# Robinson Creek Bridge Replacement on Lambert Lane



# Draft Initial Study / Proposed Mitigated Negative Declaration

## Bridge No. 10C0146

Lead Agency:

County of Mendocino

Department of Transportation

340 Lake Mendocino Drive

Ukiah, California 95482

August 2021

Prepared By:

Mendocino County Department of Transportation

Lead Consultant: Quincy Engineering

Supporting Consultant: Gallaway Enterprises

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## List of Acronyms

| | |
|---|---|
| AASHTO | American Association of State Highway Transportation Officials |
| MCAQMD or Air District | Mendocino County Air Pollution Control District |
| BMPs | Best Management Practices |
| BSA | Biological Survey Area |
| CAP | Climate Action Plan |
| Caltrans | California Department of Transportation |
| Cal Water | California Water Service Company |
| CBC | California Building Code |
| CC | Community Commercial |
| CDFW | California Department of Fish and Wildlife |
| CEQA | California Environmental Quality Act |
| CFGC CFR | California Fish and Game Commission Code of Federal Regulations |
| County | Mendocino County |
| CNDDB | California Natural Diversity Database |
| CRHR | California Register of Historical Resources |
| CRWQCB | California Regional Water Quality Control Board |
| CVFPB | Central Valley Flood Protection Board |
| CWHR | California Wildlife Habitat Relationships |
| dBA | decibel |
| DTSC | Department of Toxic Substances Control |
| EIR | Environmental Impact Report |
| ESA | Endangered Species Act |
| FEMA | Federal Emergency Management Agency |
| ft | Feet |
| GHG | Greenhouse gas |
| ISA | Initial Site Assessment |
| LID | Low Impact Development |
| LRA | Local Responsibility Area |
| LSA | Limited Soils Assessment |
| MDOT | Mendocino Department of Transportation |
| MBTA | Migratory Bird Treaty Act |
| MND | Mitigated Negative Declaration |
| MMRP | Mitigation Monitoring and Reporting Program |
| NAHC | Native American Heritage Commission |
| NEIC | Northeast Information Center |
| NMFS | National Marine Fisheries Service |
| NOAA | National Oceanic and Atmospheric Administration |
| NPDES | National Pollution Discharge Elimination Permit |
| NRCS | Natural Resources Conservation Service |
| NRHP | National Register of Historic Places |
| NOx | Oxides of Nitrogen |
| OWOUS | Other Waters of the United States |
| PCE | Primary Constituent Elements |
| PGA | Peak Ground Acceleration |
| Phase I ESA | Phase I Environmental Site Assessment |
| PM | Parcel Map |
| $PM_{2.5}$ | Fine Particulate Matter |
| $PM_{10}$ | Respirable Particulate Matter |
| RC | Resource Constraint |
| REC | Recognized Environmental Condition |
| ROG | Reactive Organic Gases |
| RPW | Relatively Permanent Water |
| R3 | Medium High Density Residential |

| | |
|---|---|
| SDC | Caltrans Seismic Design Criteria |
| SLIC | Spills, leaks, investigations and cleanup |
| SMP | Soils Management Plan |
| SNC | Sensitive Natural Community |
| sq ft | Square feet |
| SWPPP | Stormwater Pollution Prevention Plan |
| SRA | State Responsibility Area |
| TNW | Traditional Navigable Waters |
| USACE | United States Army Corps of Engineers |
| USFWS | United States Fish and Wildlife Service |
| UST | Underground Storage Tank |
| VMT | Vehicle-miles-traveled |

# Draft Initial Study / Proposed Mitigated Negative Declaration
# Environmental Coordination and Review

## I. PROJECT DESCRIPTION

A. Project Title: Robinson Creek Bridge Replacement on Lambert Lane, County Road 123A, Boonville. Bridge No. 10C0146. BRLO-5910(099)

B. Project Sponsor/Lead Agency:
County of Mendocino
Department of Transportation
340 Lake Mendocino Drive
Ukiah, CA 95482, Willows, CA 95988

C. Property Owners:

| | | | |
|---|---|---|---|
| 029-140-46-00<br>Joan Burroughs<br>14140 HWY 128,<br>Boonville, CA 95415 | 029-150-39-00<br>Michele Corlette &<br>James Lutticken<br>18075 Lambert Lane<br>E, Boonville, CA<br>95415 | 029-130-23<br>Tommy Cronquist<br>18111 Lambert Lane,<br>Boonville, CA 95415 | 029-130-11<br>Steven & Beverly<br>Daniels 18100<br>Lambert Lane,<br>Boonville, CA 95415 |
| 029-130-13-00<br>Gary & Wanda<br>Johnson<br>14120 HWY 128,<br>Boonville, CA 95415 | 029-130-07-00<br>Mathew & Dixie<br>McCarthy 18050<br>Lambert Lane,<br>Boonville, CA 95415 | 029-130-10<br>Linda Newton<br>18141 Lambert Lane,<br>Boonville, CA 95415 | 029-110-10 & 029-<br>130-03<br>Michael Reeves<br>18055 Lambert Lane,<br>Boonville, CA 95415 |

D. County Contact: Howard Dashiell, Director of Transportation
(707) 463-4366
County of Mendocino Department of Transportation
340 Lake Mendocino Drive
Ukiah, CA 95482

E. Project Location: The Project is located in the Town of Boonville, California on the western side of State Route 128 in the Anderson Valley Region on Lambert Lane at the crossing of Robinson Creek. Boonville USGS Quadrangle, Section 2, Township 13N, Range 14W. Latitude 39.00853100000, Longitude -123.36801400000. (Figure 1 – Project Location Map).

F. **Assessor's Parcel Number (APN)**: The project will be located within the existing public right-of-way and narrow portions of APNs 029-140-46-00, 029-150-39-00, 029-130-23, 029-130-11, 029-130-13-00, 029-130-07-00, 029-130-10 029-110-10 and 029-130-03.

G. Project Size: The project is approximately 3.6 acres in size which includes an off-site staging area.

H. General Plan Designation: Public Right-of-Way (ROW), Rural Community and Public Services.

I. Zoning: Public ROW, Rural Community (RC) and Public Facility (PF).

J. Environmental Setting: The project site is located on Lambert Lane in the southern area of Mendocino, California, within the United States Geological Survey (USGS) Boonville USGS Quadrangle, Section 2, Township 13N, Range 14W. The project site is located on Lambert Lane, west of State Route 128, in between Mountain View 510 Road and Husset Road. It is 1/4 mile north of the County Fairgrounds on State Route 128.

The Project site consists of the existing asphalt roadway, concrete bridge, gravel road shoulder, a mixed species tree canopy and annual grassland habitat. Robinson Creek runs through the

Project site. The overall topography of the site is relatively flat, with Robinson Creek being highly channelized. The surrounding land uses consist of residential homes and urban development, with a mix of landscape and native trees and patches of disturbed annual grassland. The proposed staging area at the fairground facility is composed of highly disturbed annual grassland which is regularly mowed.

The average annual precipitation is 37.88 inches and the average temperature is 58.55° F (WRCC 2019) in the region where the survey area is located. The survey area ranges in elevation from 382 to 405 feet above sea level and is sloped between 0-9 percent. Soils within the survey area are loams with a deep restrictive layer located more than 80 inches deep.

K. Project Description:

PROPOSED PROJECT

The proposed Project will replace the existing Robinson Creek Bridge on Lambert Lane, approximately 400 feet west of State Route (SR) 128 (Figure 2). The existing structure is 32 feet long and 26 feet wide reinforced concrete bridge with closed strutted abutments founded on spread footings on erodible alluvial material. This bridge has a history of scour issues and a scour hole that has undermined the integrity of the easterly bridge abutment. The existing bridge has been closed and a temporary bridge has been installed until it can be permanently replaced. There are deficiencies in the bridge width, superstructure and substructure conditions. The replacement bridge will have 9-foot lanes and 5-foot shoulders in each direction resulting in a wider structure which meets safety standards.

In addition to the bridge replacement, portions of the stream channel upstream and downstream of the bridge will be stabilized according to the Robinson Creek Channel Design for the Lambert Lane Bridge Replacement Project prepared by Michael Love & Associates, Inc. (MLA).

CONSTRUCTION METHODS AND ACCESS

The preferred construction method will be to build a replacement bridge on the existing alignment and provide a temporary detour. Based on Lambert Lane being the only public road access to approximately 30 parcels, it is necessary to keep at least one lane of traffic open during construction. During construction temporary detour bridge is proposed to be erected offset from the existing bridge to pass traffic around bridge construction operations within the Project site and avoid a road closure. This temporary bridge will either be a Bailey Bridge sourced from Mendocino County or a Contractor furnished temporary bridge structure.

A long span steel plate girder bridge will be constructed within the existing bridge alignment and can be fabricated in shorter lengths to facilitate transport and then assembled on-site. This bridge option will have a shorter construction time and will minimize impacts to the creek since it does not require falsework in the creek. Additionally, this long span bridge option provides the ability to improve the alignment of the creek to minimize future potential scour issues by increasing the channel opening and providing a softer and more gradual turn of the creek. Weathering steel will be utilized to minimize future maintenance efforts and costs. Significant changes to the vertical profile are not anticipated as the existing and replacement bridge option provide adequate hydraulic freeboard. The structure depth will be 4 feet 9 inches.

Deep foundation systems, drilled piles, will be required due to the presence of unconsolidated channel alluvium substrate. Pile type is Cast-In-Drilled-Hole (CIDH) piles. The foundation type for the retaining walls will be the same as for bridge abutments. It is anticipated that temporary shoring will be required during bridge construction.

Geomorphic Channel Conditions Within the Project Area and the Proposed Bridge Structure

Lambert Lane crosses Robinson Creek approximately 2,860 linear feet upstream of the confluence with Anderson Creek and 500 feet west of State Route SR128. The existing bridge crossing is at the inflection of a tight meander bend and the channel alignment has been constrained by the roadway embankment. The proposed replacement bridge has a free span of approximately 91 feet, while the existing bridge span is only 32 feet. The increased span is in-part intended to facilitate an improved channel alignment by decreasing the sharpness of the meander bend. A constraint to realigning the channel was the preservation of large established trees along the

right bank upstream and downstream of the crossing, including an 8-foot diameter heritage oak tree close to the existing right bank of the channel upstream of the bridge. The proposed alignment moves the approach channel further to the right (looking downstream) and has a sinuosity of 1.2 (valley length to channel length).

Stream Channel Restoration Geomorphic Characterization

It is proposed that portions of the embankment slopes will be protected from erosion with RSP and that willow plantings will also be included as part of bank protection and restoration. Channel grading will minimize abrupt hydraulic constrictions and areas of focused high velocities. The proposed riprap revetments upstream and downstream of the bridge crossing are to be vegetated with live willow cuttings following Caltrans "hybrid revetment" design. Further, this Project will include removing the rubble and reconfiguring the RSP that covers the creek bottom, restoring the channel to a more natural condition and restoring fish passage to sections of Robinson Creek above the failed retaining wall. Channel restoration designs for the site will satisfy current fish passage standards, as described in CDFG (2009) and NMFS (2001) guidelines (Appendix A: Robinson Creek Channel Design Report).

The proposed stream channel component of the replacement crossing was designed using the stream simulation approach outlined in Part XII of the California Salmonid Stream Habitat Restoration Manual (CDFG, 2009) and by the USFS (2008). The stream simulation approach is a geomorphically-based approach that requires a channel-spanning crossing structure with adequate capacity to convey the 100-year flow. The channel grading should seamlessly connect with the upstream and downstream channel profiles and the streambed should be composed of native material that is as mobile as bed material within the adjacent channel reaches. The approach relies on using the adjacent stream channel as a geomorphic reference for design of the crossing and channel bed.

The channel configuration and extent of grading was influenced by the goal of preserving trees. The first design consideration was to minimize the removal of larger oak and bay trees. Planting the RSP with willow stakes and site revegetation is intended to offset temporary loses, as willows grow quickly. Project designers considered reusing the larger trees in the channel for fish habitat and identified several locations where large woody debris (LWD) could be incorporated to offset temporal losses to steelhead habitat. Removed trees could be located along the inside bend in the upstream right bank between station 29+60 and 31+100, or downstream left bank around station 28+00. At the downstream end of the RSP, LWD could be utilized to provide flow deflection or bank protection for the bend immediately downstream of the project. Additional consideration for including LWD in the restored stream will be made in the final design.

Hybrid Revetment Design

Incorporating vegetation into the streambank revetment has the beneficial effects of improving stream ecology, increasing soil strength and providing flow resistance, although it can be unpredictable over the long term (Caltrans 2014). Established vegetation will provide cover, shade the channel and provide nutrients to the stream. As root systems establish, they can support the banks by providing resistance to scour and bind the soils and rock placed along the bank.

Caltrans has developed recommendations for the use of a "hybrid revetment" that incorporates vegetation into rock slope protection to provide the benefits of stream side vegetation while managing its uncertainties. The intent is to balance the engineering benefit of armoring a bank while promoting ecological processes. The hybrid RSP design consists of the standard RSP design as described above, with the addition of live willow staking that penetrates the rock layers and allows rooting into the native bank soils. Species most commonly used as live stakes are native willow and cottonwood trees. Plantings are placed either vertical or perpendicular to the slope face and must be long enough to extend through to the subbase and into moist soil. Placement of live stakes is done in conjunction with rock placement. To provide protection to the live stakes during rock placement, cuttings should be placed into perforated cardboard tubes that are embedded into the subgrade and extend through the layered RSP. Cardboard is preferred as it can degrade over time and not hinder the growth of the cuttings. Growing medium is placed within the cardboard tubes to provide direct soil contact. Additionally, voids within the placed riprap should be filled with salvaged soil to further promote root growth within the layered RSP.

For Robinson Creek, it is assumed cutting shall be made from native willow species. Stakes may need to be as long as 12 feet and should be placed vertically to maximize their rooting depth, with the butt of the live stake at or near summer groundwater levels. The willow plantings will start at bankfull, 2.3 feet above the finished channel bed, and extend up the RSP revetment. To ensure good establishment, the live stakes should be irrigated for a minimum of two seasons.

Based on the proposed channel grading, 19 trees will be removed. In addition to the plantings contained within the hybrid RSP revetment, native vegetation would be planted on the graded point bars on the inside of the channel bends. This vegetation should include native riparian tree species, as well as understory plants. In addition to the planting areas close to the channel, the Project will create a terrace behind the RSP adjacent to the road embankment at the southern bridge approach. This terrace will be used to plant upland tree species, such as native oaks and function as a stormwater treatment facility.

Channel incision, channel bank erosion, and channel widening associated with incision processes has caused severe bank erosion, resulting in loss of mature riparian vegetation throughout lower Robinson Creek. Though the riparian trees to be removed as a result of the Project are likely important components of NC steelhead critical habitat, current conditions have degraded the overall quality of the critical habitat. The Project proponent proposes to replant up to 355 trees, at a 18:1 ratio, in an effort to restore the creek and mitigate potential impacts to NC steelhead critical habitat. Robinson Creek and its associated riparian vegetation will be restored to a net benefit to NC steelhead and NC steelhead critical habitat. Where feasible LWD will be considered at specific locations within the Project to improve conditions for NC steelhead and offset temporary habitat loss.

The following are the preliminary estimates of trees to be replanted. Upon final design, a qualified landscape architect or botanist should be consulted to determine spacing and placement, species types, and any other factors appropriate to the site.

