Natural Environment Study

Hickman Road over the Tuolumne River Bridge (38C0004)
Replacement Project

Stanislaus County, California

10-STA-0-CR

Federal Project No. BRLS-5938(199)

December 2016

Caltrans
CALIFORNIA DEPARTMENT OF TRANSPORTATION

This page intentionally left blank

Natural Environment Study

STATE OF CALIFORNIA
Department of Transportation
Stanislaus County Department of Public Works,
U.S. DEPARTMENT OF TRANSPORTATION
Federal Highway Administration

Prepared By: _____ Date: 1-25-17

Mike Trueblood, Biologist
LSA Associates, Inc.
916-630-4600

Approved By: _____ Date: 1/25/17

Shoaib Ahrary, PE, Associate Civil Engineer
Stanislaus County Department of Public Works
209-525-4133

Recommended
for Approval By: _____ Date: 2/3/17

Dominic Vitali, District Biologist
California Department of Transportation
District 10 Environmental
209-948-3667

Approved By: _____ Date: 2/3/17

Julie Myrah, Branch Chief
California Department of Transportation
District 10 Environmental
209-948-7427

For individuals with sensory disabilities, this document can be made available in Braille, in large print, on audio cassette, or on computer disk or individuals with sensory disabilities, this document can be made available in Braille, in large print, on audio cassette, or on computer, 1976 East Charter Way / East Dr. Martin Luther King Jr. Blvd., Stockton, CA 95205; (209) 948-7427 (Voice), or use the California Relay Service 1 (800) 735-2929 (TTY), 1 (800) 735-2929 (Voice) or 711

This page intentionally left blank

Summary

The Stanislaus County Department of Public Works (County), in cooperation with the California Department of Transportation (Caltrans) and the Federal Highway Administration (FHWA), proposes to replace Hickman Road Bridge over the Tuolumne River (Bridge No. 38C0004) in eastern Stanislaus County. The project is located 0.15 miles south of State Route (SR) 132 near the town of Waterford in northern Stanislaus County. The purpose of the project is to replace the existing structurally deficient and hydraulically inadequate structure with a structure that would meet current standards and correct the existing deficiencies. The proposed structure would consist of a 750-foot (ft) long cast-in-place post-tensioned box girder with two 12-ft wide travel lanes and two 8-ft wide shoulders, Type 80 Concrete Barriers, and a 5-ft wide sidewalk placed along the upstream edge.

The Biological Study Area (BSA), totaling 26.27 acres (ac), lies in the Central Valley, which is characterized by large, flat areas of agricultural farmland interspersed with urban population centers. Natural land in the BSA is primarily comprised the Tuolumne River and its associated riparian corridor. Remaining habitat in the BSA includes ruderal grassland, pasture, and developed area.

Special status species that may occur in the BSA include seven bat species, western burrowing owl (*Athene cunicularia*), Swainson's hawk (*Buteo swainsoni*), yellow-breasted chat (*Icteria virens*), Pacific pond turtle (*Emys marmorata*), Central Valley steelhead, (*Oncorhynchus mykiss irideus*), and valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*) (VELB). No special status plants are expected to occur in the BSA.

Two of the species listed above are federally listed species under the Federal Endangered Species Act (FESA). The proposed project may affect, and is likely to adversely affect, Central Valley steelhead and VELB; both species are listed as threatened under FESA. A Biological Assessment will be submitted to both the United States Fish and Wildlife Service and the National Marine Fisheries Service in support of consultation pursuant to Section 7 of FESA. This project may affect and is likely to adversely affect VELB and CV steelhead critical habitat. This project may adversely modify CV steelhead.

In addition, this project may adversely modify Chinook EFH and will require consultation pursuant to the Magnuson-Stevens Fishery Conservation and Management Act. Even though ESA listed Chinook salmon species do not occur in the proposed action area, the Tuolumne River does support a fall run Chinook population which is a NMFS species of concern. The proposed project includes numerous avoidance and minimization measures for special status species and habitats to reduce the potential for adverse

effects. However, permanent and temporary impacts to the natural communities that cannot be avoided are discussed below.

The proposed project will impact two natural communities of special concern; red willow thicket and valley oak woodland. The red willow thickets will have permanent impacts totaling 0.003 ac and temporary impacts, totaling 0.77 ac. Removal of the concrete pile caps for the existing bridge piers will result in an 0.009 ac of additional area within the red willow thicket community, and an overall net increase of 0.006 ac to this community when considering the 0.003 ac of permanent impact. The valley oak woodland will have permanent impacts totaling 0.16 ac and temporary impacts totaling 1.03 ac. Removal of the concrete pile caps for the existing bridge piers will result in an 0.019 ac of additional area within the valley oak woodland community, and an overall net impact of 0.141 ac to this community when considering the 0.16 ac of permanent impact.

Permanent impacts to the valley oak woodland community shall require compensation using one of the following methods; or by a combination of methods:

- Preservation, creation, and/or restoration of the impacted resources at a minimum ratio of 3:1. This work would occur within the project impact area and/or nearby areas within the same watershed.

- Purchase of credits as an approved mitigation bank at a minimum 1:1 mitigation ratio.

Central Valley steelhead critical habitat and the Central Valley fall-run Chinook salmon EFH will have permanent impacts totaling .005 ac and temporary impacts totaling 1.46 ac. Removal of the concrete pile caps for the existing bridge piers will result in an 0.027 ac of additional steelhead aquatic habitat, and an overall net increase of 0.022 ac to this habitat when considering the 0.005 ac of permanent impact. These impacts are expected offset through implementation of avoidance and minimization measures.

The VELB rely on elderberry shrubs which will be impacted by the proposed project. A total of 26 elderberry shrubs are within the limits of ground disturbance activities and 8 of the 26 shrubs are within the project footprint. The remaining 18 shrubs are outside of the project footprint but are still within 20 ft, which will result in a temporary direct adverse effect to VELB. Additionally, a total of 44 elderberry shrubs are located between 20 ft and 100 ft of the limit of ground disturbance which may result in potential indirect effects to VELB.

Compensation for project effects to VELB will occur through purchase of credits at an approved mitigation bank. Approximately 56 credits will be required, based on a one credit to 10 plantings ratio, rounded up to the nearest credit. With a current estimated credit cost of $4,000, the total compensatory mitigation cost is expected to be approximately $224,000. In addition, the 8 shrubs to be removed shall be transplanted to

an approved mitigation bank, if feasible (i.e., the shrubs are good candidates for transplanting).

The project will result in minor permanent and temporary impacts to wetlands and non-wetland waters of the U.S. totaling approximately 0.005 ac and 1.453 ac respectively. Removal of the concrete pile caps for the existing bridge piers will result in 0.027 ac of additional waters of the U.S., and an overall net increase of 0.022 ac of waters of the U.S. when considering the 0.005 ac of permanent impact. Permanent impacts to wetlands total approximately 0.001 ac and temporary impacts total 0.343 ac. Permanent impacts to non-wetland waters total approximately 0.004 ac and temporary impacts total 1.110 ac. Therefore, the project will likely require an U.S. Army Corps of Engineers Nationwide Permit, a Water Quality Certification from the Regional Water Quality Control Board, and a Lake and Streambed Alteration Agreement from the California Department of Fish and Wildlife.

This page intentionally left blank

Table of Contents

Tables

Figures

Chapter 1 – Introduction

Stanislaus County (County) Department of Public Works proposes to replace the existing bridge on Hickman Road over the Tuolumne River (Bridge No. 38C0004) located 0.15 mile (mi) south of State Route (SR) 132 near the town of Waterford in northern Stanislaus County (Figures 1–3). The general setting is urban with recreational, commercial retail, and public facility uses. The bridge currently carries vehicular traffic over the Tuolumne River.

The project is funded primarily by the federal-aid Highway Bridge Program administered by the Federal Highway Administration (FHWA) through the California Department of Transportation (Caltrans) Local Assistance. The replacement bridge will meet current applicable County, American Association of State Highway and Transportation Officials (AASHTO), and Caltrans design criteria and standards.

1.1 Project History

1.1.1 PURPOSE AND NEED

The existing Hickman Road Bridge was last inspected by Caltrans in 2013 and has a sufficiency rating of 64.7 out of a possible score of 100, and is classified as Structurally Deficient. In addition, the existing bridge is deemed “Scour Critical” with a scour rating of 3, meaning that the local scour and predicted future degradation will continue to undermine the bridge supports.

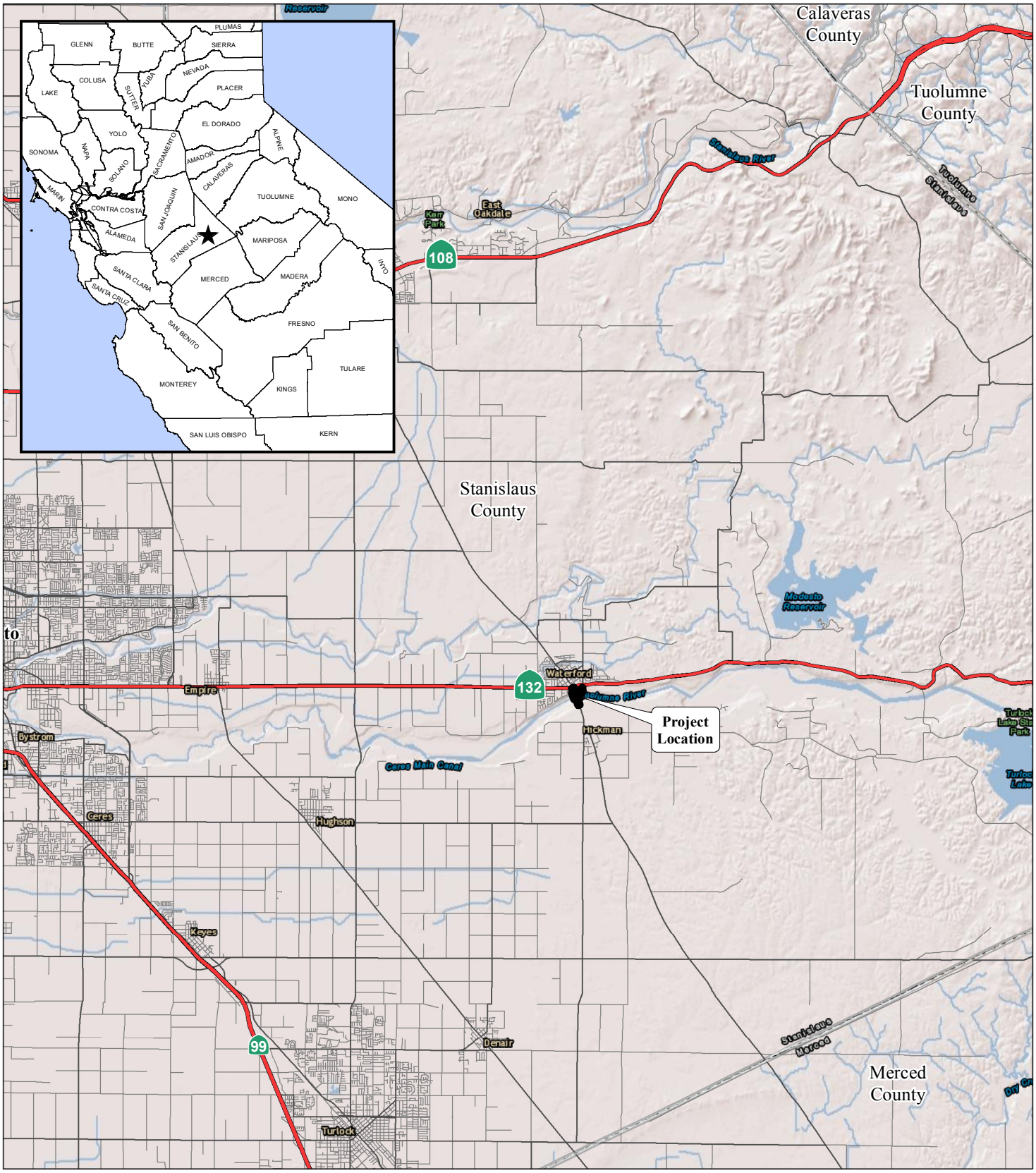
The purpose of this project is to remove the existing structurally deficient structure and replace it with a new bridge designed to current structural and geometric standards while minimizing adverse impacts to the Tuolumne River and the surrounding riparian area.

1.2 Project Description

1.2.1 EXISTING BRIDGE

Constructed in 1946, the existing Hickman Road Bridge over the Tuolumne River is a reinforced concrete (RC) box girder on RC solid pier walls and RC wing abutments supported by steel piles. The bridge is 652.9 ft long, 33.5 ft wide, and within the existing 175 to 200 ft public right-of-way. The curb-to-curb width is 27.9 ft, with two 12 ft wide travel lanes and two 2 ft wide shoulders. The bridge is classified as Structurally Deficient and Scour Critical. The Caltrans bridge inspection report identifies major deficiencies:

- The bridge deck has 12 to 16 inch long transverse and pattern cracks throughout.
- There are several edge spalls or up to 3 ft long by 4 inch wide by 1 inch deep along the right curb in Span 4.



LEGEND

Project Location

FIGURE 1

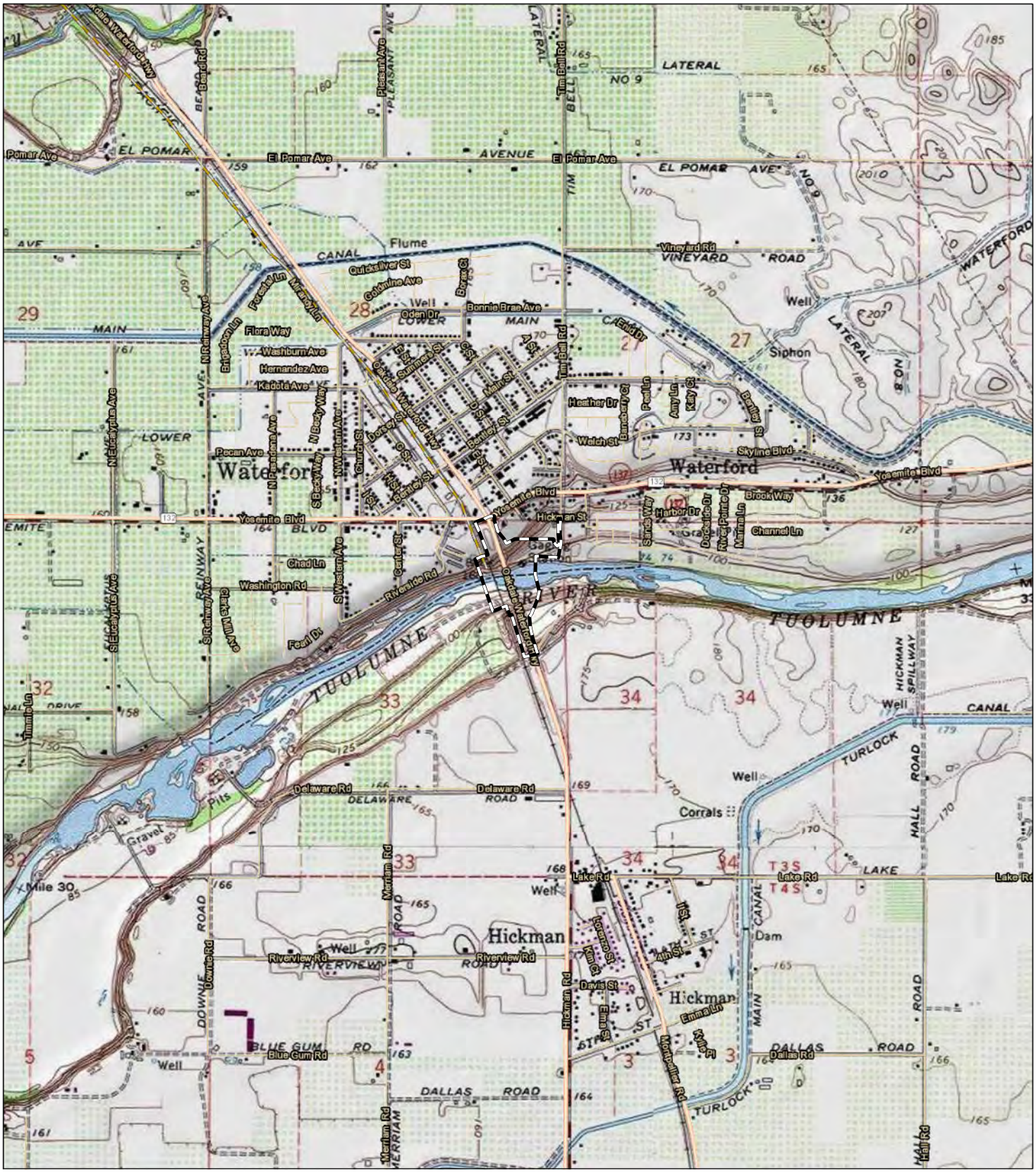
Hickman Road Bridge (38C0004) Replacement Project
Stanislaus County, California
10-STA-0-CR
Federal Project No. BRLO-5938 (199)

Regional Location

0 1.5 3
MILES

SOURCE: ESRI Imagery (2015)

I:\DHG1401\GIS\Reports\NES\NES_fig1-prj_loc.mxd (6/8/2016)



LEGEND

Biological Study Area

FIGURE 2

Hickman Road Bridge (38C0004) Replacement Project
Stanislaus County, California
10-STA-0-CR
Federal Project No. BRLO-5938 (199)
Project Vicinity on Topographic Base

0 1000 2000
FEET

SOURCE: USGS 7.5-Minute Topographic Map (Sheridan and Lincoln)

I:\DHG1401\GIS\Reports\NES\NES_fig2_prj_vicinity_t.mxd (4/27/2016)

LEGEND

Biological Study Area

FIGURE 3

0 500 1000

FEET

Hickman Road Bridge (38C0004) Replacement Project
Stanislaus County, California
10-STA-0-CR
Federal Project No. BRLO-5938 (199)

Project Vicinity on Aerial Base

SOURCE: NAIP Aerial Imagery (7/2014)

I:\DHG1401\GIS\Reports\NES\NES_fig3_prj_vicinity_a.mxd (4/27/2016)

- There is an erosion gulley of approximately 3 ft wide by 5 ft deep along the right slope embankment at Abutment 8 due to roadway runoff.

- The scour protection at Piers 4 and 5 has deteriorated in front and at the upstream right side of the footing with up to 6 ft wide sections missing.

- Settlement and displacement has been observed at Piers 4 and 5.

The existing bridge is approximately 60 feet above the low flow water surface elevation of the Tuolumne River.

1.2.2 REPLACEMENT BRIDGE

The replacement bridge will consist of a 750-ft long cast-in-place post-tensioned box girder with two 12-ft wide travel lanes and two 8-ft wide shoulders, Type 80 Concrete Barriers (1 ft, 9 inch wide – each), and one 5-ft wide sidewalk placed along the upstream edge. The replacement bridge will be constructed immediately upstream of the existing structure, in order to keep the existing road and bridge open to public traffic during construction. The new upstream road alignment will transition and connect back to the existing Hickman Road alignment using a design speed of 45 mph.

The new bridge would be the same height as the existing bridge but 15 ft wider.

1.2.3 UTILITY RELOCATION

Several utilities run through the project site, including a PG&E gas pipe and AT&T telecommunication lines which are mounted to the bridge on the upstream and downstream face respectively. There are no overhead utilities located within the project area. All existing utilities will be relocated onto the new bridge without the need of a temporary relocation.

1.2.4 RIGHT-OF-WAY

Construction of the new bridge on the proposed upstream alignment will require additional permanent right-of-way takes. In addition, temporary construction easements will be required to construct the project.

1.2.5 DETOUR ROUTE

The new bridge will be constructed on a new alignment adjacent to the existing bridge. Traffic will be able to use the existing bridge to cross Tuolumne River during construction of the replacement bridge. The existing bridge will be demolished upon completion of the new bridge construction.

1.2.6 DEMOLITION AND CONSTRUCTION STAGING

Demolition of the existing bridge will be performed in accordance with the Caltrans Standard Specifications modified to meet environmental permit requirements. Following removal of the existing bridge superstructure, the piers and abutments will be removed. The piers are founded on pile caps supported by driven steel H piles. The pile caps will be removed from the river channel and banks.

All concrete and other debris resulting from the demolition of the existing bridge will be removed from the project site and disposed of by the contractor. The construction contractor will prepare a bridge demolition plan.

As is standard with all roadway projects, the contractor will be required to install temporary Best Management Practices (BMPs) to control any runoff or erosion from the project site, into the surrounding waterways. These temporary BMPs will be installed prior to any construction operations and will be in place for the duration of the contract. The removal of these BMPs will be the final operation, along with the project site cleanup.

1.2.7 CONSTRUCTION ACTIVITIES

Construction will consist of the following activities:

- Removing trees, clearing, and grubbing to accommodate the new bridge structure and road approach work
- Excavating for the new bridge foundations (maximum of 80 to 100 feet deep)
- Constructing the new bridge and road approaches, including excavating for and placing asphalt concrete.
- Removing the existing bridge
- Placing erosion control native grass seeds and mulch

Table 1 provides a description of the type of equipment likely to be used during the construction of the proposed project.

Table 1: Construction Equipment

Equipment	Construction Purpose
drill rig	construction of drilled shaft foundations
backhoe	soil manipulation + drainage work
bobcat	fill distribution
bulldozer / loader	earthwork construction + clearing and grubbing
Crane	placement of precast girders
dump truck	fill material delivery
excavator	soil manipulation
front-end loader	dirt or gravel manipulation
grader	ground leveling
haul truck	earthwork construction + clearing and grubbing
roller / compactor	earthwork construction
truck with seed sprayer	landscaping
water truck	earthwork construction + dust control

1.2.8 CONSTRUCTION SEQUENCE/SCHEDULE AND TIMING

Construction is currently scheduled to start in 2018 and take approximately 8 months to complete.

Design plans are shown in Appendix A.

This page intentionally left blank

Chapter 2 – Study Methods

2.1 Regulatory Requirements

2.1.1 SPECIAL STATUS SPECIES

Special status species include plants and animals that are: 1) listed as rare, threatened, or endangered by United States Fish and Wildlife Service (USFWS) or California Department of Fish and Wildlife (CDFW) under State or federal endangered species acts; 2) on formal lists as candidates for listing as threatened or endangered; 3) on formal lists as species of concern; or 4) otherwise recognized at the State, federal, or local level as sensitive.

2.1.1.1 Federal and California Endangered Species Acts

Under the Federal Endangered Species Act (FESA), it is unlawful to "take any species listed as threatened or endangered". "Take" is defined as to "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct." An activity is defined as "take" even if it is unintentional or accidental. "Take" provisions under FESA apply only to listed fish and wildlife species under the jurisdiction of the USFWS and/or the National Oceanic & Atmospheric Administration, National Marine Fisheries Service (NMFS). Consultation with USFWS or NMFS is required if a project "may affect" a listed species.

When a species is listed, the USFWS and/or the NMFS, in most cases, must officially designate specific areas as critical habitat for the species. Consultation with USFWS and/or the NMFS is required for projects that include a federal action or federal funding if the project may affect designated critical habitat.

Under the California Endangered Species Act (CESA), it is unlawful to "take" any species listed as rare, threatened, or endangered. Under CESA, "take" means to "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill". CESA take provisions apply to fish, wildlife, and plant species. "Take" may result whenever activities occur in areas that support a listed species. Consultation with CDFW is required if a project will result in "take" of a listed species.

2.1.1.2 Magnuson-Stevens Fishery Conservation and Management Act

Under the Magnuson-Stevens Fishery Conservation and Management Act (MSA), 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 NMFS for projects that include a federal action or federal funding and may adversely modify EFH.

2.1.2 WATERS OF THE U.S. AND OTHER JURISDICTIONAL WATERS

2.1.2.1 Army Corps of Engineers

Section 404 of the Clean Water Act

Under Section 404 of the Clean Water Act (CWA), the Army Corps of Engineers (ACOE) regulates the discharge of dredged or fill material into waters of the U.S. Waters of the U.S. are those waters that have a connection to interstate commerce, either direct via a tributary system or indirect through a nexus identified in the ACOE regulations. In non-tidal waters, the lateral limit of jurisdiction under Section 404 extends to the ordinary high water mark (OHWM) of a waterbody or, where adjacent wetlands are present, beyond the OHWM to the limit of the wetlands. The OHWM is defined as "that line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear natural line impressed on the bank, shelving, changes in the character of the soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding area" (33 CFR 328.3). In tidal waters, the lateral limit of jurisdiction extends to the high tide line or, where adjacent wetlands are present, to the limit of the wetlands.

Wetlands. Wetlands are defined as "those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for a life in saturated soil conditions".

Non-wetland Waters. Non-wetland waters essentially include any body of water, not otherwise exempted, that displays an OHWM.

Section 10 of the River and Harbors Act

Under Section 10 of the River and Harbors Act (RHA), the ACOE regulates the construction of any structure in or over any navigable water of the United States. Navigable waters are defined as are those waters of the United States that are subject to the ebb and flow of the tide shoreward to the mean high water mark, and/or are presently used, or have been used in the past, or may be susceptible to use to transport interstate or foreign commerce.

2.1.2.2 Regional Water Quality Control Board

Under Section 401 of the CWA, the State Water Resources Control Board must certify all activities requiring a 404 permit. The Regional Water Quality Control Board (RWQCB) regulates these activities and issues water quality certifications for those activities requiring a 404 permit. In addition, the RWQCB has authority to regulate the discharge

of “waste” into waters of the State pursuant to the Porter-Cologne Water Quality Control Act (PCWQCA).

2.1.2.3 California Department of Fish and Wildlife

CDFW, through provisions of Section 1602 of the California Fish and Game Code, is empowered to issue agreements for any alteration of a river, stream, or lake where fish or wildlife resources may be substantially adversely affected. Streams (and rivers) are defined by the presence of a channel bed and banks, and at least an ephemeral or intermittent flow of water. CDFW regulates wetland areas only to the extent that those wetlands are part of a river, stream, or lake as defined by CDFW.

CDFW generally includes, within the jurisdictional limits of streams and lakes, any riparian habitat present. Riparian habitat includes willows, cottonwoods, and other vegetation typically associated with the banks of a stream or lake shoreline. In most situations, wetlands associated with a stream or lake would fall within the limits of riparian habitat. Thus, defining the limits of CDFW jurisdiction based on riparian habitat will automatically include any wetland areas. Riparian communities may not fall under ACOE jurisdiction unless they are below the OHWM or classified as wetlands.

2.1.2.4 Executive Order (EO) 11990: Protection of Wetlands

EO 11990 mandates leadership on the part of federal agencies to reduce loss and degradation of wetlands and to preserve and enhance the beneficial values and functions of wetlands. Each federal agency “shall avoid undertaking or providing assistance for new construction located in wetlands unless the head of the agency finds that (1) 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.”

2.1.2.5 U.S. Coast Guard

Pursuant to the General Bridge Act of 1946, the U.S. Coast Guard (USCG) must approve the location and plans of bridges over navigable waterways prior to start of construction. The USCS has granted Advance Approval to the location and plans of bridges to be constructed across reaches of waterways navigable in law, but not actually navigated other than by logs, log rafts, rowboats, canoes and small motorboats.

2.1.3 MIGRATORY BIRD TREATY ACT

The Migratory Bird Treaty Act (MBTA) prohibits actions that will result in “take” of migratory birds, their eggs, feathers, or nests. “Take” is defined in the MBTA as any means or any manner to hunt, pursue, wound, kill, possess, or transport, any migratory bird, nest, egg, or part thereof.

Migratory birds are also protected, as defined in the MBTA, under Section 3513 of the California Fish and Game Code.

2.1.4 CALIFORNIA FISH AND GAME CODE (BREEDING BIRDS)

Section 3503 of the California Fish and Game Code prohibits the take, possession, or needless destruction of the nest or eggs of any bird, except as otherwise provided by the California Fish and Game Code or other regulation.

2.1.5 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 Invasive Species Council.

In addition to other mandates, EO 13112 mandates federal agencies whose actions may affect the status of invasive species to “not authorize, fund, or carry out actions that it believes are likely to cause or promote the introduction or spread of invasive species”.

2.1.6 CALIFORNIA PUBLIC RESOURCES CODE 21083.4: IMPACTS TO OAK WOODLANDS

Counties are required to evaluate impacts to oak woodlands as part of the environmental analysis conducted in compliance with the California Environmental Quality Act (CEQA). If a County determines a proposed project may result in the conversion of oak woodlands that will have a significant effect on the environment, the County must require the project to comply with one or more of the oak woodlands mitigation measures set forth in the Code.

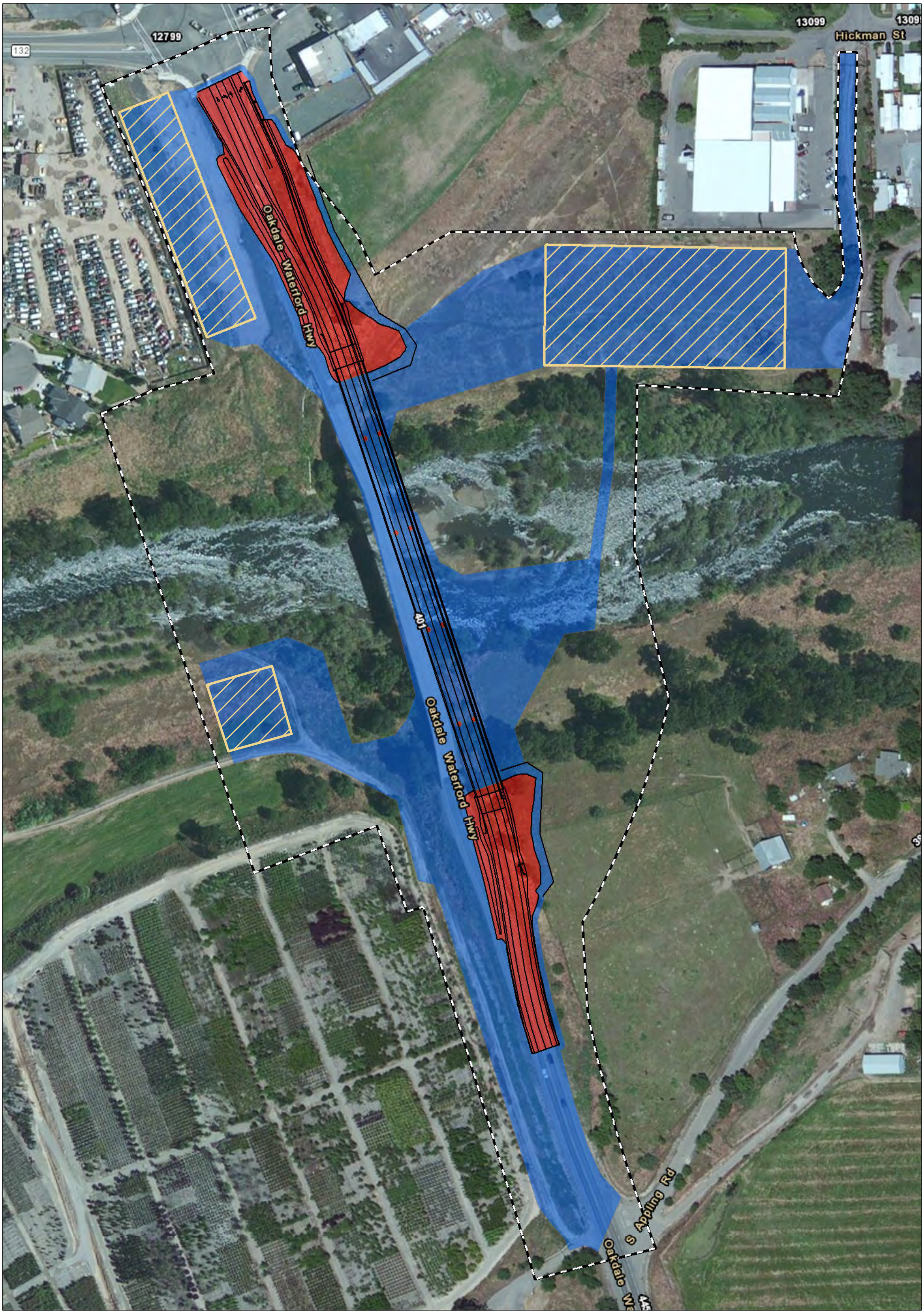
2.2 Studies Required

2.2.1 LITERATURE REVIEW

A list of sensitive wildlife and plant species potentially occurring within the BSA and vicinity was compiled to evaluate potential impacts resulting from project construction. Sources used to compile the list include the California Natural Diversity Data Base (CNDDB 2016), the California Native Plant Society (CNPS) Online Edition (2016), and the U.S. Fish and Wildlife Service, Sacramento Field Office (USFWS 2016) referencing the Escalon, Oakdale, Knights Ferry, Paulsell, Montpelier, Denair, Ceres, Riverbank, and Waterford 7.5-Minute United States Geologic Survey (USGS) quadrangles. The individual lists are included in Appendix B.

The special status species lists obtained from the CNDDB, CNPS, and USFWS were reviewed to determine which species could potentially occur within the vicinity of the BSA. The cumulative list (shown in Table 5, Section 3.2) includes numerous species representing a variety of habitat types. The list includes each species' protection status, habitat information, status in the BSA, and supporting comments as necessary (Figure 4).

The determination of whether a species could potentially occur within the BSA was based on the availability of suitable habitat within the species' known range, as well as known occurrences of the species in or adjacent to the BSA according to the CNDDB. Species requiring specific habitat not present in the vicinity of the project were eliminated as potentially occurring and are not discussed further. Those species that could potentially occur in the BSA based on habitat suitability or known occurrences in or within the vicinity of the BSA are discussed in Sections 4.2 and 4.3.



LEGEND

- Biological Study Area
- Project Design
- Permanent Impact Area
- Temporary Impact Area
- Staging Areas

0 75 150
FEET

SOURCE: Basemap - Microsoft Aerial Imagery (2/2012); Mapping - Drake Haglan & Associates (2016)

I:\DHG1401\GIS\Reports\NES\NES_fig4_bio_study_prjt_des.mxd (4/27/2016)

FIGURE 4

Hickman Road Bridge (38C0004) Replacement Project
Stanislaus County, California
10-STA-0-CR
Federal Project No. BRLO-5938 (199)

Biological Study Area and Project Design

2.2.2 FIELD SURVEYS

The studies required to fully document the environmental conditions of the BSA included a general biological survey, vegetation mapping, delineation of jurisdictional waters, tree inventory, elderberry shrub inventory, and a bat habitat assessment.

2.2.2.1 General Biological Survey/Vegetation Mapping

A general biological survey of the BSA was conducted by LSA biologists Mike Trueblood and Dayna Winchell on May 15, 2015 and by LSA biologists Laura Belt and Stefan de Barros on September 16, 2015. Naturally occurring vegetation in the BSA was classified according to A Manual of California Vegetation, Second Edition (Sawyer, Keeler-Wolf, and Evans 2008), as appropriate. Managed or developed areas were classified according to their dominant plant species. The names of the plant species are consistent with The Jepson Manual: Vascular Plants of California, Second Edition (Baldwin, B. G., et. al., editors 2012).

Wildlife species observed during the survey were identified and recorded. During this survey, the BSA was also surveyed for potential habitat to support special status plants.

2.2.2.2 Potential Jurisdictional Waters Determination and Delineation

Potential waters of the U.S. in the BSA were delineated in accordance with the 1987 ACOE Wetland Delineation Manual (1987 Manual), the September 2008 Regional Supplement - Arid West Region, and the ACOE Regulatory Guidance Letter 08-02 regarding Preliminary Jurisdictional Delineations (June 2008).

LSA biologists Mike Trueblood and Stefan de Barros conducted a preliminary jurisdictional delineation on December 8, 2015. The field investigation was conducted in accordance with the ACOE Routine Approach for small areas (i.e., equal to or less than 5 ac), as described in the 1987 Manual. Data was collected for soils, hydrology, and vegetation where necessary to determine the extent of potential waters of the U.S. Data sheets and photopoint photos are included in Appendix C.

2.2.2.3 Tree Inventory

LSA biologists Laura Belt and Stefan de Barros conducted an inventory of native trees on September 16, 2015. Data was collected on species, diameter at breast height, and any notable characteristics. The results of the tree survey are included in Appendix D.

2.2.2.4 Valley Elderberry Longhorn Beetle Inventory Survey

LSA biologists Mike Trueblood and Dayna Winchell conducted inventory surveys for blue elderberry (*Sambucus nigra* ssp. *caerulea*) on May 15, 2015, in accordance with the

USFWS Conservation Guidelines for the Valley Elderberry Longhorn Beetle, dated July 1999. All lands within the BSA and a 100 ft radius of proposed ground disturbance were surveyed for presence of blue elderberry, the obligate host plant for the VELB. An inventory list of all elderberry shrubs identified in the BSA is included in Appendix E.

2.2.2.5 Bat Habitat Assessment

Wildlife Research Associates bat specialist Greg Tatarian conducted a daytime habitat assessment and bridge survey on November 5, 2015. The survey involved the use of a high-powered spotlight, spotting scope and binoculars to survey the existing bridge structure. There results of the survey and recommended avoidance measures are included in Appendix F.

2.3 Personnel and Survey Dates

Table 2 below provides a summary of the field surveys performed for this project.

