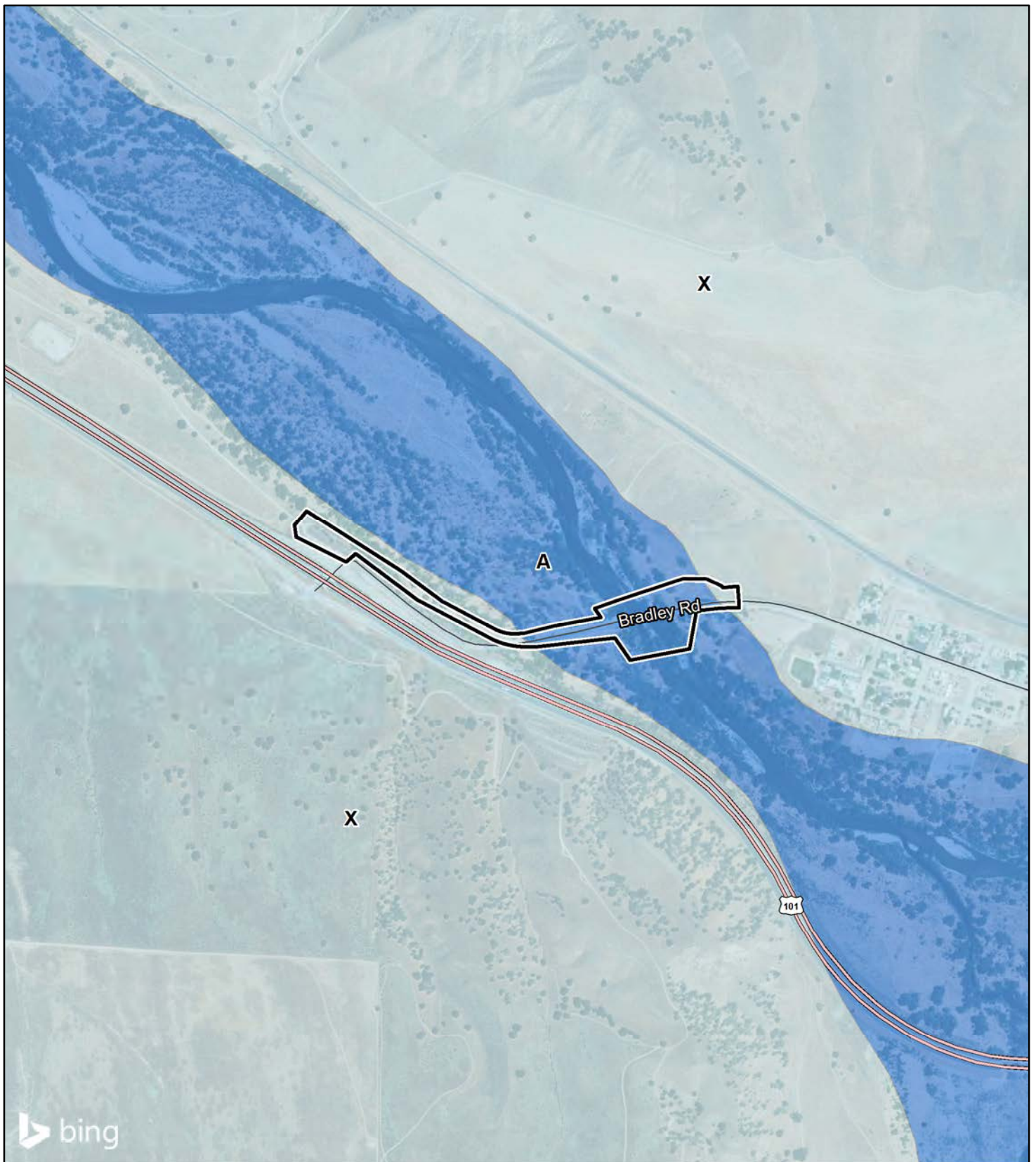
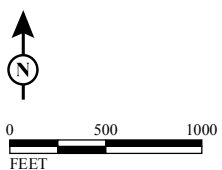


FIGURE 4.3

LEGEND

- Project Area
- Zone A: 100-year floodplain (1% annual chance flood)
- Zone X: area determined to be outside the 500-year floodplain (0.2% annual chance flood)



SOURCE: Bing (~2014); TRC (12/2015); FEMA (2016)

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*Bradley Road Bridge Scour Repair Project
Monterey County, California
Federal Project Number BHLO-5944(100)
Floodplains*



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more connections (Monterey County, 1997). Large agricultural wells are owned and operated by the private sector and used for drawing large volumes of groundwater for irrigation purposes.

Groundwater Hydrology. The project site is located within the Salinas Valley Groundwater Basin and within the Paso Robles Area Groundwater Subbasin (refer to Figure 4.4). The Paso Robles Area Subbasin is 932 square miles in area and extends from central San Luis Obispo County to north of Bradley in Monterey County. The Paso Robles Groundwater Subbasin is bordered on the north by the Upper Valley Aquifer Subbasin, on the northeast by the San Andreas Fault, on the east by the Temblor Range and the Red Hill, San Juan, and White Canyon Faults, on the south by the La Panza Range, and on the west by the Santa Lucia Range and the San Marcos-Rinconada Fault (California Department of Water Resources, 2004).

The water-bearing units of the Paso Robles Groundwater Subbasin are Holocene age alluvium and the Pleistocene age Paso Robles formation. The fine- to coarse-grained sands and pebbles of the alluvium can be as thick as 130 feet near the Salinas River, but are generally closer to 30 feet thick and provide a smaller amount of groundwater than the Paso Robles Formation. The Pleistocene-age Paso Robles formation is the most important source of groundwater in this subbasin and its formation of sand, silt, gravel, and clay can be as thick as 2,000 feet. In contrast to the alluvium, the groundwater in the Paso Robles formation is predominantly confined (California Department of Water Resources, 2004).

Natural recharge to the Paso Robles Groundwater Subbasin occurs through precipitation infiltration, seepage from streams, and the return flow from irrigation (California Department of Water Resources, 2004). Water is also released from the Nacimiento and San Antonio Reservoirs to maintain flow in the Salinas River in order to maximize groundwater recharge from the streambed (Monterey County Water Resources Agency, 2006).

According to the *Foundation Report* (Parikh Consultations, Inc., 2019), groundwater was encountered at approximately 3 feet below ground surface (bgs) during borings conducted near Pier 16 and Pier 20 between September 20 and October 2, 2015. However, groundwater levels may vary over time due to factors such as seasonal groundwater fluctuation, local irrigation practices, water level in the Salinas River, surface and subsurface flows, and storm water runoff.

4.2 Geology/Soils

Soil Erosion Potential

The mapped soils at the project site consist primarily of Chualar loam (0 to 2 percent slopes) and psamments and fluvents (both frequently and occasionally flooded) (USDA, 2016). Chualar loam is present to the east of the Salinas River and psamments and fluvents are present in the Salinas River floodplain. Chualar loam is a well-drained soil with low runoff potential. Psamments and fluvents (both frequently and occasionally flooded) are excessively drained with very low runoff potential.

Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water, transportability of the sediment, and the amount and rate of runoff given a particular rainfall input, as measured under a standard condition. Factor K is one of six factors used in the Universal Soil Loss



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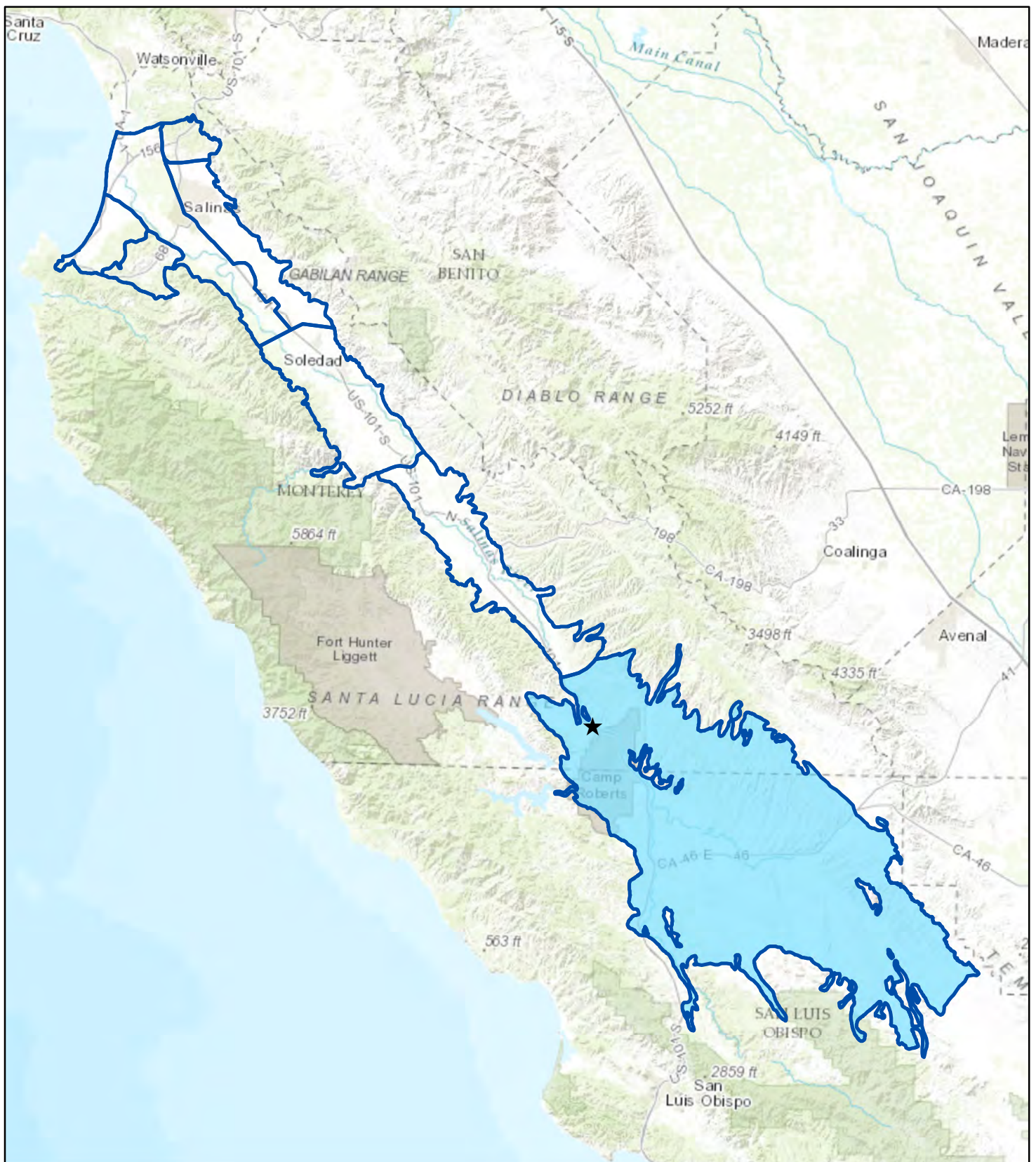
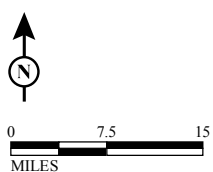


FIGURE 4.4

LEGEND

- ★ Project Location
- ▭ Subbasins of the Salinas Valley Groundwater Basin
- ▭ Paso Robles Area Subbasin



*Bradley Road Bridge Scour Repair Project
Monterey County, California
Federal Project Number BHLO-5944(100)
Groundwater Basins*



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Equation (USLE) and the Revised Universal Soil Loss Equation (RUSLE) to predict the average annual rate of soil loss by sheet and rill erosion in tons per acre per year. The estimates are based primarily on percentage of silt, sand, and organic matter and on soil structure and saturated hydraulic conductivity (Ksat). Values of K range from 0.02 to 0.69. Other factors being equal, the higher the value, the more susceptible the soil is to sheet and rill erosion by water. Chualar loam has a K factor of 0.32 (moderate erodibility) and psamments and fluvents have a K factor of 0.02 (low erodibility) (USDA, 2016).

4.3 Biological Communities

The information presented in this section is based on the *Natural Environment Study* (January 2016) prepared for the project.

Aquatic Habitat

Aquatic habitat within the project area is limited to the perennial flows of the several channels of the Salinas River (i.e., open water). The Salinas River is a perennial stream within the Biological Study Area (BSA); surface water was present during biological resources field surveys conducted in the spring and summer 2015.

The Salinas River currently supports 14 species of native fishes including south/central California coast steelhead. Western mosquitofish and Sacramento pike minnow were the only fish species observed in the BSA during the surveys in 2015. Several species of special-status semi-aquatic reptiles occur in the Salinas Valley, including the western pond turtle, which, although was not observed, may occur within the BSA. Resident bird species observed using the vegetation type in the BSA include mallard and common merganser. Special-status aquatic species with the potential to occur in the BSA are discussed in more detail below.

Special Status Species. The project area is in designated critical habitat for south/central California coast steelhead Distinct Population Segment (DPS), which is aquatic dependent and federally threatened. The Salinas River serves as a migration corridor for steelhead spawning in the upper watershed and for young steelhead migrating downstream to the ocean during winter and spring flows. Therefore, the presence of steelhead in the study area is presumed to occur during normal high flow events during the rainy season. However, south/central California coast steelhead DPS requires gravelly substrates for spawning, and the fine sandy bottom and warm water in the Salinas River within the BSA does not provide suitable rearing habitat for this species.

Western pond turtle is a California species of special concern. These turtles generally prefer deep (greater than 2 feet) quiet pools along streams. Important habitat features include basking sites and suitable aquatic hiding areas, such as undercut banks, logs, rocks, aquatic vegetation, and/or mud and leaf-litter. Western pond turtles occupy permanent and intermittent ponds and creeks. Although this species was not detected during the various survey efforts, suitable aquatic, basking, and upland habitat is present. Therefore, this species may occur in the BSA.



Yellow warbler is a California species of special concern. This species is a Neotropical migrant that is a common breeder in suitable riparian habitat (dominated by willows) along the larger streams of Monterey County. Yellow warbler has been previously documented to occur within the study area was observed in the riparian areas of the study area during the spring 2015 field surveys. Suitable nesting habitat occurs within the study area along the Salinas River. This species is likely to nest in the red willow thicket and/or Fremont cottonwood forest within the BSA.

The pallid bat is a California species of special concern. The Salinas River Valley is within the range of the pallid bat and suitable roosting and foraging habitat is present within the BSA. Pallid bats roost in crevices and cavities of buildings, bridges, mines, and trees and often use bridges and other built structures as night roosts. Pallid bats were confirmed to use two expansion joints of Bradley Road Bridge as day-roosting habitat during nighttime bat surveys conducted for the project. The number and concentration of bats present within each of these expansion joints during the summer season (when the focused survey was conducted) indicates maternity roosting by the species. Additionally, the western abutment and, to a lesser extent the eastern abutment, of the Bradley Road Bridge serves as a night roost for several bat species, including pallid bat. The close proximity of the Bradley Road Bridge to high-quality foraging habitat increases its desirability and importance as a both a day- and night-roosting site for bats.

The western red bat is a California species of special concern. There are records of western red bats throughout the Salinas Valley; however, there is limited information about the distribution of breeding western red bats in this area. Western red bats roost among the foliage of trees and favor riparian corridors for foraging. Suitable roosting and foraging habitat is present within the BSA; however, this species was not detected (visually or acoustically) during the focused bat survey. Western red bats could roost in the Fremont cottonwood forest within the BSA, but their roost sites can be difficult to detect due to the solitary roosting habits of this species.

Stream/Riparian Habitats. A corridor of riparian woodland occurs in the floodplain of the Salinas River. Floods during winter storm events can scour out riparian vegetation and deposit fresh layers of sediment along the Salinas River channel. Such flood events promote a diverse mosaic of riparian vegetation with various seral stages of succession. The most biologically diverse area within the BSA is located along the Salinas River channel. This area is dominated by relatively annual brome grassland, Fremont cottonwood forest, and willow thickets.

Wetlands. Areas of potential jurisdiction were evaluated according to USACE and California Department of Fish and Wildlife (CDFW) criteria as part of the Jurisdictional Delineation prepared for the proposed project. Within the BSA, potential waters of the United States under USACE jurisdiction consist of 0.46 acre of wetlands and 1.91 acres of open water and non-wetland waters for a total of 2.37 acres. Areas within the Salinas River subject to CDFW jurisdiction within the BSA total approximately 13.01 acres including Fremont cottonwood forest, red willow thickets, sandbar willow thickets, water primrose wetland, and open water.

Fish Passage. As stated previously, the Salinas River within the study area does not provide suitable spawning or rearing habitat for steelhead; however, adult fish moving upstream to spawn and



smolts moving downstream to the ocean would be expected to pass through the study area during high flows in the winter and early spring.

4.4 Water Quality Objectives/Standards and Beneficial Uses

Surface Water Quality Objectives/Standards and Beneficial Uses

Table 4.A lists surface water quality objectives for all inland waters, enclosed bays, and estuaries within the Central Coast Region, as identified in the Basin Plan.

Table 4.A: Water Quality Objectives for all Inland Surface Waters, Enclosed Bays, and Estuaries

Constituent	Concentration
Color	Waters shall be free of coloration that causes nuisance or adversely affects beneficial uses. Coloration attributable to materials of waste origin shall not be greater than 15 units or 10 percent above natural background color, whichever is greater.
Tastes and Odors	Waters shall not contain taste or odor-producing substances in concentrations that impart undesirable tastes or odors to fish flesh or other edible products of aquatic origin, that cause nuisance, or that adversely affect beneficial use.
Floating Material	Waters shall not contain floating material, including solids, liquids, foams, and scum, in concentrations that cause nuisance or adversely affect beneficial uses.
Suspended Material	Waters shall not contain suspended material in concentrations that cause nuisance or adversely affect beneficial uses.
Settleable Material	Waters shall not contain settleable materials in concentrations that result in deposition of materials that causes nuisance or adversely affect beneficial uses.
Oil and Grease	Waters shall not contain oils, greases, waxes, or other similar materials in concentrations that result in a visible film or coating on the surface of the water or on objects in the water, that cause nuisance, or that otherwise adversely affect beneficial uses.
Biostimulatory Substances	Waters shall not contain biostimulatory substances in concentrations that promote aquatic growth to the extent that such growth causes nuisance or adversely affects beneficial uses.
Sediment	The suspended sediment load and suspended sediment discharge rate of surface waters shall not be altered in such a manner as to cause nuisance or adversely affect beneficial uses.



Table 4.A: Water Quality Objectives for all Inland Surface Waters, Enclosed Bays, and Estuaries

Constituent	Concentration
Turbidity	<p>Waters shall be free of changes in turbidity that cause nuisance or adversely affect beneficial uses. Increase in turbidity attributable to controllable water quality factors shall not exceed the following limits:</p> <ul style="list-style-type: none"> • Where natural turbidity is between 0 and 50 JTU, increases shall not exceed 20 percent. • Where natural turbidity is between 50 and 100 JTU, increases shall not exceed 10 percent. • Where natural turbidity is greater than 100 JTU, increases shall not exceed 10 percent.
pH	For waters not mentioned by a specific beneficial use, the pH value shall not be depressed below 7.0 or raised above 8.5.
Dissolved Oxygen	For waters not mentioned by a specific beneficial use, dissolved oxygen concentration shall not be reduced below 5.0 mg/l at any time. Median values should not fall below 85 percent saturation as a result of controllable water quality conditions.
Temperature	The natural receiving water temperature of <u>instate</u> waters shall not be altered unless it can be demonstrated that such alteration in temperature does not adversely affect beneficial uses.
Toxicity	All waters shall be maintained free of toxic substances in concentrations that are toxic to, or that produce detrimental physiological responses in, human, plant, animal, or aquatic life. The discharge of wastes shall not cause concentrations of unionized ammonia (NH ₃) to exceed 0.025 mg/l (as N) in receiving waters.
Pesticides	No individual pesticide or combination of pesticides shall be present in concentrations that adversely affect beneficial uses. There shall be no increase in pesticide concentrations found in bottom sediments or aquatic life.
Chemical constituents	Where wastewater effluents are returned to land for irrigation uses, regulatory controls shall be consistent with Title 22 of the California Code of Regulations and other relevant local controls.
Radioactivity	Shall not be present in concentrations that are deleterious to human, plant, animal, or aquatic life or result in the accumulation of radionuclides in the food web which would present a hazard to human, plant, animal, or aquatic life.
Other Organics (Not-To-Be-Exceeded Levels)	
Methylene Blue Activated Substances	0.2 mg/L
Phenols	0.1 mg/L
PCBs	0.3 µg/L
Phthalate Esters	0.002 µg/L

Source: *Water Quality Control Plan for the Central Coast Basin*. 2019.

µg/L = micrograms per liter
mL = milliliter

JTU = Jackson Turbidity Units
PCBs = polychlorinated biphenyls

mg/L = milligrams per liter
pH = percentage of hydrogen



In addition, the Salinas River (upstream from Spreckels), which includes the project area, has the following site-specific surface water quality objectives:

- Total Dissolved Solids: 600 milligrams per liter (mg/L).
- Chloride: 80 mg/L.
- Sulfate: 125 mg/L.
- Boron: 0.2 mg/L.
- Sodium: 70 mg/L.

Establishing the beneficial uses to be protected in the Central Coast Basin is the cornerstone of water quality protection under the Basin Plan. Beneficial uses of water are defined in the Basin Plan as those necessary for the survival or well-being of humans, plants, and wildlife. Examples of beneficial uses include drinking water supplies, swimming, industrial and agricultural water supply, and the support of freshwater and marine habitats and their organisms (RWQCB, 2019).

Table 4.B provides the present or potential beneficial uses for the Salinas River and the Salinas River Lagoon (North) as identified in the Basin Plan.

Table 4.B: Surface Water Beneficial Uses

Beneficial Uses	Salinas River, Chualar to Nacimiento River	Salinas River, Spreckels to Chualar	Salinas River, downstream of Spreckels	Salinas River Lagoon (North)
MUN: Municipal and Domestic Supply	X	X	X	
AGR: Agricultural Supply	X	X	X	
PROC: Industrial Process Supply	X	X		
IND: Industrial Service Supply	X	X		
GWR: Groundwater Recharge	X	X		
REC-1-Water Contact Recreation	X	X	X	X
REC-2: Non-Contact Water Recreation	X	X	X	X
WILD: Wildlife Habitat	X	X	X	X
COLD: Cold Freshwater Habitat	X	X	X	X
WARM: Warm Fresh Water Habitat	X	X	X	X
MIGR: Migration of Aquatic Organisms	X	X	X	X



Table 4.B: Surface Water Beneficial Uses

Beneficial Uses	Salinas River, Chualar to Nacimiento River	Salinas River, Spreckels to Chualar	Salinas River, downstream of Spreckels	Salinas River Lagoon (North)
SPWN: Spawning, Reproduction and/or Early Development	X			X
BIOL: Preservation of Biological Habitats of Special Significance				X
RARE: Rare, Threatened or Endangered Species	X			X
EST: Estuarine Habitat				X
FRESH: Freshwater Habitat			X	
COMM: Commercial and Sport Fishing	X	X	X	X
SHELL: Shellfish Harvesting				X

Source: *Water Quality Control Plan for the Central Coast Basin*. [2019](#).

Groundwater Quality Objectives/Standards and Beneficial Uses

Table 4.C provides the groundwater quality objectives for the Central Coast Region as designated in the Basin Plan. There are no site-specific water quality objectives for the Paso Robles Area Groundwater Subbasin in the vicinity of Bradley.

Table 4.C: Groundwater Quality Objectives for the Central Coast Basin

Constituent	Concentration
Bacteria	In groundwater used for Domestic or Municipal Supply (MUN), the median concentration of coliform organisms over any 7-day period shall be less than 2.2/100 milliliters.
Chemical Constituents	<p>Groundwater used for Municipal Supply (MUN) shall not contain concentrations of chemical constituents in excess of the limits specified in California Code of Regulations, Title 22, Chapter 15, Article 4, Section 64435, Tables 2 and 3.</p> <p>Groundwater used for Agricultural Supply (AGR) shall not contain concentrations of chemical constituents in amounts that adversely affect such beneficial use. Interpretation of adverse effect shall be as derived from the University of California Agricultural Extension Service guidelines provided in Table 3-3 of the Basin Plan. In addition, water used for irrigation and livestock watering shall not exceed the concentrations for those chemicals listed in Table 3-4 of the Basin Plan. No controllable water quality factor shall degrade the quality of any ground water resource or adversely affect long-term soil productivity. The salinity control aspects of groundwater management will account for effects from all sources.</p>



Table 4.C: Groundwater Quality Objectives for the Central Coast Basin

Constituent	Concentration
<u>Inorganic Chemicals</u>	<u>Groundwater used for Municipal Supply (MUN) shall not contain concentrations of organic chemicals in excess of the maximum contaminant levels for primary drinking water standards specified in California Code of Regulations, Title 22, Chapter 15, Sections 64431 and 64433.2.</u>
Organic Chemicals	Groundwater used for Municipal Supply (MUN) shall not contain concentrations of organic chemicals in excess of the <u>maximum contaminant levels for primary drinking water standards specified</u> in California Code of Regulations, Title 22, Chapter 15, Article 5.5, Section 64444.5, Table <u>64444-A</u> .
Radioactivity	Radionuclides shall not be present in concentrations that are deleterious to human, plant, animal, or aquatic life; or result in the accumulation of radionuclides in the food web to an extent that presents a hazard to human, plant, animal, or aquatic life. Groundwater used for Municipal Supply (MUN) shall not contain concentrations of radionuclides in excess of the limits specified in California Code of Regulations, Title 22, Chapter 15, Article 5, Section 64443.
Tastes and Odors	Groundwater shall not contain taste or odor-producing substances in concentrations that adversely affect beneficial uses.

Source: *Water Quality Control Plan for the Central Coast Basin*. [2019](#).

The present and potential beneficial uses for groundwater in the Central Coast Region, as identified in the Basin Plan, are listed below:

- MUN: Municipal and Domestic Supply.
- AGR: Agricultural Supply.
- IND: Industrial Service Supply.

4.5 Existing Water Quality

Regional Water Quality

Surface Water Quality. Actions such as overpumping for irrigation, heavy agricultural use, flood control activities, hydromodification of creeks, and mining of sand, gravel, mineral, and oil reserves from various locations throughout the watershed have degraded water quality in the Salinas River Watershed. Water quality issues in the watershed include seawater intrusion, nitrates and minerals in groundwater, nutrients (including nitrate), pesticides, heavy metals, and sedimentation. In addition, urbanization and associated increases in impervious surface area have caused flooding, streambank scour, and sediment deportation (RWQCB, 2002).

Agriculture is the primary land use within the Upper Salinas River Watershed. Grazing, pasturelands, and dry land farming have historically been the dominant land use in the Upper Salinas River



Watershed, but vineyards and wineries are increasing. Land use in the Upper Salinas River Watershed is also characterized by increasing urbanization along the Salinas River and Highway 101 corridors surrounded by ranchettes and irrigated crops (RWQCB, 2002).

Urbanization in the Salinas River Watershed has increased runoff volumes, velocities, and pollutant levels. The increase in impervious surface area related to development and the encroachment of structures in floodplains has increased the amount of water in the creeks, resulting in increased erosion and risk of flooding. Grazing has historically altered waterways through the trampling and destruction of the riparian corridor. Additionally, inactive mercury mines have resulted in mercury contamination in the watershed (RWQCB, 2002).

Agriculture, grazing, and urbanization has affected the water quality in the Salinas River and Salinas River Lagoon, which are listed as impaired water bodies under Section 303(d) of the CWA (RWQCB 2002). Refer to the next section for the existing pollutant impairments for the Salinas River and the Salinas River Lagoon.

Groundwater Quality. The most well-documented groundwater problems in the entire Salinas Groundwater Basin include seawater intrusion and nitrates. Seawater intrusion occurs from overpumping groundwater for agricultural use. Nitrate contamination is a result of septic systems, the operation of confined animal facilities, and the application, improper handling, and improper storage of pesticides and chemicals for agricultural use (RWQCB, 2002). Groundwater in the Paso Robles Area Groundwater Subbasin is characterized by calcium, sodium, and bicarbonate. Total dissolved solids (TDS) content in the Paso Robles Area Groundwater subbasin ranges from 346 to 1,670 mg/L, with an average of 614 mg/L and a range of 346 to 1,670 mg/L. Water quality trends indicate an increasing concentration of TDS and chloride in shallow Paso Robles Formation deposits along the Salinas River. Another major problem is the unpredictable occurrence of hydrogen sulfide in the groundwater. In a 2001 study, the Bradley area of the Paso Robles Area Groundwater Subbasin had the highest percentage of samples not meeting drinking water standards (California Department of Water Resources, 2004).

List of Impaired Waters

The SWRCB approved the [2014 and 2016 California](#) Integrated Report, a CWA Section 303(d) List and 305(b) Report, on [October 3, 2017](#). On [April 6, 2018](#), the EPA approved the [2014/2016 California 303\(d\) List of Water Quality Limited Segments](#). The lower Salinas River from the estuary to near the Gonzales Road Bridge is [listed as](#) impaired [on the 303\(d\) list](#) for [benthic community effects](#), chlordane, chloride, chlorpyrifos, dichlorodiphenyldichloroethane (DDE), diazinon, dieldrin, enterococcus, Escherichia coli (E. coli), fecal coliform, nitrate, polychlorinated biphenyls (PCBs), sodium, total dissolved solids, toxaphene, turbidity, toxicity, and pH. The middle Salinas River from near the Gonzales Road Bridge to the confluence with the Nacimiento River is listed as impaired for E. coli, fecal coliform, water temperature, turbidity, unknown toxicity, and pH. The Salinas River Lagoon (North) is listed as impaired for nutrients and pesticides.



TMDL Requirements

There are currently no TMDLs applicable to the Upper Salinas River Watershed. However, a turbidity TMDL is currently in development for the Salinas River Watershed (RWQCB, 2016).

Areas of Special Biological Significance

As defined in the California Ocean Plan, Areas of Special Biological Significance (ASBS) are areas designated by the SWRCB as ocean areas requiring protection of species or biological communities to the extent that alteration of natural water quality is undesirable. There are no ASBS, as defined by the SWRCB, within the project area. There are five ASBS in Monterey County: Pacific Grove Marine Gardens Fish Refuge and Hopkins Marine Life Refuge, Carmel Bay, Point Lobos Ecological Reserve, Julia Pfeiffer Burns Underwater Park, and the ocean area surrounding the mouth of Salmon Creek (SWRCB, 2011). Runoff from the proposed project does not drain into any of the ASBS.

5.0 ENVIRONMENTAL CONSEQUENCES

5.1 Introduction

This section discusses the potential environmental effects related to water quality with implementation of the project, as well as the procedures and practices that will be applied to reduce those effects.

5.2 Impact Assessment Methodology

This Water Quality Assessment Memo analyzes the differences between the existing condition and the Build Alternative condition with respect to water quality impacts and takes the following into consideration:

- Pollutant sources (changes in land uses);
- Impervious areas and relation to the amount of runoff (increase or decrease);
- Application of BMPs (number of BMPs, new technologies, and effectiveness); and
- Discharges into impaired waters (listed pursuant to Section 303(d) of the CWA).

5.3 Alternative Specific Impact Analysis

No Build Alternative

Under the No Build Alternative, no scour protection will be installed at the Bradley Road Bridge. Therefore, the No Build Alternative would not result in any short-term water quality impacts from construction-related activities. Because scour protection would not be installed, the Bradley Road Bridge would remain scour critical. Erosion and scour would continue, which would further compromise the structural integrity of the bridge and continue to degrade water quality by introducing sediment into the Salinas River.



Build Alternative

Construction. Pollutants of concern during construction of the project include sediments, trash, petroleum products, concrete waste (dry and wet), sanitary waste, and chemicals. During construction activities, soil would be disturbed, and there would be an increased potential for soil erosion compared to existing conditions. Additionally, during a storm event, soil erosion could occur at an accelerated rate. Approximately 3.76 acres of soil would be disturbed during construction and staging activities.

During construction, there is also the potential for construction-related pollutants to be spilled, leaked, or transported via storm runoff into drainages adjacent to the project area and thereby into downstream receiving waters. The following construction-related pollutants have the potential to affect water quality: chemicals, liquid products, petroleum products (e.g., paints, solvents, and fuels), and concrete-related waste.

Construction of the project is planned to begin in the spring of 2021 and be completed by fall of 2021, for a total construction duration of five months. Construction in the Salinas River would occur outside of the rainy season; however, because the Salinas River has perennial flow and water from Lake Nacimiento and San Antonio Lake are released into the Salinas River during spring-fall period, dewatering of the work area in the river would be required. As discussed in Section 2.0, Project Description, a water diversion system, consisting of temporary berms comprised of clean crushed gravel and sheet pile shoring, would be required to channelize and divert the summer flow around the work area to keep the work area dry for the duration of construction. After construction is complete, the contractor would remove the temporary berms and sheet pile shoring and restore the river and disturbed areas to pre-construction conditions.

Projects that disturb more than 1 acre of soil are subject to the requirements of the Construction General Permit (CGP). However, because the project would disturb between 1 and 5 acres (approximately 4.13 acres), it is eligible for a Small Construction Rainfall Erosivity Waiver, which would exempt the project from coverage under the CGP. To obtain a waiver, the project would need to demonstrate that there would be no adverse water quality impacts because construction activities would only occur when there is a low erosivity potential (i.e., the rainfall erosivity value in the Revised Universal Soil Loss Equation [R value] for the project is less than 5). Based on a construction start date of May 1 and an end date of October 1, 2021, the R factor for the project would be 0.95. Therefore, the project would qualify for a CGP waiver. As specified in Measure WQ-1 (see Section 6.0), the project would obtain a CGP waiver prior to construction. If the construction schedule changes during final design, resulting in an R factor greater than 5, coverage under the CGP would be required for the project.

Although the project is not required to comply with the requirements of the CGP if a waiver is obtained, due to work within and in close proximity to the Salinas River, a SWPPP would be prepared and Construction BMPs implemented during construction to minimize erosion and prevent spills within the Salinas River, as specified in Measure WQ-2 (see Section 6.0). Additionally, as specified in Measure WQ-3 (see Section 6.0), the County of Monterey Municipal Code requires preparation of an Erosion Control Plan that describes the methods for the control of runoff, erosion,



and sediment movement during construction. Construction BMPs would include, but not be limited to, Erosion Control and Sediment Control BMPs (which are designed to minimize erosion and retain sediment on site) and Good Housekeeping BMPs to prevent spills, leaks, and discharge of construction debris and waste into receiving waters. The Construction BMPs would be designed to retain sediment and other pollutants on the project site so they would not reach receiving waters. Construction BMPs are anticipated to include preservation of existing vegetation, hydroseeding, soil binders, silt fences, fiber rolls, stabilized construction entrance/exit, stabilized construction roadway, entrance/outlet tire wash, temporary stream crossing, pile driving operations, concrete curing, and structure demolition over or adjacent to water. When Construction BMPs are properly designed, implemented, and maintained to address pollutants of concern, as required in Measures WQ-2 and WQ-3, pollutants of concern would be retained on the project site so they would not reach receiving waters; therefore, no adverse water quality impacts are anticipated during construction of the Build Alternative.

Due to the anticipated depth of groundwater (3 feet below ground surface), groundwater dewatering is anticipated to be required during construction at the bridge piers. For excavations below the groundwater table, groundwater levels would need to be lowered to at least 2 feet below the bottom of the excavation to provide a workable condition. Dewatered groundwater is anticipated to be pumped into water storage tanks, such as Baker tanks. These tanks will also be used for wet CIDH pile construction to contain slurry and drilling fluid. However, coverage under the Low Threat Discharge Permit would be required if groundwater is discharged into the Salinas River instead of collected in water storage tanks. Groundwater may contain elevated levels of TDS, nitrates, or other constituents that could affect surface water quality when discharged into the Salinas River. As specified in Measure WQ-4 (see Section 6.0), groundwater dewatering during construction would be conducted in accordance with the requirements of the Low Threat Discharge Permit. This order requires testing and treatment, as necessary, of groundwater encountered during groundwater dewatering prior to its release into surface waters to ensure that effluent limitations for constituents are not exceeded. As a result, groundwater dewatering during project construction would not introduce pollutants to receiving waters or violate water quality standards or waste discharge requirements.

Operation. The project is a scour repair project and would not involve modification of Bradley Road or Bradley Road Bridge beyond installation of scour protection. No storm drain facilities would be constructed as part of the Build Alternative. Because the area disturbed during construction would be restored to pre-construction conditions, the Build Alternative would maintain the existing drainage pattern in the project area. Installation of scour protection at the substructure of the bridge would reduce the potential for future scouring at the bridge foundations, which would reduce sediments in the water and improve water quality. Therefore, the project would result in an overall beneficial impact to water quality.

6.0 AVOIDANCE, MINIMIZATION, AND MITIGATION MEASURES

The following regulatory requirements would be implemented with the Build Alternative and would reduce or avoid impacts related to water quality:



- Measure WQ-1 Construction General Permit Waiver.** Prior to the start of construction, a waiver shall be obtained for the National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Construction General Permit) Order No. 2009-0009-DWQ, NPDES No. CAS000002, as amended by Order Nos. 2010-0014-DWQ and 2012-12-0006-DWQ. To obtain a waiver, the County of Monterey (County) or its designated contractor shall complete the electronic Notice of Intent (NOI) and Sediment Risk form through the State Water Resources Control Board (SWRCB) Stormwater Multi-Application Reporting and Tracking System (SMARTS) and certify that the construction activity will take place during a period when the value of the rainfall erosivity factor (“R” in the Revised Universal Soil Loss Equation) is less than 5.
- If construction activities continue beyond the projected completion date provided on the waiver certification, the County or its designated contractor shall recalculate the rainfall erosivity factor for the new project duration and submit the new construction schedule through SMARTS 30 days prior to the projected completion date listed on the original waiver. If the new R factor is below 5, the discharger shall update through SMARTS all applicable information on the waiver certification and retain a copy of the revised waiver on site. If the new R factor is greater than 5, the County shall apply for coverage under the Construction General Permit (CGP).
- If the construction schedule changes during final design, and the resulting R factor is greater than 5, the County shall apply for coverage under the CGP. Construction activities shall not commence until a waiver or coverage under the CGP has been obtained from the SWRCB.
- Measure WQ-2 Construction Best Management Practices.** Prior to the start of construction, the County shall ensure that the construction contractor prepares and implements a Storm Water Pollution Prevention Plan (SWPPP) to address all construction-related activities, equipment, and materials that have the potential to affect water quality. The SWPPP shall identify the sources of pollutants that may affect the quality of storm water and include Best Management Practices (BMPs) to control the pollutants (e.g., Sediment Control, Erosion Control, and Good Housekeeping BMPs).
- Measure WQ-3 Erosion Control Plan.** During the plans, specifications, and estimates (PS&E) phase, an Erosion Control Plan shall be prepared and implemented by the County or its designated contractor in compliance with the provisions of the Monterey County Erosion Control Ordinance (Municipal Code, Title 16, Chapter 16.12). The Erosion Control Plan shall indicate the proposed methods for the control of runoff, erosion, and sediment movement during project construction.
- Measure WQ-4 Groundwater Dewatering.** Prior to commencement of groundwater dewatering activities, the proposed project shall obtain coverage under the State Water Resources Control Board’s *Statewide General Waste Discharge Requirements for*



Discharges to Land with a Low Threat to Water Quality (Water Quality Order No. 2003-0003-DWQ). This shall include submission of a Notice of Intent (NOI) for coverage under the permit to the SWRCB. Construction activities shall not commence until a letter is obtained from the SWRCB stating that the project has obtained coverage under the permit. Construction dewatering activities shall comply with all applicable provisions in the permit, including water sampling, analysis, and reporting of dewatering-related discharges. Upon completion of groundwater dewatering activities, a Notice of Termination (NOT) shall be submitted to the SWRCB.



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APPENDIX F

BRIDGE DESIGN HYDRAULIC STUDY REPORT



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Bradley Road Bridge over Salinas River Scour Repair Project
Monterey County, California
Federal-Aid Project No. BRLS-5944(100)
Existing Bridge No. 44C0050

Bridge Design Hydraulic Study Report



Prepared for:



Prepared by:



June 2019

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Bradley Road Bridge over Salinas River Scour Repair Project
Monterey County, California
Federal-Aid Project No. BRLS-5944(100)
Existing Bridge No. 44C0050

Bridge Design Hydraulic Study Report

Submitted to:
Monterey County

This report has been prepared by or under the supervision of the following Registered Engineer. The Registered Civil Engineer attests to the technical information contained herein and has judged the qualifications of any technical specialists providing engineering data upon which recommendations, conclusions, and decisions are based.



Han-Bin Liang, Ph.D., P.E.
Registered Civil Engineer

6/6/2019

Date



June 2019

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Table of Contents

Executive Summary	v
Acronyms	viii
1 General Description	1
1.1 Project Description.....	1
1.2 Project Background.....	1
1.3 Existing Bridge	5
1.4 Proposed Scour Countermeasure Alternatives.....	5
1.4.1 Alternative 1: Super Pile at Pier Cap.....	5
1.4.2 Alternative 2: Super Pile at Footing Cap.....	5
1.5 Channel Properties	8
1.6 Purpose.....	8
1.7 Key Tasks.....	8
1.8 Design Criteria	8
1.8.1 Hydraulic Design Criteria.....	8
1.8.2 Scour Design Criteria	8
1.9 Vertical Datum.....	9
2 Geographic Setting	10
2.1 Geographic Location.....	10
2.2 Watershed Description.....	10
2.3 Receiving Water Bodies	10
2.4 Precipitation	10
2.5 Land Use	10
3 Hydrologic Analysis	19
3.1 Hydrologic Design Methods.....	19
3.1.1 United States Geological Survey Regional Regression Equations.....	19
3.1.2 Cardno ENTRIX Report.....	20
3.1.3 Federal Emergency Management Agency Flood Insurance Study	21
3.1.4 Statistical Analysis of Gaging Station Data	21
3.2 Design Discharge Summary and Recommended Design Discharges.....	24
3.3 Hydrologic Stability.....	25
4 Hydraulic Analysis	26
4.1 Design Tools	26
4.2 Cross Section Data.....	26
4.3 Modeled Hydraulic Structures	26
4.4 Model Boundary Condition	29
4.5 Manning's Roughness Coefficients.....	29
4.6 Expansion and Contraction Coefficients	29
4.7 Water Surface Elevations.....	29
4.8 Freeboard	35
4.9 Channel Flow Velocities.....	35
5 Scour Analysis	39
5.1 Caltrans Bridge Inspection Reports	39
5.2 Existing Channel Bed	46
5.3 Long-Term Bed Degradation.....	48

5.4	Lateral Channel Migration.....	50
5.5	Contraction Scour	68
5.6	Local Pier Scour.....	69
5.7	Total Scour.....	71
6	Construction Season Flow	73
7	References.....	77

Figures

Figure 1.	Project Location Map	2
Figure 2.	Project Vicinity Map	3
Figure 3.	Project Aerial Map	4
Figure 4.	Alternative 1 Planning Study.....	6
Figure 5.	Alternative 2 Planning Study.....	7
Figure 6.	Project Watershed Map	11
Figure 7.	Monterey County Planning Areas	12
Figure 8.	Land Uses within Central Salinas Valley Planning Area.....	13
Figure 9.	Land Uses within South County Planning Area.....	14
Figure 10.	Land Uses within Coast Area (Non-Coastal) Planning Area	15
Figure 11.	Land Uses within North County Planning Area.....	17
Figure 12.	Land Uses within Carrizo Planning Area.....	18
Figure 13.	USGS Gaging Station Locations	22
Figure 14.	Salinas River Near Bradley CA (USGS Gaging Station 11150500) Peak Annual Flow Record	23
Figure 15.	Cross Section Locations	27
Figure 16.	Cross Section at Upstream Side of Bridge (Facing Downstream, Northwest)	28
Figure 17.	Limit of Detailed FEMA Study	30
Figure 18.	Salinas River 100-Year Water Surface Profile at Bradley Road Bridge.....	31
Figure 19.	Salinas River 50-Year Water Surface Profile at Bradley Road Bridge.....	31
Figure 20.	Upstream Face of Existing Bridge, Looking Downstream (Northwest)	33
Figure 21.	Upstream Face of Proposed Alternative 1 Bridge, Looking Downstream (Northwest)	33
Figure 22.	Upstream Face of Proposed Alternative 2 Bridge, Looking Downstream (Northwest)	34
Figure 23.	Existing Bridge 100-Year Flow Velocity Distribution	37
Figure 24.	Alternative 1 100-Year Flow Velocity Distribution.....	37
Figure 25.	Alternative 2 100-Year Flow Velocity Distribution.....	38
Figure 26.	Grain Size Distribution.....	47
Figure 27.	1952 As-Built Elevation View	49
Figure 28.	Historical Stream Measurement from 2007 BIR.....	50
Figure 29.	Historical Channel Comparison	50
Figure 30.	1956 Aerial Image	52
Figure 31.	1960 Aerial Image	53
Figure 32.	1967 Aerial Image	54
Figure 33.	1975 Aerial Image	55
Figure 34.	1988 Aerial Image	56

Figure 35. June 1989 Aerial Image.....	57
Figure 36. May 1994 Aerial Image.....	58
Figure 37. July 2004 Aerial Image	59
Figure 38. December 2005 Aerial Image.....	60
Figure 39. August 2006 Aerial Image.....	61
Figure 40. August 2006 Aerial Image.....	62
Figure 41. August 2006 Aerial Image.....	63
Figure 42. December 2007 Aerial Image.....	64
Figure 43. June 2009 Aerial Image.....	65
Figure 44. September 2011 Aerial Image.....	66
Figure 45. August 2013 Aerial Image.....	67
Figure 46. Temporary River Diversion Design	75
Figure 47. Cross Section with Temporary River Diversion	76

Tables

Table 1. Regional Regression Design Discharges at Project Site.....	20
Table 2. Salinas River Peak Flow Rates from Cardno ENTRIX Study.....	20
Table 3. Peak Flow Rates for Salinas River	21
Table 4. Flood-Frequency for USGS 11150500 at Salinas River.....	23
Table 5. Peak Flow Summary.....	24
Table 6. Salinas River 100-Year Water Surface Elevations at Bradley Road Bridge	32
Table 7. Salinas River 50-Year Water Surface Elevations at Bradley Road Bridge	32
Table 8. 100-Year Water Surface Elevations and Freeboard	35
Table 9. 50-Year Water Surface Elevations and Freeboard	35
Table 10. Salinas River 100-Year Average Channel Velocities at Bradley Road Bridge	35
Table 11. Scour History from POA	39
Table 12. Grain Sizes for Soil Samples	48
Table 13. Local Pier Scour Depths	71
Table 14. Calculated Scour Depths.....	71
Table 15. Alternative 1 Scour Data Table	72
Table 16. Alternative 2 Scour Data Table	72
Table 17. Flows Estimated for Construction Windows.....	73
Table 18. Water Surface Elevations for Temporary River Diversion	76

Photos

Photo 1. Exposed and Undermined Footing at Pier 18 (Span 17 Side) (02/14/2007)	44
Photo 2. Exposed and Undermined Footing at Pier 19 (Span 18 Side) (02/14/2007)	44
Photo 3. Exposed and Undermined Pile Cap Footing at Bent 19 (Span 18 Side) (10/16/2013).....	45
Photo 4. Exposed and Undermined Pile Cap Footing at Pier 19 (02/18/2009)	45

Appendices

- Appendix A HEC-RAS Existing Bridge
- Appendix B HEC-RAS Alternative 1 Bridge
- Appendix C HEC-RAS Alternative 2 Bridge
- Appendix D USGS Aerial Imagery Metadata
- Appendix E Scour Calculations Alternative 1 Bridge
- Appendix F Scour Calculations Alternative 2 Bridge
- Appendix G Construction Season Flow Calculations

Executive Summary

The County of Monterey is proposing to place scour countermeasures to protect exposed bridge pier footings. The Bradley Road Bridge over Salinas River Scour Repair Project (Project) is located just east of Highway 101 and west of the town of Bradley within Monterey County approximately 5 miles (mi) north of the Monterey County/San Luis Obispo County border. The Project is needed because scour has started to undermine piers 16 through 19 of the existing bridge.