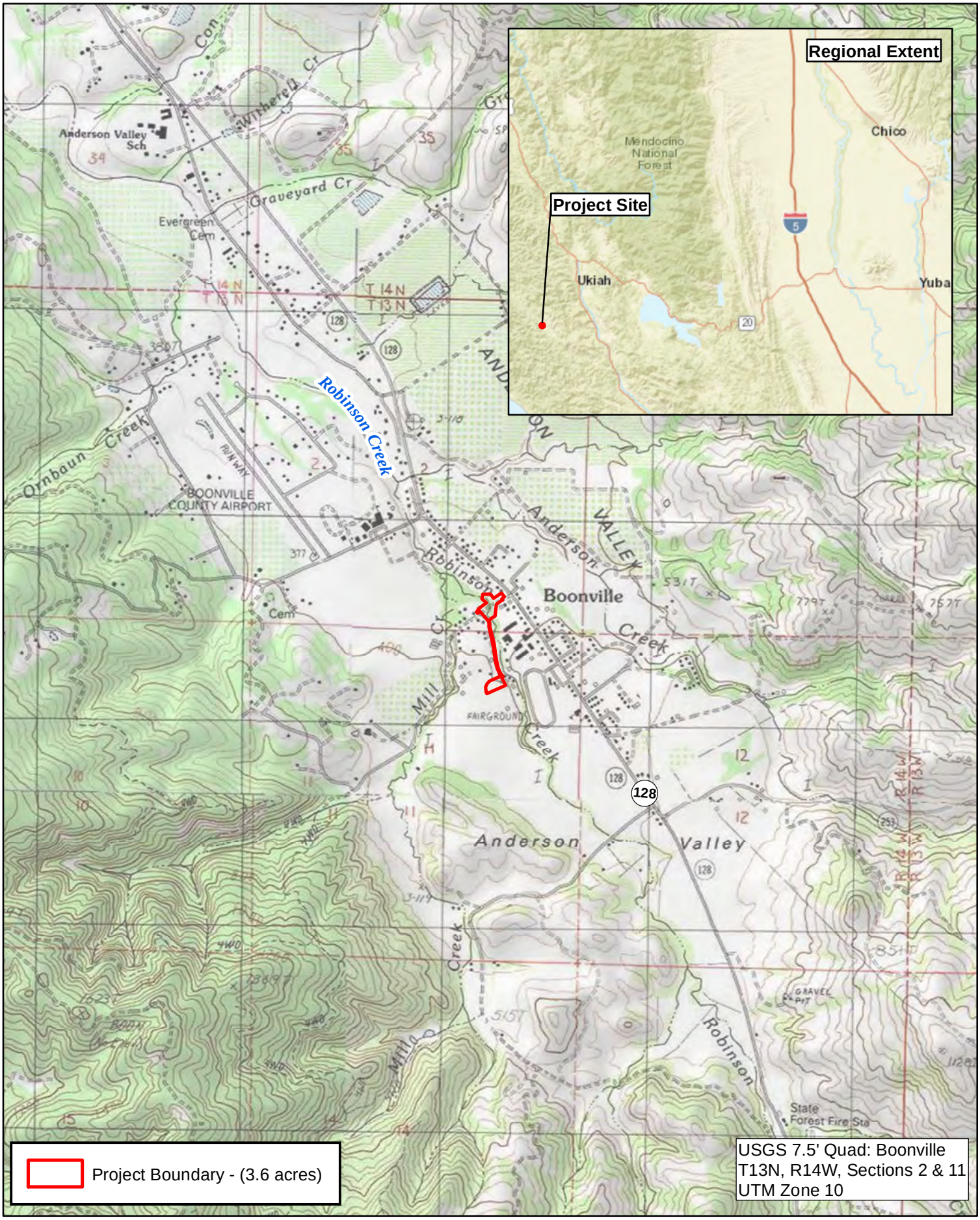
Planted RSP (3,010 sf):
Willow/cottonwood at 5 feet on center = 125 trees
Channel bank and low terrace (1,823 sf):
Native riparian and understory at 3 feet on center = 220 trees
Upper Terrace (725 sf):
Native upland trees, such as oaks = 5-10 trees

STAGING AREAS, RIGHTS OF WAY, AND UTILITIES

The Project staging areas will include portions of the closed roadway at each end of the bridge and the area just southeast of the bridge. If this area is unavailable or not sufficient in size, there is an alternative area off-site at the County Fairgrounds that can also serve as a staging area. Right-of-Way including slope easements, temporary construction easements, permanent maintenance easements, and permanent acquisitions will be required. There are existing overhead electrical and telephone utilities that will need to be relocated. Additionally, there is a storm water concrete pipe that outfalls into the creek that will need to be relocated. Coordination will begin early with PG&E.

CONSTRUCTION EQUIPMENT AND SCHEDULE

It is anticipated that excavators, dozers, cranes, pavers, dump trucks, concrete trucks, concrete pumps, and pile drilling equipment will be required. Construction is anticipated to begin in June 1, 2022 and run through October 31, 2022. In-stream work will occur between June 15th and October 15th when the creek is anticipated to be dry or not flowing.




1:24,000
0 1,000 2,000 Feet
NORTH
Data Sources: ESRI, USGS, Quincy Engineering

Robinson Creek Bridge Replacement Project
Project Vicinity Map
Figure 1

gallaway ENTERPRISES

GE: #15-130 Map Date: 01/31/19

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L. Public Agency Approvals:

1. California Regional Water Quality Control Board − NPDES and §401 Water Quality Certification
2. California Department of Fish and Wildlife − Streambed Alternation Agreement §1602 and an Incidental Take Permit, as appropriate to satisfy California Endangered Species Act requirements
4. U.S. Army Corps of Engineers − Clean Water Act §404 Permit
5. U.S. Fish and Wildlife §7 Endangered Species Act Consultation

M. Regulatory Guidance

This document is an Initial Study, prepared pursuant to the California Environmental Quality Act (CEQA), for the proposed Lambert Lane over Robinson Creek Bridge Replacement Project. This Initial Study has been prepared in accordance with CEQA, Public Resources Code Sections 21000 et seq. and the CEQA Guidelines found in Chapter 14 of the California Code of Regulations (CCR).

An Initial Study is conducted by a lead agency to determine if a project may have a significant effect on the environment. In accordance with CEQA Guidelines Section 15064(a)(1), an environmental impact report (EIR) must be prepared if there is substantial evidence in light of the whole record that the proposed project under review may have a significant effect on the environment. A negative declaration may be prepared if the lead agency finds that there is no substantial evidence, in light of the whole record, that the project may have a significant effect on the environment. A negative declaration is a written statement describing the reasons why a proposed project will not have a significant effect on the environment and, therefore, why the proposed project will not require the preparation of an EIR (CEQA Guidelines Section 15371). Furthermore, CEQA Section 15070 indicates that a public agency shall prepare a proposed negative declaration or mitigated negative declaration for a project subject to CEQA when the initial study has identified significant effects, but:

> (1) Revisions in the project plans or proposals in accordance with the CEQA Guidelines Section 15070(b) made by or agreed to by the applicant before the proposed mitigated negative declaration and initial study is released for public review would avoid the effects or mitigate the effects to a point where clearly no significant effects would occur, and
>
> (2) There is no substantial evidence, in light of the whole record before the agency, that the proposed project as revised may have a significant effect on the environment.

N. Native American Tribal Consultation: Have California Native American tribes traditionally and culturally affiliated with the project area requested consultation pursuant to Public Resources Code section 21080.3.1? If so, has consultation begun?

☐ Yes ☒ No

O. Prepared By:

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Chico, CA 95928

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NOTES:

1. FOR COMPLETE RIGHT OF WAY AND ACCURATE ACCESS DATA, SEE RIGHT OF WAY RECORD MAPS AT THE COUNTY OFFICE.

LEGEND:

- DIRECTION OF TRAFFIC
- SURVEY CONTROL POINT
- (XXX) PAVEMENT DELINEATION DETAIL
- (XXX) DRAINAGE SYSTEM NUMBER
- (XX) DRAINAGE UNIT NUMBER
- DIRECTION OF DITCH FLOW
- LIMITS OF RSP
- OBJECT MARKER (TYPE P)
- REMOVE ROADSIDE SIGN
- ROADSIDE SIGN TO REMAIN
- RESET ROADSIDE SIGN
- (XX-XX) ROADSIDE SIGN (SHEET NUMBER-SIGN NUMBER)
- (XX) CURVE NUMBER

ABBREVIATIONS:

TCE TEMPORARY CONSTRUCTION EASEMENT

SURVEY CONTROL DATA

| No. | NORTHING | EASTING | ELEV | LINE | STATION | OFFSET | DESCRIPTION |
|---|---|---|---|---|---|---|---|
| CP-3 | 2131936.47 | 6172790.35 | 390.11 | "L" | 4+21.22 | 15.12' Rt | - |
| CP-2 | 2132005.08 | 6172852.61 | 387.48 | "L" | 5+10.73 | 12.04' Lt | - |
| CP-91 | 2132029.41 | 6172892.58 | 386.78 | "L" | 5+57.44 | 14.74' Lt | - |

| Dist | COUNTY | ROUTE | POST MILES TOTAL PROJECT | SHEET No. | TOTAL SHEETS |
|---|---|---|---|---|---|
| 01 | Men | XX | XXXXXX | 3 | XX |

REGISTERED CIVIL ENGINEER — XX/XX/XX DATE

65% SUBMITTAL

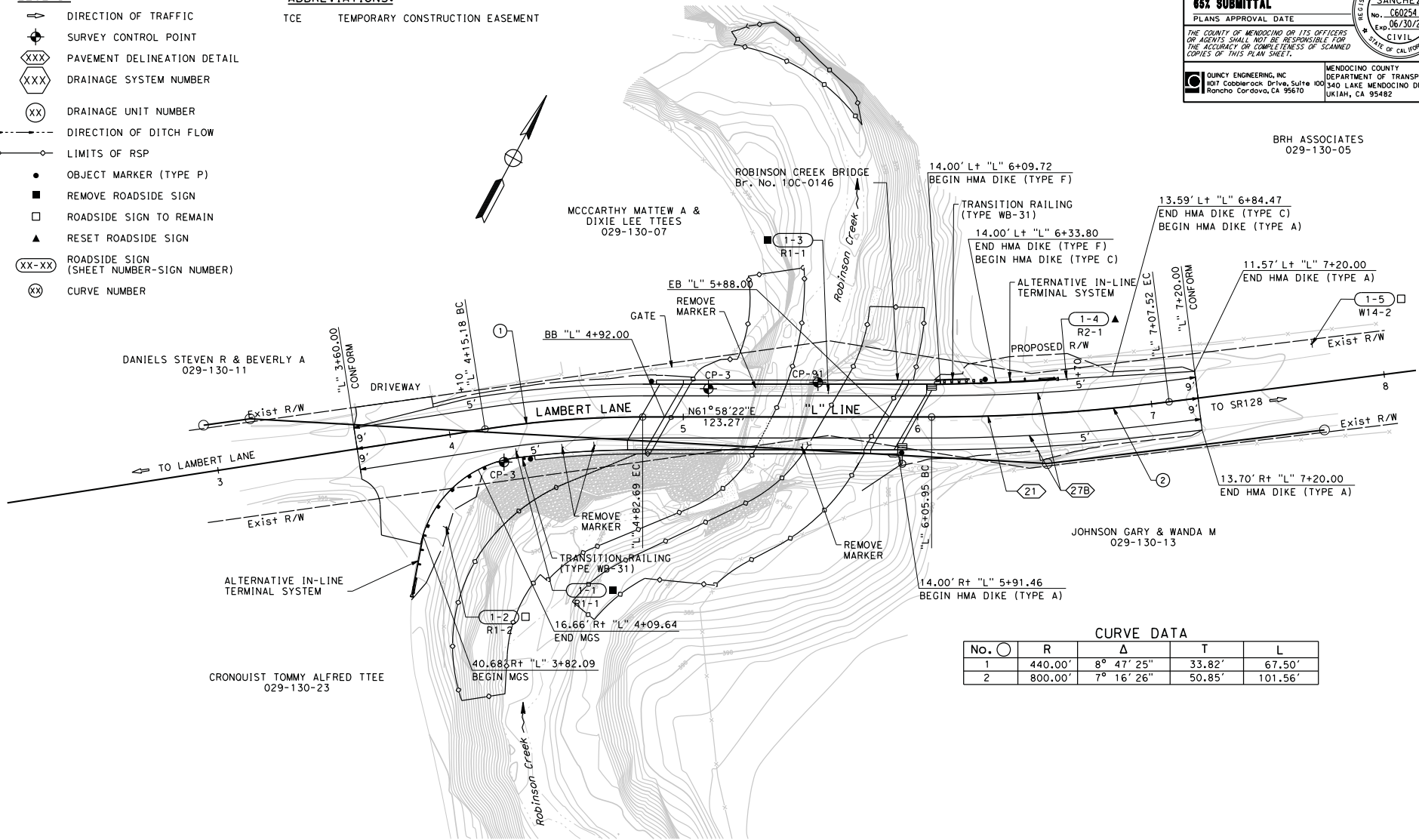
PLANS APPROVAL DATE

MICHAEL A. SANCHEZ, No. C60254, Exp. 06/30/22, CIVIL, REGISTERED PROFESSIONAL ENGINEER, STATE OF CALIFORNIA

THE COUNTY OF MENDOCINO OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

QUINCY ENGINEERING, INC
11017 Cobblerock Drive, Suite 100
Rancho Cordova, CA 95670

MENDOCINO COUNTY
DEPARTMENT OF TRANSPORTATION
340 LAKE MENDOCINO DRIVE
UKIAH, CA 95482




CURVE DATA

| No. ◯ | R | Δ | T | L |
|---|---|---|---|---|
| 1 | 440.00' | 8° 47' 25" | 33.82' | 67.50' |
| 2 | 800.00' | 7° 16' 26" | 50.85' | 101.56' |

# LAYOUT

SCALE: 1"=20'

L-1

| REVISED BY | DATE REVISED |
|---|---|
| A. CASTILLO | M. ELLEDGE |
| CALCULATED-DESIGNED BY | CHECKED BY |
| CONSULTANT FUNCTIONAL SUPERVISOR | JIM FOSTER |

MENDOCINO COUNTY - DEPARTMENT OF TRANSPORTATION

LAST REVISION 00-00-00
DATE PLOTTED => 4/27/2021
TIME PLOTTED => 2:08:41 PM

BORDER LAST REVISED 7/2/2010

USERNAME => Mike.Sanchez
DGN FILE => S:\Client\Mendocino\M10-700 Robinson Creek Bridge\500-Design\505 - CADD Files\MSANCHEZ\ea001.dgn

RELATIVE BORDER SCALE 0 1 2 3

UNIT 0000

PROJECT NUMBER & PHASE 00000000001

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## II. ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED:

The environmental factors checked below could be potentially affected by this project, but, due to the inclusion of specific mitigation measures, will result in impacts that are a "Less Than Significant with Mitigation Incorporated," as indicated by the environmental checklist on the following pages.

| | | |
|---|---|---|
| ☐ Aesthetics | ☒ Greenhouse Gas Emissions | ☐ Public Services |
| ☐ Agriculture and Forestry Resources | ☒ Hazards/Hazardous Materials | ☐ Recreation |
| ☒ Air Quality | ☒ Hydrology/Water Quality | ☐ Transportation |
| ☒ Biological Resources | ☐ Land Use and Planning | ☒ Tribal Cultural Resources |
| ☒ Cultural Resources | ☐ Mineral Resources | ☒ Utilities and Service Systems |
| ☐ Energy | ☒ Noise | ☐ Wildfire |
| ☒ Geology/Soils | ☐ Population/Housing | ☒ Mandatory Findings of Significance |

## III. DIRECTOR DETERMINATION

On the basis of this initial evaluation:

☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

☒ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

☐ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

☐ I find that the proposed project MAY have a potentially significant impact or have a potentially significant impact unless mitigated, but at least one effect has been adequately analyzed in an earlier document pursuant to applicable legal standards, and has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT (EIR) is required, but it must analyze only the effects that remain to be addressed.

☐ I find that although the proposed project could have a significant effect on the environment, there WILL NOT be a significant effect in this case because all potentially significant effects have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards and have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION including revisions or mitigation measures that are imposed upon the proposed project. No further study is required.

Signature — Date: 8/24/21

Howard Dashiell, Director of Transportation County of Mendocino Department of Transportation

Printed Name

## IV. EVALUATION OF ENVIRONMENTAL IMPACTS

- Responses to the following questions and related discussion indicate if the proposed project will have or potentially have a significant adverse impact on the environment.

- A brief explanation is required for all answers except "No Impact" answers that are adequately supported by referenced information sources. A "No Impact' answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g. the project falls outside a fault rupture zone). A "No Impact" answer should be explained where it is based on project-specific factors or general standards.

- All answers must take account of the whole action involved, including off-site as well as on-site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.

- Once it has been determined that a particular physical impact may occur, then the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. "Potentially Significant Impact" is appropriate if there is substantial evidence that an effect may be significant. If there is at least one "Potentially Significant Impact" entry when the determination is made an EIR is required.

- Negative Declaration: "Less than Significant with Mitigation Incorporated" applies when the incorporation of mitigation measures has reduced an effect from "Potentially Significant Impact" to a "Less than Significant Impact." The initial study will describe the mitigation measures, and briefly explain how they reduce the effect to a less than significant level (mitigation measures from Section 4, "Earlier Analysis," may be cross-referenced).

- Earlier analyses may be used where, pursuant to tiering, a program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or negative declaration [Section 15063(c)(3)(D)].

- Initial studies may incorporate references to information sources for potential impacts (e.g. the general plan or zoning ordinances, etc.). Reference to a previously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated. A source list attached, and other sources used or individuals contacted are cited in the discussion.

- The explanation of each issue should identify:
  a. The significance criteria or threshold, if any, used to evaluate each question; and
  b. The mitigation measure identified, if any, to reduce the impact to less than significant.

| A. Aesthetics<br>Except as provide in Public Resources Code Section 21099, would the project or its related activities: | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| 1. Have a substantial adverse effect on a scenic vista? | | | | X |
| 2. Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway? | | | | X |
| 3. In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality? | | | | X |
| 4. Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area? | | | | X |

DISCUSSION:

A.1. No Impact. The Mendocino County General Plan does not designate any scenic vistas in the vicinity of the Project site (Mendocino County 2009). In addition, implementation of the Project would not result in comparably different views from the existing condition. No impact would occur.

A.2. No Impact. There are no officially designated state scenic highways in Mendocino County (Caltrans 2018b). State Route 1 and State Route 20 in Mendocino County are listed as "eligible" for designation as scenic highways; however, these highways are not located within the area of the Project site. No impact would occur.

A.3. No Impact. The project is not located in an urbanized area. Construction could result in short-term effects on the visual character and quality of the Project area typical of construction activities. For example, construction activities would result in temporary ground disturbance, landscape alterations, construction staging areas and the presence of construction vehicles that would be visible. Exposed and disturbed areas of the creek bank and construction area would be re-seeded and mulched, and new vegetation would be replanted. Therefore, because construction related affects would be temporary and typical of construction activities, the temporary impact on visual character and quality would be less than significant.