Table 2: Survey Dates and Personnel

Date	Task	Personnel
May 15, 2015	general site survey, valley elderberry beetle survey	M. Trueblood, D. Winchell
September 16, 2015	general site survey, tree survey	L. Belt, S. de Barros
November 5, 2015	bat habitat assessment	G. Tatarian[1]
December 8, 2015	jurisdictional waters delineation	M. Trueblood, S. de Barros

Note: [1] G. Tatarian works for Wildlife Research Associates. Mr. Tatarian conducted the bat habitat assessment as a subconsultant to LSA.

2.4 Agency Coordination and Professional Contacts

There has been no agency coordination for this project to date.

2.5 Limitations That May Influence Results

No problems or limitations were encountered during the research, fieldwork, or document preparation that influenced the results presented herein.

This page intentionally left blank

Chapter 3 – Results: Environmental Setting

3.1 Description of the Existing Physical and Biological Conditions

3.1.1 BIOLOGICAL STUDY AREA

The BSA, totaling 26.27 ac, is located approximately 0.15 mi south of SR-132 near the town of Waterford in northern Stanislaus County. The project is located in the 7.5-Minute USGS Waterford quadrangle, T3S R11E 33 NE.

3.1.2 PHYSICAL CONDITIONS

The BSA lies in the Central Valley, which is characterized by large flat areas of agricultural farmland interspersed with urban population centers. The majority of the land in the area is privately owned and appears to be similar to the BSA in use and vegetative characteristics.

Hickman Road runs north to south through the BSA and consists of a two-lane asphalt roadway. The existing crossing over the Tuolumne River is a two-lane, seven-span bridge.

The Tuolumne River is a perennial river that originates in Yosemite National Park, within the Sierra Nevada Mountains. Within the BSA, the Tuolumne River flows from east to west and supports an established riparian corridor. Downstream of Hickman Road, the Tuolumne River meanders through farmlands of the central San Joaquin Valley before draining into the San Joaquin River approximately 22.75 mi west of the BSA.

The terrain in the BSA and surrounding area is generally flat, with the exception of the topography directly adjacent to the river. Elevation at river level is approximately 75 ft; surrounding elevations range from 70 ft to 160 ft. The dominant vegetation communities in the BSA generally consist of those associated with the Tuolumne River established riparian corridor, which includes red willow thickets, valley oak woodland, and ruderal grassland. Areas associated with the bridge approaches are mainly disturbed communities including pasture and ruderal/disturbed areas. Developed areas within the BSA, totaling 3.34 ac, consist of Hickman Road, a private driveway and a tree nursery. Primary land uses in the immediate vicinity are urban development to the north, and rural residences, agricultural fields, and orchards in all other directions.

Representative photos are included in Appendix G.

3.1.3 BIOLOGICAL CONDITIONS IN THE BIOLOGICAL STUDY AREA

3.1.3.1 Natural Communities

Three natural communities were identified in the BSA: Valley oak woodland, red willow thicket, and riverine. Natural communities comprise approximately 9.37 ac of the BSA, as summarized in Table 3 and shown in Figure 5. Other vegetation communities in the BSA included ruderal grassland and pasture, totaling 13.54 ac.

Table 3: Vegetation Communities and Land Uses in the BSA (acres)

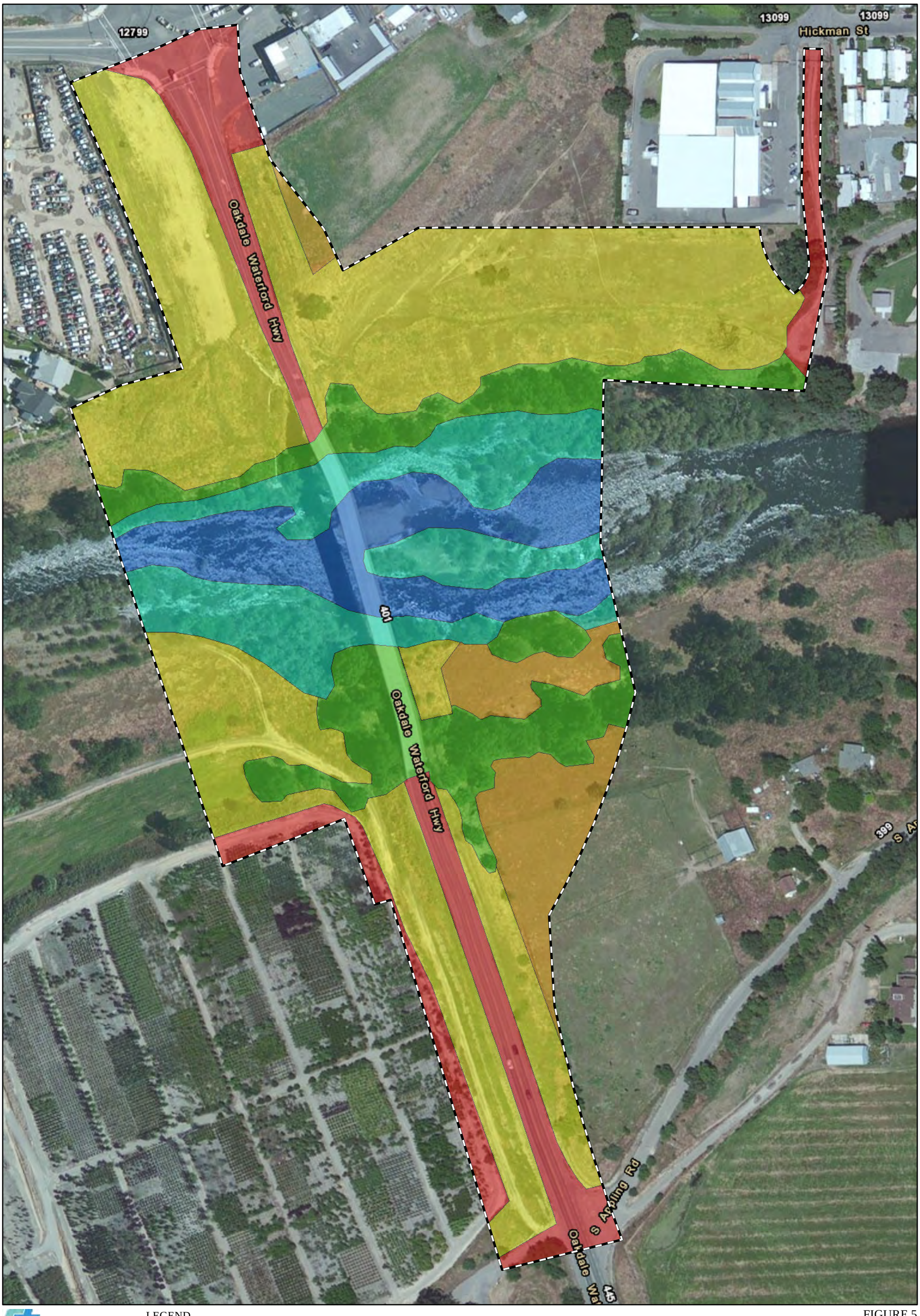
Community/Land Use	Acres
Natural Communities	
Red Willow Thicket	3.31
Valley Oak Woodland	3.53
Riverine	2.53
Subtotal Natural Communities	***9.37***
Other Vegetation Communities	
Ruderal Grassland	11.7
Pasture	1.84
Subtotal Other Vegetation Communities	***13.54***
Land Uses	
Developed	3.34
Subtotal Developed	***3.34***
Total	**26.27**

Red Willow Thicket

In the BSA, red willow thickets, totaling 3.31 ac, are located on both banks of the Tuolumne River and on an interior gravel bar. This community is dominated by red willow (*Salix laevigata*) and black willow (*Salix gooddingii*). Other representative trees observed included Fremont's cottonwood (*Populus fremontii*), narrow-leaved willow (*Salix exigua*), and tree tobacco (*Nicotiana glauca*). The understory is dominated by Himalayan blackberry (*Rubus armeniacus*).

Valley Oak Woodland

In the BSA, valley oak woodlands, totaling 3.53 ac, occur parallel to the red willow thickets on the north bank of the Tuolumne River and in two areas on the south bank. Valley oak (*Quercus lobata*) is the dominant overstory species. The understory consists



LEGEND

- Biological Study Area

Natural Communities / Land Uses - (26.24 ac)

- Red Willow Thicket - (3.31 ac)
- Valley Oak Woodland - (3.53 ac)
- Riverine - (2.53 ac)
- Ruderal Grassland - (11.69 ac)
- Pasture - (1.84 ac)
- Developed - (3.34 ac)

Caltrans

N

0 75 150
FEET

SOURCE: Basemap - Microsoft Aerial Imagery (2/2012); Mapping - LSA Associates, Inc. (2015)

I:\DHG1401\GIS\Reports\NES\NES_fig5_plant comm.mxd (4/27/2016)

FIGURE 5

Hickman Road Bridge (38C0004) Replacement Project
Stanislaus County, California
10-STA-0-CR
Federal Project No. BRLO-5938 (199)

Natural Communities / Land Uses

of Italian rye grass (*Festuca perennis*), bicolored lupine (*Lupinus bicolor*), blue wild rye (*Elymus glaucus*), ripgut brome (*Bromus diandrus*), and soft chess (*Bromus hordeaceus*).

Riverine

This 2.53 ac area consists of the Tuolumne River and braided low flow channels associated with the river. Also included in the community are gravel bars that are present during low-flow periods in late spring, summer, and fall.

3.1.3.2 Other Vegetation Communities

Other vegetation communities within the BSA, totaling 16.9 ac, include ruderal grassland, pasture and developed land.

Ruderal Grassland

The ruderal grassland community is likely a former natural community that has been subject to regular disturbance and now has a large component of ruderal species. The vegetation that grows in these areas are those able to quickly colonize and can grow in poor soil and soil that is often disturbed. In the BSA, ruderal grassland, totaling 11.7 ac, occurs primarily along the roadway shoulders and north of the river bordering the Tuolumne River riparian corridor. The dominant plants are rye grass, bicolored lupine, blue wild rye, and ripgut brome. Yellow star thistle (*Centaurea solstitialis*) is also present.

Pasture

Pastures, totaling 1.84 ac, occur on the southeastern side of the BSA and are bisected from east to west by valley oak woodland. The dominant plants in the community are rye grass, blue wild rye, ripgut brome, soft chess, and mustard (*Brassica* sp.).

Developed

There are two types of development within the BSA (paved roadway and a tree nursery), totaling 3.34 ac. The nursery is located the southwestern portion of the BSA and Hickman Road bisects the BSA from north to south. There is another private road in the northeast corner of the BSA.

3.1.3.3 Description of Common Animal Species

The sections below discuss animal species observed and/or likely to occur within the BSA.

Mammals

Two mammal species, California ground squirrel (*Otospermophilus beecheyi*) and unknown bat species (sign), were observed in the BSA during field surveys. Other

common species likely to occur in the BSA include coyote (*Canis latrans*), raccoon (*Procyon lotor*), striped skunk (*Mephitis mephitis*), and opossum (*Didelphis virginiana*).

Birds

Birds observed in the BSA during field surveys include red-shouldered hawk (*Buteo lineatus*), red-tailed hawk (*Buteo jamaicensis*), Cooper's hawk (*Accipiter cooperii*), turkey vulture (*Cathartes aura*), northern mockingbird (*Mimus polyglottos*), yellow-billed magpie (*Pica nuttalli*), European starling, (*Sturnus vulgaris*), black phoebe (*Sayornis nigricans*), Black-and–white warbler (*Mniotilta varia*), killdeer (*Charadrius vociferus*), western scrub jay (*Aphelocoma californica*), California quail (*Callipepla californica*), Anna's hummingbird (*Calypte anna*), belted kingfisher (*Megaceryle alcyon*), mourning dove (*Zenaida macroura*), and cliff swallow (*Petrochelidon pyrrhonota*).

Other common bird species that may occur in the BSA include: American crow (*Corvus brachyrhynchos*), house sparrow (*Passer domesticus*), Brewer's blackbird (*Euphagus cyanocephalus*); rock pigeon (*Columba livia*), California towhee (*Melozone crissalis*), spotted towhee (*P. maculatus*), Bewick's wren (*Thryomanes bewickii*), white breasted nuthatch (*Sitta carolinensis*), wild turkey (*Meleagris gallopavo*), northern flicker (*Colaptes auratus*), American robin (*Turdus migratorius*), bushtit (*Psaltriparus minimus*), and wrentit (*Chamaea fasciata*).

Amphibians and Reptiles

No amphibians were observed during the field surveys. Common amphibian species likely to occur in the BSA include the American bullfrog (*Lithobates catesbeianus*), Pacific chorus frog (*Pseudacris sierra*), and California toad (*Anaxyrus boreashalophilus*).

No reptile species were observed during the field surveys. The BSA provides marginal habitat for the Pacific pond turtle (*Emys marmorata*), in some of the backwater ponded areas. Other reptile species likely to occur in the BSA include western terrestrial garter snake (*Thamnophis elegans*), western rattlesnake (*Crotalus oreganus*), common gopher snake (*Pituophis catenifer*), and western fence lizard (*Sceloporus occidentalis*).

3.1.3.4 Migration Corridors

Wildlife movement corridors are linear habitats that function to connect two or more areas of significant wildlife habitat. These corridors may function on a local level as links between small habitat patches (e.g., streams in urban settings) or may provide critical connections between regionally significant habitats (e.g., deer movement corridors). Wildlife corridors typically include vegetation and topography that facilitate the movements of wild animals from one area of suitable habitat to another in order to fulfill foraging, breeding, and territorial needs. These corridors often provide cover and protection from predators that may be lacking in surrounding habitats. Wildlife corridors generally include riparian zones and similar linear expanses of contiguous habitat.

The Tuolumne River originates east of the BSA in Yosemite National Park within the Sierra Nevada Mountains. It joins the San Joaquin River approximately 22.75 mi west of the BSA. The Tuolumne River, and its tributaries, and associated riparian habitat provide a network of suitable migration corridors for wildlife. The river itself serves as a migration route and established movement corridor for aquatic and terrestrial wildlife through the BSA between the mountains to the east and the valley to the west.

3.1.3.5 Aquatic Resources

Aquatic resources in the BSA consist of the Tuolumne River, its associated wetlands and riparian corridor, and two ephemeral roadside ditches adjacent to the Hickman Road Bridge southern approach. The Tuolumne River is a perennial waterway that originates from the Yosemite Valley in the high sierras, meanders through the Central Valley, and eventually confluences with San Joaquin River. The reach of the Tuolumne River within the BSA is low gradient with steep banks consisting of a series of riffles, glides, and small pools approximately 12-48 inches deep. The bed is composed of river rock, cobble, and sand. The OHWM ranges from approximately 220-390 ft within the BSA; the low-flow channel (in November 2015) was approximately 50 ft wide. Indicators used to determine the limits of the OHWM included scour marks along the incised banks of channel, watermarks and vegetative drift deposits, and general topography of the area. The subject reach of the river supports a well-established riparian corridor.

Potential wetlands in the BSA are limited to the Tuolumne River above the low-flow channel and consist of fringe wetlands on both banks of the live channel and a few scattered ponded areas. These satellite ponded areas inundate during high river flows and appear to remain ponded perennially. Vegetation within the wetland areas are dominated by a variety of hydrophytic species including knotweed (*Polygonum* sp.), water hyacinth (*Eichhornia crassipes*), spikerush (*Eleocharis* sp), duckweed (*Lemna minor*), western vervain (*Verbena lasiostachys*), red willow, and narrow-leaved willow. Other representative hydrophytic species include water primrose (*Ludwigia peploides*), Bermuda grass (*Cynodon datylon*), dallis grass (*Paspalum dilatatum*), buttonbush (*Cephalanthus occidentalis*), pennyroyal (*Mentha pulegium*), nutsedge (*Cyperus eragrostis*), cocklebur (*Xanthium strumarium*), and black willow. Therefore, these areas meet the ACOE vegetation criterion for wetlands.

Soils generally consisted of river rock and cobbles with pockets of coarse sand. Locations consisting of river rock and cobble were considered naturally problematic making it difficult to identify hydric soil indicators. At these locations, hydric soil indicators were not used to evaluate wetland status. Additionally, some locations were deeply inundated and soil pits could not be dug. Only two wetland locations provided soil color indicators and consisted of Munsell Moist 10YR 4/1 with redoximorphic concentrations of 5YR 5/8 at approximately 10 percent and 5GY 5/1 gleyed soil respectively. These

locations met the requirements of the Sandy Redox and Sandy Gleyed Matrix indicators for hydric soils, thus meeting the ACOE hydric soils criterion for wetlands.

The majority of the soils were either inundated or saturated during the field surveys; both inundation and saturation are primary hydrology indicators. Based on the presence of these indicators, it is reasonable to presume that these areas are typically inundated and/or saturated to the surface for at least 14 days during the growing season, thus meeting the minimum ACOE hydrology criterion for wetlands.

Areas within the OHWM that do not support wetlands (i.e., the unvegetated low-flow channel, sandy wash areas, and ephemeral roadside ditches) were determined to be non-wetland waters.

As noted in Section 2.3, data collection occurred on December 8, 2015; wetland data sheets are included in Appendix C. Figure 6 shows the potential jurisdictional waters in the BSA, which are also summarized below in Table 4.

Table 4: Potential Jurisdictional Waters in the BSA (acres)

Features	Area
Wetland Waters of the U.S.	
Tuolumne River	1.28
Subtotal Wetlands	***1.28***
Non-wetland Waters of the U.S.	
Tuolumne River	4.29
Ephemeral Roadside Drainages	0.06
Subtotal Non-wetland Waters	***4.35***
Total Waters of the U.S.	**5.62**
Total CDFW 1602 Waters[1]	**9.09**

The aquatic resources within the BSA described above are expected to be under the jurisdiction of ACOE, RWQCB, and CDFW pursuant to their authority described in Section 2.1.2. Potential jurisdiction of aquatic resources is discussed in Section 5.4.

[1] CDFW 1602 Waters include the Tuolumne River plus adjacent riparian areas.

LEGEND

- Biological Study Area
- Data Point
- CDFW Waters - (9.09 ac)

Potential Jurisdictional Waters of the U.S. - (5.63 ac)

- Wetlands - (1.28 ac)
- Non-wetland Waters - (4.35 ac)

0 75 150
FEET

FIGURE 6

Hickman Road Bridge (38C0004) Replacement Project
Stanislaus County, California
10-STA-0-CR
Federal Project No. BRLO-5938 (199)

Potential Jurisdictional Waters

SOURCE: Basemap - Microsoft Aerial Imagery (2/2012); Mapping - LSA Associates, Inc. (2015)
I:\DHG1401\GIS\Reports\NES\NES_fig6_juris_water.mxd (4/27/2016)

3.1.3.6 Invasive Species

Many non-native species have been part of the California landscape for the past 150 years. Some of these introduced species are invasive, such as oats, barley, and rye, and are present in the ruderal areas within the BSA. However, these species are primarily annual or biennial, and are at most moderately invasive. Serious invasive species, including Himalayan blackberry and yellow star thistle, were observed in the BSA.

3.2 Regional Species and Habitats of Concern

Table 5 provides a list of special status species that could potentially occur in the region, and therefore in the BSA; this list was compiled as described in Section 2.2.1.

A review was conducted of the specific habitats required by each species listed in Table 5, and the specific habitats and habitat conditions present in the BSA. Based on this evaluation, it was determined whether the species listed in Table 5 had potential to occur in the BSA. Special status species that were observed, or determined to potentially occur in the BSA based on availability of suitable habitat or other factors such as plucking posts, scat, nests, dens, etc., are discussed more fully in Sections 4.2 and 4.3 of this report. Species determined unlikely to occur in the BSA based on these same factors are documented accordingly in the table and not discussed further in this report.

Four invertebrates, obscure bumble bee (*Bombus caliginosus*), crotch bumblebee (*Bombus crotchii*), Stanislaus harvestman (*Calicina breva*), and Button's sierra sideband (*Monadenia mormonum buttoni*), appear on the lists but have no special status. Because little to no information is available about these species, and they have no status, they are not included in Table 5.

Table 5: Special Status Species and Natural Communities of Special Concern Potentially Occurring in the Biological Study Area

Scientific Name	Common Name	Status	Habitat Requirements	Habitat Present /Absent	Rationale
Mammals					
Antrozous pallidus	Pallid Bat	CSC	Found in a variety of habitats, including grassland, chaparral, woodland and forest. Most common in open, dry habitats with rocky areas for roosting. Roosts in caves, crevices, mines, hollow trees and buildings.	HP	Suitable habitat is present in the BSA, see discussion in Section 4.3.1.
Corynorhinus townsendii	Townsend's big-eared bat	SC; CSC	Occurs in a variety of habitats including valley oak savannah, riparian forest, and prairie. Roosts in caves, tunnels, buildings, mines, or other human-made structures, such as bridges. Requires roosting, maternity sites free from human disturbance.	HP	Suitable habitat is present in the BSA, see discussion in Section 4.3.1.
Eumops perotis californicus	Greater western mastiff bat	CSC	Found in many open, semi-arid to arid habitats, including conifer and deciduous woodlands, coastal scrub, grasslands, chaparral, etc. Roosts in crevices in cliff faces, high buildings, trees, and tunnels.	HP	Suitable habitat is present in the BSA, see discussion in Section 4.3.1.
Lasioncycteris noctivagans	Silver-haired bat	CA SA	Primarily a coastal and montane forest dweller. Foraging habitat includes streams, ponds, and open brushy areas. Roosts in tree hollows such as tree bark cracks, woodpecker holes and other openings.	HP	Suitable habitat is present in the BSA, see discussion in Section 4.3.1.
Lasiurus blossevilli	Western red bat	CSC	Roosts primarily in trees, 2–40 ft. above the ground. Feeds over a wide variety of habitats including grasslands, shrub land, open woodland, and croplands.	HP	Suitable habitat is present in the BSA, see discussion in Section 4.3.1.
Lasiurus cinereus	Hoary bat	CA SA	Found in open habitats or habitat mosaics, with access to trees for cover and open areas or habitat edges for feeding. Roosts in dense foliage of medium to large trees.	HP	Suitable habitat is present in the BSA, see discussion in Section 4.3.1.

Scientific Name	Common Name	Status	Habitat Requirements	Habitat Present /Absent	Rationale
Myotis yumanensis	Yuma myotis	CA SA	Found in a variety of habitats, especially open forests and woodlands, near permanent sources of water. Roosts in bridges, buildings, cliff crevices, caves, mines, and trees.	HP	Suitable habitat is present in the BSA, see discussion in Section 4.3.1.
Vulpes macrotis mutica	San Joaquin kit fox	FE, ST	Annual grasslands or grassy open stages with scattered vegetation; need loose-textured soils for burrowing, and a suitable prey base.	A	There were no CNDDB records within the search area and the BSA is outside the range of this species.
Birds					
Agelaius tricolor	Tricolored blackbird	CSC	Nests in freshwater marshes with tules or cattails, or in other dense vegetation such as thistle, blackberry thickets, etc. in close proximity to open water. Forages in a variety of habitats including pastures, agricultural fields, rice fields, and feedlots within a mile or two of nesting area.	A	No freshwater marshes with tules, cattails, or other thick vegetation are present in the BSA or within 2 mi of the BSA.
Athene cunicularia	Western burrowing owl	CSC	Burrow sites in open, dry, annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation. Subterranean nester, dependent upon burrowing mammals, most notably, California ground squirrel.	HP	Marginally suitable habitat is present in the BSA; see discussion in Section 4.3.2.
Buteo swainsoni	Swainson's hawk	ST	Breeds in stands with few trees in juniper-sage flats, riparian areas, and oak savannahs. Requires adjacent suitable foraging areas such as grasslands, or alfalfa or grain fields supporting rodent populations.	HP	Suitable habitat is present in the BSA, see discussion in Section 4.3.3.
Icteria virens	Yellow-breasted chat	CSC	Preferred habitats include dense thickets and brush, often with thorns, streamside tangles, and dry brushy hillsides.	HP	Suitable habitat is present in the BSA, see discussion in Section 4.3.4.

Scientific Name	Common Name	Status	Habitat Requirements	Habitat Present /Absent	Rationale
Reptiles					
Emys marmorata	Pacific pond turtle	CSC	Occurs in permanent or nearly permanent water sources, ponds, marshes, rivers, streams and irrigation ditches with emergent vegetation and basking sites. Lay eggs in upland habitat consisting of sandy banks or grassy, open fields.	HP	Suitable habitat is present; see discussion in Section 4.3.5.
Thamnophis gigas	Giant garter snake	FT, ST	Streams and sloughs, usually with mud bottom. One of the most aquatic of garter snakes; usually in areas of freshwater marsh and low-gradient streams with emergent vegetation, also drainage canals, irrigation ditches, ponds, and small lakes.	A	This species is believed to be extirpated from Stanislaus County. It is not expected to occur in the BSA.
Amphibians					
Ambystoma californiense	California tiger salamander	FT; ST	Most commonly found in annual grassland habitat, but also occurs in grassy understory of valley-foothill hardwood habitats, and uncommonly along stream courses in valley-foothill riparian habitats. Requires vernal pools or other seasonal water bodies for breeding. Needs underground refuges, especially ground squirrel burrows.	A	No habitat is present; there are no vernal pools, ponds or other suitable breeding habitat for this species in the vicinity of the BSA.
Rana draytonii	California red-legged frog	FT, CSC	Lowlands and foothills in or near permanent sources of deep water with dense, shrubby or emergent riparian vegetation.	A	This species is believed to be extirpated from the valley floor. This species is not expected to occur within the BSA.
Spea hammondii	Western spadefoot toad	CSC	Occurs primarily in grassland habitats but also found in valley-foothill hardwood woodlands. Vernal pools are essential for breeding and egg-laying.	A	No habitat is present; no vernal pools occur within the BSA.

Scientific Name	Common Name	Status	Habitat Requirements	Habitat Present /Absent	Rationale
Fish					
Hyopmesus transpacificus	Delta smelt	FT	With the exception of spawning season, delta smelt generally inhabits the freshwater-saltwater mixing zone of an estuary. Spawning occurs in river channels upstream from the mixing zone.	A	No suitable habitat present in the BSA.
Mylopharadon conocephalus	Hardhead	CSC	Low to mid-elevation streams in the Sacramento-San Joaquin drainage. Found in clear deep pools with sand/gravel/boulder bottoms and slow water velocity.	A	No suitable habitat present in the BSA. Water velocities in the Tuolumne River are too high for this species.
Oncorhynchus mykiss irideus	Central Valley steelhead	FT	Populations occur and spawn in the Sacramento and San Joaquin rivers and their tributaries.	HP	Suitable habitat is present in the BSA and the reach of the Tuolumne River is designated critical habitat for this species. See discussion in Section 4.3.6.
Oncorhynchus mykiss irideus	Central Valley steelhead Critical Habitat	----	Sacramento and San Joaquin rivers and their tributaries.	HP	The Tuolumne River is designated critical habitat for Central Valley steelhead. See discussion in Section 4.3.6.
Oncorhynchus tshawytscha	Central Valley Fall-Run Chinook salmon Essential Fish Habitat	----	Sacramento and San Joaquin Rivers and tributaries. Primarily found in Butte, Big Chico, Deer and Mill creeks.	HP	The Tuolumne River is designated critical habitat for Central Valley steelhead. See discussion in Section 4.3.7.

Scientific Name	Common Name	Status	Habitat Requirements	Habitat Present /Absent	Rationale
Invertebrates					
Branchinecta conservatio	Conservancy fairy shrimp	FE	Endemic to California and is known to occur in several disjunct populations ranging from Tehama to Ventura counties. The conservancy fairy shrimp occurs in vernal pools found on several different landforms, geologic formations and soil types. They have been observed in vernal pools ranging in size from 323 to 3,834,675 square ft. Observations suggest this species is often found in pools that are relatively large and turbid.	A	No habitat present; no vernal pools occur within the BSA.
Branchinecta lynchi	Vernal pool fairy shrimp	FT	Endemic to the grasslands of the Central Valley, Central Coast Mountains and South Coast Mountains. Typically associated with small, shallow vernal pools with relatively short periods of inundation. Found in larger pools in southern extent of range.	A	No habitat present; no vernal pools occur within the BSA.
Desmocerus californicus dimorphus	Valley elderberry longhorn beetle	FT	Occurs only in the Central Valley of California, in association with blue elderberry (*Sambucus nigra* ssp. *caerulea*). Prefers branches greater than 1 inch in diameter.	HP	Suitable habitat for this species is present in the BSA. 82 Blue elderberry shrubs were inventoried in the BSA. See discussion in 4.3.8.
Lepidurus packardi	Vernal pool tadpole shrimp	FE	Found in a variety of natural, and artificial, seasonally ponded habitat types including: vernal pools, swales, ephemeral drainages, stock ponds, reservoirs, ditches, backhoe pits, and ruts caused by vehicular activities. Within the Sacramento Valley.	A	No habitat present; no vernal pools occur within the BSA.
Linderiella occidentalis	California linderiella	CA SA	Occurs in seasonal pools (e.g., vernal pools) in unplowed grasslands with old alluvial soils underlain by hardpan or heavy clay or in sandstone depressions. Tolerant of wide temperature range and pool size.	A	No habitat present; no vernal pools occur within the BSA.

Scientific Name	Common Name	Status	Habitat Requirements	Habitat Present /Absent	Rationale
Lytta molesta	Molestan blister beetle	CA SA	Found in grasslands and dried vernal pools from Kern to Yolo county. Adjacent upland habitat with ground-dwelling bees should be considered necessary habitat due to bees acting as sole host for reproduction. Associated plants include *Trifolium wormskioldii* and invasive red-stemmed filaree.	A	No habitat present; no vernal pools occur within the BSA.
Plants					
Atriplex cordulata var *cordulata*	Heartscale	List 1B	Chenopod scrub, valley grassland, wetland-riparian, likely to occur in wetlands or non-wetlands (0 – 1,000 ft). Blooms April – October.	A	Focused surveys were conducted in May when the species flowers and no individuals were found within the BSA.
Atriplex subtilis	Subtle orache	List 1B.2	Valley and foothill grasslands, saline depressions (0 – 230 ft). Blooms June – September.	A	No habitat present; no saline depressions are present within the BSA.
Calycadenia hooveri	Hoover's calycadenia	List 1B	Cismontane woodland, valley and foothill grassland; exposed rock (210 – 1,080 ft). Blooms July – September.	A	Focused surveys were conducted in September when the species flowers and no individuals were found within the BSA
Clarkia rostrata	Beaked clarkia	List 1B	Annual grassland; dry slopes of valley and foothill woodland (213 – 1,640 ft). Blooms April – May.	A	Focused surveys were conducted in May when the species flowers and no individuals were found within the BSA.
Downingia pusilla	Dwarf downingia	List 2B	Vernal pools, freshwater wetlands, valley grasslands and riparian areas (0 – 1,082 ft). Blooms March – May.	A	Focused surveys were conducted in May when the species flowers and no individuals were found within the BSA.
Euphorbia hooveri	Hoover's spurge	FT; List 1B	Vernal pools (65 – 885 ft). Blooms July – September.	A	No habitat present; no vernal pools occur within the BSA.
Fritillaria agrestis	Stink bells	List 4	Foothill woodland, valley grasslands, chaparral and wetland-riparian; sometimes serpentinite (0 – 1,640 ft). Blooms March-June.	A	Focused surveys were conducted in May when the species flowers and no individuals were found within the BSA.
Lagophylla dichotoma	Forked hare-leaf	List 1B	Grassland and open woodlands, cismontane woodlands, sometimes clay (65 – 3,150 ft). Blooms April – July.	A	Focused surveys were conducted in May when the species flowers and no individuals were found within the BSA.

Scientific Name	Common Name	Status	Habitat Requirements	Habitat Present /Absent	Rationale
Legenere limosa	Legenere	List 1B	Vernal pools (3 – 2,887 ft). Blooms April – June.	A	No habitat present; no vernal pools occur within the BSA.
Neostapfia colusana	Colusa grass	FT; SE; List 1B	Vernal pools (16 – 360 ft). Blooms May – August.	A	No habitat present; no vernal pools occur within the BSA.
Oricutta inaequalis	San Joaquin Valley orcutt grass	FT; SE; List 1B	Vernal pools, acidic souls with clay to sandy loam texture (32 – 2,477 ft). Blooms April – September.	A	No habitat present; no vernal pools occur within the BSA.
Oricutta pilosa	Hairy orcutt grass	FE; SE; List 1B	Vernal pools (147 – 3510 ft). Blooms May – September.	A	No habitat present; no vernal pools occur within the BSA.
Pseudobahia bahiifolia	Hartweg's golden sunburst	FE; SE; List 1B	Cismontane woodland, valley and foothill grassland, predominately along on bare rock and shady creeks; clay soils (98 – 1148 ft). Blooms March – April.	A	There are no shady creeks with bare rock outcrops in the BSA.
Tuctoria greenei	Greene's tructoria	FE; SR; List 1B	Vernal pools in valley and foothill grasslands (98 – 3510 ft). Blooms May – July.	A	No habitat present; no vernal pools occur within the BSA.
Natural Communities of Special Concern					
----	Red Willow Thicket	----	Dominant plant species include red willow, black willow, and Himalayan blackberry; other species present include Fremont's cottonwood, narrow leaved willow, and tree tobacco.	HP	Occurs along the banks of the Tuolumne River within the BSA. See discussion is Section 4.1.1.
----	Valley Oak Woodland	----	Dominant plant species is valley oak with an herbaceous (annual grass) understory.	HP	In the BSA, this community occurs parallel to red willow thicket and at a slightly higher elevation. See discussion is Section 4.1.2.

Status Codes

Federal

FE: Federally listed; Endangered
FT: Federally listed, Threatened
FPE: Federally Proposed for Listing as Endangered their range.
FPT: Federally Proposed for Listing as Threatened
FC: Federal Candidate
NMFS SC: National Marine Fisheries Service Species of Concern

State

ST: State listed; Threatened

California Native Plant Society designations:

List 1A: Plants presumed extinct in California.
List 1B: Plants rare and endangered in California and throughout their range.
List 2: Plants rare, threatened or endangered in California but more common elsewhere in

List 3: Plants about which we need more information; a review list.
List 4: Plants of limited distribution; a watch list

Habitat Presence:

HP: Habitat is, or may be present

SE: State listed; Endangered
SFP: State Fully Protected
SC: State Candidate
SWL: State Watch List
CSC: California Species of Special Concern
CA SA: Special Animal: General term that refers to taxa that the CNDDB is interested in tracking regardless of legal or protection status: Includes the following categories in addition to those listed above:

SP: Species is present
A: No habitat present and no further work needed
CH: Project footprint is located within a designated critical habitat unit.

- Taxa which meet the criteria for listing, even if not currently included on any list, as described in Section 15380 of the California Environmental Quality Act Guidelines.
- Taxa that are biologically rare, very restricted in distribution, declining throughout their range, or have a critical, vulnerable stage in their life cycle that warrants monitoring.
- Populations in California that may be on the periphery of a taxon's range, but are threatened with extirpation in California.
- Taxa closely associated with a habitat that is declining in California at an alarming rate (e.g., wetlands, riparian, old growth forests, desert aquatic systems, native grasslands, vernal pools, etc.)
- Taxa designated as a special status, sensitive, or declining species by other state or federal agencies, or non-governmental organization (NGO).

This page intentionally left blank

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

4.1 Natural Communities of Special Concern

The BSA includes two natural communities of concern: red willow thicket and valley oak woodland. Oak woodlands and riparian communities are considered sensitive under CEQA and are regulated by CDFW pursuant to Section 1602 of the California Fish and Game Code, as described in Section 2.1.2.3. Riparian communities may also be regulated by the ACOE or RWQCB if the community is determined to be waters of the U.S. or waters of the State, as described in Sections 2.1.2.1 and 2.1.2.2. Potential permitting requirements for impacts to these communities are discussed in Section 5.4.

Table 6 summarizes permanent and temporary impacts to all vegetation communities within the BSA. Specific discussions for red willow thicket and valley oak woodland are provided below in Section 4.1.1 and 4.1.2.

Table 6: Summary of Impacts to Natural Communities

Vegetation Community	Impacts (acres)	
	Permanent	**Temporary**
Natural Communities		
Red Willow Thicket	0.003	0.77
Valley Oak Woodland	0.16	1.03
Riverine	0.002	0.39
Total	***0.165***	***2.19***

4.1.1 RED WILLOW THICKET

4.1.1.1 Survey Results

As described in Section 3.1.3.1, the red willow thicket is a riparian community that occurs along both banks of the Tuolumne River and on an interior gravel bar, totaling 3.31 ac. The dominant plant species include red willow, black willow and Himalayan blackberry; other species present include Fremont's cottonwood, narrow leaved willow, and tree tobacco.

4.1.1.2 Project Impacts

Permanent impacts to red willow thickets, totaling 0.003 ac, will occur as a result of bridge pier installation on the south bank of the Tuolumne River; however, removal of

the concrete pile caps for the existing bridge piers will result in an 0.009 ac of additional area within the red willow thicket community, and an overall net increase of 0.006 ac to this community when considering the 0.003 ac of permanent impact. Temporary impacts, totaling 0.77 ac, will occur as a result of installation of the temporary access ramp, temporary work trestle, removal of the existing bridge and temporary access. All trees proposed for removal within this community are less than 4 inch in diameter at breast height (DBH) and were not inventoried. An inventory and impact analysis of all trees 4 inch DBH or greater is provided in Appendix D and summarized in Table 7.

Table 7: Summarized Tree Impacts

Common Name	Scientific Name	DBH (inch) range	Number To Be Removed
Valley oak	*Quercus lobata*	6 – 51	**7**
Almond	*Prunus* sp.	----	**12**
Total:			**19**

4.1.1.3 Avoidance and Minimization Efforts

1. Work in the red willow thickets community will be minimized to the extent possible. Work in the live channel of the Tuolumne River shall also be minimized to the extent possible.