The purpose of this Bridge Design Hydraulic Study is to present the hydrologic and hydraulic characteristics for the Project site, and present the estimated scour depths for the proposed retrofit alternatives. The scour calculations presented herein focus on piers 16 through 19 where undermining of the foundations have been observed. For this Project, rock slope protection will not be proposed as a scour countermeasure.

Two retrofit alternatives are currently considered, and the proposed plans were provided by Quincy Engineering, Inc. Alternative 1 includes super piles at the pier caps while Alternative 2 includes super piles at the footing caps. For Alternative 1, the pier caps are 10 ft wide 8 ft deep. The large diameter cast-in-drilled-hole piles are 8 ft in diameter. For Alternative 2, the pier stems are the same as the existing piers. The footing caps are 10 ft wide and 8 ft deep. The piers for the existing and retrofit alternatives were modeled with floating debris blockage equivalent to three times the width of the pier for the full height of the pier.

The hydrology for the Project was based on statistical analyses using gaging station data from the United States Geological Survey (USGS). The Bulletin 17B method was used to estimate the 100-year and 50-year peak design flows for the Project. The 100-year peak flow is 189,100 cfs and the 50-year peak flow is 118,300 cfs.

The hydraulic analysis was performed using the U.S. Army Corps of Engineers' (USACE) Hydrologic Engineering Centers River Analysis System (HEC-RAS) using the steady state flow analysis with subcritical flow regime. The results of the hydraulic analysis indicate that the scour retrofit alternatives would result in minor changes to the water surface profile within the study reach. For the 100-year and 50-year peak flows, the increases in water surface elevation are 0.2 ft or less within the limits of the hydraulic model. Alternative 1 results in a greater increase in water surface elevation than Alternative 2. Alternative 1 includes large diameter cast-in-drilled-hole piles that are 8 ft in diameter. Although Alternative 1 also includes larger pier caps that are 10 ft wide and 8 ft deep, only the pier cap for Pier 17 is under the influence of the 100-year and 50-year flows. Alternative 2 involves adding a footing cap above the channel bed surface, which extends 8 ft above the channel bed at Piers 16 through 19. The pier stems for Alternative 2 would be the same as the existing piers. These modifications to the pier geometry would result in less impact to the Alternative 2 100-year water surface elevations than that of Alternative 1.

Although the scour retrofit alternatives would result in localized increases in water surface elevation, the bridge would still provide sufficient freeboard to meet FHWA and Caltrans' hydraulic freeboard requirements.

Scour calculations were performed for the proposed single-span bridge based on the FHWA's *Hydraulic Engineering Circular No. 18*, "Evaluating Scour at Bridges" (HEC-18). The hydraulic characteristics of the 100-year storm event from the hydraulic analysis and grain size diameters from grain size distributions provided by Parikh Consultants, Inc. were used to calculate the potential scour depths.

Total estimated scour depths reflect the sum of the long-term bed degradation, contraction scour, and local scour. Based on review of historical aerial images, it appears that the low-flow channel has remained consistently at the eastern side of the bridge between the years 1956 and 2013. The aerial images show minor movements within the low-flow channel but no major lateral thalweg shifts at the bridge site. Long-term bed degradation was estimated to be 2.5 ft for a 50-year design life for a retrofit bridge using historical stream measurements at the bridge. The scour data tables for the two alternatives are presented in the following tables.

Alternative 1 Scour Data Table

Support No.	Long Term (Degradation and Contraction) Scour Elevation (ft)	Short Term (Local) Scour Depth (ft)
16	483.3	18.6
17	483.3	18.8
18	483.3	29.6
19	483.3	26.3

Alternative 2 Scour Data Table

Support No.	Long Term (Degradation and Contraction) Scour Elevation (ft)	Short Term (Local) Scour Depth (ft)
16	483.2	15.5
17	483.2	15.7
18	483.2	23.5
19	483.2	21.6

There have not been any major lateral thalweg shifts at the bridge site the low channel since 1959 and the low-flow channel has also remained consistently at the eastern side of the bridge. Based on the history of the site from the 60 years of aerial images, we can conclude that the channel will not significantly migrate beyond the low-flow channel.

However, there are still minor thalweg movements within the low-flow channel and the four piers of interest are within the low-flow channel. Therefore, the scour elevations should be based upon the thalweg elevation.

The temporary river diversion system will consist of shoring that will be placed around Piers 16 and 17 to keep the area dry for construction. Daily mean flow data at a gaging station along Salinas River was used to estimate the flow expected during construction. The estimated flows and associated water surface elevations for a construction window that extends from July 1 through October 15 are summarized in the following table.

Water Surface Elevations for Temporary River Diversion

Flow Scenario	Flow (cfs)¹	Water Surface Elevation (ft NAVD 88)
Peak	1,000	493.4
Maximum Mean	1,890	492.1
Average Mean	600	491.4

Note: ¹Flows were estimated for a construction window from July 1 through October 15.

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Acronyms

BIR	Bridge Inspection Report
Caltrans	California Department of Transportation
CIDH	cast-in-drilled-hole
County	County of Monterey
CSU	Colorado State University
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FIS	Flood Insurance Study
HBP	Highway Bridge Program
HEC-18	Hydraulic Engineering Circular No. 18
HEC-RAS	Hydrologic Engineering Centers River Analysis System
NAVD 88	North American Vertical Datum of 1988
POA	Plan of Action
Project	Bradley Road Bridge over Salinas River Scour Repair Project
RS	river station
RSP	rock slope protection
USACE	U.S. Army Corps of Engineers
USGS	United States Geological Survey

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1 GENERAL DESCRIPTION

Monterey County is proposing to place scour countermeasures to protect exposed bridge piers. The Bradley Road Bridge over Salinas River Scour Repair Project (Project) is located just east of Highway 101 and west of the town of Bradley within Monterey County approximately 5 miles (mi) north of the Monterey County/San Luis Obispo County border. See Figure 1 for the Project location map, Figure 2 for the Project vicinity map, and Figure 3 for the Project aerial map.

1.1 Project Description

The County of Monterey (County) applied for Highway Bridge Program (HBP) funding for the installation of scour countermeasures for the steel truss and concrete girder structure (Bridge No. 44C0050) over the Salinas River in 2010. The project was accepted into the HBP in the spring of 2010 as a scour countermeasure installation project. The existing bridge was originally constructed in 1931 and widened in 1954 and is located on Bradley Road just east of Highway 101. The bridge has a history of scour issues at the concrete piers at the low-flow channel of the Salinas River.

1.2 Project Background

The existing structure has an overall sufficiency rating of 66.5. The 24-span bridge, built in 1931, is approximately 1,668 ft long by 27 ft wide. The western-most approach spans (spans 1 – 10) and the eastern-most approach spans (spans 17 – 24) consist of simply supported, reinforced concrete, “T”-girders. The main spans (spans 11 – 16) consist of five-panel, riveted steel, deck trusses. The bridge was relinquished to the County in 1967 with the realignment of Highway 101. The multiple-span steel truss and concrete girder bridge is supported on concrete abutments and piers. The latest inspection report notes the following relevant deficiencies:

- Cracking in the AC overlay
- Cracking with efflorescence in deck soffit
- Surface rust on joint seal assemblies
- Light oxidation throughout deck truss
- Spalls in the reinforced “T”-girders
- Column cracks and spalls
- Footing exposure at Bents 3, 4, and 5
- Scour hole at Bent 17
- Undermining of Bent 18
- Undermining of Bent 19

Overall, the existing bridge is in fair condition for its age with minor deterioration as noted. The scope of the Project is to install appropriately designed scour countermeasures at piers 16, 17, 18, and 19.

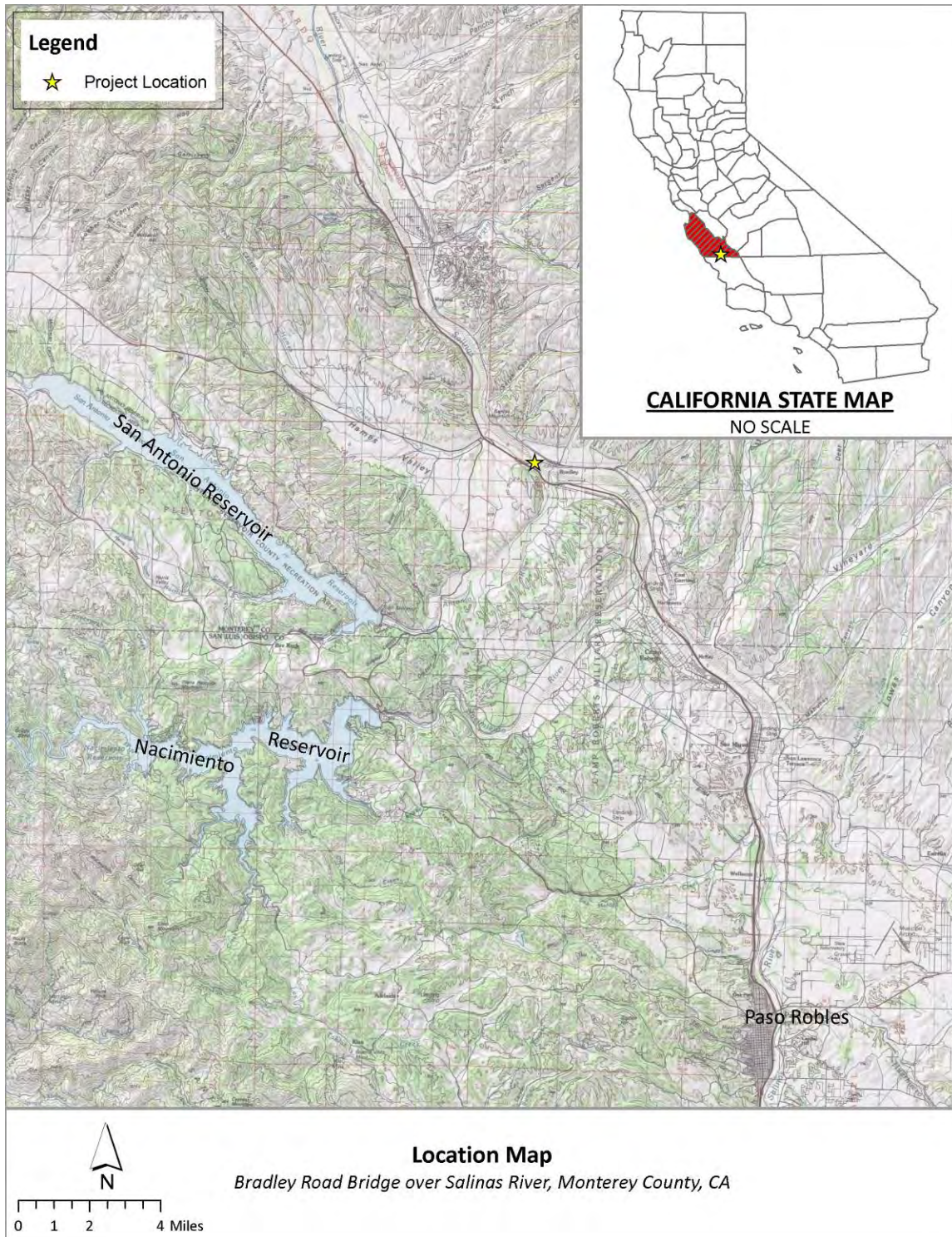


Figure 1. Project Location Map

Source: United States Geological Survey (USGS)

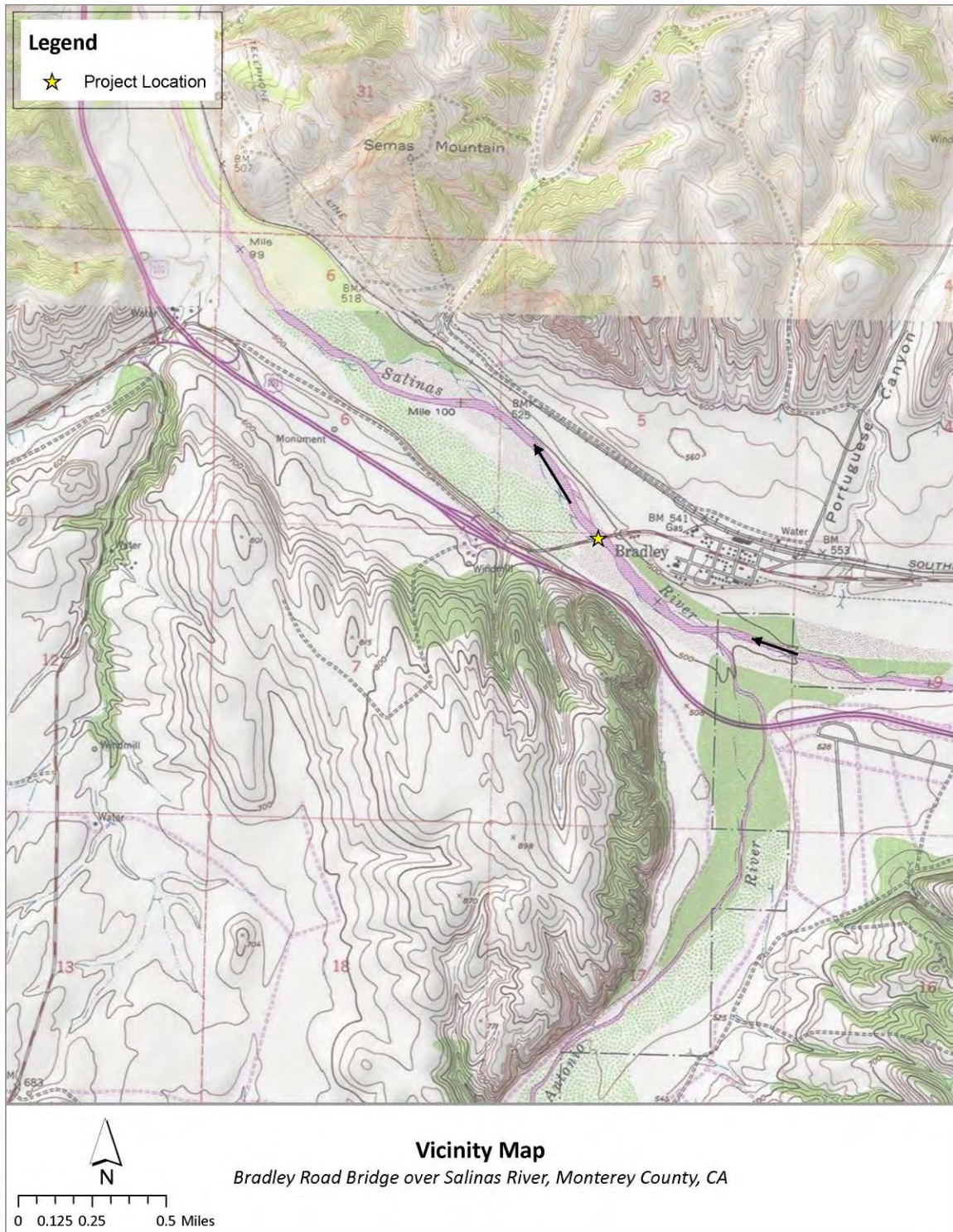


Figure 2. Project Vicinity Map

Source: USGS



Figure 3. Project Aerial Map

Source: ESRI

1.3 Existing Bridge

The bridge was originally owned and maintained by the State of California. The bridge was widened in 1954. In 1967, the bridge was relinquished to the County due to the realignment of Highway 101. The as-built plans depict the beginning of the bridge on the east end of the structure due to the direction of increasing mile posts. However, the current bridge inspection reports (BIRs) use the conventional orientation for local agency bridges with the spans numbered from west to east. The pier numbers used in the report refer to the current BIR numbering convention.

1.4 Proposed Scour Countermeasure Alternatives

Two retrofit alternatives are currently being considered. Five alternatives were originally considered, but Alternatives 1 and 2 are considered to be the most viable alternatives to address the existing scour issues at Piers 16 through 19. Alternatives 3, 4, and 5 were not considered viable due to the large flows and scour depths at the bridge.

The proposed Project is currently programmed as a scour countermeasure installation project, and all alternatives considered address only the existing scour issues at Piers 16, 17, 18 and 19. None of the existing structural or seismic vulnerabilities of the bridge will be addressed with this Project. The new scour countermeasures will be designed to meet current design codes; however, no seismic analysis will be completed as part of the Project.

Rock slope protection will not be proposed as a scour countermeasure.

1.4.1 Alternative 1: Super Pile at Pier Cap

This alternative consists of installing large-diameter cast-in-drilled-hole (CIDH) piles and retrofitting the existing bent caps at the aforementioned piers. Two large-diameter 96-in. CIDH piles will be installed at the end of each existing bent cap. The piles will extend to the existing pier cap, which will be retrofitted to carry load into the new deep foundations. The pier cap retrofit is expected to be 10 ft in width by 8 ft in height. The existing pier cap will be fully enclosed in the retrofit and structurally connected to ensure load is transferred to the new piles. Upon completion of the pier cap retrofit and new deep foundation installation, the existing piers may be removed to minimize channel obstruction. Figure 4 shows an Alternative 1 Planning Study.

1.4.2 Alternative 2: Super Pile at Footing Cap

Similar to Alternative 1, Alternative 2 consists of large-diameter CIDH piles that will be installed with a retrofit. Two large-diameter 96-in. CIDH piles will be installed at the end of each existing footing. The piles will extend into the existing footings, which will be retrofitted to carry load into the new deep foundations. The footing cap retrofit is expected to be 10 ft in width by 8 ft in height. The existing footings will be fully enclosed in the retrofit and structurally connected to ensure load is transferred to the new piles. The new piles will be designed to resist all structural demands (existing piles will not be relied on to carry load). Figure 5 shows an Alternative 2 Planning Study.

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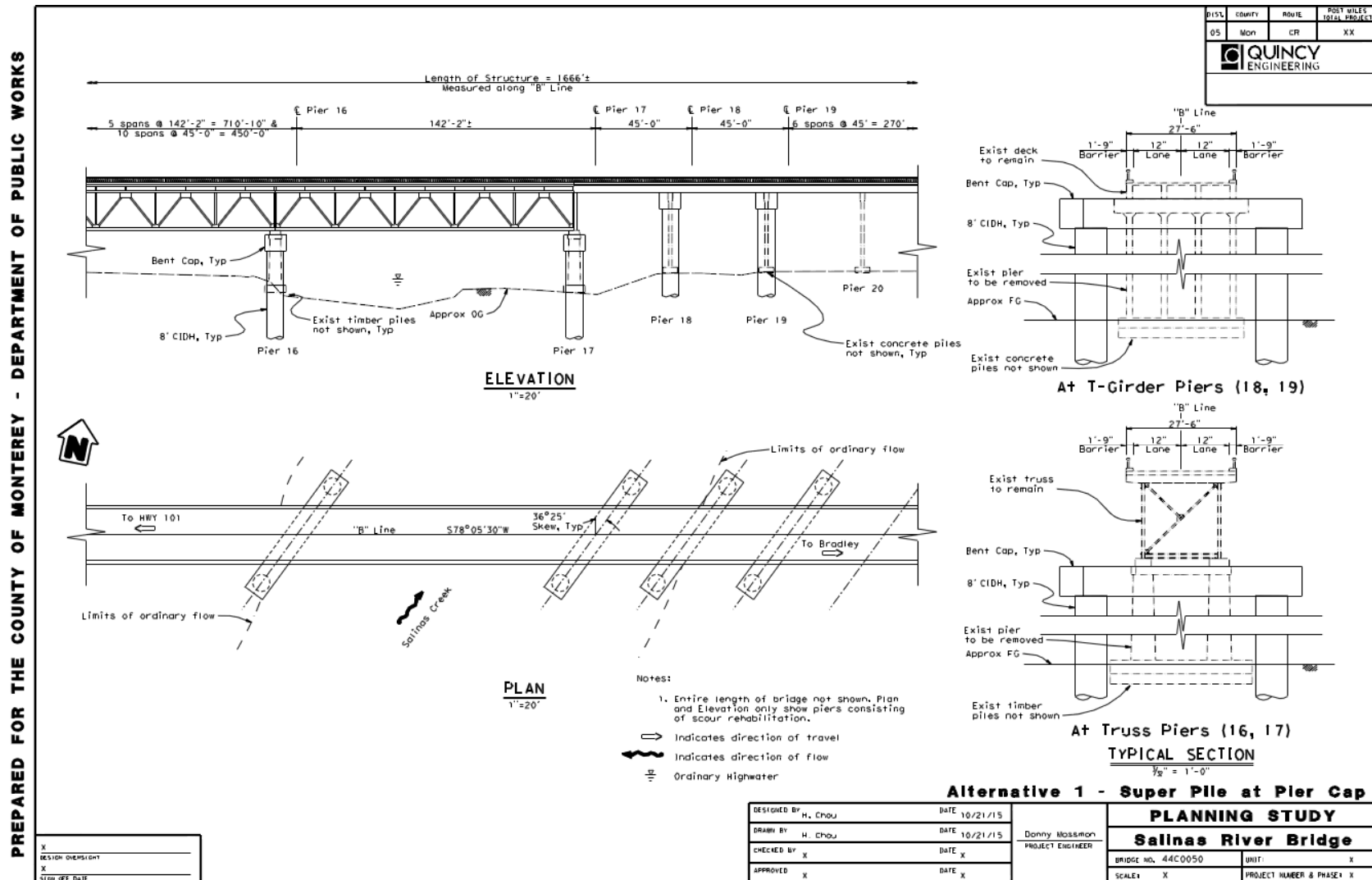


Figure 4. Alternative 1 Planning Study

Source: Quincy Engineering, Inc.

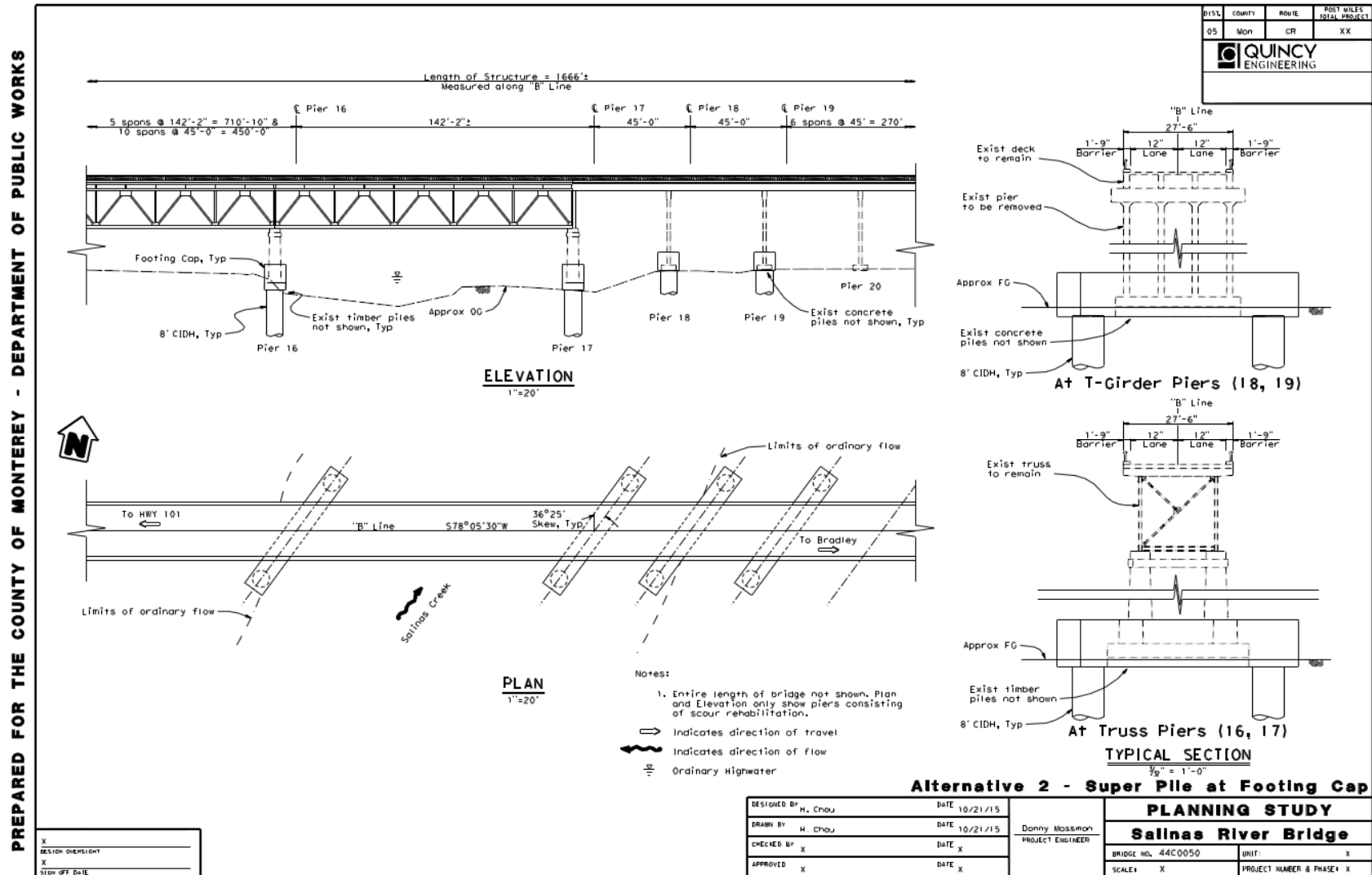


Figure 5. Alternative 2 Planning Study

Source: Quincy Engineering, Inc.

1.5 Channel Properties

The Bradley Road Bridge crosses Salinas River between Highway 101 and the town of Bradley. The channel is wide and composed of sand and silt. There is vegetation on the banks and in the channel upstream and downstream of the bridge.

1.6 Purpose

The purpose of this Bridge Design Hydraulic Study is to present the design flow characteristics for the existing bridge and the proposed retrofit bridge alternatives. This report provides the calculated scour potential for the bridge alternatives and recommendations for scour countermeasures.

1.7 Key Tasks

Key tasks performed in this study included: 1) a review of available hydrologic data, 2) a hydrologic study, 3) a hydraulic analysis to determine design water surface elevations and flow velocities for the existing and proposed conditions, and 4) a scour analysis to estimate potential scour depths for the proposed alternatives.

1.8 Design Criteria

The following design criteria are applicable for the Project and were considered for the scour retrofit design.

1.8.1 Hydraulic Design Criteria

1.8.1.1 FHWA Standards

The Federal Highway Administration's (FHWA) criterion for the hydraulic design of bridges is that they be designed to pass the 2% probability of annual exceedance flow (50-year recurrence interval design discharge) with adequate freeboard, where practicable, to account for debris and bedload.

1.8.1.2 Caltrans Standards

The California Department of Transportation's (Caltrans) criteria for the hydraulic design of bridges are that they be designed to pass the 2% probability of annual exceedance flow (50-year design discharge) or the flood of record, whichever is greater, with adequate freeboard to pass anticipated drift. Two (2) ft of freeboard is commonly used in bridge designs. The bridge should also be designed to pass the 1% probability of annual exceedance flow (100-year design discharge, or base flood). No freeboard is added to the 100-year base flood.

1.8.2 Scour Design Criteria

The evaluation of potential scour for the proposed retrofit alternatives followed the criteria described in the FHWA's *Hydraulic Engineering Circular No. 18 (HEC-18)*, "Evaluating Scour at Bridges" (Fifth Edition). The evaluation of potential scour was

based on hydraulic characteristics of the 100-year design discharge. The total scour was estimated based upon the cumulative effects of the long-term bed elevation change, general (contraction) scour, and local scour. The life expectancy of the bridge was considered in determining the long-term bed elevation change of the waterway; it was based on an assumed 50-year design life for a retrofit bridge.

1.9 Vertical Datum

The Project references the North American Vertical Datum of 1988 (NAVD 88).

2 GEOGRAPHIC SETTING

2.1 Geographic Location

The Project site is located at 35°51'48.14" North latitude and 120°48'50.51" West longitude within southern Monterey County near the Monterey/San Luis Obispo county line.

2.2 Watershed Description

Salinas River originates in San Luis Obispo County between Garcia Mountain and Machesna Mountain in the La Panza Range, approximately 70 mi upstream of the Bradley Road Bridge in Monterey County. Salinas River passes through the Salinas Valley. It receives flow from multiple tributaries, including the San Antonio River, Nacimiento River, and Estrella River, which lie within San Luis Obispo and Monterey counties. The Salinas River flows in a northwesterly direction through the Project site. Salinas River drains a watershed area of approximately 2,890 sq mi at the Bradley Road Bridge crossing (see Figure 6).

2.3 Receiving Water Bodies

Salinas River eventually drains into Monterey Bay between the City of Marina and Castroville, a census-designated place, approximately 90 mi downstream of the Bradley Road Bridge crossing.

2.4 Precipitation

According to the effective Federal Emergency Management Agency (FEMA) *Flood Insurance Study* (FIS) for Monterey County, California and Incorporated Areas, average rainfall in the County varies from 15 to over 30 inches (in.) per year with the majority of the rainfall occurring between November and April. The mean annual precipitation for the Project's watershed was estimated using USGS StreamStats to be 18 in.

2.5 Land Use

The Project lies within Monterey and San Luis Obispo counties. The general plans for both counties provide land use information. Within Monterey County, the Project's watershed is within the South County Planning Area (see Figure 7). Small portions of the watershed are also within the Central Salinas Valley and Coast planning areas. Within the Central Salinas Valley Planning Area, the land use category is zoned for resource conservation (see Figure 8). Within the South County Planning Area, the predominant land use category is zoned for agriculture (such as permanent grazing, farmlands, and rural grazing) and resource conservation (such as public/quasi-public [see Figure 9]). Within the Coast Planning Area, the land use categories are resource conservation for the area within the Los Padres National Forest and public/quasi-public for the area within Fort Hunter Liggett, which is a United States Army fort (see Figure 10).

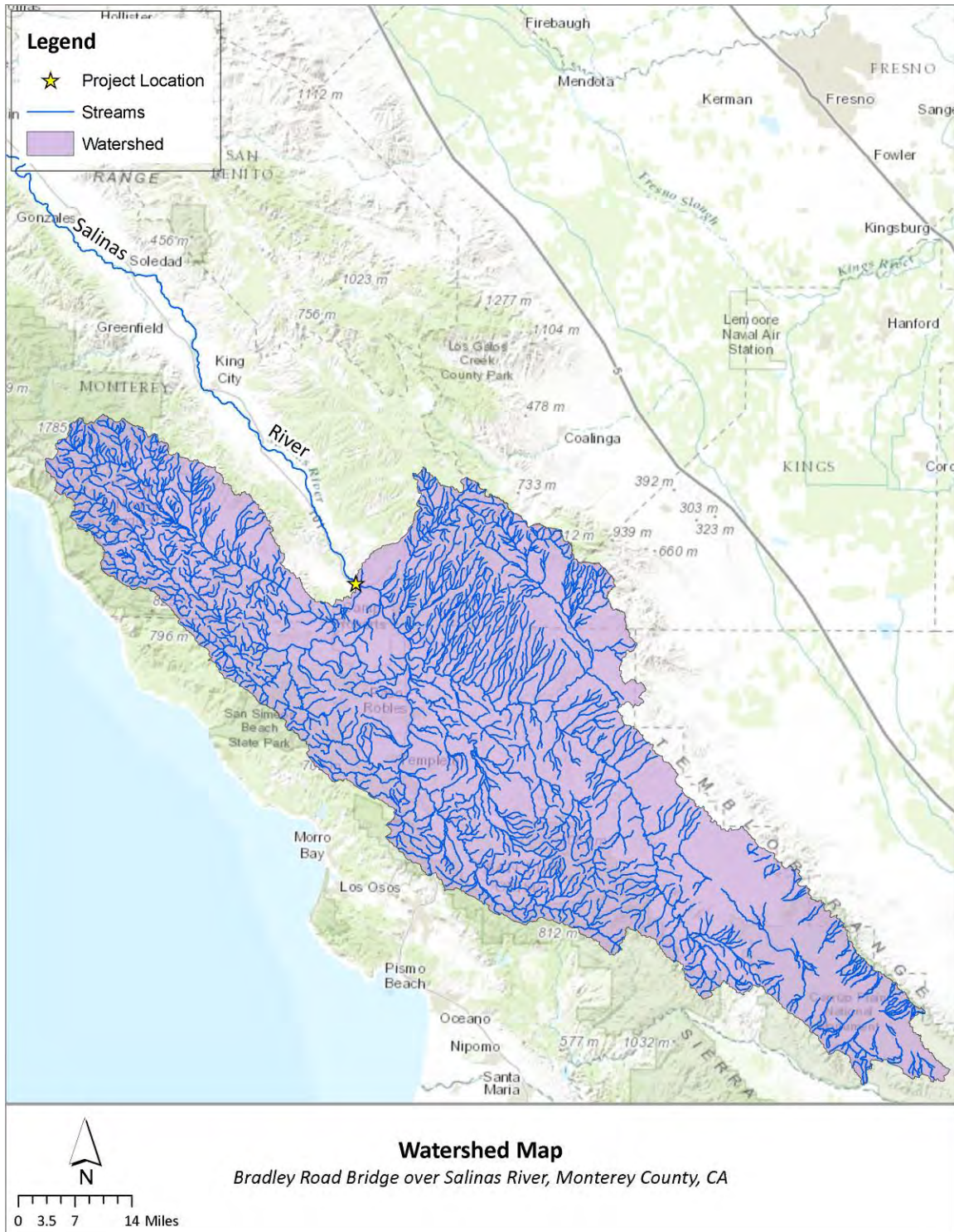


Figure 6. Project Watershed Map

Source: ESRI

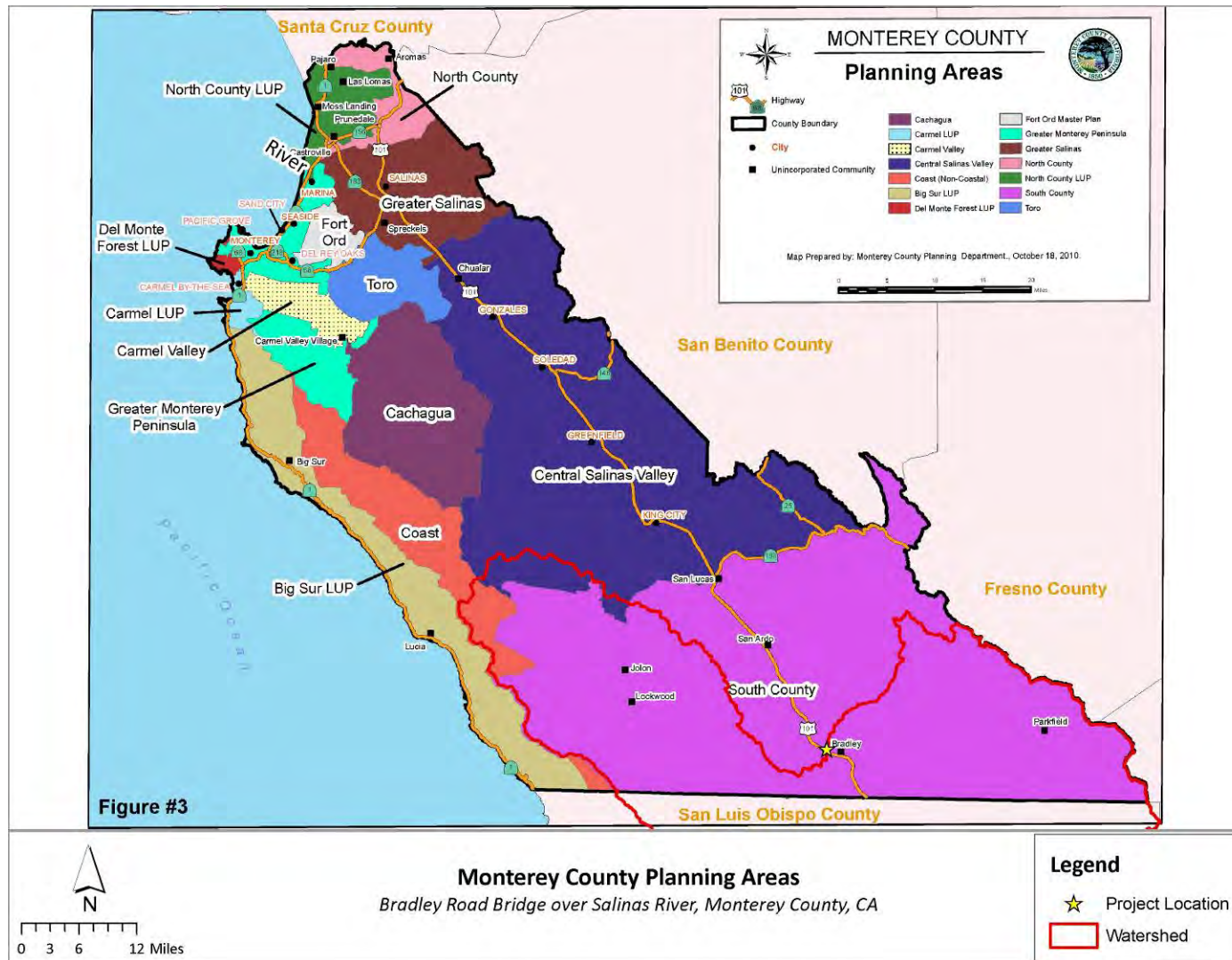


Figure 7. Monterey County Planning Areas

Source: Monterey County

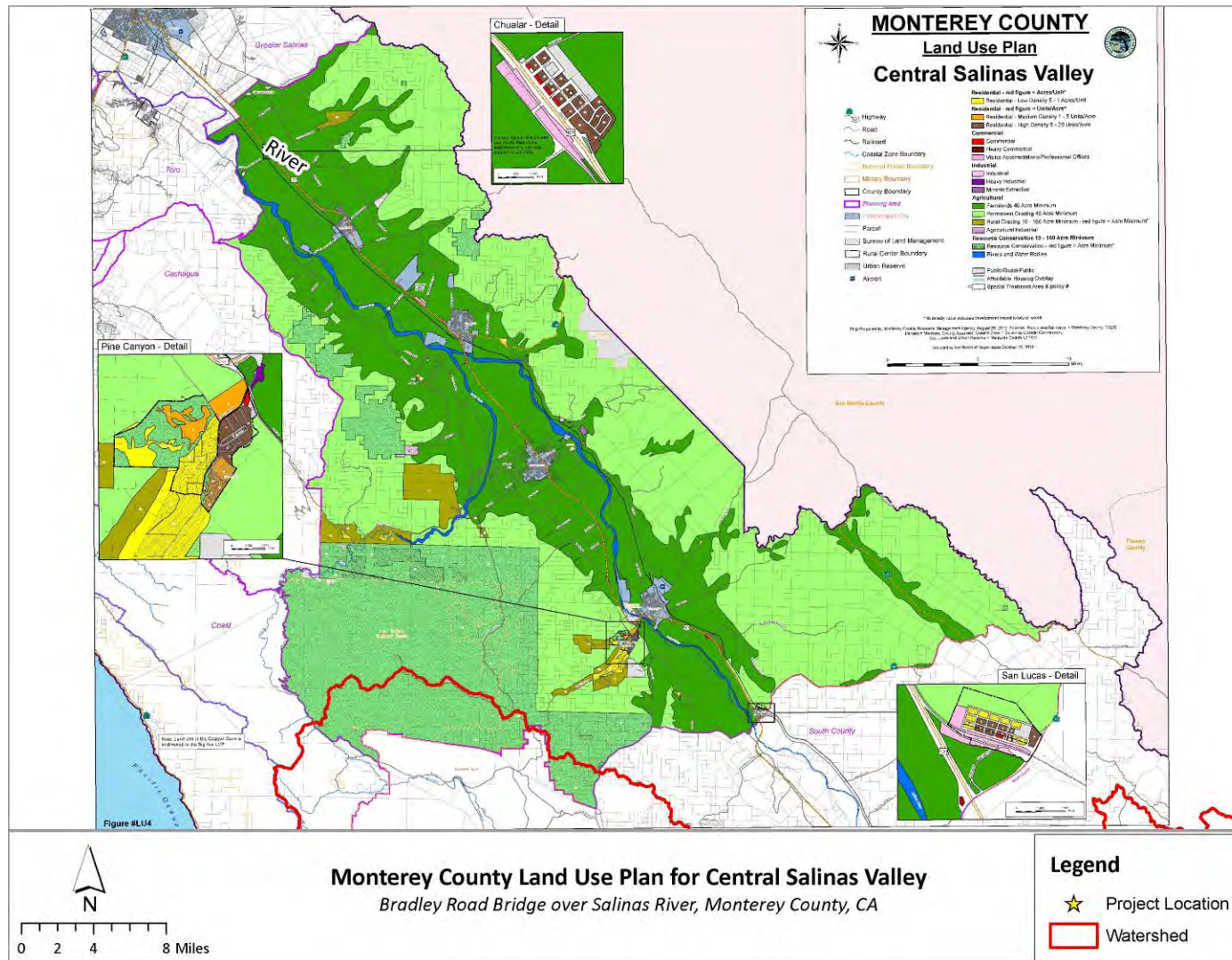


Figure 8. Land Uses within Central Salinas Valley Planning Area

Source: Monterey County

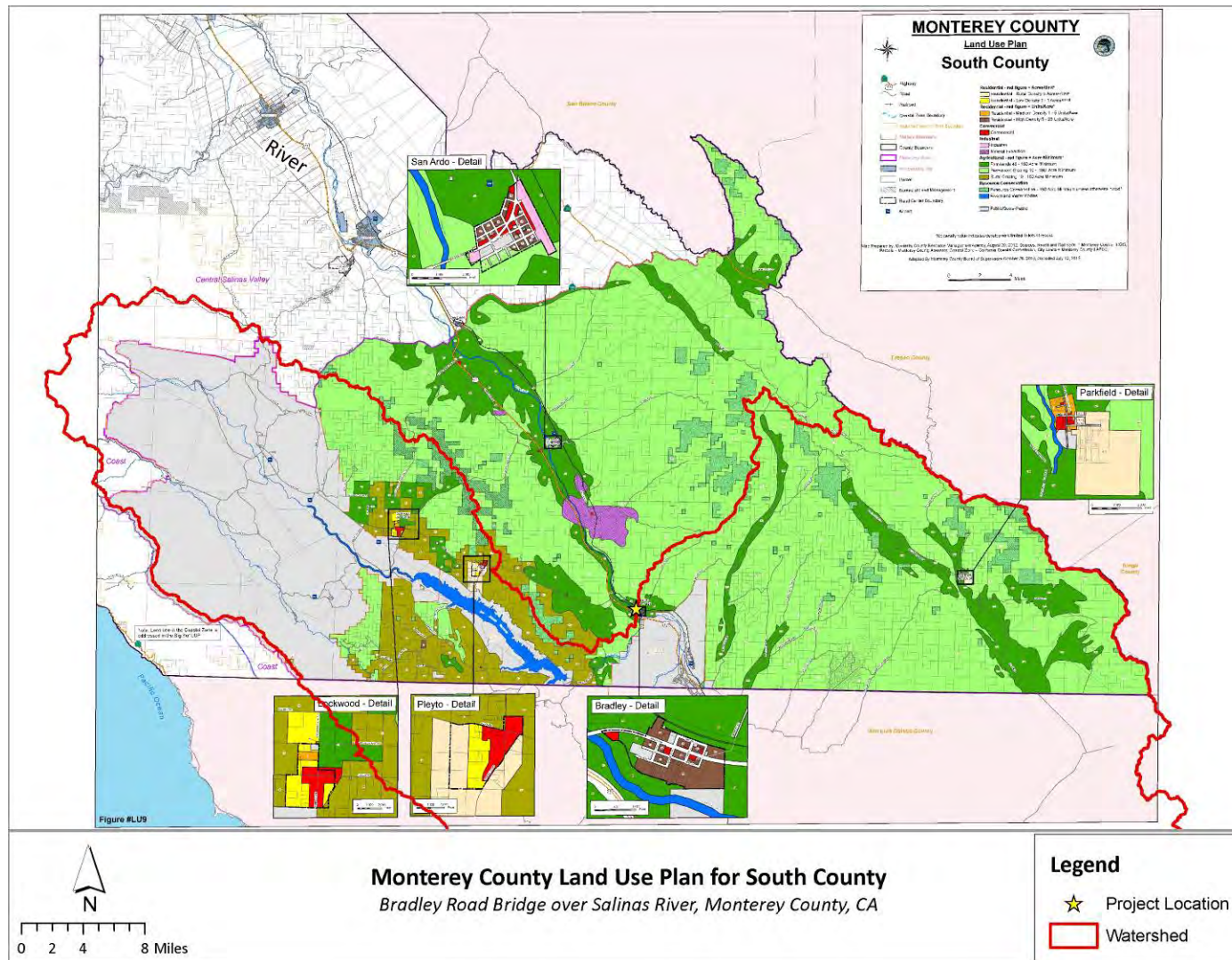


Figure 9. Land Uses within South County Planning Area

Source: Monterey County

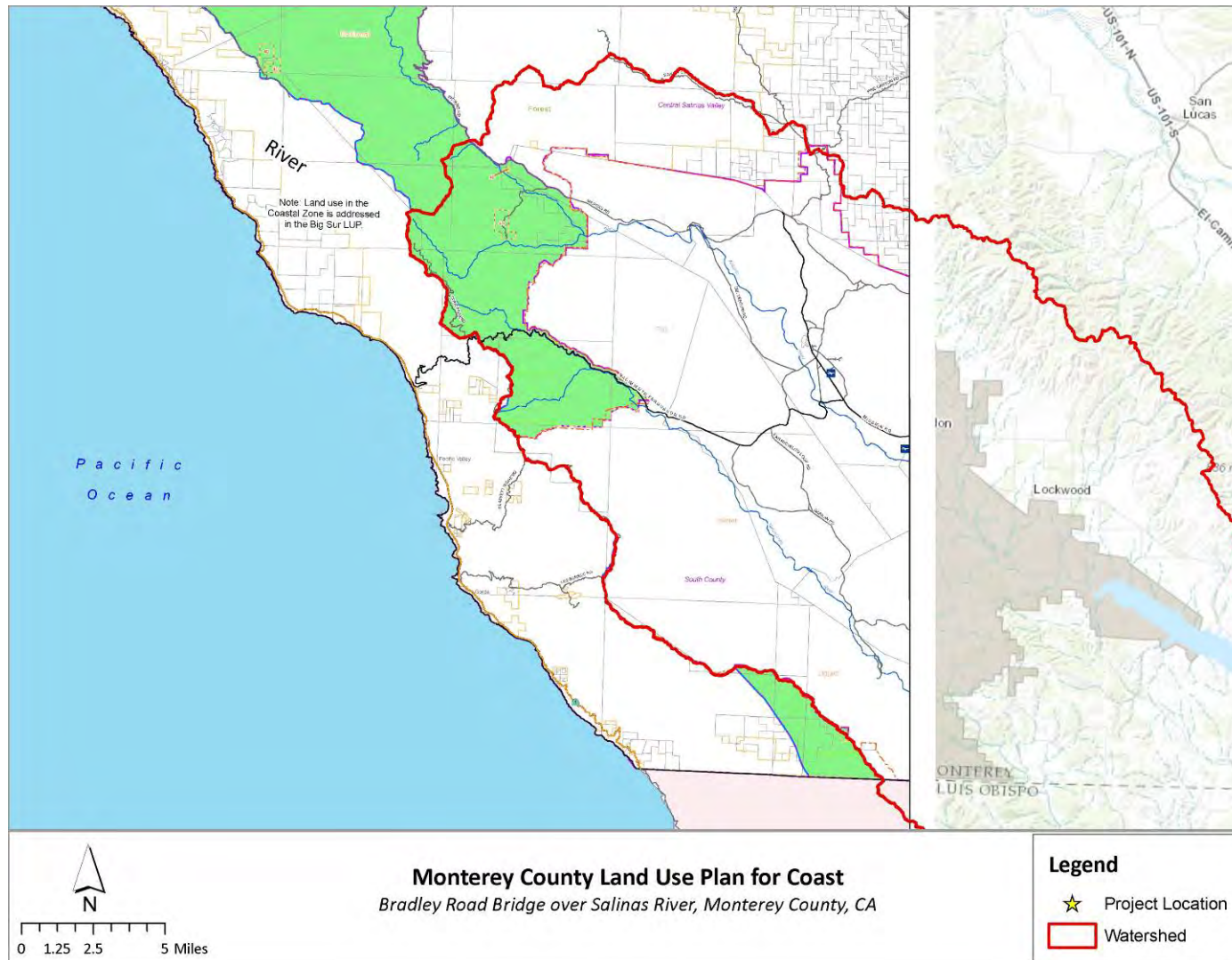


Figure 10. Land Uses within Coast Area (Non-Coastal) Planning Area

Source: Monterey County

According to the *Monterey County Multi-Jurisdictional Hazard Mitigation Plan*, Monterey County began land use planning in 1930 (2014). Most of the development has been concentrated in the northern third of the county. The Project site and watershed are within the southern portion of the county. North-central and inland county development shows that industrial development has doubled and residential development has tripled over the past 20 years. Commercial development in some areas is five times larger than in the early 1980s, with development occurring in some agricultural areas. However, the Mitigation Plan indicates that future development may become constrained due to natural characteristics within the county.