A.4. No Impact. Project construction would not include nighttime work. Therefore, construction activities would not result in a source of substantial light that would adversely affect nighttime views in the area. In addition, considering the nature of construction activities, equipment, and materials, there would be very little, if any, glare resulting from the Project. These instances of glare would be momentary and passing, depending on sky conditions, and the impact on daytime views in the area would be less than significant. Following construction, the Project would not include new sources of daytime glare or change nighttime lighting and illumination levels in the area. No lighting is proposed, and centerline and fog line striping would not produce glare in amounts that would adversely affect day or nighttime views. No impact would occur.

MITIGATION: None required.

| B. Agriculture and Forest Resources: In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the project: | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| 1. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use? | | | | X |
| 2. Conflict with existing zoning for agricultural use, or a Williamson Act contract? | | | | X |
| 3. Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code Section 4526, or timberland zoned Timberland Production (as defined by Government Code section 51104(g))? | | | | X |
| 4. Result in the loss of forest land or conversion of forest land to non-forest use? | | | | X |
| 5. Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use? | | | | X |

DISCUSSION:

The project is located in a rural area of County jurisdiction. There are no lands designated as Prime farmland in the project area as defined by the Farmland Mapping and Monitoring Program (FMMP). Similarly there are no parcels within the project area that have Williamson Act contracts. See Appendix A Farmlands Study for the Robinson Creek Bridge Replacement on Lambert Lane Project.

B.1. No Impact. According to mapping compiled by the California Department of Conservation (CDC), Division of Land Resource Protection, and the *Farmlands Study for the Robinson Creek Bridge Replacement on Lambert Lane Project* memo the Project site is located in an area mapped as "Grazing Land" and "Urban and Built-Up Land" (CDC 2016). The Project site is not located on land mapped as prime farmland, unique farmland, or farmland of statewide or local importance. No impact would occur.

B.2 - B.-4. No Impact.. According to the Mendocino County Zoning Ordinance, the lands surrounding the Project area are zoned Rural Community (RC) and Public Facility (PF). The RC district is described

as being intended to maintain and enhance existing rural communities where a mixture of residential, commercial, and limited industrial uses are desired. The PF district is described as being intended to maintain land for public purposes or for specified public utility purposes. The proposed project in light of these land uses would not conflict with existing zoning. The Project would be consistent with zoning designations and would not cause a change in land use patterns, as the Project would consist of an in-kind replacement of an existing public structure involving negligible or no expansion of use. Neither construction nor operation of the Project would conflict with zoning regulations for agricultural use, forest land, result in the loss of forest land, or result in the conversion of forest land to non-forest use. Additionally, the Project site is not located on land enrolled in Williamson Act contracts (CDC 2017). No impact would occur.

B.5 No Impact: The Project would consist of an in-kind replacement of an existing public structure involving negligible or no expansion of use. The Project would not cause, or is intended to cause, a change in land use patterns which would convert farmlands or forestlands. The Project would have no impact on conversion of farmland or forest land to non-agricultural or non-forest use.

MITIGATION: None required.

| C. Air Quality<br>Where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to make the following determinations. Would the project: | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| 1. Conflict with or obstruct implementation of the applicable air quality plan? | | X | | |
| 2. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard? | | X | | |
| 3. Expose sensitive receptors to substantial pollutant concentrations? | | X | | |
| 4. Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people? | | | X | |

DISCUSSION:

The Project site is located within the Inland Rural Mendocino County sub-basin of the North Coast Air Basin, which is within the jurisdiction of the Mendocino County Air Quality Management District (MCAQMD). The Inland Rural Mendocino County sub-basin, like the rest of Mendocino County, is designated as a nonattainment area for the State particulate matter ($PM_{10}$) standard (ARB 2017). The sub-basin is in attainment for all other State standards and for all Federal criteria air pollutants (ARB 2017, U.S. EPA 2018). According to the MCAQMD's Particulate Matter Attainment Plan (MCAQMD 2005), the primary man-made sources of $PM_{10}$ pollution in the North Coast Air Basin are wood combustion (woodstoves, fireplaces and outdoor burning), fugitive dust, and automobile traffic. Some of the automobile emissions are the result of "pass-though" traffic on US Highway 101 because of its nature as the major transportation corridor in this part of the State.

CEQA Thresholds

On June 3, 2010, the MCAQMD Air Pollution Control Officer issued new CEQA guidance which requested that Planning agencies and consultants use the Bay Area Air Quality Management District (BAAQMD) CEQA Thresholds adopted on May 28th, 2010, to evaluate air quality impacts, with clarifications provided in 2013 (MCAQMD 2010, MCAQMD 2013). The BAAQMD thresholds have subsequently been updated, with the last major revision completed in May 2017.

The BAAQMD CEQA Thresholds were subsequently invalidated by a trial court because the BAAQMD itself did not do a CEQA evaluation of the Thresholds before their adoption. The Court, however, did not rule on or question the adequacy of the BAAQMD Air Quality CEQA Guidelines, including the impact assessment methodologies, or the evidentiary basis supporting the Thresholds, which are included in the Guidelines.

Therefore, the following air quality analysis utilizes in part the impact assessment methodologies presented in the BAAQMD Air Quality CEQA Guidelines.

C.1. Less Than Significant With Mitigation Incorporated. The California Clean Air Act of 1988 requires that any air district that does not meet the PM10 standard make continuing progress to attain the standard at the earliest practicable date. In response to this requirement, the MCAQMD adopted a Particulate Matter Attainment Plan in 2005 (MCAQMD 2005), which includes a description of local air quality, the sources of local PM emissions, and recommended control measures to reduce future PM levels. Control measures recommended in the Attainment Plan include measures related to woodstoves, campgrounds, unpaved roads, construction and grading activities, new residential development, and open burning emissions.

Construction activities associated with the Project would include site preparation (e.g., demolition, clearing/grubbing), grading, excavation, bridge construction, and asphalt paving. The types of air

pollutants generated by these activities are typically nitrogen oxides and particulate matter, such as dust and exhaust. Because construction activities could temporarily increase levels of $PM_{10}$ in a region designated as nonattainment for $PM_{10}$, the impact is considered significant.

Mitigation Measure AQ-1: Dust Control Measures
In accordance with Rule 1-430(b) of the Mendocino County Air Quality Management District Regulations, the County of Mendocino and its Contractor shall implement the following airborne dust control measures during construction activities:

- All visibly dry disturbed soil road surfaces shall be watered to minimize fugitive dust emissions.
- All unpaved surfaces, unless otherwise treated with suitable chemicals or oils, shall have a posted speed limit of 10 miles per hour.
- Earth or other material that has been transported by trucking or earth moving equipment, erosion by water, or other means onto paved streets shall be promptly removed.
- Asphalt, oil, water, or suitable chemicals shall be applied on materials stockpiles and other surfaces that can give rise to airborne dusts.
- All earthmoving activities shall cease when sustained winds exceed 15 miles per hour.
- The operator shall take reasonable precautions to prevent the entry of unauthorized vehicles onto the site during non-work hours.
- The operator shall keep a daily log of activities to control fugitive dust.

With implementation of Mitigation Measure AQ-1, construction activities would not conflict with or obstruct implementation of the 2005 Particulate Matter Attainment Plan. The impact following mitigation would be less than significant

C.2. Less Than Significant With Mitigation Incorporated. The Project site is located in an area that is in attainment for all criteria air pollutants, except for PM10. By its nature, air pollution is largely a cumulative impact, in that individual projects are rarely sufficient in size to result in nonattainment of ambient air quality standards. Instead, a project's individual emissions may contribute to cumulative adverse air quality impacts.

The BAAQMD's CEQA guidelines and thresholds, which the MCAQMD uses as CEQA guidance, includes screening criteria to provide lead agencies with a conservative indication of whether a Project could result in potentially significant air quality impacts. According to the guidelines, if a project's characteristics (i.e., square footage, acreage, number of dwelling units) are less than associated screening criteria, then the lead agency does not need to perform a detailed air quality assessment of the Project's air pollutant emissions and a less-than-significant impact would occur (BAAQMD 2017).

For construction activities, several different screening criterions are recommended by the BAAQMD relative to air pollutant emissions (i.e., reactive organic gases [ROG], $NO_X$, $PM_{2.5}$, and $PM_{10}$). For example, detailed air quality assessments are not required for construction of projects such as single family residential developments comprised of less than 114 dwelling units, City parks that are less than 67 acres in size, and construction of office and commercial buildings that are less than 277,000 square feet (BAAQMD 2017).

The MCAQMD CEQA thresholds do not include specific screening criteria for bridge replacement and roadway improvement projects. However, when one compares the screening criteria established for the types of projects described above, it is reasonable to assume that the areal extent of construction activities associated with the bridge replacement project would be substantially less and does not warrant a detailed air quality assessment. The Project, for example, would be conducted during one construction season (i.e., approximately four months) and the total construction disturbance area is estimated to be 0.5 acre (i.e., 21,780 square feet) – well below the screening criteria. Therefore, given the temporary nature of the Project's construction phase and the scale of the Project it is not anticipated that construction activities would result in a cumulatively considerable net increase of $PM_{10}$. The short-term impact would be less than significant. Additionally, dust control measures required by Mitigation Measure AQ-1 would further minimize fugitive dust and emissions during construction.

Following construction, the Project would not result in a new stationary source of emissions and the roadway widening would not increase the vehicle capacity of Lambert Lane (i.e., no additional travel lanes along either side of the new bridge are proposed). Therefore, the Project would not result in any

new mobile pollutant emissions and would not result in a cumulatively considerable increase in $PM_{10}$ emissions. No long-term impact would occur.

C.3. Less Than Significant With Mitigation Incorporated. The project will generate short-term construction related emissions associated with equipment used for construction activities. These emissions would contain ozone precursors, $PM_{10}$ and $PM_{2.5}$. Additional particulate matter emissions in the form of fugitive dust could be generated during ground disturbing activities for vegetation removal and placement of abutments and rock slope protection.

There are two residences in the vicinity to the project area. Both residential dwellings exists over 1,000 ft. from the project site. Project activities consist of removal of the current structure and replacement with a new bridge structure as well as roadway approach work. There are no schools, hospitals, or other sensitive receptors in the area and no substantial pollutant concentrations are anticipated to occur. Temporary construction activities would result in particulate emissions in an area designated as non-attainment.

The proposed project would not result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard. Each of the above impacts are temporary, local, and construction related.

Existing structures that will be impacted by project demolition are constructed of materials having the potential to contain asbestos. Concrete bridge components piers, footings, abutments, deck and concrete pipes storm drain could potentially contain asbestos. Asbestos containing material (ACM), as defined in the California Code of Regulations, Title 8, Section 1529 of the Construction Safety Orders, can be present in construction materials such as bridge joint seals, bearing pads, shims, deck drains or other less obvious materials such as pipe conduits for utilities. Federal regulations require a Certified Asbestos Consultant make definitive conclusions regarding the presence of ACM. Under the federal asbestos National Emissions Standards for Hazardous Air Pollutants regulations (NESHAP, 40 CFR Part 61, Subpart M), a Certified Asbestos Consultant (CAC) must make definitive conclusions regarding the presence of asbestos containing materials (ACM). The requirement for a Certified Asbestos Consultant to address the potential presence of asbestos containing materials is included in Mitigation Measure Haz-1 (Section I Hazards and Hazardous Materials). A Preliminary Foundation Report prepared for the Project included the review of geologic units underlying the project site. Ultramafic rocks, including serpentinite are not mapped by the California Division of Mines and Geology for the project site.

The incorporation of Mitigation Measure AQ-1 and HAZ-1 would reduce impacts associated with PM10 to and asbestos containing material to a less than significant level.

C.4. Less Than Significant Impact Construction activities could result in short-term odors, such as diesel exhaust from construction equipment. Such odors would be temporary, occurring only during the construction period, and would disperse rapidly. Therefore, construction would not create objectionable odors affecting a substantial number of people. Following construction, there would be no features included in the Project that would, by their nature or design, result in a new source of odors. No impact would occur.

MITIGATION REQUIRED: Mitigation Measures AQ-1: Dust Control Measures and HAZ-1: Hazardous Material Screening.

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

DISCUSSION:

A Natural Environment Study (NES) was prepared by Gallaway Enterprises in December 2020 (Appendix C). The purpose of the NES is to document the current endangered, threatened, sensitive and rare species, and their critical habitats that occur in the biological survey area (BSA) of the project. The BSA includes the project site, staging and access areas, as well as upstream and downstream portions of Robinson Creek so that indirect effects on special status species could be identified. Primary references consulted include species lists and information gathered using the United States Fish and Wildlife Service (USFWS) Information, Planning, and Conservation System (IPaC), California Department of Fish and Wildlife's (CDFW) California Natural Diversity Database (CNDDB), the California Native Plant Society's (CNPS) list of rare and endangered plants, National Marine Fisheries Service (NMFS) species list and literature review. A Draft Delineation of Jurisdictional Waters of the United States was also prepared for the project is in September 2020 by Gallaway Enterprises (Appendix D). The surveys involved an examination of botanical resources, soils, hydrological features, and determination of wetland characteristics based on the United States Army Corps of Engineers (USACE) Wetlands Delineation Manual (Environmental Laboratory 1987) and other current regulations, manuals and interpretations of jurisdiction currently in effect.

The project site contains the habitat types of valley foothill riparian, riverine, annual grassland, urban

and barren. The riverine habitat is associated with Robinson Creek which traverses the project site. Annual grassland exists in a disturbed state as small patches of openings amongst tree canopy within the area round the bridge and is the dominant habitat type in the proposed offsite staging area. Barren habitats are comprised of the existing roadway, and gravel road shoulders. Urban habitats within the project site consist of residential home sites and associated landscaping.

Robinson Creek is NMFS designated a critical habitat for Central California Coastal Coho salmon Environmentally Significant unit (ESU) and Northern California steelhead Distinct Population Segment (DPS). There are no CDFW designated natural communities of species concern within or adjacent to the BSA.

Special-Status Plant Species

A protocol-level botanical survey was conducted on June 29, 2018 for a total of 13 of the special-status plant species identified on the USFWS, CNPS, and CNDDB lists which have a blooming period that overlapped with the survey date. No special-status plant species were observed during the protocol-level survey. Further, a habitat assessment was conducted within the BSA on June 29, 2018 for all remaining special-status plant species identified on the CNPS and CNDDB lists. Due to the lack of vernal, marsh or seep wetland habitat and volcanic, rocky or serpentine soils, none of these special-status plant species were determined to have potential to occur within the BSA. As such, the Project is not expected to have any effect on special-status plant species. Refer the Natural Environment Study (Appendix C) for details of botanical surveys and results.

Special-Status Animal Species

Eight special status animal species were found to have potential to be present in the Project area. Northern California steelhead, Central California Coastal Coho salmon, Navarro roach, California red-legged frog, foothill yellow-legged frog, western pond turtle, migratory birds and raptors and pallid bat have the potential to occur within the Project site.

D.1. Less Than Significant with Mitigation Incorporated. Special-status species are plant and wildlife species that are legally protected under the Federal Endangered Species Act (FESA), California Endangered Species Act (CESA) or other State regulations, and/or species that are considered sufficiently rare by the scientific community to warrant conservation concern. There are eight special-status animal species that have a moderate to high potential to be present in the Project area. Project impacts to special-status species are presented below.

Northern California Steelhead

The NC steelhead DPS is considered threatened under the federal ESA. They rely on streams, rivers, estuaries and marine habitat during their lifecycle. Because young steelhead spend a significant portion of their lives in rivers and streams, they are particularly susceptible to human induced changes to water quality and habitat threats. Steelhead spawn in streams and rivers, steelhead rear in freshwater for 1 to 4 years before migrating downstream through estuaries to the open ocean. Steelhead spend 1 to 5 years at sea before returning to natal streams or rivers. Steelhead do not always die after spawning, but will again migrate through estuaries to the ocean.

Survey Results

The stretch of Robinson Creek that occurs in the BSA contains suitable habitat for steelhead when water is present during winter and spring months. Additionally, Robinson Creek has been designated as critical habitat for NC steelhead DPS (Figure 8: NC Steelhead and CCC Coho Salmon Critical Habitat). During the June site visit, Robinson Creek was dry with the exception of a few small shallow pools. Although there is no spawning habitat present, the BSA does offer suitable steelhead migration/emigration and non-natal rearing habitat during the late fall through late spring months (i.e. November 1 – May 31) when water levels are high and water temperatures are cool. When winter flows are adequate, the BSA provides suitable migration/emigration habitat for juvenile and adult steelhead. During the summer months (i.e. June 1 – October 31), the intermittent hydrology, still water, and warm temperatures make Robinson Creek within the BSA unsuitable habitat for any lifestage of salmonid including steelhead. Typically Robinson Creek is dry from June 15 – October 15. Therefore, if the BSA contains water between June 1 and October 31 then there is a potential for non-natal juveniles to be present. There is potential for NC steelhead to become stranded within the BSA in isolated pools like the ones observed during the site visit.

Northern California Steelhead Project Impacts

Project impacts include the potential for construction activities to occur in designated NC steelhead habitat. It should be noted that the Project will restore access to 0.25 acres of critical habitat within the BSA and the proposed stream restoration will have a beneficial effect on critical habitat. If water is present within the BSA, fish relocation will be conducted by a qualified biologist prior to the start of construction activities in the streambed. A clear water diversion shall be installed if needed. Therefore, the Project may impact NC steelhead DPS through potential relocation and Mitigation Measure BIO-1 is required. Implementation of this mitigation measure will result in impacts that are less than significant with mitigation incorporated.