2. Brightly colored environmentally sensitive area (ESA) fencing shall be placed along the limits of work to protect the adjacent red willow thickets community. Fencing shall be maintained in good condition for the duration of construction activities.

3. Staging areas, access routes, and construction areas shall be located outside of wetland and riparian areas to the maximum extent practicable.

4. Measures consistent with the current Caltrans' Construction Site Best BMP Manual (including the Storm Water Pollution Prevention Plan [SWPPP] and Water Pollution Control Plan [WPCP] Manuals) shall be implemented to minimize effects to the red willow thickets community resulting from erosion, siltation, etc. during construction.

5. A SWPPP will be prepared by the contractor in accordance with typical provisions associated with a Regional General Permit for Construction Activities (on file with the Central Valley RWQCB). The SWPPP will contain a Spill Response Plan with instructions and procedures for reporting spills, the use and location of spill containment equipment, and the use and location of spill collection materials.

6. All upland areas temporarily impacted during project construction will be restored to preconstruction contours (if necessary) and revegetated with native species as specified in Table 8. Invasive exotic plants will be controlled to the maximum extent practicable.

Table 8: Native Seed Mix

Scientific Name	Common Name	Rate (Lbs./Acre)	Minimum Percent Germination
Artemisia douglasiana	Mugwort	2.0	50
Bromus carinatus	California brome	5.0	85
Elymus trachycaulus	Slender wheatgrass	2.0	60
Elymus X triticum	Regreen	10.0	80
Eschscholzia californica	California poppy	2.0	70
Hordeum brachyantherum	California barley	2.0	80
Lupinus bicolor	Bicolored lupine	4.0	80

7. Prior to issuance of a grading permit or other authorization to proceed with project construction, the project proponent shall obtain any regulatory permits that are required from the ACOE, RWQCB, and/or CDFW.

4.1.1.4 Compensatory Mitigation

Since the project will result in a net increase of 0.006 ac of red willow thicket, and with implementation of the measures in 4.1.1.3, no compensatory mitigation is proposed.

4.1.1.5 Cumulative Impacts

Impacts to red willow thickets in the general vicinity of the project likely will occur through habitat loss during public works projects similar in scope to the subject project. Other projects in the region with similar impacts will also be required to minimize and/or mitigate those impacts. Considering the small area of impact, with implementation of avoidance and minimization measures detailed above, the project will not substantially contribute to cumulative effects for red willow thickets.

4.1.2 VALLEY OAK WOODLAND

4.1.2.1 Survey Results

As described in Section 3.1.3.1., valley oak woodland occurs parallel to the red willow thickets on the north bank of the Tuolumne River and in two areas on the south bank. The dominant plant species is valley oak with an herbaceous (annual grass) understory.

4.1.2.2 Project Impacts

Permanent impacts to the valley oak woodland, totaling 0.16 ac, will occur as a result of construction of the south abutment and installation of piers; however, removal of the concrete pile caps for the existing bridge piers will result in an 0.019 ac of additional area within the valley oak woodland community, and an overall net impact of 0.141 ac to this community when considering the 0.16 ac of permanent impact. Temporary impacts, totaling 1.03 ac, will occur as a result of installation of the temporary access ramp, removal of the existing bridge and temporary access. Temporary impacts will be limited to the understory and will not result in tree removal. Tree impacts are shown in Appendix D and summarized in Table 6.

4.1.2.3 Avoidance and Minimization Efforts

1. Brightly colored ESA fencing shall be placed along the limits of work to protect the adjacent valley oak woodland community. Fencing shall be maintained in good condition for the duration of construction activities.

2. Staging areas, access routes, and construction areas shall be located outside of the oak woodland community to the maximum extent practicable.

3. Following completion of the new bridge, all fill slopes, temporary impact and/or otherwise disturbed areas shall be restored to preconstruction contours (if necessary) and revegetated with the native seed mix specified in Table 8. Invasive exotic plants will be controlled to the maximum extent practicable.

4.1.2.4 Compensatory Mitigation

Permanent impacts to the valley oak woodland community shall require compensation using one of the following methods; or by a combination of methods:

- Preservation, creation, and/or restoration of the impacted resources at a minimum ratio of 3:1. This work would occur within the project impact area and/or nearby areas within the same watershed.

- Purchase of credits as an approved mitigation bank at a minimum 1:1 mitigation ratio.

4.1.2.5 Cumulative Impacts

Impacts to valley oak woodland in the general vicinity of the project likely will occur through habitat loss during public works projects similar in scope to the subject project. Other projects in the region with similar impacts will also be required to minimize and/or mitigate those impacts. Considering the small area of impact relative to the quantity of valley oak woodland occurring in the region, and with implementation of the avoidance

and minimization measures detailed above, the project will not substantially contribute to cumulative impacts for valley oak woodland.

4.2. Special Status Plant Species

After evaluation of the special status plant species potentially occurring in the BSA, as shown in Table 5, no special status plant species are expected to occur in the BSA; therefore, no impacts are expected to occur to special status plants.

4.3. Special Status Animal Species Occurrences

After evaluation of the special status wildlife species potentially occurring in the BSA, as shown in Table 5, the following wildlife species were determined to have a reasonable likelihood of occurring in the BSA and may be affected by the project.

4.3.1. BATS

There are seven species of bats that could occur in the BSA. The pallid bat (*Antrozous pallidus*), the greater western mastiff bat (*Eumopsperotis californicus*), and the western red bat (*Lasiurus blossevilli*), all listed as State species of concern; the silver-haired bat (*Lasioncycteris noctivagans*), hoary bat (*Lasiurus cinereus*), and Yuma myotis (*Myotis yumanensis*), all listed at State special species; and the Townsend's big-eared bat (*Corynorhinus townsendii*), a State Candidate, may also occur in the BSA.

Bats are nocturnal and are found in a variety of habitats. Many species forage over water; some also hunt over shrubs or meadows, within trees, and along forest edges. Some species have separate roosts for day, night, maternal, and hibernation use, whereas some species may use the same roost for more than one purpose. Bats roost in a variety of crevices, cavities, and protected sites; roosting sites may include bridges, buildings, cliff crevices, caves, mines, and trees. Multiple species often roost together.

The pallid bat is a locally common species of low elevations, and is a yearlong resident through most of its range. It uses a wide variety of habitats from sea level up through mixed conifer forests, but is most common in open, dry habitats with rocky areas for roosting. This bat forages among trees and shrubs and over open ground, and often takes prey on the ground. Its diet is a variety of insects and spiders, including large, hard-shelled prey, which is often carried to a perch or night roost for consumption. Caves, crevices, and sometimes hollow trees and buildings are used for day roosts. Roosts must protect bats from high temperatures. Night roosts may be in more open sites, such as porches and open buildings. Pallid bats are social, and most roost in groups of 20 or more. Maternity colonies form in early April, and may have 10 to 100 individuals. Males may roost separately or in the nursery colony.

The western mastiff bat is the largest species of bat in North America It roosts predominantly in building, crevices and vertical cliffs. The species feeds predominantly on insects, with moths accounting for 80% of their diet. This species is an aerial predator, soaring at great lengths all night in order to forage over wide areas. Occurs in many open, semi-arid to arid habitats, including conifer and deciduous woodlands, coastal scrub, annual and perennial grasslands, palm oases, chaparral, desert scrub, and urban.

The western red bat is a common species in the Central Valley Basin and ranges up into the lower reaches of the Sierra Nevada Mountains. Forests and woodlands, especially on the edge of streams, fields or urban areas provide potential roosting habitat. This species roosts manly in trees, but occasionally utilizes shrubs as well. It is mostly a solitary species and roosts predominantly in trees at the edge of streams, fields, or urban areas. This species is an aerial predator, foraging on a variety of insects over open terrain.

The silver haired bat is among the most common bat in forested areas; most closely associated with coniferous or mixed coniferous forests. This species forms maternity colonies in tree cavities and small hollows. Silver haired bats feed predominantly in disturbed areas or along waterways and roadways. Small-bodied insects are their primary food source.

Hoary bats are one of America's largest bats. Hoary bats are not attracted to houses or other human structures, and they stay well-hidden in foliage throughout the day. They typically roost singly, 10-15 ft up in trees along forest borders. In the summer, hoary bats do not emerge to feed until after dark, but during migration, they may be seen soon after sundown. Hoary bats forage on flying insects that are caught along woodland openings and riparian corridors. These bats sometimes make round trips of up to 24 mi on the first foraging flight of the night, and then make several shorter trips, returning to the day roost about an hour before sunrise. Between late summer and early fall they migrate south to subtropical and tropical areas to spend the winter.

The Yuma myotis bat is common and widespread in California. They are usually associated with permanent sources of water, typically rivers and streams. Optimal foraging habitat for this species generally consists of open forest or woodland areas near a water source. They primarily feed on insects close to the water surface. They can be found roosting in a variety of areas including the underside of bridges, caves, mines, and other man-made structures. This species hibernates in winter and may make short elevational migrations according to the season. Yuma myotis roost in large groups, and may roost with other bat species.

Townsend's big-eared bat is widely distributed in North America and occurs in a variety of habitats from sea level to about 10,000 feet elevation. This species is found

throughout California but specific details of its distribution are not well known, however it is most abundant in mesic habitat. It roosts in colonies and prefers cave-like habitat but has also been reported to utilize buildings, bridges, rock crevices and man-made structures as roost sites. Foraging habitat includes edges along streams adjacent to and within a variety of wooded habitats, in addition to open areas such as pastures Small months and beetles are primary food sources. Echolocation is generally used to capture prey while in flight.

4.3.1.1 Survey Results

- There are three CNDDB records for the pallid bat in the search area. The closest record, 1999, is located approximately 12.5 mi northeast of the BSA.
- There are six CNDDB records for the greater Western mastiff bat in the search area. The closest record, dated 1957, is located approximately 12.5 mi northwest of the BSA.
- There are six CNDDB records for the western red bat in the search area. The closest record, dated 1999, is located approximately 10 mi north of the BSA.
- There is only one CNDDB record for the silver haired bat. This record, dated 1999, is located 13.5 mi northeast of the BSA.
- There are five CNDDB records for the hoary bat in the search area. The closest record, dated 1999, is located approximately 10.5 mi north of the BSA.
- There are six CNDDB records for Yuma myotis in the search area. The closest record, dated 1999, is located approximately 10.5 mi north of the BSA.
- There are three CNDDB records for the Townsend's big-eared bat in the search area. The closest record, dated 2012, is located approximately 8 mi southwest of the BSA.

Based on the results of the November 5, 2015 bat habitat assessment survey (Appendix F), it was determined that a large colony of bats have established themselves on the bridge (observed urine staining and adhered fecal pellets). However, no direct observation of bat species was made during the survey so species identification of resident bats was not possible.

4.3.1.2 Project Impacts

Removal of the existing bridge will permanently remove suitable day and night roosting habitat for bats.

4.3.1.3 Avoidance and Minimization Efforts

Whether or not additional surveys are conducted to determine any potential use of the bridge girder interior spaces and to identify species and quantify population, direct

mortality of roosting bats should be prevented through the implementation of humane bat exclusion and eviction from the expansion joints, behind the utility channels, and all weep holes. The following provides methods and seasonal constraints to prevent direct mortality:

Bridge

1. Prior to bridge demolition, humane exclusion and eviction of bats from expansion joints, behind the utility channels, and all weep holes will be needed to prevent direct mortality of bats. Humane exclusion and eviction of bats must occur only during seasonal periods of bat activity when no non-volant young or overwinter bats are present so that no bats are trapped inside the roost features. In this region, the first annual appropriate season to conduct humane eviction are between approximately March 1 (or after evening temperatures rise above 45°F, and less than 0.5 in rainfall in 24 hours occurs) and April 15 (after which time females begin giving birth to pups). The next annual season is after maternity season and prior to winter torpor or hibernation; September 1 through about October 15 (or before evening temperatures fall below 45°F, and prior to greater than 0.5 in rainfall within 24 hours).

2. Under guidance of a qualified bat biologist experienced with humane bat eviction procedures on bridges, humane bat exclusion and eviction should be conducted by an experienced bat exclusion contractor or by the bridge contractor or subcontractor. Humane exclusion and eviction consists of daytime installation of blockage materials and one-way exits attached to the concrete that will permit bats to exit during nightly feeding activities, but not allow re-entry into the roost feature. These one-way exits must be made and attached so that they can remain in place until bridge demolition occurs; however, if demolition is delayed, regular monitoring of exclusion blockage materials and one-way exit eviction materials will be required, and repairs made as needed.

   Blockage materials for the expansion joints should consist of foam pipe insulation, cut to fit tightly into the expansion joint opening at the bottom and sides of soffits, with sufficient numbers of one-way exits installed to permit evacuation of the entire expansion joint by all bats. One-way exits should consist of 14 in wide aluminum roll flashing formed into 8-10 in long rectangles, with bent top flanges for attachment to the concrete surface of the bridge using Sikaflex brand polyurethane construction adhesive and Gorilla brand adhesive tape. The bottom portion of the aluminum flashing rectangles should be fitted with fiberglass window screen mesh using Gorilla brand adhesive tape to form an extension chute that will prevent re-entry by bats through the open bottom of the flashing rectangular one-way exit. See figures, below. The number of one-way

exits installed at each roost location should be sufficient to allow complete evacuation of all bats.

3. Because bats may roost in abandoned cliff swallow (*Petrochelidon pyrrhonota*) nests (many of which were present on the bridge during my survey) after those birds have fledged and dispersed, removal should be conducted only after bird nesting season and bat maternity season, and should be conducted by or under supervision of the qualified bat biologist. If demolition is planned to occur earlier in the year when birds would normally be nesting and bats would be raising young, then bats should be humanely evicted first, followed by installation of bird exclusion netting and/or bird deterrence methods to prevent nesting swallows and roosting bats prior to bridge demolition.

Trees

1. Potential bat habitat trees, identified by a qualified bat biologist during a tree habitat assessment conducted several months prior to tree removal, shall be removed only between approximately March 1, or when evening temperatures are above 45°F and rainfall less than 0.5 in in 24 hours occurs, and April 15, prior to parturition of pups. The next acceptable period is after pups become self-sufficiently volant – September 1 through about October 15, or prior to evening temperatures dropping below 45°F and onset of rainfall greater than 0.5 in in 24 hours.

2. Bat habitat trees should be removed only during seasonal periods of bat activity as described above, and only after;

    a. Negative results from a night emergence survey conducted no more than 1-2 nights prior to tree removal by a qualified bat biologist, using night vision and/or IR-sensitive camera equipment and bioacoustic recording equipment, or;

    b. All other vegetation other than trees within the Limit of Work is removed prior to bat habitat tree removal, during seasonal periods of activity, and preferably, within 4 days of commencing two-step removal of habitat trees, then either;

    c. Two-step tree removal over two consecutive days (e.g. Tuesday and Wednesday, or Thursday and Friday). With this method, small branches and small limbs containing no cavity, crevice or exfoliating bark habitat on habitat trees, as identified by a qualified bat biologist are removed first on Day 1, using chainsaws only (no dozers, backhoes, etc.). The following day (Day 2), the remainder of the tree is to be removed. The disturbance caused by chainsaw noise and vibration, coupled with the physical

alteration of the tree, has the effect of causing colonial bat species to abandon the roost tree after nightly emergence for foraging. Removing the tree the next day prevents re-habituation and re-occupation of the altered tree.

d. Trees containing suitable potential habitat must be trimmed with chainsaws on Day 1 under initial field supervision by a qualified bat expert to ensure that the tree cutters fully understand the process, and avoid incorrectly cutting potential habitat features or trees. After tree cutters have received sufficient instruction, the qualified bat expert does not need to remain on the site.

3. If non-habitat trees or other vegetation must be removed outside those dates, a 100 ft buffer around each habitat tree should be observed to reduce potential of disturbance of non-volant young during maternity season, or torpid bats during winter months.

4. In-kind replacement habitat (e.g. crevice habitat) consistent with the amount of habitat with evidence of use by bat colonies shall be provided on the new bridge in consultation with an experienced bat biologist possessing a Memorandum of Understanding with CDFW and experience designing bat habitat.

5. Demolition of the old bridge shall not occur until after the new bridge is completed and replacement bat habitat has been installed.

4.3.1.4 Compensatory Mitigation

No compensatory mitigation is proposed with implementation of the measures included in Section 4.3.1.3.

4.3.1.5 Cumulative Impacts

Impacts to bats in the general vicinity of the project likely will occur through habitat loss during public works projects similar in scope to the subject project. Other projects in the region with similar impacts will also be required to minimize and/or mitigate those impacts. Considering the amount of habitat available for this species in the region relative to the amount of habitat in the BSA, and implementation of the avoidance and minimization measure detailed above, the project will not substantially contribute to cumulative impacts for bats.

4.3.2 WESTERN BURROWING OWL

The western burrowing owl (*Athene cunicularia*) is a California species of concern; it has no federal status. Burrowing owls occur in warmer valleys, open, dry grasslands,

deserts, and scrublands associated with agriculture and urban areas that support populations of California ground squirrels. Burrowing owls nest below ground, and are dependent on the presence of fossorial burrows (most commonly ground squirrel). Feeding on insects and small mammals, they will forage in areas with relatively short vegetation including, cropland, pastures and fallow fields.

4.3.2.1 Survey Results

There are two CNDDB includes two records for the burrowing owl in the search area. The closest and most recent occurrence, dated 1994, is located approximately 11.6 mi northwest of the BSA.

The pasture and ruderal grassland habitats in the southeast portion of the BSA above the river floodplain provide marginally suitable burrow and foraging habitat for western burrowing owl. Active California ground squirrel burrows of suitable size were observed in the pasture and ruderal grassland on the south side of the river but no sign of owl presence (e.g., whitewash, prey remains, etc.) were observed during the field visits. However, since marginally suitable habitat is present this species could occur in the BSA.

4.3.2.2 Project Impacts

Permanent impacts, totaling 1.10 ac, and temporary impacts, totaling 7.23 ac will occur as a result of project staging and temporary access in the pasture and ruderal grassland habitat.

4.3.2.3 Avoidance and Minimization Efforts

1. Preconstruction surveys for western burrowing owl shall be conducted by a qualified biologist in accordance with CDFW's 2012 Staff Report on Burrowing Owl Mitigation.

2. If burrowing owls are identified during the preconstruction survey, passive exclusion shall be implemented per CDFW's 2012 Staff Report on Burrowing Owl Mitigation (including avoidance of occupied burrows during the breeding season).

3. Areas of pasture and ruderal grassland temporarily disturbed during construction shall be revegetated with the seed mix specified in Table 8. Invasive exotic plants will be controlled to the maximum extent practicable.

4.3.2.4 Compensatory Mitigation

No compensatory mitigation is proposed with implementation of the measures included in Section 4.3.2.3.

4.3.2.5 Cumulative Impacts

Impacts to western burrowing owl in the general vicinity of the project likely will occur through habitat loss during public works projects similar in scope to the subject project. Other projects in the region with similar impacts will also be required to minimize and/or mitigate those impacts. Considering the amount of habitat available for this species in the region relative to the amount of habitat in the BSA, and implementation of the avoidance and minimization measures detailed above, the project will not substantially contribute to cumulative impacts for western burrowing owl.

4.3.3. SWAINSON'S HAWK

The Swainson's hawk (*Buteo swainsoni*) is a State threatened species and has no formal federal status. Swainson's hawks are long distance migrants, wintering primarily in South America, and returning north to breed. In California, Swainson's hawks occur in the northeastern portion of the State, in the Great Basin Province, and in the Central Valley. They return to the Central Valley in mid-March to nest, and begin migrating south in August. Nests are built in the tops of large trees, often those associated with riparian habitats. They are known to forage up to 10 mi from their nest sites.

Swainson's hawks are very social raptors and are generally found in large groups with other species. During the breeding season, Swainson's hawks generally feed on rodents, rabbits, and reptiles. However, when not breeding, their diet tends to consist mostly of insects.

4.3.3.1 Survey Results

There are 7 CNDDB records in the search area for Swainson's hawk. The closest occurrence, dated 1994, is approximately 6.5 mi south of the BSA. The most recent occurrence, dated 2011, is located approximately 7.5 mi north of the BSA.

The mature trees along the Tuolumne River riparian corridor provide suitable nesting habitat for Swainson's hawk. Additionally, the ruderal grassland and pastures in the BSA provide potential foraging habitat for Swainson's hawks. No Swainson's hawks or evidence of current nesting was observed in the BSA during the site visits and no raptor-sized nests were observed.

Since suitable nesting and foraging habitat are present, and Swainson's hawks have historically nested nearby, this species could occur in the BSA.

4.3.3.2 Project Impacts

The project will result in a permanent loss of approximately 0.16 ac of potential nesting habitat for Swainson's hawk due to riparian habitat removal. Additionally, the project will

permanently impact 1.10 ac of ruderal grassland and pasture during construction of the new bridge approaches that provide marginally suitable foraging habitat for Swainson's hawks.

Temporary impacts to potential nesting habitat and foraging habitat, totaling 1.84 ac and 7.23 ac respectively, will occur during project staging and temporary construction access.

With implementation of the preconstruction survey and other measures included in Section 4.3.3.3, there should be no direct effects to nesting Swainson's hawks.

4.3.3.3 Avoidance and Minimization Efforts

1. If work begins between February 1 and August 31, an early season preconstruction survey for nesting Swainson's hawks shall be conducted between January and March in the BSA and immediate vicinity (an approximately 0.25 mi radius) by a qualified biologist when tree foliage is relatively sparse and nests are easy to identify. A second preconstruction survey for nesting Swainson's hawks shall be conducted in the BSA and immediate vicinity (an approximately 0.25 mi radius) by a qualified biologist no more than 14 days prior to initiation of earthmoving activities.

2. If nesting Swainson's hawks are found within the survey area, a qualified biologist shall evaluate the potential for the project to disturb nesting activities. CDFW shall be contacted to review the evaluation and determine if the project can proceed without adversely affecting nesting activities. CDFW shall also be consulted to establish protection measures such as buffers. Disturbance of active nests shall be avoided until it is determined by a qualified biologist that nesting is complete and the young have fledged, or that the nest has failed. If work is allowed to proceed, at a minimum, a qualified biologist shall be on-site during the start of construction activities during the nesting season to monitor nesting activity. The monitor shall have the authority to stop work if it is determined the project is adversely affecting nesting activities.

3. Worker environmental awareness training will be conducted by a qualified biologist for all construction personnel. This training instructs workers to recognize Swainson's hawks and their habitat(s).

4. Brightly colored ESA fencing shall be placed along the limits of work to prevent unnecessary encroachment into adjacent areas. Fencing shall be maintained in good condition for the duration of construction activities.

4.3.3.4 Compensatory Mitigation

Loss of potential nesting habitat for Swainson's hawk will be mitigated for through proposed riparian habitat compensation included in Section 4.1.1.4. No additional compensation is proposed.

Additionally, CDFW generally recommends mitigation for loss of suitable foraging habitat for Swainson's hawk if the subject habitat is within 10 mi of an active nest (CDFW, 1994). A nest is considered active if it has been used in the last 5 years.

Per the CNDDB record search, one record of an active Swainson's hawk nest, dated 2011, is located within 10 mi of the BSA. However, this record documented an active nest in eucalyptus tree in 2010 that was later felled by the property owner in 2011 and is no longer a viable nest site. Therefore, mitigation is not proposed for the loss of suitable foraging habitat for this species.

4.3.3.5 Cumulative Impacts

Impacts to Swainson's hawk in the general vicinity of the project likely will occur through habitat loss during public works projects similar in scope to the subject project. Other projects in the region with similar impacts will also be required to minimize and/or mitigate those impacts. Considering the amount of habitat available for this species in the region relative to the amount of habitat in the BSA, and implementation of the avoidance and minimization measures detailed above, the project will not substantially contribute to cumulative impacts for Swainson's hawk.

4.3.4 YELLOW-BREASTED CHAT

The yellow-breasted chat (*Icteria virens*) is a California Species of Concern; it has no federal status. This species requires riparian thickets of willow and other brushy tangles near watercourses for cover and nesting. Yellow-breasted chat was once common in dense riparian habitats throughout the state but has declined due to the loss of riparian habitat.

4.3.4.1 Survey Results

There are no CNDDB occurrences for the yellow-breasted chat within a 10 mi radius of the BSA. The closest occurrence, dated 1987, is located approximately 16.4 mi north of the BSA.

The dense red willow thickets along the Tuolumne River riparian corridor provide suitable nesting habitat for yellow-breasted chat; therefore, this species could occur in the BSA.

4.3.4.2 Project Impacts

The project will result in a permanent loss of approximately 0.003 ac of potential nesting habitat for yellow-breasted chat due dense red willow thicket habitat removal. Temporary impacts to suitable habitat, totaling 0.77 ac, will occur during project staging and temporary construction access.

4.3.4.3 Avoidance and Minimization Efforts

1. If work begins between February 1 and August 31, a preconstruction survey for nesting yellow-breasted chat shall be conducted in the BSA and within a 100 ft radius by a qualified biologist. The survey shall be conducted no more than 14 days prior to the start of clearing and grubbing.

2. If nesting yellow-breasted chats are found within the survey area, a qualified biologist shall evaluate the potential for the project to disturb nesting activities. CDFW shall be contacted to review the evaluation and determine if the project can proceed without adversely affecting nesting activities. CDFW shall also be consulted to establish protection measures such as buffers. Disturbance of active nests shall be avoided until it is determined by a qualified biologist that nesting is complete and the young have fledged, or that the nest has failed. If work is allowed to proceed, at a minimum, a qualified biologist shall be on-site during the start of construction activities during the nesting season to monitor nesting activity. The monitor shall have the authority to stop work if it is determined the project is adversely affecting nesting activities.

3. Worker environmental awareness training shall be conducted by a qualified biologist for all construction personnel. This training instructs workers to recognize yellow-breasted chat and their habitat(s).

4.3.4.4 Compensatory Mitigation

No compensatory mitigation is proposed with implementation of the measures included in Section 4.3.4.3.

4.3.4.5 Cumulative Impacts

Impacts yellow-breasted chat in the general vicinity of the project likely will occur through habitat loss during public works projects similar in scope to the subject project. Other projects in the region with similar impacts will also be required to minimize and/or mitigate those impacts. Considering the amount of habitat available for this species in the region relative to the amount of habitat in the BSA, and implementation of the avoidance and minimization measures detailed above, the project will not substantially contribute to cumulative effects for yellow-breasted chat.

4.3.5 PACIFIC POND TURTLE

The Pacific pond turtle (*Emys marmorata*) is a State species of concern; it has no federal status. The Pacific pond turtle ranges from western Washington State south to northwestern Baja California. Two subspecies occur in California: the north Pacific pond turtle (*E.m. marmorata*); and the south Pacific pond turtle (*E.m. pallida*). The BSA is within the range of intergradations between the two subspecies. The pond turtle is a highly aquatic species, found in ponds, marshes, rivers, streams, and irrigation ditches that typically have rocky or muddy bottoms and support aquatic vegetation. Eggs are laid at upland sites, away from the water, from April through August.

4.3.5.1 Survey Results

There are no CNDDB occurrences for the Pacific pond turtle in area 10 mi radius of the BSA. The closest occurrence, dated 1993, occurred approximately 12 mi northwest of the BSA.

The reach of the Tuolumne River within the BSA provides potential habitat for Pacific pond turtle. Though this species was not observed during the site visits, it could be present in the BSA.

4.3.5.2 Project Impacts

The project will remove 0.002 ac and temporarily disturb 0.39 ac of aquatic habitat in the Tuolumne River as a result of pier installation of the new bridge and construction access.

With the measures described in Section 4.3.5.3, there should be no direct effect Pacific pond turtle.

4.3.5.3 Avoidance and Minimization Efforts

1. Prior to the start of construction activities in the Tuolumne River, the reach of the river within the BSA shall be surveyed by a qualified biologist for the presence of Pacific pond turtles. If Pacific pond turtles are observed in the BSA, they shall be relocated outside of the work area by a qualified biologist.

2. Following completion of the new bridge, all fill slopes, temporary impact and/or otherwise disturbed areas shall be restored to preconstruction contours (if necessary) and revegetated with the native seed mix specified in Table 8. Invasive exotic plants will be controlled to the maximum extent practicable.

3. Measures consistent with the current Caltrans' Construction Site BMP Manual (including the SWPPP and WPCP Manuals) shall be implemented to minimize effects to Pacific pond turtle suitable habitat resulting from erosion, siltation, etc. during construction.

4. Brightly colored ESA fencing shall be placed along the limits of work to prevent unnecessary encroachment into the Tuolumne River. Fencing shall be maintained in good condition for the duration of construction activities.

4.3.5.4 Compensatory Mitigation

No compensatory mitigation is proposed with implementation of the measures included in Section 4.3.5.3.

4.3.5.5 Cumulative Impacts

Impacts to Pacific pond turtles in the general vicinity of the project likely will occur through habitat loss during public works projects similar in scope to the subject project. Other projects in the region with similar impacts will also be required to minimize and/or mitigate those impacts. Considering the amount of habitat available for this species in the region relative to the amount of habitat in the BSA, and implementation of the avoidance and minimization measures detailed above, the project will not substantially contribute to cumulative effects for Pacific pond turtles.

4.3.6 CENTRAL VALLEY STEELHEAD AND DESIGNATED CRITICAL HABITAT

The Central Valley steelhead (*Oncorhynchus mykiss irideus*) Distinct Population Segment (DPS) was listed as threatened on March 19, 1998, and reaffirmed on January 5, 2005. Critical habitat was designated for this species on September 2, 2005, and includes the Sacramento and San Joaquin Rivers. The Central Valley DPS includes all natural-occurring steelhead in the Sacramento River and San Joaquin River watersheds.

All steelhead stocks in the Central Valley of California are winter-run steelhead (McEwan and Jackson 1996). Most Central Valley steelhead spawning migration occurs between from October through February and spawning occurs from December to April. Newly emerged fry move to shallow stream margins to escape high water velocities and predation (Barnhart 1986). Juveniles emigrate episodically from natal streams during fall, winter and spring high flows.

4.3.6.1 Survey Results

Central Valley steelhead can occur in the reach of the Tuolumne River within the BSA during all life stages (e.g., spawning, migration, rearing). However, no suitable spawning habitat for steelhead was observed in the BSA. Although the reach of the Tuolumne River in the BSA is not suitable spawning habitat for Central Valley steelhead, this reach does provide suitable migration habitat for adults spawning upstream of the project and out-migrating smolts. The BSA also provides suitable rearing habitat for juveniles and fry.

The reach of the Tuolumne River within the BSA is within designated critical habitat for Central Valley steelhead. Primary Constituents Elements (PCEs) for this species in the subject reach of the Tuolumne River include the water column for movement, protection, foraging, the river bottom for spawning and incubation, and the adjacent riparian zone which provides shade (i.e., thermoregulation) and is used by fry and juveniles for rearing.

There are no CNDDB records for Central Valley steelhead within 10 mi of the BSA.

4.3.6.2 Project Impacts

The project will result in permanent impacts to potential steelhead aquatic habitat in the Tuolumne River, totaling 0.005 ac, and temporary impacts, totaling 1.46 ac, as a result of pier installation of the new bridge and construction access; however, removal of the concrete pile caps for the existing bridge piers will result in an 0.027 ac of additional steelhead aquatic habitat, and an overall net increase of 0.022 ac to this habitat when considering the 0.005 ac of permanent impact.

The new bridge will be 15 ft wider than the old bridge and result in approximately 0.15 acre more shading (calculated using the distance between Piers 2 and 5). However, due to the height of the bridge (approximately 60 feet above the low water surface elevation) there is virtually no change to the vegetation beneath the existing bridge and the same is expected to be true when the new bridge is constructed. Consequently, the additional shading from the new bridge is considered a negligible impact to CV steelhead and designated critical habitat.

This project may affect, but is not likely to adversely affect CV steelhead. Additionally, this project may adversely modify steelhead designated critical habitat.

4.3.6.3 Avoidance and Minimization Efforts

1. All in-water work associated with the proposed project shall be conducted between June 1 and October 31, which is within the seasonal work window recommended by NMFS to minimize effects to steelhead.

2. Brightly colored ESA fencing shall be placed along the limits of work to prevent unnecessary encroachment into the Tuolumne River. Fencing shall be maintained in good condition for the duration of construction activities.

3. Prior to any work in the live river channel, a water diversion shall be installed in the Tuolumne River in order to enclose the construction area and reduce sedimentation during work in the channel. The water diversion will consist of corrugated metal pipe culverts, sheet pile cofferdam, K-rail with visquine, or an equivalent method. Dewatering the work area will minimize the potential water

quality impacts (e.g., siltation) and ensure that no salmonids are directly affected by project construction activities (i.e., no work will be conducted in flowing water).

4. During removal of any part of the existing bridge, a tarp or other approved method shall be used below the bridge to prevent debris from falling into the Tuolumne River. The tarp (or equivalent) will be left in place until removal is complete.

5. All construction shall be conducted during daylight hours to allow for an extended period of inactivity (i.e., night time) for salmonids, if present, to migrate undisturbed through the BSA.

6. Measures consistent with the current Caltrans' Construction Site BMPs Manual (including the SWPPP and WPCP Manuals) shall be implemented to minimize effects to steelhead during construction.

7. A SWPPP will be prepared by the contractor in accordance with typical provisions associated with a Regional General Permit for Construction Activities (on file with the Central Valley RWQCB). The SWPPP will contain a Spill Response Plan with instructions and procedures for reporting spills, the use and location of spill containment equipment, and the use and location of spill collection materials. Implementation of the SWPPP will minimize effects to salmonids and their habitat from potential spills associated with construction activities.

8. Any emergent or submergent aquatic vegetation shall be retained. Other vegetation shall be retained as practical within the constraints of the proposed project. Where vegetation removal is necessary, rapidly sprouting plants, such as willows, shall be cut off at the ground line and the root systems left intact.

4.3.6.4 Compensatory Mitigation

The project will impact a very small area of potential migration habitat for steelhead and, with removal of the concrete bent caps, will result in a net increase of potential migration habitat. Due to the relatively small magnitude of this impact and use of the habitat (migration, non-natal rearing), no compensatory mitigation is proposed with implementation of the measures included in Section 4.3.6.3.

4.3.6.5 Cumulative Impacts

Impacts to Central Valley steelhead in the general vicinity of the project likely will occur through habitat loss during public works projects similar in scope to the subject project. Other projects in the region with similar impacts will also be required to minimize and/or mitigate those impacts. Considering the amount of habitat available for this species in

the region relative to the amount of habitat in the BSA, and implementation of the avoidance and minimization measures detailed above, the project will not substantially contribute to cumulative effects for Central Valley steelhead.

4.3.7 CENTRAL VALLEY FALL-RUN CHINOOK SALMON EFH

The Central Valley fall-run Chinook salmon (*Oncorhynchus tshawytscha*) EFH was designated on June 16, 1993 based on the Final Rule in the Federal Register. Critical habitat was designated on February 16, 2000. The Central Valley fall-run Chinook salmon EFH includes all natural-occurring Chinook salmon in the Sacramento River and San Joaquin River watersheds.

All Central Valley fall-run Chinook salmon within the San Joaquin and Sacramento watersheds are physically and genetically different from coastal Chinook salmon (Clark 1929, Snyder 1931). The Central Valley fall-run Chinook salmon generally migrate through the watersheds July through April and spawn October through February. They emigrate as fry and subyearlings and remain off the California coast during their ocean migrations.

4.3.7.1 Survey Results

Although the reach of the Tuolumne River in the BSA is not suitable spawning habitat for Central Valley fall-run Chinook salmon, this reach does provide suitable migration habitat for adults spawning upstream of the project and out-migrating smolts. The BSA also provides suitable rearing habitat for juveniles and fry.

Federally listed Chinook salmon species do not occur in the proposed project area; however, the reach of the Tuolumne River in the BSA does support a fall run Chinook population, which is a NMFS species of concern and this reach, is within designated EFH for Chinook salmon.

There are no CNDDB records for Central Valley fall-run Chinook salmon within 10 mi of the BSA.

4.3.7.2 Project Impacts

The project will result in permanent impacts to potential Central Valley fall-run Chinook salmon habitat in the Tuolumne River, totaling 0.005 ac, and temporary impacts, totaling 1.46 ac, as a result of pier installation of the new bridge and construction access; however, removal of the concrete pile caps for the existing bridge piers will result in an 0.027 ac of additional habitat, and an overall net increase of 0.022 ac to this habitat when considering the 0.005 ac of permanent impact.

The new bridge will be 15 ft wider than the old bridge and result in approximately 0.15 acre more shading (calculated using the distance between Piers 2 and 5). However, due to the height of the bridge (approximately 60 feet above the low water surface elevation) there is virtually no change to the vegetation beneath the existing bridge and the same is expected to be true when the new bridge is constructed. Consequently, the additional shading from the new bridge is considered a negligible impact to Chinook salmon EFH.

This project may adversely modify Chinook salmon EFH.

4.3.7.3 Avoidance and Minimization Efforts

Avoidance and minimization efforts would be the same as those for the Central Valley steelhead described in Section 4.3.6.3.

4.3.7.4 Compensatory Mitigation

Mitigation for the loss of riparian habitat is detailed in Section 4.1.1.3. The project will impact a very small area of potential migration habitat for Central Valley fall-run Chinook salmon. Due to the relatively small magnitude of this impact and use of the habitat (migration, non-natal rearing), no compensatory mitigation is proposed with implementation of the measures included in Section 4.3.6.3.