Within San Luis Obispo County, the Project's watershed is within the North County (see Figure 11) and Carrizo (see Figure 12) planning areas. Within the North County Planning Area, the predominant land use is agriculture although there are also areas designated residential, rural land, open space, recreation, and public facility (see Figure 11). Within the Carrizo Planning Area, the predominant land use is also agriculture although there are also areas designated open space and rural lands (see Figure 12).

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17

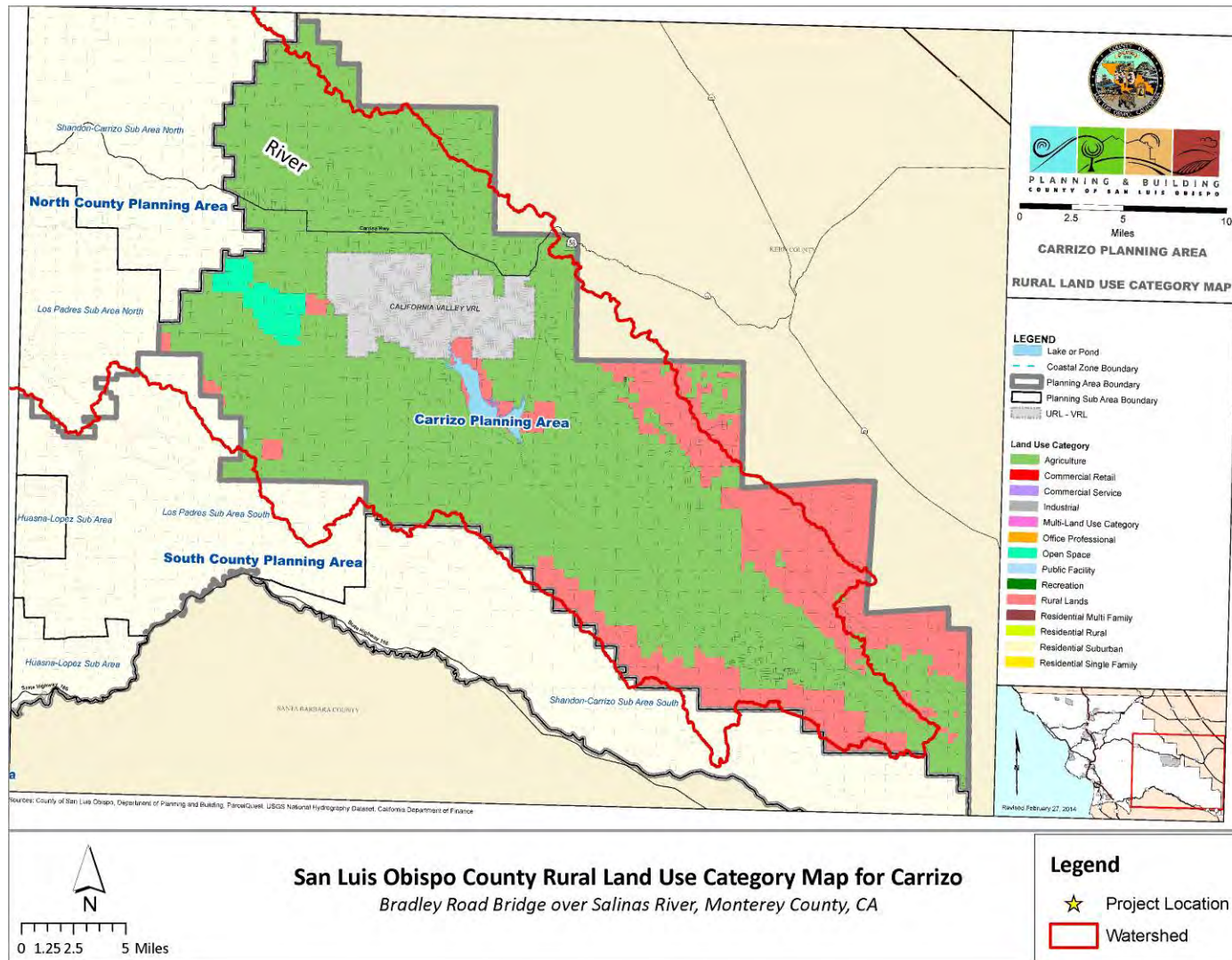


Figure 12. Land Uses within Carrizo Planning Area

Source: San Luis Obispo County

3 HYDROLOGIC ANALYSIS

This section describes the hydrologic data sources that were used to estimate the flows for the Project site, a summary of the estimated peak design flows and recommendation for the Project, and the hydrologic stability.

3.1 Hydrologic Design Methods

WRECO evaluated the hydrology at the Project site using the following hydrologic design methods:

1. USGS regional regression analysis.
2. A review of the *Salinas River Stream Maintenance Program* flood study report from Cardno ENTRIX (2013).
3. A review of the effective FEMA FIS for Monterey County, California and Incorporated Areas (2009).
4. Statistical analysis of USGS gaging station annual peak stream flow data along the Salinas River.

3.1.1 United States Geological Survey Regional Regression Equations

Flood-frequency equations were developed by the USGS and based on analysis of data from gage stations. California is divided into six regions; the Project site is within the Central Coast region. These flood-frequency equations are generally used to estimate stream flow for ungaged sites that are not affected by substantial urban development and that are natural (unregulated) streams.

On July 18, 2012, the USGS issued *Methods for Determining Magnitude and Frequency of Floods in California, Based on Data through Water Year 2006* (Gotvald et al. 2012), which contains updated regional flood-frequency equations, and revised the boundaries of the six unique regions within California. These equations are based on annual peak-flow data through water year 2006 for 771 streamflow-gaging stations in California having 10 or more years of data. The updated equations were used in support of the Project's hydrologic analysis. The flood-frequency equations are as follows (Gotvald et al. 2012):

$$Q_{100} = 11(DRNAREA)^{0.84} (PRECIP)^{0.994}$$

$$Q_{50} = 5.32(DRNAREA)^{0.84} (PRECIP)^{1.15}$$

Where:

Q_x = peak discharge for a storm event with a return period of x years,
cubic ft per second (cfs)

$DRNAREA$ = drainage area, sq mi

$PRECIP$ = mean annual precipitation, in.

With a drainage area of 2,890 sq mi (see Figure 6) and a mean annual precipitation of 18 in. (obtained from StreamStats), the design discharges were calculated as summarized in Table 1.

Table 1. Regional Regression Design Discharges at Project Site

Return Period (year)	Peak Flow* (cfs)
100	159,140
50	121,050

Note: *The estimated peak flows are rounded to the nearest tens.

3.1.2 Cardno ENTRIX Report

In January 2013, Cardno ENTRIX prepared the *Salinas River Stream Maintenance Program* flood study for the Monterey County Water Resources Agency to evaluate the effects of proposed maintenance activities on the channel capacity of the Salinas River. As part of the study, Cardno ENTRIX estimated the peak design flows for the Salinas River using USGS gaging station data and also by comparing with flows listed in the FIS for Monterey County. The statistical analysis used the data from water years 1966 through 2010 to cover the regulated flow period. San Antonio Dam was constructed in 1965 and Nacimiento Dam was constructed in 1957, and both dams have a substantial effect on flood flows. Cardno ENTRIX evaluated the 2-year, 5-year, 10-year, 25-year, 50-year, and 100-year peak flow rates. The 100-year and 50-year peak flow rates are summarized in Table 2. The Project site is closest to the “Bradley” location.

Table 2. Salinas River Peak Flow Rates from Cardno ENTRIX Study

Location	Source	Drainage Area (sq mi)	Peak Flow (cfs)	
			100-Year	50-Year
			1-Percent	2-Percent
Bradley	USGS 11150500	2,535	191,200	121,300
Bradley	FIS	2,536	88,000	67,000
King City	FIS	3,220	86,000	66,000
Soledad	USGS 11151700	3,563	221,900	130,600
Chualar	USGS 11152300	4,042	116,700	84,620
Spreckels	USGS 11152500	4,156	170,500	119,300
Spreckels	FIS	4,156	85,000	64,000

The statistical analysis showed little difference between the most upstream gaging station at Bradley and the most downstream gaging station at Spreckels.

3.1.3 Federal Emergency Management Agency Flood Insurance Study

The Project site is within Monterey County, California. The effective FIS for Monterey County, California and Incorporated Areas is divided into three volumes. Volume 1 included flow rates for the Salinas River at four locations, which are presented in Table 3. The peak discharges for the Salinas River were based on a hydrologic model of the watershed basin from January 1973. The model was calibrated using a frequency curve of the Salinas River using data from the Spreckels stream gage with data from 1930 through 1956.

Table 3. Peak Flow Rates for Salinas River

Location	Drainage Area (sq mi)	Peak Flow (cfs)	
		100-year	50-year
At Bradley	2,536	88,000	67,000
At King City	3,220	86,000*	66,000*
At Spreckels	4,156	85,000*	64,000*
Downstream of Salinas River overbank	4,156	81,000**	64,000

Notes:

* Constant or reduced flows due to infiltration into riverbed

** Reduction in flow due to spill over Nashua Road

Source: FEMA

The Project site is closest to the “at Bradley” location.

3.1.4 Statistical Analysis of Gaging Station Data

The design flow for the Salinas River was estimated using peak stream flow data from USGS gaging station 11150500, which is located 6.2 mi downstream of the Project site. Figure 13 shows the locations of the USGS gaging stations nearest to the Project site. The USGS gaging station 11150500 includes 66 annual peak flow measurements taken from water years 1949 through 2014 (see Figure 14, which shows a graph of the peak annual flow data points). Per the USGS National Water Information System, the drainage area at the gaging station is 2,535 sq mi.

San Antonio Dam was constructed in 1965 and Nacimiento Dam was constructed in 1957, and both dams have a substantial effect on flood flows along the Salinas River. Therefore, the statistical analysis used the peak stream flow data from water years 1966 through 2014 to cover the regulated flow period. This approach was also followed by Cardno ENTRIX in their January 2013 study, but includes extra years of additional data.

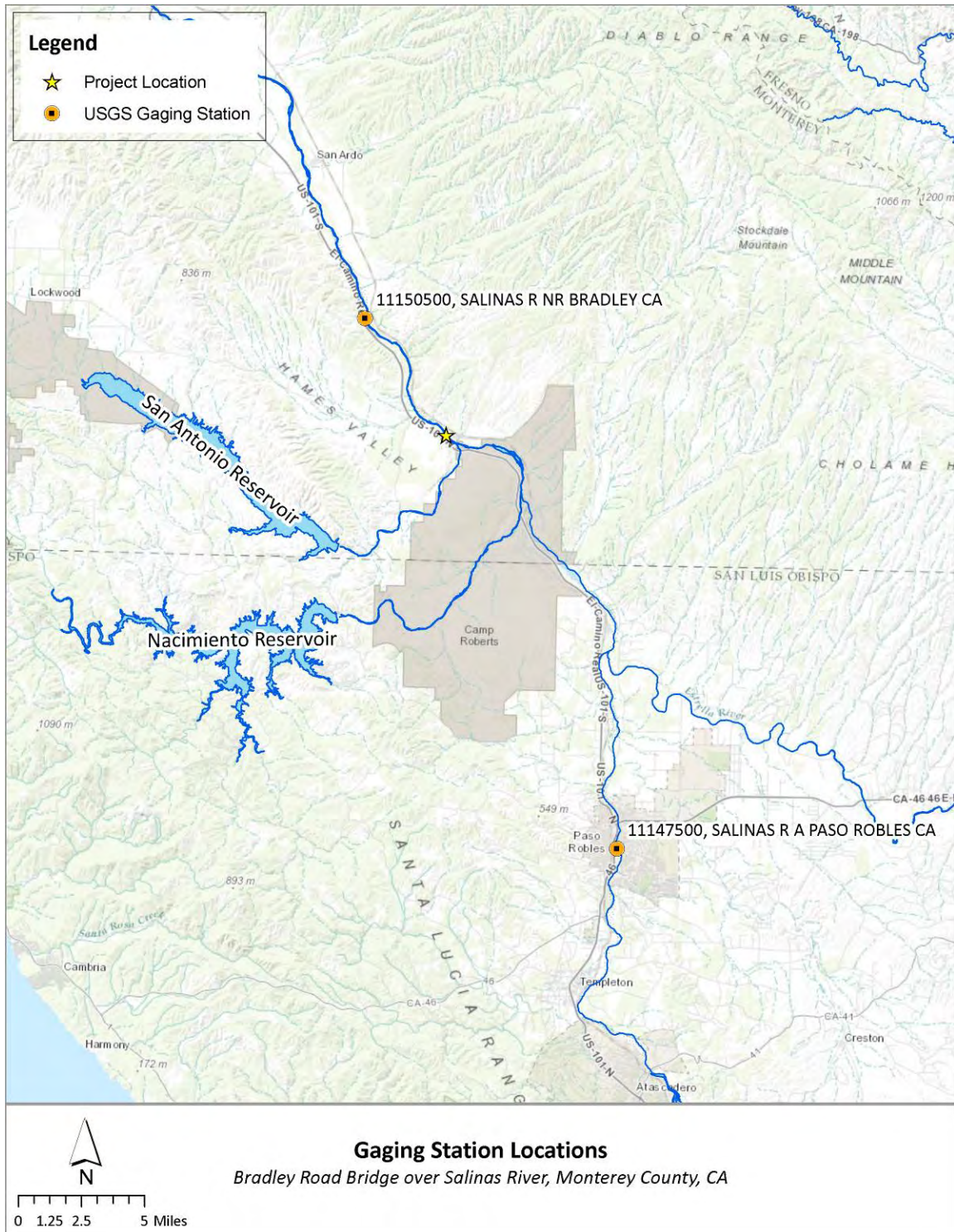


Figure 13. USGS Gaging Station Locations

Source: ESRI

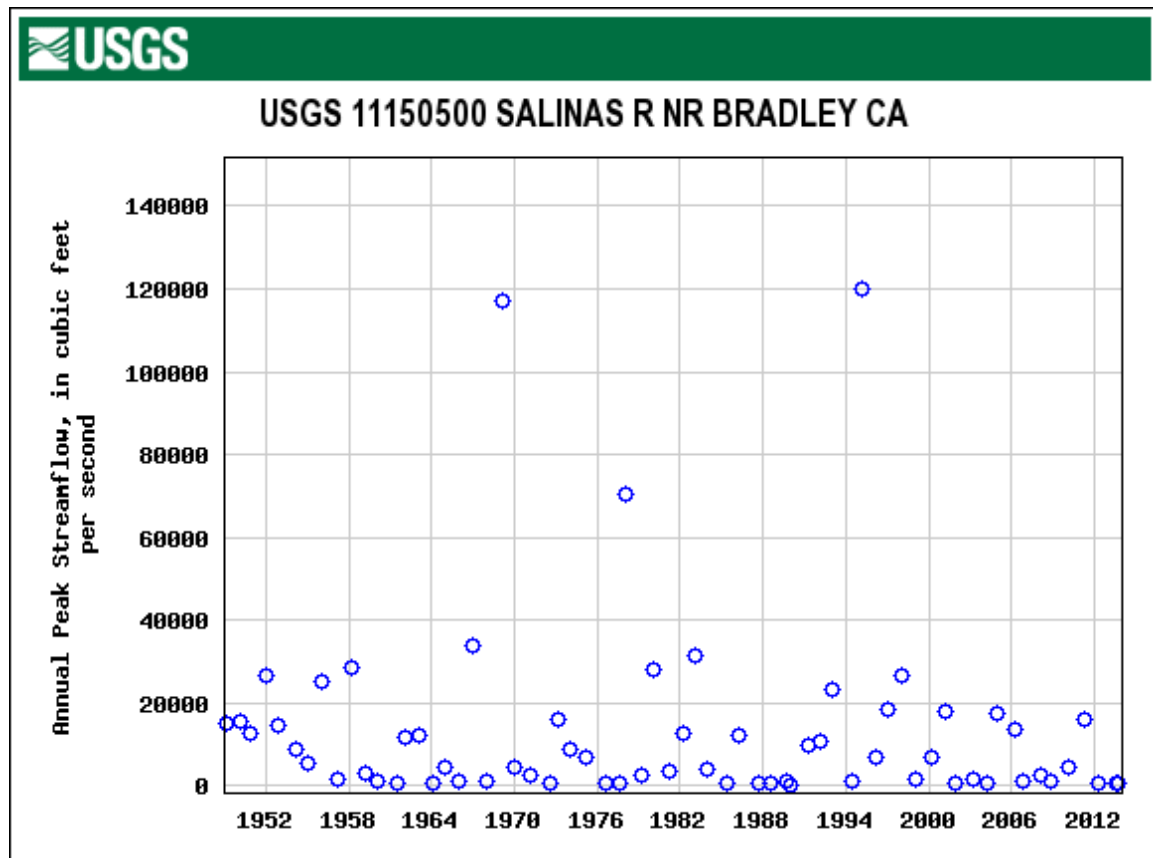


Figure 14. Salinas River Near Bradley CA (USGS Gaging Station 11150500) Peak Annual Flow Record

Source: USGS

A flood frequency analysis was performed to predict the peak design flows for the Salinas River using the gaging station data from USGS gaging station 11150500 for the water years from 1966 through 2014. The observed annual peak flow discharge data were used to calculate the statistical variables, which were then used to construct the Log-Pearson Type III distribution curve. The peak design flows were also estimated using PEAKFQ and following the Bulletin 17B methodologies (U.S. Interagency Advisory Committee on Water Data 1982). A summary of the estimated peak design flows following these two methods is presented in Table 4.

Table 4. Flood-Frequency for USGS 11150500 at Salinas River

Method	Peak Flow (cfs)	
	100-Year	50-Year
Log-Pearson Type III	173,000	114,000
Bulletin 17B (PEAKFQ)	189,100	118,300

The Log-Pearson Type III distribution predicts the peak design discharges based on the available historical record. The Bulletin 17B method of analysis utilizes the Log-Pearson Type III distribution as a base method for the flood frequency analysis. It also

incorporates the use of several additional parameters, including a regional skewness and skewness of the station record sample data. By doing so, the Bulletin 17B procedures are more robust than simply fitting the Log-Pearson Type III distribution to the peak flow record. Therefore, WRECO selected the Bulletin 17B estimate of the peak flows for the Salinas River for this study.

Multiple tributaries contribute to the flow between the Project site and the downstream gaging station; nevertheless, the drainage area at the gaging station (2,535 sq mi) is less than the drainage area at the Project site (2,890 sq mi). The Salinas River loses flows because it is a recharge basin to groundwater. Therefore, WRECO elected to use the peak flows calculated at the gaging station without adjusting the flows to account for additional downstream inflows.

3.2 Design Discharge Summary and Recommended Design Discharges

Table 5 presents the peak design flows from the various data sources. The regional regression equations were developed for the Central Coast region using data from sites with a wide range of basin characteristics: drainage areas ranging from 0.11 to 4,600 sq mi and a range of 7.0 to 46 in. mean annual precipitation (Gotvald et al. 2012). While the peak design flows presented in the FIS were developed using a hydrologic model and calibrated using gaging station data, the data used for the calibration are outdated. The peak design flows using the gaging station data and the Bulletin 17B method are recommended for this study because the analysis was based upon historical annual peak flows recorded along the stream in question. In addition, the estimated peak design flows were similar to those estimated by Cardno ENTRIX. The Log-Pearson Type III analysis was also considered, but because the Bulletin 17B method already utilizes the Log-Pearson Type III distribution as a base method and includes additional parameters, which allow for a more robust calculation, the Bulletin 17B calculated peak design flow rates are recommended for the design of the Bradley Road Bridge scour repair project.

Table 5. Peak Flow Summary

Method/Source	Peak Flow (cfs)	
	100-Year	100-Year
United States Regional Regression Equations	159,140	121,050
FEMA FIS Effective April 2009 (January 1973 Model)	88,000	67,000
Cardno ENTRIX January 2013 Study (Water Years 1966-2010)	191,200	121,300
Log-Pearson Type III (Water Years 1966-2014)	173,000	114,000
Bulletin 17B (Water Years 1966-2014)	189,100	118,300

3.3 Hydrologic Stability

Due to the nature of the work, the Project would not change the overall land use within the watershed basin. As stated in Section 2.5, there has been industrial, residential, and commercial development within the county. The industrial development has doubled and the residential development has tripled in size over the past 20 years and the commercial development is five times larger than it was in the early 1980s. While future development is thought to be limited due to natural constraints within the watershed, it may still occur within the watershed during the lifetime of the bridge. Future changes to the land uses within the watershed would have the potential to affect the hydrology for the Project.

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4 HYDRAULIC ANALYSIS

The following sections discuss the development of the hydraulic models and summarize the results for the existing and proposed conditions. The water surface profile plots, hydraulic summary tables, and channel cross sections are included in Appendix A for the existing bridge and Appendix B and Appendix C for the proposed retrofit bridge alternatives.

4.1 Design Tools

The hydraulic analyses were performed for the existing and proposed conditions using the U.S. Army Corps of Engineers' (USACE) Hydrologic Engineering Centers River Analysis System (HEC-RAS) modeling software, Version 4.1.0. The hydraulic model was evaluated using the steady state flow analysis with subcritical flow regime.

4.2 Cross Section Data

The channel geometry for the hydraulic model was developed using topographic survey data provided by the County. The locations of the cross sections are shown in Figure 15. The cross sections extend approximately 2,400 ft upstream and 7,000 ft downstream of the existing Bradley Road Bridge along Salinas River. The cross section naming convention is by river station (RS), with the cross section number increasing in river station going upstream. The cross sections are cut facing in the downstream (northwest) direction.

4.3 Modeled Hydraulic Structures

The geometry of the existing bridge in the hydraulic model was based on information from the Caltrans BIR, as-built record drawings, and survey data provided by the County. The minimum soffit elevation is 523.1 ft NAVD 88. The numbering of the piers is reversed from the original as-built record drawings. The piers are modeled without a skew angle and aligned with the flow direction, while the bridge superstructure is modeled to be skewed 20 degrees to the flow direction.

Because there is potential for debris and bedload to be carried to the Project site, the piers were modeled with floating debris blockage equivalent to three times the width of the pier for the full height of the pier. The six main spans (Spans 11 through 16) are riveted steel deck truss spans (Warren Truss) supported by reinforced concrete piers with reinforced concrete pile caps founded on timber piles. These piers were modeled as being 6 ft wide with a debris width of 18 ft. The approach spans were modeled as being 2.5 ft wide with a debris width of 7.5 ft.

The proposed scour retrofit will occur at Piers 16 through 19 (current pier numbering convention). The cross section at the upstream side of the bridge is shown in Figure 16, which shows the current pier numbering where the scour retrofit will occur. The cross section is facing the downstream flow direction, which is approximately in a northwest direction at the bridge.



Figure 15. Cross Section Locations

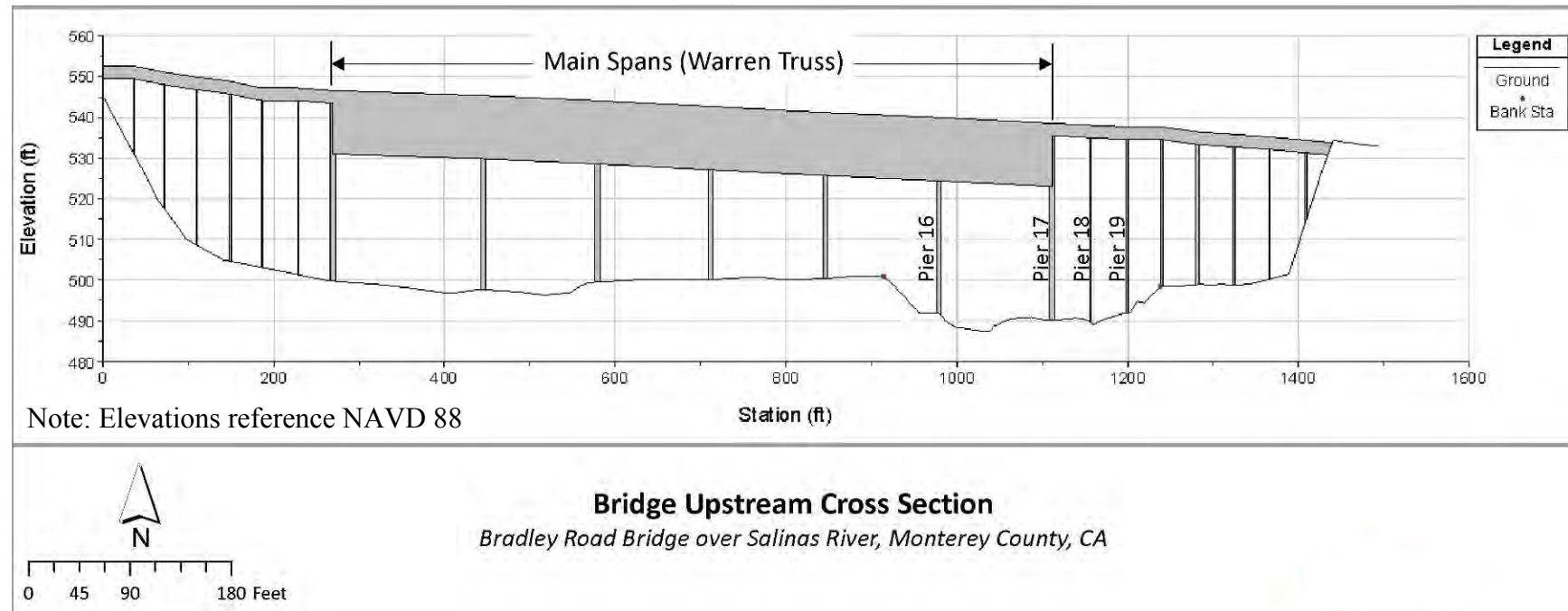


Figure 16. Cross Section at Upstream Side of Bridge (Facing Downstream, Northwest)

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The proposed plans for the retrofit alternatives were provided by Quincy Engineering, Inc. (see Figure 4 and Figure 5). Alternative 1 includes super piles at the pier caps while Alternative 2 includes super piles at the footing caps.

For Alternative 1, the pier caps were modeled to be 10 ft wide from the elevation of the bridge soffit and 8 ft deep. The pier stems were modeled to be 8 ft wide. For Alternative 2, the pier stems were the same as the existing piers. The footing caps were modeled to be 10 ft wide and 8 ft deep with the bottom of the pile cap at the channel bed surface.

As with the existing bridge, the piers for the retrofit alternatives were modeled with floating debris blockage equivalent to three times the width of the pier for the full height of the pier. For Alternative 1, the piers were modeled with a debris width of 24 ft. For Alternative 2, the piers within the main spans were modeled with a debris width of 18 ft and the piers within the approach spans were modeled with a debris width of 7.5 ft.

4.4 Model Boundary Condition

The effective FIS for Monterey County does not contain detailed hydrologic or hydraulic information for the Salinas River in the Project vicinity. The limit of the detailed study for the Salinas River is located approximately 12 mi downstream of the Project vicinity (see Figure 17). Because flood profiles and water surface elevations were not available for the Project vicinity, a normal depth slope was used as the downstream reach boundary condition. A slope of 0.01 ft/ft was estimated based on the thalweg elevations from the Project's topographic survey of the Salinas River in the Project vicinity.

4.5 Manning's Roughness Coefficients

Manning's roughness coefficients were used in the hydraulic model to estimate energy losses in the flow due to friction. A roughness coefficient of 0.04 was used to describe the main channel, 0.055 was used to describe the left overbank area, and 0.065 was used to describe the right overbank area. The cross sections are cut facing downstream. These values were selected based on visual observations of the Project vicinity based on aerial imagery and a visit to the Project site on April 22, 2015.

4.6 Expansion and Contraction Coefficients

Expansion and contraction coefficients were used in the hydraulic model to represent energy losses in the channel. An expansion coefficient of 0.3 and a contraction coefficient of 0.1 were used to represent the channel. These values represent a channel with gradual transitions between cross sections. The expansion and contraction coefficients used in the vicinity of the bridge were 0.5 and 0.3, respectively. These values represent the flow interference caused by the bridge.

4.7 Water Surface Elevations

Based on the results of the hydraulic model, the channel within the study reach exhibits a subcritical flow regime. The water surface profiles along the studied stream reach are presented in Figure 18 for the 100-year storm and Figure 19 for the 50-year storm. The

water surface elevations in the vicinity of the Bradley Road Bridge are presented in Table 6 for the 100-year storm and Table 7 for the 50-year storm.

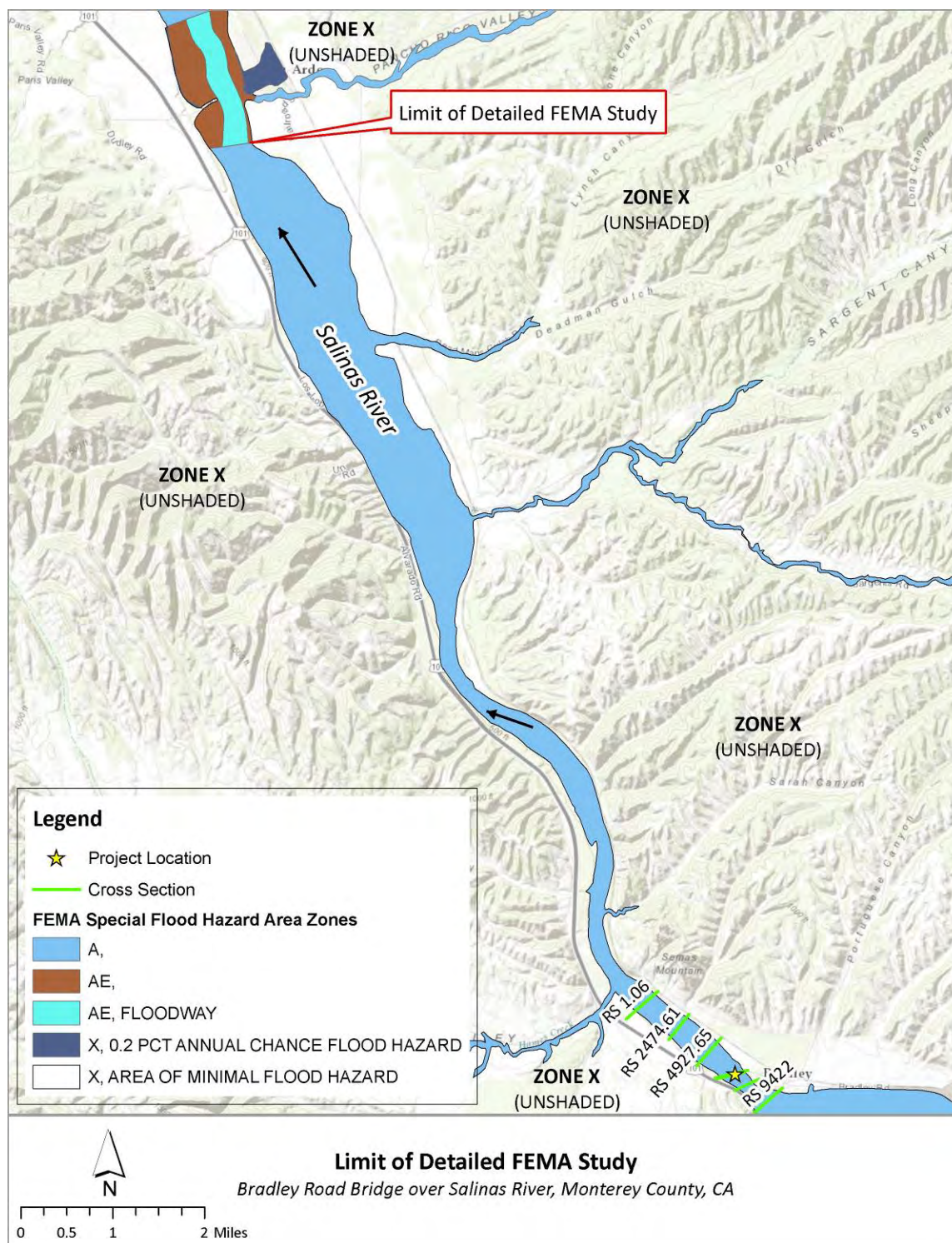


Figure 17. Limit of Detailed FEMA Study

Source: ESRI and FEMA

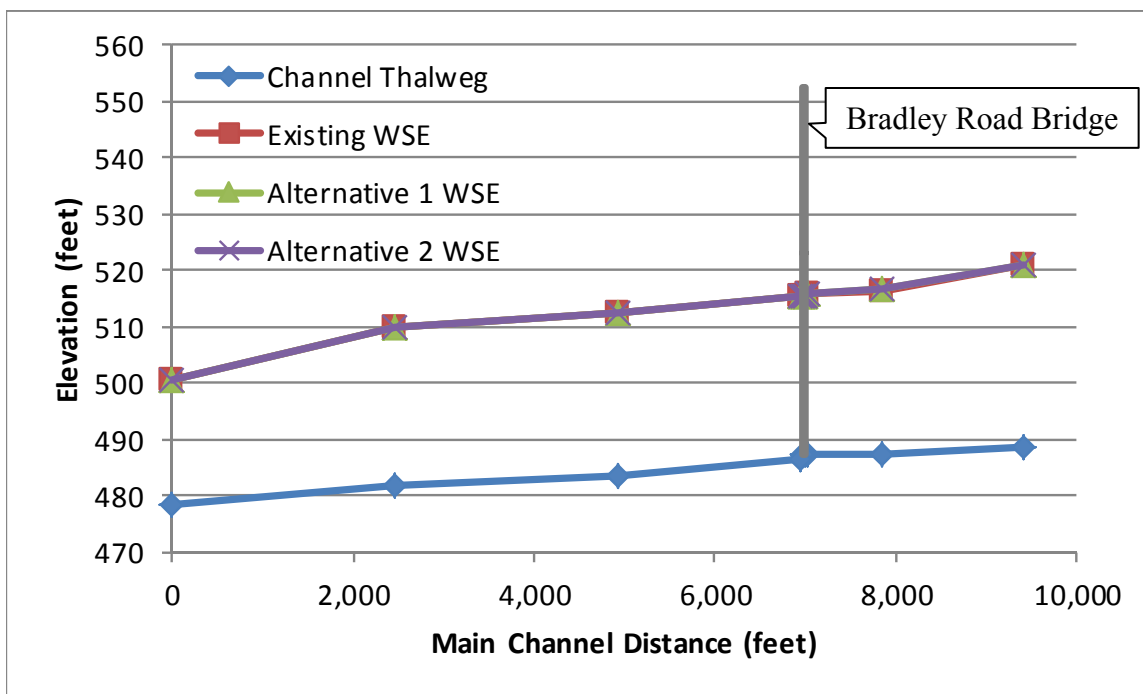


Figure 18. Salinas River 100-Year Water Surface Profile at Bradley Road Bridge

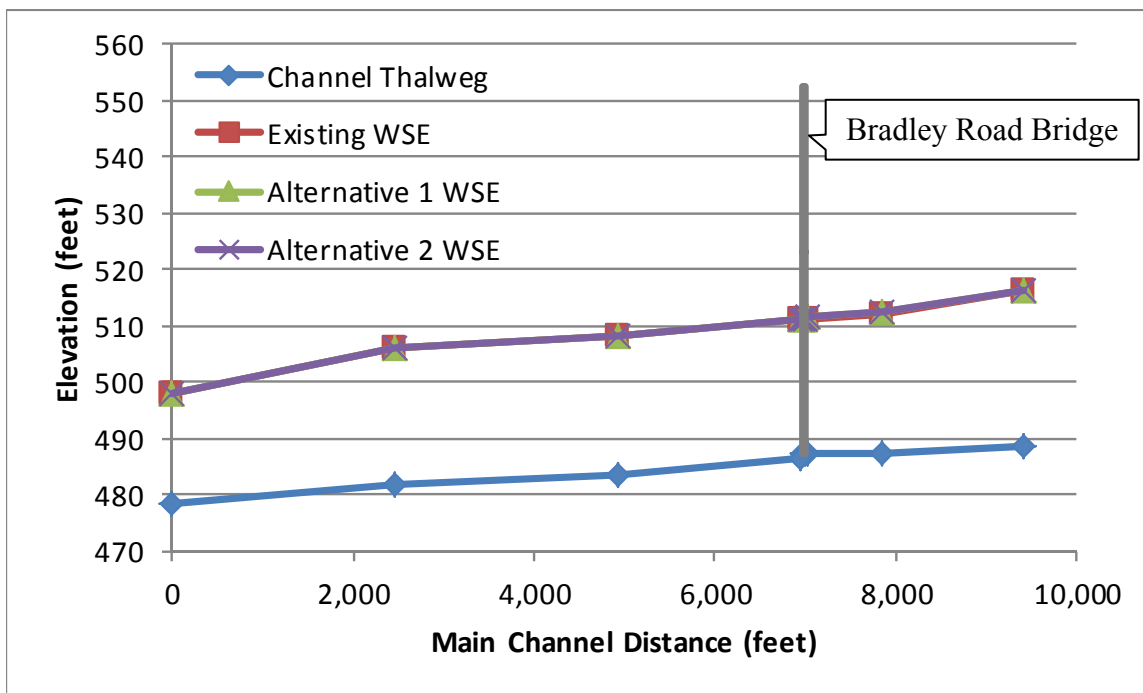


Figure 19. Salinas River 50-Year Water Surface Profile at Bradley Road Bridge

Table 6. Salinas River 100-Year Water Surface Elevations at Bradley Road Bridge

River Station (feet)	Description	Water Surface Elevation (feet)		
		Existing	Alternative 1	Alternative 2
7023.09	24 feet upstream of the bridge	515.7	515.9	515.8
6938.5 BR U	Upstream side of Bradley Road Bridge	515.4	515.3	515.3
6938.5 BR D	Downstream side of Bradley Road Bridge	515.4	515.4	515.4
6931.25	43 feet downstream of the bridge	515.3	515.3	515.3

Table 7. Salinas River 50-Year Water Surface Elevations at Bradley Road Bridge

River Station (feet)	Description	Water Surface Elevation (feet)		
		Existing	Alternative 1	Alternative 2
7023.09	24 feet upstream of the bridge	511.4	511.5	511.5
6938.5 BR U	Upstream side of Bradley Road Bridge	511.2	511.1	511.1
6938.5 BR D	Downstream side of Bradley Road Bridge	511.2	511.2	511.2
6931.25	43 feet downstream of the bridge	511.1	511.1	511.1

The cross sections at the upstream side of the Bradley Road Bridge are shown in Figure 20 for the existing condition, Figure 21 for the Alternative 1 condition, and Figure 22 for the Alternative 2 condition. The results of the hydraulic analysis indicate that the scour retrofit alternatives would result in minor changes to the water surface profile within the study reach. For the 100-year and 50-year peak flows, the changes in water surface elevation are 0.2 ft or less within the limits of the hydraulic model.

Alternative 1 involves increasing the pier stem widths for Piers 16 through 19. While the pier caps would also be wider than the existing condition, only the pier cap for Pier 17 is under the influence of the 100-year and 50-year flows. The maximum increase in water surface elevation for Alternative 1 occurs at RS 7023.09, approximately 24 ft upstream of the bridge. The maximum increase in water surface elevation is 0.2 ft for the 100-year peak flow and 0.1 ft for the 50-year peak flow (relative to the existing condition).

Alternative 2 involves adding a footing cap above the channel bed surface, which extends 8 ft above the channel bed at Piers 16 through 19. The pier stems would not be widened as they would in Alternative 1. These modifications to the pier geometry would result in less impact to the 100-year water surface elevations than Alternative 1. The maximum increase in water surface elevation for Alternative 2 also occurs at RS 7023.09, 0.1 ft for both the 100-year and 50-year peak flows (relative to the existing condition).