Mitigation Measure BIO-1: Avoid Impacts to Special-Status Fish Species

- Construction within Robinson Creek will be limited to June 15 through October 15, or as permitted by regulatory agencies.
- If flowing water is present within the BSA between June 15 and October 15 then a clear water diversion using an appropriately sized culvert and sandbags will be installed. A qualified biologist shall monitor the construction site during placement and removal of stream diversions to ensure that any harm or loss of salmonids is minimized and documented.
- If water is present within the Project site between June 15 and October 15, then a qualified biologist will perform fish relocation prior to the start of construction activities.
    - The qualified biologist with expertise in the areas of anadromous salmonid biology, including handling, collecting, and relocating salmonids; salmonid habitat relationships; and biological monitoring shall perform fish relocation. Fish relocation will be performed in a manner which minimizes all potential risks to NC steelhead.
    - Electrofishing, if used, shall be performed by a qualified biologist and conducted according to the NMFS Guidelines for Electrofishing Waters Containing Salmonids Listed under the Endangered Species Act.
- Installation of LWD will be anchored to bank at the inside bend in the upstream right bank between station 29+60 and 31+100, and on the downstream left bank around station 28+00 to create fish habitat.
- Removal of the existing rubble and reconfiguring of the RSP that covers the creek bottom and restoring the channel to a more natural condition to promote fish passage. This will involve removing a current barrier to steelhead at the existing failed retaining wall, thereby restoring access to habitat for steelhead upstream of the bridge.

Northern California Steelhead and Central California Coast Coho Salmond Critical Habitat

Survey Results

Robinson Creek within the BSA is designated as critical habitat for NC steelhead and CCC Coho salmon ESU. When water is present in Robinson Creek, the following Primary Constituent Elements (PCEs) are present within the BSA:

- Freshwater spawning sites with water quantity and quality conditions and substrate supporting spawning, incubation and larval development.
- Freshwater rearing sites with water quantity and floodplain connectivity to form and maintain physical habitat conditions and support juvenile growth and mobility; water quality and forage supporting juvenile development; and natural cover such as shade, submerged and overhanging large wood, log jams and beaver dams, aquatic vegetation, large rocks and boulders, side channels, and undercut banks.
- Freshwater migration corridors free of obstruction with water quantity and quality conditions and natural cover such as submerged and overhanging large wood, aquatic vegetation, large rocks and boulders, side channels, and undercut banks supporting juvenile and adult mobility and survival.

Project Impacts

Critical habitat for salmonids will be affected by the proposed action through stream restoration activities and the placement of RSP within the creek with live willow staking that penetrates the rock layers and allows rooting into the native bank soils. Proposed hybrid RSP revetment within the portions of Robinson Creek currently accessible to salmonids will result in approximately 93.1 linear feet (0.01 acres) of permanent impacts and temporary impacts of 201.6 linear feet (0.14 acres) to the stream. This is considered a potentially significant impact that requires mitigation. Therefore, the Project may impact

salmonid habitat during construction activities and Mitigation Measure BIO-2 is required. Implementation of this mitigation measure will result in impacts that are less than significant with mitigation incorporated.

Mitigation Measure BIO-2: Salmonid Habitat Restoration and Enhancement
The following measures, when implemented, will avoid and minimize impact to this species:

- All work within Robinson Creek will occur between June 15 and October 15 when PCEs are not present within the BSA. If water is present within the BSA then fish relocation will be conducted by a qualified biologist prior to the start of construction.
- The existing rubble from the failed retaining wall and RSP, will be removed from the creek channel and the channel will be restored to a more natural condition to promote fish passage.
- In addition to the willow plantings contained within the hybrid RSP revetment, native vegetation will be planted on the graded point bars on the inside of the channel bends. This vegetation should include native riparian tree species, as well as understory plants.
- The Project will create a terrace behind the RSP adjacent to the road embankment at the southern bridge approach. This terrace will be used to plant upland tree species, such as native oaks and function as a stormwater treatment facility.
- Installation of LWD will be anchored to bank at the inside bend in the upstream right bank between station 29+60 and 31+100, and on the downstream left bank around station 28+00 to create fish habitat.
- A landscape architect or botanist shall be retained to develop a plan to harvest cutting stock, design a planting plan, replant and monitor for success the replanting of approximately 125 willow/cottonwood trees. 220 native riparian trees and 5-1- native upland trees to restore the riparian habitat and associated essential fish habitat. The plan shall be implemented and monitored for success.

Navarro Roach
Navarro roach are capable of adapting to varying habitats from coastal streams to mountain foothill streams. They are predominately found in small warm streams but are capable of thriving in larger colder streams with diverse conditions. They may actually occupy several different habitat types within a single drainage. Extreme tolerance includes temperatures ranging from 30-35ºC and dissolved oxygen levels as low as 1-2 ppm. In-stream location may vary depending on geography and predators. When Navarro roach share water with Sacramento pikeminnows, roach will stick to the stream margins, whereas in the absence of these piscivorous fish roach may venture into deeper pools. Navarro roach are omnivorous and diet may depend on stream size and food availability. In smaller rivers, roach feed mostly on filamentous algae, supplementing their diet with crustaceans and insects. In larger rivers these fish may focus on a diet of aquatic insects year round. The growth and development of Navarro roach is largely seasonally dependent. Most growth occurs during the summer months and roach may grow 20-40 mm in a year. Most fish of this species reach sexual maturity at age 2-3 and rarely live beyond three years total. Spawning occurs in March through early July, and timing is temperature dependent. Navarro roach breed in gravel beds or riffles where groups of females lay eggs on and into the substrate. One or two males follow each female closely to fertilize the groups of eggs. Each female may produce 250-2,000 eggs per year depending on body size. The eggs hatch in 2-3 days, but the larvae remain in the protection of the gravel substrate before emerging to swim.

Survey Results
The stretch of Robinson Creek that occurs in the BSA contains suitable habitat for Navarro roach when there is flowing water present during the winter and spring months. During the June site visit, Robinson Creek was dry with the exception of a few small shallow, isolated pools. There is potential for Navarro roach to become stranded within the isolated pools such as those observed during the site visit.

Project Impacts
Construction activities will occur in Robinson Creek. Channel restoration activities will result in a net increase in both enhanced fish habitat and improved fish passage throughout the BSA. Due to the potential for impacts to Navarro roach, mitigation is required. To ensure impacts to Navarro roach from the proposed Project are avoided, Mitigation Measure BIO-3 is required to ensure a less than significant impact with mitigation incorporated.
Mitigation Measure BIO-3: Navarro Roach Avoidance

- Construction in Robinson Creek will be limited to June 15 through October 15, or as permitted by regulatory agencies

- If flowing water is present within the BSA between June 15 and October 15 then a clear water diversion using an appropriately sized culvert and sandbags will be installed. A qualified biologist shall monitor the construction site during placement and removal of stream diversions to ensure that any harm or loss of aquatic life is minimized and documented.
- If water is present within the Project site between June 15 and October 15, then a qualified biologist will perform fish relocation prior to the start of construction activities.
    - The qualified biologist with expertise in the areas of fisheries biology, including handling, collecting, and relocating fish; fish habitat relationships; and biological monitoring shall perform fish relocation. Fish relocation will be performed in a manner which minimizes all potential risks to Navarro roach.
    - Electrofishing, if used, shall be performed by a qualified biologist and conducted according to the NMFS Guidelines for Electrofishing Waters Containing Salmonids Listed under the Endangered Species Act.
- Installation of LWD will be anchored to bank at the inside bend in the upstream right bank between station 29+60 and 31+100, and on the downstream left bank around station 28+00 to create fish habitat.
- The existing rubble from the failed retaining wall and RSP will be removed from the creek channel and the channel will be restored to a more natural condition to promote fish passage.
- In addition to the willow plantings contained within the hybrid RSP revetment, native vegetation will be planted on the graded point bars on the inside of the channel bends. This vegetation should include native riparian tree species, as well as understory plants.
- The Project will create a terrace behind the RSP adjacent to the road embankment at the southern bridge approach. This terrace will be used to plant upland tree species, such as native oaks and function as a stormwater treatment facility.

California Red-Legged Frog

California Red-Legged Frog (CRLF) (Rana draytonii) is federally threatened and is a species of special concern in California. The CRLF is the largest native frog in California, with adults obtaining a length of 3 to 5 inches. Adult CRLF have prominent dorsolateral folds, dark spots, a bright red dorsum, and a well-defined stripe running along the upper lip. This species is primarily aquatic and most active during the night occupying perennial water sources such as streams, springs, lakes, marshes, natural and manmade ponds, and ephemeral drainages. During the breeding season, which typically runs from November through April, males call to females from the margins of ponds and slow streams (Jennings et al. 1992). Mating most commonly occurs in February or March, but can vary depending on seasonal climatic patterns. The female lays a jellylike mass of 2,000 to 5,000 reddish brown eggs in the water attached to emergent vegetation, twigs, or other structure. The resulting tadpoles, which likely feed on algae, typically require about 3 weeks to hatch, and another 11 to 20 weeks to metamorphose into juvenile frogs. Metamorphosis, therefore, typically occurs from July to September, although some tadpoles have been observed to delay metamorphosis until the following March or April. Adults are predominantly nocturnal, while juveniles can be active at any time of day.

Survey Results

There were no life stages of California red-legged frog observed during the site visit and no suitable breeding habitat was present within the BSA. There are no known occurrences of CRLF within 5 miles of the BSA. Also, during the June site visit, Robinson Creek was dry with the exception of a few small shallow pools. As such, Robinson Creek does not contain the necessary hydrologic regime required by CRLF for year-round occupancy.

Project Impacts

Due to the intermittent nature of Robinson Creek, there is no suitable breeding habitat for CRLF within the BSA. As such, the Project will have no impacts on CRLF and no avoidance, minimization or mitigation measures are required.

Foothill Yellow-Legged Frog

The foothill yellow legged frog northwest / north coast clade (FYLF, Rana boylii) is listed as a SSC. It is a gray to olive colored frog with occasional mottling or spots, and lacks a dorsolateral fold common in California Red-Legged Frog or eye strip common in Northern Pacific tree frogs (Pseudacris regilla). The FYLF range includes the coast ranges of Oregon south to Los Angeles County, in northern California west of the Cascade crest, and along the west side of the Sierra Nevada range as far south as Kern County. The FYLF has been found in a variety of habitats. Those habitats that have been found most suitable

based on the majority of occurrences include a running perennial water source such as rocky rivers and step rocky tributaries. They have also been found in ephemeral streams, intermittent streams, and perennial ponds. Boulders and large cobble play an important role in the FYLF habitat and life history. FYLFs utilize boulders and large cobble in streams for areas of refuge from predators, basking, depositing eggs and cover during periods of inactivity such as over wintering or cold weather. Breeding season begins at the end of the spring flood season, which can be between March and May depending on local conditions. Breeding and egg laying occur in streams with running water and do not occur in ponds or lakes which are common for most ranids (true frogs). Current threats facing FYLF are primarily due to invasive and exotic predators such as the bullfrog (Rana catesbeiana) and centrarchid fish. Other threats include degradation of habitat, hydroelectric development, urban development, agriculture, and timber harvests (Zeiner, D.C. et al. 1990).

Survey Results

The stretch of Robinson Creek that occurs in the BSA contains suitable habitat for FYLF and there is a known CNDDB occurrence of FYLF approximately 0.5 miles downstream of the BSA (Occurrence # 467) within Anderson Creek near its confluence with Rancheria Creek. This occurrence was last observed in 2004 at the SR 128 bridge over Anderson Creek. However, during the June site visit, Robinson Creek was dry with the exception of a few small shallow, isolated pools. As such, Robinson Creek only contains suitable habitat for FYLF when there is flowing water present in the creek in the winter and spring months.

Project Impacts

Construction activities will occur in Robinson Creek, and have the potential to impact FYLF if present. This is considered a potentially significant impact that requires mitigation. To ensure impacts to FYLF are avoided, Mitigation Measure BIO-4 is required. Implementation of this mitigation measure will result in impacts that are less than significant with mitigation incorporated.

Mitigation Measure BIO-4: Foothill Yellow Legged Frog

The following measures when implemented will minimize impacts to this species:

- Construction within Robinson Creek will be limited to June 15 through October 15, during periods of low flows.
- A qualified biologist shall conduct a preconstruction survey to determine presence of FYLF immediately prior to the start of in-channel work. If found, FYLF will be relocated to suitable habitat outside of the BSA, by a qualified biologist.
- Contractor shall not use plastic monofilament netting which can entrap the FYLF.
- The existing rubble from the failed retaining wall and RSP will be removed from the creek channel and the channel will be restored to a more natural condition.
- In addition to the willow plantings contained within the hybrid RSP revetment, native vegetation will be planted on the graded point bars on the inside of the channel bends. This vegetation should include native riparian tree species, as well as understory plants.
- The Project will create a terrace behind the RSP adjacent to the road embankment at the southern bridge approach. This terrace will be used to plant upland tree species, such as native oaks and function as a stormwater treatment facility.

Western Pond Turtle

The western pond turtle is a SSC in California. Western pond turtles are drab darkish colored turtles with a yellowish to cream colored head. They range from the Washington Puget Sound to the California Sacramento Valley. Suitable aquatic habitats include slow moving to stagnant water, such as back waters and ponded areas of rivers and creeks, semi-permanent to permanent ponds and irrigation ditches. Preferred habitats include features such as hydrophytic vegetation, for foraging and cover, and basking areas to regulate body temperature. In early spring through early summer, female turtles begin to move over land in search for nesting sites. Eggs are laid on the banks of slow moving streams. The female digs a hole approximately four inches deep and lays up to eleven eggs. Afterwards the eggs are covered with sediment and are left to incubate under the warm soils. Eggs are typically laid between March and August. Current threats facing the western pond turtle include loss of suitable aquatic habitats due to rapid changes in water regimes and removal of hydrophytic vegetation.

Survey Results

The stretch of Robinson Creek that occurs in the BSA contains suitable habitat for western pond turtles. However, during the June site visit, Robinson Creek was dry with the exception of a few small shallow pools. As such, Robinson Creek only contains suitable habitat for western pond turtles when there is flowing water present in the creek in the winter and spring months. Given the steep banks and abundance of cobble substrate there is no potential for western pond turtle nests to occur within the BSA.

Project Impacts

The Project has potential to impact western pond turtles through activities that may disturb aquatic habitat. This is considered a potentially significant impact that requires mitigation. To ensure impacts to western pond turtle are avoided, Mitigation Measure BIO-5 is required. Implementation of this mitigation measure will result in impacts that are less than significant with mitigation incorporated.

Mitigation Measure BIO-5: Western Pond Turtle

The following are avoidance and minimization measures required in order to avoid and minimize potential impacts to western pond turtles.

- A qualified biologist shall conduct a preconstruction survey to determine presence of western pond turtle immediately prior to the start of in-channel work. If found, western pond turtles will be relocated to suitable habitat outside of the BSA by a qualified biologist.
- If a western pond turtle is observed within the Project site, then personnel shall stop work within a 50-foot radius of the sighting and notify the biologist or resident engineer (RE). Work shall not resume within the 50-foot radius buffer until the western pond turtle has left the Project site on its own volition or has been relocated by the qualified biologist.

Migratory Birds and Raptors

Nesting birds are protected under the MBTA (16 USC 703) and the CFGC (3503). The MBTA (16 USC §703) prohibits the killing of migratory birds or the destruction of their occupied nests and eggs except in accordance with regulations prescribed by the USFWS. The bird species covered by the MBTA includes nearly all of those that breed in North America, excluding introduced (i.e. exotic) species (50 Code of Federal Regulations §10.13). Activities that involve the removal of vegetation including trees, shrubs, grasses, and forbs or ground disturbance has the potential to affect bird species protected by the MBTA.

The CFGC (§3503.5) states that it is "unlawful to take, possess, or destroy any birds in the order Falconiformes (hawks, eagles, and falcons) or Strigiformes (all owls except barn owls) or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by this code or any regulation adopted pursuant thereto." Take includes the disturbance of an active nest resulting in the abandonment or loss of young. The CFGC (§3503) also states that "it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by this code or any regulation made pursuant thereto."

Survey Results

No active nests of any migratory bird or raptor species were observed during the biologist's field visit, however, the BSA contains vegetation and habitat that have the potential to support nesting migratory birds and raptors. Construction is proposed to occur outside of the avian nesting season, thus minimizing impacts to all avian bird species. A pre- construction survey is recommended if construction is delayed into the avian breeding season (February 1 – August 31) to determine potential locations of active avian species nests within or in close proximity of the BSA.

Project Impacts

Construction and vegetation clearing activities have the potential to impact nesting and migratory birds if present. This is considered a potentially significant impact that requires mitigation. To ensure impacts to nesting and migratory birds are avoided, Mitigation Measure BIO-6 is required. With the implementation of avoidance and minimization measures specified above there will be no impacts to avian species of special concern or avian species protected under the MBTA and CFGC.

Mitigation Measure BIO-6: Migratory Birds and Raptors

To avoid impacts to avian species of special concern or avian species protected under the MBTA and the CFGC, the following avoidance and minimization measures are recommended.

The following are avoidance and minimization measures for California avian species of special concern and species protected under the MBTA and the CFGC.