4.3.7.5 Cumulative Impacts

Impacts to Central Valley fall-run Chinook salmon in the general vicinity of the project likely will occur through habitat loss during public works projects similar in scope to the subject project. Other projects in the region with similar impacts will also be required to minimize and/or mitigate those impacts. Considering the amount of habitat available for this species in the region relative to the amount of habitat in the BSA, and implementation of the avoidance and minimization measures detailed above, the project will not substantially contribute to cumulative effects for Central Valley fall-run Chinook salmon.

4.3.8 VALLEY ELDERBERRY LONGHORN BEETLE

The valley elderberry longhorn beetle (VELB) is federally listed as threatened. The only designated critical habitat is located approximately 75 mi north along the American River in Sacramento County.

This species ranges from Redding to Madera County, into the western foothills of the Sierra Nevada, and into the eastern foothills of the Coast Range. Critical habitat was designated for VELB in Sacramento County; essential habitat for the recovery of the species also exists in Solano County. The VELB is typically found in mature riparian

vegetation associated with large river systems, but its range extends from the valley floor to 3,000 ft elevation.

The beetle is dependent on its host plant, blue elderberry, which is a common component of Central Valley riparian forests. VELB larvae feed and mature within elderberry stems 1 in or larger in diameter, and exit prior to metamorphosing to the pupal stage. The life cycle takes 1 to 2 years to complete. The beetle spends most of its life in the larval stage, living within the stems of an elderberry plant. Adults emerge from late March through June, about the same time the elderberry produces flowers. The larval beetles cannot be detected within the stems, and the adult stage is short-lived; generally the only evidence of beetle use is the exit holes in the stems created by the emerging larvae. Consequently, VELB are assumed to be present within stems of sufficient size anywhere within the beetle's known range.

4.3.8.1 Survey Results

There are eight records of VELB within 12 mi of the BSA. The closest record, dated 1991, is located 2.4 mi southwest of the BSA. The most recent record, dated 2009, is approximately 10.8 mi north of the BSA.

Surveys for elderberry shrubs were conducted on May 15, 2015. The survey area included the BSA and lands outside of the BSA within 100 ft of the limits of work. A total of 82 elderberry shrubs with at least one stem that measured 1 in in diameter at ground level (DGL) were identified in the survey area. For each shrub, data was collected for stem size, height, and dripline diameter; it was also determined if the shrub was located in a riparian area and if exit holes were present. A table summarizing the data collected for each shrub is included in Appendix E.

4.3.8.2 Project Impacts

Per the VELB Guidelines, complete avoidance of VELB consists of no ground disturbing activities within 100 feet of the drip line of any elderberry shrub providing suitable VELB habitat (stems greater than 1 inch DGL). Ground disturbance within 100 ft of the dripline of elderberry shrubs providing suitable habitat may affect VELB and ground disturbance within 20 ft of the dripline of an elderberry shrubs providing suitable VELB habitat is considered a direct adverse effect to VELB.

Of the 82 elderberry shrubs inventoried, a total of 70 elderberry shrubs with stems greater than 1 inch DGL were located within 100 ft of ground disturbance activities.

A total of 26 elderberry shrubs were inventoried within the limits of ground disturbance activities or within 20 ft. Eight of the 26 shrubs are within the project footprint (i.e., at the embankment for the new south bridge abutment, within the work area for the new bridge columns, and within the alignment of the temporary work trestle); these shrubs contain a

total of 25 stems greater than 1 inch DGL. The remaining 18 shrubs are outside of the project footprint but are still within 20 ft, which will result in a temporary direct adverse effect to VELB; these shrubs contain a total of 137 stems greater than 1 inch DGL.

Additionally, a total of 44 elderberry shrubs are located between 20 ft and 100 ft of the limit of ground disturbance (resulting in potential indirect effects to VELB); these shrubs contain a total of 182 stems greater than 1 inch DGL. A summary of the affected elderberry shrubs is provided below in Table 8 and shown in Figure 7. The elderberry shrub inventory is attached in Appendix E.

Table 9: Summary of Elderberry Shrubs within 100 Feet of Ground Disturbance

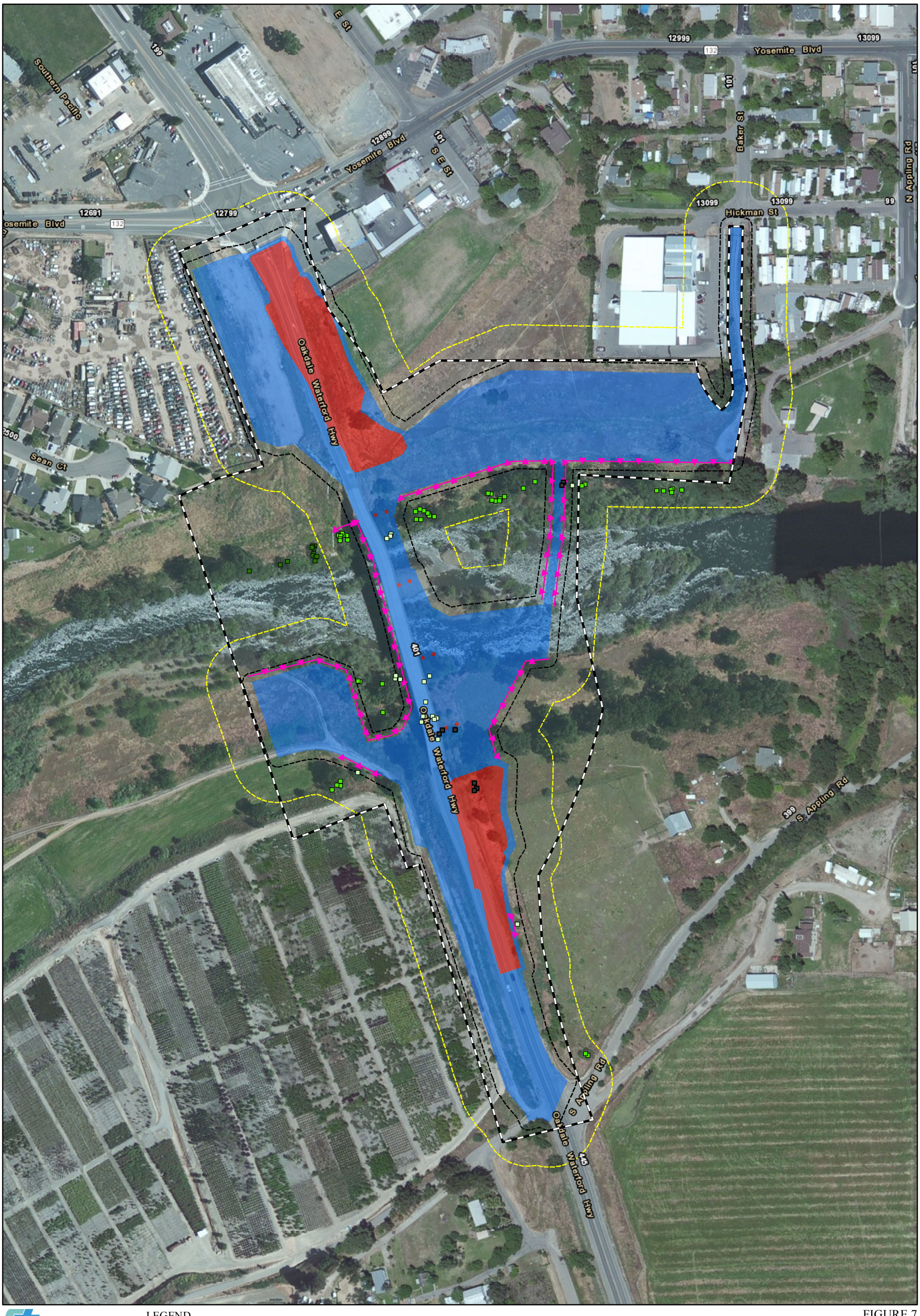
	Number of Shrubs	DGL Stems 1" - 3"	DGL Stems 3" - 5"	DGL Stems > 5"	Total Stems Impacted
Elderberry Shrubs to be Removed	8	17	3	5	25
Located within 20 Feet of Ground Disturbance Activities	18	100	23	14	137
Located within 20 and 100 Feet of Ground Disturbance Activities	44	157	19	6	182
Total	70	274	45	25	

4.3.8.3 Avoidance and Minimization Efforts

The following avoidance and minimization measures should reduce potential impacts to VELB, in accordance with the USFWS Conservation Guidelines for the Valley Elderberry Longhorn Beetle (VELB Guidelines), dated July 1999.

1. A qualified biologist shall survey for elderberry shrubs within 100 ft of the project footprint. Data to be collected shall include the number of stems 1 inch or greater (measured at ground level), signs of VELB exit holes, type of habitat where the shrub is located, and associated native species.

2. Once the final limits of construction are set, highly visible ESA fencing shall be installed at the 20-ft setback around the perimeter of each elderberry plant or plant group. ESA fencing shall consist of highly visible construction fencing or equivalent, and shall be maintained until construction is complete. A qualified biologist shall be present during the installation of fencing. The approximate location of ESA fencing is shown in Figure 7.



LEGEND

- Biological Study Area
- Permanent Impact Area
- Temporary Impact Area
- 20-Foot Buffer
- 100-Foot Buffer
- ESA Fencing
- Elderberry Shrubs to be Removed - 8 Count
- Elderberry Shrubs within 20 Feet - 18 Count
- Elderberry Shrubs Between 20 and 100 Feet - 44 Count
- Elderberry Shrubs Beyond 100 Feet - 12 Count

0 100 200
FEET

FIGURE 7

Hickman Road Bridge (38C0004) Replacement Project
Stanislaus County, California
10-STA-0-CR
Federal Project No. BRLO-5938 (199)

Elderberry Locations and ESA Fencing

SOURCE: Basemap - Microsoft Aerial Imagery (2/2012); Mapping - LSA Associates, Inc. (2015)
I:\DHG1401\GIS\Reports\NES\NES_fig7_velb_loc.mxd (6/14/2016)

3. Signs shall be erected every 50 ft along the edge of the avoidance area with the following information: “This area is habitat of the valley elderberry longhorn beetle, a threatened species, and must not be disturbed. This species is protected by the Endangered Species Act of 1973, as amended. Violators are subject to prosecution, fines, and imprisonment.” The signs shall be clearly readable from a distance of 20 ft, and shall be maintained for the duration of construction.

4. Employee awareness training shall be provided for the contractor to emphasize the need to avoid damaging elderberry plants and the possible penalties for not complying with these requirements.

5. A qualified biologist shall periodically inspect the construction area to assure that the project is not affecting any elderberry plants.

6. No insecticides, herbicides, fertilizers, or other chemicals that might harm the VELB or elderberry plants shall be used within 100 ft of any elderberry plant with stems measuring greater than 1-inch in diameter.

7. Any damage occurring within the elderberry buffer areas (within 100 ft of the elderberry plants) shall be restored and revegetated with appropriate native species at the completion of construction.

8. If a minimum 20-ft setback from the dripline of all elderberry plants in the BSA cannot be maintained for all project activities, USFWS shall be contacted and additional mitigation measures may be required.

4.3.8.4 Compensatory Mitigation

The project will result in the removal of 8 elderberry shrubs; these 8 shrubs and the 18 elderberry shrubs located within 20 feet of the project footprint shall require compensation in accordance with the USFWS Conservation Guidelines for the Valley Elderberry Longhorn Beetle (VELB Guidelines), dated July 1999.

Compensation will occur through purchase of credits through an approved mitigation bank per the total plantings shown in Table 9. Credit purchase will be based on a one credit to 10 plantings ratio, rounded up to the nearest credit. With a current estimated credit cost of $4,000, the total compensatory mitigation cost is expected to be approximately $224,000. In addition, the 8 shrubs to be removed shall be transplanted to an approved mitigation bank, if feasible (i.e., the shrubs are good candidates for transplanting).

Table 10: Summary of Required VELB Mitigation Plantings

Size Category	Total Number of Stems Impacted	Elderberry Planting Ratio	Elderberry Plantings	Associated Native Species Planting Ratio	Associated Species Planting	Total Mitigation Planting
Non-Riparian – No Exit Holes						
> 1" and < 3"	4	1:1	4	1:1	4	8
> 3" and < 5"	6	2:1	12	1:1	6	18
> 5"	3	3:1	9	1:1	3	12
Riparian – No Exit Holes						
> 1" and < 3"	112	2:1	224	1:1	112	336
> 3" and < 5"	19	3:1	57	1:1	19	76
> 5"	14	4:1	56	1:1	14	70
Riparian – Exit Holes Present						
> 1" and < 3"	1	4:1	4	2:1	2	6
> 3" and < 5"	1	6:1	6	2:1	2	8
> 5"	2	8:1	16	2:1	4	20
Total	**162**	**-**	**388**	**-**	**166**	**554**

4.3.8.5 Cumulative Impacts

Impacts to VELB in the general vicinity of the project likely will occur through habitat loss during public works projects similar in scope to the subject project. Other projects in the region with similar impacts will also be required to minimize and/or mitigate those impacts. Considering the amount of habitat available for this species in the region relative to the amount of habitat in the BSA, and implementation of the avoidance and minimization measure detailed above, the project will not substantially contribute to cumulative effects for VELB.

This page intentionally left blank

Chapter 5 – Conclusions and Regulatory Determinations

Federal Endangered Species Act Consultation Summary

5.1 Federal Endangered Species Act Consultation Summary

The proposed project may affect, and is likely to adversely affect, VELB, a threatened species under FESA. The project may affect, but is not likely to adversely affect, Central Valley steelhead, a threatened species under FESA; however the project may adversely modify Central Valley steelhead critical habitat.

Caltrans will initiate formal consultation with USFWS and NMFS for these species pursuant to Section 7 of FESA. A Biological Assessment will be required to address project effects to these species. It is anticipated that the agencies will concur with the above determinations and, with incorporation of the proposed avoidance and minimization efforts, the project will not jeopardize the continued existence of these species.

5.2 Federal Fisheries and Essential Fish Habitat Consultation Summary

The project may adversely modify EFH for Chinook salmon. Consultation with NMFS under the MSA is required.

5.3 California Endangered Species Act Consultation Summary

The proposed project may impact Swainson's hawk, which is listed as threatened under CESA. However, the proposed project is not expected to result in "take" of Swainson's hawk. Therefore, no Incidental Take Permit pursuant to Section 2081 of the California Fish and Game Code will be required for this species.

5.4 Wetlands and Other Waters Coordination Summary

Potential waters of the U.S. and CDFW 1602 waters, and potential project impacts to these waters, are summarized in Table 10 below. (Note that for purposes of this document waters of the State are equivalent to waters of the U.S.).

Table 11: Jurisdictional Waters in the BSA: Summary and Impacts (acres)

Type	Summary	Impacts	
		Permanent	Temporary
Waters of the U.S.			
Wetlands	1.28	0.001	0.344
Non-wetland Waters	4.35	0.004	1.115
Total	**5.63**	**0.005**	**1.459**
CDFW 1602 Waters[1]	9.09	0.077	2.591

[1] CDFW 1602 Waters include the Tuolumne River plus adjacent riparian areas.

5.4.1 ARMY CORPS OF ENGINEERS

Waters of the U.S. within the BSA consist of the Tuolumne River and two ephemeral roadside drainages, total 5.63 ac (Figure 6). Potential wetlands total 1.28 ac and non-wetland waters total 4.35 ac. Jurisdictional waters in the BSA are shown on Figure 6 and summarized in Table 9.

Non-wetlands waters of the U.S. within the BSA, totaling 4.35 ac, include the Tuolumne River and its associated drainages, as well as, two roadside ditches. Wetlands within the BSA total 1.28 ac; these areas occur around and within the OHWM of the Tuolumne River.

The proposed project will result in minor permanent impacts to wetlands (0.001 ac) and non-wetland waters (0.004 ac) during installation of the new bridge piers; however, removal of the concrete pile caps for the existing bridge piers will result in an 0.027 ac of additional waters of the U.S., and an overall net increase of 0.022 ac of waters of the U.S., when considering the 0.005 ac of permanent impact. Temporary impacts to wetlands (0.344 ac) and non-wetland waters (1.115 ac) will occur as a result of installation of the temporary access ramp, temporary work trestle, removal of the existing bridge and temporary access.

The waters of the U.S. in the BSA that will be affected by the project are regulated by the ACOE under Section 404 of the CWA and Section 10 of the RHA (since the reach of the Tuolumne River within the BSA is considered a navigable water of the U.S.). It is expected the proposed discharge into waters of the U.S. during project construction can be authorized by the ACOE using Nationwide Permit (NWP) 14 – Linear Transportation Projects. In accordance with the conditions of NWP 14, a Preconstruction Notification must be submitted to the ACOE for verification that the proposed discharges comply with the conditions of the subject NWPs.

5.4.2 REGIONAL WATER QUALITY CONTROL BOARD

Discharges into waters of the State under Section 404 of the CWA also require a Water Quality Certification from the RWQCB, pursuant to Section 401 of the CWA. Waters of the State, and project Impacts to waters of the State, will be the same as for waters of the U.S., as discussed in Section 5.4.1. The RWQCB may opt to waive the water quality certification and instead issue waste discharge requirements for waters of the State pursuant to their authority under the PCWQCA.

5.4.3 CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE

CDFW jurisdictional waters in the BSA, totaling 9.09 ac, include the live channel of the Tuolumne and associated riparian vegetation. The project will result in permanent impacts to 0.08 ac and temporary impacts to 2.60 ac of waters within CDFW jurisdiction, as a result of project construction, and temporary access; however, removal of the concrete pile caps for the existing bridge piers will result in an 0.009 ac of additional area within CDFW jurisdiction, and an overall net increase of 0.001 ac to this community when considering the 0.008 ac of permanent impact. The majority of temporary impacts will occur on unvegetated gravel bars that are mapped within the riverine community.

Impacts to these resources will require a Lake and Streambed Alteration Agreement from CDFW, under Sections 1600-1616 of the California Fish and Game Code.

5.4.4 U.S. COAST GUARD

The reach of the Tuolumne River in the BSA is navigable in law, but not actually navigated other than by logs, log rafts, rowboats, canoes and small motorboats. Therefore, the reach of the Tuolumne River in the BSA will likely be granted Advance Approval from the USCS for purposes of bridge permitting.

5.5 Executive Order 11990 – Protection of Wetlands

The project will result in minor permanent and temporary impacts to wetlands. The project has been designed to avoid wetlands, where feasible. The measures in Section 4.1.1.3 will help minimize impacts to wetlands during and after construction. Based upon the above considerations, it is determined there is no practicable alternative to the proposed construction in wetland and that the proposed action includes all practicable measures to minimize harm to wetlands, which may result from such use.

5.6 Invasive Species

To avoid the introduction of invasive species into the BSA during project construction, contract specifications shall include, at a minimum, the following measures.

1. All earthmoving equipment to be used during project construction shall be thoroughly cleaned before arriving on the project site.

2. All seeding equipment (i.e., hydroseed trucks) shall be thoroughly rinsed at least three times prior to beginning seeding work.

3. To avoid spreading any non-native invasive species already existing on-site, to off-site areas, all equipment shall be thoroughly cleaned before leaving the site.

5.7 Migratory Bird Treaty Act and California Fish and Game Code (Breeding Birds)

Disturbance of migratory birds during their nesting season (February 1 to August 31) could result in "take" which is prohibited under the MBTA and Section 3513 of the California Fish and Game Code. California Fish and Game Code (Section 3503) also prohibits take or destruction of bird nests or eggs.

The following seasonal work restrictions will be implemented during construction to minimize the potential for take of nesting birds:

1. If work must begin during the nesting season (February 1 to August 31), a qualified biologist shall survey all suitable nesting habitat in the BSA for presence of nesting birds. This survey shall occur no more than 10 days prior to the start of construction. If no nesting activity is observed, work may proceed as planned. If an active nest is discovered, a qualified biologist shall evaluate the potential for the proposed project to disturb nesting activities. The evaluation criteria shall include, but are not limited to, the location/orientation of the nest in the nest tree, the distance of the nest from the BSA, and line of sight between the nest and the BSA.

2. If nesting birds are found within 100 ft of the project footprint during the survey, an initial setback of 100 ft from nesting areas shall be established and protected with ESA fencing. ESA fencing shall be maintained during the nesting season until construction is complete or the young have fledged, as determined by a qualified biologist.

3. A qualified biologist shall evaluate the potential for the proposed work to disturb nesting activities considering the 100-ft setback. The evaluation criteria shall include, but are not limited to, the location/orientation of the nest in the nest tree, the distance of the nest to the work limits, the line of sight between the nest and the work limits, and the description of the proposed work.

4. If work must begin during the nesting season (February 1 to August 31) and swallow mud nests or remains of mud nests are observed on the bridge,

exclusion nesting and/or other exclusion structures shall be installed on the underside of the existing bridge to prevent nesting. Exclusion structures shall be installed prior to the start of nesting season (February 1 to August 31), and shall be left in place and maintained until the existing bridge is removed, or September 1, whichever is earlier. Mud nests or remains of mud nests shall be removed prior to installation of exclusion structures.

5. Alternatively, high pressure hoses, extension poles, or similar methods shall be utilized to remove mud nests or remains of mud nests prior to the start of the nesting season (February 1 to August 31). In addition, regular monitoring shall be required to remove new mud nests before they are large enough to support egg-laying.

5.8 Impacts to Oak Woodlands

The project will result in the removal of approximately seven oak trees. The results of the tree survey are shown in Appendix D.

This page intentionally left blank

Chapter 6 – References

Baldwin, Bruce G. et. al., Ed 2012. *The Jepson Manual: Vascular Plants of California, Second Edition*. University of California Press.

California Department of Fish and Wildlife. 2012. Staff Report on Burrowing Owls. Sacramento, CA.

California Department of Fish and Wildlife. 2015. Rarefind 5 online computer program. Sacramento, CA. Records search executed April 15, 2016. Sacramento, California.

California Native Plant Society. 2016. 8th Inventory of Rare and Endangered Vascular Plants of California - Online Edition. Records search executed April 15, 2016. Sacramento, California.

Clark, G.H. 1929. Sacramento-San Joaquin Salmon (*Oncorhynchus tschawytscha*) Fishery of California. California Department of Fish and Game, Fish Bulletin 17.

Environmental Laboratory. 1987. Corps of Engineers Wetlands Delineation Manual. Technical Report Y-97-1. U.S. Army Corps of Engineers Waterways Experiment Station, Vicksburg, MS.

Federal Register. 2005. Endangered and Threatened Species; Designation of Critical Habitat for Seven Evolutionarily Significant Units of Pacific Salmon and Steelhead in California; Final Rule. National Marine Fisheries Service, National Oceanic and Atmospheric Administration. September 2, 2005. Vol. 70, No. 170.

Sawyer, John O., Keeler-Wolf, Todd., and Evans, Julie M. 2008. *A Manual of California Vegetation: Second Edition.* California Native Plant Society. Sacramento, CA.

Snyder, John O. 1931. Salmon of the Klamath River, California. California Department of Fish and Game, Fish Bulletin 34.

Swainson's Hawk Technical Advisory Committee (SHTAC). 2000. Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley. May 31, 2000.

U.S. Army Corps of Engineers Research and Development Center. 2008. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid Southwest Region. ERDC/EL TR-08-28.

U.S. Army Corps of Engineers. 2008. Regulatory Guidance Letter No. 08-02. Subject: Jurisdictional Determinations. June 26, 2008.

U.S. Fish and Wildlife Service. 1999. Conservation Guidelines for the Valley Elderberry Longhorn Beetle. Sacramento Fish and Wildlife Office. July 9, 1999.

U.S. Fish and Wildlife Service. 2016. Online Threatened and Endangered Species Lists. Sacramento Fish and Wildlife Office. Records search executed April 28, 2016.

Appendix A – Design Plans

STANISLAUS COUNTY
DEPARTMENT OF PUBLIC WORKS
PLANS FOR THE CONSTRUCTION OF

HICKMAN ROAD BRIDGE REPLACEMENT OVER TUOLUMNE RIVER

STANISLAUS COUNTY, CALIFORNIA

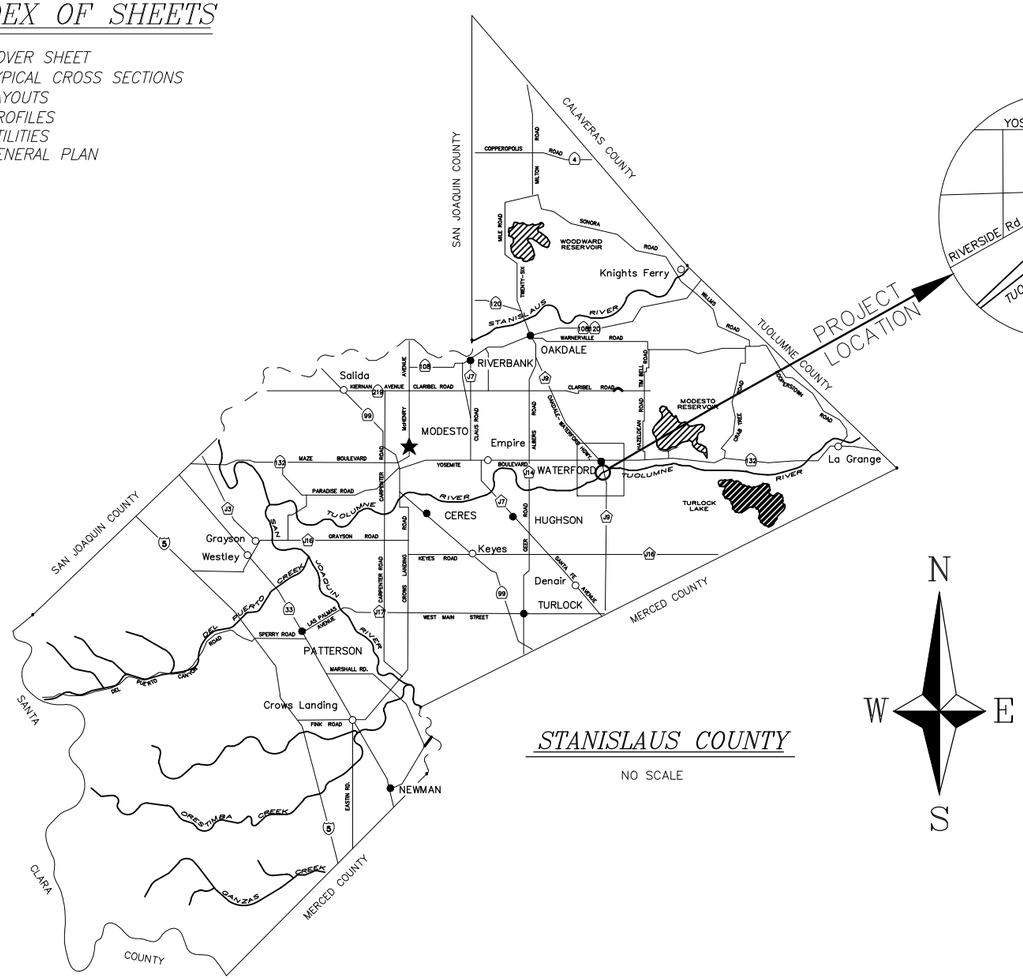
PROJECT NO. BRLS-5938(199)
BRIDGE NO. 38-C004

drake haglan AND ASSOCIATES
11060 White Rock Road, Suite 200
Rancho Cordova, CA 95670

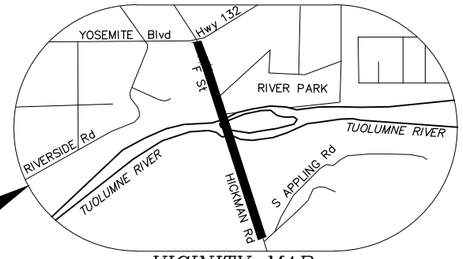
STATE OF CALIFORNIA

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
STANDARD PLANS

INDEX OF SHEETS



STANISLAUS COUNTY
NO SCALE



VICINITY MAP
NO SCALE

GENERAL NOTES

1. THE CONTRACTOR SHALL POSSESS THE LICENSE(S) REQUIRED IN THE INVITATION TO BID & SPECIAL PROVISIONS.
2. ALL MATERIAL AND WORK SHALL CONFORM TO STANISLAUS COUNTY SPECIFICATIONS AND IMPROVEMENT STANDARDS, 2014 EDITION, TO BE SUPPLEMENTED BY CALTRANS STANDARD PLANS, DATED MAY, 2010 AND STANDARD SPECIFICATIONS, DATED MAY, 2010: AND ALL ADDENDA THERETO. ALL IMPROVEMENTS ARE SUBJECT TO THE INSPECTION AND APPROVAL OF THE PUBLIC WORKS DEPARTMENT.
3. THE CONTRACTOR SHALL TAKE PRECAUTIONARY MEASURES TO PROTECT ALL UTILITIES. THE CONTRACTOR SHALL DO NO EXCAVATION UNTIL ALL UTILITY AGENCIES AND THE STANISLAUS COUNTY DEPARTMENT OF PUBLIC WORKS HAVE BEEN NOTIFIED AND HAVE BEEN GIVEN THE OPPORTUNITY TO MARK THEIR FACILITIES IN THE FIELD. THE CONTRACTOR SHALL CALL U.S.A. AT LEAST FORTY-EIGHT (48) HOURS PRIOR TO DOING ANY EXCAVATING.
4. THESE PLANS HAVE BEEN CHECKED BY THE STANISLAUS COUNTY DEPARTMENT OF PUBLIC WORKS AND/OR AUTHORIZED REPRESENTATIVE, BUT SUCH CHECKING AND/OR APPROVAL DOES NOT RELIEVE THE CONTRACTOR FROM HIS/HER RESPONSIBILITY TO CORRECT ERRORS, OMISSIONS, OR MAKE CHANGES REQUIRED BY CONDITIONS DISCOVERED IN THE FIELD DURING COURSE OF CONSTRUCTION.
5. ALL CONSTRUCTION SITE ACTIVITIES SHALL CONFORM TO THE STATE WATER RESOURCES CONTROL BOARD, NATIONAL POLLUTION DISCHARGE ELIMINATION SYSTEM (NPDES), WASTE DISCHARGE REQUIREMENTS FOR DISCHARGES OF STORM WATER RUNOFF ASSOCIATED WITH CONSTRUCTION ACTIVITY.
6. PRIOR TO INITIATING ANY CONSTRUCTION, THE CONTRACTOR SHALL VERIFY THAT ALL NECESSARY FEDERAL, STATE, AND LOCAL PERMITS HAVE BEEN OBTAINED.
7. CONTACT:

   STANISLAUS COUNTY, DEPARTMENT OF PUBLIC WORKS
   SAMBATH CHRUN, (209) 525-7133

APPROVED BY STANISLAUS COUNTY:

_____ _____
COLT ESENWEIN *DATE*
DEPUTY DIRECTOR OF PUBLIC WORKS
STANISLAUS COUNTY

CALL BEFORE YOU DIG

REVISIONS

NO	DESCRIPTIONS	DATE	APPROVED

REGISTERED PROFESSIONAL ENGINEER
No. _____
Exp. CIVIL
STATE OF CALIFORNIA

STANISLAUS COUNTY
DEPARTMENT OF PUBLIC WORKS
ENGINEERING AND OPERATIONS DIVISION
1716 MORGAN ROAD - MODESTO, CA 95358

Stanislaus County
Striving to be the best

30% PLANS - 12/23/15 - NOT FOR CONSTRUCTION

COVER SHEET

IMPROVEMENT PLANS FOR:
HICKMAN ROAD BRIDGE REPLACEMENT
OVER TUOLUMNE RIVER
WATERFORD, CALIFORNIA

JOB NO	#######
DATE	00/00/00
DR BY	SM
CK BY	
SURVEY	
CONST.	
SCALE	NO SCALE

SHEET NUMBER
1
OF X SHEETS

Mar. 01, 2016 - 10:43am
J:\14013 - Hickman Road Bridge - Stanislaus Co\400 Project Design Files\420 Roadway & Civil\Submittal 30%\Plans\HR-R-T.dwg

PLOT DATE: March 1, 2016 FILE: J:\14013 - HICKMAN ROAD BRIDGE - STANISLAUS CO\400 PROJECT DESIGN FILES\420 ROADWAY & CIVIL\SUBMITTAL 30%\PLANS\HR-R-T.DWG

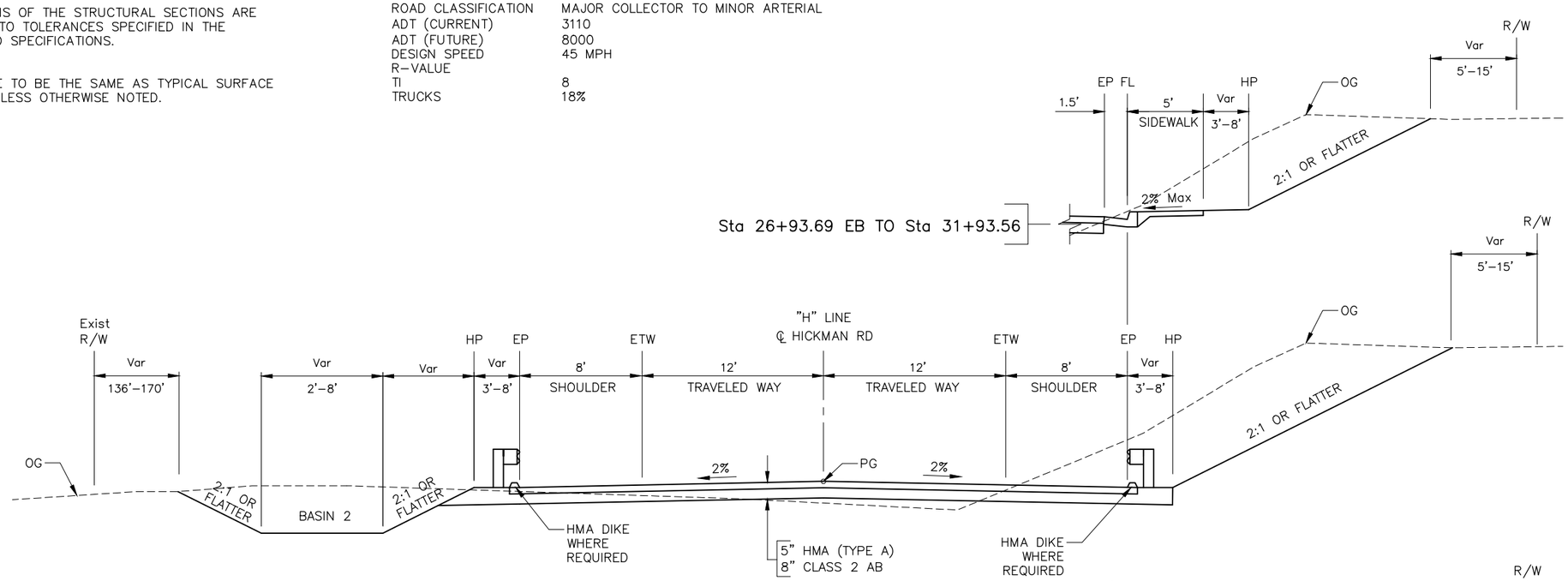
NOTES

1. DIMENSIONS OF THE STRUCTURAL SECTIONS ARE SUBJECT TO TOLERANCES SPECIFIED IN THE STANDARD SPECIFICATIONS.

2. SUBGRADE TO BE THE SAME AS TYPICAL SURFACE SLOPE UNLESS OTHERWISE NOTED.

HICKMAN ROAD DESIGN DESIGNATION

ROAD CLASSIFICATION	MAJOR COLLECTOR TO MINOR ARTERIAL
ADT (CURRENT)	3110
ADT (FUTURE)	8000
DESIGN SPEED	45 MPH
R-VALUE	
TI	8
TRUCKS	18%



drake haglan AND ASSOCIATES
11060 White Rock Road, Suite 200
Rancho Cordova, CA 95670

REGISTERED PROFESSIONAL ENGINEER
No.
Exp. CIVIL
STATE OF CALIFORNIA

NO	DESCRIPTIONS	DATE	APPROVED
REVISIONS			

STANISLAUS COUNTY
DEPARTMENT OF PUBLIC WORKS
ENGINEERING AND OPERATIONS DIVISION
1716 MORGAN ROAD - MODESTO, CA 95358

TYPICAL CROSS SECTIONS

IMPROVEMENT PLANS FOR:
HICKMAN ROAD BRIDGE REPLACEMENT
OVER TUOLUMNE RIVER
WATERFORD, CALIFORNIA

JOB NO	######
DATE	00/00/00
DR BY	S. Morales
CK BY	
SURVEY	
CONST.	
SCALE	AS SHOWN

SHEET NUMBER
2
OF X SHEETS

30% PLANS - 12/23/15 - NOT FOR CONSTRUCTION

CALL BEFORE YOU DIG

Dec. 14, 2015 - 2:33pm
I:\14013 - Hickman Road Bridge - Stanislaus Co\400 Project Design Files\420 Roadway & Civil\Submittal 30%\Plans\HR-R-X.dwg

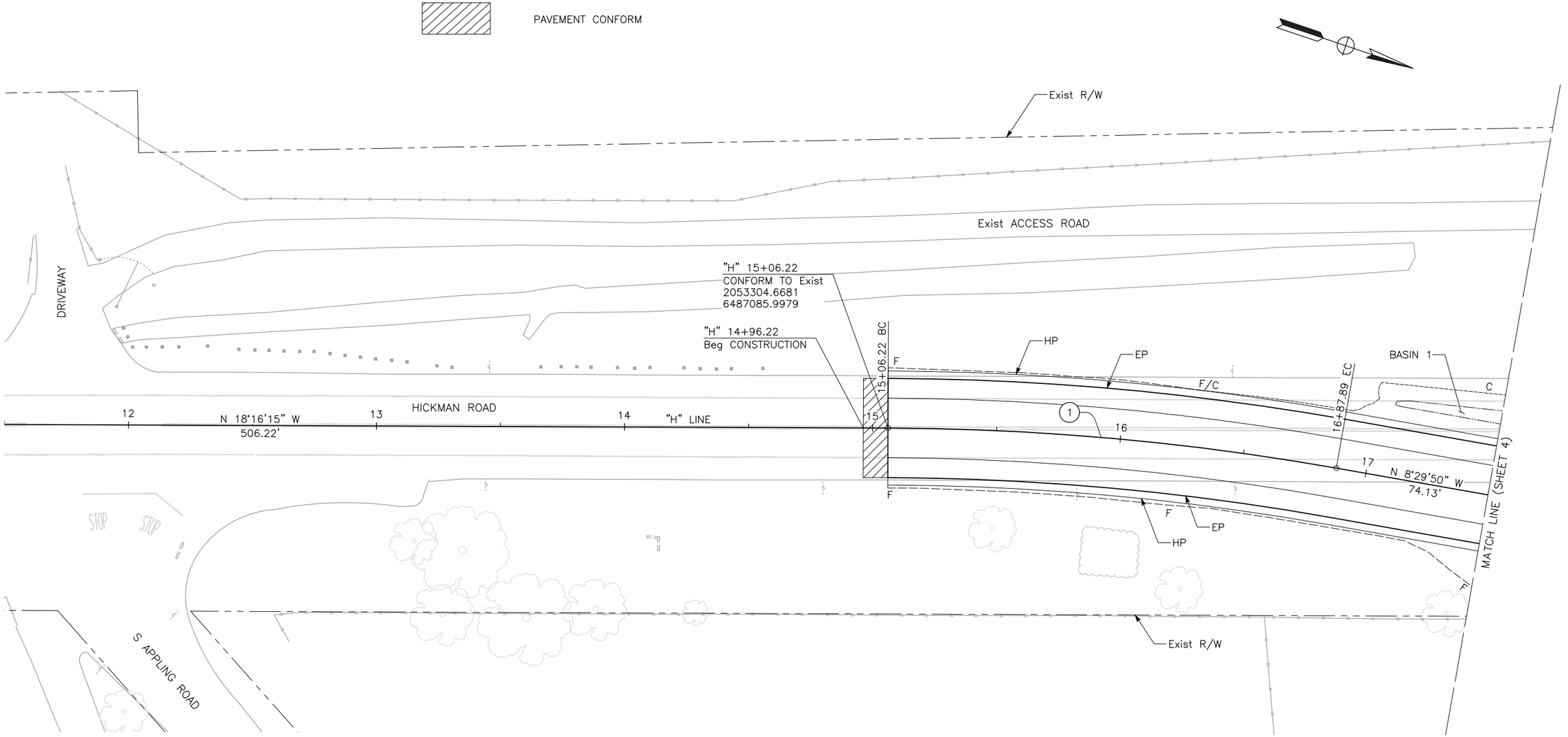
NOTES:

1. FOR ACCURATE RIGHT-OF-WAY DATA, CONTACT COUNTY OFFICE.
2. ALL STATION/OFFSET CALLOUTS ARE TO THE EDGE OF PAVEMENT UNLESS OTHERWISE NOTED.