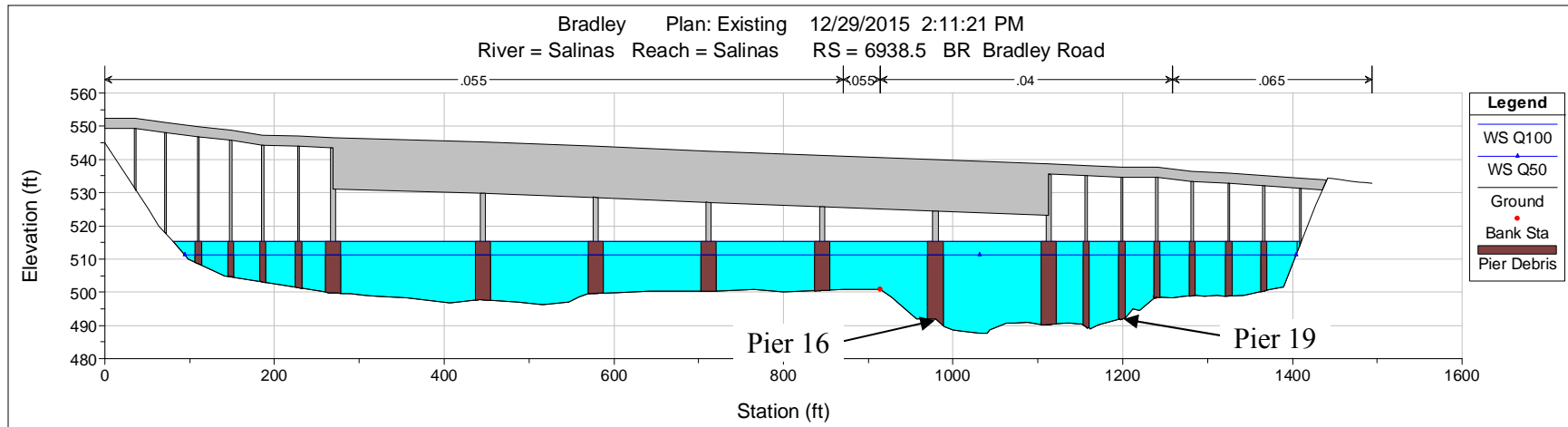


Figure 20. Upstream Face of Existing Bridge, Looking Downstream (Northwest)

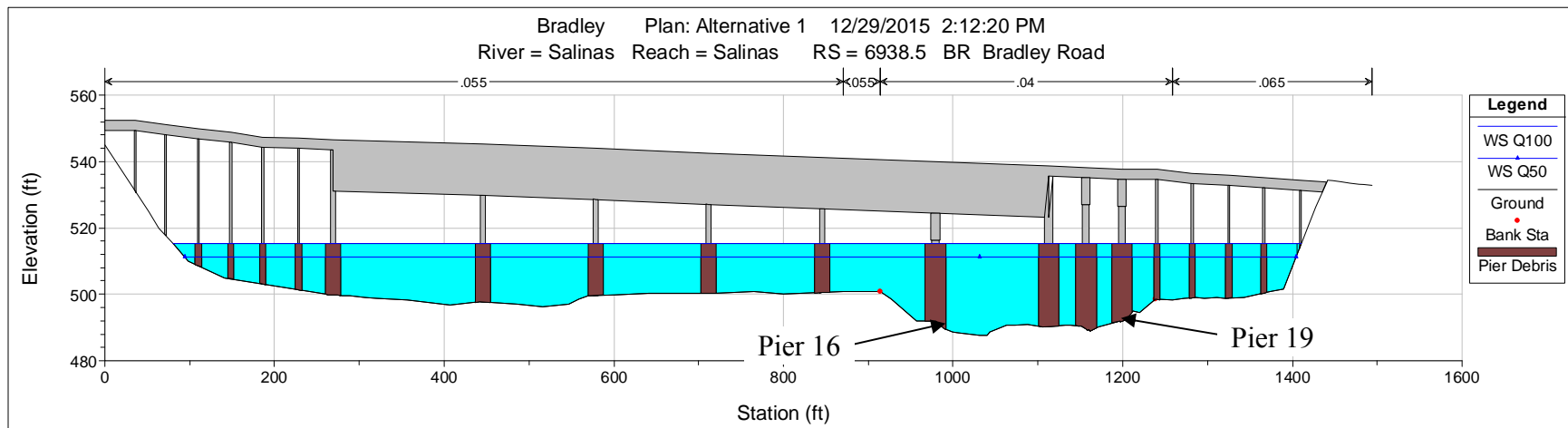


Figure 21. Upstream Face of Proposed Alternative 1 Bridge, Looking Downstream (Northwest)



4.8 Freeboard

The freeboard requirements applicable to the Project are discussed in Section 1.8.1. To summarize, FHWA and Caltrans require that the bridge be designed to pass the 50-year storm event with adequate freeboard to account for debris and bedload (Caltrans recommends 2 ft of freeboard). Caltrans also specifies passing the 100-year storm event with no freeboard.

Although the scour retrofit alternatives would result in localized increases in water surface elevation, the bridge would still provide sufficient freeboard to meet FHWA and Caltrans' hydraulic freeboard requirements. The available freeboard distances for the existing and proposed conditions are summarized in Table 8 and Table 9.

Table 8. 100-Year Water Surface Elevations and Freeboard

Alternative	Lowest Bridge Soffit Elevation (feet)	Water Surface Elevation (feet)	Available Freeboard (feet)
Existing	523.1	515.7	7.4
Alternative 1	523.1	515.9	7.2
Alternative 2	523.1	515.8	7.3

Table 9. 50-Year Water Surface Elevations and Freeboard

Alternative	Lowest Bridge Soffit Elevation (feet)	Water Surface Elevation (feet)	Available Freeboard (feet)
Existing	523.1	511.4	11.7
Alternative 1	523.1	511.5	11.6
Alternative 2	523.1	511.5	11.6

4.9 Channel Flow Velocities

The 100-year average channel flow velocities were estimated for the existing and proposed conditions from the developed hydraulic models, which are summarized in Table 10 for the locations in the vicinity of the bridges.

Table 10. Salinas River 100-Year Average Channel Velocities at Bradley Road Bridge

River Station (feet)	Description	Average Channel Velocity (ft/s)		
		Existing	Alternative 1	Alternative 2
7023.09	24 feet upstream of the bridge	12.2	12.1	12.1
6938.5 BR U	Upstream side of Bradley Road Bridge	12.3	12.5	13.0
6938.5 BR D	Downstream side of Bradley Road Bridge	11.6	11.8	11.7
6931.25	43 feet downstream of the bridge	12.6	12.6	12.6

The proposed scour retrofit alternatives would result in localized increases in average channel velocity at the upstream face of the bridge of 0.2 ft/second for Alternative 1 and 0.7 ft/second for Alternative 2. These are the average channel velocities for the entire cross section. The piers where scour retrofit is proposed are located closer to the main channel of the cross section where the velocities will be faster. At RS 7023.09, just upstream of the bridge, there would be decreases in average channel velocity, which correspond to the increases in water surface elevation.

Based on the hydraulic model, the velocity is fastest at the location between Piers 16 and 17. The cross section is divided into subsections, and the average velocities for the depth of flow for each of these subsections are calculated in the hydraulic model. The distribution of the flow velocities is depicted graphically in Figure 23 for the existing condition, Figure 24 for the Alternative 1 condition, and Figure 25 for the Alternative 2 condition. Based on the calculations, the maximum velocity in the deepest part of the channel at the bridge is approximately 18 to 19 ft/second.

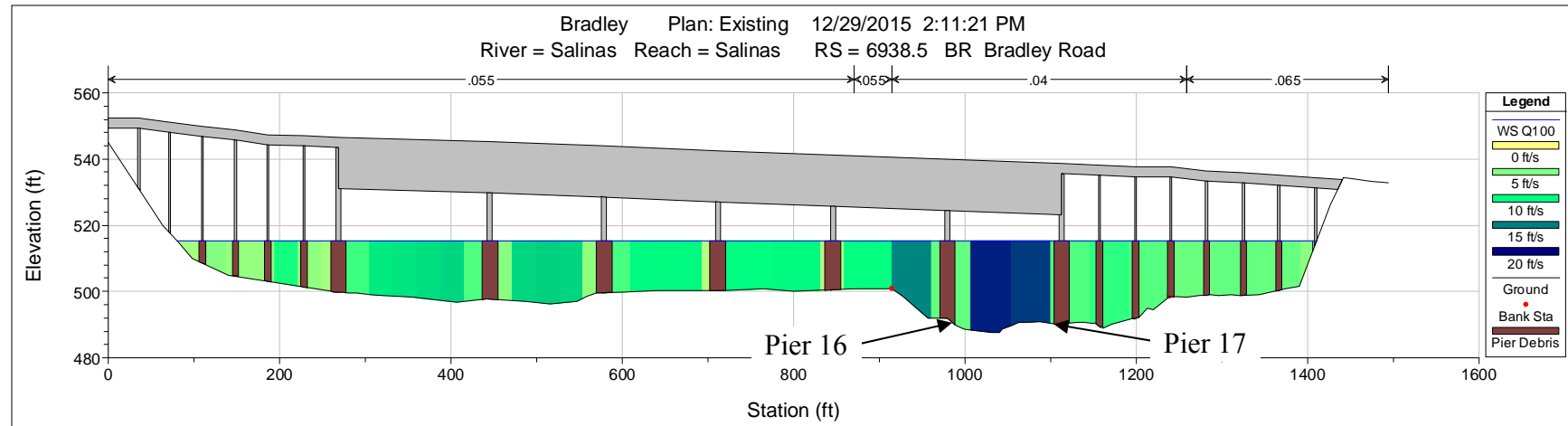


Figure 23. Existing Bridge 100-Year Flow Velocity Distribution

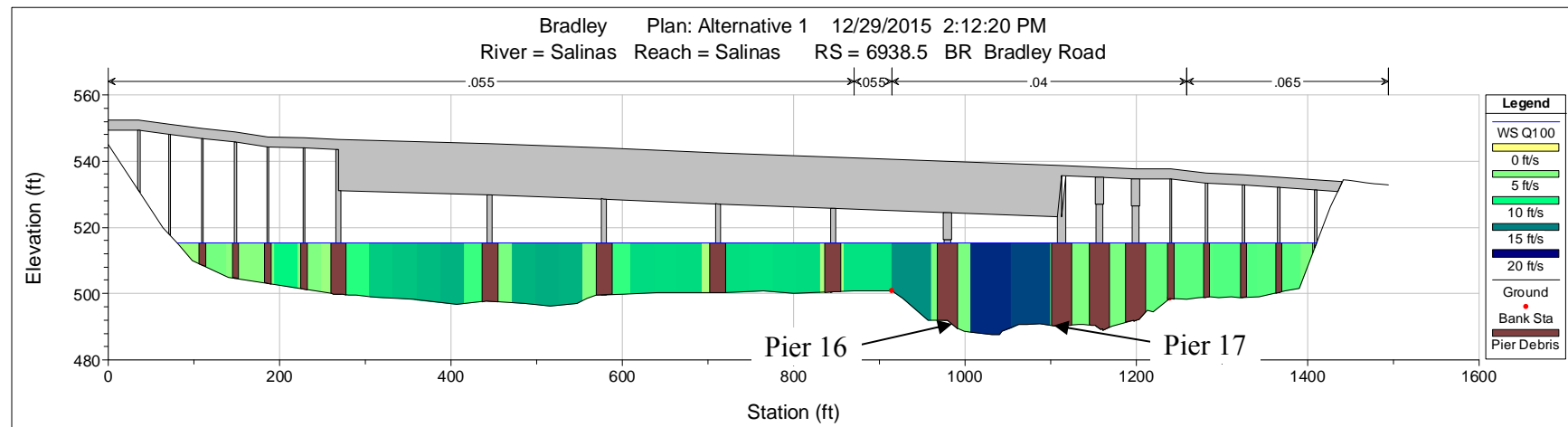


Figure 24. Alternative 1 100-Year Flow Velocity Distribution

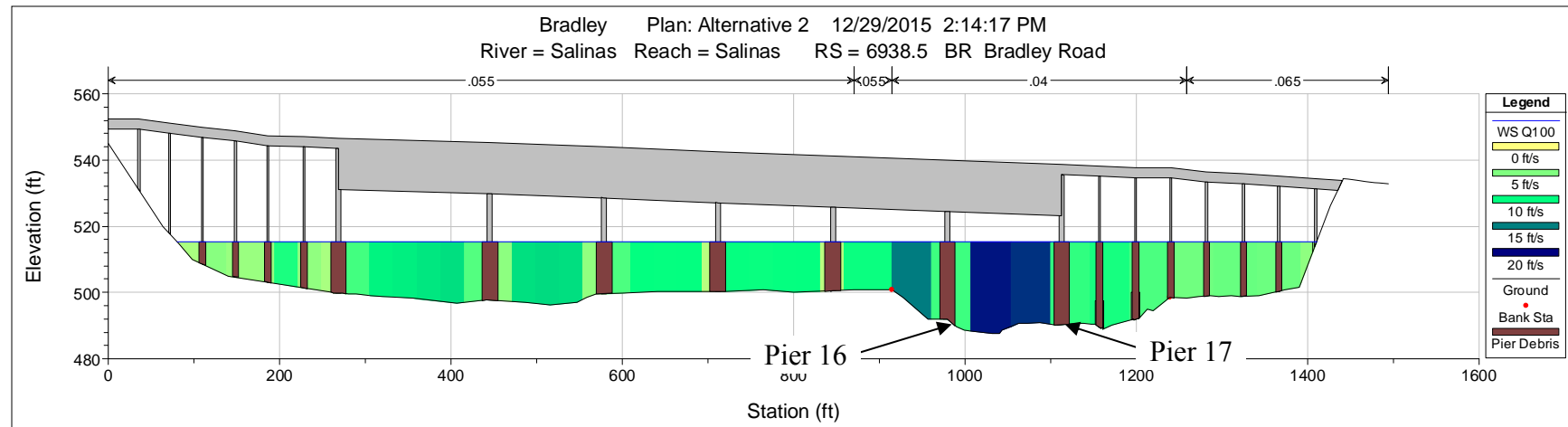


Figure 25. Alternative 2 100-Year Flow Velocity Distribution

5 SCOUR ANALYSIS

WRECO evaluated bridge scour per the criteria described in “Evaluating Scour at Bridges” (FHWA 2012). The minimum design criterion for bridge scour is the 100-year design storm. WRECO evaluated the scour potential using the results of the steady-state flow analysis with subcritical flow regime from HEC-RAS for proposed retrofit Alternatives 1 and 2 and using grain size distributions from Parikh Consultants’ particle size analysis of sample borings collected for the Project. The scour evaluation was performed for Piers 16 through 19 where scour retrofit is being proposed for the Project. The following subsections summarize the results of the analysis.

5.1 Caltrans Bridge Inspection Reports

Available BIRs for the existing bridge were reviewed for relevant scour information. Table 8 shows relevant scour information from recent BIRs. Based on the October 16, 2013 BIR, the bridge has been given a scour critical bridge rating of “U,” which represents a “bridge with ‘unknown’ foundation that has not been evaluated for scour. Until risk can be determined, a plan of action should be developed and implemented to reduce the risk to users from a bridge failure during and immediately after a flood event.”

A *Bridge Scour Evaluation – Plan of Action* (POA) prepared in February 2010 by the Monterey County Public Works Department indicates a history of scour at Piers 18 and 19. It also presents the scour history at the structure from 1975 through 2007. The POA suggests continued biennial monitoring of the bridge by the Caltrans Area Bridge Maintenance Engineer to check for signs of degradation, bridge settlement, and undermining of the footings. In addition, Monterey County Maintenance personnel will monitor the site when the Monterey County Water Resources Agency estimates that the 50-year flood stage has been reached at the bridge site during storm events. The POA includes provisions for closure of the bridge. The POA also recommends installation of scour countermeasures including channel improvements and monitoring.

Table 11. Scour History from POA

Inspection Date	Scour Information
1975*	County Inspection: Piers were undercut.
1976*	County Inspection: Scour at south end of steel portion, drains plugged and need cleaning, clean brush from under bridge, other conditions same as August 11, 1975.
March 9, 1999	Pier 18 has caught large drift with approximately 130 sq ft (12 sq meters) of frontal area.
February 8, 2001	Pier 18 has again caught large drift with approximately 130 sq ft (12 sq meters) of frontal area. Piers 18 and 19 exhibited full exposure of pile cap; however, no undermining was evident at the time of this investigation. Both pile caps exhibited heavy horizontal cracks along the entire face and heavy pattern type cracks at the ends of the pile caps.

Inspection Date	Scour Information
	It was recommended that the condition and future performance of the footings at Piers 18 and 19 be assessed.
February 19, 2003	Pier 18 exhibited full exposure of pile cap; however, no undermining was evident at the time of this investigation. Pier 19 pile cap was exposed with undermining up to 5 ft (1.5 m) behind cap face along 30% of its length. Both pile caps exhibited heavy horizontal cracks along the entire face and heavy pattern type cracks at the ends of the pile caps. The left girder in Span 25 showed exposed stirrups at the bottom of the girder. This condition appears to have manifested itself due to low concrete cover.
February 24, 2005	Due to high water during this investigation, scour documentation was brought forward from the previous BIR from February 19, 2003 for reference.
February 14, 2007	<p>The exposed pile caps at Piers 18 and 19 exhibit severe size horizontal cracks along the entire face.</p> <p>There was up to 1 ft (300 mm) of water flowing in the channel in the center of Span 16 and up to 1.6 ft (0.5 m) of water flowing in Span 17 during this inspection. An underwater investigation was performed for these spans by wading.</p> <p>Abutment 1 through 16, the Span 16 side of Pier 17, the Span 18 side of Pier 18, and Piers 19 through 25 were dry during this investigation, and an underwater investigation was unnecessary. No scour was found at Abutment 1 through Pier 17 (Span 16 side) and at Pier 20 through Abutment 25.</p> <p>There was up to 1.6 ft (0.5 m) of water flowing adjacent to the Span 17 side of Pier 17 during this inspection. The pier was visually inspected for scour through clear water, and no scour was found.</p> <p>There was up to 0.3 ft (100 mm) of water flowing adjacent to the Span 17 side of Pier 18 during this inspection. The pier was visually inspected for scour through clear water.</p> <p>The entire pile cap is exposed at Pier 18. The bottom edge of the pile cap is exposed up to 1.5 ft (450 mm) vertically at the upstream end tapering to the bottom of the footing within 10 ft (3 m). The pile cap is horizontally undermined on the Span 17 side up to 1/3 the width of the pile cap at the upstream end for approximately 10 ft (3 m) in length. Two concrete piles are visible due to the undermining. The February 19, 2003 report noted that the pile cap at Pier 18 was exposed to the bottom without undermining. The pile cap could not be inspected during the previous inspection due to high flows. This</p>

Inspection Date	Scour Information
	<p>scour condition has degraded since the February 19, 2003 inspection, but is not an immediate threat to the structure due to the pier being founded on concrete piles.</p> <p>The Pier 19 pile cap is exposed up to 0.7 ft (200 mm) vertically below the bottom edge at the downstream end and along the Span 18 side for approximately 23 ft (7 m) in length where channel tapers to the bottom edge of the pile cap. The footing is also horizontally undermined up to 5 ft (1.5 m) back (measured from the face of the pile cap) for 23 ft (7 m) in length along the Span 18 side. The Span 19 side of the pile cap is not exposed. The pile cap could not be inspected during the previous inspection due to high flows. There appears to be no significant changes in this scour condition since the February 19, 2003 inspection. This scour condition is not an immediate threat to the structure due to the pier being founded on concrete piles.</p> <p>A channel cross section was taken during this inspection. A comparison could not be made because this is the first channel cross section taken for this structure.</p>
October 24, 2011	<p>On the date of this inspection, the river was flowing between Spans 16 and 18 with only Piers 17 and 18 within the water level and stagnant water present at Pier 15. The greatest velocity was seen in Spans 16 and 17 with the maximum water depth of 3 ft (1 m) located on the Span 17 side of Pier 18. The stagnant water present at Pier 15 was over 3 ft (1 m) deep.</p> <p>A visual inspection was performed at both abutments and the remaining piers that were dry. There was no significant scour or undermining observed at these locations except at Pier 19, which has an undermined pile cap.</p> <p>The column footings at Pier 4 are exposed by up to 1 ft (0.3 m).</p> <p>The submerged portions of Piers 15, 17, and 18 could not be accessed with waders due to the water depth and/or velocity. However, the submerged portions of Pier 15 were viewed through clear water and no significant scour or undermining was observed. The submerged portions of Pier 17 could not be accessed due to the velocity and depth of the river within Spans 16 and 17. The Pier 18 pile cap was accessed, which is exposed and undermined.</p> <p>The submerged portion of Pier 18 on the Span 17 side could not be accessed with waders due to the river velocity and river depth. However, the majority of the pile cap was above the water level and</p>

Inspection Date	Scour Information
	<p>was accessed from the Span 18 side in order to vertically probe around the pier. The entire pile cap is exposed and vertically undermined by up to 17.7 in. (450 mm) at the upstream end tapering to the bottom of the footing within approximately 10 ft (3 m). This amount of exposure and vertical undermining has not changed significantly since the last routine inspection on February 4, 2010. It was initially stated in the February 14, 2007 BIR that this pile cap is horizontally undermined on the Span 17 side up to 1/3 the width of the pile cap at the upstream end for approximately 10 ft (3 m) in length exposing two concrete foundation piles. The extent of this undermining and the number of exposed piles could not be verified.</p> <p>The Span 19 side of the Pier 19 pile cap is not exposed. However, the pile cap is exposed along the entire Span 18 side and is vertically undermined by up to 8 in. (200 mm) at the downstream end with the streambed material tapering up to the bottom of the footing within approximately a 23-ft (7 m) length. The footing is also horizontally undermined by up to 5 ft (1.5 m) within this area with no visible foundation piles. This scour condition has not changed significantly since the last routine inspection.</p> <p>There is a February 19, 2003 outstanding recommendation to complete scour mitigation work at Piers 18 and 19.</p>
October 16, 2013	<p>An inspection of all visible bridge elements from the ground was completed with the exception of the submerged portions of Piers 16 through 18. On the date of this inspection, the river was swiftly flowing between Spans 16 and 17 with a velocity of 5 to 6 ft/s. Only Pier 17 and the Span 17 side of Pier 18 were within this flow with stagnant water present at Pier 16. Stagnant water present at the upstream nose of Pier 16 was over 5 ft deep. The water depth surrounding Pier 17 was between 3 and 5 ft and the swift current within the adjacent spans prevented access to this pier. The submerged portion of Pier 18 on the Span 17 side could not be accessed with waders due to the river velocity and water depth of 3 ft. However, the majority of the pile cap was above the water level and was accessed from the Span 18 side in order to vertically probe around the pier.</p> <p>Pier 17 was viewed from the adjacent spans due to the water depth and velocity within Spans 16 and 17. A localized scour hole could be seen from the deck that surrounds the upstream nose. The maximum depth of the scour hole was measured with a weighted tape from the deck as 2 ft deep at the centerline of the pier and extends approximately 8 ft into the adjacent spans.</p>

Inspection Date	Scour Information
	<p>The submerged portion of Pier 18 on the Span 17 side could not be accessed with waders due to the river velocity and river depth. However, the majority of the pile cap was above the water level and was accessed from the Span 18 side in order to vertically probe around the pier. The entire pile cap is exposed with undermining located along the full length of the Span 17 side up to a depth of 18 in. The distance between the top of the footing to the ground level was measured as 67 in. at the upstream side and 46 in. at the downstream end. It was initially stated in the February 14, 2007 BIR that this pile cap is horizontally undermined on the Span 17 side up to 1/3 the width of the pile cap at the upstream end for approximately 10 ft (3 m) in length exposing two concrete foundation piles. The extent of this undermining and the number of exposed piles could not be verified.</p> <p>The Span 19 side of the Bent 19 pile cap footing is not exposed except for the downstream face. The pile cap is exposed along the entire Span 18 side and is vertically undermined by up to 10 in. vertically and 5 ft horizontally at the downstream end. The streambed material tapers up to the bottom of the footing within approximately a 23-ft length from the downstream end where the footing is horizontally undermined by 18 in.</p> <p>There is a February 19, 2003 outstanding recommendation to complete scour mitigation work at Bents 18 and 19.</p>

Note: * Information obtained from 2010 POA.

Source: Caltrans

Undermining at Pier 18 is shown in Photo 1 and undermining at Pier 19 is shown in Photo 2 from the February 2007 BIR. The undermining at Pier 19 from the October 2013 BIR is shown in Photo 3. This condition was also observed during the February 2009 BIR, and is shown in Photo 4. Based on the photos, it appears that the undermining at Pier 19 has worsened from 2007 to 2013.



Photo 1. Exposed and Undermined Footing at Pier 18 (Span 17 Side) (02/14/2007)

Source: Caltrans



Photo 2. Exposed and Undermined Footing at Pier 19 (Span 18 Side) (02/14/2007)

Source: Caltrans



Photo 3. Exposed and Undermined Pile Cap Footing at Bent 19 (Span 18 Side) (10/16/2013)

Source: Caltrans



Photo 4. Exposed and Undermined Pile Cap Footing at Pier 19 (02/18/2009)

Source: Caltrans

5.2 Existing Channel Bed

Two borings were drilled for the Project. Boring B-1 was located close to Pier 16 while boring B-2 was located next to Pier 20. Sieve analyses were completed using the soil samples collected, and grain size distribution reports were prepared for these soil samples (Parikh Consultants 2015). Two samples were taken from boring B-1 at a depth of 11 ft and 26 ft. The grain size distribution based on the shallower sample was used for the scour analysis. One sample was taken from boring B-2 at a depth of 11 ft. The soil properties from the grain size distributions were selected for the piers in question based on their proximity to each of the two borings. The soil properties for boring B-1 were used for the local scour analysis for Piers 16 and 17 while the soil properties for boring B-2 were used for the local scour analysis for Piers 18 and 19 (see Figure 26 for the grain size distribution plots). The sample at boring B-1 was classified as a poorly graded sand with gravel and the sample at boring B-2 was classified as a sandy silt.

The estimated grain sizes from the grain size distributions are presented in Table 12. Soils with fine grains that pass the #200 sieve are considered cohesive soils. While there is not a clear division between cohesive and cohesionless soils, soils are divided into these two groups for the purposes of analyzing scour. Per HEC-18, a rule of thumb is that soils with 10% fines will exhibit some cohesion while soils with 35% fines will be dominated by cohesion. In general, the threshold for cohesive bed materials is a D_{50} grain size that is 0.2 mm or less.

Based on the grain size distributions, boring B-1, sample 2, has approximately 2.5% fines. Boring B-2, sample 2, has approximately 62.5% fines, which would be dominated by cohesion.

Therefore, local scour was analyzed for Piers 16 and 17 using the cohesionless scour equations using the soil properties from boring B-1, and local scour was analyzed for Piers 18 and 19 using the cohesive scour equations using the soil properties from boring B-2.

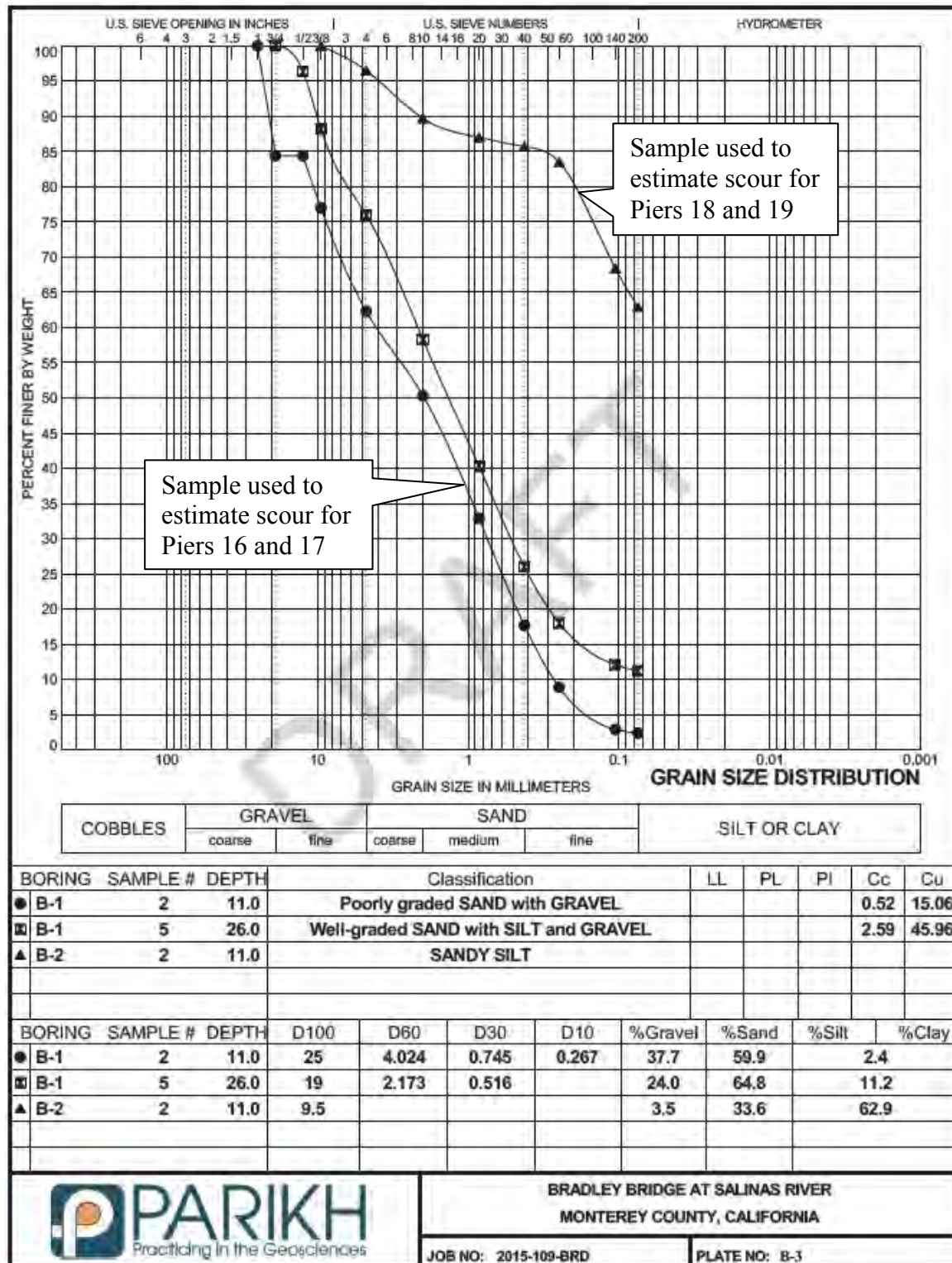


Figure 26. Grain Size Distribution

Source: Parikh Consultants

Table 12. Grain Sizes for Soil Samples

Location	Boring No. and Sample	Grain Size (mm)		
		D ₅₀	D ₈₄	D ₉₅
Close to Pier 16	B-1, Sample 2	2	20	25
Next to Pier 20	B-2, Sample 2	< 0.08	0.3	4

Source: Parikh Consultants

Note: D_x represents the sediment size, and is defined as the grain diameter at which x% of the sediment sample is finer.

5.3 Long-Term Bed Degradation

The 1952 as-built shows an elevational view of the bridge, which is shown in Figure 27. The cross section shown in the figure does not appear to have a well-defined low-flow channel. The deepest part of the cross section is located closer to the west side of the bridge. Note that the span and numbering of the bridge elements is reverse from the current numbering convention.

Aggradation at the bridge site is a result of the deposition of material eroded from the channel. Degradation at the bridge site is a result of scouring of the channel due to sediment deficit. Only degradation is accounted for in scour calculations. The long-term bed elevation changes (long-term bed degradation) are typically based on historical channel data at the bridge site.

The BIRs were reviewed for stream measurements. Only one channel cross section was measured and included in the BIRs from the February 14, 2007, inspection (see Figure 28). Based on the stream measurement, the deepest part of the channel is located in the area between Piers 16 and 19. The channel measurements were made relative to the top of the concrete rail.

The channel bed appears to have degraded over the years in the area within the low-flow channel. The stream measurement from the 2015 survey was compared with the cross section from the 2007 BIR and the 1952 as-built (see Figure 29). Based on the available information, the long-term bed degradation was estimated to be 2.8 ft for an assumed 50-year design life for a retrofit bridge.

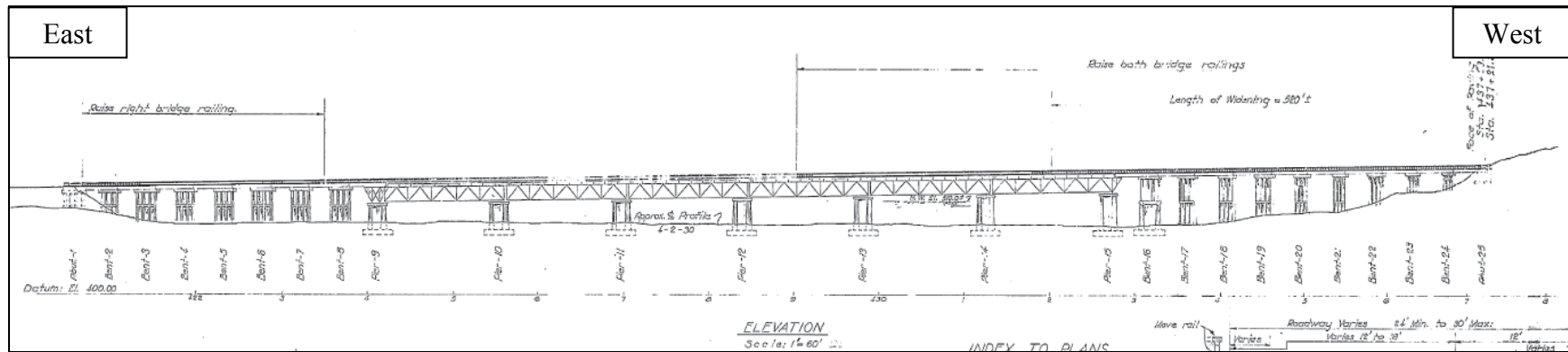


Figure 27. 1952 As-Built Elevation View

Source: Caltrans

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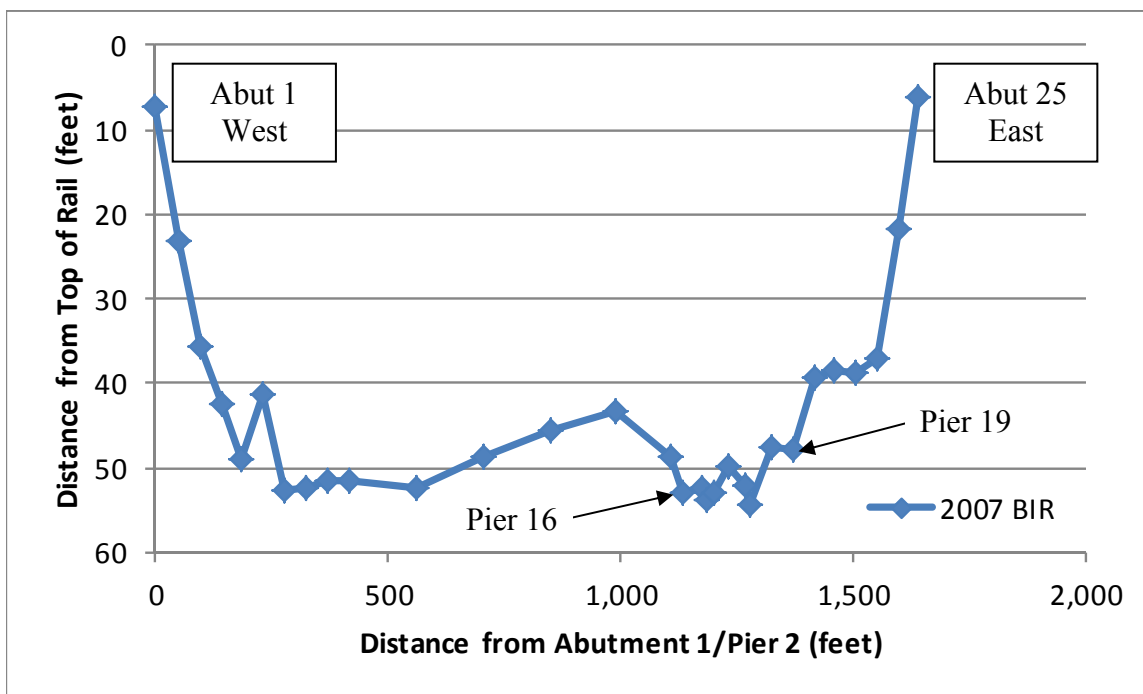


Figure 28. Historical Stream Measurement from 2007 BIR

Source: Caltrans

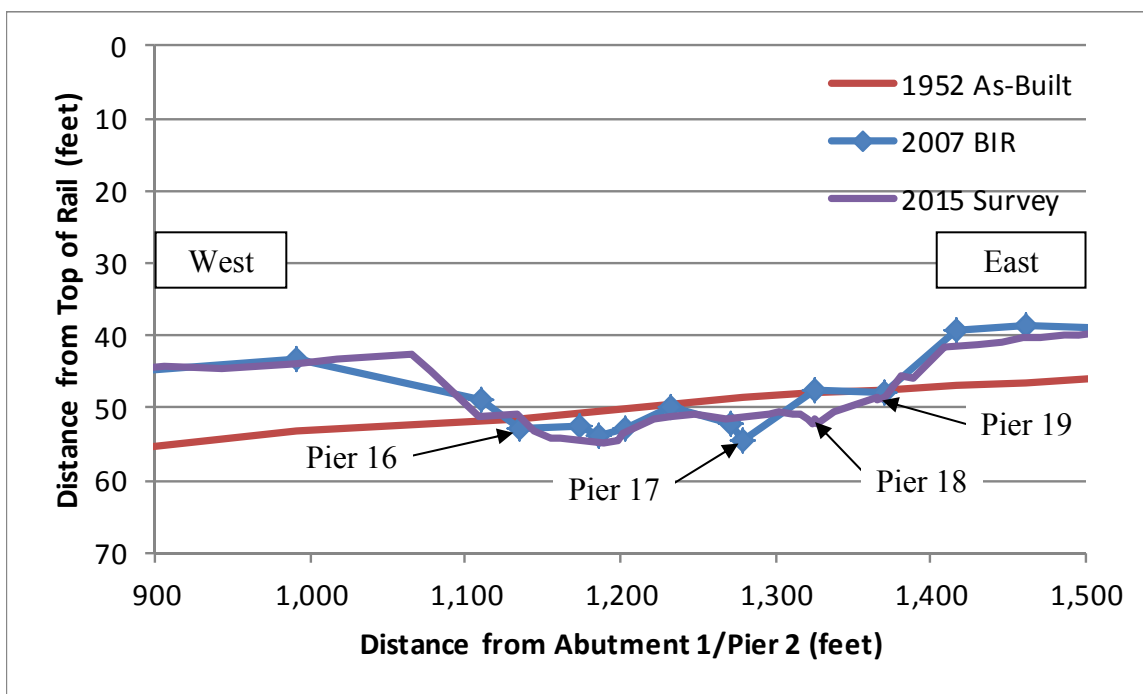


Figure 29. Historical Channel Comparison

5.4 Lateral Channel Migration

The lateral channel migration at the existing bridge was evaluated by comparing aerial imagery spanning the period from 1956 through 2013 (see figures 30 through 45). The

aerial images from 1956 through 1988 are courtesy of the USGS. The metadata for the USGS aerial images are included in Appendix D. The aerial images from 1989 through 2013 were obtained from Google Earth with the earliest aerial image available from June 1989 and the most recent from August 2013. A review of these aerial images indicates that the wide floodplain at the bridge location is relatively stable. Between the years 1956 and 2013, the channel has been confined to the west by Highway 101 and to the east by the town of Bradley. The low-flow channel has also remained consistently at the eastern side of the bridge through this period. Although there are minor movements within the low-flow channel itself, it appears that there have not been any major lateral thalweg shifts at the bridge site. Based on the history of the site from the 60 years of aerial images, we can conclude that the channel will not significantly migrate beyond the low-flow channel.



Figure 30. 1956 Aerial Image

Source: USGS

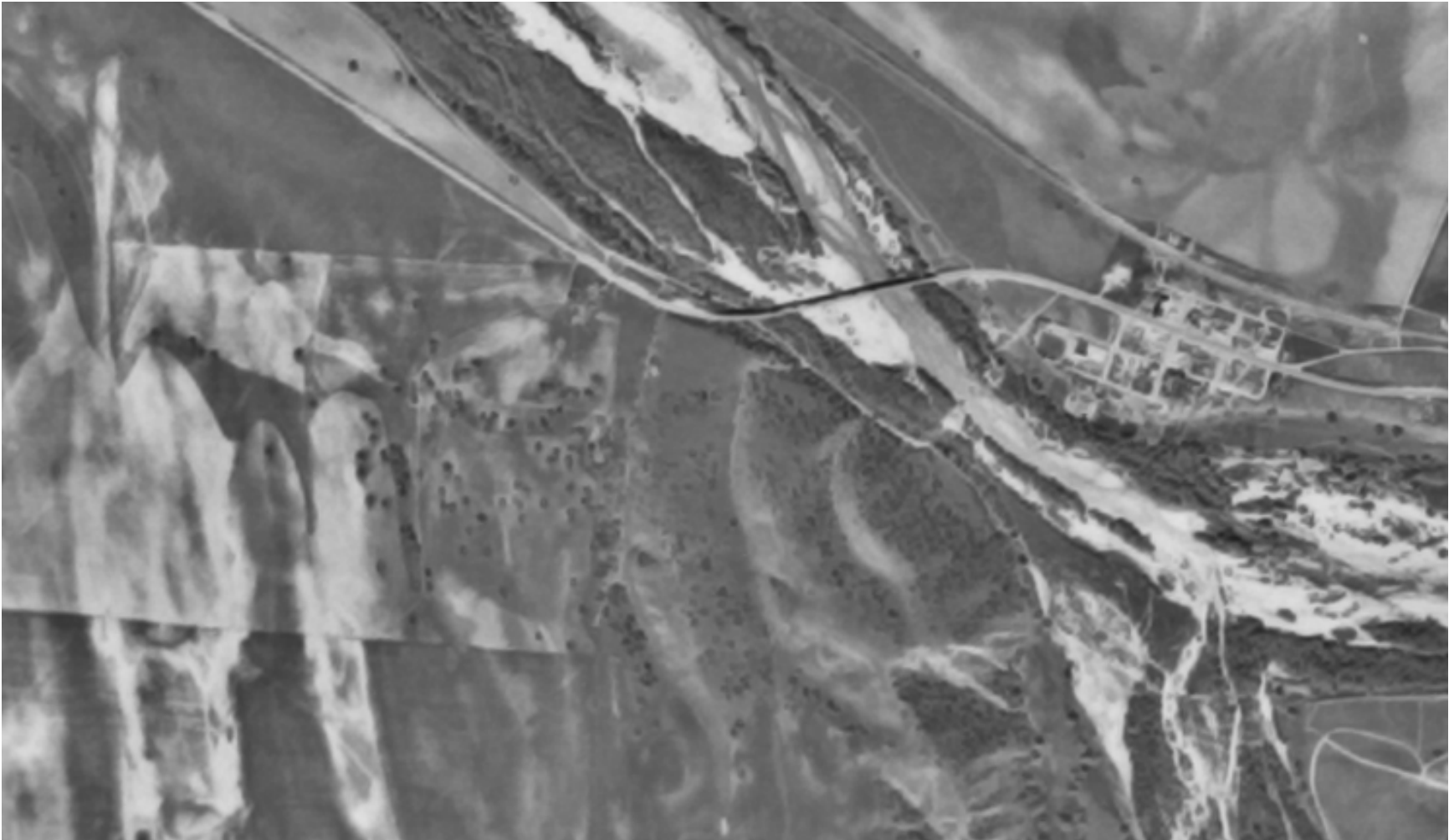


Figure 31. 1960 Aerial Image

Source: USGS



Figure 32. 1967 Aerial Image

Source: USGS

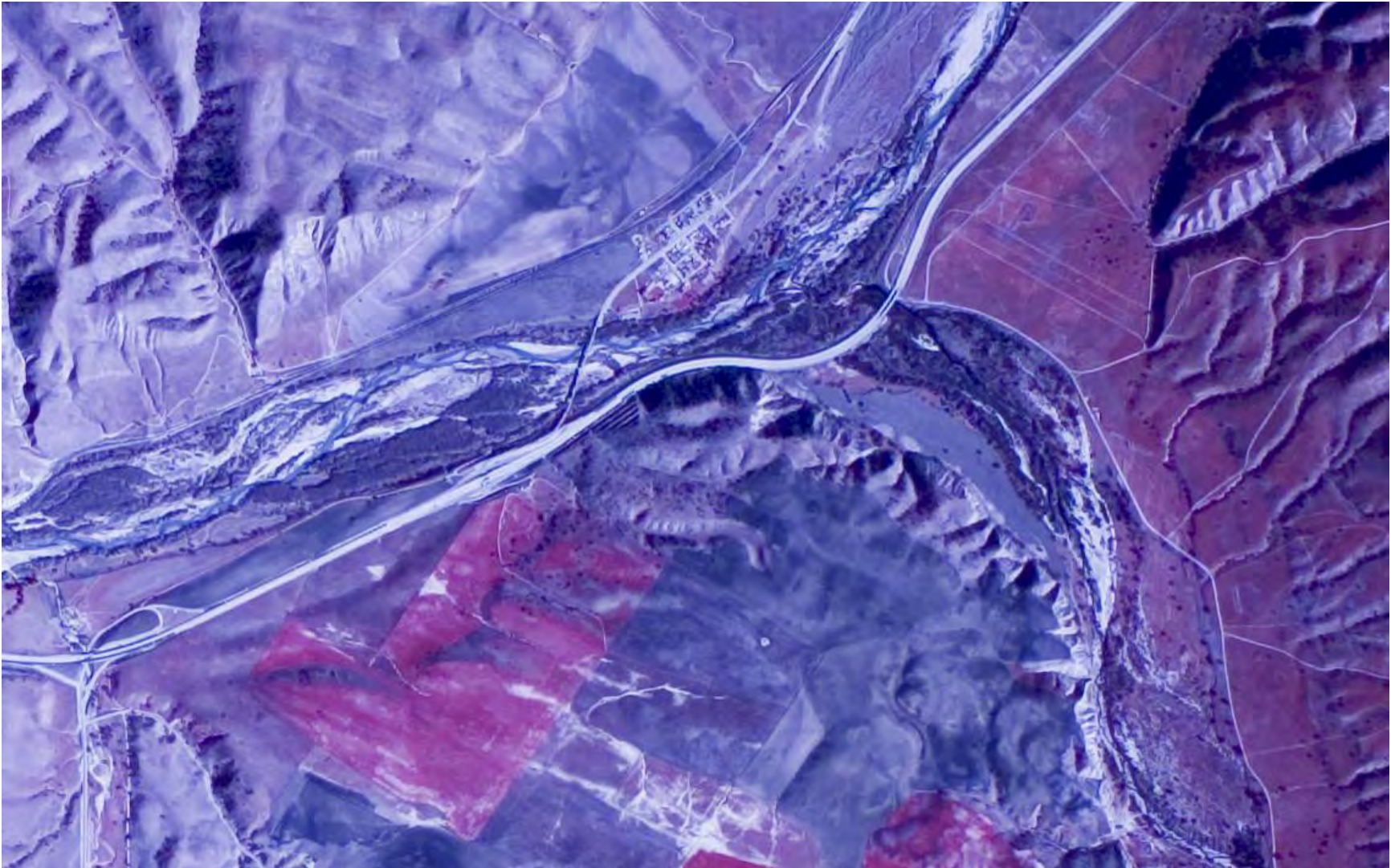


Figure 33. 1975 Aerial Image

Source: USGS



Figure 34. 1988 Aerial Image

Source: USGS



Figure 35. June 1989 Aerial Image

Source: Google Earth



Figure 36. May 1994 Aerial Image

Source: Google Earth



Figure 37. July 2004 Aerial Image

Source: Google Earth



Figure 38. December 2005 Aerial Image

Source: Google Earth



Figure 39. August 2006 Aerial Image

Source: Google Earth

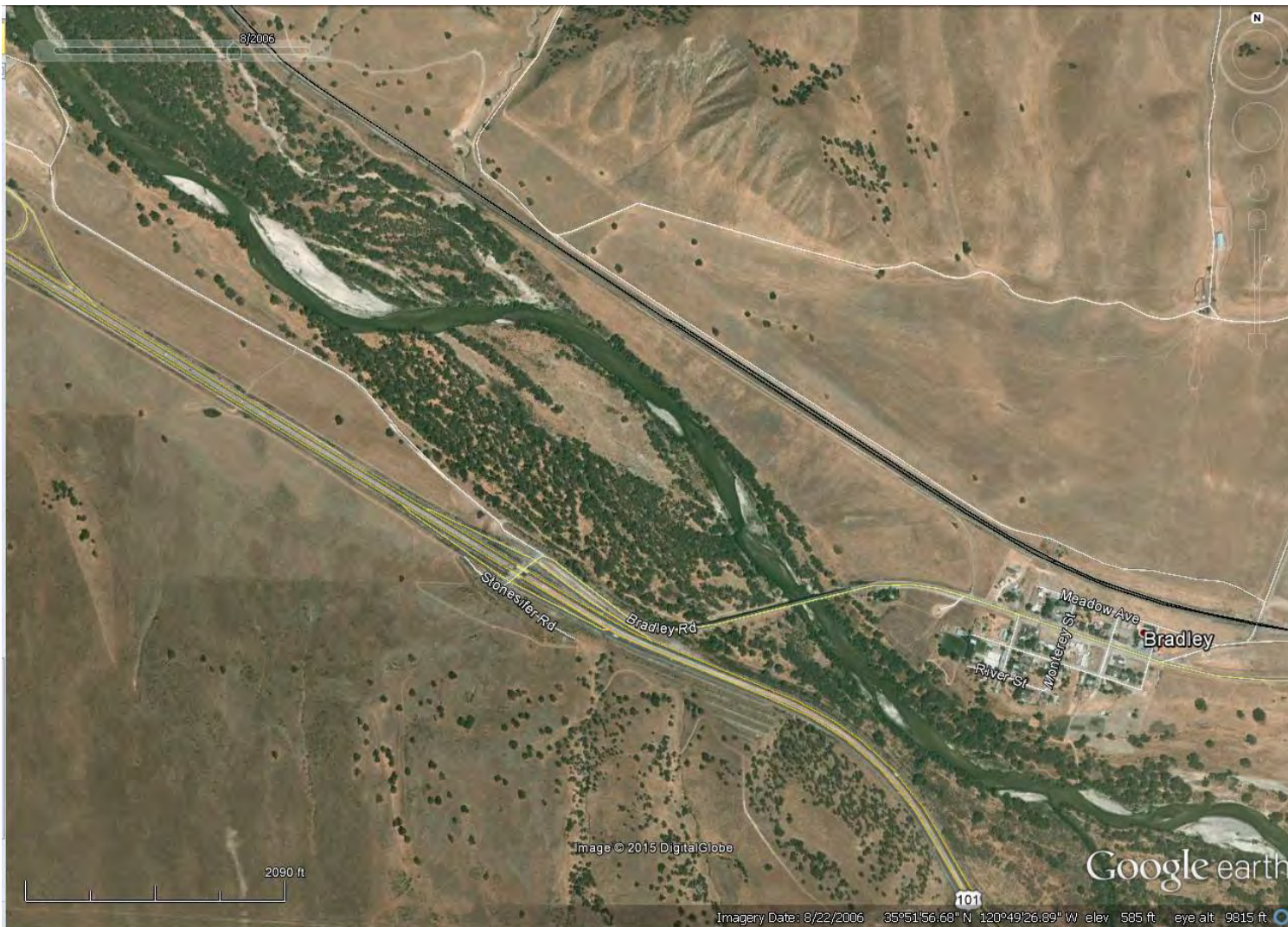


Figure 40. August 2006 Aerial Image

Source: Google Earth



Figure 41. August 2006 Aerial Image

Source: Google Earth



Figure 42. December 2007 Aerial Image

Source: Google Earth



Figure 43. June 2009 Aerial Image

Source: Google Earth



Figure 44. September 2011 Aerial Image

Source: Google Earth



Figure 45. August 2013 Aerial Image

Source: Google Earth

5.5 Contraction Scour

Contraction scour occurs when the flow area of a stream is reduced by: 1) the natural contraction of the stream channel; 2) by a bridge structure; or 3) the overbank flow forced back to the channel by roadway embankments at the roadway approach to a bridge. From the continuity equation, a decrease in flow area results in an increase in average velocity and bed shear stress through the contraction. Hence, there is an increase in erosive forces in the contraction section, and more bed material is removed from the contracted reach than is transported into the reach. This increase in transport of bed material from the reach lowers the natural bed elevation. As the bed elevation is lowered, the flow area increases. Thus, the velocity and shear stress decrease until relative equilibrium is reached; i.e., the quantity of bed material that is transported into the reach is equal to that removed from the reach, or the bed shear stress is decreased to a value such that no sediment is transported out of the reach. Contraction scour, in a natural channel or at a bridge crossing, involves removal of material from the bed across all or most of the channel width (FHWA 2012).