- Any vegetation removal and/or ground disturbance activities should take place during the avian non-breeding season (September 1 – January 31).
- If construction is to begin within the avian breeding season (February 1 – August 31) then a migratory bird and raptor survey shall be conducted within the BSA by a qualified biologist. A qualified biologist shall:
  - Conduct a protocol level survey for all birds protected by the MBTA and CFGC within seven (7) days prior to construction activities, and map all nests located within 200 feet of construction areas;
  - Develop buffer zones around active nests as recommended by a qualified biologist. Construction activity shall be prohibited within the buffer zones until the young have fledged or the nest fails. Nests shall be monitored at least once per week and a report submitted to the County monthly.
- If construction activities stop for more than ten (10) days then another migratory bird and raptor survey shall be conducted within seven (7) days prior to the continuation of construction activities.
- All staging and construction activity will be limited to designated areas within the BSA and designated routes for construction equipment shall be established in order to limit disturbance to the surrounding area.

Pallid Bats

Pallid bats are designated as a CDFW SSC. Pallid bats roost alone, in small groups (2 to 20 bats), or gregariously (100s of individuals). Day and night roosts include crevices in rocky outcrops and cliffs, caves, mines, trees (e.g., basal hollows of coast redwoods and giant sequoias, bole cavities of oaks, exfoliating Ponderosa pine and valley oak bark, deciduous trees in riparian areas, and fruit trees in orchards), and various human structures such as bridges (especially wooden and concrete girder designs), barns, porches, bat boxes, and human-occupied as well as vacant buildings. Roosts generally have unobstructed entrances/exits, and are high above the ground, warm, and inaccessible to terrestrial predators. However, this species has also been found roosting on or near the ground under burlap sacks, stone piles, rags, and baseboards. Lewis 1996 found that pallid bats have low roost fidelity and both pregnant and lactating pallid bats changed roosts an average of once every 1.4 days throughout the summer. Overwintering roosts have relatively cool, stable temperatures and are located in protected structures beneath the forest canopy or on the ground, out of direct sunlight. In other parts of the species' range, males and females have been found hibernating alone or in small groups, wedged deeply into narrow fissures in mines, caves, and buildings. At low latitudes, outdoor winter activity has been reported at temperatures between −5 and 10 °C.

<u>Survey Results</u>

During the field survey there was no evidence of bats roosting within the bridge structure. However, the mature oak trees surrounding the creek within the BSA have suitable habitat elements (e.g. cavities, peeling bark) that may provide suitable day roost habitat for pallid bats.

<u>Project Impacts</u>

Construction timing within the creek is proposed from June 15 to October 15 which falls within the bat maternity season (April-August).

Mitigation Measure BIO-7: Pallid Bat Avoidance

If trees containing suitable bat habitat (i.e. sloughing bark, cavities, or crevices) are removed between March 15 and August 31, a qualified biologist will conduct a preconstruction survey for roosting bats within seven days prior to tree removal. The survey will focus on suitable habitat to determine the absence or presence of roosting bats and type of roost within the tree. If the pre-construction survey determines that bats are not using the trees onsite as day roosts, then tree removal can proceed as planned.

If the tree is being utilized as a day roost and the qualified biologist determines that it is a maternity roost, then removal of the tree will be postponed until consultation with CDFW occurs. If the roost is not a maternity roost or if tree removal occurs during the winter months (i.e. October 16 – February 14), then the following phased removal of the occupied tree will be implemented:

- Day 1: All unoccupied roosting habitat (e.g. crevices, sloughing bark, cavities) should be removed or altered to make it less desirable for roosting. All portions of the tree that do not contain suitable habitat can be removed while avoiding occupied habitat.
- Day 2: All remaining portion of the tree including suitable roosting habitat can be removed.

A qualified biologist shall be onsite during tree removal activities if bats are detected.

D.2. Less Than Significant with Mitigation Incorporated. No Sensitive Natural Communities (SNC) as identified by the California Department of Fish and Wildlife has been mapped within the BSA. Critical Habitat for northern California (NC) steelhead Distinct Population Segment (DPS) and Central California Coast (CCC) Coho salmonid Evolutionary Significant Unit (ESU) as designated by NMFS exists within the project site. The riparian trees to be removed as a result of the Project are likely important components of NC steelhead DPS and CCC Coho salmon ESU critical habitat, however current conditions have degraded the overall quality of the critical habitat. The removal of riparian vegetation and its effects on steelhead and salmonid critical habitat is considered a potentially significant impact that requires mitigation. Mitigation Measure BIO-2 requires replanting of approximately 355 trees, at a 18:1 ratio, in an effort to restore the creek and mitigate potential impacts to Essential Fish Habitat (EFH) critical habitat. Robinson Creek and its associated riparian vegetation will be restored to a net benefit to NC steelhead and the critical habitat present.

In addition to the impacts on EFH and riparian vegetation, the removal, trimming and/or project work near oak trees could result in a potentially significant impact to oak trees and oak woodlands. Mitigation Measure BIO-8 would reduce impacts to a less than significant level by implementing tree protection measures and requiring habitat replacement for oak woodlands

Mitigation Measure BIO-8: Tree Protection and Replacement Plan
In accordance with the Mendocino County General Plan Policies RM-1, RM-27 and RM-28, Mendocino County shall preserve and protect trees in and adjacent to the Project area to the extent feasible. Prior to construction, an arborist certified by the International Society of Arboriculture shall conduct site surveys of the construction area and provide recommendations to ensure protection of trees and tree roots during construction activities such as the removal of the existing bridge abutments, the placement of new bridge abutments, re-contouring of the Mill Creek stream banks, and roadway widening.
Tree protection measures could include minimizing grading as much as possible; protecting trees and roots with exclusion fencing; limiting access to areas with protected trees; limiting tree trimming to the minimum necessary for construction clearance and site and equipment access; and conforming to standard tree trimming practices designed to protect trees such as the International Society of Arboriculture Pruning Standards.
Per the Mendocino County General Plan Policy RM-28, if oak woodland habitat is lost due to tree removal, replacement of lost oak woodlands or preservation of oak woodlands shall be provided at a 2:1 ratio. The arborist shall assist Mendocino County in determining the acreage of oak woodland lost, determining if on-site restoration is feasible, and locating an off-site location for mitigation if required. If replacement trees are required, the County shall implement a five-year maintenance and monitoring program in which the County shall inspect the mitigation planting area for the purpose of adapting maintenance techniques if necessary. Survival surveys shall be conducted biannually for five years. The County shall use the following sliding scale performance standard for evaluation of the restoration's success:

- First year – 95%
- Second year – 90%
- Third year – 85%
- Fourth year – 80%
- Fifth year – 75%

Trees shall be considered alive and healthy if they display noticeable growth and the presence of new shoots.

Aquatic Resources
Robinson Creek, an intermittent stream, is the only aquatic resource within the project site. The Project site contains 0.43 acres of Waters of the U.S. The project will result in approximately 0.28 acres of temporary impacts and 0.06 acres of permanent impacts to jurisdictional waters of the U.S. Restoration activities including removing the failed retaining wall and associated RSP from the creek, streambank

stabilization through hybrid RSP revetment, vegetation created point bars and habitat enhancement as detailed in Mitigation Measure BIO-1 and BIO-2 will contribute to mitigating for impacts to the aquatic resources. Regardless of habitat enhancement and restoration activities there will be impacts to waters of the U.S. and waters of the State. Mitigation Measure BIO-9 would reduce impacts to less than significant levels through coordination with regulatory and resource agencies.

Mitigation Measure BIO-9: Compensate for Impacts to Waters
Mendocino Department of Transportation (MDOT) shall avoid impacts to waters to the extent feasible. If fill cannot be avoided MDOT shall compensate for impacts to creeks and other waters, by creation, restoration, or preservation of waters so that there is no net loss (1:1 ratio or as required by resource agencies). Required permits from the U.S. Army Corps of Engineers, the Regional Water Quality Control Board, and the California Department of Fish and Wildlife shall be received prior to the start of any on-site construction activity. MDOT shall ensure any and all additional measures outlined in the permits are implemented.

With the implementation of the replanting plan contained in Mitigation Measure BIO-1, BIO-2, BIO-3, BIO-4, BIO-5, BIO-6, BIO-7, and BIO-8 there will be a less than significant impact with mitigation incorporated.

D.3. No Impact. Robinson Creek, an intermittent stream, is the only aquatic resource within the project site. A field assessment was conducted to delineate waters of the United States within the Project area. No wetlands were found at or adjacent to the Project site. Impacts to Robinson Creek are addressed through Mitigation Measure BIO-9 mentioned above. There will be no impacts to state or federally protected wetlands as a result of the proposed project.

D.4.- D.6. Less Than Significant Impact. The proposed project consists of the widening and replacement of existing transportation facilities. The extents and scope of the improvements to the roadway, bridge, and associated infrastructure will not be significantly different than what currently exists. The project will not result in the fragmentation of an existing wildlife habitat nor conflict with any local policies or ordinances protecting biological resources. The project's impact would be less than significant.

MITIGATION: Mitigation Measures BIO-1: Avoid Impacts to Special-status Fish Species, BIO-2: Salmonid Habitat Restoration and Enhancement, BIO-3: Navarro Roach Avoidance, BIO-4: Foothill Yellow Legged Frog, BIO-5: Western Pond Turtle, BIO-6: Migratory Birds and Raptors, BIO-7: Pallid Bat Avoidance, BIO-8: Tree Protection and Replacement Plan, and BIO-9: Compensate for Impacts to Waters.

| E. Cultural Resources<br>Would the project: | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| 1. Cause a substantial adverse change in the significance of a historical resource pursuant to § 15064.5? | | X | | |
| 2. Cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5? | | | X | |
| 3. Disturb any human remains, including those interred outside of dedicated cemeteries? | | X | | |

DISCUSSION:

A site specific Archaeological Survey Report (ASR) (Alta, 2020b) an Extended Phase I (XPI) (Alta, 2020c) and an Archaeological Evaluation Report (AER) Phase II (Alta, 2020c) (Appendix E) were performed for the Project to identify potential archaeological and historical resources within the Area of Potential Effects (APE). The findings of the ASR were based on the following research, consultations and analysis:

- A records search and historic map research at the Northwest Information Center (NWIC) of the
- California Historic Resources Inventory System at Sonoma State University, Rohnert Park;
- Contact with the Native American Heritage Commission, Native American groups and individuals;
- Mendocino County Historical Society information solicitation;
- A field survey of the Project APE; and
- Geoarchaeological analysis.

The findings of the ASR, XPI and AER were used as the basis for the analysis of potential impacts to historical and archaeological resources below.

E.1. – E.2. Less Than Significant with Mitigation Incorporated. One previous study, part of a Caltrans historic bridge inventory update of concrete arch bridges determined that the current bridge does not meet the criteria for listing in the National Register. Field studies and investigations undertaken as part of the ASR, XPI and AER identified three sites with archaeological (2 sites) and historic-era (1 site) deposits within the Project site. The results of the ASR and AER determined that there are no historic−era structures eligible for inclusion to the National Register of Historic Places (NRHP) or California Register of Historic Resources (CRHR) within the Area of Direct Impact (ADI) of the Project. However, since testing was confined to the project ADI, the sites cannot be formally evaluated. Therefore, these sites will be considered eligible for the purposes of the project only, per Stipulation VIIC.4 of the Caltrans Section 106 PA. Untested portions of each site outside of the ADI should be protected as Environmentally Sensitive Areas (ESAs).

Mitigation Measure CR-1: Environmentally Sensitive Area Action Plan

An Environmentally Sensitive Areas (ESAs) Action Plan has been developed, which presents specific methods and procedures for protecting the portions of archaeological sites outside the ADI portion of the APE. Untested areas, outside of the ADI shall be protected as ESAs as a standard condition (per Caltrans Section 106 PS Attachment 5). A combination of exclusionary fencing, flagging, signing, or monitoring to protect properties from direct physical damage by project related activities shall be implemented prior to and during construction.

Mitigation Measure CR-2: Identify and Avoid or Minimize Impacts to Unknown Cultural Resources
Mendocino County shall retain a qualified archaeologist to be present during initial ground disturbing activities to ensure that there are no prehistoric archaeological resources present within the vertical APE. These activities would include excavation of the existing concrete abutments, headwalls, and associated footings from the creek.

If archaeological materials are encountered during construction activities, construction crews shall stop all work within 100 feet of the discovery until a qualified archaeologist can assess the discovery and provide recommendations. Such treatment and resolution could include modifying the Project to allow the materials to be left in place, or undertaking data recovery of the materials in accordance with standard archaeological methods. The preferred treatment of the resource is protection and preservation.

Resources could include buried historic features, such as artifact-filled privies, wells, and refuse pits, and artifact deposits, along with concentrations of adobe, stone, or concrete walls or foundations, and concentrations of ceramic, glass, or metal materials. Native American archaeological materials could include obsidian and chert flaked stone tools (such as projectile points and knives), midden (darken soil created culturally from use and containing heat-affected rock, artifacts, animal bones, or shellfish remains), and/or groundstone implements (such as mortars and pestles). Project personnel shall not collect cultural materials.

E.3. Less Than Significant with Mitigation Incorporated. While no known burial sites have been identified within the APE, the APE is sensitive for prehistoric and/or contact period archaeological resources below or near the surface. Therefore, the potential impact to archaeological resources, including human remains is considered significant, given the potential for unanticipated discoveries to occur during ground-disturbing activities.

Mitigation Measure CR-3: Procedures for Encountering Human Remains
If human remains are encountered as a result of construction activities, any work in the vicinity shall stop and the Mendocino County Coroner shall be contacted immediately. In addition, a qualified archaeologist shall be contacted immediately to evaluate the discovery, if a monitor is not already present. If the human remains are Native American in origin, then the Coroner shall notify the Native American Heritage Commission within 24 hours of this identification, pursuant to Public Resources Code 5097.98. California Health and Safety Code Section 7050.5 states that it is a misdemeanor to knowingly disturb a human grave.

Mitigation Measure CR-1 would provide for measure to avoid and minimize potential impacts to resources outside of the ADI but within the APE. Mitigation Measure CR-2 would reduce the impact to archaeological resources that may be encountered during construction by protecting, preserving, or recovering any significant resources. Mitigation Measure CR-3 would reduce the impact from discovery of human remains by providing standard procedures in the event that human remains are encountered and requiring adherence to Public Resources Code Section 5097.98 requiring Native American Tribal notification. The impact to potentially unknown archaeological resources or human remains following mitigation would be less than significant.

MITIGATION: Mitigation Measure CR-1: Environmentally Sensitive Area Action Plan, CR-2: Identify and Avoid or Minimize Impacts to Unknown Cultural Resources, and CR-3: Procedures for Encountering Human Remains.

| F. Energy<br>Would the project: | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| 1. Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation? | | | | X |
| 2. Conflict with or obstruct a state or local plan for renewable energy or energy efficiency? | | | | X |

DISCUSSION:

F.1. No Impact. Construction of the Project would involve grading, excavation, and use of heavy machinery. Construction would require the use of fuels, primarily gas, diesel, and motor oil. The precise amount of construction-related energy consumption that would occur is uncertain. However, construction would not require a large amount of fuel or energy usage because of the moderate number of construction vehicles and equipment, worker trips, and truck trips that would be required for a project of this scale. Construction equipment would remain staged in the Project area once mobilized. . Excessive idling and other inefficient site operations would be prohibited. Equipment idling times would be minimized either by shutting equipment off when not in use or reducing the maximum idling time to five minutes or less (as required by the California airborne toxics control measure (Title 13, Section 2485 of the CCR). Therefore, construction would not result in the use of large amounts of fuel and energy in a wasteful manner, and the impact would be less than significant.

Following construction, no additional energy would be required in order for bridge operation to occur. Therefore, the Project would not result in wasteful, inefficient or unnecessary consumption of energy resources. No operational impact would result.

F.2. No Impact. In 2003, the California Energy Commission (CEC), the California Power Authority (CPA), and the California Public Utilities Commission (CPUC) jointly adopted an Energy Action Plan (EAP) that listed goals for California's energy future and set forth a commitment to achieve these goals through specific actions (CEC 2003). In 2005, the CPUC and the CEC jointly prepared the EAP II to identify the further actions necessary to meet California's future energy needs. Additionally, the CEC prepared the State Alternative Fuels Plan in partnership with the California Air Resources Board and in consultation with the other state, federal, and local agencies. The alternative fuels plan presents strategies and actions California must take to increase the use of alternative non-petroleum fuels in a manner that minimizes costs to California and maximizes the economic benefits of in-state production (CEC 2005).

Locally, the Mendocino County General Plan includes policies to promote energy conservation in the County (Policy RM-52, RM-54, and RM-57) and to increase use of renewable energy resources (Policies RM-53, RM—55, RM-56, and RM-58). Construction and operation of the Project would not conflict with or obstruct implementation of either the EAP, EAP II, the State Alternative Fuels Plan or local County general plan goals. Project construction would not require a large amount of fuel or energy usage because of the limited extent and nature of the proposed improvements and the minimal number of construction vehicles and equipment, worker trips, and truck trips that would be required for a project of this small scale. Project operation would not require additional energy use beyond existing conditions. No conflicts with a state or local plan for renewable energy or energy efficiency have been identified. Therefore, no impact would result.