LEGEND:

- C — CUT
- F — FILL
- PROPOSED R/W
- PROPERTY LINE (P/L)
- EXISTING R/W
- PAVEMENT CONFORM

CURVE DATA				
No.	R	Δ	T	L
(1)	1065'	9°46'26"	91.06'	181.67'



drake haglan AND ASSOCIATES
11060 White Rock Road, Suite 200
Rancho Cordova, CA 95670

REGISTERED PROFESSIONAL ENGINEER — No. _____ — Exp. _____ CIVIL — STATE OF CALIFORNIA

NO	DESCRIPTIONS	DATE	APPROVED
REVISIONS			

STANISLAUS COUNTY
DEPARTMENT OF PUBLIC WORKS
ENGINEERING AND OPERATIONS DIVISION
1716 MORGAN ROAD - MODESTO, CA 95358

LAYOUT

IMPROVEMENT PLANS FOR:
HICKMAN ROAD BRIDGE REPLACEMENT
OVER TUOLUMNE RIVER
WATERFORD, CALIFORNIA

JOB NO	#######
DATE	00/00/00
DR BY	S. Morales
CK BY	
SURVEY	
CONST.	
SCALE	1"=20'

SHEET NUMBER 3
OF X SHEETS

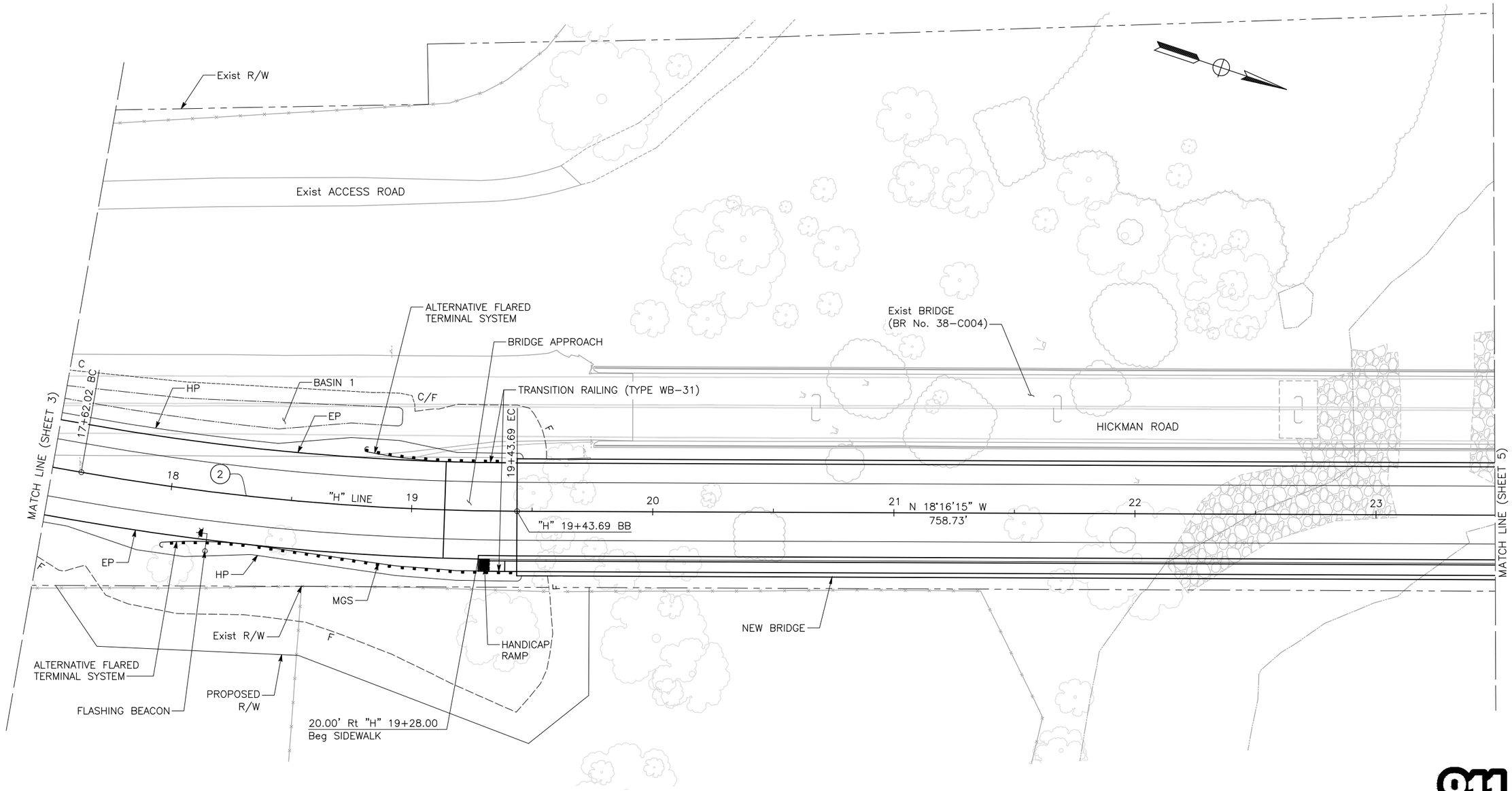
CALL BEFORE YOU DIG

30% PLANS - 12/23/15 - NOT FOR CONSTRUCTION

Dec. 16, 2015 - 11:38am
I:\14013 - Hickman Road Bridge - Stanislaus Co\400 Project Design Files\420 Roadway & Civil\Submittal 30%\Plans\HR-R-1.dwg

drake haglan AND ASSOCIATES
11060 White Rock Road, Suite 200
Rancho Cordova, CA 95670

CURVE DATA				
No.	R	Δ	T	L
(2)	1065'	9°46'26"	91.06'	181.67'



CALL BEFORE YOU DIG

REGISTERED PROFESSIONAL ENGINEER
No. _____
Exp. _____ CIVIL
STATE OF CALIFORNIA

NO	DESCRIPTIONS	REVISIONS DATE	APPROVED

STANISLAUS COUNTY
DEPARTMENT OF PUBLIC WORKS
ENGINEERING AND OPERATIONS DIVISION
1716 MORGAN ROAD - MODESTO, CA 95358

Stanislaus County — Striving to be the best

LAYOUT

IMPROVEMENT PLANS FOR:
HICKMAN ROAD BRIDGE REPLACEMENT
OVER TUOLUMNE RIVER
WATERFORD, CALIFORNIA

JOB NO	######
DATE	00/00/00
DR BY	S. Morales
CK BY	
SURVEY	
CONST.	
SCALE	1"=20'

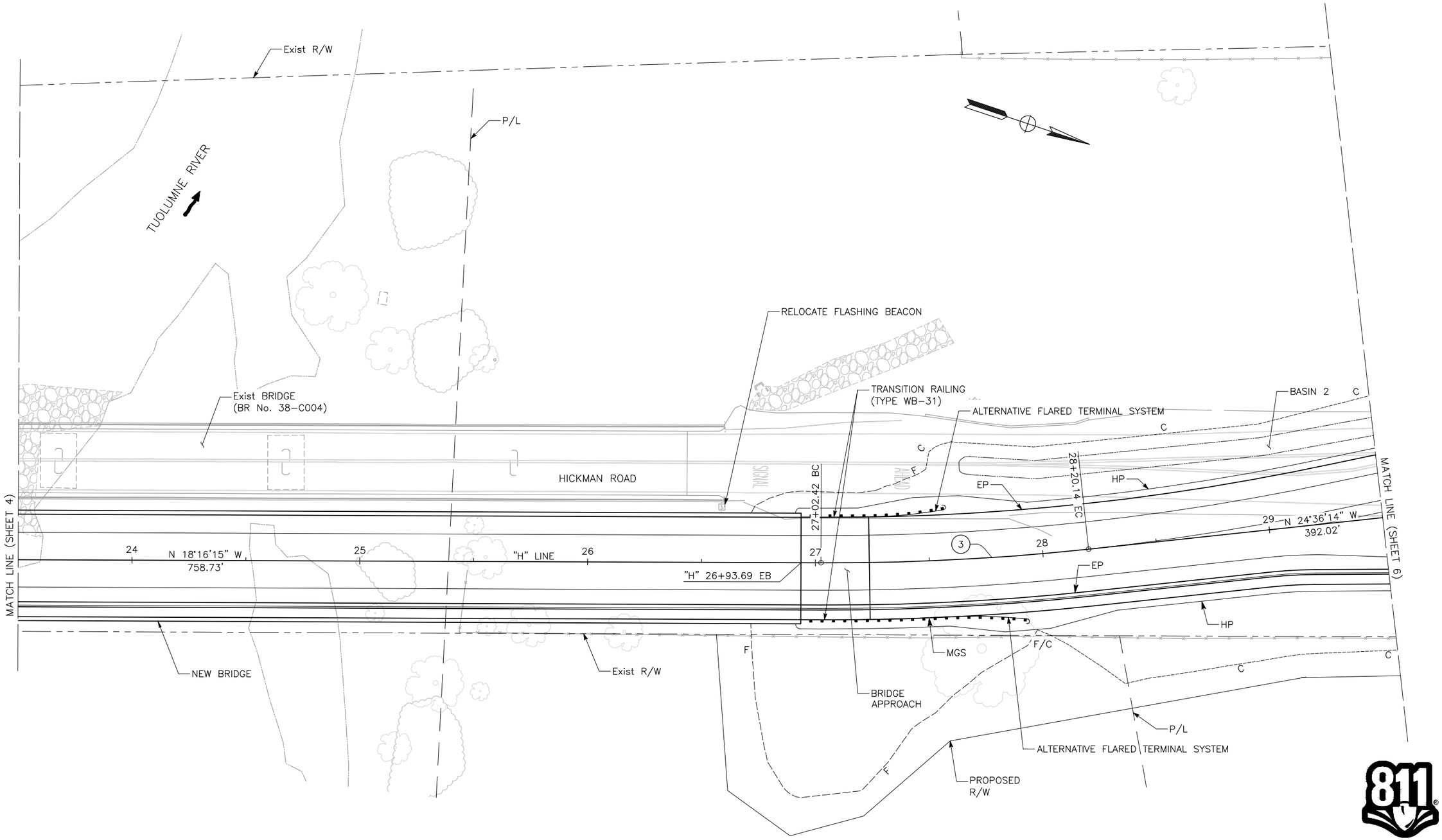
SHEET NUMBER
4
OF X SHEETS

30% PLANS - 12/23/15 - NOT FOR CONSTRUCTION

Dec 16, 2015 - 11:39am
I:\14013 - Hickman Road Bridge — Stanislaus Co\400 Project Design Files\420 Roadway & Civil\Submittal 30%\Plans\HR-R-L.dwg

drake haglan AND ASSOCIATES
11060 White Rock Road, Suite 200
Rancho Cordova, CA 95670

CURVE DATA				
No.	R	Δ	T	L
(3)	1065'	6°19'58"	58.92'	117.71'



CALL BEFORE YOU DIG

REGISTERED PROFESSIONAL ENGINEER
No. _____
Exp. _____ CIVIL
STATE OF CALIFORNIA

NO	DESCRIPTIONS	DATE	APPROVED
REVISIONS			

STANISLAUS COUNTY
DEPARTMENT OF PUBLIC WORKS
ENGINEERING AND OPERATIONS DIVISION
1716 MORGAN ROAD - MODESTO, CA 95358

Stanislaus County
Striving to be the best

LAYOUT

IMPROVEMENT PLANS FOR:
HICKMAN ROAD BRIDGE REPLACEMENT
OVER TUOLUMNE RIVER
WATERFORD, CALIFORNIA

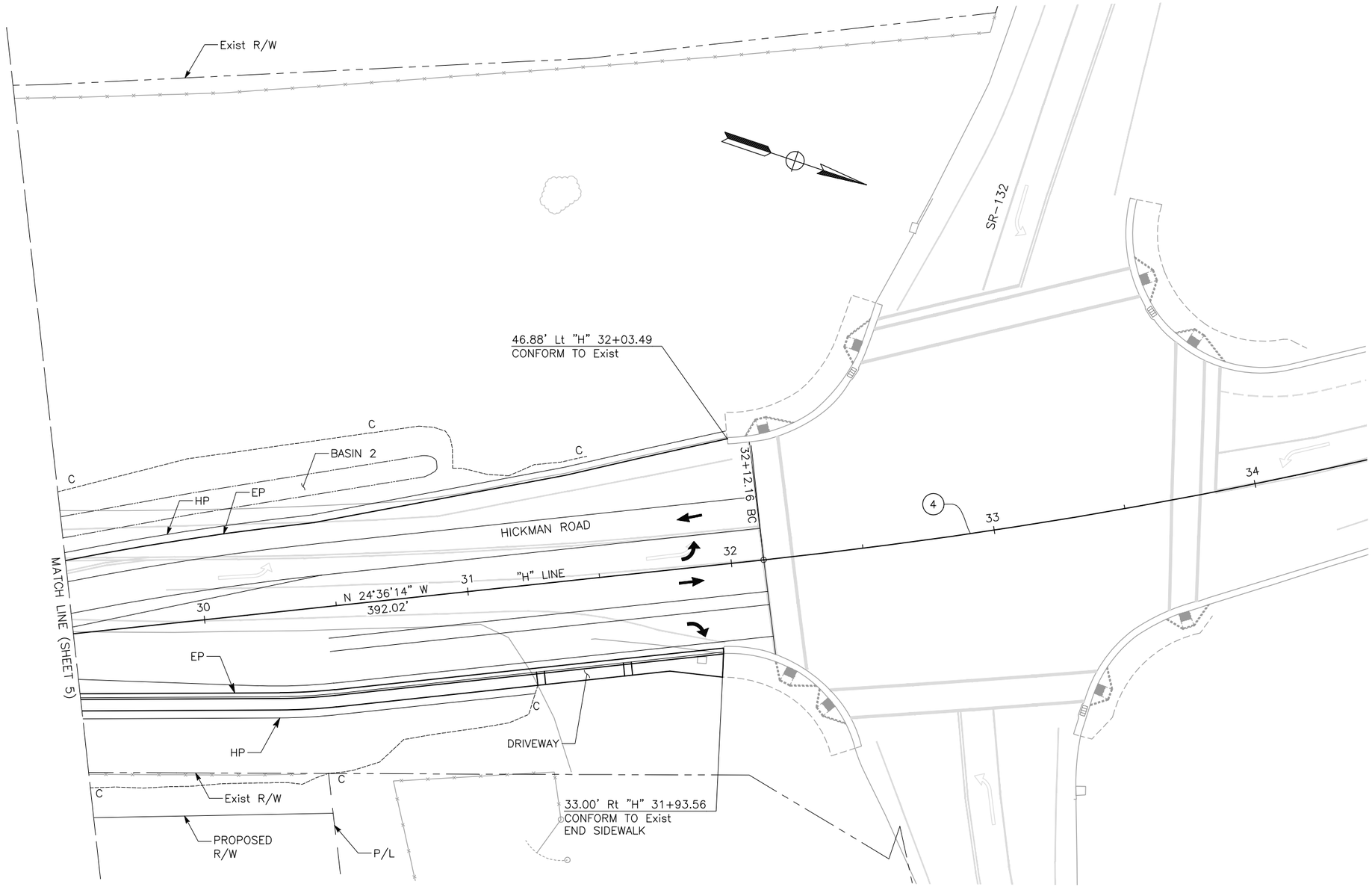
JOB NO	######
DATE	00/00/00
DR BY	S. Morales
CK BY	
SURVEY	
CONST.	
SCALE	1"=20'

SHEET NUMBER
5
OF X SHEETS

30% PLANS - 12/23/15 - NOT FOR CONSTRUCTION

Dec 16, 2015 - 11:39am
Q:\14013 - Hickman Road Bridge - Stanislaus Co\400 Project Design Files\420 Roadway & Civil\Submittal 30%\Plans\HR-R-Layout.dwg

CURVE DATA				
No.	R	Δ	T	L
(4)	2006'	11°36'16"	203.84'	406.28'



drake haglan AND ASSOCIATES
11060 White Rock Road, Suite 200
Rancho Cordova, CA 95670

REGISTERED PROFESSIONAL ENGINEER
No. _____
Exp. _____ CIVIL
STATE OF CALIFORNIA

NO	DESCRIPTIONS	DATE	APPROVED
REVISIONS			

STANISLAUS COUNTY
DEPARTMENT OF PUBLIC WORKS
ENGINEERING AND OPERATIONS DIVISION
1716 MORGAN ROAD – MODESTO, CA 95358

Stanislaus County
Striving to be the best

LAYOUT

IMPROVEMENT PLANS FOR:
HICKMAN ROAD BRIDGE REPLACEMENT
OVER TUOLUMNE RIVER
WATERFORD, CALIFORNIA

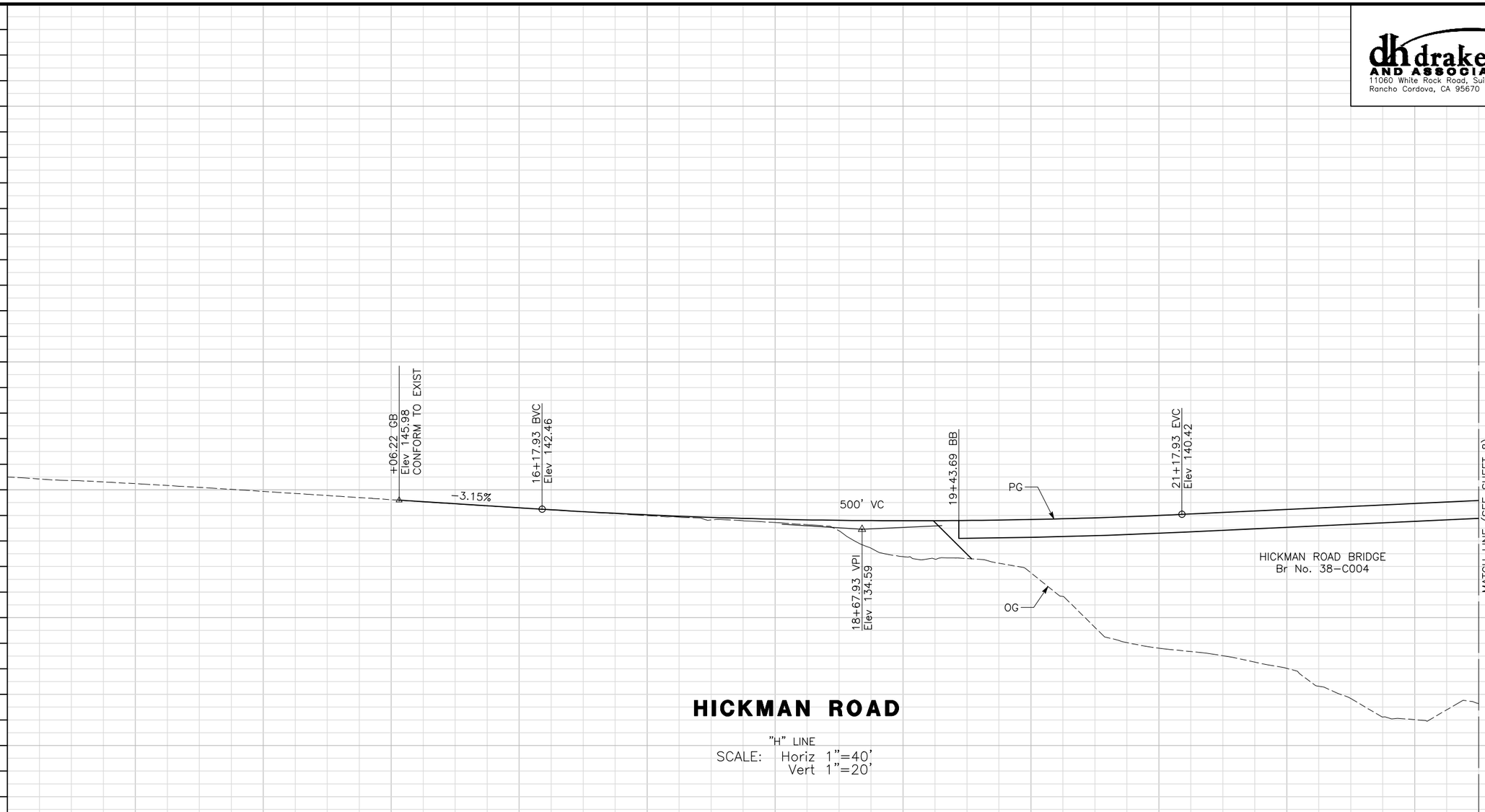
JOB NO	######
DATE	00/00/00
DR BY	S. Morales
CK BY	
SURVEY	
CONST.	
SCALE	1"=20'

SHEET NUMBER
6
OF X SHEETS

811
CALL BEFORE YOU DIG

30% PLANS - 12/23/15 - NOT FOR CONSTRUCTION

Dec. 16, 2015 – 11:40am
I:\14013 – Hickman Road Bridge – Stanislaus Co\400 Project Design Files\420 Roadway & Civil\Submittal 30%\Plans\HR-R-1.dwg



HICKMAN ROAD

"H" LINE
SCALE: Horiz 1"=40'
Vert 1"=20'

drake haglan AND ASSOCIATES
11060 White Rock Road, Suite 200
Rancho Cordova, CA 95670

REGISTERED PROFESSIONAL ENGINEER
No. _____
Exp. _____ CIVIL
STATE OF CALIFORNIA

NO	DESCRIPTIONS	DATE	APPROVED
REVISIONS			

STANISLAUS COUNTY
DEPARTMENT OF PUBLIC WORKS
ENGINEERING AND OPERATIONS DIVISION
1716 MORGAN ROAD - MODESTO, CA 95358

Stanislaus County
Striving to be the best

PROFILE

IMPROVEMENT PLANS FOR:
HICKMAN ROAD BRIDGE REPLACEMENT
OVER TUOLUMNE RIVER
WATERFORD, CALIFORNIA

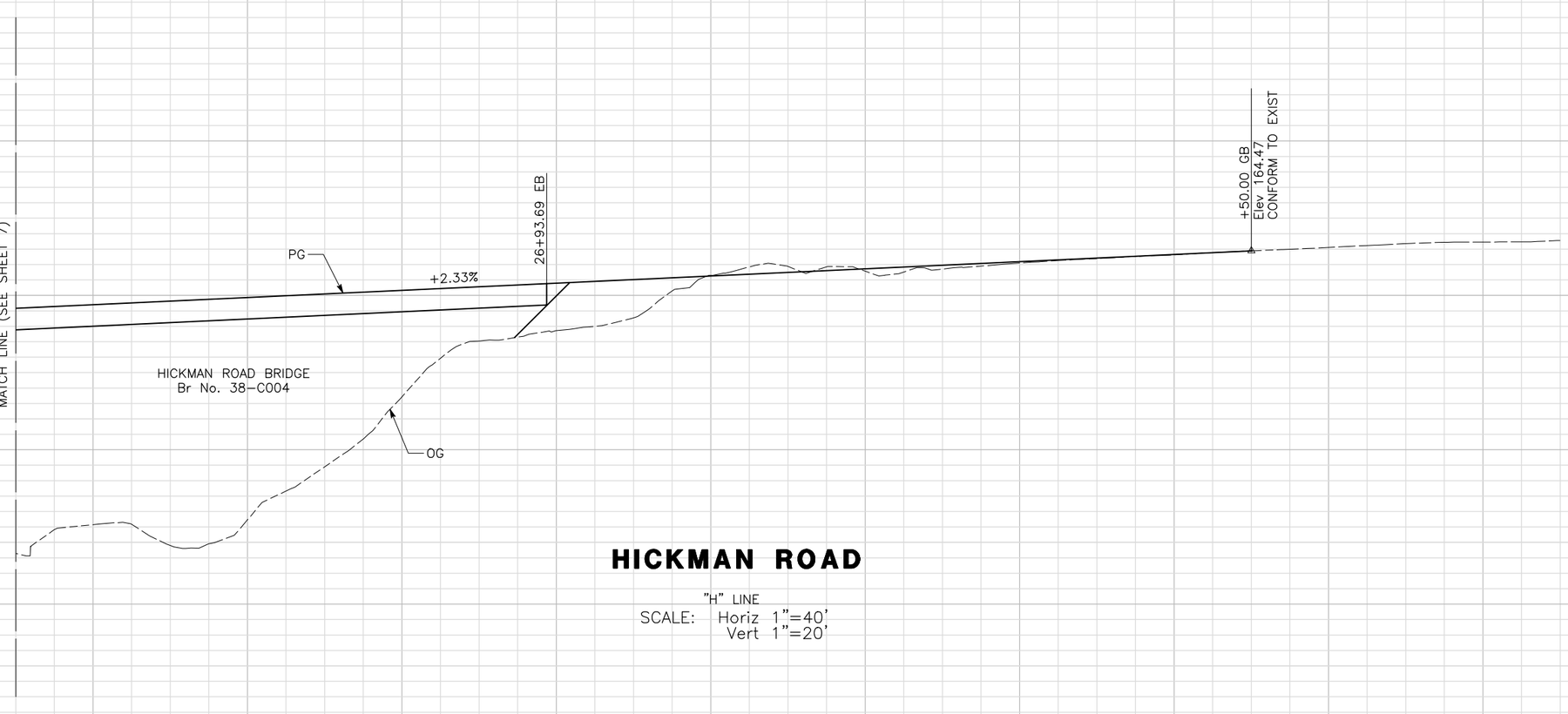
JOB NO	######
DATE	00/00/00
DR BY	S. Morales
CK BY	
SURVEY	
CONST.	
SCALE	AS SHOWN

SHEET NUMBER 7
OF X SHEETS

811 CALL BEFORE YOU DIG

30% PLANS - 12/23/15 - NOT FOR CONSTRUCTION

Dec. 16, 2015 - 11:41am
I:\14013 - Hickman Road Bridge - Stanislaus Co\400 Project Design Files\V20 Roadway & Civil\Submittal 30%\Plans\HR-R-P.dwg



HICKMAN ROAD

"H" LINE
SCALE: Horiz 1"=40'
Vert 1"=20'

drake haglan AND ASSOCIATES
11060 White Rock Road, Suite 200
Rancho Cordova, CA 95670

REGISTERED PROFESSIONAL ENGINEER
No. _____
Exp. _____ CIVIL
STATE OF CALIFORNIA

NO	DESCRIPTIONS	REVISIONS DATE	APPROVED

STANISLAUS COUNTY
DEPARTMENT OF PUBLIC WORKS
ENGINEERING AND OPERATIONS DIVISION
1716 MORGAN ROAD - MODESTO, CA 95358

Stanislaus County
Striving to be the best

PROFILE

IMPROVEMENT PLANS FOR:
HICKMAN ROAD BRIDGE REPLACEMENT
OVER TUOLUMNE RIVER
WATERFORD, CALIFORNIA

JOB NO	#######
DATE	00/00/00
DR BY	S. Morales
CK BY	
SURVEY	
CONST.	
SCALE	AS SHOWN

SHEET NUMBER
8
OF X SHEETS

811 CALL BEFORE YOU DIG

30% PLANS - 12/23/15 - NOT FOR CONSTRUCTION

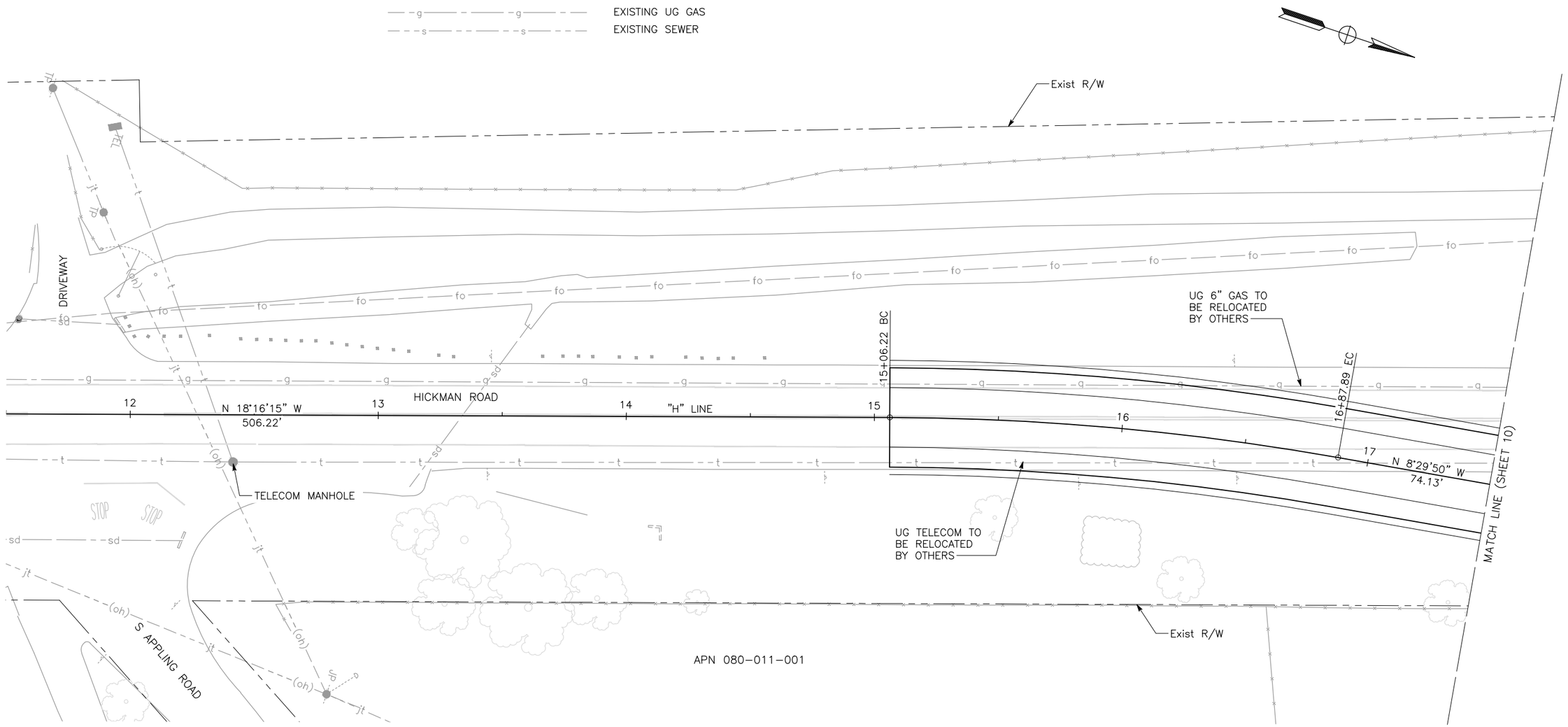
Dec. 16, 2015 - 11:41am
I:\14013 - Hickman Road Bridge - Stanislaus Co\400 Project Design Files\420 Roadway & Civil\Submittal 30%\Plans\HR-8-P.dwg

NOTES:

1. LOCATION OF UTILITY FACILITIES SHOWN ON THESE PLANS ARE APPROXIMATE AND SHALL BE VERIFIED BY CONTRACTOR PRIOR TO CONSTRUCTION.