Because contraction scour occurs across the entire channel cross section, the contraction scour was calculated using an average of the channel bed grain sizes. Based on the average values of the grain size diameters, the median grain size diameter was approximately 1 mm. Therefore, the contraction scour was estimated for the channel using the cohesionless equation.

For cohesionless soils, contraction scour is classified to be clear-water or live-bed, and depends on the stream flow. Live-bed contraction scour occurs when the bed material upstream of the contraction is in motion. Clear-water contraction scour occurs when the bed material upstream of the contraction is not in motion. To determine whether clear-water or live-bed contraction scour is occurring, the calculated average approach velocity is compared to the threshold velocity at which incipient motion of the bed material is expected (or the critical velocity, V_c). If V_c is greater than the mean channel velocity, then clear-water contraction scour will exist. If V_c is less than the mean channel velocity, then live-bed contraction scour will exist. The critical velocity was calculated to be 2.9 ft/s for both alternatives using the following equation from HEC-18 (FHWA 2012).

$$V_c = K_u y^{1/6} D_{50}^{1/3}$$

Where:

V_c = critical velocity above which bed material size of D and smaller will be transported (ft/sec)

D = particle size for V_c (ft)

K_u = 6.19 for SI units and 11.17 for English units

y = average depth of flow upstream of the bridge (ft)

D_{50} = particle size in a mixture of which 50 percent are smaller (ft)

The mean approach velocity (12.1 ft/s) exceeded the critical velocity (2.9 ft/s) for both alternatives. Therefore, live-bed contraction scour was evaluated at the bridge. The equation for estimating live-bed contraction scour, as presented in HEC-18, is as follows:

$$\frac{y_2}{y_1} = \left(\frac{Q_2}{Q_1} \right)^{6/7} \left(\frac{W_1}{W_2} \right)^{k_1}$$

$$y_s = y_2 - y_o$$

$$\therefore y_s = y_1 \times \left(\frac{Q_2}{Q_1} \right)^{6/7} \left(\frac{W_1}{W_2} \right)^{k_1} - y_o$$

Where:

- y_s = scour depth, ft
- y_1 = average depth in the upstream main channel, ft
- y_2 = average depth in the contracted section, ft
- y_o = average existing depth in the contracted section before scour, ft
- Q_1 = flow in the upstream channel transporting sediment, cfs
- Q_2 = flow in the contracted channel, cfs
- W_1 = top width of the upstream main channel that is transporting bed material, ft
- W_2 = top width of the main channel in the contracted section less pier widths, ft
- k_1 = mode of bed material transport exponent

The contraction scour was calculated to be 1.4 ft for Alternative 1 and 1.5 ft for Alternative 2.

5.6 Local Pier Scour

Pier scour is caused by the formation of vortices (known as a horseshoe vortex) at the pier base. The horseshoe vortex results from the pileup of water on the upstream surface of the pier and subsequent acceleration of the flow around the base of the pier.

The scour depths at the piers were estimated based on the pier design (shape and dimensions), flow characteristics (flow rate, local flow velocity at each pier, and local flow depth at each pier), and sediment particle size distribution. As described in Section 5.2, the local pier scour was analyzed for Piers 16 and 17 using the cohesionless scour equations using the soil properties from boring B-1, and the local pier scour was analyzed for Piers 18 and 19 using the cohesive scour equations using the soil properties from boring B-2.

An equation based on the Colorado State University (CSU) equation was used to estimate local pier scour for cohesionless soils. The equation predicts maximum scour depths and is given below:

$$\frac{y_s}{y_1} = 2K_1 K_2 K_3 \left(\frac{a}{y_1} \right)^{0.65} Fr_1^{0.43}$$

Where:

- y_s = Scour depth, ft
- y_1 = Flow depth directly upstream of the pier, ft
- K_1 = Correlation factor of pier nose shape (from Figure 7.3 and Table 7.1 of HEC-18)
- K_2 = Correlation factor of angle of attack of flow (from Table 7.2 or Equation 7.4 of HEC-18)
- K_3 = Correlation factor for bed condition (from Table 7.3 of HEC-18)
- a = Pier width, ft
- Fr_1 = Froude Number directly upstream of the pier = $V_1 / (gy_1)^{1/2}$

For piers in cohesive materials, pier scour is more dependent on soil properties, and the HEC-18 recommends an equation presented by Briaud et. al. (2011):

$$y_s = 2.2K_1 K_2 a^{0.65} \left(\frac{2.6V_1 - V_c}{\sqrt{g}} \right)^{0.7}$$

Where:

- y_s = scour depth, ft
- K_1 = correction factor for pier nose shape; 1.1 for square nose, 1.0 for round nose, circular cylinder and group of cylinders, and 0.9 for sharp nose
- K_2 = correction factor for angle of attack; 1.0 when angle is 0 degrees
- a = pier width, ft
- V_1 = mean velocity of flow directly upstream of the pier, ft/s
- V_c = critical velocity for initiation of erosion of the cohesive material, ft/s
- g = acceleration due to gravity, ft/s²

For all piers, the velocity of the flow directly upstream of the pier was obtained from the HEC-RAS model using a velocity distribution. The local pier scour depths are summarized in Table 13. The calculated scour depths for Alternative 1 are deeper than the calculated scour depths for Alternative 2. For Alternative 1, the retrofit involves the addition of super piles, which have a diameter of 8 ft. Compared to the existing pier widths, the super piles have a larger effective pier width, which extends for the full height

of the pier stem. For Alternative 2, the retrofit involves the addition of footing caps, which while larger than the existing pier widths, only impact a portion of the pier stem.

Table 13. Local Pier Scour Depths

Pier No.	Local Pier Scour Depth (ft)	
	Alternative 1	Alternative 2
16	18.6	15.5
17	18.8	15.7
18	29.6	23.5
19	26.3	21.6

5.7 Total Scour

The total scour is the sum of the long-term bed elevation change, contraction scour, and local pier scour.

Table 14. Calculated Scour Depths

Alternative	Pier No.	Long-term Bed Degradation (ft)	Contraction Scour (ft)	Local Pier Scour (ft)
1	16	2.8	1.4	18.6
	17	2.8	1.4	18.8
	18	2.8	1.4	29.6
	19	2.8	1.4	26.3
2	16	2.8	1.5	15.5
	17	2.8	1.5	15.7
	18	2.8	1.5	23.5
	19	2.8	1.5	21.6

According to a Caltrans memorandum dated October 23, 2015, “Scour Data Table on Foundation Plan,” a scour data table should also present a long-term scour elevation based upon the long-term bed degradation and contraction scour depths, and a short term depth based upon the local scour depth. The scour elevations were based upon the thalweg elevation of the channel, which is 487.5 ft at the bridge. The scour data table is presented in Table 15 for Alternative 1 and Table 16 for Alternative 2. The detailed calculations are also included in Appendix E and Appendix F.

Table 15. Alternative 1 Scour Data Table

Support No.	Long Term (Degradation and Contraction) Scour Elevation (ft)	Short Term (Local) Scour Depth (ft)
16	483.3	18.6
17	483.3	18.8
18	483.3	29.6
19	483.3	26.3

Table 16. Alternative 2 Scour Data Table

Support No.	Long Term (Degradation and Contraction) Scour Elevation (ft)	Short Term (Local) Scour Depth (ft)
16	483.2	15.5
17	483.2	15.7
18	483.2	23.5
19	483.2	21.6

There have not been any major lateral thalweg shifts at the bridge site since 1959 and the low-flow channel has also remained consistently at the eastern side of the bridge. Based on the history of the site from the 60 years of aerial images, we can conclude that the channel will not significantly migrate beyond the low-flow channel. However, there are still minor thalweg movements within the low-flow channel and the four piers of interest are all located within the low-flow channel. Therefore, the bridge scour elevations should be based upon the thalweg elevation.

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6 CONSTRUCTION SEASON FLOW

The purpose of the construction season flow rate study is to establish the relationship between risk and flow rates to be used by the contractor to develop a temporary diversion system for the duration of the construction of the proposed Project. The flows were calculated for two construction windows: September 1 through December 15 and July 1 through October 15 for one construction season. Mean daily flow data was obtained from USGS gaging station 11150500, which is located 6.2 mi downstream of the Project site. For each construction window, three values were estimated: peak, maximum mean, and average mean.

There is a possibility that operators of the upstream reservoirs can limit the water released during the construction window. If coordination with the agencies/operators to limit the water released is not possible, and the flows cannot be controlled during construction, then the greater calculated flow should be considered for the design of the diversion system.

Table 17 shows the peak, maximum mean, and average mean flows that occur during the two construction windows. The maximum mean flow value of 23,703 cfs occurred on December 7. The flows in the months of November and December, which are within the fall and winter seasons, are generally greater than the flows that occur between the months of July and October, which are within the summer and fall seasons. There is a greater variability in flow and the chances for larger flows to occur during the September 1 through December 15 construction window, and it would be more difficult to design the temporary diversions system for these larger flows. Therefore, the construction window will be restricted to July 1 through October 15.

Table 17. Flows Estimated for Construction Windows

Flow Scenario	Flow (cfs)	
	September 1 – December 15	July 1 – October 15
Peak	1,250	1,000
Maximum mean	23,703	1,890
Average mean	557	600

Mean daily flow data from 1948 through 2018 for a period of record of 71 years were used in the analysis (USGS 2019a). The peak flow that is likely to occur at the Project site during the construction period (July 1 through October 15) for one construction season was calculated to be 1,000 cfs.

The maximum mean daily flow that is likely to occur at the Project site during the construction period is approximately 1,890 cfs based on the statistical data at the gaging station for the maximum of the daily mean values (USGS 2019b).

The data and analysis suggests a high degree of variability with the flow estimates, which makes it difficult to extrapolate or anticipate. The original conceptual design for the temporary river diversion involved the placement of multiple pipe culverts. However, a temporary river diversion design that is less confined (such as the currently proposed design as seen in Figure 46) will be more resilient and provide adaptability to the unforeseeable variabilities and fluctuations of flow.



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The shoring for the temporary river diversion design (see Figure 46) was modeled in HEC-RAS to estimate the design water surface elevations associated with the flows during the period of construction spanning from July 1 through October 15. The calculated water surface elevations associated with those flows with the temporary shoring design are summarized in Table 18 and depicted in Figure 47.

Table 18. Water Surface Elevations for Temporary River Diversion

Flow Scenario	Flow (cfs) ¹	Water Surface Elevation (ft NAVD 88)
Peak	1,000	493.4
Maximum Mean	1,890	492.1
Average Mean	600	491.4

Note: ¹Flows were estimated for a construction window from July 1 through October 15.

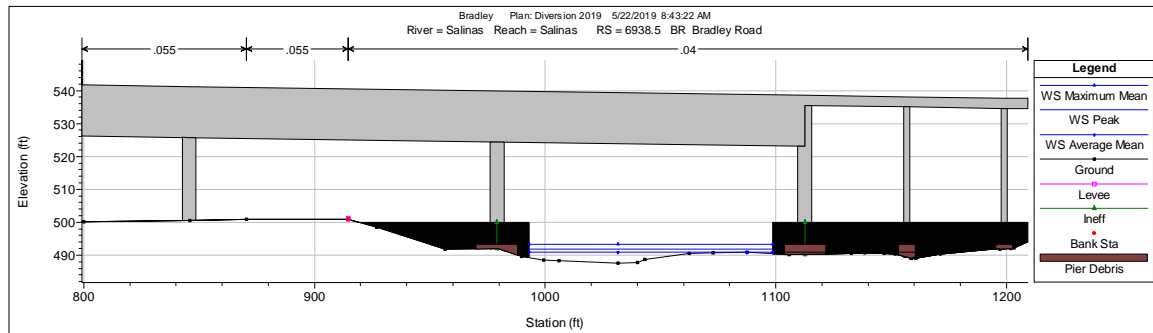


Figure 47. Cross Section with Temporary River Diversion

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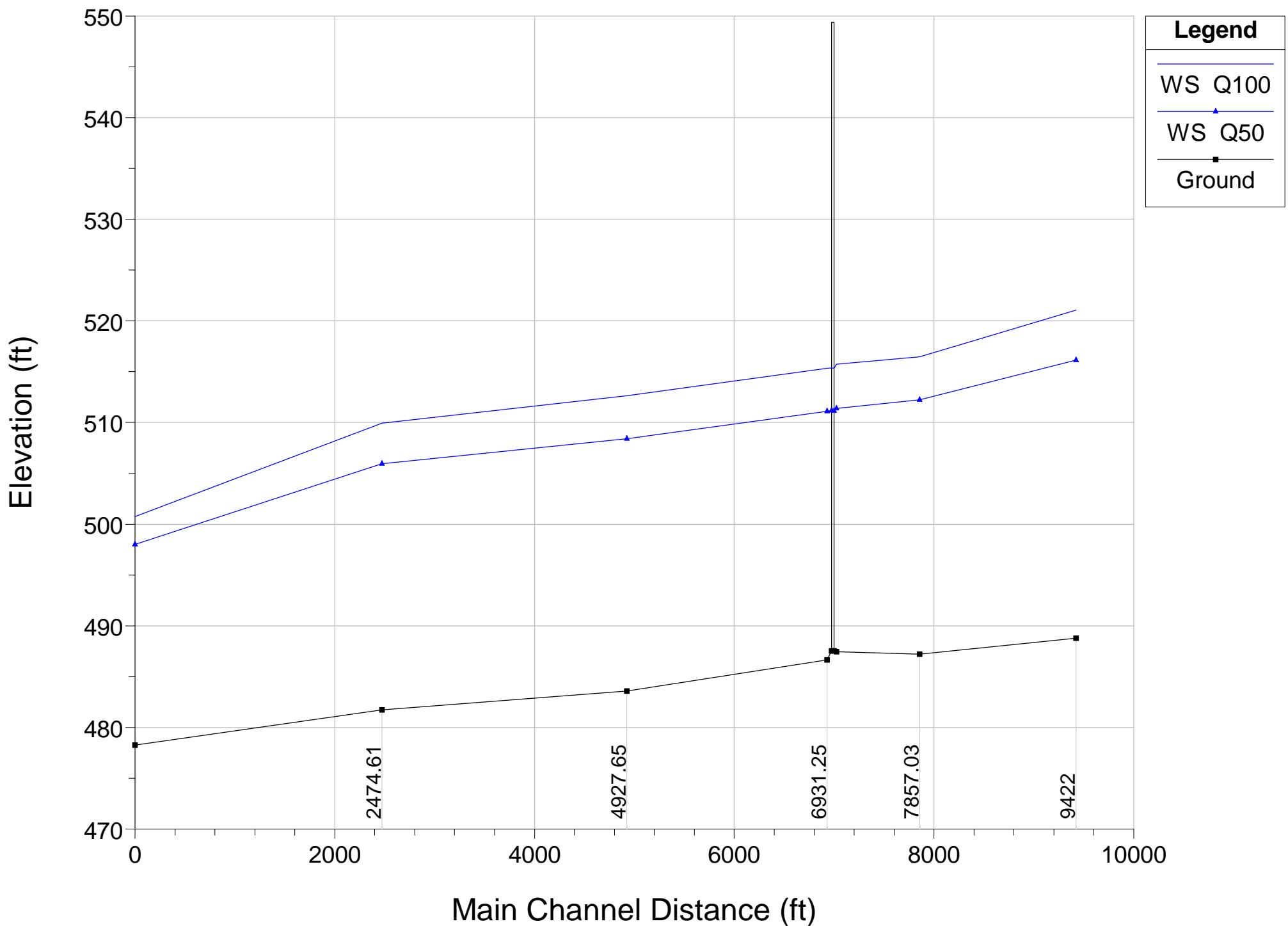
Appendix A HEC-RAS Existing Bridge

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Bradley

Plan: Existing

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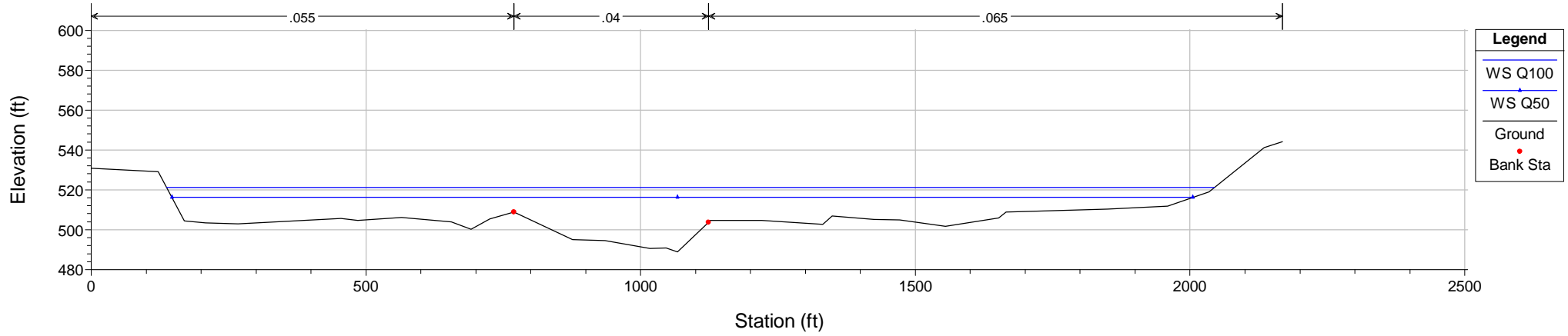


Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Salinas	9422	Q100	189100.00	488.79	521.08		521.91	0.000921	9.59	31800.05	1907.01	0.34
Salinas	9422	Q50	118300.00	488.79	516.14		516.85	0.000994	8.60	22484.02	1858.00	0.34
Salinas	7857.03	Q100	189100.00	487.21	516.47		519.31	0.002931	16.79	17278.96	1077.13	0.60
Salinas	7857.03	Q50	118300.00	487.21	512.26		514.31	0.002589	13.92	12878.59	1008.78	0.54
Salinas	7023.09	Q100	189100.00	487.44	515.73	508.38	517.17	0.001556	12.21	22866.49	1310.37	0.44
Salinas	7023.09	Q50	118300.00	487.44	511.40	505.59	512.45	0.001438	10.30	17229.24	1291.12	0.41
Salinas	6938.5		Bridge									
Salinas	6931.25	Q100	189100.00	486.63	515.34		516.69	0.001465	12.60	24560.19	1496.83	0.43
Salinas	6931.25	Q50	118300.00	486.63	511.10		512.11	0.001330	10.69	18380.60	1410.87	0.40
Salinas	4927.65	Q100	189100.00	483.57	512.65		513.80	0.001435	11.63	26310.45	1817.73	0.42
Salinas	4927.65	Q50	118300.00	483.57	508.41		509.37	0.001483	10.39	18786.88	1730.80	0.41
Salinas	2474.61	Q100	189100.00	481.72	509.93		510.85	0.001007	9.90	30228.32	1749.29	0.35
Salinas	2474.61	Q50	118300.00	481.72	505.94		506.59	0.000864	8.15	23271.48	1736.02	0.32
Salinas	1.06	Q100	189100.00	478.26	500.76	500.76	504.98	0.008729	20.35	14704.05	1621.59	0.95
Salinas	1.06	Q50	118300.00	478.26	498.02	498.02	501.39	0.008621	17.57	10493.66	1461.58	0.91

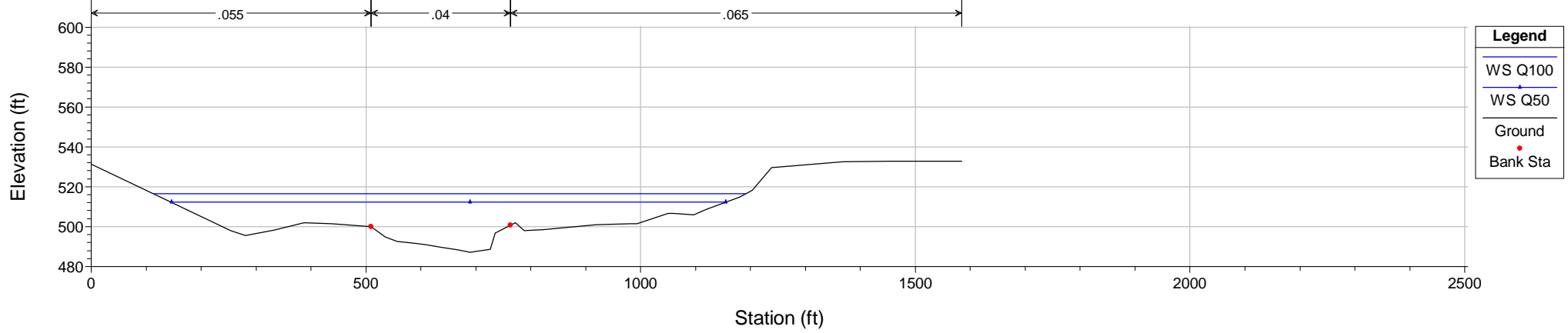
Plan: Existing Salinas Salinas RS: 6938.5 Profile: Q100

E.G. US. (ft)	517.17	Element	Inside BR US	Inside BR DS
W.S. US. (ft)	515.73	E.G. Elev (ft)	517.03	516.80
Q Total (cfs)	189100.00	W.S. Elev (ft)	515.36	515.40
Q Bridge (cfs)	189100.00	Crit W.S. (ft)	508.55	508.03
Q Weir (cfs)		Max Chl Dpth (ft)	27.82	27.86
Weir Sta Lft (ft)		Vel Total (ft/s)	9.78	8.72
Weir Sta Rgt (ft)		Flow Area (sq ft)	19328.45	21693.57
Weir Submerg		Froude # Chl	0.44	0.42
Weir Max Depth (ft)		Specif Force (cu ft)	239217.30	255984.20
Min El Weir Flow (ft)	532.94	Hydr Depth (ft)	17.19	17.20
Min El Prs (ft)	549.40	W.P. Total (ft)	2173.73	1843.47
Delta EG (ft)	0.48	Conv. Total (cfs)	2618150.0	3581788.0
Delta WS (ft)	0.39	Top Width (ft)	1124.47	1261.11
BR Open Area (sq ft)	38306.46	Frctn Loss (ft)	0.09	0.08
BR Open Vel (ft/s)	9.78	C & E Loss (ft)	0.13	0.03
Coef of Q		Shear Total (lb/sq ft)	2.90	2.05
Br Sel Method	Energy only	Power Total (lb/ft s)	0.00	0.00

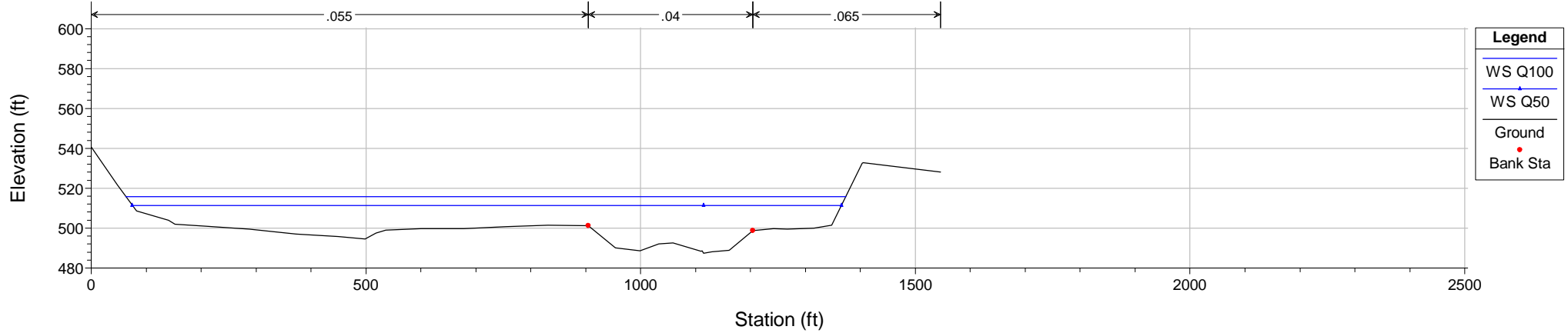
Bradley Plan: Existing 12/29/2015 2:11:21 PM
 River = Salinas Reach = Salinas RS = 9422 A Line



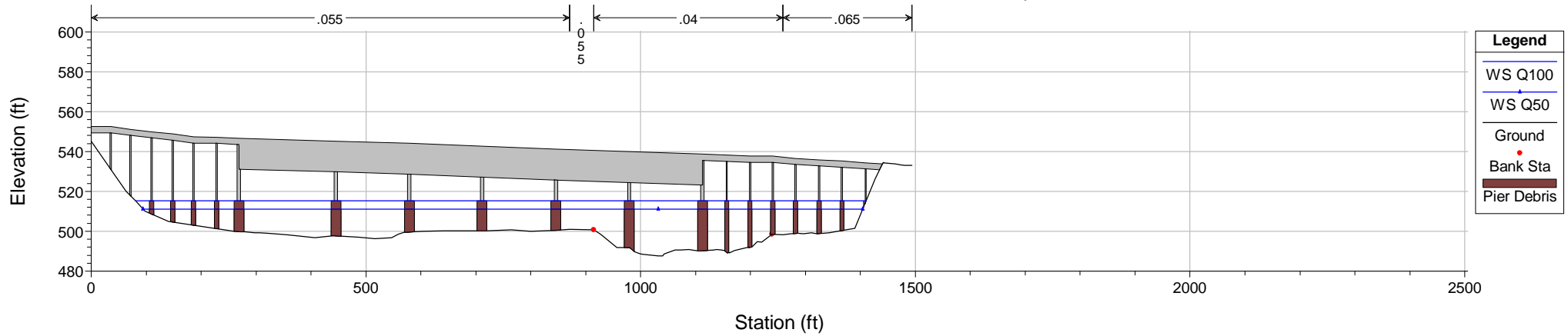
Bradley Plan: Existing 12/29/2015 2:11:21 PM
 River = Salinas Reach = Salinas RS = 7857.03 B Line



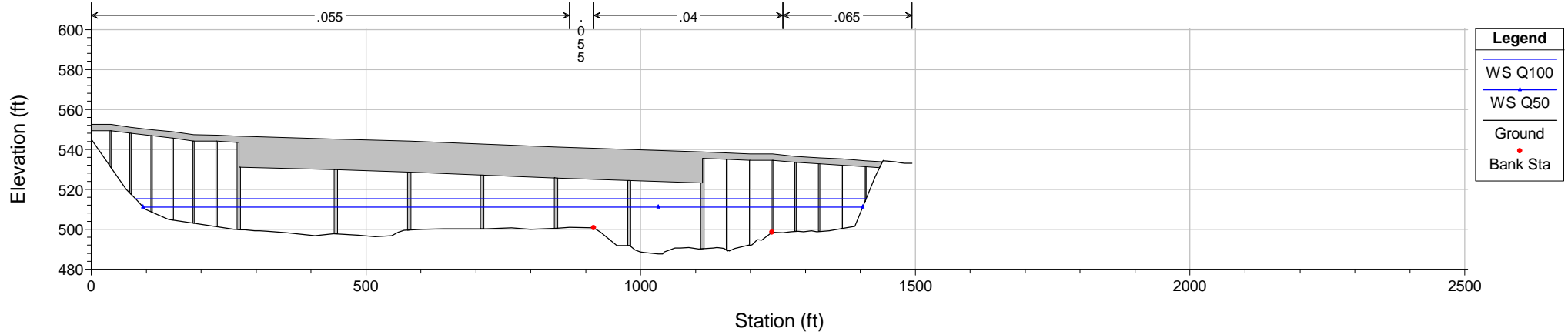
Bradley Plan: Existing 12/29/2015 2:11:21 PM
 River = Salinas Reach = Salinas RS = 7023.09 C Line



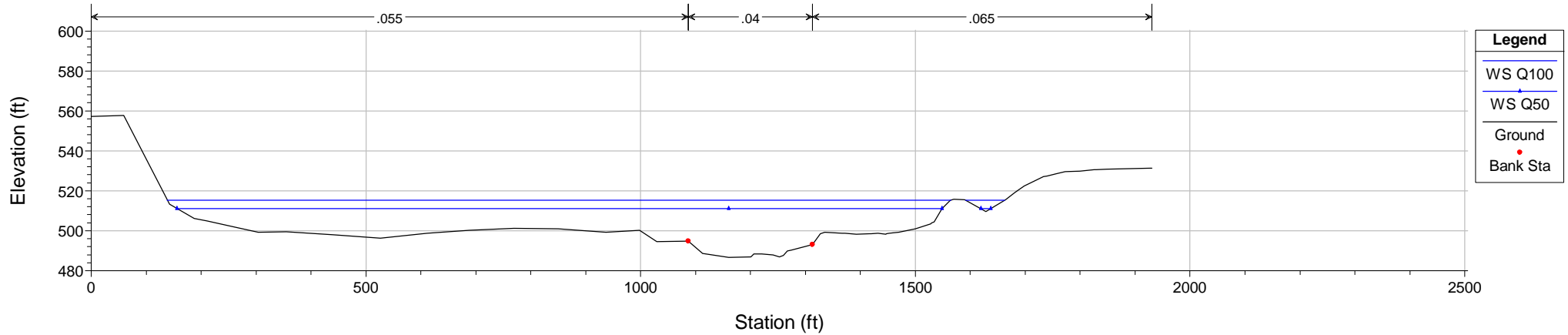
Bradley Plan: Existing 12/29/2015 2:11:21 PM
 River = Salinas Reach = Salinas RS = 6938.5 BR Bradley Road



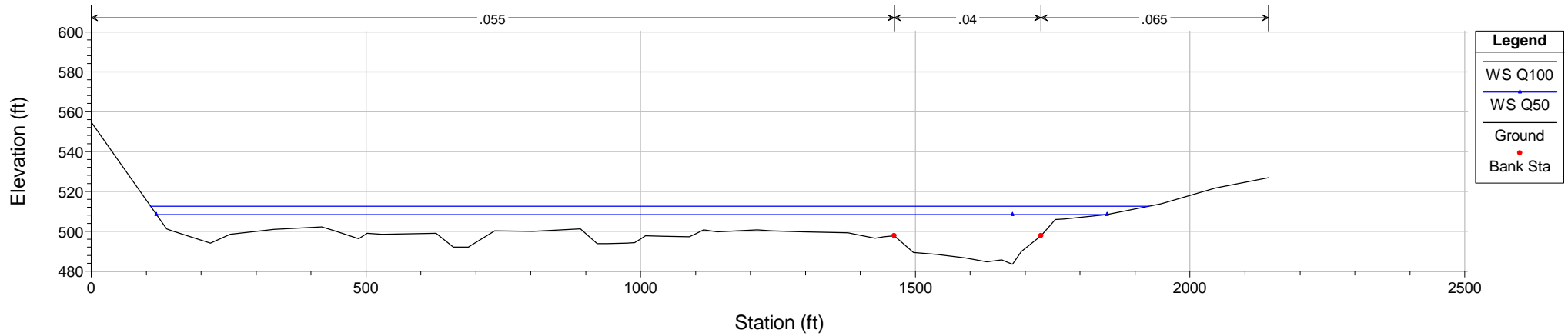
Bradley Plan: Existing 12/29/2015 2:11:21 PM
 River = Salinas Reach = Salinas RS = 6938.5 BR Bradley Road



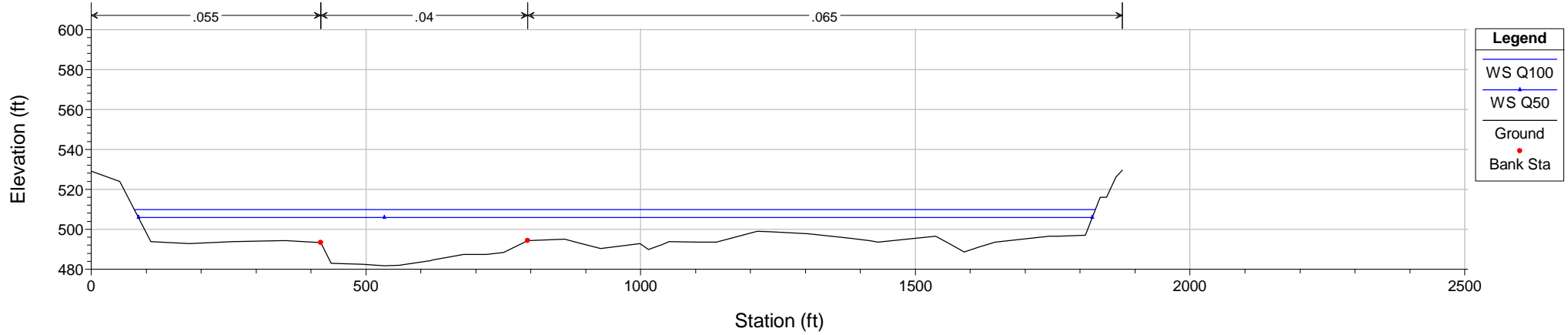
Bradley Plan: Existing 12/29/2015 2:11:21 PM
 River = Salinas Reach = Salinas RS = 6931.25 D Line



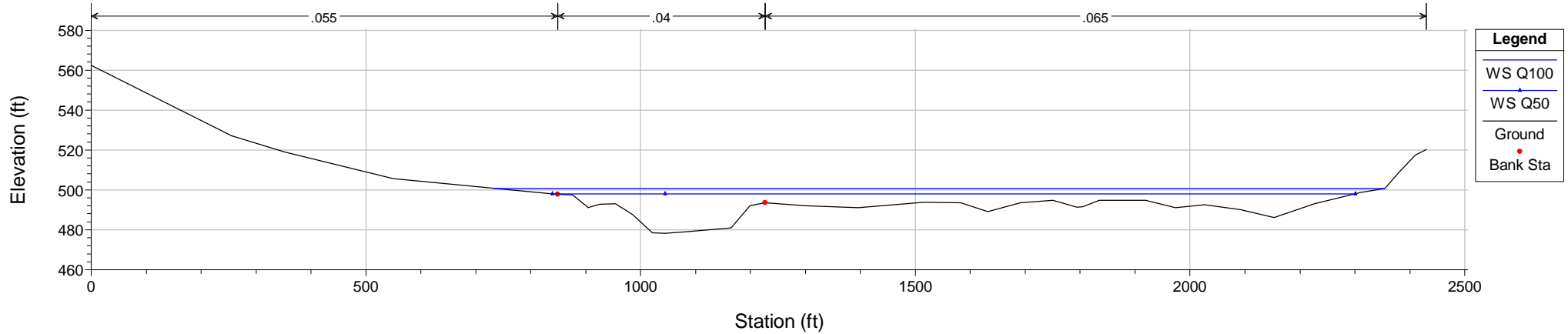
Bradley Plan: Existing 12/29/2015 2:11:21 PM
River = Salinas Reach = Salinas RS = 4927.65 E Line



Bradley Plan: Existing 12/29/2015 2:11:21 PM
River = Salinas Reach = Salinas RS = 2474.61 F Line



Bradley Plan: Existing 12/29/2015 2:11:21 PM
River = Salinas Reach = Salinas RS = 1.06 G Line



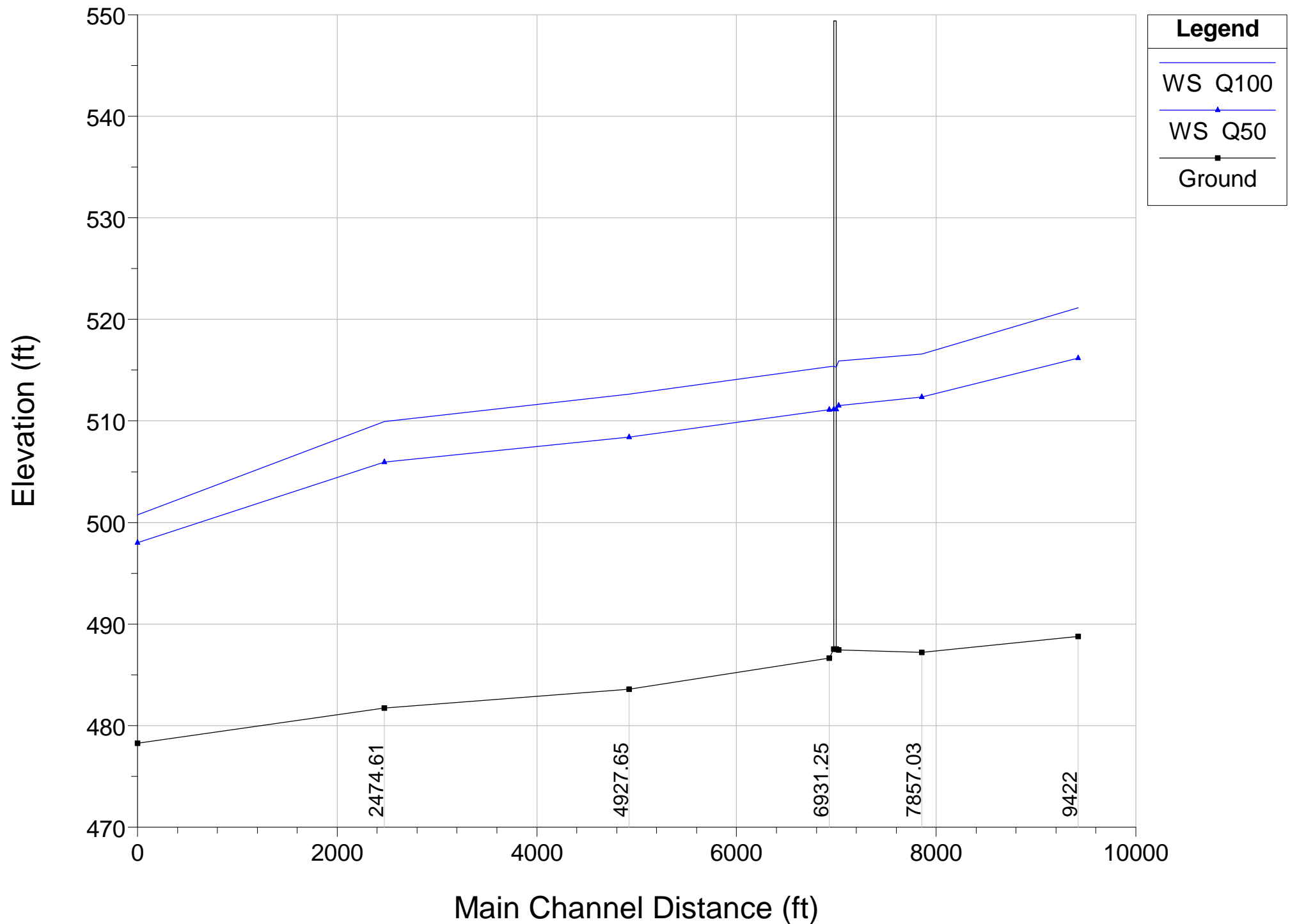
Appendix B HEC-RAS Alternative 1 Bridge

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Bradley

Plan: Alternative 1

12/29/2015 2:12:20 PM

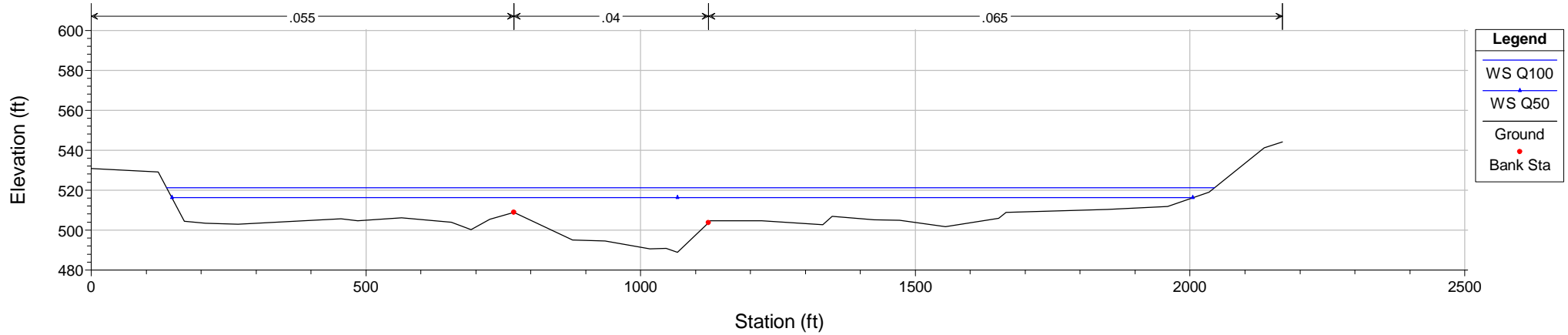


Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Salinas	9422	Q100	189100.00	488.79	521.13		521.95	0.000913	9.56	31900.74	1907.35	0.34
Salinas	9422	Q50	118300.00	488.79	516.17		516.87	0.000986	8.58	22545.84	1858.41	0.34
Salinas	7857.03	Q100	189100.00	487.21	516.60		519.40	0.002863	16.66	17425.89	1079.06	0.59
Salinas	7857.03	Q50	118300.00	487.21	512.35		514.37	0.002539	13.83	12970.77	1010.38	0.54
Salinas	7023.09	Q100	189100.00	487.44	515.90	508.38	517.30	0.001511	12.09	23086.74	1311.12	0.43
Salinas	7023.09	Q50	118300.00	487.44	511.52	505.59	512.55	0.001399	10.20	17386.25	1291.66	0.40
Salinas	6938.5		Bridge									
Salinas	6931.25	Q100	189100.00	486.63	515.34		516.69	0.001465	12.60	24560.19	1496.83	0.43
Salinas	6931.25	Q50	118300.00	486.63	511.10		512.11	0.001330	10.69	18380.64	1410.87	0.40
Salinas	4927.65	Q100	189100.00	483.57	512.65		513.80	0.001435	11.63	26310.45	1817.73	0.42
Salinas	4927.65	Q50	118300.00	483.57	508.41		509.37	0.001483	10.39	18786.94	1730.80	0.41
Salinas	2474.61	Q100	189100.00	481.72	509.93		510.85	0.001007	9.90	30228.32	1749.29	0.35
Salinas	2474.61	Q50	118300.00	481.72	505.94		506.59	0.000864	8.15	23271.59	1736.02	0.32
Salinas	1.06	Q100	189100.00	478.26	500.76	500.76	504.98	0.008729	20.35	14704.05	1621.59	0.95
Salinas	1.06	Q50	118300.00	478.26	498.02	498.02	501.39	0.008621	17.57	10493.66	1461.58	0.91