MITIGATION: None required.

| G. Geology / Soils Would the project: | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| 1. Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving: | | | X | |
| a. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42. | | | | X |
| b. Strong seismic ground shaking? | | | X | |
| c. Seismic-related ground failure, including liquefaction? | | | X | |
| d. Landslides? | | | X | |
| 2. Result in substantial soil erosion or the loss of topsoil? | | | X | |
| 3. Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse? | | | | X |
| 4. Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property? | | | X | |
| 5. Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water? | | | | X |
| 6. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature? | | X | | |

DISCUSSION:

G.1(a)-(d). Less Than Significant Impact. The Project site is not underlain by a known earthquake fault and is not located within or adjacent to an Alquist-Priolo Earthquake Fault Zone (Blackburn Consulting 2012). Therefore, no impact from rupture of a known fault would occur. The closest active faults are the San Andreas Fault Zone, North Coast Section (14.8 Miles away) and the Maacama Fault Zone, North Section (13.4 Miles away). Like most of California, the site can be expected to be subjected to seismic ground shaking at some future time. However, active faults are quite distant from the project site and ground shaking due to a seismic event is expected to have a lower intensity at the project site. As the project appears to be located such that the probability of significant ground shaking is low, and because the project does not propose the addition of significant structures that would be at risk to seismic activity, potential geologic impacts would be less than significant. Under existing regulations, all

future structures will incorporate AASHTO, SDC, and MTD standards into the design and construction that are designed to minimize potential impacts associated with strong ground-shaking during an earthquake. Therefore, geologic impacts on people or structures related to seismic ground shaking would be less than significant.

Liquefaction is a phenomenon where loose saturated, granular soils lose their inherent shear strength due to excess water pressure that builds up during repeated movement from seismic activity. Factors that contribute to the potential for liquefaction include a low relative density of granular materials, a shallow groundwater table, and a long duration and high acceleration of seismic shaking. Liquefaction usually results in horizontal and vertical movements from lateral spreading of liquefied materials and post-earthquake settlement of liquefied materials. Liquefaction potential is greatest where the groundwater level is shallow, and submerged loose, fine sands occur within a depth of approximately 50 feet or less. It is expected that at least some portion of the unconsolidated alluvium underlying the site will be susceptible to liquefaction. Under existing regulations, all future structures will incorporate AASHTO, SDC, and MTD standards into the design and construction that are designed to minimize potential impacts associated with liquefaction during an earthquake. Therefore, geologic impacts on people or structures related to liquefaction would be less than significant.

The potential for seismic slope instability in the form of landslides or mudslides at the site is considered to be generally low, with the possible exception of local bank instability. The potential for seismically induced slides on engineered fill slopes, constructed at typical gradients of 1.5H:1V or flatter, is considered low. Under existing regulations, all future structures will incorporate AASHTO, SDC, and MTD standards into the design and construction that are designed to minimize potential impacts associated with landslides. Therefore, impacts on people or structures related to landslides would be less than significant.

G.2. Less Than Significant Impact. Construction activities could result in a small localized loss of top soil. However, such losses of top soil would be negligible. Consequently, no substantial loss of topsoil due to erosion or grading is anticipated and the impact would be less than significant. Construction impacts to water quality associated with soil erosion are further addressed in the Hydrology and Water Quality section of this document. During construction the project would be required to prepare a Stormwater Pollution Prevention Plan (SWPPP) in compliance with the Construction General Permit. Specific erosion control and surface water protection methods would be implemented within the project site, such as straw wattles and silt fencing, covering materials and dumpsters, storing fuel and other potentially hazardous materials away from the watercourse, and the use of erosion control seeding. These control measures are standard in the construction industry and are commonly utilized to minimize soil erosion and water quality degradation. The project will have a less than significant impact on loss of top soil.

G.3. No Impact. During a seismic event, ground shaking can cause densification of granular soil above the water table that can result in settlement of the ground surface. Seismic settlement may occur within the loose alluvium above the creek bed, but is not expected below as the ground becomes saturated from the water table. Under existing regulations, all future structures will incorporate AASHTO, SDC, and MTD standards into the design and construction that are designed to minimize potential impacts associated with strong ground-shaking during an earthquake. Therefore, geologic impacts on people or structures related to unstable soils would be less than significant.

G.4. Less than Significant. The soil present within the project site consists primarily of alluvial deposits which consists of silt and clay. The site is not located on expansive soil and would not create substantial risks to life or property. Bridge design and all construction will comply with AASHTO, SDC, and MTD requirements. The project will have a less than significant impact in regards to expansive soils.

G.5. No Impact. No septic tanks, sewer or alternative wastewater disposal systems are proposed for the Project. The project will result in no impact relative to policies governing sewer service control.

G.6. Less Than Significant with Mitigation Incorporated. The project is not anticipated to cause a substantial adverse change in the significance, directly or indirectly destroy a unique paleontological resource or site, geological feature, or unique geological feature. Due to the developed character of the site, the potential to encounter surface-level paleontological resources is considered low. However, there is the potential for accidental discovery of paleontological resources. In the event that resources are

inadvertently discovered, implementation of Mitigation Measure GEO-1. would reduce impacts to a less than-significant level with mitigation.

Mitigation Measure GEO-1: Evaluation and Treatment of Paleontological Resources
If paleontological resources (e.g., vertebrate bones, teeth, or abundant and well-preserved invertebrates or plants) are encountered during construction, Mendocino County shall ensure work in the immediate vicinity shall be diverted away from the find until a professional paleontologist assesses and salvages the find, if necessary.

MITIGATION: Mitigation Measure GEO-1: Evaluation and Treatment of Paleontological Resources.

| H. Greenhouse Gas Emissions Would the project: | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| 1. Generate greenhouse gas (GHG) emissions, either directly or indirectly, that may have a significant impact on the environment? | | X | | |
| 2. Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases? | | | X | |

DISCUSSION:

H.1 Less than Significant With Mitigation Incorporated. There is currently no applicable federal, State, or local threshold pertaining to construction-related greenhouse gas (GHG) emissions and the MCAQMD CEQA Guidelines [used by the Mendocino County Air Quality Management District] do not include screening criteria or significance thresholds for construction. Therefore, this analysis uses a qualitative approach in accordance with Section 15064.4(a)(2) of the CEQA Guidelines.

During construction, GHG emissions would be generated from construction equipment. However, construction would last for only eight months and would be less intensive than traditional land use development that requires a larger fleet of earthmoving equipment or soil off hauling and/or delivery and similar such equipment. Project emissions during construction would not be a considerable contribution to the cumulative GHG impact, given that construction would be temporary (i.e., eight months), and the size and nature of construction is not considered to result in significant air quality impacts (see Section C, Air Quality). Examples of sources for construction related GHGs are equipment fossil fuel combustion, material transportation, and purchased electricity. This is considered a less than significant impact with mitigation incorporated.

Following construction, the Project would not result in a new source of GHG emissions, would not increase the vehicle capacity of Lambert Lane, and would not induce population growth in the area. Therefore, no long term impact to GHG emissions would occur. It is anticipated that bridge replacement activities would generate short-term temporary GHG emissions associated with construction equipment.

See Mitigation Measure AQ-1 discussed in Section C, Air Quality, minimize and reduce temporary emissions associated with the construction activities.

H.2 Less than Significant The County of Mendocino has adopted several GHG emission reduction policies and action items as part of the 2009 General Plan (County of Mendocino 2009). General Plan Action Item DE-65.2 directs the County to work cooperatively with industrial facilities to identify greenhouse gas impacts from their operations and develop a long-term plan for reducing emissions. Because the Project is not a type of industrial development, Action Item DE-65.2 would not apply to the Project. Mendocino County General Plan Policy RM-43 and Action Items RM-43.1 through RM-43.3 direct the County to create an inventory of existing and historical GHG emissions, to create a GHG reduction plan, and to reduce the County's GHG footprint. As of the date this analysis was completed, the County had not completed such an inventory and had not developed a GHG reduction plan (County of Mendocino 2013).

The Project would therefore not conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases. Additionally, as described above in Impact H.1, the Due to the temporary nature of impacts resulting from construction activities on a relatively small bridge replacement project, the project will not conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases. This is considered a less than significant impact.

MITIGATION: Mitigation Measure AQ-1: Dust Control Measures.

| I. Hazards and Hazardous Materials Would the project: | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| 1. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials? | | | X | |
| 2. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment? | | X | | |
| 3. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school? | | | X | |
| 4. Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment? | | | X | |
| 5. For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area? | | | X | |
| 6. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan? | | | X | |
| 7. Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires? | | | | X |

DISCUSSION:
An Initial Site Assessment (ISA) was developed by Crawford & Associates, Inc. for the proposed project to identify recognized soil or groundwater contamination and hazardous material issues that may affect the planned project improvements. (Appendix F).

Based on the records reviewed and the site reconnaissance

- The project site was not identified in the database records reviewed.
- The database records search did not identify any facilities in the vicinity that have potentially impacted the project site.
- Site reconnaissance, historical topographic maps, and historical aerial photographs indicate historical land use adjacent to the project site is unlikely to have contaminated the project site and the potential to encounter Recognized Environmental Conditions (RECs) is low.

I.1. Less Than Significant Impact. The project will not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials. Hazardous materials

will be used during construction activities (e.g., equipment maintenance, fuel, solvents, roadway resurfacing and re-striping materials). However, all hazardous material use would be required to comply with all applicable local, state, and federal standards associated with the handling and storage of hazardous materials. Use of hazardous materials in accordance with applicable standards ensures that any exposure of the public to hazard materials would result in a less than significant impact.

I.2. Less Than Significant With Mitigation Incorporated. The ISA developed by Crawford & Associates identified four Recognized Environmental Conditions (REC) within the project boundary: asbestos containing material (ACM), lead-based paint and chemically treated wood and thermoplastic traffic stripping. Due to the presence or potential presence of these hazardous materials there is the potential that during demolition of the existing structure, the hazardous materials could be released into the environment and cause a potentially significant impact. In order to reduce the potential impact to a less than significant level, Mitigation Measure HAZ-1 is required.

Mitigation Measure HAZ-1: Hazard Material Screening
Prior to site disturbance and demolition of the existing bridge, testing for asbestos containing material (ACM), lead-based paint and chemically treated wood and thermoplastic traffic stripping shall be conducted and appropriate methods of handling and disposal shall be implemented per the conditions of the ISA.

I.3. Less Than Significant. The proposed project does not involve any emission or handling of any hazardous materials, substances, or waste within one-quarter mile of an existing school. No existing or proposed school facilities are located within one-quarter mile radius of the project site. As stated previously, the use and handling of hazardous materials during construction activities would occur in accordance with applicable federal, state, and local laws including CalOSHA requirements. This is considered a less than significant impact.

I.4. Less Than Significant. The project is not included on a list of sites containing hazardous materials, and would not result in a significant hazard to the public or to the environment. The project site is not included on the Cortese list compiled pursuant to Government Code Section 65962.5. The nearest sites containing hazardous materials are located approximately 400 feet east of the project area at 4125 Highway 128. This topic is considered a less than significant impact.

I.5. Less Than Significant. The project site is located in the Boonville Airport land use planning area compatibility zone C. Typical aircraft operations involve single and twin-engine planes with average daily use of 18 flights (Mendocino, 1996). The Project site is outside of the 55 CNEL noise contour identified for the airport, which is not considered a significant value.; therefore, there will be less than significant impact.

I.6. Less Than Significant. The County of Mendocino's 2016 Emergency Operations Plan includes and identifies emergency planning, organization, policies, procedures, and response to extraordinary emergency situations associated with natural disasters, technological incidents, and national security emergencies (Mendocino County 2016).

Currently there is a temporary bridge installed to allow for vehicular and pedestrian access across Robinson Creek. The proposed project will neither hinder the implementation, nor physically interfere with, emergency response or evacuation plans. The proposed project is considered to have a less than significant impact.

I.7. No Impact. According to maps prepared by the California Department of Forestry and Fire Protection (CAL FIRE), the Project area and immediately adjacent lands are designated as being within a "Moderate" fire hazard severity zone (CAL FIRE 2007a and 2007b). The Project site is not located within a "high" or "very high" fire hazard zone. Therefore, the potential for construction activities to expose people or structures to a significant risk of loss, injury or death involving wildland fires is considered less than significant.

MITIGATION: Mitigation Measure HAZ-1: Hazard Material Screening.

| J. Hydrology / Water Quality Would the project: | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| 1. Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality? | | X | | |
| 2. Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin? | | | X | |
| 3. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would: | | | X | |
| a. result in substantial erosion or siltation on- or off-site; | | | X | |
| b. substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite; | | | X | |
| c. create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or | | | X | |
| d. impede or redirect flood flows? | | | X | |
| 4. In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation? | | | X | |
| 5. Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan? | | | X | |

DISCUSSION:

J.1. Less Than Significant With Mitigation Incorporated. The project is located within the Mendocino Coast Hydrologic Unit, Navarro River Hydrologic Area and an undefined Hydrologic Sub-Area (DWR, 2021). The Navarro River Hydrologic Area is listed on the 2010 Clean Water Act Section 303(d) list of water quality limited segments for sedimentation/siltation, temperature, and aluminum (U.S. EPA 2011).

Construction activities within and adjacent to Robinson Creek would temporarily disturb local soils and could result in erosion if not properly controlled and repaired. Construction could also be a source of chemical contamination from use of alkaline construction materials (e.g., concrete, mortar, hydrated lime) and hazardous or toxic materials, such as fuels. Construction activities would be implemented in accordance with Caltrans 2018 Standard Specifications Water Quality Control Section 13-4.03E(9), however the potential still exists for construction-related activities to result in turbidity levels or chemical

contamination that may violate water quality standards and degrade water quality. The impact is, therefore, considered significant.

Construction activities would require removal of some riparian vegetation. As described in the Project Description, following construction, disturbed areas will be re-vegetated with fast-growing native plants, including locally-sourced willow cuttings, along with commercial hydraulic mulching materials. Project revegetation, along with implementation of Mitigation Measure BIO-8: Tree Protection and Replacement Plan, would reduce the Project's impact on temperature in the Round Valley Hydrologic Sub-Area to a less-than-significant level.

Mitigation Measure HWQ-1: Minimize Impacts to Robinson Creek During Construction
MDOT or its contractor(s) shall prepare an Erosion and Sediment Control Plan prior to construction and implement it during construction to minimize impacts to Robinson Creek during Project construction. The Erosion and Sediment Control Plan shall include sufficient measures to address the overall construction of the Project and, at a minimum, construction contractors should undertake the following measures, as applicable, to minimize any adverse effects on water quality:

- The amount of construction-related disturbance within the Robinson Creek channel and creek banks shall be limited to the extent practicable.
- Where the creek channel is contoured to accommodate the new bridge, modifications to the existing stream banks shall provide a smooth transition into and out of the modified stream section.
- Other disturbed stream banks shall be returned to pre-existing contours and natural conditions upon completion of work.
- Construction equipment shall be cleaned and inspected prior to use. Servicing of vehicles shall be conducted a minimum of 100 feet from Mill Creek, at designated staging areas to avoid contamination through accidental drips and spills.
- The Project shall comply with the Caltrans Construction Site BMP Manual section NS-13: Material and Equipment Use Over Water.
- Dust, erosion, sedimentation control, and dewatering activities shall follow the 2018 Caltrans Standard Specifications.
- On-site stockpiles shall be isolated with silt fence, filter fabric, and/or straw bales/fiber rolls. Silt fence and/or fiber rolls shall be placed at bridge abutments, new abutment excavation areas, and any other locations when work could result in loose sediment that could enter active stream. The silt fence/fiber rolls shall be maintained and kept in place for the duration of the Project. Any sediment or debris captured by the fence/rolls shall be removed before the fence/rolls are pulled. As necessary additional erosion, sediment, and material stockpile BMPs shall be employed between work areas and adjacent waterway. No fill or runoff shall be allowed to enter the active waterway.
- The construction zone shall be kept free from litter by providing suitable disposal containers for trash and all construction-generated material wastes. These containers shall be emptied at regular intervals and the contents properly disposed. The containers shall have covers that can be completely closed and secured.
- Hazardous materials shall be stored in an area protected from rainfall and stormwater run-on to prevent the offsite discharge of leaks or spills.
- Portable sanitary facilities shall be located a minimum of 50 feet from the creek and maintained regularly to prevent the discharges of pollutants.

Mitigation Measure HWQ-2: Storm Water Control Measures during Construction
MDOT shall obtain coverage under State Water Resources Control Board Order No. 2009-0009- DWQ, Waste Discharge Requirements for Discharges of Storm Water Runoff Associated with Construction and Land Disturbance Activities, as amended by 2010-0014-DWQ and 2012-0006- DWQ. MDOT and/or its contractor shall submit permit registration documents (notice of intent, risk assessment, site maps, Storm Water Pollution Prevention Plan (SWPPP), annual fee, and certifications) to the State Water Resources Control Board. The SWPPP shall address pollutant sources, non-storm water discharges, best management practices, and other requirements specified in the above-mentioned Order. The SWPPP shall also include dust control practices to prevent wind erosion, sediment tracking, dust generation by construction equipment, management of concrete slurry, asphalt, pavement cutting, and other street and road activities to avoid discharge to storm drains from such work. The SWPP shall be prepared in accordance with Caltrans SWPPP and Water Pollution Control Program Preparation Manual (Caltrans

2016).A Qualified Storm Water Pollution Prevention Plan Practitioner shall oversee implementation of the Plan, including visual inspections, sampling and analysis, and ensuring overall compliance.

Mitigation Measure BIO-8: Tree Protection and Replacement Plan
See discussion in IV.D for a description of this measure.