LEGEND:

——— t ——— ——— (oh) ———	EXISTING OVERHEAD TELEPHONE
——— e ——— ——— (oh) ———	EXISTING OVERHEAD ELECTRICAL
——— jt ——— ——— (oh) ———	EXISTING OVERHEAD JOINT ELECTRICAL & TELEPHONE
——— fo ——— ——— fo ———	EXISTING UG FIBER OPTIC TELECOM
——— t ——— ——— t ———	EXISTING UG TELECOM
——— sd ——— ——— sd ———	EXISTING STORM DRAIN
——— g ——— ——— g ———	EXISTING UG GAS
——— s ——— ——— s ———	EXISTING SEWER



UTILITY FACILITY	OWNER
OVERHEAD TELEPHONE	AT&T
OVERHEAD ELECTRICAL	TID AND MID
UNDERGROUND FIBER OPTIC TELECOM	CHARTER COMMUNICATIONS
UNDERGROUND TELECOM	AT&T
STORM DRAIN	CITY OF WATERFORD
GAS	PG&E
SEWER	CITY OF WATERFORD

APPROVED FOR UTILITY WORK ONLY

CALL BEFORE YOU DIG

drake haglan AND ASSOCIATES
11060 White Rock Road, Suite 200
Rancho Cordova, CA 95670

REGISTERED PROFESSIONAL ENGINEER
No. _____
Exp. _____ CIVIL
STATE OF CALIFORNIA

NO	DESCRIPTIONS	DATE	APPROVED
REVISIONS			

STANISLAUS COUNTY
DEPARTMENT OF PUBLIC WORKS
ENGINEERING AND OPERATIONS DIVISION
1716 MORGAN ROAD - MODESTO, CA 95358

UTILITIES

IMPROVEMENT PLANS FOR:
HICKMAN ROAD BRIDGE REPLACEMENT
OVER TUOLUMNE RIVER
WATERFORD, CALIFORNIA

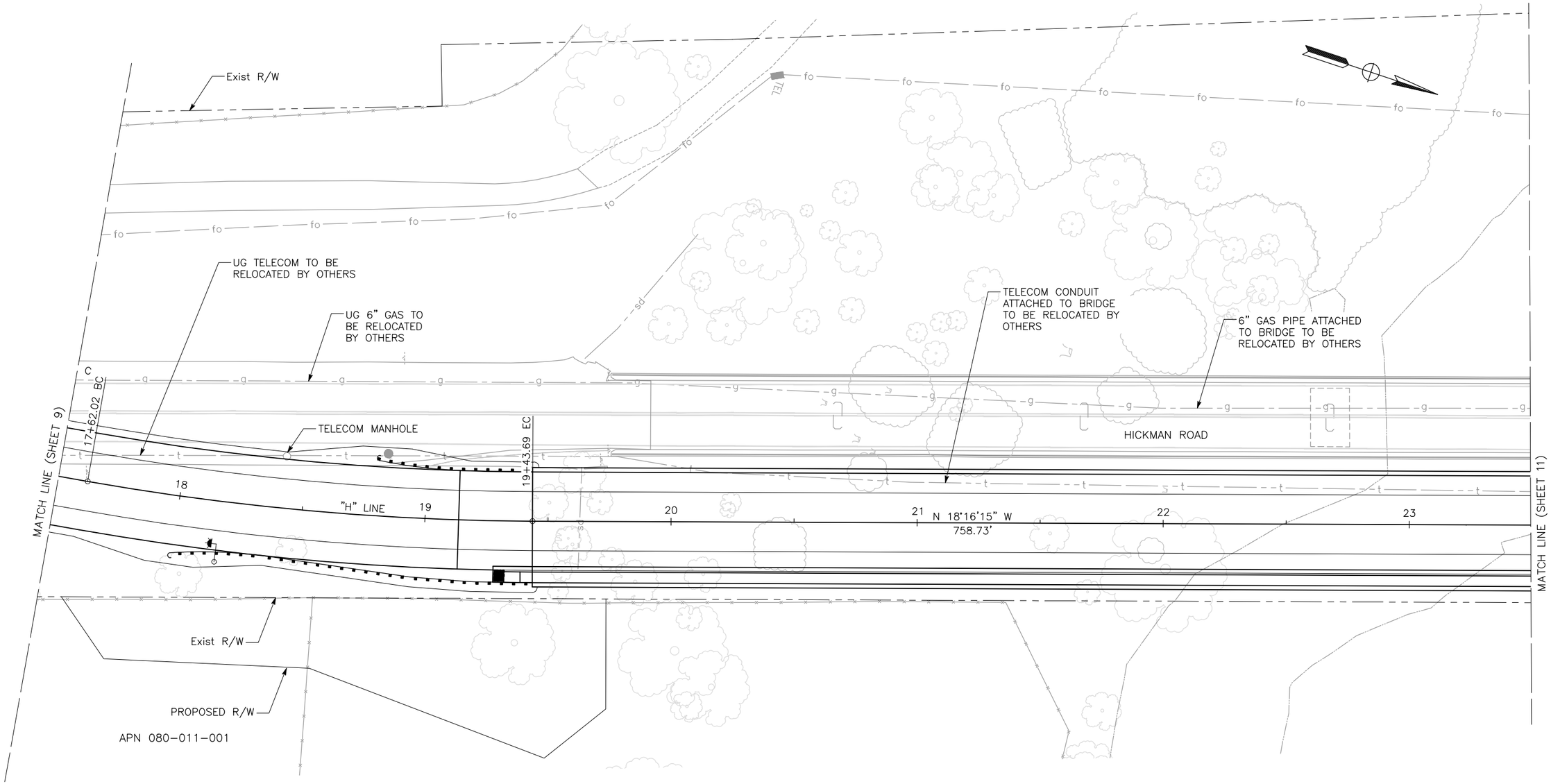
JOB NO	#######
DATE	00/00/00
DR BY	S. Morales
CK BY	
SURVEY	
CONST.	
SCALE	1"=20'

SHEET NUMBER 9
OF X SHEETS

30% PLANS - 12/23/15 - NOT FOR CONSTRUCTION

Dec. 16, 2015 - 11:42am
u:\14013 - Hickman Road Bridge - Stanislaus Co\400 Project Design Files\420 Roadway & Civil\Submittal 30%\Plans\WR-R-U.dwg

drake haglan AND ASSOCIATES
11060 White Rock Road, Suite 200
Rancho Cordova, CA 95670



APPROVED FOR UTILITY WORK ONLY

CALL BEFORE YOU DIG

REGISTERED PROFESSIONAL ENGINEER
No. _____
Exp. _____ CIVIL
STATE OF CALIFORNIA

NO	DESCRIPTIONS	DATE	APPROVED
	REVISIONS		

STANISLAUS COUNTY
DEPARTMENT OF PUBLIC WORKS
ENGINEERING AND OPERATIONS DIVISION
1716 MORGAN ROAD - MODESTO, CA 95358

UTILITIES

IMPROVEMENT PLANS FOR:
HICKMAN ROAD BRIDGE REPLACEMENT
OVER TUOLUMNE RIVER
WATERFORD, CALIFORNIA

JOB NO	######
DATE	00/00/00
DR BY	S. Morales
CK BY	
SURVEY	
CONST.	
SCALE	1"=20'

SHEET NUMBER
10
OF X SHEETS

30% PLANS - 12/23/15 - NOT FOR CONSTRUCTION

Dec 16, 2015 - 11:42am
...\01\14013 - Hickman Road Bridge - Stanislaus Co\400 Project Design Files\420 Roadway & Civil\Submittal 30%\Plans\Util-R-U.dwg

drake haglan AND ASSOCIATES
11060 White Rock Road, Suite 200
Rancho Cordova, CA 95670

REGISTERED PROFESSIONAL ENGINEER
No. _____
Exp. _____ CIVIL
STATE OF CALIFORNIA

NO	DESCRIPTIONS	REVISIONS DATE	APPROVED

Exist R/W

P/L

TUOLUMNE RIVER

fo

sd

ss

g

t

CONC HEADWALL

6" GAS PIPE ATTACHED TO BRIDGE TO BE RELOCATED BY OTHERS

UG 6" GAS TO BE RELOCATED BY OTHERS

MATCH LINE (SHEET 10)

MATCH LINE (SHEET 12)

HICKMAN ROAD

SWMH

AHEAD

27+02.42 BC

28+20.14 EC

24

N 18°16'15" W
758.73'

25

"H" LINE

26

27

28

29

N 24°36'14" W
392.02'

TELECOM CONDUIT ATTACHED TO BRIDGE TO BE RELOCATED BY OTHERS

UG TELECOM TO BE RELOCATED BY OTHERS

Exist R/W

APN 080-035-009

APN 080-035-008

P/L

PROPOSED R/W

APPROVED FOR UTILITY WORK ONLY

811 CALL BEFORE YOU DIG

STANISLAUS COUNTY
DEPARTMENT OF PUBLIC WORKS
ENGINEERING AND OPERATIONS DIVISION
1716 MORGAN ROAD - MODESTO, CA 95358

Stanislaus County
Striving to be the best

UTILITIES

IMPROVEMENT PLANS FOR:
HICKMAN ROAD BRIDGE REPLACEMENT
OVER TUOLUMNE RIVER
WATERFORD, CALIFORNIA

JOB NO	######
DATE	00/00/00
DR BY	S. Morales
CK BY	
SURVEY	
CONST.	
SCALE	1"=20'

SHEET NUMBER
11
OF X SHEETS

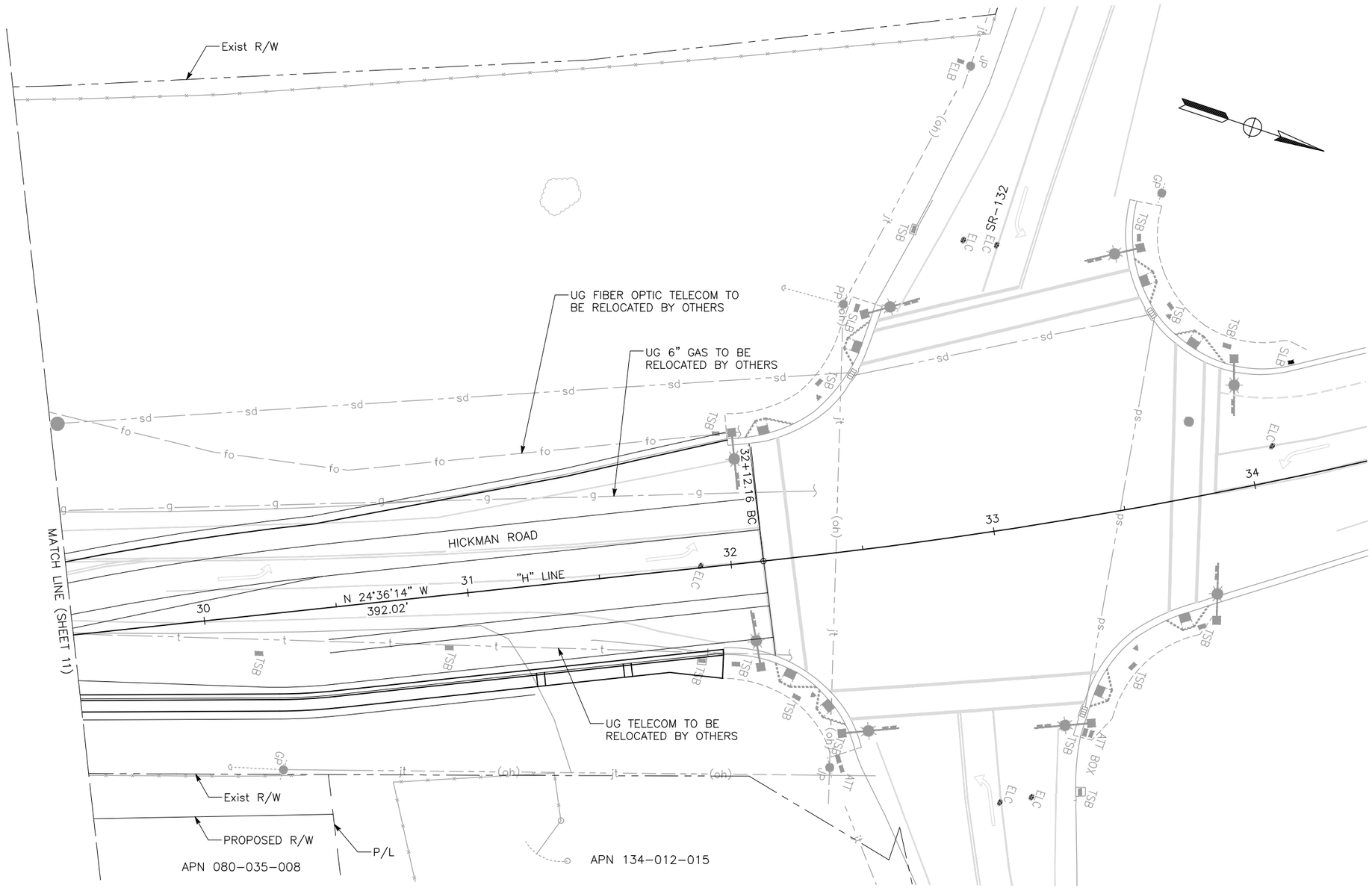
30% PLANS - 12/23/15 - NOT FOR CONSTRUCTION

Dec. 16, 2015 - 11:43am
U:\14013 - Hickman Road Bridge - Stanislaus Co\400 Project Design Files\420 Roadway & Civil\Submittal 30%\Plans\Util-R-U.dwg

drake haglan AND ASSOCIATES
11060 White Rock Road, Suite 200
Rancho Cordova, CA 95670

REGISTERED PROFESSIONAL ENGINEER
No. _____
Exp. _____ CIVIL
STATE OF CALIFORNIA

NO	DESCRIPTIONS	REVISIONS DATE	APPROVED



APPROVED FOR UTILITY WORK ONLY

811 CALL BEFORE YOU DIG

STANISLAUS COUNTY
DEPARTMENT OF PUBLIC WORKS
ENGINEERING AND OPERATIONS DIVISION
1716 MORGAN ROAD – MODESTO, CA 95358

Stanislaus County
Striving to be the best

UTILITIES

IMPROVEMENT PLANS FOR:
HICKMAN ROAD BRIDGE REPLACEMENT
OVER TUOLUMNE RIVER
WATERFORD, CALIFORNIA

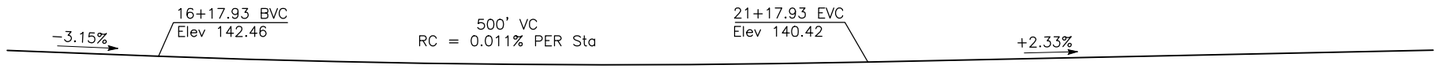
JOB NO	######
DATE	00/00/00
DR BY	S. Morales
CK BY	
SURVEY	
CONST.	
SCALE	1"=20'

SHEET NUMBER
12
OF X SHEETS

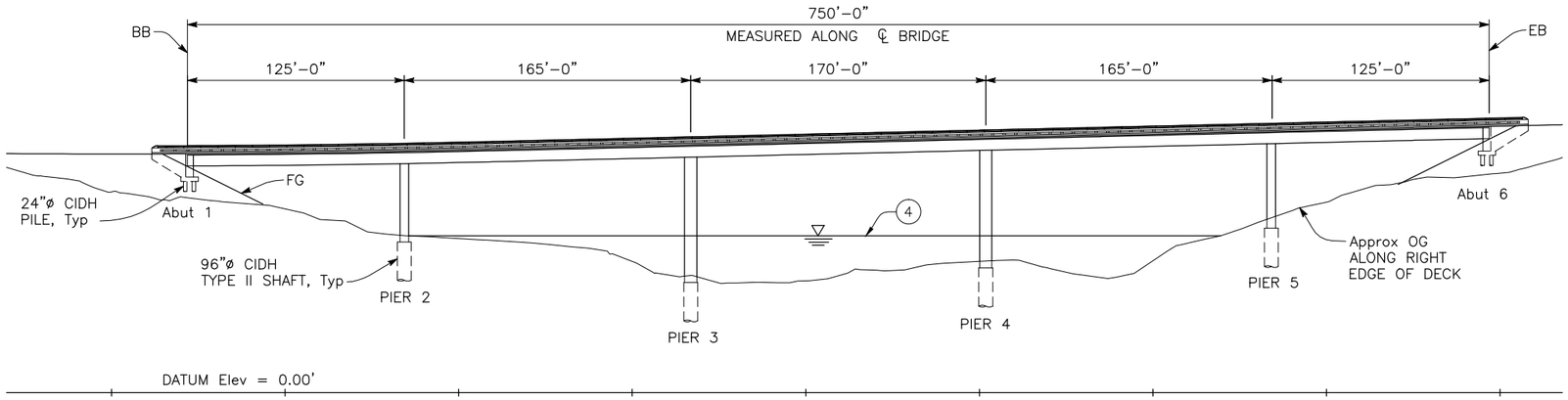
30% PLANS - 12/23/15 - NOT FOR CONSTRUCTION

Dec. 16, 2015 - 11:43am
U:\14013 - Hickman Road Bridge - Stanislaus Co\400 Project Design Plan\420 Roadway & Civil\Submittal 30%\Plans\HR-R-U.dwg

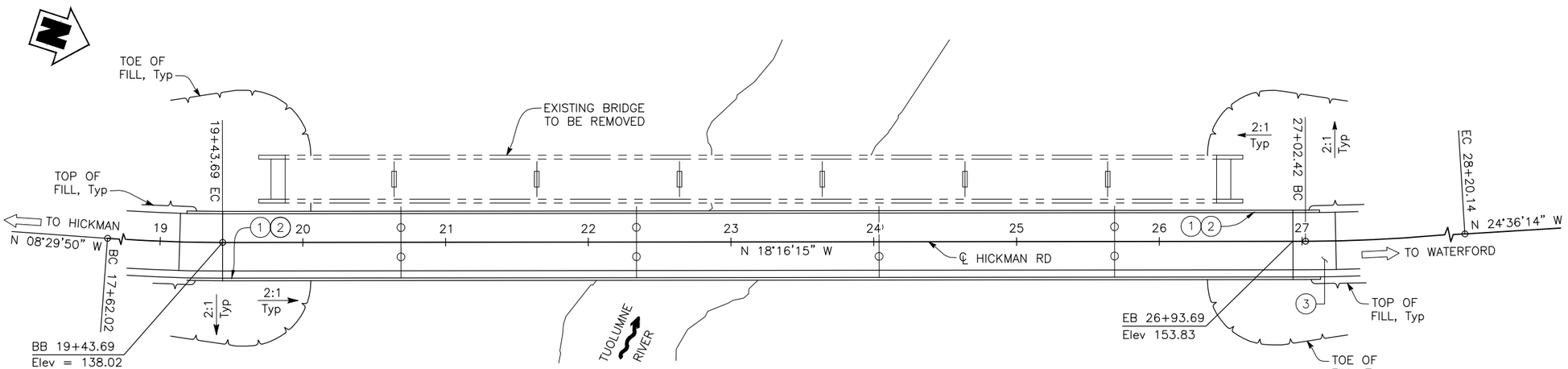
drake haglan AND ASSOCIATES
11060 White Rock Road, Suite 200
Rancho Cordova, CA 95670



PROFILE GRADE
NO SCALE



ELEVATION
1"=40'



PLAN
1"=40'

NOTES:

1. Paint "Hickman Road Bridge".
2. Paint "Bridge No. 38C-004" and year completed.
3. Structure Approach Type N (30S)
4. Water Surface Elevation = 90.00' (100 Year Flood)

LEGEND:

- Indicates Direction of Water Flow
- Indicates Direction of Traffic
- Indicates Existing Bridge
- Indicates New Structure

CALL BEFORE YOU DIG

REGISTERED PROFESSIONAL ENGINEER
No. _____
Exp. _____ CIVIL
STATE OF CALIFORNIA

NO	DESCRIPTIONS	DATE	APPROVED
REVISIONS			

STANISLAUS COUNTY
DEPARTMENT OF PUBLIC WORKS
ENGINEERING AND OPERATIONS DIVISION
1716 MORGAN ROAD - MODESTO, CA 95358

Stanislaus County
Striving to be the best

30% PLANS - 12/23/15 - NOT FOR CONSTRUCTION

GENERAL PLAN

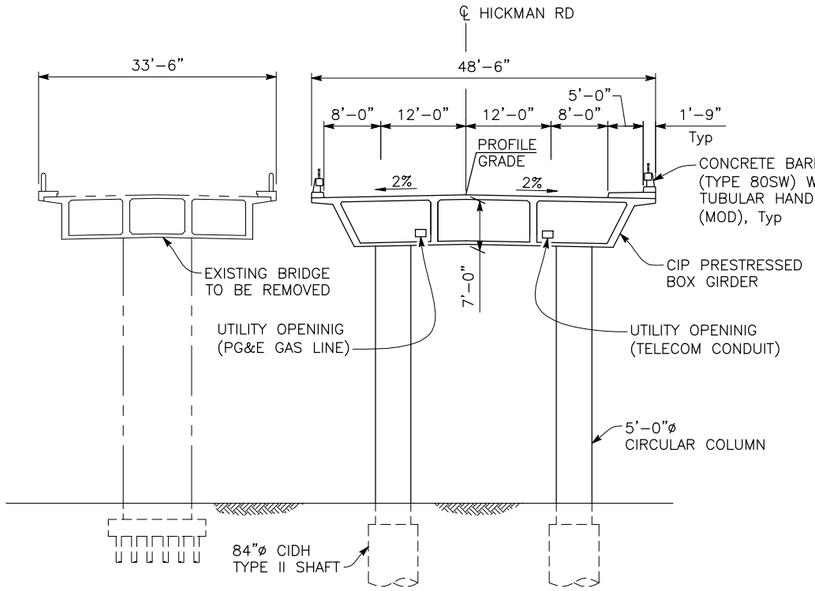
IMPROVEMENT PLANS FOR:
HICKMAN ROAD BRIDGE REPLACEMENT
OVER TUOLUMNE RIVER
WATERFORD, CALIFORNIA

JOB NO	######
DATE	12/16/15
DR BY	K. Dresbach
CK BY	
SURVEY	
CONST.	
SCALE	As Shown

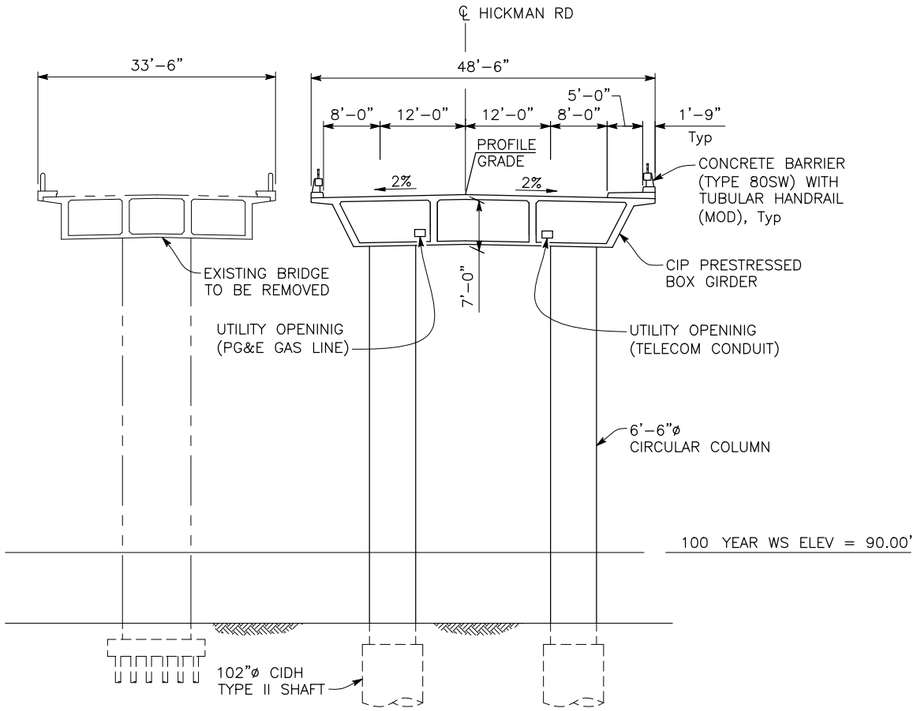
SHEET NUMBER
13
OF X SHEETS

Dec. 21, 2015 - 12:43pm
I:\14013 - Hickman Road Bridge - Stanislaus Co\400 Project Design Files\430 Bridges & Structures\Submittal 35%\Plans\MR-S-GP.dwg

drake haglan AND ASSOCIATES
11060 White Rock Road, Suite 200
Rancho Cordova, CA 95670



TYPICAL SECTION - BENTS 2 & 5
1"=10'



TYPICAL SECTION - BENTS 3 & 4
1"=10'

LEGEND:

—— – – —— Indicates Existing Bridge

———————— Indicates New Structure

CALL BEFORE YOU DIG

REGISTERED PROFESSIONAL ENGINEER
No. _____
Exp. _____ CIVIL
STATE OF CALIFORNIA

NO	DESCRIPTIONS	REVISIONS DATE	APPROVED

STANISLAUS COUNTY
DEPARTMENT OF PUBLIC WORKS
ENGINEERING AND OPERATIONS DIVISION
1716 MORGAN ROAD – MODESTO, CA 95358

Stanislaus County — Striving to be the best

30% PLANS - 12/23/15 - NOT FOR CONSTRUCTION

TYPICAL SECTION

IMPROVEMENT PLANS FOR:
HICKMAN ROAD BRIDGE REPLACEMENT
OVER TUOLUMNE RIVER
WATERFORD, CALIFORNIA

JOB NO	######
DATE	12/16/15
DR BY	K. Dresbach
CK BY	
SURVEY	
CONST.	
SCALE	As Shown

SHEET NUMBER
14
OF X SHEETS

Dec. 21, 2015 - 12:54pm
U:\14013 - Hickman Road Bridge — Stanislaus Co\400 Project Design Files\430 Bridges & Structures\Submittal 35%\Plans\WR-S-TS.dwg

Appendix B – CNDDB, USFWS, NMFS, and CNPS Lists

Selected Elements by Scientific Name

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad IS (Ceres (3712058) OR Denair (3712057) OR Escalon (3712078) OR Knights Ferry (3712076) OR Montpelier (3712056) OR Oakdale (3712077) OR Paulsell (3712066) OR Riverbank (3712068) OR Waterford (3712067))

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Agelaius tricolor tricolored blackbird	ABPBXB0020	None	None	G2G3	S1S2	SSC
Ambystoma californiense California tiger salamander	AAAAA01180	Threatened	Threatened	G2G3	S2S3	SSC
Antrozous pallidus pallid bat	AMACC10010	None	None	G5	S3	SSC
Athene cunicularia burrowing owl	ABNSB10010	None	None	G4	S3	SSC
Atriplex cordulata var. cordulata heartscale	PDCHE040B0	None	None	G3T2	S2	1B.2
Atriplex subtilis subtle orache	PDCHE042T0	None	None	G1	S1	1B.2
Bombus caliginosus obscure bumble bee	IIHYM24380	None	None	G4?	S1S2	
Bombus crotchii Crotch bumble bee	IIHYM24480	None	None	G3G4	S1S2	
Branchinecta lynchi vernal pool fairy shrimp	ICBRA03030	Threatened	None	G3	S3	
Buteo swainsoni Swainson's hawk	ABNKC19070	None	Threatened	G5	S3	
Calicina breva Stanislaus harvestman	ILARAU8020	None	None	G1	S1	
Calycadenia hooveri Hoover's calycadenia	PDAST1P040	None	None	G3	S3	1B.3
Clarkia rostrata beaked clarkia	PDONA050Y0	None	None	G2G3	S2S3	1B.3
Corynorhinus townsendii Townsend's big-eared bat	AMACC08010	None	Candidate Threatened	G3G4	S2	SSC
Desmocerus californicus dimorphus valley elderberry longhorn beetle	IICOL48011	Threatened	None	G3T2	S2	
Downingia pusilla dwarf downingia	PDCAM060C0	None	None	GU	S2	2B.2
Emys marmorata western pond turtle	ARAAD02030	None	None	G3G4	S3	SSC
Eumops perotis californicus western mastiff bat	AMACD02011	None	None	G5T4	S3S4	SSC
Euphorbia hooveri Hoover's spurge	PDEUP0D150	Threatened	None	G2	S2	1B.2

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Fritillaria agrestis stinkbells	PMLIL0V010	None	None	G3	S3	4.2
Icteria virens yellow-breasted chat	ABPBX24010	None	None	G5	S3	SSC
Lagophylla dichotoma forked hare-leaf	PDAST5J070	None	None	G1	S1	1B.1
Lasionycteris noctivagans silver-haired bat	AMACC02010	None	None	G5	S3S4	
Lasiurus blossevillii western red bat	AMACC05060	None	None	G5	S3	SSC
Lasiurus cinereus hoary bat	AMACC05030	None	None	G5	S4	
Legenere limosa legenere	PDCAM0C010	None	None	G2	S2	1B.1
Lepidurus packardi vernal pool tadpole shrimp	ICBRA10010	Endangered	None	G3	S2S3	
Linderiella occidentalis California linderiella	ICBRA06010	None	None	G2G3	S2S3	
Lytta moesta moestan blister beetle	IICOL4C020	None	None	G2	S2	
Monadenia mormonum buttoni Button's Sierra sideband	IMGASC7071	None	None	G2T1	S1	
Mylopharodon conocephalus hardhead	AFCJB25010	None	None	G3	S3	SSC
Myotis yumanensis Yuma myotis	AMACC01020	None	None	G5	S4	
Neostapfia colusana Colusa grass	PMPOA4C010	Threatened	Endangered	G2	S2	1B.1
Northern Hardpan Vernal Pool Northern Hardpan Vernal Pool	CTT44110CA	None	None	G3	S3.1	
Oncorhynchus mykiss irideus steelhead - Central Valley DPS	AFCHA0209K	Threatened	None	G5T2Q	S2	
Orcuttia inaequalis San Joaquin Valley Orcutt grass	PMPOA4G060	Threatened	Endangered	G1	S1	1B.1
Orcuttia pilosa hairy Orcutt grass	PMPOA4G040	Endangered	Endangered	G1	S1	1B.1
Pseudobahia bahiifolia Hartweg's golden sunburst	PDAST7P010	Endangered	Endangered	G2	S2	1B.1
Spea hammondii western spadefoot	AAABF02020	None	None	G3	S3	SSC
Tuctoria greenei Greene's tuctoria	PMPOA6N010	Endangered	Rare	G1	S1	1B.1

Record Count: 40

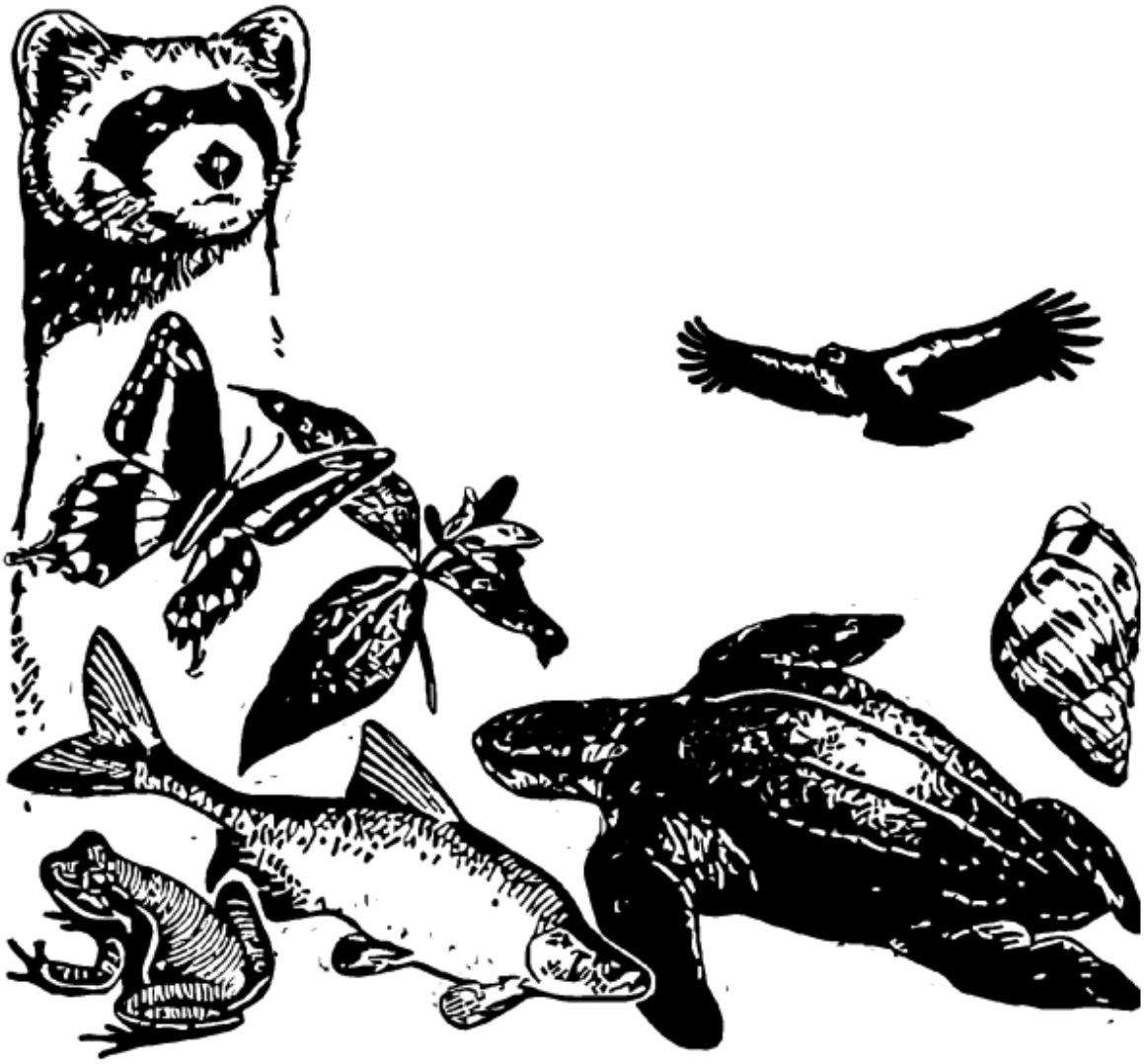
U.S. Fish & Wildlife Service

sdfasdf

IPaC Trust Resources Report

Generated April 28, 2016 03:24 PM MDT, IPaC v3.0.2

This report is for informational purposes only and should not be used for planning or analyzing project level impacts. For project reviews that require U.S. Fish & Wildlife Service review or concurrence, please return to the IPaC website and request an official species list from the Regulatory Documents page.



IPaC - Information for Planning and Conservation (https://ecos.fws.gov/ipac/): A project planning tool to help streamline the U.S. Fish & Wildlife Service environmental review process.

Table of Contents

U.S. Fish & Wildlife Service

IPaC Trust Resources Report

NAME

sdfasdf

LOCATION

Stanislaus County, California

DESCRIPTION

adfasf

IPAC LINK

https://ecos.fws.gov/ipac/project/SNZQJ-B4VHV-FB7DT-AVJEM-4KRFMU

U.S. Fish & Wildlife Service Contact Information

Trust resources in this location are managed by:

Sacramento Fish And Wildlife Office
Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846
(916) 414-6600

Endangered Species

Proposed, candidate, threatened, and endangered species are managed by the Endangered Species Program of the U.S. Fish & Wildlife Service.

This USFWS trust resource report is for informational purposes only and should not be used for planning or analyzing project level impacts.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list from the Regulatory Documents section.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency.

A letter from the local office and a species list which fulfills this requirement can only be obtained by requesting an official species list either from the Regulatory Documents section in IPaC or from the local field office directly.

The list of species below are those that may occur or could potentially be affected by activities in this location:

Amphibians

California Red-legged Frog Rana draytonii — Threatened

CRITICAL HABITAT
There is **final** critical habitat designated for this species.

http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=D02D

California Tiger Salamander Ambystoma californiense — Threatened

CRITICAL HABITAT
There is **final** critical habitat designated for this species.

http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=D01T

Crustaceans

Conservancy Fairy Shrimp Branchinecta conservatio — Endangered

CRITICAL HABITAT
There is **final** critical habitat designated for this species.

http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=K03D

Vernal Pool Fairy Shrimp Branchinecta lynchi — Threatened

CRITICAL HABITAT
There is **final** critical habitat designated for this species.

http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=K03G

Vernal Pool Tadpole Shrimp Lepidurus packardi — Endangered

CRITICAL HABITAT
There is **final** critical habitat designated for this species.

http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=K048

Fishes

Delta Smelt Hypomesus transpacificus — Threatened

CRITICAL HABITAT
There is **final** critical habitat designated for this species.

http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=E070

Steelhead Oncorhynchus (=Salmo) mykiss — Threatened

CRITICAL HABITAT
There is **final** critical habitat designated for this species.

http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=E08D

Flowering Plants

Colusa Grass Neostapfia colusana — Threatened

CRITICAL HABITAT
There is **final** critical habitat designated for this species.

http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=Q19I

Greene's Tuctoria Tuctoria greenei — Endangered

CRITICAL HABITAT
There is **final** critical habitat designated for this species.

http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=Q23K

San Joaquin Orcutt Grass Orcuttia inaequalis — Threatened

CRITICAL HABITAT
There is **final** critical habitat designated for this species.

http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=Q1ZP

Insects

Valley Elderberry Longhorn Beetle Desmocerus californicus dimorphus — Threatened

CRITICAL HABITAT

There is **final** critical habitat designated for this species.

http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=I01L

Mammals

San Joaquin Kit Fox Vulpes macrotis mutica — Endangered

CRITICAL HABITAT

No critical habitat has been designated for this species.

http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=A006

Reptiles

Giant Garter Snake Thamnophis gigas — Threatened

CRITICAL HABITAT

No critical habitat has been designated for this species.

http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=C057

Critical Habitats

This location overlaps all or part of the critical habitat for the following species:

Steelhead Oncorhynchus (=Salmo) mykiss

Final designated critical habitat

http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=E08D#crithab

Migratory Birds

Birds are protected by the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act.

Any activity that results in the take of migratory birds or eagles is prohibited unless authorized by the U.S. Fish & Wildlife Service.[1] There are no provisions for allowing the take of migratory birds that are unintentionally killed or injured.

Any person or organization who plans or conducts activities that may result in the take of migratory birds is responsible for complying with the appropriate regulations and implementing appropriate conservation measures.

---

1. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

Additional information can be found using the following links:

- Birds of Conservation Concern
  http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php
- Conservation measures for birds
  http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php
- Year-round bird occurrence data
  http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/akn-histogram-tools.php

The following species of migratory birds could potentially be affected by activities in this location:

Bald Eagle Haliaeetus leucocephalus — Bird of conservation concern
Year-round
http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B008

Black Rail Laterallus jamaicensis — Bird of conservation concern
Season: Breeding
http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B09A

Burrowing Owl Athene cunicularia — Bird of conservation concern
Year-round
http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0NC

Fox Sparrow Passerella iliaca — Bird of conservation concern
Season: Wintering

Lesser Yellowlegs Tringa flavipes — Bird of conservation concern
Season: Wintering
http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0MD

Lewis's Woodpecker Melanerpes lewis — Bird of conservation concern
Season: Wintering
http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0HQ

Loggerhead Shrike Lanius ludovicianus — Bird of conservation concern
Year-round
http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0FY

Long-billed Curlew Numenius americanus — Bird of conservation concern
Season: Wintering
http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B06S

Marbled Godwit Limosa fedoa — Bird of conservation concern
Season: Wintering
http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0JL

Mountain Plover Charadrius montanus — Bird of conservation concern
Season: Wintering
http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B078

Nuttall's Woodpecker Picoides nuttallii — Bird of conservation concern
Year-round
http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0HT

Oak Titmouse Baeolophus inornatus — Bird of conservation concern
Year-round
http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0MJ

Peregrine Falcon Falco peregrinus — Bird of conservation concern
Season: Wintering
http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0FU

Short-eared Owl Asio flammeus — Bird of conservation concern
Season: Wintering
http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0HD

Swainson's Hawk Buteo swainsoni — Bird of conservation concern
Season: Breeding
http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B070

Western Grebe aechmophorus occidentalis — Bird of conservation concern
Season: Wintering
http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0EA

Williamson's Sapsucker Sphyrapicus thyroideus — Bird of conservation concern
Year-round
http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0FX

Yellow-billed Magpie Pica nuttalli

Bird of conservation concern

Year-round
http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0N8

Wildlife refuges and fish hatcheries

Refuge and fish hatchery data is unavailable at this time.