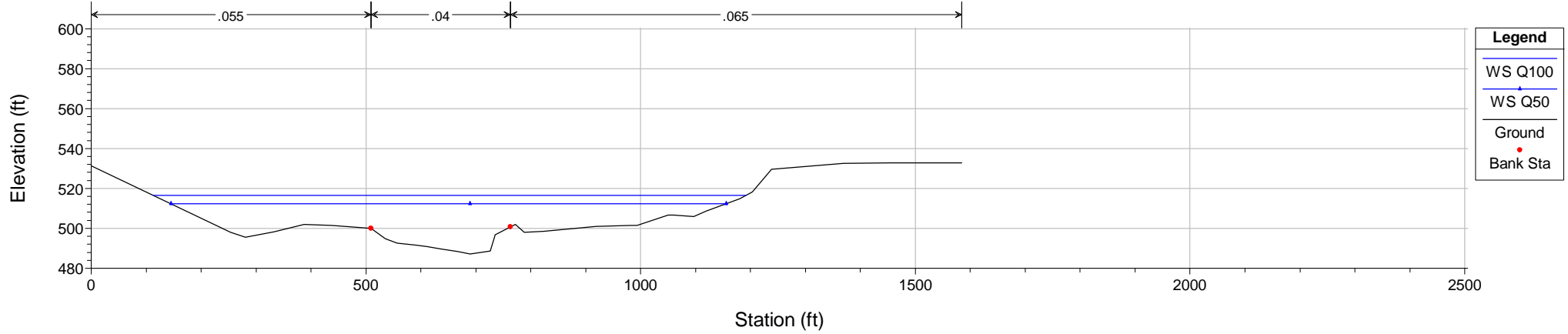
Plan: Alternative 1 Salinas Salinas RS: 6938.5 Profile: Q100

E.G. US. (ft)	517.30	Element	Inside BR US	Inside BR DS
W.S. US. (ft)	515.90	E.G. Elev (ft)	517.11	516.82
Q Total (cfs)	189100.00	W.S. Elev (ft)	515.30	515.38
Q Bridge (cfs)	189100.00	Crit W.S. (ft)	508.86	508.19
Q Weir (cfs)		Max Chl Dpth (ft)	27.76	27.84
Weir Sta Lft (ft)		Vel Total (ft/s)	10.40	8.88
Weir Sta Rgt (ft)		Flow Area (sq ft)	18185.48	21304.20
Weir Submerg		Froude # Chl	0.36	0.32
Weir Max Depth (ft)		Specif Force (cu ft)	227960.10	251890.30
Min El Weir Flow (ft)	532.94	Hydr Depth (ft)	16.85	17.12
Min El Prs (ft)	549.40	W.P. Total (ft)	2148.74	1828.89
Delta EG (ft)	0.62	Conv. Total (cfs)	2336069.0	3471788.0
Delta WS (ft)	0.55	Top Width (ft)	1079.28	1244.05
BR Open Area (sq ft)	36440.85	Frctn Loss (ft)	0.11	0.09
BR Open Vel (ft/s)	10.40	C & E Loss (ft)	0.18	0.05
Coef of Q		Shear Total (lb/sq ft)	3.46	2.16
Br Sel Method	Energy only	Power Total (lb/ft s)	0.00	0.00

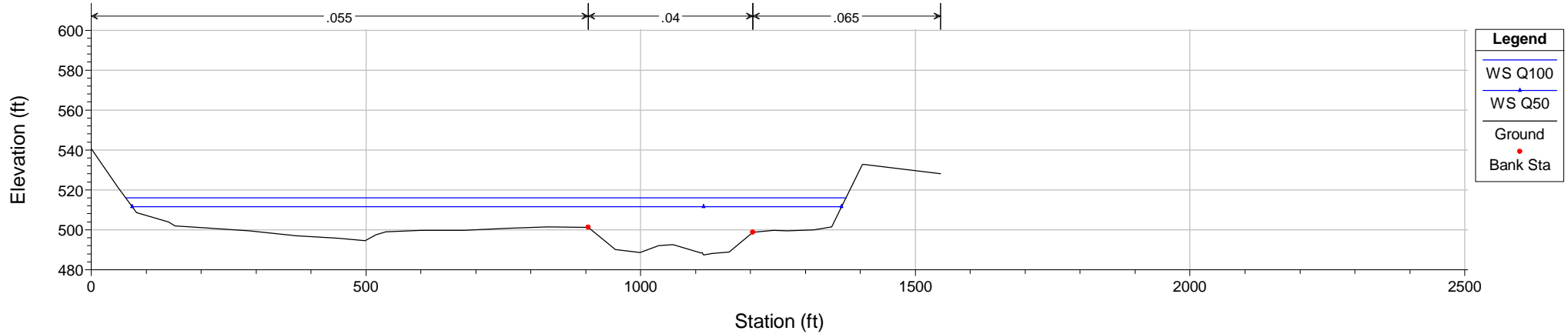
Bradley Plan: Alternative 1 12/29/2015 2:12:20 PM
River = Salinas Reach = Salinas RS = 9422 A Line



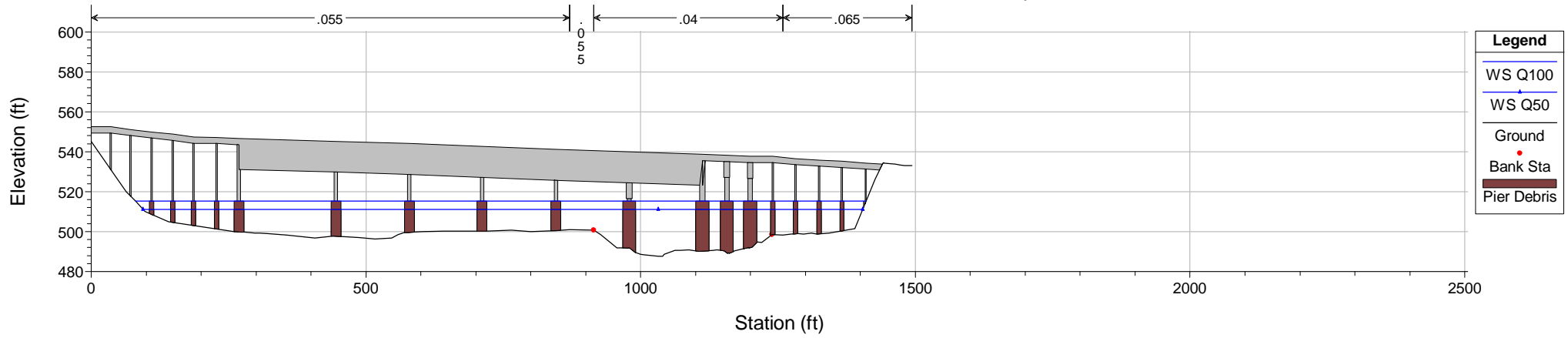
Bradley Plan: Alternative 1 12/29/2015 2:12:20 PM
River = Salinas Reach = Salinas RS = 7857.03 B Line



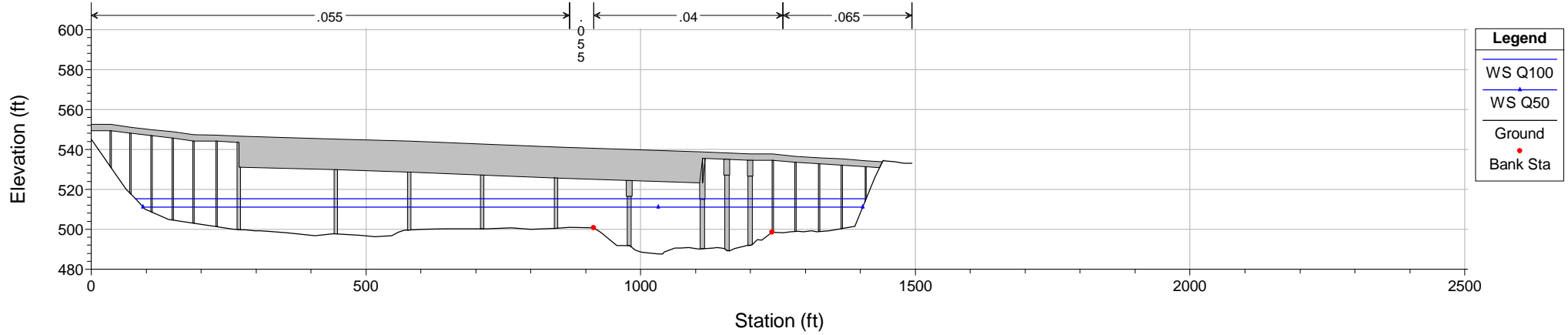
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River = Salinas Reach = Salinas RS = 7023.09 C Line



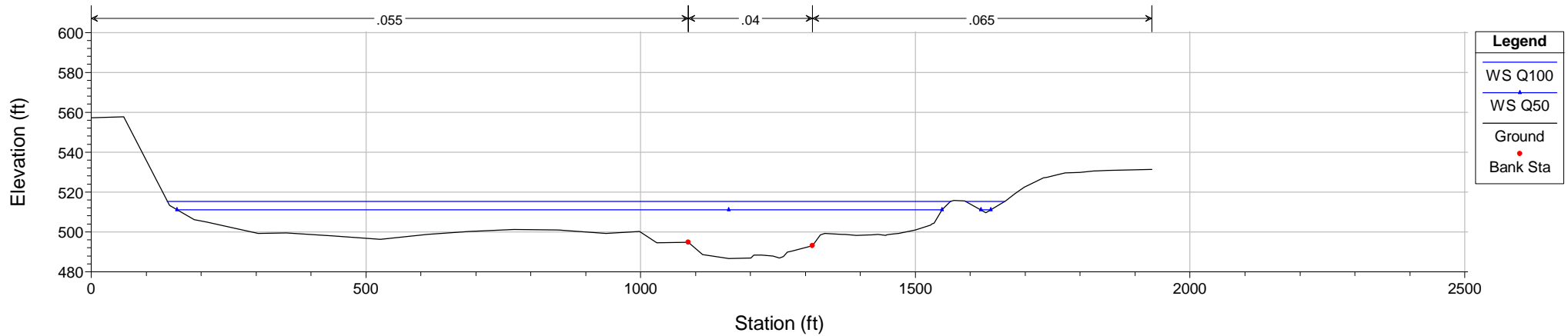
Bradley Plan: Alternative 1 12/29/2015 2:12:20 PM
 River = Salinas Reach = Salinas RS = 6938.5 BR Bradley Road



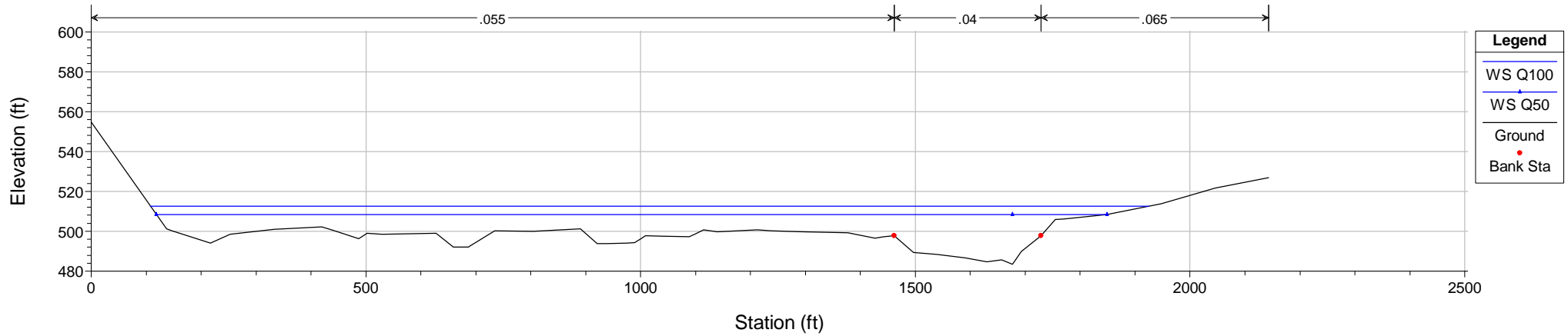
Bradley Plan: Alternative 1 12/29/2015 2:12:20 PM
 River = Salinas Reach = Salinas RS = 6938.5 BR Bradley Road



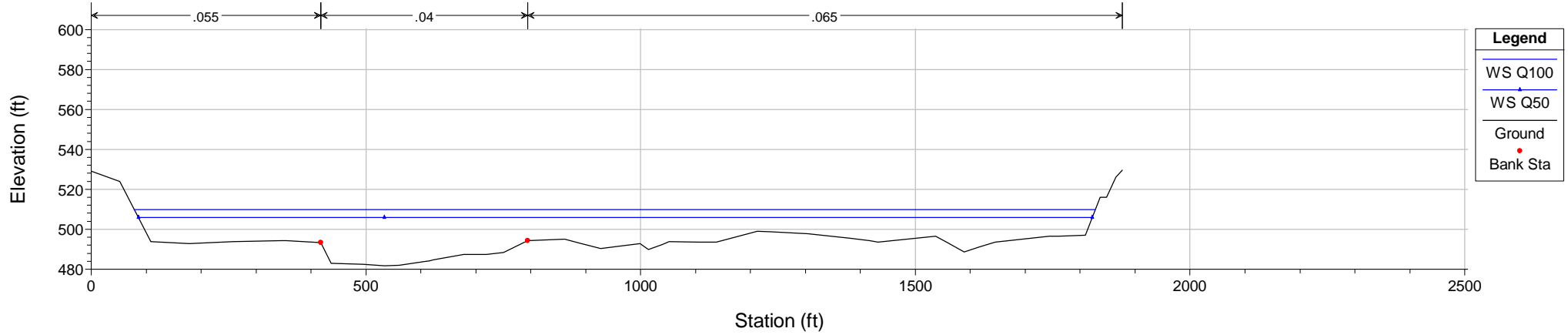
Bradley Plan: Alternative 1 12/29/2015 2:12:20 PM
 River = Salinas Reach = Salinas RS = 6931.25 D Line



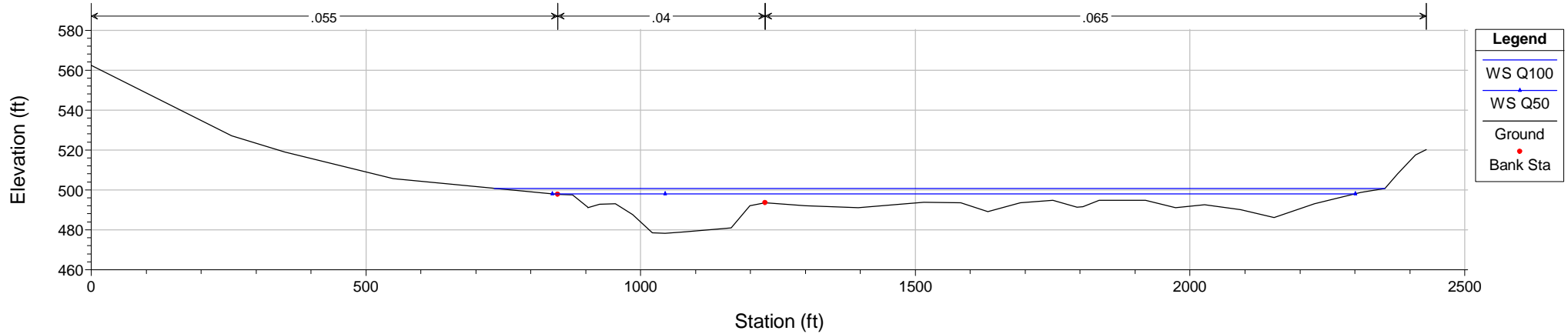
Bradley Plan: Alternative 1 12/29/2015 2:12:20 PM
River = Salinas Reach = Salinas RS = 4927.65 E Line



Bradley Plan: Alternative 1 12/29/2015 2:12:20 PM
River = Salinas Reach = Salinas RS = 2474.61 F Line



Bradley Plan: Alternative 1 12/29/2015 2:12:20 PM
River = Salinas Reach = Salinas RS = 1.06 G Line



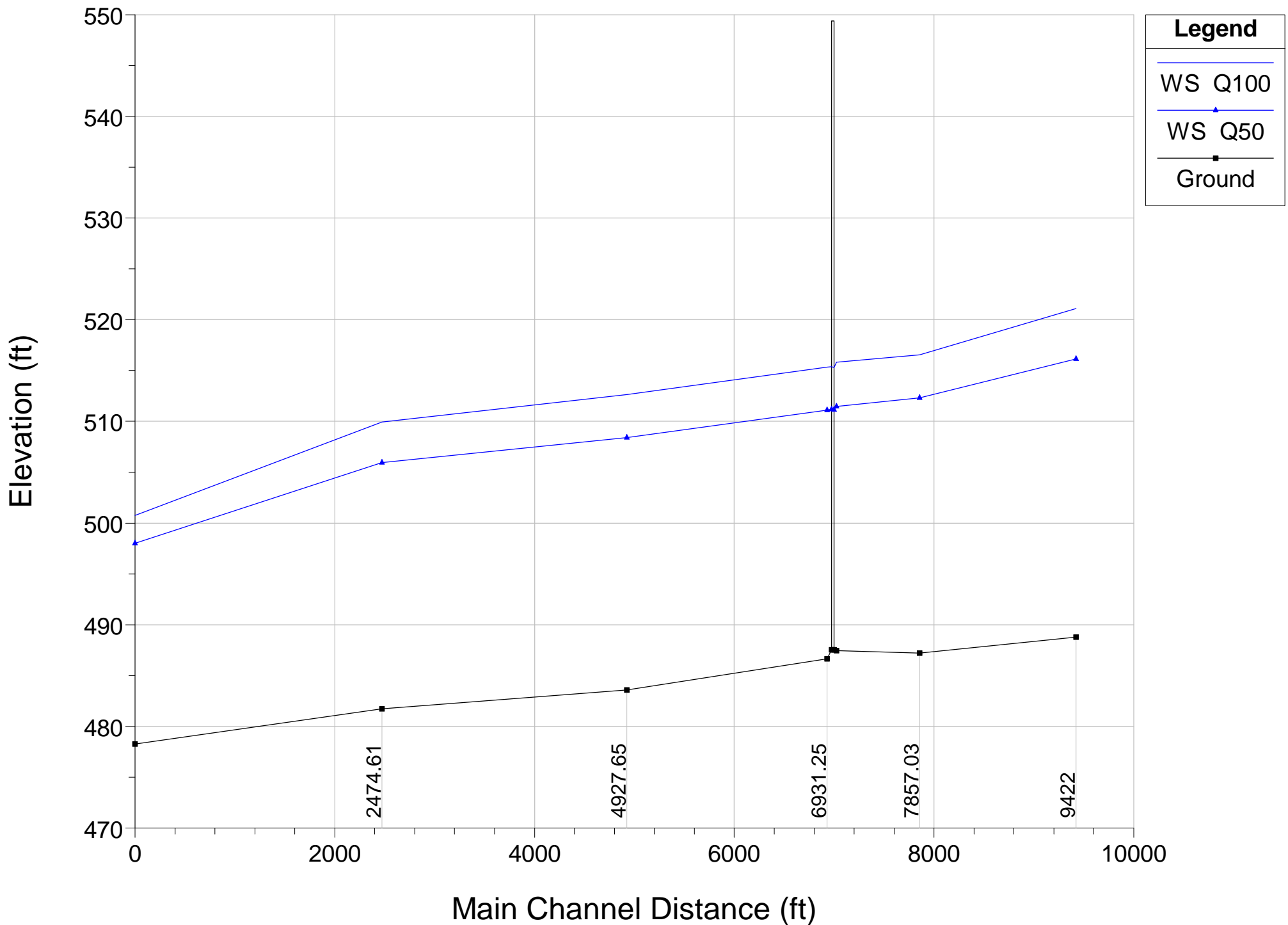
Appendix C HEC-RAS Alternative 2 Bridge

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Bradley

Plan: Alternative 2

12/29/2015 2:14:17 PM

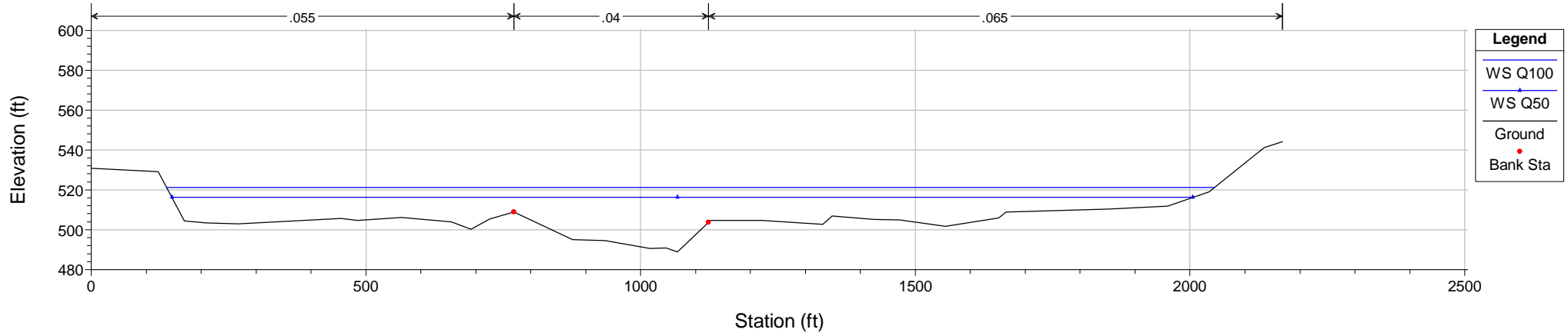


Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Salinas	9422	Q100	189100.00	488.79	521.11		521.94	0.000916	9.57	31864.64	1907.23	0.34
Salinas	9422	Q50	118300.00	488.79	516.16		516.86	0.000990	8.59	22518.96	1858.23	0.34
Salinas	7857.03	Q100	189100.00	487.21	516.56		519.37	0.002887	16.71	17373.88	1078.38	0.59
Salinas	7857.03	Q50	118300.00	487.21	512.31		514.35	0.002560	13.87	12931.01	1009.69	0.54
Salinas	7023.09	Q100	189100.00	487.44	515.84	508.38	517.25	0.001527	12.13	23009.12	1310.85	0.43
Salinas	7023.09	Q50	118300.00	487.44	511.47	505.59	512.50	0.001415	10.24	17319.21	1291.43	0.40
Salinas	6938.5		Bridge									
Salinas	6931.25	Q100	189100.00	486.63	515.34		516.69	0.001465	12.60	24560.19	1496.83	0.43
Salinas	6931.25	Q50	118300.00	486.63	511.10		512.11	0.001330	10.69	18380.60	1410.87	0.40
Salinas	4927.65	Q100	189100.00	483.57	512.65		513.80	0.001435	11.63	26310.45	1817.73	0.42
Salinas	4927.65	Q50	118300.00	483.57	508.41		509.37	0.001483	10.39	18786.88	1730.80	0.41
Salinas	2474.61	Q100	189100.00	481.72	509.93		510.85	0.001007	9.90	30228.32	1749.29	0.35
Salinas	2474.61	Q50	118300.00	481.72	505.94		506.59	0.000864	8.15	23271.53	1736.02	0.32
Salinas	1.06	Q100	189100.00	478.26	500.76	500.76	504.98	0.008729	20.35	14704.05	1621.59	0.95
Salinas	1.06	Q50	118300.00	478.26	498.02	498.02	501.39	0.008621	17.57	10493.66	1461.58	0.91

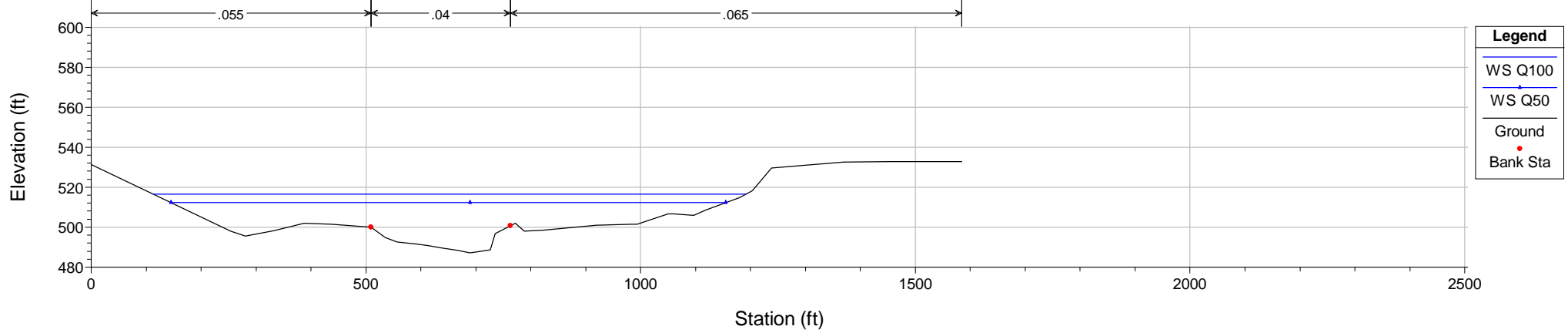
Plan: Alt2 Salinas Salinas RS: 6938.5 Profile: Q100

E.G. US. (ft)	517.25	Element	Inside BR US	Inside BR DS
W.S. US. (ft)	515.84	E.G. Elev (ft)	517.08	516.81
Q Total (cfs)	189100.00	W.S. Elev (ft)	515.30	515.39
Q Bridge (cfs)	189100.00	Crit W.S. (ft)	508.67	508.12
Q Weir (cfs)		Max Chl Dpth (ft)	27.76	27.85
Weir Sta Lft (ft)		Vel Total (ft/s)	9.83	8.79
Weir Sta Rgt (ft)		Flow Area (sq ft)	19227.67	21502.61
Weir Submerg		Froude # Chl	0.47	0.43
Weir Max Depth (ft)		Specif Force (cu ft)	238712.40	252372.70
Min El Weir Flow (ft)	532.94	Hydr Depth (ft)	17.10	17.05
Min El Prs (ft)	549.40	W.P. Total (ft)	2085.50	1842.08
Delta EG (ft)	0.57	Conv. Total (cfs)	2700954.0	3515468.0
Delta WS (ft)	0.49	Top Width (ft)	1124.28	1261.10
BR Open Area (sq ft)	38264.29	Frctn Loss (ft)	0.09	0.09
BR Open Vel (ft/s)	9.83	C & E Loss (ft)	0.18	0.04
Coef of Q		Shear Total (lb/sq ft)	2.82	2.11
Br Sel Method	Energy only	Power Total (lb/ft s)	0.00	0.00

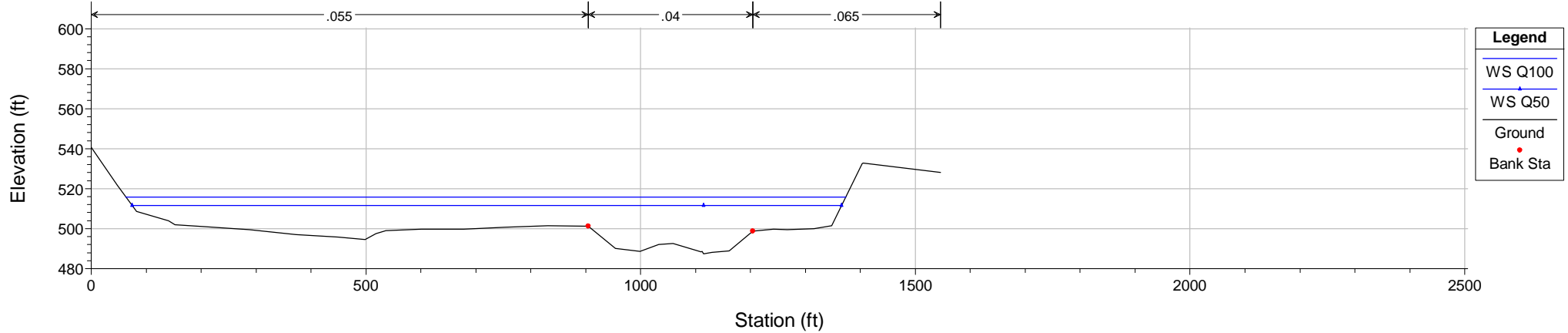
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River = Salinas Reach = Salinas RS = 9422 A Line



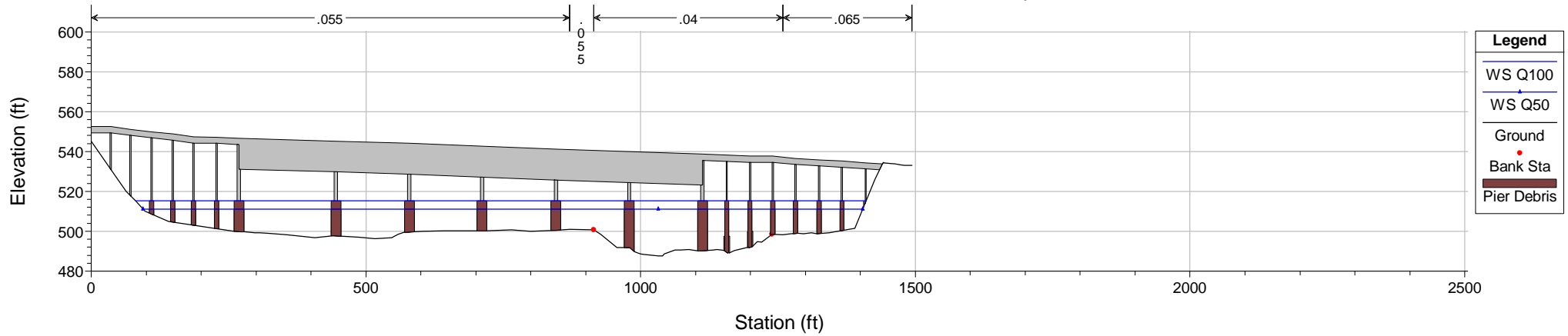
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River = Salinas Reach = Salinas RS = 7857.03 B Line



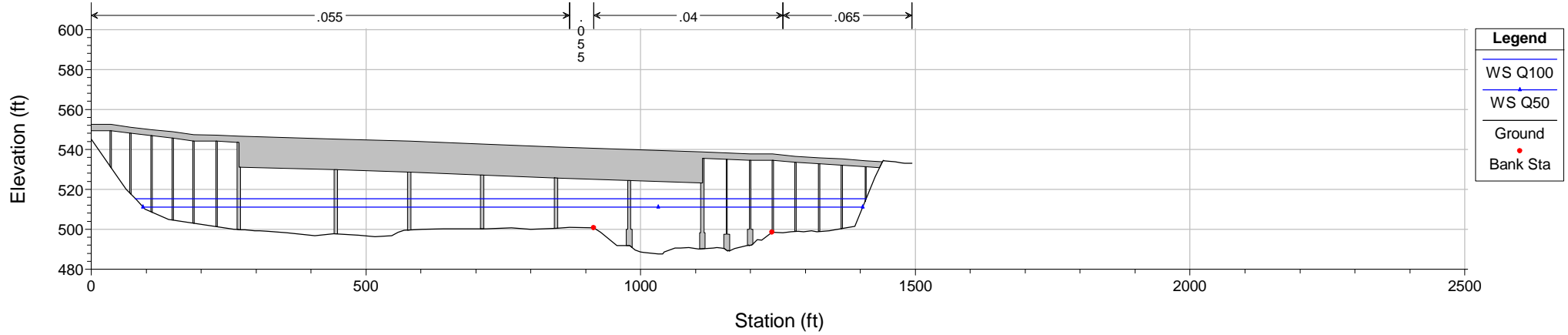
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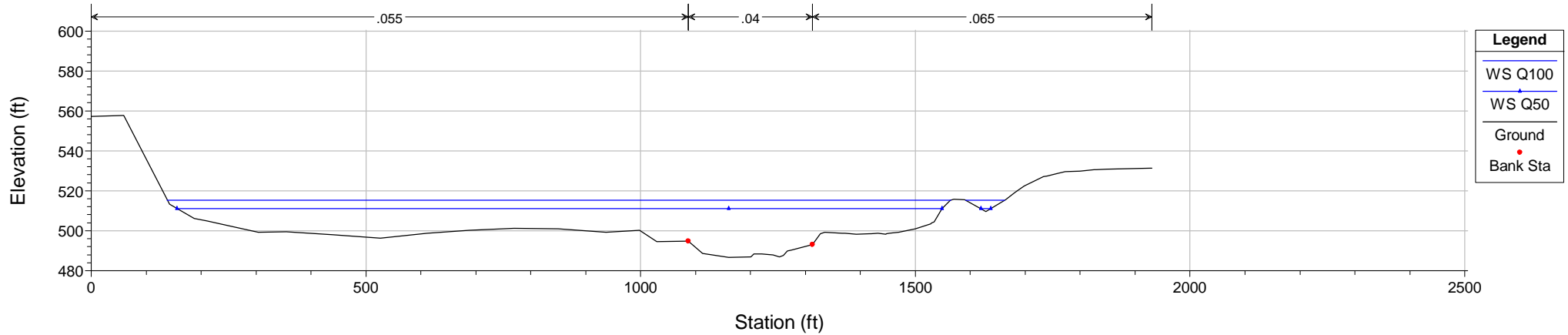
Bradley Plan: Alternative 2 12/29/2015 2:14:17 PM
 River = Salinas Reach = Salinas RS = 6938.5 BR Bradley Road



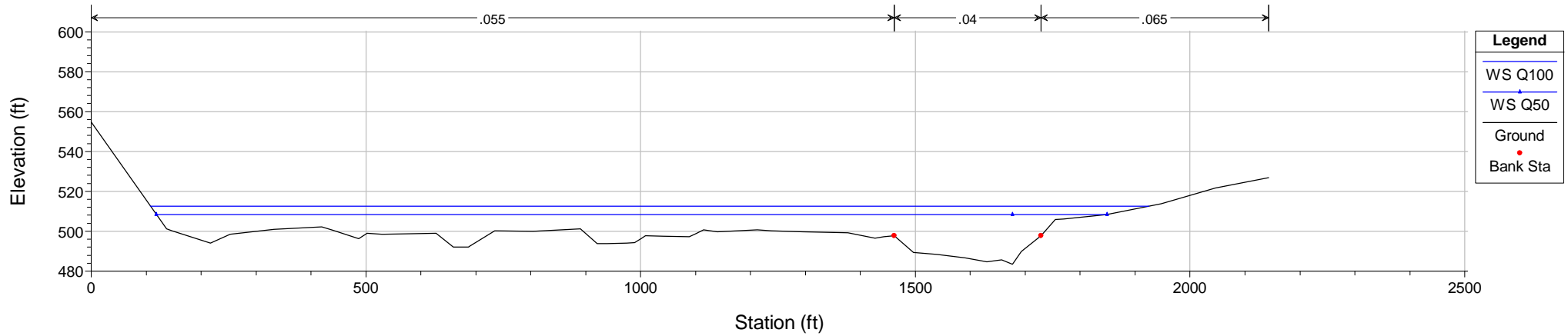
Bradley Plan: Alternative 2 12/29/2015 2:14:17 PM
 River = Salinas Reach = Salinas RS = 6938.5 BR Bradley Road



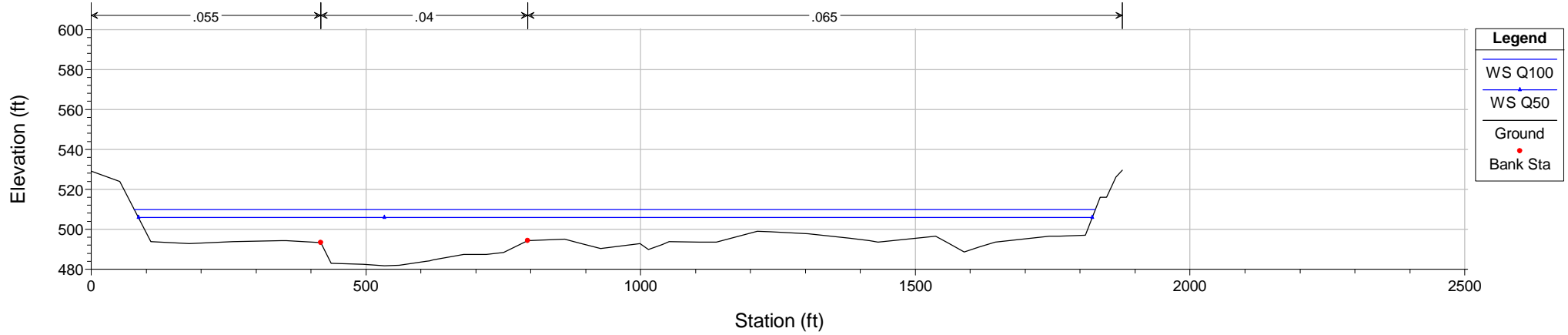
Bradley Plan: Alternative 2 12/29/2015 2:14:17 PM
 River = Salinas Reach = Salinas RS = 6931.25 D Line



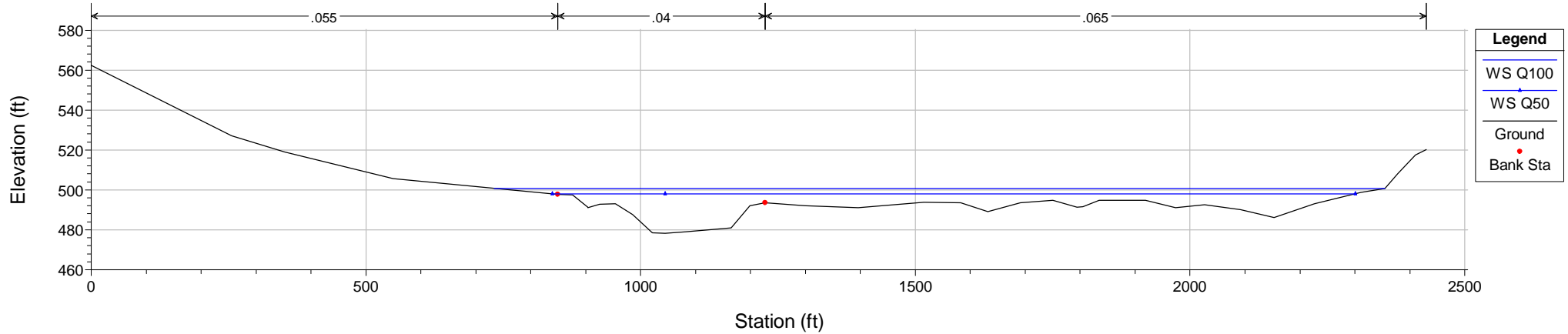
Bradley Plan: Alternative 2 12/29/2015 2:14:17 PM
River = Salinas Reach = Salinas RS = 4927.65 E Line



Bradley Plan: Alternative 2 12/29/2015 2:14:17 PM
River = Salinas Reach = Salinas RS = 2474.61 F Line



Bradley Plan: Alternative 2 12/29/2015 2:14:17 PM
River = Salinas Reach = Salinas RS = 1.06 G Line



Appendix D USGS Aerial Imagery Metadata

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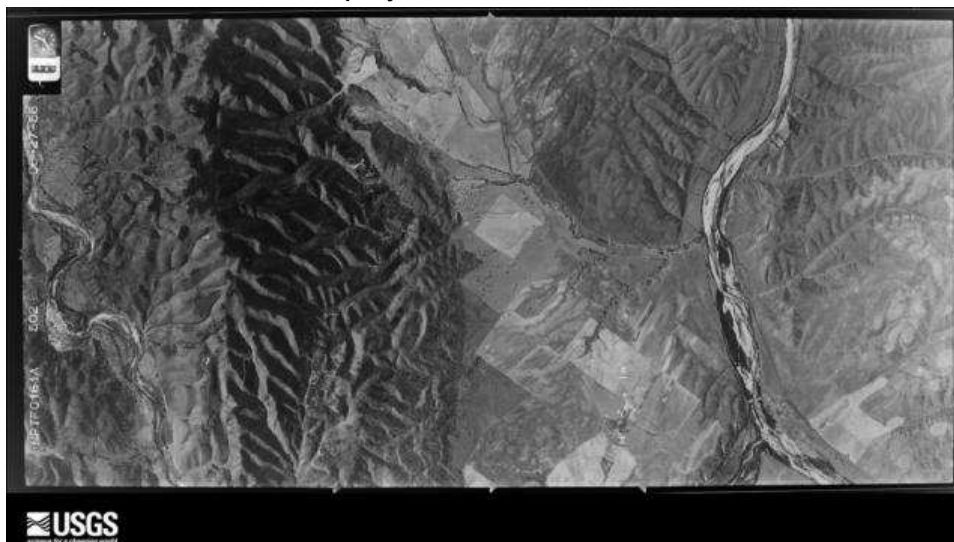
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Full Display of ARMPTF1610A0502



Standard Browse

[Rotate 90° Left](#)

[Rotate 90° Right](#)

Data Set Attribute	Attribute Value
Entity ID	ARMPTF1610A0502
Agency	M
Vendor ID	
Recording Technique	2
Project	PTF161
Event	
Roll	00000A
Frame	502
Acquisition Date	1956/06/27
Scale	34000
Strip Number	0000
Image Type	24
Quality	8
Cloud Cover	0
Photo ID	MPTF1610A0502
Flying Height in Feet	68000
Film Length and Width	457mm x 229mm
Focal Length	608 mm
Stereo Overlap	5
Other	
Center Latitude	35°51'15.57"N
Center Longitude	120°50'36.67"W
NW Corner Lat	35°55'38.01"N
NW Corner Long	120°48'04.28"W

Data Set Attribute	Attribute Value
NE Corner lat	35°52'38.19"N
NE Corner Long	120°45'10.19"W
SE Corner Lat	35°46'53.19"N
SE Corner Long	120°53'09.02"W
SW Corner Lat	35°49'53.01"N
SW Corner Long	120°56'02.90"W
Center Latitude dec	35.854324
Center Longitude dec	-120.84352
NW Corner Lat dec	35.927224
NW Corner Long dec	-120.80119
NE Corner Lat dec	35.877274
NE Corner Long dec	-120.75283
SE Corner Lat dec	35.781441
SE Corner Long dec	-120.88584
SW Corner Lat dec	35.831391
SW Corner Long dec	-120.93414