J.2. No Impact. During construction, temporary dewatering could be required if groundwater accumulates in an excavation area. Dewatering would occur via low flow diversion, diverting all water to the middle of the channel to allow work along the banks to be done in dry areas. The water would still be allowed to infiltrate either upstream or downstream from the diversion. No substantial lowering of the local groundwater table would occur from such temporary dewatering; therefore, the impact from construction dewatering is considered less than significant.

Following construction, there would be no features included in the Project that would, by their nature or design, utilize groundwater supplies or interfere with groundwater recharge. No impact would occur.

J.3 (a). Less Than Significant Impact. See Impact J.1 above for an evaluation of the Project's construction-related impacts on erosion and siltation.

As described in the Project Description, portions of the embankment slopes will be protected from erosion with RSP and that willow plantings will also be included as part of bank protection and restoration. The proposed riprap revetments upstream and downstream of the bridge crossing and downstream by the Boonville Hotel are to be vegetated with live willow cuttings following Caltrans "hybrid revetment" design. Further, this Project will include removing the rubble and reconfiguring the RSP that covers the creek bottom, restoring the channel to a more natural condition and restoring fish passage to sections of Robinson Creek above the failed retaining wall. Channel restoration designs for the site will satisfy current fish passage standards, as described in California Department of Fish and Game (CDFG) (2009) and NMFS (2001) guidelines. Large woody debris (LWD) will be placed along the inside bend in the upstream right bank. Removed trees to be used as LWD will be a minimum of 15 feet long and have a 16-inch diameter at breast height (DBH). A plan sheet showing the location of LWD placement in the restored stream will be included in the final design.

Incorporating vegetation into the streambank revetment has the beneficial effects of improving stream ecology, increasing soil strength and providing flow resistance, although it can be unpredictable over the long term (Caltrans 2014). Established vegetation will provide cover, shade the channel and provide nutrients to the stream. As root systems establish, they can support the banks by providing resistance to scour and bind the soils and rock placed along the bank. Therefore, following construction, the Project's long-term impact on erosion or siltation on- or off-site would be less than significant.

J.3 (b). Less Than Significant Impact. Following construction, drainage patterns would be substantially the same as existing conditions. The RSP and streambank revetment would not interfere with normal channel flows. The Project would not result in new storm drain facilities and only negligible increases in impervious surfaces would occur from the widened roadway approaches. Therefore, the Project would not result in localized increases in the rate or amount of surface runoff that would result in flooding on- or off-site. The impact would be less than significant.

J.3 (c). Less Than Significant Impact. See Impact J.3 b above for an evaluation of the Project's potential impacts due to localized increases in runoff.

Following construction, there would be no features included in the Project that would, by their nature or design, provide substantial sources of polluted runoff. RSP streambank revetment would be placed to armor and protect the channel banks from potential erosion, and exposed and disturbed areas of the creek bank and construction area would be re-vegetated with fast-growing native plants. The impact would be less than significant.

J.3 (d). Less Than Significant Impact. The bridge would be elevated above the 100-year flood elevation. A Channel Design Report developed by Michael Love and Associates (MLA, 2019) and a Draft Location Hydraulic Study Report developed by Wreco (Wreco, 2016) analyzed potential changes in hydrological conditions based on project activities at the site. The two analyses utilized the Hydraulic Engineering Center River Analysis System (HEC-RAS) to estimate the hydraulic conveyance capacity under project conditions. The studies concluded the addition of the proposed bridge would have an

insignificant impact on the water surface elevations at the project site and would improve channel hydraulics. Since the bridge will be designed to be elevated above the 100 year flood elevation and the capacity of the creek channel will be enhanced there will be a less than significant impact.

J.4. Less Than Significant Impact. The Project site is located within FEMA FIRM for Mendocino County, California and Incorporated Areas, Map Number 06045C1663F. According to this FIRM, the Project site is located in the Special Flood Hazard Area (SFHA) Zone A, which represents areas subject to flooding by the 100-year flood event determined by approximate methods where base flood elevations are not shown. The project site is not located in an area that is prone to seiche or tsunami. Risks associated with inundation and the release of pollutants by flood, seiche or tsunami, would not occur beyond existing conditions. This is considered a less than significant impact.

J.5. Less than Significant Impact. The North Coast Regional Water Quality Control Board Basin Plan establishes thresholds for key water resource protection objectives for both surface waters and groundwater. Although the Project would replace the existing bridge over Robinson Creek and install RSP and streambank revetment along the banks, it is not anticipated that the Project would alter water quality parameters established in the Basin Plan. Erosion control BMPs would be required to be implemented during construction to prevent erosion and to protect overall water quality. The Project would not utilize groundwater beyond minimal construction dewatering (if required). No conflicts with an existing or foreseeable sustainable groundwater management plan have been identified. No impact would result. The impact to water quality will be less than significant.

MITIGATION: Mitigation Measures HWQ-1: Minimize Impacts to Robinson Creek During Construction, HWQ-2: Storm Water Control Measures during Construction, and Mitigation Measure BIO-8: Tree Protection and Replacement Plan.

| K. Land Use and Planning<br>Would the project: | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| 1. Physically divide an established community? | | | X | |
| 2. Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect? | | | | X |

DISCUSSION:

K.1. Less Than Significant. The project will not physically divide an established community. There is a temporary bridge provided to allow circulation around the project site. This disruption will be temporary during construction activities Therefore; the project is anticipated to have a less than significant impact.

K.2. No Impact. The project is identified in the Mendocino County Regional Transportation Plan. There will be no conflicts with land use plans, policies or regulations adopted for the purpose of avoiding or mitigating an environmental effect. The Project would not cause a change in land use patterns and would be required to comply with the County's floodplain requirements in Chapter 20.120 of the County of Mendocino Municipal Code. Therefore, the potential for conflict with land use plans, policies, and regulations would be considered no impact.

MITIGATION: None required.

| L. Mineral Resources<br>Would the project: | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| 1. Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state? | | | | X |
| 2. Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan? | | | | X |

DISCUSSION:

L.1.-2. No Impact. The Mendocino County General Plan identifies aggregate resources, primarily sand and gravel, as the predominant minerals found in the County. According to the General Plan, three sources of aggregate materials are present in Mendocino County: quarries, instream gravel, and terrace gravel deposits (Mendocino County 2009). According to aggregate availability mapping compiled by the California Geological Survey, several aggregate mines are located in northern Mendocino County, indicating the presence of aggregate production areas (CDC 2012b). The State of California Geological Survey has not studied mineral resource zones in Mendocino County and no locally-important mineral resource recovery area is identified in the Mendocino County General Plan. Because the Project would consist of the improvement of a public road facility, no impact on potential aggregate resources would occur

MITIGATION: None required.

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

DISCUSSION:
The project is located in a rural area, approximately 0.10 miles from SR128 and the Town of Boonville. Given the rural nature of the site there are few sensitive receptors in the Project vicinity. The nearest sensitive receptors are the single family residences surrounding the Project site and the Anderson Valley Jr-S High School 0.5 miles to the north. Existing noise generators in the area include the Boonville Airport, which is adjacent to the Anderson Valley Junior -Senior High School. The project does not include pile driving as a component of construction techniques and instead proposed to utilize Cast in Drill Hole (CIDH) piles.

M.1.-2. Less Than Significant Impact

Mendocino County Noise Ordinance
The Mendocino County Zoning Code provides Exterior Noise Use Standards in Title 20, Division I, Appendix C, which are summarized in Table 2 below. These standards would be applicable to operation of the Project.

Mendocino County General Plan Noise Policies and Action Items
The following goals and policies established in the Mendocino County General Plan are applicable to operation of the Project.

Policy DE-98: The County will protect residential areas and other noise-sensitive uses from excessive noise by doing the following:

> 3) Requiring that County decisions which would cause or allow an increase in noise created by stationary or mobile sources (such as development of noise-generating land uses or the construction of new or wider roadways) be informed by a noise analysis and accompanied by noise reduction measures to keep noise at acceptable levels.

Policy DE-99: To implement Policy DE-98, the following shall apply:

> 4) The County shall ensure that roadway projects include mitigation measures to maintain at least "tentatively compatible" noise levels as shown in Policy DE-101. Mitigation for roadway noise may be deferred where "tentatively compatible" noise guidelines would be exceeded on vacant lands, but shall be installed as part of the roadway project where the noise would affect existing homes. Deferred mitigation shall be the responsibility of the project which places residential units on vacant lands.

Table 1 Exterior Noise Limit Standards (Not to be Exceeded More than 30 minutes in any hour)

| Receiving Land Use Category [1, 2] | Time Period | Noise Level Standards (dBA) [3, 4] | |
|---|---|---|---|
| | | Rural/Suburban Urban/Highways5 | Rural/Suburban Urban/Highways[5] |
| One and two-family residential | 10:00 pm – 7:00 am<br>7:00 am – 10:00 pm | 50<br>40 | 60<br>50 |
| Multi-family<br>Public Spaces | 10:00 pm – 7:00 am<br>7:00 am – 7:00 pm | 45<br>55 | 50<br>60 |
| Limited Commercial<br>Some Multifamily | 10:00 pm – 7:00 am<br>7:00 am – 10:00 pm | 55<br>60 | |
| Commercial | 7:00 am – 10:00 pm<br>10:00 pm – 7:00 am | 65<br>60 | |
| Light Industrial | Any Time | 70 | |
| Heavy Industrial | Any Time | 75 | |
| Adjustments to Noise Level Standard | | | |
| $L_{50}$ | 30 min per hour | Standard | |
| $L_{25}$ | 15 min per hour | Standard + 5dB | |
| $L_0$ | Maximum permissible level | Standard + 20dB | |
| Character | Tone, whine, screech, hum, or impulsive hammering, riveting or music or speech | Standard + 5dB | |
| Ambient Level | Existing ambient $L_{50}$, $L_{25}$ | Standard + 5dB | |
| | Existing ambient $L_0$ | Existing maximum | |

Notes:
1. County staff shall recommend which receiving land use category applies to a particular project, based on the mix of uses and community noise levels. Industrial noise limits intended to be applied at the boundary of industrial zones, rather than within industrial areas.
2. The "rural/suburban" standard should be applied adjacent to noise sensitive uses such as hospitals or convalescence homes.
3. When an acoustical study demonstrates that ambient levels exceed the noise standard, then the ambient levels become the standard.
4. Higher noise levels may be permitted for temporary, short-term or intermittent activities when no sensitive or residential uses will be affected.
5. "Highways" apply to roads and highways where average daily traffic (ADT) exceeds ten thousand (10,000).

### Mendocino County General Plan Noise Policies and Action Items

The following goals and policies established in the Mendocino County General Plan are applicable to operation of the Project.

Policy DE-101: The following are noise compatibility guidelines for use in determining the general compatibility of planned land uses:

Table 2 Noise Compatibility Guidelines (Expressed as a 24-Hour Day-Night Average or Ldn)

| Land Use | Completely Compatible | Tentatively Compatible | Normally Compatible | Completely Compatible |
|---|---|---|---|---|
| Residential | Less than 55 dBA | *55-60 dBA* | *55-60 dBA* | Greater than 75 dBA |
| Commercial | Less than 65 dBA | *65-75 dBA* | *75-80 dBA* | Greater than 80 dBA |
| Industrial | Less than 75 dBA | *70-80 dBA* | *80-85 dBA* | Greater than 85 dBA |

- These guidelines apply to land designated by this General Plan for these uses. Residential, retail, or public parks which have been developed on land designated for other uses shall be subject to the exterior noise guidelines for the land on which they are located.
- Non-residential uses located on residentially designated land shall be subject to the exterior noise guidelines for residential lands.
- All uses on Commercial lands, including non-commercial uses, shall be subject to the standards for Commercial land.

Policy DE-105: A 5 decibel (dB) increase in CNEL or Ldn noise levels shall be normally considered to be a significant increase in noise.

### Caltrans Construction Noise Standards

Section 14-8.02 (Noise Control) of the Caltrans Standard Specifications is relevant to Project construction. The specification states:

- Equip an internal combustion engine with the manufacturer-recommended muffler. Do not operate an internal combustion engine on the job site without the appropriate muffler.
- Do not exceed 86 dBA at 50 feet from the job site activities from 9 p.m. to 6 a.m.

### Project Impacts

### Construction

General Plan policies are generally considered to apply to long-term operational land uses and not to construction activities. Additionally, the County has not established quantified construction noise limits or allowable construction hours. For these reasons, these regulations are not applicable to Project construction. However, the Project is still in compliance with Policy DE-98 because a noise analysis has been prepared for the Project.

A noise Analysis was prepared by Bollard Acoustical Consultants, Inc. in September, 2020 (Bollard Acoustical Consultants, 2020). An evaluation of ambient noise levels at the project site was conducted, the results of which are shown in the table below.

Table 3 Summary of Ambient Noise Level Measurement Results – September 16-17, 2020

| Location | Date | Average Measured Daytime Noise Levels, dB | | | |
|---|---|---|---|---|---|
| | | $L_{eq}$ | $L_{50}$ | $L_{90}$ | $L_{max}$ |
| East of Bride on Lambert Lane | 9/16/2020 | 52 | 48 | 44 | 70 |
| | 9/172020 | 54 | 49 | 45 | 73 |

Testing locations are shown in the Construction Noise Memo, see Appendix G

### Evaluation of Construction Noise Generation

The Federal Highway Administration (FHWA) Roadway Construction Noise Model (RCNM) was utilized to model the various project equipment noise levels at the nearest noise-sensitive locations.

Table 4 Summary of Predicted Construction Equipment Noise Levels

| Construction Sequence Number | Predicted Maximum Noise Levels at Receiver Locations, $L_{max}$ (dBA) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 1. Clearing / grubbing | 78 | 72 | 69 | 63 | 68 | 70 | 73 | 75 | 77 |
| 2. Existing bridge demolition | 78 | 72 | 69 | 63 | 68 | 70 | 73 | 75 | 77 |
| 3. Grading and stream improvements | 78 | 72 | 69 | 63 | 68 | 70 | 73 | 75 | 77 |
| 4. Downstream RSP placement | 78 | 72 | 69 | 63 | 68 | 70 | 73 | 75 | 77 |
| 5. Installation of CIDH abutment piles | 77 | 77 | 71 | 67 | 73 | 75 | 76 | 75 | 81 |
| 6. Construction of superstructure | 77 | 77 | 71 | 67 | 73 | 75 | 76 | 75 | 81 |
| 7. RSP placement around new bridge | 77 | 72 | 69 | 63 | 68 | 70 | 72 | 75 | 77 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 8. Final site stabilization and tree planting | 77 | 70 | 68 | 61 | 66 | 69 | 72 | 75 | 76 |

Receiver locations are shown in the Construction Noise Memo, see Attachment G

Caltrans standards state that construction must not exceed 86 dBA at 50 feet during nighttime hours of 9:00 pm to 6:00 am. Because the Project description specifies that construction would be restricted to daytime hours, the Caltrans nighttime construction noise thresholds would not apply. It is not known if the Project construction equipment would be in compliance with Caltrans internal combustion specifications. If non-compliant construction equipment were used, this would be a significant impact. Implementation of Mitigation Measure NOI-1 would reduce impacts to less-than-significant levels by requiring the use of Caltrans-compliant equipment. Mitigation Measure NOI-1 would further reduce potential noise impacts by requiring implementation of other noise-reduction measures, such as further restricting construction hours, limiting unnecessary noisy idling, and requiring distribution of a noise-generating construction schedule to nearby sensitive receptors.

The project proposes construction activities from sunrise to sunset (Monday through Saturday), and does not propose work during the hours of 9:00 p.m. to 6:00 a.m. As a result, noise levels associated with project construction equipment would not exceed 86 dB Lmax at 50 feet during the hours of 9:00 p.m. to 6:00 a.m. However, should the operation of internal combustion engines without appropriate mufflers occur on the job site, the project would not be in compliance with the Caltrans specification. Therefore, it is recommended that all project-related internal combustion engines are equipped with the appropriate mufflers as recommended by the manufacturer. Provided that all construction activities within the project area occur from sunrise to sunset (as proposed), and that project equipment is equipped with appropriate mufflers, the project would satisfy the applicable Caltrans standard specifications.

The Table 4 data indicate that conservative estimates of project construction noise would be elevated when compared with measured daytime maximum noise levels in the immediate project vicinity. Because project construction activities would result in short-term periods of elevated ambient noise levels in the immediate project vicinity, and because engineering techniques may not be practical in addressing noise attenuation for some equipment types, Mitigation Measure NOI-1 shall be incorporated into project construction operations in order to reduce the potential for adverse reaction at nearby residential receivers to a less than significant level.

Mitigation Measure NOI-1: Reduce Construction Noise

- Project construction activities should occur during daytime hours only (as proposed).
- All noise-producing equipment and vehicles using internal combustion engines shall be equipped with manufacturers-recommended mufflers (pursuant to Section 14- 8.02 of Caltrans standard specifications).
- Nearby residences shall be notified of construction schedules so that arrangements can be made (if desired) to limit their exposure to short-term increases in ambient noise levels.

Operation

The Project does not include new development that would result in increased traffic. The bridge replacement and not intended to increase the vehicle capacity of Lambert Lane. Therefore, changes in existing traffic-generated noise are not anticipated and operation of the Project would not result in increased noise levels that could conflict with the County noise ordinance or General Plan policies DE-99, DE-101, or DE-105. Impacts would be less than significant.