Wetlands in the National Wetlands Inventory

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

DATA LIMITATIONS

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

DATA EXCLUSIONS

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

DATA PRECAUTIONS

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

This location overlaps all or part of the following wetlands:

Freshwater Forested/shrub Wetland

PFOA 2.81 acres

Riverine

R2UBH 174.0 acres

R2USC 2.02 acres

A full description for each wetland code can be found at the National Wetlands Inventory website: http://107.20.228.18/decoders/wetlands.aspx

CNPS California Native Plant Society — Rare and Endangered Plant Inventory

Plant List

14 matches found. *Click on scientific name for details*

Search Criteria

Found in 9 Quads around **37120F7**

Modify Search Criteria | Export to Excel | Modify Columns | Modify Sort | Display Photos

Scientific Name	Common Name	Family	Lifeform	Rare Plant Rank	State Rank	Global Rank
Atriplex cordulata var. cordulata	heartscale	Chenopodiaceae	annual herb	1B.2	S2	G3T2
Atriplex subtilis	subtle orache	Chenopodiaceae	annual herb	1B.2	S1	G1
Calycadenia hooveri	Hoover's calycadenia	Asteraceae	annual herb	1B.3	S3	G3
Clarkia rostrata	beaked clarkia	Onagraceae	annual herb	1B.3	S2S3	G2G3
Downingia pusilla	dwarf downingia	Campanulaceae	annual herb	2B.2	S2	GU
Euphorbia hooveri	Hoover's spurge	Euphorbiaceae	annual herb	1B.2	S2	G2
Fritillaria agrestis	stinkbells	Liliaceae	perennial bulbiferous herb	4.2	S3	G3
Lagophylla dichotoma	forked hare-leaf	Asteraceae	annual herb	1B.1	S1	G1
Legenere limosa	legenere	Campanulaceae	annual herb	1B.1	S2	G2
Neostapfia colusana	Colusa grass	Poaceae	annual herb	1B.1	S2	G2
Orcuttia inaequalis	San Joaquin Valley Orcutt grass	Poaceae	annual herb	1B.1	S1	G1
Orcuttia pilosa	hairy Orcutt grass	Poaceae	annual herb	1B.1	S1	G1
Pseudobahia bahiifolia	Hartweg's golden sunburst	Asteraceae	annual herb	1B.1	S2	G2
Tuctoria greenei	Greene's tuctoria	Poaceae	annual herb	1B.1	S1	G1

Suggested Citation

CNPS, Rare Plant Program. 2016. Inventory of Rare and Endangered Plants (online edition, v8-02). California Native Plant

Society, Sacramento, CA. Website http://www.rareplants.cnps.org [accessed 15 April 2016].

Search the Inventory
Simple Search
Advanced Search
Glossary

Information
About the Inventory
About the Rare Plant Program
CNPS Home Page
About CNPS
Join CNPS

Contributors
The Calflora Database
The California Lichen Society

Appendix C – Wetland Data Forms

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Hickman Road Bridge City/County: Waterford/Stanislaus Sampling Date: 12/8/2015

Applicant/Owner: Stanislaus County Dept of Public Works State: CA Sampling Point: 1

Investigator(s): Mike Trueblood, Stefan de Barros Section, Township, Range: S33, T3S, R11E

Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____

Subregion (LRR): _____ 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 No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation No, Soil Yes, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** Yes ✓ No _____
Hydric Soil Present?	Yes ✓	No _____	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix lasiolepis	5	N	FACW
2. Cephalanthus occidentalis	5	N	OBL
3.			
4.			
	10	= Total Cover	
Sapling/Shrub Stratum (Plot size: _____)			
1. Rubus armeniacus	5	N	FACU
2.			
3.			
4.			
5.			
	5	= Total Cover	
Herb Stratum (Plot size: _____)			
1. Eichhornia crassipes	5	N	OBL
2. Polygonum sp.	20	Y	OBL
3. Cynodon dactylon	30	Y	FAC
4. Verbena lasiostachys	5	N	FAC
5. Lemna minor	1	N	OBL
6. Ludwigia peploides	2	N	OBL
7.			
8.			
	63	= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
		= Total Cover	

% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust 12

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

SOIL

Sampling Point: 1

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 2/1	100						Coarse Sand (River rock)

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR C)**
- ___ 1 cm Muck (A9) **(LRR D)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR C)**
- ___ 2 cm Muck (A10) **(LRR B)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ✓ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: Bedrock

Depth (inches): 6

Hydric Soil Present? Yes ✓ No ___

Remarks:

River Rock/cobble/coarse sand. No soil color available Indicator not used.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ✓ Surface Water (A1)
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1) **(Nonriverine)**
- ___ Sediment Deposits (B2) **(Nonriverine)**
- ___ Drift Deposits (B3) **(Nonriverine)**
- ___ Surface Soil Cracks (B6)
- ✓ Inundation Visible on Aerial Imagery (B7)
- ✓ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) **(Riverine)**
- ___ Sediment Deposits (B2) **(Riverine)**
- ___ Drift Deposits (B3) **(Riverine)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ✓ No ___ Depth (inches): 2

Water Table Present? Yes ✓ No ___ Depth (inches): 2

Saturation Present? (includes capillary fringe) Yes ✓ No ___ Depth (inches): 0

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: Hickman Rd Bridge City/County: Waterford / Stanislaus Sampling Date: 12/8/2015

Applicant/Owner: Stanislaus County Dep of Public Works State: CA Sampling Point: 1a

Investigator(s): Mike Truebland ; Stefan deBarros Section, Township, Range: S33, T3S, R11E

Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____

Subregion (LRR): _____ 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 N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✓	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. Quercus lobata	5	N	FACU
2. Cephalanthus occidentalis	1	N	OBL
3. Sambucus nigra caerulea	1	N	UPL
4.			
	7	= Total Cover	
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____	= Total Cover	
Herb Stratum (Plot size: _____)			
1. Bromus diandrus	95	Y	UPL
2. Verbena lasiostachys	1	N	FAC
3. Circium vulgare	1	N	FACU
4.			
5.			
6.			
7.			
8.			
	97	= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____	= Total Cover	

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species _____	x 1 =	_____
FACW species _____	x 2 =	_____
FAC species _____	x 3 =	_____
FACU species _____	x 4 =	_____
UPL species _____	x 5 =	_____
Column Totals: _____ (A)		_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks:

SOIL

Sampling Point: 1a

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-13	10YR 4/6	50					Sandy-Silt	Matrix is equal
0-13	10YR 4/3	50					Sandy-Silt ✓	parts of each color

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR C)**
- ___ 1 cm Muck (A9) **(LRR D)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR C)**
- ___ 2 cm Muck (A10) **(LRR B)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (If present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) **(Nonriverine)**
- ___ Sediment Deposits (B2) **(Nonriverine)**
- ___ Drift Deposits (B3) **(Nonriverine)**
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) **(Riverine)**
- ___ Sediment Deposits (B2) **(Riverine)**
- ___ Drift Deposits (B3) **(Riverine)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): –

Water Table Present? Yes _____ No ✓ Depth (inches): >13

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): >13

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: Hickman Rd Bridge City/County: Waterford/Stanislaus Sampling Date: 12/8/2015

Applicant/Owner: Stanislaus County Dep of Public Works State: CA Sampling Point: 2

Investigator(s): Mike Trueblood ; Stefan de Barros Section, Township, Range: S33, T3S, R11E

Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____

Subregion (LRR): _____ 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 N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation N, Soil Y, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** Yes ✓ No _____
Hydric Soil Present?	Yes _____	No _____	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix exigua	2	N	OBL
2. Salix laevigata	2	N	FACW
3.			
4.			
	4	= Total Cover	
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____	= Total Cover	
Herb Stratum (Plot size: _____)			
1. Cyperus eragrostis	5	N	FACW
2. Mentha pusutis	5	N	OBL
3. Verbena lasiostachys	10	N	FAC
4. Paspalum dilatatum	30	Y	FAC
5. Eichhornia crassipes	20	Y	OBL
6. Lemna minor	1	N	OBL
7.			
8.			
	71	= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____	= Total Cover	

% Bare Ground in Herb Stratum 25 % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species	x 3 =	
FACU species	x 4 =	
UPL species	x 5 =	
Column Totals: (A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

_____ Prevalence Index is ≤3.0[1]

_____ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

_____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

SOIL

Sampling Point: 2

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
surface								River Rock

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR C)**
- ___ 1 cm Muck (A9) **(LRR D)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR C)**
- ___ 2 cm Muck (A10) **(LRR B)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: River

Depth (inches): ___

Hydric Soil Present? Yes ✓ No ___

Remarks:

River Rock / cobble. No soil color available

Indicator not used.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) **(Nonriverine)**
- ___ Sediment Deposits (B2) **(Nonriverine)**
- ___ Drift Deposits (B3) **(Nonriverine)**
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) **(Riverine)**
- ___ Sediment Deposits (B2) **(Riverine)**
- ___ Drift Deposits (B3) **(Riverine)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

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

Water Table Present? Yes ✓ No ___ Depth (inches): 3

Saturation Present? (includes capillary fringe) Yes ✓ No ___ Depth (inches): 0

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: Hickman Rd Bridge City/County: Waterford/Stanislaus Sampling Date: 12/8/2015

Applicant/Owner: Stanislaus County Dep of Public Works State: CA Sampling Point: 2a

Investigator(s): Mike Trueblood & Stefan de Barros Section, Township, Range: S33, T3S, R11E

Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____

Subregion (LRR): _____ 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 N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation N, Soil Y, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✓	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No _____	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix exigua	10	Y	OBL
2. Salix laevigata	5	N	FACW
3. Salix lasiolepis	2	N	FACW
4.			
	17	= Total Cover	
Sapling/Shrub Stratum (Plot size: _____)			
1. Rubus armeniacus	25	Y	FACU
2.			
3.			
4.			
5.			
	25	= Total Cover	
Herb Stratum (Plot size: _____)			
1. Brassica nigra	2	N	UPL
2. Avena fatua	30	Y	UPL
3.			
4.			
5.			
6.			
7.			
8.			
	32	= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1. Vitis californica	5	N	FAC
2.			
	5	= Total Cover	

% Bare Ground in Herb Stratum 43 % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No ✓

Remarks:

SOIL

Sampling Point: 2a

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12								River rock and coarse sand

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR C)**
- ___ 1 cm Muck (A9) **(LRR D)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR C)**
- ___ 2 cm Muck (A10) **(LRR B)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ✓ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

Area is in high flow wash below OHWM. Does not support wetlands River Rock/cobble/coarse Sand. Area only inundated during rain events. No soil color available Indicator not used

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) **(Nonriverine)**
- ___ Sediment Deposits (B2) **(Nonriverine)**
- ___ Drift Deposits (B3) **(Nonriverine)**
- ___ Surface Soil Cracks (B6)
- ✓ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) **(Riverine)**
- ___ Sediment Deposits (B2) **(Riverine)**
- ___ Drift Deposits (B3) **(Riverine)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): —

Water Table Present? Yes _____ No ✓ Depth (inches): >12

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): >12

Wetland Hydrology Present? Yes ✓ No _____

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

Remarks:

Is only inundated/saturated during rain events.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Hickman Rd Bridge City/County: Waterford / Stanislaus Sampling Date: 12/8/2015

Applicant/Owner: Stanislaus County Dep of Public Works State: CA Sampling Point: 2b

Investigator(s): Mike Trueblood, Stefan de Barros Section, Township, Range: S33, T3S, R11E

Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____

Subregion (LRR): _____ 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 N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓ No _____	**Is the Sampled Area within a Wetland?** Yes ✓ No _____
Hydric Soil Present?	Yes ✓ No _____	
Wetland Hydrology Present?	Yes ✓ No _____	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. Populus fremontii	1	N	FACW
2. Salix laevigata	10	Y	FACW
3.			
4.			
	11	= Total Cover	
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____	= Total Cover	
Herb Stratum (Plot size: _____)			
1. Eichhornia crassipes	20	Y	OBL
2. Eleocharis sp.	60	Y	OBL
3. Cyperus eragrostis	5	N	FACW
4. Ludwigia peploides	2	N	OBL
5. Paspalum dilatatum	5	N	FAC
6. Polygonum sp	15	N	FACW
7.			
8.			
	107	= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____	= Total Cover	

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

SOIL

Sampling Point: 2b

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 4/1	90	5YR 5/8	10	C	M	River Rock & Coarse Sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR C)**
- ___ 1 cm Muck (A9) **(LRR D)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ✓ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR C)**
- ___ 2 cm Muck (A10) **(LRR B)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1) **(Nonriverine)**
- ___ Sediment Deposits (B2) **(Nonriverine)**
- ___ Drift Deposits (B3) **(Nonriverine)**
- ___ Surface Soil Cracks (B6)
- ✓ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) **(Riverine)**
- ___ Sediment Deposits (B2) **(Riverine)**
- ___ Drift Deposits (B3) **(Riverine)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No ✓ Depth (inches): -

Water Table Present? Yes ✓ No ___ Depth (inches): 5

Saturation Present? (includes capillary fringe) Yes ✓ No ___ Depth (inches): 0

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: Hickman Rd Bridge City/County: Waterford / Stanislaus Sampling Date: 12/8/2015

Applicant/Owner: Stanislaus County Dep of Public Works State: CA Sampling Point: 2c

Investigator(s): Mike Truebloed ; Stefan de Barros Section, Township, Range: S33, T3S, R11E

Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____

Subregion (LRR): _____ 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 N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✓	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix laevigata	30	Y	FACW
2.			
3.			
4.			
	30	= Total Cover	
Sapling/Shrub Stratum (Plot size: _____)			
1. Rubus armeniacus	40	Y	FACW
2.			
3.			
4.			
5.			
	40	= Total Cover	
Herb Stratum (Plot size: _____)			
1. Cirsium vulgare	1	N	UPL
2. Conium maculatum	1	N	FACW
3. Bromus diandrus	3	Y	UPL
4.			
5.			
6.			
7.			
8.			
	5	= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
		= Total Cover	

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks:

SOIL

Sampling Point: 2c

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-15	10YR 3/4	97	5YR 4/6	3	C	M	Fine Silty Sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR C)**
- ___ 1 cm Muck (A9) **(LRR D)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR C)**
- ___ 2 cm Muck (A10) **(LRR B)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) **(Nonriverine)**
- ___ Sediment Deposits (B2) **(Nonriverine)**
- ___ Drift Deposits (B3) **(Nonriverine)**
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) **(Riverine)**
- ___ Sediment Deposits (B2) **(Riverine)**
- ___ Drift Deposits (B3) **(Riverine)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): —

Water Table Present? Yes _____ No ✓ Depth (inches): >15

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): >15

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: Hickman Rd Bridge City/County: Waterford/Stanislaus Sampling Date: 12/8/2015

Applicant/Owner: Stanislaus County Dept of Public Works State: CA Sampling Point: 3

Investigator(s): Mike Trueblood ; Stefan de Barros Section, Township, Range: S33, T3S, R11E

Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____

Subregion (LRR): _____ 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 N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓ No _____	**Is the Sampled Area within a Wetland?** Yes ✓ No _____
Hydric Soil Present?	Yes ✓ No _____	
Wetland Hydrology Present?	Yes ✓ No _____	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Eichhornia crassipes	100	Y	OBL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

SOIL

Sampling Point: 3

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ✓ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (If present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No ___

Remarks:

Inundated, therefore, no pit dug. Ponded area in river wash depression

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ✓ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ✓ No ___ Depth (inches): 24-36

Water Table Present? Yes ✓ No ___ Depth (inches): 0

Saturation Present? (includes capillary fringe) Yes ✓ No ___ Depth (inches): 0

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: Hickman Rd Bridge City/County: Waterford/Stanislaus Sampling Date: 12/18/2015

Applicant/Owner: Stanislaus County Dep of Public Works State: CA Sampling Point: 3a

Investigator(s): Mike Truebblood, Stefan de Barros Section, Township, Range: S33, T3S, R11E

Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____

Subregion (LRR): _____ 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 N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation N, Soil Y, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No ✓	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No _____	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. Nicotiana glauca	1	N	FAC
2.			
3.			
4.			
	1	= Total Cover	
Sapling/Shrub Stratum (Plot size: _____)			
1. Rubus armeniacus	20	Y	FACU
2.			
3.			
4.			
5.			
	20	= Total Cover	
Herb Stratum (Plot size: _____)			
1. Verbena lasiostachys	10	Y	FAC
2. Brassica nigra ✓	20	Y	UPL
3.			
4.			
5.			
6.			
7.			
8.			
	35	= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
		= Total Cover	

% Bare Ground in Herb Stratum 50 % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks:

SOIL

Sampling Point: 3a

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12								River Rock & Coarse Sand

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR C)**
- ___ 1 cm Muck (A9) **(LRR D)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR C)**
- ___ 2 cm Muck (A10) **(LRR B)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

River Rock/ Cobble/ coarse SAND

Area is in high flow wash below OHWM. Does not support wetlands.

Area only inundated during rain events. No soil color available, Indicator not used.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) **(Nonriverine)**
- ___ Sediment Deposits (B2) **(Nonriverine)**
- ___ Drift Deposits (B3) **(Nonriverine)**
- ___ Surface Soil Cracks (B6)
- ✓ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) **(Riverine)**
- ___ Sediment Deposits (B2) **(Riverine)**
- ___ Drift Deposits (B3) **(Riverine)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): –

Water Table Present? Yes _____ No ✓ Depth (inches): >12

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): >12

Wetland Hydrology Present? Yes ✓ No _____

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

Remarks:

Is only inundated/saturated during rain events.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Hickman Rd. Bridge City/County: Waterford / Stanislaus Sampling Date: 12/8/2015

Applicant/Owner: Stanislaus County Dep of Public Works State: CA Sampling Point: 4

Investigator(s): Mike Trueblood, Stefan de Barros Section, Township, Range: S33, T3S, R11E

Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____

Subregion (LRR): _____ 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 N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation N, Soil Y, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓ No _____	**Is the Sampled Area within a Wetland?** Yes ✓ No _____
Hydric Soil Present?	Yes ✓ No _____	
Wetland Hydrology Present?	Yes ✓ No _____	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix exigua	30	Y	OBL
2.			
3.			
4.			
	30 = Total Cover		

Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		

Herb Stratum (Plot size: _____)			
1. Carex sp.	2	N	FACW
2. Cyperus eragrostis	5	N	FACW
3. Eichhornia crassipes	10	N	OBL
4. Eleocharis sp.	20	Y	OBL
5. Mentha pulegium	3	N	OBL
6. Ludwigia peploides	5	N	OBL
7. Cynodon dactylon	10	N	FACU
8. Verbena lasiostachys	30	Y	FAC
	85 = Total Cover		

Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

SOIL

Sampling Point: 4

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5								River Rock ; Coarse Sand

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR C)**
- ___ 1 cm Muck (A9) **(LRR D)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR C)**
- ___ 2 cm Muck (A10) **(LRR B)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _ ___ No _____

Remarks:

River Rock/cobble/ coarse sand soil color not available

Indicator not used

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ✓ Surface Water (A1)
- ___ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1) **(Nonriverine)**
- ___ Sediment Deposits (B2) **(Nonriverine)**
- ___ Drift Deposits (B3) **(Nonriverine)**
- ___ Surface Soil Cracks (B6)
- ✓ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) **(Riverine)**
- ___ Sediment Deposits (B2) **(Riverine)**
- ___ Drift Deposits (B3) **(Riverine)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

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

Water Table Present? Yes ✓ No ____ Depth (inches): 1

Saturation Present? (includes capillary fringe) Yes ✓ No ____ Depth (inches): 0

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: Hickman Rd Bridge City/County: Waterford/ Stanislaus Sampling Date: 12/8/2015

Applicant/Owner: Stanislaus County Dep of Public Works State: CA Sampling Point: 4a

Investigator(s): Mike Trueblood ; Stefan de Barros Section, Township, Range: S33, T3S, R11E

Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____

Subregion (LRR): _____ 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 N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation N, Soil Y, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ___ No ✓	**Is the Sampled Area within a Wetland?** Yes ___ No ✓
Hydric Soil Present?	Yes ___ No ___	
Wetland Hydrology Present?	Yes ✓ No ___	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ___)	Absolute % Cover	Dominant Species?	Indicator Status
1. Nicotina glauca	1	N	FAC
2.			
3.			
4.			
	1	= Total Cover	
Sapling/Shrub Stratum (Plot size: ___)			
1. Rubus armeniacus	20	Y	FACU
2.			
3.			
4.			
5.			
	20	= Total Cover	
Herb Stratum (Plot size: ___)			
1. Verbena lasiostachys	10	Y	FAC
2. Brassica nigra	20	Y	UPL
3.			
4.			
5.			
6.			
7.			
8.			
	30	= Total Cover	
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
		= Total Cover	

% Bare Ground in Herb Stratum 50 % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ___	x 1 = ___
FACW species ___	x 2 = ___
FAC species ___	x 3 = ___
FACU species ___	x 4 = ___
UPL species ___	x 5 = ___
Column Totals: ___ (A)	___ (B)

Prevalence Index = B/A = ___

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ___ No ✓

Remarks:

SOIL

Sampling Point: 4a

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12								River Rock & Coarse Sand

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR C)**
- ___ 1 cm Muck (A9) **(LRR D)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR C)**
- ___ 2 cm Muck (A10) **(LRR B)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No _____

Remarks:

-Area is in high flow wash below OHWM. -Inundated during high flood event. -Does not support wetland. No soil color Available. Indicator not used.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) **(Nonriverine)**
- ___ Sediment Deposits (B2) **(Nonriverine)**
- ___ Drift Deposits (B3) **(Nonriverine)**
- ___ Surface Soil Cracks (B6)
- ✓ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) **(Riverine)**
- ___ Sediment Deposits (B2) **(Riverine)**
- ___ Drift Deposits (B3) **(Riverine)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): –

Water Table Present? Yes _____ No ✓ Depth (inches): >12

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): >12

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: Hickman Rd. Bridge City/County: Waterford/ Stanislaus Sampling Date: 12/8/2015

Applicant/Owner: Stanislaus County Dep of Public Works State: CA Sampling Point: 5

Investigator(s): Mike Truehlood & Stefan de Barros Section, Township, Range: S33, T3S, R11E

Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____

Subregion (LRR): _____ 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 N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓ No _____	**Is the Sampled Area within a Wetland?** Yes ✓ No _____
Hydric Soil Present?	Yes ✓ No _____	
Wetland Hydrology Present?	Yes ✓ No _____	

Remarks:

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1. Populus fremontii	2	N	FACW
2. Salix exigua	15	Y	OBL
3.			
4.			
	17 = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1. Rubus armeniacus	3	N	FACU
2.			
3.			
4.			
5.			
	3 = Total Cover		
Herb Stratum (Plot size: _____)			
1. Polygonum sp.	10	N	OBL
2. Eleocharis sp.	20	Y	OBL
3. Cyperus eragrostis	5	N	FACW
4. Lemna sp.	60	Y	OBL
5.			
6.			
7.			
8.			
	95 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

SOIL

Sampling Point: 5

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No ___

Remarks:

Inundated pond. No soil pit dug.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ✓ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ✓ No ___ Depth (inches): 6-12

Water Table Present? Yes ✓ No ___ Depth (inches): 0

Saturation Present? (includes capillary fringe) Yes ✓ No ___ Depth (inches): 0

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: Hickman Rd. Bridge City/County: Waterford / Stanislaus Sampling Date: 12/8/2015

Applicant/Owner: Stanislaus County Dep of Public Works State: CA Sampling Point: 5a

Investigator(s): Mike Trueblood, Stefan de Barros Section, Township, Range: S33, T3S, R11E

Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____

Subregion (LRR): _____ 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 N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation N, Soil Y, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✓	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No _____	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix exigua	10	Y	OBL
2. Sambucus nigra cerulea	5	N	UPL
3.			
4.			
	15	= Total Cover	
Sapling/Shrub Stratum (Plot size: _____)			
1. Rubus armeniacus	5	N	FACU
2.			
3.			
4.			
5.			
	5	= Total Cover	
Herb Stratum (Plot size: _____)			
1. Bromus diandrus	30	Y	UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	30	= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
		= Total Cover	

% Bare Ground in Herb Stratum 60 % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species 10	x 1 = 10
FACW species _____	x 2 = _____
FAC species 5	x 3 = 15
FACU species 5	x 4 = 20
UPL species 35	x 5 = 175
Column Totals: 50 (A)	205 (B)

Prevalence Index = B/A = 4.1

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks:

SOIL

Sampling Point: 5a

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12								River Rock & Coarse Sand

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR C)**
- ___ 1 cm Muck (A9) **(LRR D)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR C)**
- ___ 2 cm Muck (A10) **(LRR B)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (If present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ___

Remarks:

Area in high flow wash below OHWM. Does not support wetland.
Area only inundated during rain events. No soil color Available. Indicator not used

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) **(Nonriverine)**
- ___ Sediment Deposits (B2) **(Nonriverine)**
- ___ Drift Deposits (B3) **(Nonriverine)**
- ___ Surface Soil Cracks (B6)
- ✓ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) **(Riverine)**
- ___ Sediment Deposits (B2) **(Riverine)**
- ___ Drift Deposits (B3) **(Riverine)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): —

Water Table Present? Yes _____ No ✓ Depth (inches): >12

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): >12

Wetland Hydrology Present? Yes ✓ No _____

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

Remarks:

Is only inundated/saturated during rain events.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Heckman Rd. Bridge City/County: Waterford/Stanislaus Sampling Date: 12/8/2015

Applicant/Owner: Stanislaus County Dep of Public Works State: CA Sampling Point: 6

Investigator(s): Mike Taylor Wood ; Stefan de Barros Section, Township, Range: S33, T3S, R11E

Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____

Subregion (LRR): _____ 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 N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓ No _____	**Is the Sampled Area within a Wetland?** Yes ✓ No _____
Hydric Soil Present?	Yes ✓ No _____	
Wetland Hydrology Present?	Yes ✓ No _____	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix laevigata ✓	20	Y	FACW
2.			
3.			
4.			
	20 = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1. Rubus armeniacus	5		FACU
2.			
3.			
4.			
5.			
	5 = Total Cover		
Herb Stratum (Plot size: _____)			
1. Lemna minor	30	Y	OBL
2. Verbena lasiostachys	20	Y	FAC
3. Paspalum dilatatum ✓	5	N	FAC
4. Xanthium strumarium	1	N	FAC
5. Equisetum sp.	1	N	FAC
6. Cynodon dactylon ✓ ✓	30	Y	FACU
7.			
8.			
	87 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

SOIL

Sampling Point: 6

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-7	5GY 5/1	80	5YR 4/6	20	C	M	Sand	
>-7								River Rock

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR C)**
- ___ 1 cm Muck (A9) **(LRR D)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ✓ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR C)**
- ___ 2 cm Muck (A10) **(LRR B)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1) **(Nonriverine)**
- ___ Sediment Deposits (B2) **(Nonriverine)**
- ___ Drift Deposits (B3) **(Nonriverine)**
- ___ Surface Soil Cracks (B6)
- ✓ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ✓ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) **(Riverine)**
- ___ Sediment Deposits (B2) **(Riverine)**
- ___ Drift Deposits (B3) **(Riverine)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

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

Water Table Present? Yes ✓ No ___ Depth (inches): 3

Saturation Present? (includes capillary fringe) Yes ✓ No ___ Depth (inches): 0

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: Hickman Rd. Bridge City/County: Waterford/Stanislaus Sampling Date: 12/8/2015

Applicant/Owner: Stanislaus County Dep of Public Works State: CA Sampling Point: 6a

Investigator(s): Mike Trueblood ; Stefan de Barros Section, Township, Range: S33, T3S, R11E

Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____

Subregion (LRR): _____ 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 N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✓	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix laevigata	80	Y	FACW
2.			
3.			
4.			
	80 = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1. Rubus armeniacus	5	N	FACU
2.			
3.			
4.			
5.			
	5 = Total Cover		
Herb Stratum (Plot size: _____)			
1. Bromus diandrus	80	Y	UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	80 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species 80	x 2 = 160
FAC species _____	x 3 = _____
FACU species 5	x 4 = 20
UPL species 80	x 5 = 400
Column Totals: 165 (A)	580 (B)

Prevalence Index = B/A = 3.5

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks:

SOIL

Sampling Point: 6a

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 3/6	100						River Rock & Coarse Sand

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): —

Water Table Present? Yes _____ No ✓ Depth (inches): > 8

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): > 8

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: Hickman Rd. Bridge City/County: Waterford/Stanislaus Sampling Date: 12/8/2015
Applicant/Owner: Stanislaus County Dep of Public Works State: CA Sampling Point: 6b
Investigator(s): Mike Trueblood ; Stefan de Borras Section, Township, Range: S33, T3S, R11E
Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____
Subregion (LRR): _____ 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 N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____
Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✓	**Is the Sampled Area within a Wetland?**	Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓		
Wetland Hydrology Present?	Yes _____	No ✓		

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix lasiolepis	5	N	FACW
2.			
3.			
4.			
	5 = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Erodium sp.	80	Y	UPL
2. Verbena lasiostachys	5	N	FAC
3. Bromus diandrus	20	Y	UPL
4.			
5.			
6.			
7.			
8.			
	105 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

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

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)
Total Number of Dominant Species Across All Strata: 2 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species 5	x 2 = 10
FAC species 5	x 3 = 15
FACU species _____	x 4 = _____
UPL species 100	x 5 = 500
Column Totals: 110 (A)	525 (B)

Prevalence Index = B/A = 4.77

Hydrophytic Vegetation Indicators:
___ Dominance Test is >50%
___ Prevalence Index is ≤3.0[1]
___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks:

SOIL

Sampling Point: 6b

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-13	10YR 3/6	90	5YR 4/6	10	C	M	Cobbly - Silty Sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): —

Water Table Present? Yes _____ No ✓ Depth (inches): >13

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): >13

Wetland Hydrology Present? Yes _____ No ✓

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

Remarks:

Appendix D – Tree Inventory

No.	Tree Species	DBH	Height/ Canopy	Associated Vegetation	Health/Notes	Retain?
1	Prunus sp.	10, 6, 9	20/25	Centaurea solstitialis, Bromus diandrus	Healthy	Yes
2	Prunus sp.	8, 6, 6,	20/20	Bromus diandrus, Avena fatua	Healthy	Yes
3	Prunus sp.	8, 8	10/20	Bromus diandrus, Avena fatua, Festuca perennis	Healthy	No
4	Prunus sp.	18	15/20	Bromus diandrus, Bromus hordeaceus	Healthy	No
5	Prunus sp.	13, 8	20/12	Vitis californica, Bromus diandrus, Centaurea solstitalis	Healthy, bird holes in the tree, burrows	Yes
6	Quercus lobata	7	25/10	Bromus diandrus	Healthy	No
7	Prunus sp.	7	15/12	Centaurea solstitialis, Bromus diandrus	Healthy	No
8	Prunus sp.	14	18/15	Centaurea solstitialis, Bromus diandrus	Healthy	No
9	Prunus sp.	9	12/12	Centaurea solstitialis, Bromus diandrus, Festuca perennis	Healthy	No
10	Prunus sp.	6	8/15	Bromus diandrus	Healthy	No
11	Prunus sp.	7	15/10	Centaurea solstitialis, Bromus diandrus	Healthy	No
12	Quercus lobata	16	25/15	Silybum marianum, Bromus diandrus	Healthy	No
13	Prunus sp.	16	20/18	Bromus diandrus	Healthy	No
14	Prunus sp.	6	15/15	Bromus diandrus	Healthy	No
15	Quercus lobata	35	30/25	Bromus diandrus	Healthy	Yes
16	Prunus sp.	11, 6, 16	25/20	Bromus diandrus	Healthy, burrows around tree	No
17	Quercus lobata	23	30/20	Hordeum murinum, Bromus diandrus	Healthy	Yes
18	Quercus lobata	10	20/12	Hordeum murinum, Bromus diandrus	Healthy	Yes
19	Quercus lobata	5	10/6	Hordeum murinum, Bromus diandrus	Unhealthy	Yes
20	Prunus sp.	7, 6	10/20	Hordeum murinum, Bromus diandrus	Healthy	Yes
21	Quercus lobata	40	30/35	Hordeum murinum, Bromus diandrus	Healthy	Yes
22	Quercus lobata	11	25/12	Hordeum murinum, Bromus diandrus	Healthy, burrows around tree	Yes
23	Quercus lobata	8	15/6	Hordeum murinum, Bromus diandrus	Healthy, burrows around tree	Yes
24	Prunus sp.	7	13/10	Hordeum murinum, Bromus diandrus	Healthy	Yes
25	Quercus lobata	17	20/12	Hordeum murinum, Bromus diandrus	Healthy	Yes
26	Quercus lobata	6, 8	18/15	Hordeum murinum, Bromus diandrus	Healthy	Yes
27	Quercus lobata	14	20/12	Hordeum murinum, Bromus diandrus	Healthy	Yes
28	Quercus lobata	9	25/20	Hordeum murinum, Bromus diandrus	Healthy	Yes
29	Quercus lobata	51	40/60	Hordeum murinum, Bromus diandrus	Healthy, bird holes in the tree	Yes
30	Quercus lobata	7	15/15	Hordeum murinum, Bromus diandrus	Unhealthy	Yes
31	Unknown species	6, 4, 8	10/20	Hordeum murinum, Bromus diandrus	Healthy	Yes
32	Quercus lobata	7	20/12	Hordeum murinum, Bromus diandrus, Silybum marianum	Healthy	Yes
33	Quercus lobata	5	12/12	Hordeum murinum, Bromus diandrus, Silybum marianum	Healthy	Yes
34	Quercus lobata	8	25/20	Hordeum murinum, Bromus diandrus	Healthy, burrows around tree	Yes

No.	Tree Species	DBH	Height/ Canopy	Associated Vegetation	Health/Notes	Retain?
35	Quercus lobata	34	35/30	Hordeum murinum, Bromus diandrus	Healthy	Yes
36	Quercus lobata	26	30/25	Hordeum murinum, Bromus diandrus	Healthy	Yes
37	Quercus lobata	11	25/20	Hordeum murinum, Bromus diandrus	Unhealthy	Yes
38	Quercus lobata	22	35/25	Hordeum murinum, Bromus diandrus	Healthy/Large nest in the tree	Yes
39	Quercus lobata	34, 7	40/40	Hordeum murinum, Bromus diandrus	Healthy	Yes
40	Quercus lobata	18	35/25	Hordeum murinum, Bromus diandrus	Healthy	Yes
41	Quercus lobata	14, 9	20/20	Hordeum murinum, Bromus diandrus	Healthy, burrows around tree	No
42	Prunus dulcis	6	15/20	Hordeum murinum, Bromus diandrus	Healthy	Yes
43	Prunus dulcis	9	15/20	Hordeum murinum, Bromus diandrus	Healthy	Yes
44	Quercus lobata	37.5 (trifurcate; t1 -17, t2 - 15, t3 - 15.5)	60/40	Hordeum murinum, Bromus diandrus	Healthy	Yes
45	Quercus lobata	25	60/40	Hordeum murinum, Bromus diandrus	Healthy	Yes
46	Quercus lobata	10	30/20	Hordeum murinum, Bromus diandrus	Healthy	Yes
47	Quercus lobata	13	30/20	Hordeum murinum, Bromus diandrus	Healthy	Yes
48	Quercus lobata	Bifurcate @ 1.5' ; t1 -13, t2- 10	30/30	Hordeum murinum, Bromus diandrus	Healthy	Yes
49	Locust	6.25"	20/20	Hordeum murinum, Bromus diandrus	Healthy	Yes
50	Locust	Bifurcate @ 1' ; t1 - 9, t2 - 7	15/20	Hordeum murinum, Bromus diandrus	Healthy	Yes
51	Locust	9	15/20	Hordeum murinum, Bromus diandrus	Healthy	Yes
52	Quercus lobata	36	60/60	Hordeum murinum, Bromus diandrus	Healthy	Yes
53	Quercus lobata	7	20/25	Hordeum murinum, Bromus diandrus	Healthy	Yes
54	Quercus lobata	9.5	20/25	Hordeum murinum, Bromus diandrus	Healthy, burrows around trees	Yes
55	Salix gooddingii	8.5	15/30	Hordeum murinum, Bromus diandrus	Healthy	Yes
56	Salix gooddingii	8	25/15	Hordeum murinum, Bromus diandrus	Healthy	Yes
57	Salix gooddingii	6	25/15	Hordeum murinum, Bromus diandrus	Healthy	Yes
58	Salix gooddingii	8.5	25/10	Hordeum murinum, Bromus diandrus	Healthy	Yes
59	Salix gooddingii	Bifork @ 1' ; t1 - 7.5, t2 - 7	20/10	Hordeum murinum, Bromus diandrus	Healthy	Yes
60	Salix laevigata	4.5	25/10	Hordeum murinum, Bromus diandrus	Healthy	Yes
61	Salix laevigata	4	20/10	Hordeum murinum, Bromus diandrus	Healthy	Yes
62	Salix laevigata	6	20/10	Hordeum murinum, Bromus diandrus	Healthy	Yes
63	Salix laevigata	4.5	20/8	Hordeum murinum, Bromus diandrus	Healthy	Yes
64	Salix laevigata	6	30/15	Hordeum murinum, Bromus diandrus	Healthy	Yes
65	Salix laevigata	6	30/15	Hordeum murinum, Bromus diandrus	Healthy	Yes
66	Salix gooddingii	5.75	30/30	Hordeum murinum, Bromus diandrus	Healthy	Yes
67	Salix laevigata	5.5	25/15	Hordeum murinum, Bromus diandrus	Healthy	Yes
68	Salix laevigata	6	25/20	Hordeum murinum, Bromus diandrus	Healthy	Yes