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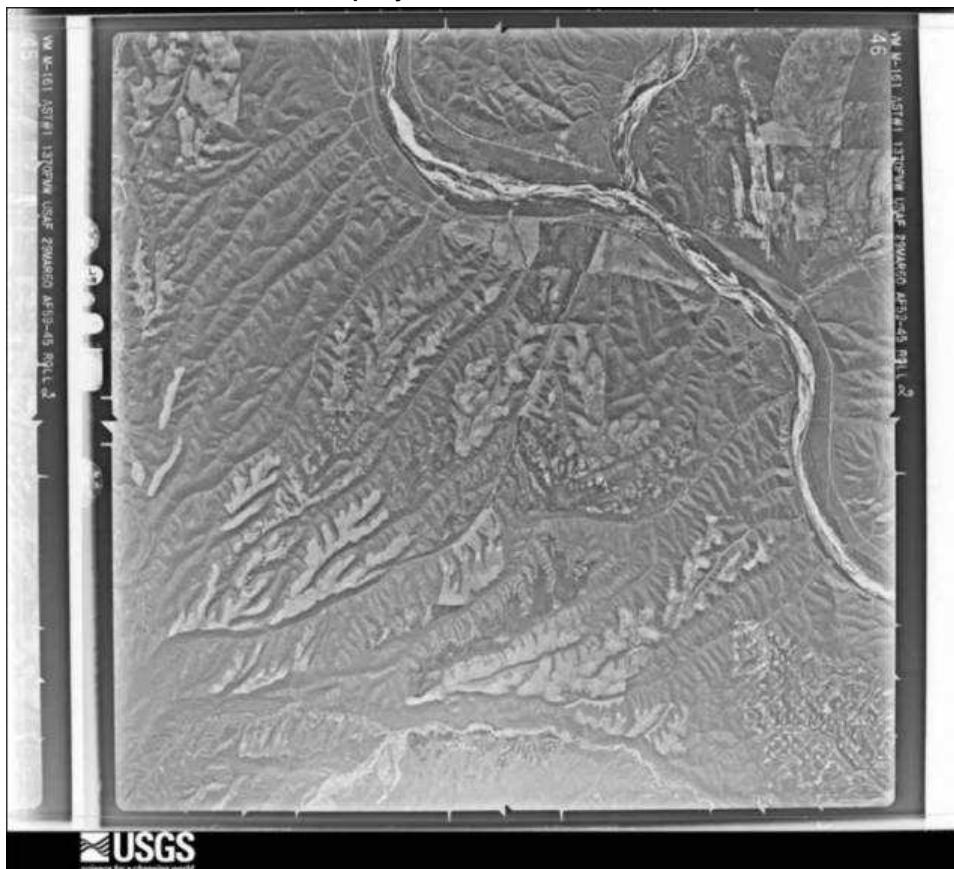
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Full Display of ARB590450020046



Standard Browse

[Rotate 90° Left](#)

[Rotate 90° Right](#)

Data Set Attribute	Attribute Value
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Agency	B
Vendor ID	
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Project	59045
Event	
Roll	000002
Frame	46
Acquisition Date	1960/04/02
Scale	61600
Strip Number	0000
Image Type	24
Quality	8
Cloud Cover	0
Photo ID	B590450020046
Flying Height in Feet	29923

Data Set Attribute	Attribute Value
Film Length and Width	229mm x 229mm
Focal Length	153.16 mm
Stereo Overlap	6
Other	
Center Latitude	35°54'18.39"N
Center Longitude	120°46'38.42"W
NW Corner Lat	35°57'58.27"N
NW Corner Long	120°51'13.87"W
NE Corner lat	35°58'02.22"N
NE Corner Long	120°42'07.84"W
SE Corner Lat	35°50'38.35"N
SE Corner Long	120°42'03.39"W
SW Corner Lat	35°50'34.36"N
SW Corner Long	120°51'08.58"W
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NW Corner Lat dec	35.966186
NW Corner Long dec	-120.853854
NE Corner Lat dec	35.967284
NE Corner Long dec	-120.702179
SE Corner Lat dec	35.843985
SE Corner Long dec	-120.700942
SW Corner Lat dec	35.842879
SW Corner Long dec	-120.852382

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Full Display of ARB680090040374



Standard Browse

[Rotate 90° Left](#)

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Data Set Attribute	Attribute Value
Entity ID	ARB680090040374
Agency	B
Vendor ID	
Recording Technique	2
Project	68009
Event	
Roll	000004
Frame	374
Acquisition Date	1967/08/31
Scale	25000
Strip Number	0000
Image Type	24
Quality	8
Cloud Cover	0
Photo ID	B680090040374
Flying Height in Feet	25000

Data Set Attribute	Attribute Value
Film Length and Width	229mm x 229mm
Focal Length	0 mm
Stereo Overlap	8
Other	
Center Latitude	35°51'08.09"N
Center Longitude	120°47'13.36"W
NW Corner Lat	35°52'51.90"N
NW Corner Long	120°49'17.00"W
NE Corner lat	35°52'50.71"N
NE Corner Long	120°45'07.99"W
SE Corner Lat	35°49'24.51"N
SE Corner Long	120°45'10.01"W
SW Corner Lat	35°49'25.25"N
SW Corner Long	120°49'18.98"W
Center Latitude dec	35.852246
Center Longitude dec	-120.787044
NW Corner Lat dec	35.881084
NW Corner Long dec	-120.82139
NE Corner Lat dec	35.880753
NE Corner Long dec	-120.75222
SE Corner Lat dec	35.823476
SE Corner Long dec	-120.75278
SW Corner Lat dec	35.82368
SW Corner Long dec	-120.82194

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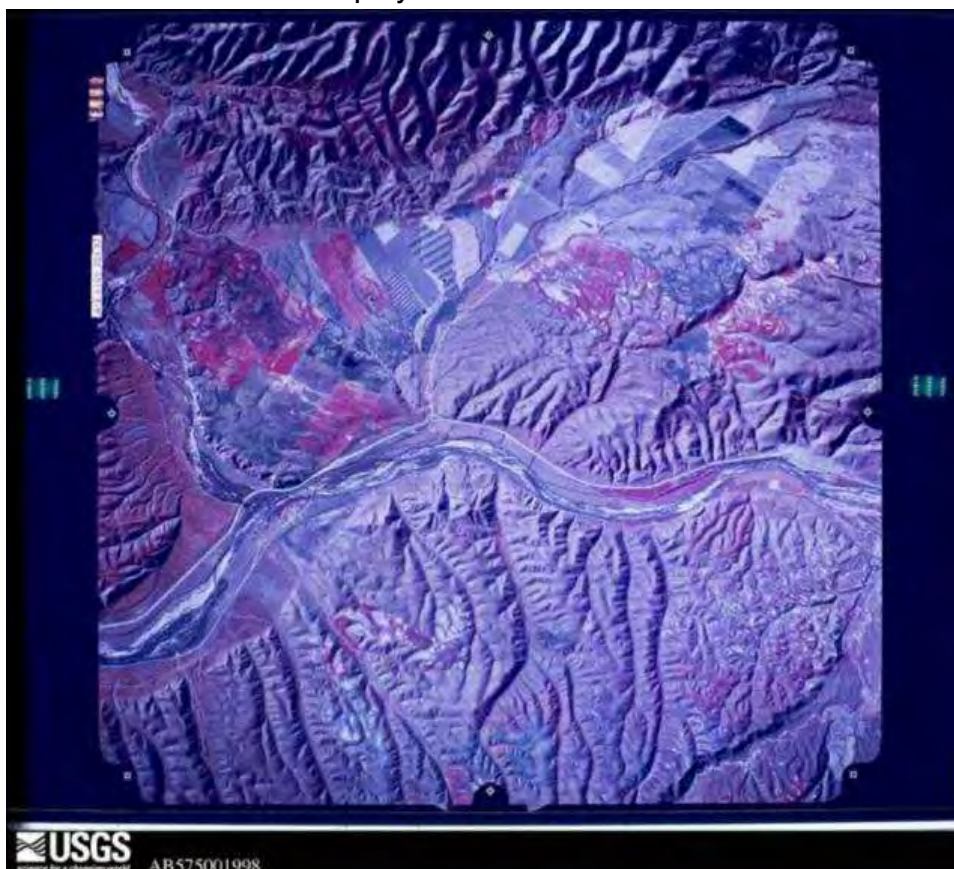
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Full Display of AR5750019982742



Standard Browse

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Data Set Attribute	Attribute Value
Entity ID	AR5750019982742
Agency	5
Vendor ID	
Recording Technique	2
Project	75000
Event	
Roll	001998
Frame	2742
Acquisition Date	1975/01/24
Scale	63000
Strip Number	0000
Image Type	13
Quality	8
Cloud Cover	0
Photo ID	5750019982742
Flying Height in Feet	65003

Data Set Attribute	Attribute Value
Film Length and Width	229mm x 229mm
Focal Length	305 mm
Stereo Overlap	6
Other	
Center Latitude	35°52'47.72"N
Center Longitude	120°50'19.55"W
NW Corner Lat	35°53'46.29"N
NW Corner Long	120°56'24.11"W
NE Corner lat	35°57'58.29"N
NE Corner Long	120°49'06.71"W
SE Corner Lat	35°51'49.72"N
SE Corner Long	120°44'18.53"W
SW Corner Lat	35°47'37.72"N
SW Corner Long	120°51'32.26"W
Center Latitude dec	35.879923
Center Longitude dec	-120.838764
NW Corner Lat dec	35.896192
NW Corner Long dec	-120.94003
NE Corner Lat dec	35.966192
NE Corner Long dec	-120.81853
SE Corner Lat dec	35.863811
SE Corner Long dec	-120.73848
SW Corner Lat dec	35.793811
SW Corner Long dec	-120.85896

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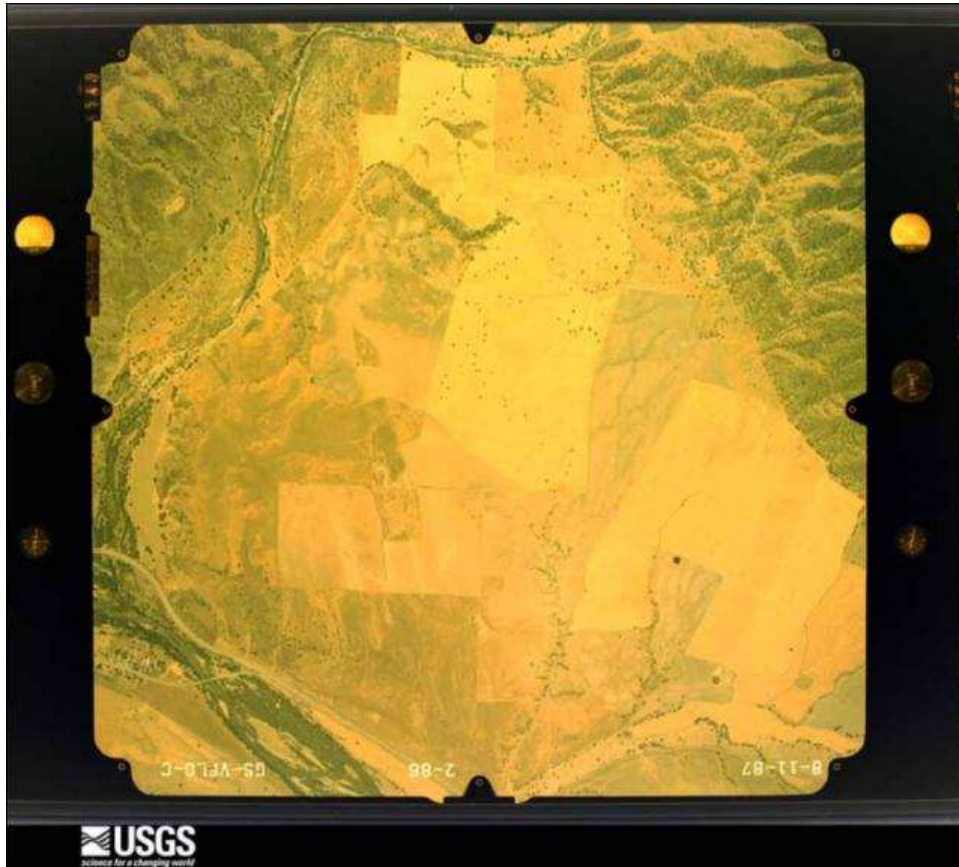
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Full Display of AR1VFLOC0020086



Standard Browse

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Data Set Attribute	Attribute Value
Entity ID	AR1VFLOC0020086
Agency	1
Vendor ID	
Recording Technique	1
Project	VFLOC
Event	
Roll	000002
Frame	86
Acquisition Date	1988/05/12
Scale	24000
Strip Number	0000
Image Type	14
Quality	8
Cloud Cover	0
Photo ID	1VFLOC0020086
Flying Height in Feet	12000

Data Set Attribute	Attribute Value
Film Length and Width	229mm x 229mm
Focal Length	152.67 mm
Stereo Overlap	6
Other	
Center Latitude	35°50'53.58"N
Center Longitude	120°49'51.34"W
NW Corner Lat	35°52'21.27"N
NW Corner Long	120°51'41.69"W
NE Corner lat	35°52'23.42"N
NE Corner Long	120°48'03.63"W
SE Corner Lat	35°49'25.95"N
SE Corner Long	120°48'01.06"W
SW Corner Lat	35°49'23.79"N
SW Corner Long	120°51'38.98"W
Center Latitude dec	35.848217
Center Longitude dec	-120.830927
NW Corner Lat dec	35.872576
NW Corner Long dec	-120.86158
NE Corner Lat dec	35.873172
NE Corner Long dec	-120.801009
SE Corner Lat dec	35.823874
SE Corner Long dec	-120.800294
SW Corner Lat dec	35.823276
SW Corner Long dec	-120.860827

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Appendix E Scour Calculations Alternative 1 Bridge

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Contraction Scour

100-year Flow

Calculation guideline from HEC-18 5th Edition

Input from HEC-RAS for Alternative 1 Bridge

Units = (SI or English)

Ku = constant = 6.19 (SI) or 11.17 (English)

g = acceleration due to gravity =

English

11.17

32.2 ft/s²

Channel

Vchannel = Mean velocity of flow in main channel just upstream of bridge =

12.1 ft/s

D50channel = grain size in channel for which 50% of bed material is finer =

0.0034 ft

Ychannel = existing depth in the contracted channel section before scour =

23.7 ft

Ychannel = depth of flow just upstream of bridge in channel =

24.5 ft

VcD50channel = $K_u \cdot (Y_{channel})^{(1/6)} \cdot (D50_{channel})^{(1/3)}$

2.9 ft/s

Contraction scour equation for channel =

Live Bed Equation

Live Bed Equation

Q1 channel = Flow in the upstream channel transporting sediment =

189,100 ft³/s

Q2 channel = Flow in the contracted channel = transporting sediment =

189,100 ft³/s

W1 channel = top width of the upstream channel that is transporting bed material =

1,311 ft

W2 channel = top width of the contracted channel section less pier widths =

1,265 ft

ω channel = fall velocity of bed material based on D50 =

0.49 ft/s

S channel = slope of energy grade line in main channel =

0.002 ft/ft

V* channel = shear velocity in the upstream channel section = $(Y_{channel} \cdot g \cdot S_{channel})^{.5}$ =

1.1 ft/s

V* channel / ω channel =

2.2

k1 channel = (if $V^*/\omega < 0.5$, 0.59, if $(0.5 \leq V^*/\omega \leq 2)$, 0.64, 0.69) =

0.69

Y2channel = average depth in contracted section after scour =

$Y_{channel} \cdot ((Q2_{channel}/Q1_{channel})^{(6/7)}) \cdot ((W1_{channel}/W2_{channel})^{k1_{channel}})$ =

25.1 ft

Ys channel = Y2 channel - Yo channel =

1.4 ft

Local Scour at Piers - Cohesionless

100-year Flow

Calculation guideline from HEC-18 5th Edition

Input from HEC-RAS for Alternative 1 Bridge

Units = (SI or English) =

English	English
---------	---------

Pier Scour component

RAS Pier No.

Current Pier No.

As-Built Pier No.

Water Surface Elevation

Ground Elevation at Pier

Contraction Scour Depth

a = pier width =

y₁ = Approach flow depth at the beginning of computations =

V₁ = Approach velocity used at the beginning of

12	13
16	17
10	9
515.3	515.3 ft
489.6	490.2 ft
1.4	1.4 ft
8.0	8.0 ft
25.7	25.1 ft
12.6	13.1 ft/s

K_{hpier} = coefficient to account for the height of the pier stem above the bed and the shielding effect by the pile cap overhang distance "f" in front of the pier stem

Θ = angle of attack of flow =

Pier shape

K₁ = correction factor for pier nose shape =

L = length of pier =

L/a (if L/a is larger than 12, then use 12 as a maximum)

K₂ = correction factor for angle of attack =

(cosΘ + (L/a) * sinΘ)^{0.65}

K₃ = correction factor for bed condition =

g = acceleration due to gravity =

1.00	1.00
0	0 degrees
Round nose	Round nose
1.0	1.0
43.5	43.5 ft
5.4375	5.4375
1.0	1.0
1.1	1.1
32.2	32.2 ft/s ²

Y_{spier} = scour component for the pier stem in the flow =

y₁ * (K_{hpier} * (2 * K₁ * K₂ * K₃ * ((a/y₁)^{0.65}) * ((V₁/((g * y₁)^{0.5}))^{0.43})) =

18.6 18.8 ft

Local Scour at Piers - Cohesive

100-year Flow

Calculation guideline from HEC-18 5th Edition

Input from HEC-RAS for Alternative 1 Bridge

Equation 7.35:

$$y_s = 2.2K_1K_2a^{0.65}\left(\frac{2.6V_1 - V_c}{\sqrt{g}}\right)^{0.7}$$

Variable	Value			Description
Pier No. (Plan)	18	19		Pier numbering based on Planning Study
Pier No. (HEC-RAS)	14	15		Pier numbering based on HEC-RAS
L	43.5	43.5	ft	Pier length
a	8	8	ft	Pier width
L/a	5.4	5.4		If L/a is larger than 12, then use 12 as a maximum
Θ	0	0	degrees	Angle of attack of flow
	Round nose	Round nose		Pier shape
K1	1	1		Correction factor for pier shape
K2	1.0	1.0		Correction factor for angle of attack
V1	13.1	11.1	ft/s	Approach velocity
Vc	0.1	0.1	m/s	From Figure 4.7:
Vc	0.3	0.3	ft/s	using an erosion rate of 0.1 mm/hr
g	32.2	32.2	ft/s^2	and based on silty sand (SM)
ys	29.6	26.3	ft	Pier Scour

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Appendix F Scour Calculations Alternative 2 Bridge

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Contraction Scour

100-year Flow

Calculation guideline from HEC-18 5th Edition

Input from HEC-RAS for Alternative 2 Bridge

Units = (SI or English)

K_u = constant = 6.19 (SI) or 11.17 (English)

g = acceleration due to gravity =

English
11.17
32.2 ft/s ²

Channel

$V_{channel}$ = Mean velocity of flow in main channel just upstream of bridge =

$D50_{channel}$ = grain size in channel for which 50% of bed material is finer =

$Y_{channel}$ = existing depth in the contracted channel section before scour =

$Y_{channel}$ = depth of flow just upstream of bridge in channel =

$V_c D50_{channel} = K_u (Y_{channel}^{1/6}) (D50_{channel}^{1/3})$

Contraction scour equation for channel =

12.1	ft/s
0.0034	ft
23.6	ft
24.4	ft
2.9	ft/s

Live Bed Equation

Live Bed Equation

Q_1 channel = Flow in the upstream channel transporting sediment =

Q_2 channel = Flow in the contracted channel = transporting sediment =

W_1 channel = top width of the upstream channel that is transporting bed material =

W_2 channel = top width of the contracted channel section less pier widths =

ω channel = fall velocity of bed material based on $D50$ =

S channel = slope of energy grade line in main channel =

V^* channel = shear velocity in the upstream channel section = $(Y_{channel} * g * S_{channel})^{.5}$ =

V^* channel / ω channel =

k_1 channel = (if $V^*/\omega < 0.5$, 0.59, if $(0.5 \leq V^*/\omega \leq 2)$, 0.64, 0.69) =

Y_2 channel = average depth in contracted section after scour =

$Y_{channel} * ((Q_2 \text{ channel} / Q_1 \text{ channel})^{(6/7)}) * ((W_1 \text{ channel} / W_2 \text{ channel})^{k_1 \text{ channel}})$ =

$Y_s \text{ channel} = Y_2 \text{ channel} - Y_o \text{ channel} =$

189,100	ft ³ /s
189,100	ft ³ /s
1,311	ft
1,258	ft
0.49	ft/s
0.002	ft/ft

1.1 ft/s

2.2

0.69

25.1 ft

1.5 ft

Local Scour at Piers - Cohesionless

100-year Flow

Calculation guideline from HEC-18 5th Edition

Input from HEC-RAS for Alternative 2 Bridge

Units = (SI or English) =

English	English
---------	---------

Pier Scour component

RAS Pier No.

Current Pier No.

As-Built Pier No.

Water Surface Elevation

Ground Elevation at Pier

Contraction Scour Depth

a = pier width =

y1 = Approach flow depth at the beginning of computations =

V1 = Approach velocity used at the beginning of

12	13
16	17
10	9
515.3	515.3 ft
489.6	490.2 ft
1.5	1.5 ft
6.0	6.0 ft
25.7	25.1 ft
12.7	13.2 ft/s

Kh_{pier} = coefficient to account for the height of the pier stem above the bed and the shielding effect by the pile cap overhang distance "f" in front of the pier stem

Θ = angle of attack of flow =

Pier shape

K1 = correction factor for pier nose shape =

L = length of pier =

L/a (if L/a is larger than 12, then use 12 as a maximum)

K2 = correction factor for angle of attack =

$(\cos\Theta + (L/a) \cdot \sin\Theta)^{0.65}$

K3 = correction factor for bed condition =

g = acceleration due to gravity =

1.00	1.00
0	0 degrees
Round nose	Round nose
1.0	1.0
6.0	6.0 ft
1	1
1.0	1.0
1.1	1.1
32.2	32.2 ft/s^2

Y_{pier} = scour component for the pier stem in the flow =

$y1 \cdot (Kh_{pier} \cdot (2 \cdot K1 \cdot K2 \cdot K3 \cdot ((a/y1)^{0.65}) \cdot ((V1/((g \cdot y1)^{0.5}))^{0.43})) =$

15.5 15.7 ft

Local Scour at Piers - Cohesive

100-year Flow

Calculation guideline from HEC-18 5th Edition

Input from HEC-RAS for Alternative 2 Bridge

Equation 7.35:

$$y_s = 2.2K_1 K_2 a^{0.65} \left(\frac{2.6V_1 - V_c}{\sqrt{g}} \right)^{0.7}$$

Variable	Value			Description
Pier No. (Plan)	18	19		Pier numbering based on Planning Study
Pier No. (HEC-RAS)	14	15		Pier numbering based on HEC-RAS
L	4.8	5.1	ft	Pier length
a	4.8	5.1	ft	Pier width
L/a	1.0	1.0		If L/a is larger than 12, then use 12 as a maximum
Θ	0	0	degrees	Angle of attack of flow
	Square nose	Square nose		Pier shape
K1	1.1	1.1		Correction factor for pier shape
K2	1.0	1.0		Correction factor for angle of attack
V1	13.2	11.2	ft/s	Approach velocity
Vc	0.1	0.1	m/s	From Figure 4.7:
Vc	0.3	0.3	ft/s	using an erosion rate of 0.1 mm/hr
g	32.2	32.2	ft/s^2	and based on silty sand (SM)
ys	23.5	21.6	ft	Pier Scour

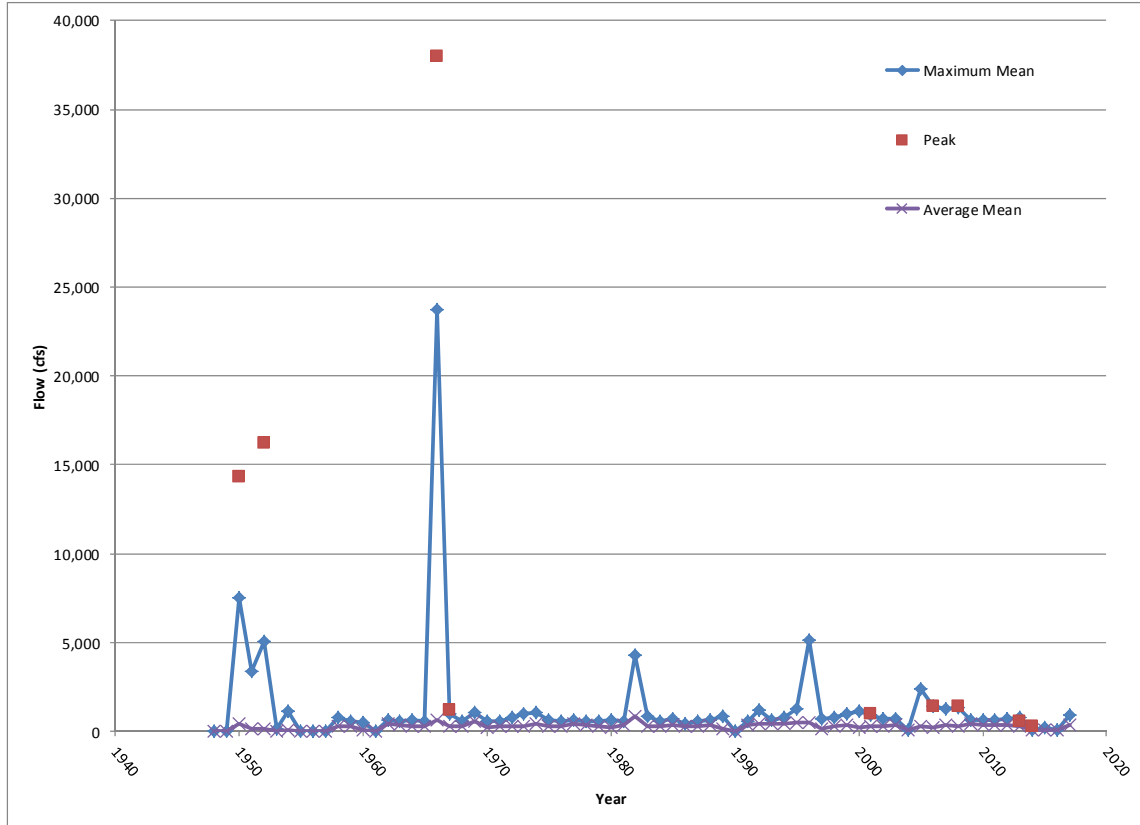
100-year WSE	515.3	515.3
Ground EL	489.1	491.87
Top of cap EL	497.1	499.87
Bottom of cap EL	489.1	491.87
Height exposed to p	18.2	15.43
Height exposed to c	8	8
Width of pier stem	2.5	2.5
Width of pile cap	10	10
Weighted width	4.8	5.1

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Appendix G Construction Season Flow Calculations

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September 1 through December 15 Construction Window



USGS Central Coast (Region 4)

Watershed Parameters

	Area (square miles)
Gaging Station	2535
Project Site	2888
Exponent for Q2	0.856

Two-Year Flow

Mean daily flow during the construction period

$$Q_p = Q_g \left(\frac{A_p}{A_g} \right)^{0.856}$$

Peak daily flow during the construction period

Flow (cubic feet per second)	
Gaging Station	Project Site
1101	1231

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Bradley Road Bridge over Salinas River Scour Repair Project

Maximum Mean Daily Flows (Without Peak Adjustment Factor)

Based on Gaging Station USGS 11150500 SALINAS R NR BRADLEY CA

00060, Discharge, cubic feet per second,												
Day of month	Maximum of daily mean values for each day for 60 - 61 years of record in, ft3/s (Calculation Period 1957-10-01 -> 2018-09-30)											
	Calculation period restricted by USGS staff due to special conditions at/near site											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	5,210	8,699	15,541	6,820	2,057	849	849	873	813	892	675	4,305
2	11,516	7,994	23,144	15,206	2,437	859	840	1,319	828	921	799	3,131
3	15,653	13,976	22,249	23,591	2,370	858	837	1,353	832	899	1,006	2,840
4	11,181	16,771	21,802	21,131	2,214	956	836	1,353	883	880	1,442	2,661
5	8,777	9,190	26,945	12,970	2,191	977	858	1,353	887	821	1,420	2,493
6	7,636	11,740	20,349	15,541	2,180	1,002	937	1,342	888	833	1,465	4,282
7	7,144	17,665	15,653	22,697	2,169	1,010	911	1,353	1,163	824	1,644	23,703
8	6,686	24,597	13,417	13,193	2,191	1,071	879	1,878	1,263	841	2,359	5,490
9	7,368	18,783	11,963	8,922	2,247	1,476	870	1,890	1,263	839	1,532	2,695
10	6,585	44,611	39,468	6,954	1,990	1,498	873	1,856	1,263	839	1,476	1,845
11	8,508	20,796	71,444	7,826	1,867	1,509	856	1,230	1,286	839	1,319	5,143
12	7,290	18,895	23,815	6,597	2,080	1,509	887	937	1,275	839	1,319	2,572
13	5,948	27,616	11,091	5,926	2,169	1,152	888	943	1,252	839	1,275	1,252
14	14,311	18,336	7,480	5,266	2,080	958	883	945	1,252	839	1,275	946
15	8,956	15,429	7,603	5,322	1,934	953	884	946	1,241	839	1,308	959
16	8,184	14,311	11,851	4,394	2,013	970	884	938	1,241	1,140	1,342	946
17	8,598	13,864	11,963	4,137	2,225	985	890	907	1,051	1,185	1,297	812
18	7,312	23,703	8,822	4,003	1,990	950	896	905	979	1,185	1,342	318
19	4,808	25,715	5,657	3,846	1,923	903	917	907	953	1,208	1,047	282
20	9,805	21,690	5,970	2,158	2,001	921	890	906	944	927	982	1,509
21	11,963	20,013	13,417	2,035	2,001	921	899	918	944	855	850	1,364
22	10,577	14,535	7,346	2,739	1,934	922	882	915	953	852	873	1,230
23	11,851	12,634	13,976	2,471	1,957	907	882	966	935	852	847	9,705
24	11,516	38,909	8,564	2,314	2,191	865	883	967	935	852	745	4,014
25	33,542	67,531	7,681	2,381	2,102	866	888	1,062	953	832	686	4,528
26	35,778	28,622	7,759	1,945	2,068	879	881	1,038	988	748	761	3,947
27	22,808	16,659	10,465	1,677	2,046	902	880	1,013	908	635	709	3,846
28	17,665	12,858	5,277	1,263	1,666	910	875	1,019	944	558	716	4,741
29	12,410	4,137	4,707	1,073	1,409	888	877	1,047	962	646	634	4,428
30	10,253		3,913	1,275	1,509	849	877	846	917	624	531	4,159
31	8,956		3,734		903		874	820		654		10,946

Bridge Design Hydraulic Study Report
Bradley Road Bridge over Salinas River Scour Repair Project
Monterey County, California

Federal-Aid Project No. BRLS-5944(100)
Existing Bridge No. 44C0050
WRECO P15020

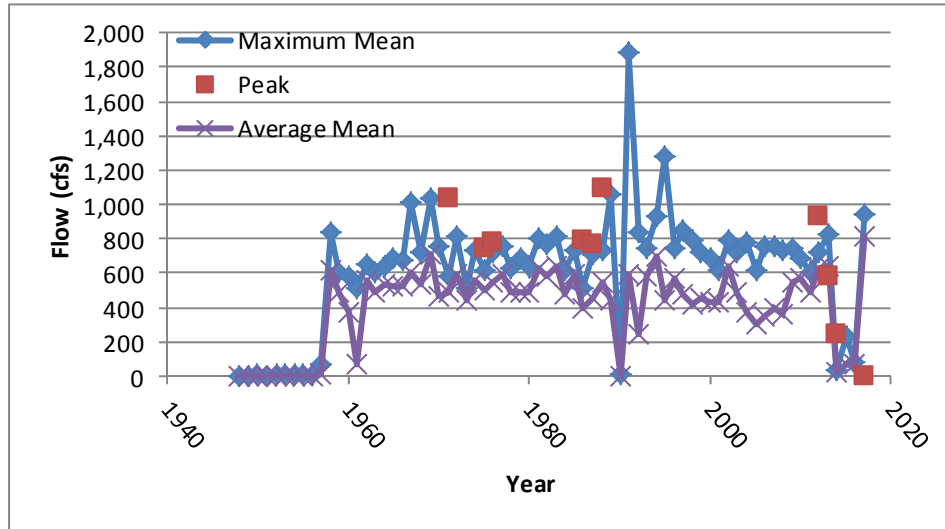
Bradley Road Bridge over Salinas River Scour Repair Project

Average Mean Daily Flows (Without Peak Adjustment Factor)

Based on Gaging Station USGS 11150500 SALINAS R NR BRADLEY CA

00060, Discharge, cubic feet per second,												
Day of month	Mean of daily mean values for each day for 60 - 61 years of record in, ft3/s (Calculation Period 1957-10-01 -> 2018-09-30)											
	Calculation period restricted by USGS staff due to special conditions at/near site											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	414	805	1,398	599	338	377	498	548	501	326	221	216
2	466	767	1,409	703	339	382	501	557	502	320	225	195
3	671	970	1,308	806	343	390	503	557	499	313	237	187
4	544	1,067	1,386	832	349	398	501	547	498	311	261	181
5	470	979	1,487	765	357	404	510	550	485	302	273	180
6	456	1,087	1,386	801	375	408	513	556	495	294	272	240
7	513	1,196	1,152	835	378	414	521	559	508	292	264	557
8	481	1,442	991	659	369	420	519	567	503	292	272	261
9	566	1,386	917	574	360	425	510	572	494	294	256	215
10	628	1,968	1,442	536	350	426	512	581	493	288	263	211
11	691	1,699	1,890	594	344	433	518	572	492	283	255	272
12	529	1,431	1,045	556	344	442	519	561	491	280	254	218
13	546	1,621	840	500	350	436	519	557	486	272	261	183
14	728	1,353	778	472	354	427	520	556	481	269	252	154
15	691	1,532	678	479	350	427	522	557	474	273	243	145
16	642	1,431	879	462	357	430	523	552	449	271	233	140
17	638	1,330	879	419	359	443	527	556	427	264	230	127
18	602	1,543	707	410	352	439	524	555	407	257	224	111
19	556	1,588	661	404	356	442	522	553	397	254	210	108
20	638	1,655	685	362	357	443	527	553	387	240	206	130
21	716	1,621	827	357	358	451	531	556	373	233	201	130
22	714	1,599	737	364	354	465	536	557	367	234	199	157
23	802	1,532	947	348	353	471	538	553	364	229	198	328
24	775	2,091	739	338	362	468	543	549	362	226	187	234
25	1,465	2,404	742	330	378	468	541	548	361	221	182	230
26	1,409	1,666	752	332	372	476	551	552	361	220	182	238
27	1,286	1,386	825	340	373	477	553	552	353	218	171	226
28	1,016	1,420	643	330	371	482	552	544	349	224	167	330
29	802	747	637	329	367	487	553	536	348	228	163	325
30	703		550	330	373	490	556	523	342	225	154	294
31	745		519		368		549	509		220		502

July 1 through October 15 Construction Window



USGS Central Coast (Region 4)

Watershed Parameters

	Area (square miles)
Gaging Station	2535
Project Site	2888
Exponent for Q2	0.856

Two-Year Flow

Mean daily flow during the construction period

$$Q_p = Q_g \left(\frac{A_p}{A_g} \right)^{0.856}$$

Peak daily flow during the construction period

Flow (cubic feet per second)	
Gaging Station	Project Site
883	987

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Bradley Road Bridge over Salinas River Scour Repair Project

Maximum Mean Daily Flows (With Peak Adjustment Factor) at Project Site

Based on Gaging Station USGS 11150500 SALINAS R NR BRADLEY CA

00060, Discharge, cubic feet per second,												
Day of month	Maximum of daily mean values for each day for 61 - 62 years of record in, ft3/s (Calculation Period 1957-10-01 -> 2019-09-30)											
	Calculation period restricted by USGS staff due to special conditions at/near site											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	5,210	8,699	15,541	6,820	2,057	849	849	873	813	892	675	4305
2	11,516	7,994	23,144	15,206	2,437	859	840	1319	828	921	799	3131
3	15,653	13,976	22,249	23,591	2,370	858	837	1353	832	899	1006	2840
4	11,181	16,771	21,802	21,131	2,214	956	836	1353	883	880	1442	2661
5	8,777	9,190	26,945	12,970	2,191	977	858	1353	887	821	1420	2493
6	7,636	11,740	20,349	15,541	2,180	1,002	937	1342	888	833	1465	4282
7	7,144	17,665	15,653	22,697	2,169	1,010	911	1353	1163	824	1644	23703
8	6,686	24,597	13,417	13,193	2,191	1,071	879	1878	1263	841	2359	5490
9	7,368	18,783	11,963	8,922	2,247	1,476	870	1890	1263	839	1532	2695
10	6,585	44,611	39,468	6,954	1,990	1,498	873	1856	1263	839	1476	1845
11	8,508	20,796	71,444	7,826	1,867	1,509	856	1230	1286	839	1319	5143
12	7,290	18,895	23,815	6,597	2,080	1,509	887	937	1275	839	1319	2572
13	5,948	27,616	11,091	5,926	2,169	1,152	888	943	1252	839	1275	1252
14	14,311	18,336	7,480	5,266	2,080	958	883	945	1252	839	1275	946
15	8,956	15,429	7,603	5,322	1,934	953	892	946	1241	839	1308	959
16	8,184	14,311	11,851	4,394	2,013	970	1012	938	1241	1140	1342	946
17	8,598	13,864	11,963	4,137	2,225	985	941	907	1051	1185	1297	812
18	7,312	23,703	8,822	4,003	1,990	950	912	905	979	1185	1342	318
19	4,808	25,715	5,657	3,846	1,923	903	917	907	953	1208	1047	282
20	9,805	21,690	5,970	2,158	2,001	921	890	906	944	927	982	1509
21	11,963	20,013	13,417	2,035	2,001	921	899	918	944	855	850	1364
22	10,577	14,535	7,346	2,739	1,934	922	882	915	953	852	873	1230
23	11,851	12,634	13,976	2,471	1,957	907	882	966	935	852	847	9705
24	11,516	38,909	8,564	2,314	2,191	865	883	967	935	852	745	4014
25	33,542	67,531	7,681	2,381	2,102	866	888	1062	953	832	686	4528
26	35,778	28,622	7,759	1,945	2,068	879	881	1038	988	748	761	3947
27	22,808	16,659	10,465	1,677	2,046	902	880	1013	908	635	709	3846
28	17,665	12,858	5,277	1,263	1,666	910	875	1019	944	558	716	4741
29	12,410	4,137	4,707	1,073	1,409	888	877	1047	962	646	634	4428
30	10,253		3,913	1,275	1,509	849	877	846	917	624	531	4159
31	8,956		3,734		903		874	849		654		10946

Bradley Road Bridge over Salinas River Scour Repair Project

Average Mean Daily Flows (With Peak Adjustment Factor) at Project Site

Based on Gaging Station USGS 11150500 SALINAS R NR BRADLEY CA

00060, Discharge, cubic feet per second,												
Day of month	Mean of daily mean values for each day for 61 - 62 years of record in, ft3/s (Calculation Period 1957-10-01 -> 2019-09-30)											
	Calculation period restricted by USGS staff due to special conditions at/near site											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	414	805	1,375	605	343	381	502	552	506	323	221	216
2	466	756	1,386	708	345	387	505	561	506	318	225	195
3	671	956	1,286	808	349	395	506	561	503	311	237	187
4	544	1,051	1,364	833	354	403	505	550	502	311	261	181
5	470	965	1,465	765	362	408	514	555	490	302	273	180
6	456	1,070	1,364	801	379	413	517	559	500	294	272	240
7	513	1,174	1,129	834	382	418	525	564	512	292	264	557
8	481	1,420	976	660	373	425	522	571	506	292	272	261
9	566	1,364	902	577	364	429	514	576	499	294	256	215
10	628	1,945	1,420	538	354	430	518	586	498	288	263	211
11	691	1,666	1,856	595	350	437	523	577	495	283	255	272
12	529	1,409	1,030	558	350	446	523	566	494	280	254	218
13	546	1,599	827	502	356	441	523	562	489	272	261	183
14	728	1,330	766	474	360	433	525	560	481	269	252	154
15	691	1,509	667	481	357	433	528	561	472	273	243	145
16	642	1,409	866	465	362	435	531	557	447	271	233	140
17	638	1,319	865	422	364	447	533	560	424	264	230	127
18	602	1,509	697	413	359	445	531	559	404	257	224	111
19	556	1,554	652	406	361	447	528	558	394	254	210	108
20	638	1,632	681	366	362	448	532	559	383	240	206	130
21	716	1,599	821	360	364	456	537	561	370	233	201	130
22	714	1,576	745	368	360	471	540	561	363	234	199	157
23	802	1,498	992	351	360	475	543	558	361	229	198	328
24	775	2,057	744	341	368	474	548	553	359	226	187	234
25	1,465	2,370	741	334	382	474	547	553	358	221	182	230
26	1,409	1,644	751	337	377	481	556	557	357	220	182	238
27	1,286	1,364	827	344	379	482	558	557	350	218	171	226
28	1,016	1,398	648	334	377	486	557	549	345	224	167	330
29	802	747	643	333	372	492	558	541	343	228	163	325
30	703		557	334	379	494	560	528	339	225	154	294
31	745		525		372		553	514		220		502

APPENDIX G

TECHNICAL NOISE MEMORANDUM



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Bradley Road Bridge Scour Repair Project

Technical Noise Memorandum

Monterey County

05-MON-0 CR

BRLS-5944(100)



May 2019

Bradley Road Bridge Scour Repair Project

Technical Noise Memorandum

Monterey County

05-MON-0 CR

BRLS-5944(100)

May 2019

INTRODUCTION

The County of Monterey (County) Public Works Department, in coordination with the California Department of Transportation (Caltrans), proposes to implement the Bradley Road Bridge Scour Repair Project (proposed project) to address existing scour issues by installing scour countermeasures to protect the Bradley Road Bridge piers that are currently exposed due to scour (Bridge No. 44C-0050). The proposed project will be funded by the Federal Highway Bridge Program (HBP) and Toll credits.

The Bradley Road Bridge is located approximately 5 miles north of the Monterey County/San Luis Obispo County border, just west of Bradley and approximately 1/4 mile east of U.S. Route 101 (US-101) (refer to Figure 1: Project Location and Figure 2: Project Study Area). Bradley Road is an existing two-lane road (one lane in each direction) that is classified by the California Road System (CRS) Maps as a Minor Collector. The bridge was originally constructed in 1931 and widened in 1954. The Bradley Road Bridge is oriented generally in an east-west direction and crosses the Salinas River, which flows northwest through the project area and then northwesterly to Monterey Bay.

The existing bridge is approximately 1,668 feet (ft) long by 27 ft wide. The existing bridge is a twenty-four-span steel truss and concrete girder bridge with 23 concrete piers (Piers 2 through 24) and two concrete abutments (Abutments 1 and 25) (refer to Figure 3: General Bridge Plan). Spans 1 – 10 (the western-most spans) and spans 17 – 24 (the eastern-most spans) consist of supported, reinforced concrete, “T”-girders. Spans 11 – 16 consist of five panel, riveted steel, deck trusses.

Overall, the existing bridge is in fair condition with minor deterioration. However, as discussed in more detail below, the bridge has a history of scour erosion of soil or sediment surrounding a bridge foundation at the concrete piers in the low flow channel of the Salinas River. Scour is currently undermining the foundations of Piers 16 through 19.

PURPOSE AND NEED

Purpose

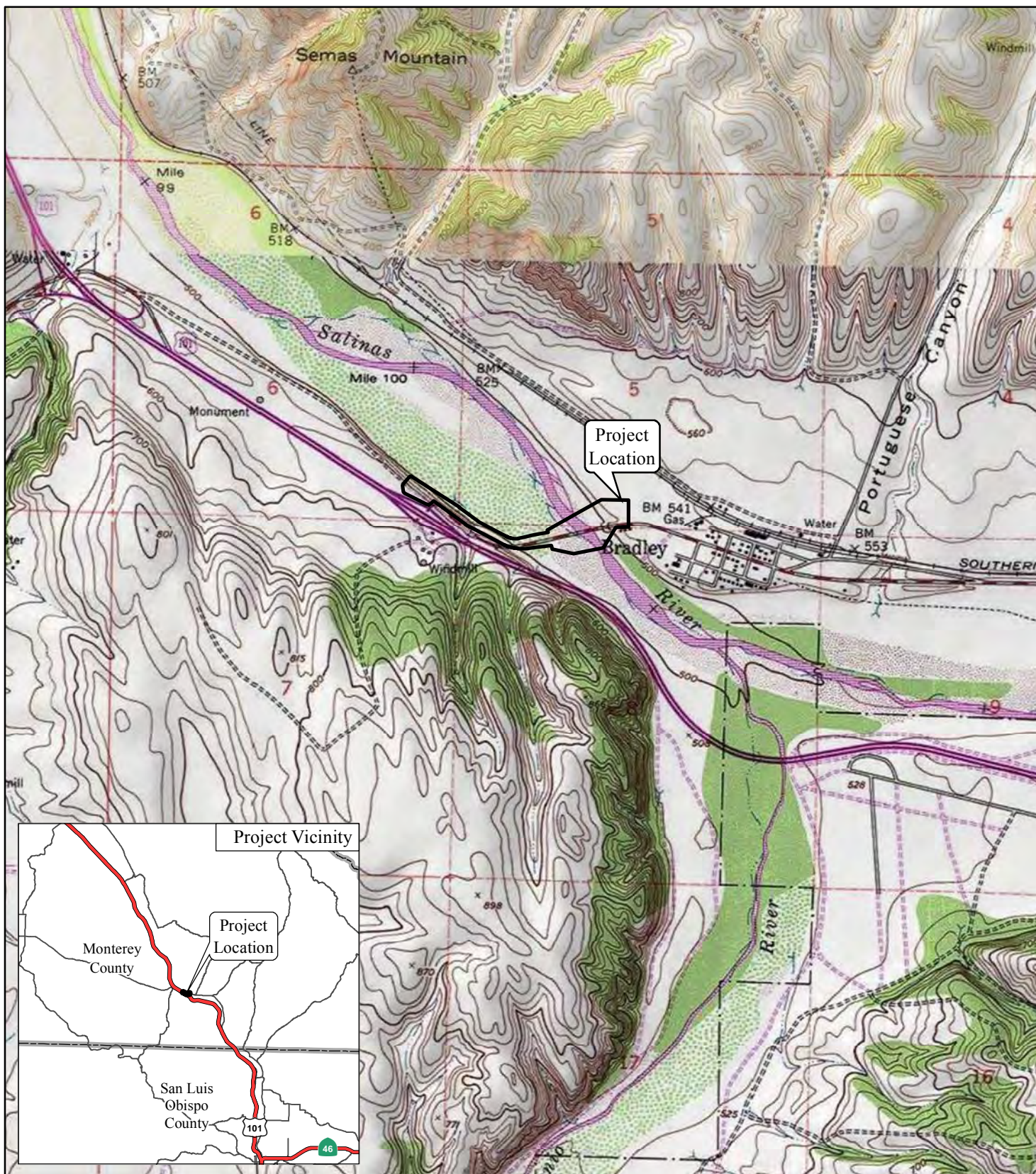
The purpose of the project is to install scour protection at the substructure of the bridge in order to reduce the potential for future scouring at the bridge foundations.

Need

The bridge has a history of scour at the concrete piers in the low flow channel of the Salinas River. In the existing condition, scour is undermining the foundations of Piers 16 through 19.

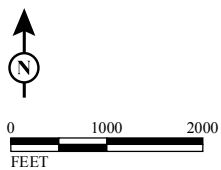
The latest Caltrans bridge inspection report, dated October 10, 2018, gave the Bradley Road Bridge a scour critical bridge rating of “U,” which represents a bridge with unknown foundation that has not been evaluated for scour and development of a plan of action is required. The bridge inspection report noted a scour hole at Pier 17 and undermining at Piers 18 and 19.

As a result of the findings of a previous bridge inspection report, the County Public Works Department prepared a *Bridge Scour Evaluation- Plan of Action* (POA) (February 2010). The POA summarized the scour history of the bridge from 1975 through 2007, which indicates a history of



LEGEND

 Project Study Area



SOURCE: USGS 7.5' Quad., Bradley, CA (1979), Wunpost, CA (1979)
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FIGURE 1

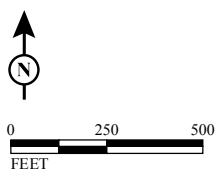
Bradley Road Bridge Scour Repair Project
Monterey County, California
Federal Project Number BHLO-5944(100)
Project Location



LEGEND

 Project Study Area

FIGURE 2



SOURCE: Bing Aerial (10/2017); Quincy (12/2015)

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*Bradley Road Bridge Scour Repair Project
Monterey County, California
Federal Project Number BHLO-5944(100)
Project Study Area*

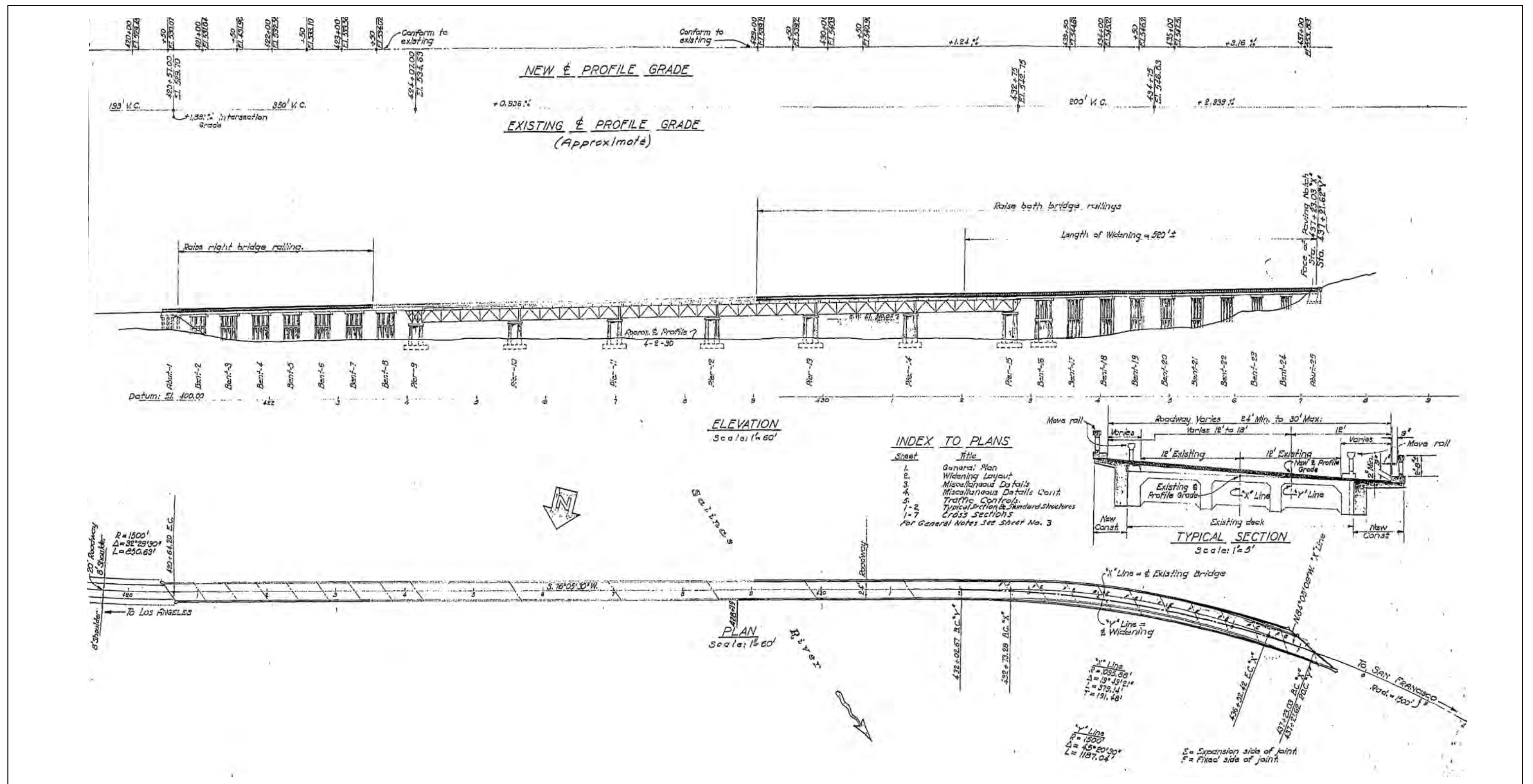
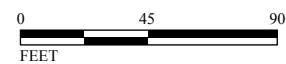


FIGURE 3

*Bradley Road Bridge Scour Repair Project
Monterey County, California
Federal Project Number BHLO-5944(100)*

General Bridge Plan



SOURCE: State of California Department of Public Works Division of Highways (7/9/1954)

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scour at Piers 18 and 19. The Bridge Scour POA recommended that Caltrans Bridge Maintenance engineers conduct biennial inspections to check for signs of degradation, settlement, and undermining of the bridge footings and monitor the bridge during a 50-year or greater storm event. The POA also recommended the installation of scour countermeasures.

The extent of the existing bridge scour at Piers 16 through 19 is provided in Table 1 below. Contraction scour occurs when water accelerates as it flows through an opening that is narrower than the channel upstream from the bridge. The Contractor Scour Depth shown in Table 1 is based on the depth of scour that would occur during a 100-year storm event. Short Term (Local) scour represents the predicted depth of scour that would occur during a 100-year storm event given the existing conditions. Long Term Degradation is not associated with a specific storm event. The estimated long term degradation is projected based on a 50-year bridge service life. Scour at Piers 18 and 19 are depicted in Figure 4, Scour Photographs.

Table 1: Scour Depths and Elevations for Existing Conditions Without Scour Protection

Pier No.	Contraction Scour Depth (feet)	Long-Term Degradation (feet)	Local Scour Depth (feet)	Total Scour Depth (feet) ¹	Total Scour Elevation (feet) ²
16	1.2	2.8	21.5	25.5	462.0
17	1.2	2.8	27.8	31.8	455.7
18	1.2	2.8	15.4	19.4	468.1
19	1.2	2.8	13.7	17.7	469.8

Source: Wreco, 2016

Notes:

¹The total scour depth is the sum of the contraction scour, long-term degradation, and the local scour.

² The total scour elevation references the existing channel thalweg elevation (i.e., the lowest elevation of the channel), which is 487.5 feet NAVD 88.

PROJECT ALTERNATIVES

The environmental documentation for the proposed project will evaluate one Build Alternative and the No Build Alternative. The Build Alternative includes retrofitting of Piers 16 through 19.

No Build Alternative

In the No Build Alternative, no scour protection will be installed and the Bradley Road Bridge will remain scour critical and at risk for continued erosion/scour, which will further compromise the structural integrity of the bridge.

Build Alternative: Install Super Piles at the Footing Caps of the Bradley Road Bridge

The Build Alternative would install cast-in-drilled-hole (CIDH) piles and retrofit of the pier footing caps¹ at Piers 16 through 19 (Refer to Figure 5, General Construction Plan). Two large diameter (120" at Piers 16/17 and 96" at Piers 18/19) CIDH piles would be installed at the end of each existing pier footing. The piles would extend into the new reinforced concrete footing. The new footing would be connected through drill and bond dowels to the existing footing and pier wall. Retrofitting of the footing caps would involve fully enclosing the existing footings in new, larger concrete footing

¹ Footings are the large lower portion of the foundation that transfers weight from a bridge pier wall and columns to the deep foundation piles and soil below the original ground surface.



Exposed and Undermined Footing at Pier 16.



Exposed and Undermined Footing at Pier 16.



Exposed and Undermined Footing at Pier 17.



Exposed and Undermined Footing at Pier 17.

LSA

FIGURE 4a

*Bradley Road Bridge Scour Repair Project
Monterey County, California
Federal Project Number BHLO-5944(100)
Scour Photographs*



Exposed and Undermined Footing at Pier 18 (Span 17 Side).



Exposed and Undermined Footing at Pier 19 (Span 18 Side).



Exposed and Undermined Footing Cap at Bent 19.

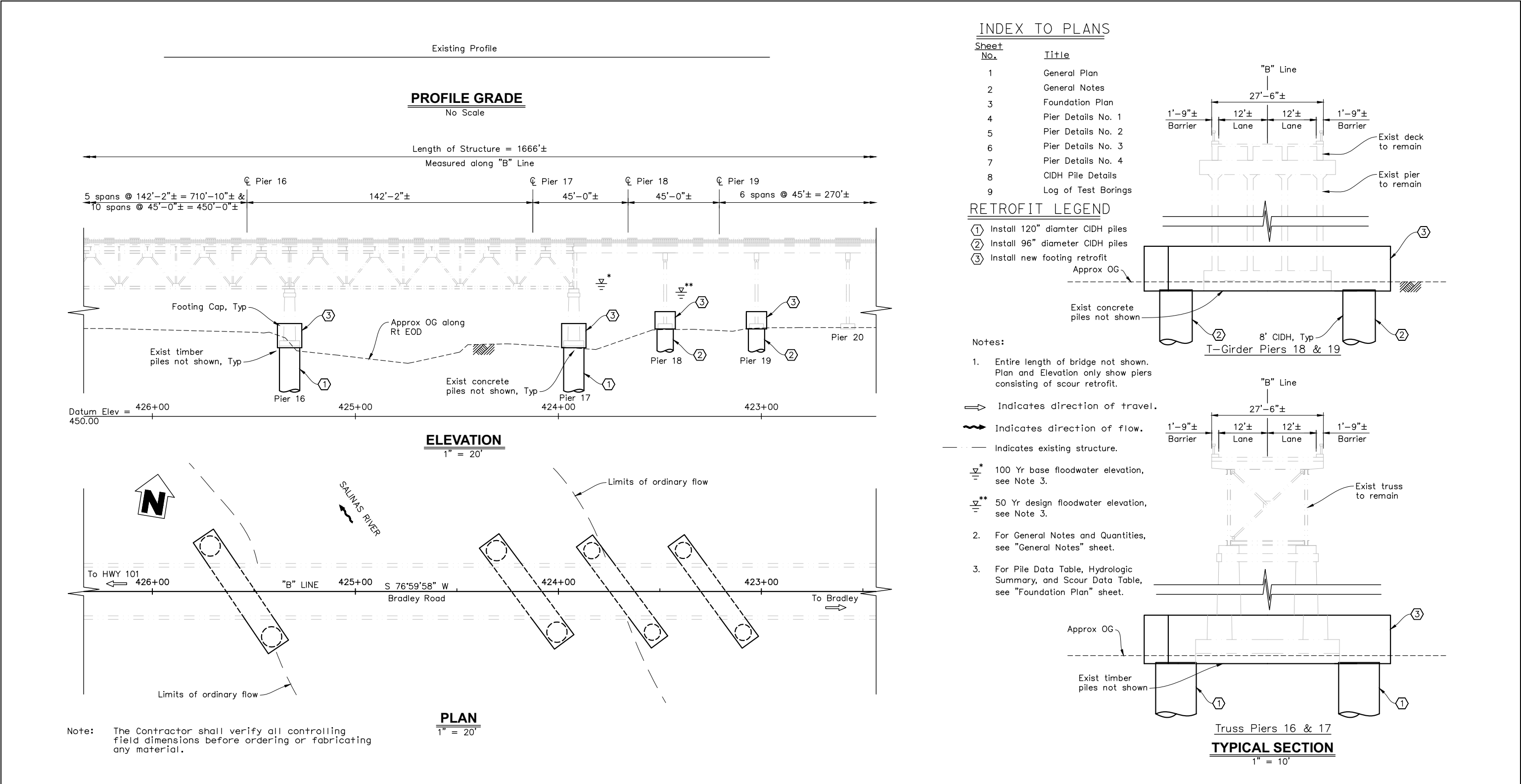


Exposed and Undermined Footing Cap at Pier 19.

LSA

FIGURE 4b

*Bradley Road Bridge Scour Repair Project
Monterey County, California
Federal Project Number BHLO-5944(100)
Scour Photographs*



caps. The new footing retrofits would be 12 ft in width, 8 ft in height, and 66 ft in length at Pier 16. The new footing retrofits would be 12 ft in width, 8 ft in height and 62 ft in length at Pier 17. The new footing retrofits would be 10 ft in width, 6 ft in height, and 62 ft in length at Piers 18 and 19. The new CIDH piles would be designed such that they resist the full loading demands from the existing superstructure, existing substructure, and new pile caps.

Table 2 summarizes the scour depths and elevations for proposed conditions with scour protection.

Table 2: Scour Depths and Elevations for Proposed Scour Protection

Pier No.	Contraction Scour Depth (feet)	Long-Term Degradation (feet)	Local Scour Depth (feet)	Total Scour Depth (feet) ¹	Total Scour Elevation (feet) ²
16	1.5	2.8	15.5	19.8	467.7
17	1.5	2.8	15.7	20.0	467.5
18	1.5	2.8	23.5	27.8	459.7
19	1.5	2.8	21.6	26.0	461.5

Source: Wreco, 2016

Notes:

¹The total scour depth is the sum of the contraction scour, long-term degradation, and the local scour.

² The total scour elevation references the existing channel thalweg elevation (i.e., the lowest elevation of the channel), which is 487.5 feet NAVD 88.

Construction Details

Scheduling. Construction will begin during the spring of 2021, to be completed by the fall of 2021, for a total construction duration of approximately five (5) months. Construction activities within the Salinas River are planned to occur outside of the rainy season, when surface water within the river is at its seasonal minimum (July 1 through October 15).

Traffic Detours and Construction Signage. The Bradley Road Bridge will be open to public use during construction and no traffic detours will be required. Advanced and end-construction signage will be placed at the eastern and western approach of Bradley Road Bridge.

Water Diversion. The Salinas River has perennial flow and is expected to be flowing within the project area year round. A water diversion system will be required to divert the summer flow to provide contractor access to all the piers in need of retrofit. The water diversion will channelize the flow between Pier 16 and Pier 17. Contractor access will consist of temporary berms made of clean crushed gravel constructed around the piers. It is anticipated that temporary sheet pile shoring will be installed around the perimeter of the berms to help channelize the flow of the active channel and keep the work area dry for construction. It is anticipated that the contract language will only allow one pier to be worked on at a time and both footings will not have sheet piling around them at the same time. Therefore, there will not be significant channelization of the flow. Installation of the sheet pile shoring can be achieved using predrilling and vibratory methods. After construction is complete, the contractor will remove the temporary berms and sheet pile shoring and restore all disturbed areas within the river to pre-construction conditions.

Construction Staging and Access. Materials and equipment that will be used during bridge construction will be staged at a designated staging area located northeast of the project area (Refer to Figure 6, Project Construction Details).

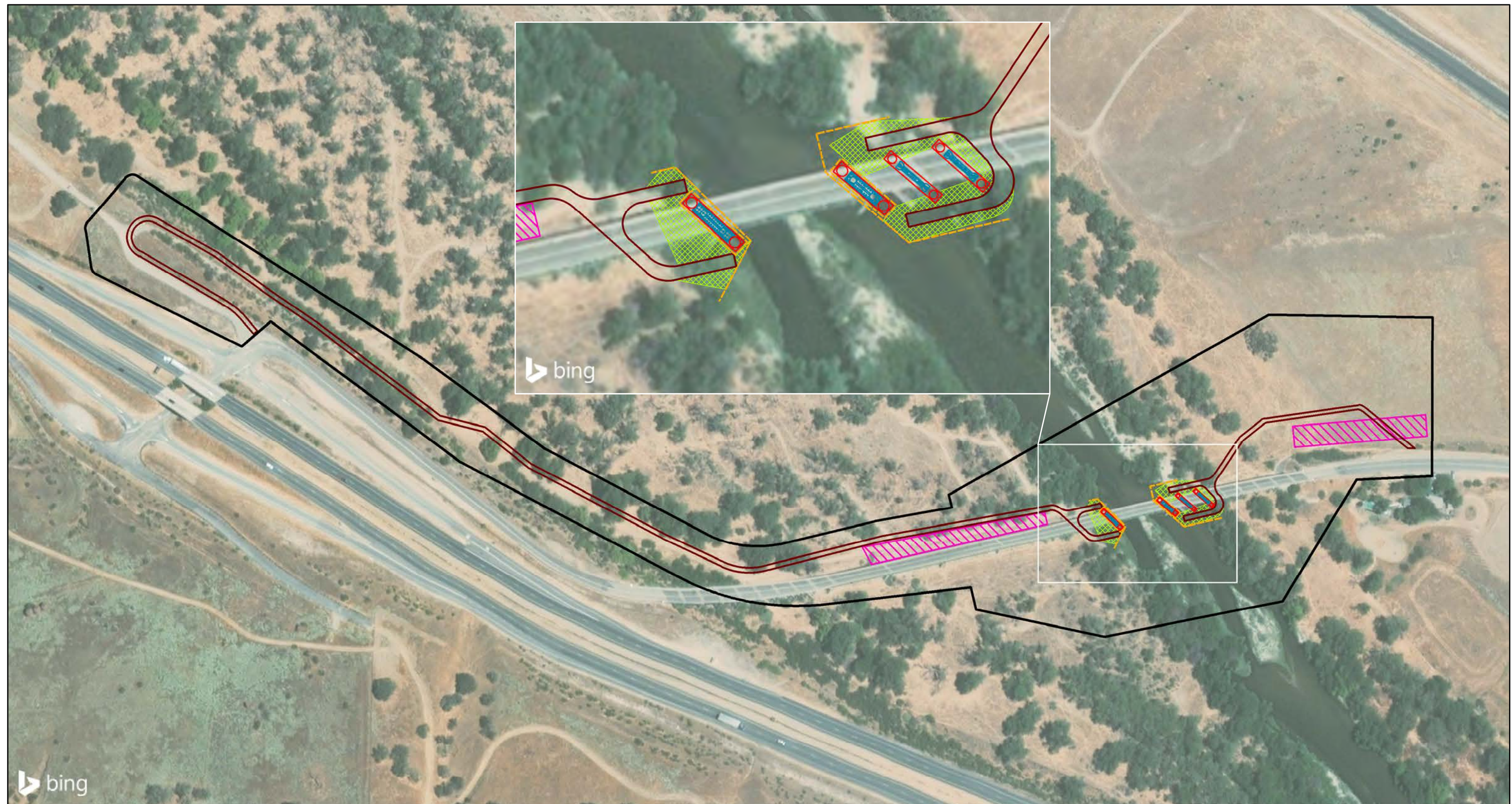
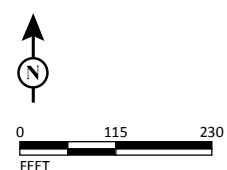
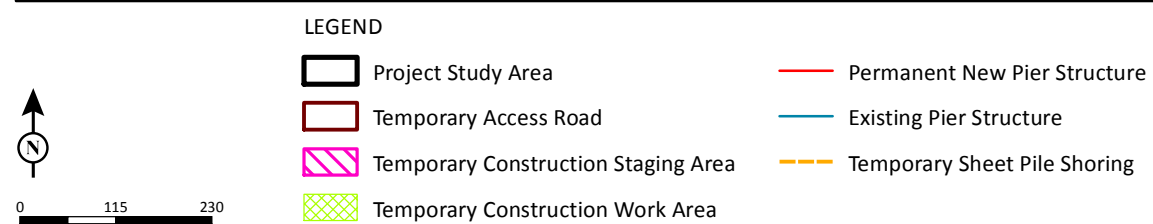


FIGURE 6



SOURCE: Bing Aerial (10/2017); Quincy (04/26/2017)
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*Bradley Road Bridge Scour Repair Project
 Monterey County, California
 Federal Project Number BHLO-5944(100)*

Project Construction Details

River access will be provided on both sides of the channel. A 12 ft wide 450 ft long access road will be constructed off of Bradley Road at the northeast corner of the bridge (refer to Figure 6). A temporary construction easement (TCE) will be required for the construction of this access road and staging area on the northeast side of Bradley Road Bridge. The TCE will affect a single parcel (Assessor's Parcel Number [APN] 424-101-020-000).

Additional access from the west will be obtained from the use of an existing private dirt road that starts at the intersection of Bradley Road and the US 101 On-Ramp. The dirt road meanders through a few parcels down to the north side of the Bradley Road bridge. The following additional parcels are anticipated to be affected by this new contractor access alternative and would require temporary easements for construction – Assessor's Parcel Numbers [APN] 424-101-010-000, 424-101-020-000, 424-101-004-000.

Construction Equipment. Table 3 summarizes the types of construction equipment that are anticipated to be used during construction.

Table 3: Anticipated Construction Equipment

Equipment	Construction Purpose
Backhoe	soil manipulation and drainage work
Bobcat	fill distribution
Bulldozer / Loader	earthwork construction and clearing and grubbing
Crane	bridge construction, sheet piling installation
Dump Truck	fill material delivery
Drill Rig	CIDH pile installation
Excavator	soil manipulation
Forklift	material transportation
Front-End Loader	dirt or gravel manipulation
Haul Truck	earthwork construction and clearing and grubbing
Truck with Seed Sprayer	BMP installation
Vibratory Hammer	Vibrating sheet piling in the ground
Water Truck	earthwork construction and dust control

Source: *Bradley Road Bridge Description of Project and Environmental Setting* (Quincy 2015)

CIDH = cast in drilled hole

REGULATORY REQUIREMENTS

Caltrans Protocol Requirements

The Caltrans Traffic Noise Analysis Protocol², which supports 23 Code of Federal Regulations (CFR) 772.5, identifies a project as Type I that involves one or more of the following:

1. The construction of a highway on a new location; or
2. The physical alteration of an existing highway where there is either:

² State of California, California State Transportation Agency, Department of Transportation, 2011. *Traffic Noise Analysis Protocol*. May.

- A. Substantial horizontal alteration: A project that halves the distance between the traffic noise source and the closest receptor between the existing condition to the future build condition, or
- B. Substantial vertical alteration: A project that removes shielding thereby exposing the line-of-sight between the receptor and the traffic noise source. This is done by altering either the vertical alignment of the highway or the topography between the highway traffic noise source and the receptor; or
- 3. The addition of a through-traffic lane(s). This includes the addition of a through-traffic lane that functions as a high-occupancy vehicle (HOV) lane, high-occupancy toll (HOT) lane, bus lane, or truck climbing lane; or
- 4. The addition of an auxiliary lane, except for when the auxiliary lane is a turn lane; or
- 5. The addition or relocation of interchange lanes or ramps added to a quadrant to complete an existing partial interchange; or
- 6. Restriping existing pavement for the purpose of adding a through traffic lane or an auxiliary lane; or
- 7. The addition of a new or substantial alteration of a weigh station, rest stop, ride-share lot, or toll plaza.

A project that does not meet one or more of the requirements mentioned above is considered a Type III project. While a Type III project does not require an operation related noise analysis, a memo presenting the noise impacts associated with construction activities is typically completed.

Construction Standards

Caltrans Standard Specifications in Section 14-8.02 would be required to minimize construction noise impacts on sensitive land uses near the project site. Caltrans Standard Specifications requires noise levels from the Contractor's operations, between the hours of 9:00 p.m. and 6:00 a.m., to be at or below 86 A-weighted decibels (dBA) maximum instantaneous noise level (L_{\max}) at a distance of 50 ft from the job site.³

Monterey County Noise Standards

General Plan. Policy S-7.9 states the following regarding construction time limits: No construction activities pursuant to a County permit shall be allowed within 500 ft of a noise sensitive land use during the evening hours of Monday through Saturday, or anytime on Sunday or holidays, prior to completion of a noise mitigation study. Typically, when not specified in a policy or ordinance, that daytime hours occur from 7:00 a.m. to 7:00 p.m. while evening and nighttime hours occur from 7:00 p.m. to 7:00 a.m.

Municipal Code. Section 10.60.030 of the County Municipal Code prohibits the operation of any machine, mechanism, device, or contrivance which produces a noise level exceeding 85 dBA measured 50 ft therefrom. The prohibition in this Section shall not apply to aircraft nor to any such machine, mechanism, device or contrivance which is operated in excess of 2,500 ft from any occupied dwelling unit.

³ State of California, California State Transportation Agency, Department of Transportation, 2015. *Standard Specifications*.

EXISTING NOISE SENSITIVE RECEPTORS

The project study area consists of a single-family residence and Bradley Elementary School to the south, and more single-family residences to the northeast and southeast. The single-family residence at 65486 Bradley Road is located approximately 50 ft south of the southeast edge of the project area that would be disturbed by construction and about 135 ft south of the nearest staging area. The Bradley Elementary School is located approximately 635 ft southeast of the edge of the project area that would be disturbed by construction and about 700 ft southeast of the nearest staging area. The single-family residence at 73121 Hall Street is located approximately 980 ft southeast of the edge of the project area that would be disturbed by construction and about 1,020 ft southeast of the nearest staging area. Another single-family residence at 65653 Bradley Road is located approximately 875 ft east of the edge of the project area that would be disturbed by construction and about 880 ft east of the nearest staging area. (Refer to Figure 7, Noise Sensitive Receptors).

LONG-TERM OPERATIONAL NOISE IMPACTS

No Build Alternative

No improvements to the Bradley Road Bridge would be made other than routine roadway maintenance. Noise-sensitive receptors located within the project area would not be exposed to a new traffic noise impact.

Build Alternative

Since the construction of the proposed project does not meet any of the Type I requirements described in the Traffic Noise Protocol, a detailed Type I long-term operational noise analysis is not required for the proposed project. Rather, the proposed Bradley Road Bridge Project is classified as a Type III project, which only requires an analysis of noise associated with project construction.

This technical noise memorandum is provided to identify project-related construction noise impacts and prescribe appropriate avoidance, minimization, and/or mitigation measures in order to comply with Caltrans Standard Specification in Section 14-8.02 and Section 10.60.030 of the County Municipal Code.

CONSTRUCTION NOISE IMPACTS

No Build Alternative. No construction activities would occur under the No Build Alternative and no short-term noise impacts would result.

Build Alternative. Two types of short-term noise impacts would occur during project construction, including: 1) equipment delivery and construction worker commutes; and 2) project construction operations.

The first type of short-term construction noise would result from transport of construction equipment and materials to the project site and construction worker commutes. These transportation activities would incrementally raise noise levels on access roads leading to the site. It is expected that larger trucks used in equipment delivery will generate higher noise impacts than trucks associated with worker commutes. The single-event noise from equipment trucks passing at a distance of 50 ft from a sensitive noise receptor would reach a maximum level of 84 dBA L_{\max} . However, the pieces of heavy equipment for grading and construction activities would be moved on-site just one time, then would

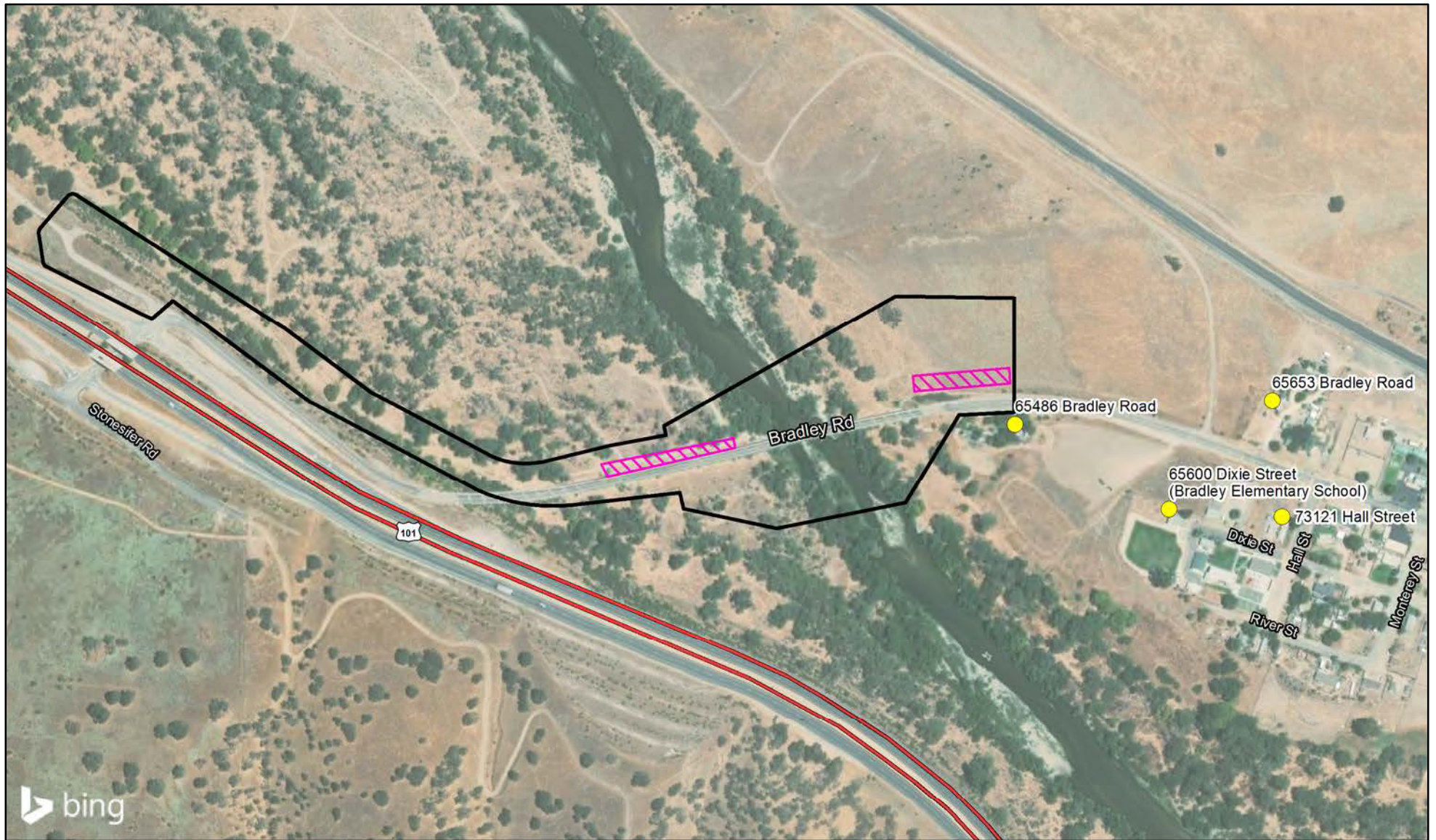


FIGURE 7

LEGEND

- Project Study Area
- Temporary Construction Staging Area
- Sensitive Receptor



0 237.5 475
FEET

SOURCE: Bing Aerial (10/2017); TRC (12/2015)

I:\TRT1501\GIS\Noise_BradleyRd_SensitiveReceptors.mxd (5/3/2019)

*Bradley Road Bridge Scour Repair Project
Monterey County, California
Federal Project Number BHLO-5944(100)
Noise Sensitive Receptors*

remain for the duration of each construction phase. This one time trip, when heavy construction equipment is moved on and off-site, would not add to the daily traffic noise in the project vicinity. Furthermore, the projected traffic from the construction worker commutes would be minimal when compared to existing traffic volumes on Bradley Road and other affected streets, and its associated long-term noise level change would not be perceptible. Therefore, equipment transport noise and construction-related worker commute impacts would be short-term and would not be substantial.

The second type of short-term noise impact is related to noise generated during project construction. Construction is performed in discrete steps, each having its own mix of equipment and, consequently, its own noise characteristics. These various sequential phases will change the character of the noise generated, as well as the noise levels in the study area as construction progresses. Despite the variety in the type and size of construction equipment, similarities in the dominant noise sources and patterns of operation allow construction-related noise ranges to be categorized by work phase. Table 4 lists typical construction equipment noise levels (L_{max}) recommended for noise impact assessments based on a distance of 50 ft between the equipment and a noise receptor.

In addition to standard construction equipment, the project proposes the use of a crane and vibratory hammer for pile placement. When the crane and vibratory hammer are utilized, as shown in Table B, noise levels of approximately 85 and 95 dBA L_{max} at 50 ft, respectively, are generated individually with a composite noise level of 95 dBA L_{max} given the source levels are 10 dBA L_{max} different.

Normal construction operations, specifically during the site preparation phase which includes excavation and grading, may generate high noise levels from an active construction area. Earthmoving equipment includes excavating machinery such as backfillers, bulldozers, and front-end loaders. Earthmoving and compacting equipment includes compactors, scrapers, and graders. Typical operating cycles for these types of construction equipment may involve 1 or 2 minutes of full-power operation followed by 3 or 4 minutes at lower power settings.

Noise associated with the use of earthmoving construction equipment is estimated between 55 and 85 dBA L_{max} at a distance of 50 ft from each piece of equipment. As seen in Table 4, the maximum noise level generated by each excavator, bulldozer and pick-up truck is assumed to be approximately 85 dBA L_{max} , 85 dBA L_{max} , and 55 dBA L_{max} at 50 ft, respectively. Each piece of construction equipment operates as an individual point source. Utilizing the following equation, a composite noise level can be calculated when multiple sources of noise operate simultaneously:

$$L_{max} (composite) = 10 * \log_{10} \left(\sum_{1}^n 10^{\frac{Ln}{10}} \right)$$

The conservative composite noise level during this phase of construction would be 88 dBA L_{max} at a distance of 50 ft from an active construction area.

Table 4: Typical Construction Equipment Noise Levels

Equipment Description ¹	Maximum Noise Level (L_{max}) at 50 Feet ²
Backhoes	80
Compactor (ground)	80

Table 4: Typical Construction Equipment Noise Levels

Equipment Description ¹	Maximum Noise Level (L_{max}) at 50 Feet ²
Cranes	85
Dozers	85
Dump Trucks	84
Excavators	85
Flat Bed Trucks	84
Front-end Loaders	80
Graders	85
Impact Pile Drivers	95
Jackhammers	85
Pick-up Truck	55
Pneumatic Tools	85
Pumps	77
Rock Drills	85
Rollers	85
Scrapers	85
Tractors	84
Vibratory Hammer / Pile Driver	95

Source: *Federal Highway Administration Roadway Construction Noise Model* (January 2006).

- 1 Equipment shown in **bold** is expected to be used on site.
- 2 Maximum noise levels were developed based on Spec 721.560 from the Central Artery/Tunnel (CA/T) program to be consistent with the City of Boston's Noise Code for the "Big Dig" project.

Note: Noise levels reported in this table are rounded to the nearest whole number.

L_{max} = maximum instantaneous sound level

When the crane and vibratory hammer are being utilized concurrently, using above equation and assuming source levels of 85 dBA L_{max} for crane operations and 95 dBA L_{max} for vibratory hammer operations, since the source levels are 10 dBA apart, the composite level for pile installation would be 95 dBA L_{max} at 50 ft.

Once composite noise levels are calculated, reference noise levels can then be adjusted for distance using the following equation:

$$L_{max} \text{ (at distance } X) = L_{max} \text{ (at 50 feet)} - 20 * \log_{10} \left(\frac{X}{50} \right)$$

In general, this equation shows that doubling the distance would decrease noise levels by 6 dBA while a halving the distance would increase noise levels by 6 dBA.

The closest residence, the single-family home at 65486 Bradley Road, is located approximately 140 ft south of the temporary construction staging area and 430 ft east of the closest pile installation activities. The results of the equations above show that this residence may be subject to short-term noise reaching 79 dBA L_{max} generated by general construction activities, 76.3 dBA L_{max} during pile installation operations and 80.9 dBA L_{max} should pile installation and general construction occur

simultaneously. The short-term construction related noise levels that the single-family residence would be exposed to are below both the County and Caltrans construction noise requirements, therefore, no mitigation would be required..

The Bradley Elementary School is located approximately 735 ft southeast of the temporary construction staging area and 1,075 ft east of the closest pile installation activities. The results of the equations above show that this residence may be subject to short-term noise reaching 64.7 dBA L_{max} generated by general construction activities, 68.5 dBA L_{max} during pile installation operations and 69.9 dBA L_{max} should pile installation and general construction occur simultaneously. The short-term construction related noise levels that the school would be exposed to are below both the County and Caltrans construction noise requirements, therefore, no mitigation would be required.

The single-family home at 73121 Hall Street is located approximately 1,040 ft southeast of the temporary construction staging area and 1,400 ft east of the closest pile installation activities. The results of the equations above show that this residence may be subject to short-term noise reaching 61.6 dBA L_{max} generated by general construction activities, 66.1 dBA L_{max} during pile installation operations and 67.4 dBA L_{max} should pile installation and general construction occur simultaneously. The short-term construction related noise levels that the residence would be exposed to are below both the County and Caltrans construction noise requirements, therefore, no mitigation would be required.

The single-family home at 65653 Bradley Road is located approximately 945 ft east of the temporary construction staging area and 1,370 ft east of the closest pile installation activities. The results of the equations above show that this residence may be subject to short-term noise reaching 62.5 dBA L_{max} generated by general construction activities, 66.3 dBA L_{max} during pile installation operations and 67.8 dBA L_{max} should pile installation and general construction occur simultaneously. The short-term construction related noise levels that the residence would be exposed to are below both the County and Caltrans construction noise requirements, therefore, no mitigation would be required.

CONSTRUCTION AVOIDANCE, MINIMIZATION AND MITIGATION MEASURES

The proposed project shall comply with the County General Plan, Policy S-7.9 by ensuring that no construction activities pursuant to a County permit shall be allowed within 500 ft of a noise sensitive land use during the evening hours of Monday through Saturday, or anytime on Sunday or holidays, prior to completion of a noise mitigation study. Typically, when not specified in a policy or ordinance, that daytime hours occur from 7:00 a.m. to 7:00 p.m. while evening and nighttime hours occur from 7:00 p.m. to 7:00 a.m.

Additionally, the following minimization measures shall be incorporated when construction activities occur within 500 ft of any noise sensitive use:

- The Contractor shall use an alternative warning method instead of a sound signal unless required by safety laws.
- The Contractor shall equip all internal combustion engines with the manufacturer-recommended muffler and shall not operate any internal combustion engine on the job site without its appropriate muffler.

APPENDIX H

CONSTRUCTION TRAFFIC ANALYSIS



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Construction Traffic Analysis

**Bradley Road Bridge Scour Retrofit Project
Over Salinas River
Monterey County, CA**

Prepared for:
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April 29, 2019



Introduction

The following technical memorandum has been prepared to disclose the potential construction-related traffic impacts resulting from implementing scour protection measures to the Bradley Road Bridge (Bridge No. 44C-0050). The County of Monterey (County) RMA - Public Works & Facilities proposes to implement the Bradley Road Bridge Scour Repair Project (proposed project) to address existing scour issues by installing scour countermeasures to protect the Bradley Road Bridge (bridge) piers that are currently exposed due to scour. The bridge identification information is listed below:

05-MON-0-CR
BRLS-5944(100)
Bradley Road Bridge, Co. No. 503, Caltrans Bridge Inventory # 44C-0050
Latitude: 35° 51' 51"
Longitude: 120° 48' 35"

The project will be funded by the Federal Highway Bridge Program (HBP) and toll credits. Because the purpose of the project is to implement scour protection at an existing bridge, neither construction of new infrastructure nor modification of the existing roadway is proposed.

Existing Facility

The Bradley Road Bridge is located approximately 5 miles (mi) north of the Monterey County/San Luis Obispo County border, just west of Bradley and approximately 1/4 mi east of Highway 101.

Bradley Road is an existing two-lane road (one lane in each direction) that is classified by the California Road System (CRS) Maps as a Minor Collector. The bridge was originally constructed in 1931 and widened in 1958. The bridge is oriented generally in an east-west direction and crosses the Salinas River, which flows northwest through the project area and then northwesterly to Monterey Bay.

The existing bridge is approximately 1,668 feet (ft) long by 27 ft wide. The bridge is a twenty-four-span steel truss and concrete girder bridge with 23 concrete piers (Piers 2 through 24) and two concrete abutments (Abutments 1 and 25) (refer to Figure 3: General Bridge Plan). Spans 1–10 (the western-most spans) and spans 17–24 (the eastern-most spans) consist of simply supported, reinforced concrete, “T”-girders. Spans 11–16 consist of five panel, riveted steel, deck trusses.

Overall, the existing bridge is in fair condition with minor deterioration. However, as discussed in more detail below, the bridge has a history of scour at the concrete piers in the low flow channel of the Salinas River. Scour is currently undermining the foundations of Piers 16 through 19.

Install Super Piles at the Footing Caps of the Bradley Road Bridge

The proposed project involves installation of Cast-In-Drilled-Hole (CIDH) concrete piles and retrofit of the pier footing caps at Piers 16 through 19. Two large diameter (120" at Piers 16/17 and 96" at Piers 18/19) CIDH piles will be installed at the end of each existing pier footing. The piles will extend into the new reinforced concrete footing. The new footing will be connected



through drill and bond dowels to the existing footing and pier wall. Retrofitting of the footing caps would involve fully enclosing the existing footings in new, larger concrete footing caps. The new footing retrofits will be 12 ft in width, 8 ft in height, and 66 ft in length at pier 16. The new footing retrofits will be 12 ft in width, 8 ft in height and 62 ft in length at pier 17. The new footing retrofits will be 10 ft in width, 6 ft in height, and 62 ft in length at piers 18 and 19. The new CIDH piles will be designed such that they resist the full loading demands from the existing super and substructures.

Traffic Detours and Construction Signage

The bridge will be open to public use during construction and no traffic detours will be required. Advanced and end-construction signage will be placed at the eastern and western approach of the bridge.

Scheduling

Construction will begin during the spring of 2021, to be completed by fall of 2021, for a total construction duration of approximately five (5) months. Construction activities within the Salinas River are planned to occur July 1 through October 15.

Construction: Construction Worker Commutes and Equipment Delivery

Construction will occur in one phase and is expected to be completed in approximately 110 days. During project construction, Bradley Road will remain open. Trucks can easily access the site off Bradley Road from Highway 101 both on the east and west ends of the bridge, so they will not need to traverse through residential areas.

Peak construction traffic will occur during concrete pour days of the Cast-in-Drilled-Hole (CIDH) Pile and the footing cap as well as when the reinforcing bars of the CIDH is lowered into place. During these periods, there will approximately be 15 employees on site and approximately 10-15 trucks accessing the site through the day and then approximately 10 daily truck trips the remaining construction period. Construction is scheduled to occur between 7 a.m. and 6 p.m. with most of the work completed by 4 p.m. Therefore, to provide the most conservative construction traffic estimate, it is assumed that employees will arrive and depart during the peak hours. To estimate the number of trips being added to the surrounding circulation system, it is assumed that employees will drive to the site in separate vehicles (i.e. no carpooling).

There are eight total piles and each pile will be poured on a unique day due to their significant size. During concrete pour days rebar pile cages may be delivered by truck to the site on the bridge causing additional temporary traffic interruptions. It is anticipated these interruptions will be limited to a maximum of 30 minutes per rebar cage placement, and traffic on Bradley Road will be reduced to a single lane using flagging through the site.

Under these assumptions, construction traffic (e.g. worker commutes and equipment delivery) is expected to add 30 average daily trips (ADT) to the roadways adjacent to the project site. The number of construction trips generated by the proposed project is substantial compared to the existing low ADT volume of Bradley Road but is not expected to significantly impact Bradley Road.



Table A: Existing Roadway ADT Volumes on Bradley Road

ADT Year	ADT Count	Source
2016	210	2018 Caltrans BIRIS
2035 (Future ADT)	695	2018 Caltrans BIRIS
2013	210	Monterey County Public Works Annual ADT Survey

It is anticipated that workers will enter and leave the project site by utilizing Highway 101. The number of construction trips generated by the proposed project is nominal when compared to the existing ADT volume of Highway 101. Therefore, additional traffic associated with the proposed project would not significantly impact Highway 101.

It is not anticipated that workers will enter and leave the project site from the east. Therefore, it is not anticipated that the additional traffic associated with the proposed project will significantly impact the adjacent roadways or surrounding circulation system.

Traffic Management Approach

Although the additional traffic from construction vehicles to the project site is not expected to result in a significant impact on the surrounding roadways, minor impacts and inconveniences to travelers would be minimized by providing proper construction area signs, advance notice and posting of any potential lane closures on Bradley Road and proper flagging during construction activities. This will be documented and required within the Project Specifications and will be coordinated with the Resident Engineer during construction. These project requirements shall include the following: installation of construction signs, notices of construction activities in local media, and advanced notice to the public and local emergency service providers regarding the timing, location, and duration of construction activities. The county shall require the contractor adhere to all requirements during construction.

Conclusion

Based on the results of this construction traffic analysis, the construction of the scour countermeasures at the Bradley Bridge is not anticipated to result in significant impacts to the surrounding circulation system as a result of worker commutes and equipment delivery. Minor impacts and inconveniences would be further reduced with public outreach measures and communication through various media.