No.	Tree Species	DBH	Height/ Canopy	Associated Vegetation	Health/Notes	Retain?
69	Salix laevigata	Trifurcate @3' ; t1 - 4.5, t2 - 4.5, t3 - 6	25/15	Hordeum murinum, Bromus diandrus	Healthy	Yes
70	Salix laevigata	5	30/15	Hordeum murinum, Bromus diandrus	Healthy	Yes
71	Salix laevigata	5.5	30/20	Hordeum murinum, Bromus diandrus	Healthy	Yes
72	Salix laevigata	7.25	30/15	Hordeum murinum, Bromus diandrus	Healthy	Yes
73	Salix laevigata	5	30/15	Hordeum murinum, Bromus diandrus	Healthy	Yes
74	Salix laevigata	6	30/20	Hordeum murinum, Bromus diandrus	Healthy	Yes
75	Salix laevigata	5	20/15	Hordeum murinum, Bromus diandrus	Healthy	Yes
76	Salix laevigata	5	20/15	Hordeum murinum, Bromus diandrus	Healthy	Yes
77	Juglans hindsii	6	20/20	Hordeum murinum, Bromus diandrus	Healthy	Yes
78	Quercus lobata	7.5	40/15	Hordeum murinum, Bromus diandrus	Healthy	Yes
79	Quercus lobata	8.5	40/20	Hordeum murinum, Bromus diandrus	Healthy	Yes
80	Quercus lobata	35	60/60	Hordeum murinum, Bromus diandrus	Healthy	Yes
81	Quercus lobata	7	30/40	Hordeum murinum, Bromus diandrus	Healthy	Yes
82	Quercus lobata	23.5	45/40	Hordeum murinum, Bromus diandrus	Healthy	Yes
83	Ficus carica	Biforcate @ 6" ; t1 - 7, t2 -7	15/20	Hordeum murinum, Bromus diandrus	Healthy	Yes
84	Quercus lobata	28	45/60	Hordeum murinum, Bromus diandrus	Healthy	Yes
85	Quercus lobata	15	45/60	Hordeum murinum, Bromus diandrus	Healthy	Yes
86	Quercus lobata	24.5	45/60	Hordeum murinum, Bromus diandrus	Healthy	Yes
87	Salix laevigata	5.75	50/20	Hordeum murinum, Bromus diandrus	Healthy	Yes
88	Quercus lobata	30	60/60	Hordeum murinum, Bromus diandrus	Healthy	Yes
89	Quercus lobata	40	70/30	Hordeum murinum, Bromus diandrus	Healthy	Yes
90	Quercus lobata	groundlevel ; t1 - 5.5, t2 - 8, t3 - 4, t4 - 4	20/15	Hordeum murinum, Bromus diandrus	Healthy	Yes
91	Quercus lobata	Bifurcate @ 2' ; t1 - 7.5, t2 - 7	25/20	Hordeum murinum, Bromus diandrus	Healthy	Yes
92	Quercus lobata	51	65/60	Hordeum murinum, Bromus diandrus	Healthy	No
93	Fraxinus latifolia	13	50/25	Hordeum murinum, Bromus diandrus	Healthy	Yes
94	Quercus lobata	Bifurcate @ 2' ; t1 - 32, t2 - 28	55/70	Hordeum murinum, Bromus diandrus	Healthy	Yes
95	Quercus lobata	Bifurcate @ 2' ; t1 - 30, t2 - 14	60/60	Hordeum murinum, Bromus diandrus	Healthy	Yes
96	Quercus lobata	14.5	55/60	Hordeum murinum, Bromus diandrus	Healthy	Yes
97	Quercus lobata	12.75	30/20	Hordeum murinum, Bromus diandrus	Healthy	Yes
98	Quercus lobata	9	30/15	Hordeum murinum, Bromus diandrus	Healthy	Yes
99	Quercus lobata	23	50/50	Hordeum murinum, Bromus diandrus	Healthy	Yes
100	Quercus lobata	16.5	60/50	Hordeum murinum, Bromus diandrus	Healthy	Yes
101	Quercus lobata	Bifurcate @ 2.5' ; t1 - 22, t2 - 7.5	50/40	Hordeum murinum, Bromus diandrus	Healthy	No
102	Quercus lobata	6.5	30/12	Hordeum murinum, Bromus diandrus	Healthy	No

No.	Tree Species	DBH	Height/ Canopy	Associated Vegetation	Health/Notes	Retain?
103	Quercus lobata	6.5	30/15	Hordeum murinum, Bromus diandrus	Healthy	No
104	Quercus lobata	16.75	60/40	Hordeum murinum, Bromus diandrus	Healthy	Yes
105	Prunus dulcis	6	20/30	Hordeum murinum, Bromus diandrus	Healthy	No
106	Prunus dulcis	6	20/30	Hordeum murinum, Bromus diandrus	Healthy	No
107	Quercus lobata	34	65/60	Hordeum murinum, Bromus diandrus	Healthy	No
108	Salix gooddingii	groundlevel ; t1 - 6, t2 - 6, t3 - 6, t4 - 9	25/15	Salix species, Rubus armeniacus	Healthy	Yes
109	Salix gooddingii	Bifurcate @ 5" ; t1 - 11.5, t2 - 8	25/15	Salix species, Rubus armeniacus	Healthy	Yes
110	Populus sp.	6	35/20	Salix species, Rubus armeniacus, Cephalanthus occidentalis	Healthy	Yes
111	Populus sp.	6	35/20	Salix species, Rubus armeniacus, Cephalanthus occidentalis	Healthy	Yes
112	Populus sp.	8.5	35/25	Salix species, Rubus armeniacus, Cephalanthus occidentalis	Healthy	Yes
113	Salix gooddingii	Quadfurcate @ 2' ; t1 - 15, t2 - 17, t3 -14, t4 - 12	25/45	Salix species, Rubus armeniacus, Cephalanthus occidentalis, Datura stramonium	Healthy	Yes
114	Salix laevigata	6	30/15	Salix species, Rubus armeniacus, Cephalanthus occidentalis, Datura stramonium	Healthy	Yes
115	Quercus lobata	Quadfurcate @ 2' ; t1 - 13, t2 - 14, t3 -12, t4 - 10	50/50	Bromus Diandrus, Silybum marianum, Hordeum murinum, Rubus armeniacus, Datura stramonium	Healthy	Yes
116	Quercus lobata	30	60/40	Bromus Diandrus, Silybum marianum, Hordeum murinum, Rubus armeniacus, Datura stramonium	Healthy	Yes
117	Quercus lobata	16	60/20	Bromus Diandrus, Silybum marianum, Hordeum murinum, Rubus armeniacus, Datura stramonium	Healthy	Yes
118	Quercus lobata	Trifurcate @1.5' ; t1 - 16, t2 - 16, t3 - 24	60/60	Bromus Diandrus, Silybum marianum, Hordeum murinum, Rubus armeniacus, Datura stramonium	Healthy	Yes
119	Quercus lobata	Trifurcate @1.5' ; t1 - 12.5, t2 - 9, t3 - 14	50/40	Bromus Diandrus, Silybum marianum, Hordeum murinum, Rubus armeniacus, Datura stramonium	Healthy	Yes
120	Quercus lobata	Bifurcate @ 1.5' ; t1 -7, t2- 6.5	30/20	Bromus Diandrus, Silybum marianum, Hordeum murinum, Rubus armeniacus, Datura stramonium	Healthy	Yes
121	Quercus lobata	Quadfurcate @ 1' ; t1 - 11, t2 - 6, t3 - 10.5, t4 - 6	50/40	Bromus Diandrus, Silybum marianum, Hordeum murinum, Rubus armeniacus, Datura stramonium	Healthy	Yes
122	Prunus dulcis	8.5	30/20	Bromus Diandrus, Silybum marianum, Hordeum murinum	Healthy	Yes
123	Quercus lobata	13.5	40/30	Bromus Diandrus, Silybum marianum, Hordeum murinum	Healthy	Yes

Appendix E – Elderberry Shrub Inventory

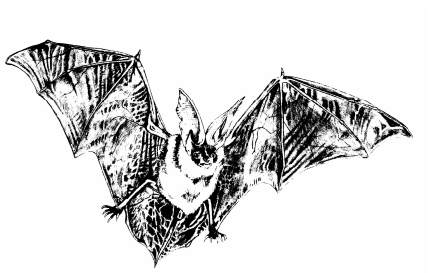
Elderberry/VELB Survey Field Form

Shrub ID	Riparian/ Non-Riparian	DGH Stems ≥ 1"& ≤ 3"	DGH Stems ≥ 3"& ≤ 5"	DGH Stems ≥ 5"	Total Stem Count	Exit holes on Shrub Y/N	Height (feet)	Dripline Diameter (ft)	Associated Species	Shrub Location
1	Non	11	1	0	12	N	8	20	Bromus diandrus, Brassica nigra	20-100 ft
2	Non	1	0	0	1	N	6	3	Bromus diandrus, Brassica nigra	20-100 ft
3	Non	2	4	0	6	N	9	8	Avena fatua, Bromus diandrus, Festuca perennis	<20 ft
4	Non	0	0	1	1	N	10	10	Brommus diandrus	<20 ft
5	Non	2	1	1	4	N	12	1	Brommus diandrus	<20 ft
6	Non	0	1	1	2	N	10	8	Brommus diandrus	<20 ft
7	Riparian	1	1	2	4	Y	14	15	Brommus diandrus	<20 ft
8	Riparian	8	0	0	8	N	12	8	Hordeum murinum, Bromus diantrus, Centaurea solstitialis	<20 ft
9	Riparian	4	2	0	6	N	7	12	Bromus diandrus	<20 ft
10	Riparian	4	6	1	11	N	12	20	Bromus diandrus, Festuca perennis	<20 ft
11	Riparian	1	5	0	6	N	10	12	Bromus diandrus, Festuca perennis	<20 ft
12	Riparian	5	0	0	5	N	10	15	Bromus diandrus, Festuca perennis	<20 ft
13	Riparian	1	0	0	1	N	7	6	Quercus lobata, Bromus diandrus	20-100 ft
14	Riparian	1	2	0	3	N	9	10	Hordeum murinum, Prunus sp.	20-100 ft
15	Riparian	15	0	1	16	N	10	15	Hordeum murinum, Bromus diantrus, Centaurea solstitialis	<20 ft
16	Riparian	5	0	0	5	N	12	12	Festuca perennis, Hordeum murinum, Quercus lobata	<20 ft
17	Riparian	2	0	1	3	N	121	20	Quercus lobata, Festuca perennis, Petroselinum sp.	<20 ft
18	Riparian	6	2	1	9	N	20	15	Quercus lobata, Festuca perennis, Petroselinum sp.	<20 ft
19	Riparian	6	0	0	6	N	10	15	Petroselimun sp., Bromus diandrus	<20 ft
20	Riparian	10	1	0	11	N	15	10	Petroselimun sp., Bromus diandrus	<20 ft
21	Riparian	5	0	0	5	N	15	20	Petroselimun sp., Bromus diandrus	<20 ft
22	Riparian	4	0	0	4	N	8	6	Petroselimun sp., Bromus diandrus	<20 ft
23	Riparian	1	0	0	1	N	6	6	Festuca perennis, Hordeum murinum, Nicotiana glauca	<20 ft
24	Riparian	8	1	8	17	N	20	25	Brassica nigra, Bromus diandrus, Centaurea solstitalis	<20 ft
25	Riparian	5	0	0	5	N	10	12	Brassica nigra, Bromus diandrus, Silybum marianum	20-100 ft
26	Riparian	7	0	1	8	N	20	8	Brassica nigra, Bromus diandrus, Silybum marianum	20-100 ft
27	Riparian	0	1	1	2	N	20	10	Brassica nigra, Bromus diandrus, Silybum marianum	20-100 ft
28	Riparian	3	0	0	3	N	15	5	Brassica nigra, Bromus diandrus, Silybum marianum	20-100 ft
29	Riparian	2	0	0	2	N	15	15	Rubus armeniacus, Petroselinum sp.	20-100 ft
30	Riparian	1	0	0	1	N	12	8	Salix exigua, Rubus armeniacus	20-100 ft
31	Riparian	0	0	0	0		0	0	Shrub no longer present (removed)	
32	Riparian	3	3	2	8	N	20	25	Rubus armeniacus, Bromus diandrus	20-100 ft
33	Riparian	1	0	1	2	N	20	15	Rubus armeniacus, Bromus diandrus	20-100 ft
34	Riparian	1	0	0	1	N	8	5	Rubus armeniacus, Bromus diandrus	20-100 ft
35	Riparian	1	1	0	2	N	10	5	Rubus armeniacus, Bromus diandrus	20-100 ft
36	Riparian	2	2	0	4	N	15	8	Rubus armeniacus, Bromus diandrus	20-100 ft
37	Riparian	1	0	0	1	N	7	4	Rubus armeniacus, Bromus diandrus	20-100 ft
38	Riparian	12	2	0	14	N	13	10	Rubus armeniacus, Bromus diandrus	20-100 ft

39	Riparian	2	0	0	2	N	7	5	Avena fatua	20-100 ft
40	Riparian	6	0	0	6	N	14	8	Salix exigua, Rubus armeniacus	<20 ft
41	Riparian	2	0	0	2	N	10	5	Salix exigua, Rubus armeniacus, Silybum marianum	20-100 ft
42	Riparian	3	0	0	3	N	10	6	Salix exigua, Rubus armeniacus	<20 ft
43	Riparian	9	1	0	10	N	18	10	Avena fatua, Bromus diandrus, Silybum marianum	20-100 ft
44	Riparian	4	0	0	4	N	15	14	Avena fatua, Bromus diandrus, Silybum marianum	20-100 ft
45	Riparian	1	0	0	1	N	12	4	Avena fatua, Bromus diandrus, Silybum marianum	20-100 ft
46	Riparian	2	0	0	2	N	12	5	Avena fatua, Bromus diandrus, Silybum marianum	20-100 ft
47	Riparian	4	0	0	4	N	15	6	Avena fatua, Bromus diandrus, Silybum marianum	20-100 ft
48	Riparian	9	0	0	9	N	15	6	Avena fatua, Bromus diandrus, Silybum marianum	20-100 ft
49	Riparian	3	0	0	3	N	8	4	Avena fatua, Bromus diandrus, Silybum marianum	20-100 ft
50	Riparian	1	0	0	1	N	8	2	Avena fatua, Bromus diandrus, Silybum marianum	20-100 ft
51	Riparian	0	1	0	1	N	16	4	Avena fatua, Bromus diandrus, Silybum marianum	20-100 ft
52	Riparian	6	0	0	6	N	7	5	Avena fatua, Bromus diandrus, Silybum marianum	20-100 ft
53	Riparian	3	1	0	4	N	9	6	Avena fatua, Bromus diandrus, Silybum marianum	20-100 ft
54	Riparian	0	1	0	1	N	15	8	Avena fatua, Bromus diandrus, Silybum marianum	20-100 ft
55	Riparian	4	0	0	4	N	7	4	Avena fatua, Bromus diandrus, Silybum marianum	20-100 ft
56	Riparian	3	1	0	4	N	14	7	Avena fatua, Bromus diandrus, Silybum marianum	20-100 ft
57	Riparian	5	2	0	7	N	15	10	Avena fatua, Silybum marianum	20-100 ft
58	Riparian	5	0	0	5	N	10	16	Avena fatua, Bromus diandrus	20-100 ft
59	Riparian	10	0	1	11	N	20	8	Avena fatua, Bromus diandrus	20-100 ft
60	Riparian	6	0	0	6	N	12	4	Avena fatua, Bromus diandrus	20-100 ft
61	Riparian	3	2	1	6	N	20	10	Bromus diandrus, Salix exigua	<20 ft
62	Riparian	9	0	1	10	N	18	10	Bromus diandrus, Salix exigua	<20 ft
63	Riparian	5	0	0	5	N	12	8	Rubus armeniacus, Silybum marianum, Salix exigua	<20 ft
64	Riparian	4	0	0	4	Y	8	8	Avena fatua, Bromus diandrus, Silybum marianum	20-100 ft
65	Riparian	5	0	0	5	Y	10	8	Avena fatua, Bromus diandrus, Silybum marianum	20-100 ft
66	Riparian	1	0	0	1	N	8	4	Avena fatua, Bromus diandrus, Silybum marianum	20-100 ft
67	Riparian	1	0	0	1	N	10	5	Avena fatua, Bromus diandrus, Silybum marianum	20-100 ft
68	Riparian	2	0	0	2	N	12	8	Avena fatua, Bromus diandrus, Silybum marianum	20-100 ft
69	Riparian	5	0	0	5	Y	10	6	Avena fatua, Bromus diandrus, Silybum marianum	20-100 ft
70	Riparian	6	0	0	6	N	12	10	Avena fatua, Bromus diandrus, Silybum marianum	20-100 ft
71	Riparian	3	0	0	3	Y	12	10	Avena fatua, Bromus diandrus, Silybum marianum	20-100 ft
72	Riparian	3	0	0	3	N	12	10	Avena fatua, Bromus diandrus, Silybum marianum	>100 ft
73	Riparian	4	1	0	5	N	8	5	Avena fatua, Bromus diandrus, Silybum marianum	>100 ft
74	Riparian	2	0	0	2	N	10	6	Avena fatua, Bromus diandrus, Silybum marianum	>100 ft
75	Riparian	13	4	1	18	Y	12	8	Avena fatua, Bromus diandrus, Silybum marianum	>100 ft
76	Riparian	9	0	0	9	N	12	10	Avena fatua, Bromus diandrus, Silybum marianum	>100 ft
77	Riparian	4	0	0	4	N	10	12	Avena fatua, Bromus diandrus, Silybum marianum	>100 ft
78	Riparian	0	1	0	1	N	15	12	Avena fatua, Bromus diandrus, Silybum marianum	>100 ft
79	Riparian	0	1	0	1	N	12	15	Avena fatua, Bromus diandrus, Silybum marianum	>100 ft

80	Riparian	4	0	0	4	N	10	5	Rubus armeniacus, Bromus diandrus	>100 ft
81	Riparian	3	0	0	3	N	15	7	Bromus diandrus, Quercus lobata	>100 ft
82	Riparian	2	1	0	3	N	20	12	Bromus diandrus, Quercus lobata	>100 ft
83	Riparian	6	0	0	6	N	12	12	Bromus diandrus, Quercus lobata	>100 ft

Appendix F – Bat Assessment Survey Results Letter



Wildlife Research Associates

Greg Tatarian – Bat Specialist
1119 Burbank Ave.
Santa Rosa, CA 95407
Ph: 707.544.6273 Fax: 707.544.6317
www.wildliferesearchassoc.com
gregbat@wildliferesearchassoc.com
trish@wildliferesearchassoc.com

12/16/2015

Jeff Bray, Principal
LSA Associates, Inc.
4200 Rocklin Rd., Ste. 11B
Rocklin, CA 95677
916-630-4600
Jeff.Bray@lsa-assoc.com

RE: DAYTIME BAT HABITAT ASSESSMENT AND BRIDGE SURVEY – HICKMAN ROAD BRIDGE OVER TUOLUMNE RIVER, - HICKMAN, STANISLAUS COUNTY, CA

Dear Jeff,

The following report details my recent daytime habitat assessment and survey of the Hickman Road Bridge over the Tuolumne River, in Hickman, Stanislaus County, California. Recommendations for take avoidance and minimization of impacts to roosting bats, additional surveys, and replacement of existing roosting habitat are also included.

INTRODUCTION

Stanislaus County is planning replacement of the Hickman Road Bridge over the Tuolumne River (Bray, personal communication). The County has designated the Hickman Road Bridge as 6th in priority for work http://www.stancounty.com/publicworks/pdf/bridge-repair-projects.pdf .

LSA Associates, Inc., working for Drake Haglan, bridge engineers for Stanislaus County, conducted an initial assessment of the bridge and observed evidence of bat roosting activity at certain portions of the bridge (Bray, Belt, personal communications). LSA Associates, Inc., then subcontracted Greg Tatarian, bat specialist, Wildlife Research Associates, to conduct a detailed, daytime bat habitat assessment of the bridge to determine if additional focused surveys would be needed, and to develop suitable mitigation recommendations to prevent direct mortality of roosting bats as a result of bridge demolition, and to replace lost roost habitat in the new bridge structure.

SETTING

The Hickman Road Bridge is located approximately 0.15 mile south of State Route 132, in the town of Waterford, north of Hickman. The project location is represented on the southeastern portion of the Waterford USGS topographic quadrangle in Section 33. The bridge spans the Tuolumne River and associated riparian habitat, and is considered a major rural collector http://uglybridges.com/1048856. Built in 1964, the bridge connects the rural residential town of Waterford with agricultural lands to the south, at an approximate elevation of 73 ft.

The Hickman Road Bridge is a reinforced concrete enclosed box girder design with 7 spans on reinforced concrete solid pier walls and abutments supported by steel piles. The bridge is 33.5 ft. wide and 652.9 ft. long; height above the river channel is not listed, but I estimate a height of 60 ft. from the water level at the time of my survey. Caltrans has identified major deficiencies with the structure (http://www.stancounty.com/bos/agenda/2014/20140916/c02.pdf).

METHODS

I conducted a daytime habitat assessment on November 5, 2015, from 1200 to 1430. The weather was clear and cool, and rain had occurred 1-2 days previously. I used 10 x 42 roof-prism binoculars and a 20-60 x 80mm spotting scope and tripod, along with a 500,000 candlepower spotlight to view the bridge from the ground below. I began at the southern end of the bridge, working from the abutment to the river's edge, then crossed the bridge and surveyed from the north abutment to the river's edge. Suitable potential roost features were noted and photographs are included in this report.

RESULTS

No live bats were present in the bridge at the time of my site visit. However, at least one dead bat was observed, and signs of extensive use by bats were observed in several locations on the Hickman Road Bridge. The habitat assessment and bridge survey were conducted after the 2015 bat maternity season, and after the first seasonal rains and reduction in nighttime temperatures; seasonal dispersal from the bridge had obviously occurred.

I observed bat fecal matter and areas of substantial urine staining on, below, and behind what appears to be electrical utility lines that run through vertically-stacked steel enclosed channels. Gaps between these channels also contained visible bat fecal matter in some locations. This series of stacked channels is attached to a solid metal back plate, which in this configuration, has formed a protected, ca. 24" high crevice roost for bats between the metal assembly and the concrete of the soffit exterior wall. The spatial capacity of the space behind the utility channel assembly available for roosting bats is very high, although it appears, based on urine staining on concrete below the channels, that about 50% of this area has been used by roosting bats.

In the gap behind the utility channel assembly, close to the south abutment, I observed one dead bat. Two other bats were located behind the utility channel assembly nearer to the center of the river channel. These two bats could possibly have been in torpor; however, it appeared that these bats were also dead. This would be consistent with the assumption that the population of bats using the Hickman Bridge had already seasonally dispersed for the winter following the recent rain and temperature drop in the area.

In addition to the day roost habitat available behind the utility channel assembly, substantial amounts of crevice day roost habitat is available in the two expansion joints that occur on the bridge. The expansion joints are open from below, but covered by road deck above. It was possible to completely survey the two expansion joints from the ground, as little to no packing material remained in place. Extensive urine staining and adhered fecal pellets inside the roost crevice, and on one of the adjacent bent pier surfaces, indicated

day-roost usage by bats throughout each entire expansion joint. Because of the recent rains, almost no fecal evidence was present below the bridge at either the expansion joints, or the utility channels.

In addition to the expansion joints and utility channel assembly, there are 78 drain holes in the bottom surface of the soffit. Almost all of them appeared to be used by birds, with bird fecal/urates on adjacent bents piers and the concrete surfaces around the drain holes. I was able to insert a camera into 3 holes at the southern abutment and 1 hole at the northern abutment, and no evidence of use by bats was present in those locations. It is not clear at this time whether bats are entering the interior of the box girders through the weep holes, but that potential exists.

Cliff swallow (*Petrochelidon pyrrhonota*) nests and signs of previous use by swallows were observed in many locations beneath the bridge pedestrian walkway soffit extensions, and at the tops of bent piers. No remaining nests were actively occupied by birds.

Some oak trees located within 50 feet from the bridge structure appeared to contain suitable potential bat roost features in the form of cavities, crevices, and exfoliating bark.

Evidence of human activity was observed beneath the bridge and at the abutments (e.g. homeless encampments, bedding, furniture, debris, graffiti, used syringes, etc.).

DISCUSSION

The large amounts of available roost habitat in the utility channels and expansion joints alone (excluding the potential use of the bridge girder interior spaces), together with observed urine staining and adhered fecal pellets, suggests a large colony of bats may have established itself on this bridge. Based on lack of roosting bats during my site visit, it is possible that seasonal dispersal from the Hickman Road Bridge occurs at some time each winter, however that is not proven.

It also is not clear whether bats are also using the drain holes to enter the girder interior spaces. However, even if only the crevice roost habitat is being used, there is sufficient habitat area for 10,000-20,000 bats, based on previous experience. For example, each expansion joint could reasonably support 2-3,000 individual Brazilian free-tailed bats (*Tadarida brasiliensis*), the species most likely to be using the bridge in large numbers, or Yuma myotis (*Myotis yumanensis*), another species that forms large colonies in large roosts such as bridges. It is also likely that other bat species may also be using the bridge for day-roosting.

Because of the lack of protected larger spaces and cavities with the existing bridge design, night-roosting activity is limited to day-roost features.

Abandoned cliff swallow nests often provide day roost habitat for individual bats; these may require additional actions during removal to prevent take of bats, as detailed below.

RECOMMENDATIONS

Additional Surveys - Bridge

Although the current bat population and complete assemblage of bat species roosting in the bridge, it is possible to develop appropriate humane eviction methods without conducting additional, focused surveys, based on this habitat assessment and analysis of roost features present on the bridge. It is also possible to design replacement roost habitat to be incorporated into the replacement bridge design without conducting additional, focused surveys, simply by replicating the amount of roost habitat present in the existing bridge in the new bridge structure.

However, it is not possible to provide species and population data for that potential cavity roost area inside the bridge girders at this time, based on the habitat assessment alone. The size of the cavity roost areas in the girders is large, so if any are being used by bats, the population could be quite high in the Hickman Road Bridge.

Avoidance and minimization of direct mortality of bats potentially roosting in the girder interiors will require additional surveys of those locations. It would be possible to conduct a camera inspection of the bridge cavities at each weep hole (and possibly the other roost features) if appropriate lifting equipment or a snooper truck can be obtained. Such visual surveys of the bridge interior spaces could possibly occur outside bat activity seasons, if it was desired to get this information earlier, rather than later, and equipment access is possible.

However, if bats are using the girder interiors, data on bat species and population might be needed in order to develop sufficient mitigation measures for loss of roosting habitat. The most definitive method would entail night emergence surveys during seasonal periods of bat activity by a qualified bat biologist, using night vision equipment, infrared-sensitive cameras, and bioacoustic detectors, to observe any bats flying out from weep holes, expansion joints and behind the utility channel assembly. However, because bats cannot be expected to be actively flying during winter months in this area of California, night emergence surveys would be best conducted between late May to late July, the period when the largest number of bats would be expected to be occupying the bridge.

Additional Surveys – Trees

A detailed habitat assessment of trees proposed for removal or within a distance of disturbance from construction activities should be conducted several months prior to tree removal to identify trees containing suitable potential colonial bat roost habitat in the form of cavities, crevices, or exfoliating bark. Those trees should be removed using a two-step process during seasonal periods of bat activity, as described below, or after night emergence surveys show no roosting by bats in habitat tree roost features.

Take Avoidance and Minimization Measures - Bridge

Whether or not additional surveys are conducted to determine any potential use of the bridge girder interior spaces and to identify species and quantify population, direct mortality of roosting bats should be prevented through the implementation of **humane bat exclusion and eviction** from the expansion joints, behind the utility channels, and all weep holes. The following provides methods and seasonal constraints to prevent direct mortality:

1. **Seasonal Constraints:** Prior to bridge demolition, humane exclusion and eviction of bats from expansion joints, behind the utility channels, and all weep holes will be needed to prevent direct mortality of bats. *Humane exclusion and eviction of bats must occur only during seasonal periods of bat activity when no non-volant young or overwinter bats are present so that no bats are trapped inside the roost features.* In this region, the first annual appropriate season to conduct humane eviction are between approximately March 1 (or after evening temperatures rise above 45F, and less than ½" rainfall in 24 hours occurs) and April 15 (after which time females begin giving birth to pups). The next annual season is after maternity season and prior to winter torpor or hibernation; September 1 through about October 15 (or before evening temperatures fall below 45F, and prior to greater than ½" rainfall within 24 hours).

2. **Humane Bat Exclusion/Eviction Methods:** Under guidance of a qualified bat biologist experienced with humane bat eviction procedures on bridges, humane bat exclusion and eviction should be conducted by an experienced bat exclusion contractor or by the bridge contractor or subcontractor. Humane exclusion and eviction consists of daytime installation of blockage materials

and one-way exits attached to the concrete that will permit bats to exit during nightly feeding activities, but not allow re-entry into the roost feature. These one-way exits must be made and attached so that they can remain in place until bridge demolition occurs; however, if demolition is delayed, regular monitoring of exclusion blockage materials and one-way exit eviction materials will be required, and repairs made as needed.

Blockage materials for the expansion joints should consist of foam pipe insulation, cut to fit tightly into the expansion joint opening at the bottom and sides of soffits, with sufficient numbers of one-way exits installed to permit evacuation of the entire expansion joint by all bats. One-way exits should consist of 14" wide aluminum roll flashing formed into 8-10" long rectangles, with bent top flanges for attachment to the concrete surface of the bridge using Sikaflex brand polyurethane construction adhesive and Gorilla brand adhesive tape. The bottom portion of the aluminum flashing rectangles should be fitted with fiberglass window screen mesh using Gorilla brand adhesive tape to form an extension chute that will prevent re-entry by bats through the open bottom of the flashing rectangular one-way exit. See figures, below. The number of one-way exits installed at each roost location should be sufficient to allow complete evacuation of all bats.

3. **Swallow Nests:** Because bats may roost in abandoned cliff swallow (*Petrochelidon pyrrhonota*) nests (many of which were present on the bridge during my survey) after those birds have fledged and dispersed, removal should be conducted only after bird nesting season and bat maternity season, and should be conducted by or under supervision of the qualified bat biologist. If demolition is planned to occur earlier in the year when birds would normally be nesting and bats would be raising young, then bats should be humanely evicted first, followed by installation of bird exclusion netting and/or bird deterrence methods to prevent nesting swallows and roosting bats prior to bridge demolition.

Take Avoidance Measures - Trees

Trees containing suitable potential bat roost habitat features in the form of cavities, crevices, or exfoliating bark may support roosting bats at any time of year. To prevent direct mortality of bats;

1. **Seasonal Constraints:** Potential bat habitat trees, identified by a qualified bat biologist during a tree habitat assessment conducted several months prior to tree removal, shall be removed only between approximately March 1, or when evening temperatures are above 45°F and rainfall less than ½" in 24 hours occurs, and April 15, prior to parturition of pups. The next acceptable period is after pups become self-sufficiently volant – September 1 through about October 15, or prior to evening temperatures dropping below 45°F and onset of rainfall greater than ½" in 24 hours.

2. **Tree Removal Methods:** Bat habitat trees should be removed only during seasonal periods of bat activity as described above, ***and only after*****;**

    a. Negative results from a night emergence survey conducted no more than 1-2 nights prior to tree removal by a qualified bat biologist, using night vision and/or IR-sensitive camera equipment and bioacoustic recording equipment, or;

    b. All other vegetation other than trees within the Limit of Work is removed prior to bat habitat tree removal, during seasonal periods of activity, and preferably, within 4 days of commencing two-step removal of habitat trees, then either;

    c. Two-step tree removal over two consecutive days (e.g. Tuesday and Wednesday, or Thursday and Friday). With this method, small branches and small limbs containing ***no*** cavity, crevice or exfoliating bark habitat on habitat trees, as identified by a qualified bat biologist are removed first on Day 1, ***using chainsaws only*** (no dozers, backhoes, etc.). The

following day (Day 2), the remainder of the tree is to be removed. The disturbance caused by chainsaw noise and vibration, coupled with the physical alteration of the tree, has the effect of causing colonial bat species to abandon the roost tree after nightly emergence for foraging. Removing the tree the next day prevents re-habituation and re-occupation of the altered tree.

d. Trees containing suitable potential habitat must be trimmed with chainsaws on Day 1 under initial field supervision by a qualified bat expert to ensure that the tree cutters fully understand the process, and avoid incorrectly cutting potential habitat features or trees. After tree cutters have received sufficient instruction, the qualified bat expert does not need to remain on the site.

3. If non-habitat trees or other vegetation must be removed outside those dates, a 100' buffer around each habitat tree should be observed to reduce potential of disturbance of non-volant young during maternity season, or torpid bats during winter months.

Mitigation Measures – Replacement Roost Habitat

Replacement of the Hickman Road Bridge over Tuolumne River will result in the permanent loss of day roost habitat for bat species unless replacement roost habitat is designed into the new bridge. Night roost habitat at this bridge appears to be minimal, and potentially limited to the day roost cavities, and abandoned cliff swallow nests. The undersurface of the deck does not contain recesses that could trap warm air, which are preferred at bat night roosts. However, if only the expansion joints and utility channels are being used, and not the girder interiors, there is sufficient habitat area for 10,000-20,000 bats in the existing bridge – a substantial number.

Off-site roost replacement is less effective than on-structure replacement habitat (Johnston, Tatarian and Pierson 2004, Tatarian, personal observations). Off-site roost habitat does not provide similar thermal characteristics and stability, potentially requires additional right-of-way availability, routine maintenance, protection from predators and vandals, and has a limited lifespan. On-structure mitigation can be readily designed and implemented in bridges, and should be very straightforward from a biological perspective for the Hickman Road Bridge. Properly designed and constructed on-structure habitat is made with concrete, so no maintenance or replacement is needed. Replacement roost features can be placed in locations that will not conflict with bridge maintenance or inspection.

Sincerely,

Greg Tatarian

Greg Tatarian

REFERENCES

JOHNSTON, D. E. PIERSON, AND G. TATARIAN. 2004. CALIFORNIA BAT MITIGATION TECHNIQUES, SOLUTIONS, AND EFFECTIVENESS. PREPARED FOR CALIFORNIA DEPARTMENT OF TRANSPORTATION (CALTRANS) AND CALIFORNIA STATE UNIVERSITY SACRAMENTO FOUNDATION. PROJECT NUMBER 2394-01. DECEMBER 29. 163 PP.

PERSONAL COMMUNICATIONS

BELT, LAURA. 2015. LSA ASSOCIATES, INC. SENIOR WILDLIFE BIOLOGIST. EMAIL DISCUSSIONS. OCTOBER-NOVEMBER.

BRAY, JEFF. 2015. LSA ASSOCIATES, INC. PRINCIPAL, BIOLOGIST, PROJECT MANAGER. TELEPHONE AND EMAIL DISCUSSIONS. OCTOBER-NOVEMBER.

Figure 1. Hickman Road Bridge looking from north.

Figure 2. View from south end of bridge. Dead bat observed in roost crevice behind utility channel assembly at arrow.

Figure 3. Extensive areas of bat urine staining and bat fecal matter on soffit behind, beneath, and on utility channel assembly.

Figure 4. Urine staining indicates use by many bats over many years.

Figure 5. Dead bat visible with binoculars and light, but poor photo.

Figure 6. Hickman Road Bridge viewed from northeast abutment.

Figure 7. Roosting activity in expansion joints. Unknown whether bats are entering girder interiors through weep holes, but evidence of use by birds was present.

Figure 8. Roosting activity in expansion joints. Unknown whether bats are entering girder interiors through weep holes, but evidence of use by birds was present.

Figure 9. Interior of interior of one girder cell.

Figure 10. Interior of another girder cell.

Figure 11. Trees containing potential habitat features.

Figure 12. Trees containing potential habitat features.

Appendix G – Representative Photos

View northwest of the Hickman Road Bridge over the Tuolumne River.

View west of the Tuolumne River from the Hickman Road Bridge.

View southeast of the Tuolumne River bottom from Hickman Road.

View north of the Tuolumne River, east of the Hickman Road Bridge.

LSA

Hickman Road Bridge (38C0004) Replacement Project
Stanislaus County, California
10-STA-0-CR
Federal Project No. BRLO-5938 (199)
Representative Photos (Page 1 of 2)

SOURCE: LSA Associates, Inc. 9/2015

P:\DHG1401\Photos\9.16.2015\DHG1401_Representative Photos Bio.pdf

View west of the Tuolumne River from the north bank.

View west of the Tuolumne River top of bank and the Hickman Road Bridge.

View southwest of standing water in the Tuolumne River bottom, east of the Hickman Road Bridge.

View east of pastureland along the southern bank of the Tuolumne River, west of the bridge.

LSA

Hickman Road Bridge (38C0004) Replacement Project
Stanislaus County, California
10-STA-0-CR
Federal Project No. BRLO-5938 (199)
Representative Photos (Page 2 of 2)

SOURCE: LSA Associates, Inc. 9/2015

P:\DHG1401\Photos\9.16.2015\DHG1401_Representative Photos Bio.pdf