M.3. Less Than Significant. The project site is located in the Boonville Airport land use planning area compatibility zone C. Typical aircraft operations involve single and twin-engine planes with average daily use of 18 flights (Mendocino, 1996). The Project site is outside of the 55 CNEL noise contour identified for the airport, which is not considered a significant value. The project would not expose people residing to or working in the project area to excessive noise levels. This is considered a less than significant impact.

MITIGATION: Mitigation Measure NOI-1: Reduce Construction Noise.

| N. Population and Housing<br>Would the project: | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| 1. Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)? | | | | X |
| 2. Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere? | | | | X |

DISCUSSION:
N.1.-N.2. No Impact. The Project would not induce substantial population growth in the area. The Project would replace a functionally obsolete bridge, slightly widen roadway approaches on either side of the bridge, and stabilize the creek bank beneath the bridge. The roadway widening is not intended to increase the vehicle capacity of Lambert Lane and no additional travel lanes are proposed along Hill Road. The Project would not induce population growth in the area. No impact would occur. The Project would not displace existing housing or people and would not require construction of replacement housing elsewhere. No impact would occur.

MITIGATION: None required.

| O. Public Services<br>Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services: | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| Fire protection? | | | X | |
| Police protection? | | | X | |
| Schools? | | | | X |
| Parks? | | | | X |
| Other public facilities? | | | | X |

DISCUSSION:
O.1.-5. Less Than Significant Impact. The proposed project would not construct buildings, businesses or other facilities that would result in an increased population in the area. Temporary delays to traffic may occur during construction activities due to the use of the temporary bridge crossing. There would be no long- term demands on public services such as fire protection, police protection, schools, or parks generated by this project. No changes in fire protection or police protection are proposed as part of this project. Therefore, the proposed project is not anticipated to impact public services.

The proposed project would not cause any permanent closures to the roadway, nor block access to private property. The construction is expected to occur from June 15 – October 15 and take one construction season weather and conditions permitting. Temporary road delays and closures during construction may affect traffic patterns near the construction site and potentially affect fire and police response times for multiple apparatus events; however, any such impacts would be minor and not significantly affect long-term service ratios, response times, or other performance objectives for public services. Project proponents would notify local emergency service providers of construction activities and would ensure coordination with local providers to establish alternative routes and appropriate signage. No changes in fire protection or police protection services are proposed as part of this project. The proposed project would not add to the area's population or increase demands on police or fire services. The effects of the Project would not cause significant environmental impacts as it relates to police and fire service. Therefore, relative to the provision of police and fire service, the proposed project would generate a less than significant impact.

MITIGATION: None required.

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

DISCUSSION:
P.1.-2. No Impact. The project does not propose dwelling units, businesses or other structures that might increase the area's human population. The project site does not include existing recreational facilities. Similarly, the proposed project would not construct recreational facilities.

The proposed project would not generate additional demands on parks and recreational facilities. The proposed project does not include the development of recreational facilities or other structures that would necessitate the development or modification of any recreational facilities. Relative to recreation, the proposed project would result in no impact.

MITIGATION: None required.

| Q. Transportation<br>Would the project: | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| 1. Conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities? | | | | X |
| 2. Would the project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)? | | | | X |
| 3. Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)? | | | | X |
| 4. Result in inadequate emergency access? | | | X | |

DISCUSSION:

Q.1. No Impact. The proposed project is a bridge replacement that would result in the replacement of a two-lane bridge with a 31′-6″ clear width bridge, consisting of two-9′ lanes and two-5′ shoulders. The project will not conflict with an applicable plan, ordinance or policy regarding the effectiveness of the performance of the circulation system. The proposed project would not generate additional traffic, as it would not construct facilities or land uses that would generate additional vehicular traffic such as a retail center or residential subdivision. No impact is anticipated.

Q.2. No Impact. The project is not expected to result in additional vehicular trips, or to impact levels of service and trip distributions within the project area. The proposed project will not conflict with an applicable congestion management program and will not affect travel demand measures. Roadway safety conditions are expected to improve upon project completion, as the project will include a new wider bridge and provide safer, wider transitions to the bridge structure. CEQA Guidelines Section 15064.3(b)(1).) (2) states:

> "Transportation projects that reduce, or have no impact on, vehicle miles traveled should be presumed to cause a less than significant transportation impact."

In accordance with CEQA Guidelines Section 15064.3, subdivision (b), the Project would cause a less than significant transportation impact. As such, the Project would not conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b), and would result in no impact.

Q.3. No Impact. The Project would replace an existing structurally deficient and closed bridge with a new bridge. Therefore, the Project would have a beneficial effect on transportation by eliminating risks from an existing structurally deficient structure. The horizontal alignment of the new bridge would match that of the existing bridge, which is approximately perpendicular to the normal stream alignment of Robinson Creek. The new bridge would allow for wider travel lanes and improved shoulder widths. The bridge would not introduce design features that would increase hazards, such as sharp curves. No impact would occur.

Q.4. Less Than Significant. Currently there is a temporary bridge installed to allow for vehicular and pedestrian access across Robinson Creek. The proposed project would not cause any permanent closures to the roadway, nor block access to private property. The construction is expected to occur from June 1 – October 30 and take one construction season weather and conditions permitting. Temporary road delays during construction may affect traffic patterns near the construction site and potentially affect fire and police response times for multiple apparatus events; however, any such impacts would be minor and not significantly affect long-term service ratios, response times, or other performance objectives for public services. Project proponents would notify local emergency service providers of construction activities and would ensure coordination with local providers to establish alternative routes and appropriate signage. The proposed improvements, which would bring the existing facilities in the project site up to current design standards, would provide safer passage for emergency vehicles. Therefore, relative to emergency access, impacts would be less than significant.

MITIGATION: None required.

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

DISCUSSION:

The CEQA Guidelines define tribal cultural resources as: (1) a site, feature, place, cultural landscape, sacred place, or object with cultural value to a California Native American Tribe that is listed or eligible for listing on the California Register of Historical Resources, or on a local register of historical resources as defined in Public Resources Code Section 5020.1(k); or (2) a resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant according to the historical register criteria in Public Resources Code Section 5024.1(c), and considering the significance of the resource to a California Native American tribe.

The project is not anticipated to cause a substantial adverse change in the significance of a tribal cultural resource. The project site is in an area considered to be low to moderate archaeological sensitivity. In regards to AB52 compliance, no Tribes have filed letters with MDOT to be a consulting party for any project that MDOT conducts.

R.1.a. – 1.b. Less Than Significant with Mitigation Incorporated. A site specific Archaeological Survey Report (ASR), an Extended Phase I (XPI) and an Archaeological Evaluation Report (AER) Phase II were performed for the Project to identify potential archaeological and historical resources within the Area of Potential Effects (APE). The findings of the ASR were based on the following research, consultations and analysis:

- A records search and historic map research at the Northwest Information Center (NWIC) of the
- California Historic Resources Inventory System at Sonoma State University, Rohnert Park;
- Contact with the Native American Heritage Commission, Native American groups and individuals;
- Mendocino County Historical Society information solicitation;
- A field survey of the Project APE; and
- Geoarchaeological analysis.

One previous study, part of a Caltrans historic bridge inventory update of concrete arch bridges determined that the current bridge does not meet the criteria for listing in the National Register. Field

studies and investigations undertaken as part of the ASR, XPI and AER identified three sites with archaeological and historic-era deposits within the Project site. The results of the ASR and AER determined that there are no historic−era structures eligible for inclusion to the National Register of Historic Places (NRHP) or California Register of Historic Resources (CRHR) within the Area of Direct Impact (ADI) of the Project. These resources do not have cultural value to Native American tribes.

Although no eligible historic properties have been identified within the Project Area, the potential exists to encounter as-of-yet unknown historic or archaeological materials during project related construction activities. If such resources were to represent "tribal cultural resources" as defined by CEQA, any substantial change to or destruction of these resources would be a potentially significant impact. Implementation of Mitigation R.1 would reduce impacts to less than significant with mitigation incorporated.

Mitigation Measure TCR-1: Tribal Cultural Resources
If potential tribal cultural resources are uncovered, the County shall halt work, and workers shall avoid altering the materials and their context. Project personnel shall not collect cultural materials. MDOT shall notify California Native American tribes culturally affiliated with the Project area. MDOT, in coordination with Native American tribes, shall determine if the resource qualifies as a tribal cultural resource under CEQA. If it does, then all work must remain stopped in the immediate vicinity to allow evaluation of any materials. MDOT shall ensure that qualified resources are avoided or protected in place, in accordance with the requests of Native American tribes, to the extent feasible. Work may proceed on other parts of the project while mitigation for tribal cultural resources is being carried out.

Implementation of Mitigation Measure TCR-1 would reduce this impact to a less-than- significant level because a plan to address discovery of unanticipated buried tribal cultural resources and to preserve and/or record those resources consistent with appropriate laws and requirements would be implemented, and a tribal monitor would be present during ground disturbing activities.

MITIGATION: Mitigation Measures TCR-1: Tribal Cultural resources

| S. Utilities and Service Systems<br>Would the project: | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| 1. Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects? | | X | | |
| 2. Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years? | | | X | |
| 3. Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments? | | | X | |
| 4. Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals? | | | X | |
| 5. Comply with federal, state, and local management and reduction statutes and regulations related to solid waste? | | | X | |

DISCUSSION:

S.1. Less Than Significant With Mitigation Incorporated. The proposed project would not require wastewater treatment, new electric power, natural gas or telecommunications facilities. The existing bridge contains a stormwater outfall pipe on the south side of an abutment that drains into Robinson Creek. This outfall will be replaced as part of the Project. The replacement bridge will be crowned at the centerline and utilize concrete barrier rail or curb to collect storm water and direct it off the bridge. Eventually, the bridge and roadway drainage and aforementioned culvert will empty into Robinson Creek. The project does require the rehabilitation of an existing drainage system, including surface and subsurface drainage infrastructure to capture and direct runoff from the Project site into Robinson Creek. Rock slope protection is proposed as part of this drainage infrastructure, and the placement of the RSP will likely be within the jurisdictional of the RWQCB, USACE and CDFW. Mitigation Measure BIO-9, as described in the Biological section of this document, requires the County to obtain final permits from the USACE, CVWQCB and CDFW prior to the construction of the project. With this mitigation measure, potential impacts to the environment as a result of the rehabilitation of drainage systems will be less than significant with mitigation incorporated.

S.2.-S.3. No Impact. The Project would require minimal water for dust suppression during the construction phase of the Project. No water would be required for the long-term operation of the Project. The proposed project does not require the ongoing use of water as there are no landscaping components involved. The proposed project will not involve the need for wastewater treatment or the expansion of wastewater treatment facilities. No impact is anticipated.

S.4.-S.5. Less Than Significant Impact. The project will not generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals. During construction, a limited amount of construction waste would be generated. Waste would only be sent to permitted landfill facilities with adequate capacity to accept construction waste. The project would not create a long-term source of solid waste needing disposal. Disposal and recycling of materials generated by the construction of the new road and bridge will be

handled and disposed of in accordance with Federal, State, and local requirements. This impact would be less than significant.

MITIGATION: Mitigation Measure BIO-9 (Regulatory Permits)

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

DISCUSSION:

T.1. No Impact. The County of Mendocino's 2016 Emergency Operations Plan includes and identifies emergency planning, organization, policies, procedures, and response to extraordinary emergency situations associated with natural disasters, technological incidents, and national security emergencies (Mendocino County 2016). Lambert Lane is not considered an evacuation route in the County's Emergency Operation Plan. A temporary bridge will provide access to parcels and residences on Lambert Lane west of the project site during construction activities. Therefore the proposed Project will have no impacts on an adopted emergency response plan or emergency evacuation plan.

T.2. No Impact. Wildfire risk is dependent upon existing environmental conditions, including but not limited to the amount of vegetation present, topography, and climate. The Project site is located within a rural area surrounded by oak woodland and riparian vegetation. Climate in the area is generally warm and temperate, with the winters being rainier than the summers. The proposed Project involves the replacement of a functionally obsolete bridge with a new bridge structure and does not include housing or other structures that would house occupants at the site, therefore the project would result in no impact.

T.3. No Impact. The proposed Project would replace the existing Lambert Lane Bridge. No new infrastructure would be installed that would require additional maintenance beyond what is currently utilized. Once the bridge is installed there is not anticipated to be any temporary or ongoing impacts to the environment above the existing conditions. Therefore, no impact would occur.

T.4. No Impact. The proposed replacement bridge would be raised above the 100-year flood plain and RSP would be placed around the abutments to protect against erosion. Additionally, following construction, drainage patterns would be substantially the same as existing conditions. The RSP to be placed on the channel banks would not interfere with normal channel flows and the project would ultimately enhance channel flows. The Project would result in only negligible increases in impervious surfaces from the widened roadway approaches. Therefore, the Project would not result in localized increases in the rate or amount of surface runoff that would result in flooding downslope or downstream.

A component of the project involves addressing an existing wing-wall and slope failure. Through adherence to AASHTO, SDC, MTD standards and engineering review, the design and construction of the bridge and associated structures will be designed to minimize potential impacts associated with soil or slope instability. This is considered a less than significant impact.

MITIGATION: None Required.

U. MANDATORY FINDINGS OF SIGNIFICANCE

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

DISCUSSION:

U.1 Less Than Significant with Mitigation Incorporated. With implementation of the mitigation measures presented herein, the Project does not have the potential to degrade the quality of the environment, including fish or wildlife species or their habitat, plant or animal communities, important examples of the major periods of California history or prehistory.

U.2 Less Than Significant Impact. Cumulative impacts are defined as "two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts" (CEQA Guidelines Section 15355). Cumulative impacts can result from individually minor, but collectively significant, actions taking place over a period of time. This IS/Proposed MND utilizes the "plan" approach, per CEQA Guidelines Section 15130(d), to determine if the Project makes a considerable contribution to a significant cumulative impact.

As discussed in Section XI., Land Use and Planning, the Project would not conflict any applicable land use plans, policies, or regulations which govern the Project area. The Project's impact would not add appreciably to any existing or foreseeable future significant cumulative impact, such as visual quality, traffic impacts, or noise. Incremental impacts, if any, would be negligible and undetectable. As reported throughout this analysis, any applicable cumulative impacts to which this Project would contribute would be mitigated to a less-than-significant level.

U.3 Less Than Significant with Mitigation Incorporated. Based on the preceding environmental analysis and adherence to applicable local, state and federal regulations, as noted in this document, the proposed project would not result in potentially significant cumulative, direct or indirect adverse effects on human beings.

## V. MITIGATION MONITORING AND REPORTING PROGRAM

| Mitigation Measure | Timeframe for Implementation | Responsible Monitoring Agency | Verification of Compliance | | |
|---|---|---|---|---|---|
| | | | Agency & Initials | Date | Notes |
| **Air Quality** | | | | | |
| Mitigation Measure AQ-1: Dust Control Measures<br>In accordance with Rule 1-430(b) of the Mendocino County Air Quality Management District Regulations, the County of Mendocino and its Contractor shall implement the following airborne dust control measures during construction activities:<br>• All visibly dry disturbed soil road surfaces shall be watered to minimize fugitive dust emissions.<br>• All unpaved surfaces, unless otherwise treated with suitable chemicals or oils, shall have a posted speed limit of 10 miles per hour.<br>• Earth or other material that has been transported by trucking or earth moving equipment, erosion by water, or other means onto paved streets shall be promptly removed.<br>• Asphalt, oil, water, or suitable chemicals shall be applied on materials stockpiles and other surfaces that can give rise to airborne dusts.<br>• All earthmoving activities shall cease when sustained winds exceed 15 miles per hour.<br>• The operator shall take reasonable precautions to prevent the entry of unauthorized vehicles onto the site during non-work hours.<br>• The operator shall keep a daily log of activities to control fugitive dust. | Incorporate into specifications<br><br>Contractor to implement measures during construction | Mendocino County Department of Transportation | | | |

| Mitigation Measure | Timeframe for Implementation | Responsible Monitoring Agency | Verification of Compliance | | |
|---|---|---|---|---|---|
| | | | Agency & Initials | Date | Notes |
| Biological Resources | | | | | |
| Mitigation Measure BIO-1: Avoid Impacts to Special-Status Fish Species<br>• Construction within Robinson Creek will be limited to June 15 through October 15, or as permitted by regulatory agencies.<br>• If flowing water is present within the BSA between June 15 and October 15 then a clear water diversion using an appropriately sized culvert and sandbags will be installed. A qualified biologist shall monitor the construction site during placement and removal of stream diversions to ensure that any harm or loss of salmonids is minimized and documented.<br>• If water is present within the Project site between June 15 and October 15, then a qualified biologist will perform fish relocation prior to the start of construction activities.<br>• The qualified biologist with expertise in the areas of anadromous salmonid biology, including handling, collecting, and relocating salmonids; salmonid habitat relationships; and biological monitoring shall perform fish relocation. Fish relocation will be performed in a manner which minimizes all potential risks to NC steelhead.<br>• Electrofishing, if used, shall be performed by a qualified biologist and conducted according to the NMFS Guidelines for Electrofishing Waters Containing Salmonids Listed under the Endangered Species Act.<br>• Installation of LWD will be anchored to bank at the inside bend in the upstream right bank between station 29+60 and 31+100, and on the downstream left bank around station 28+00 to create fish habitat.<br>• Removal of the existing rubble and reconfiguring of the RSP that covers the creek bottom and restoring the channel to a more natural condition to promote fish passage. This will involve removing a current barrier to steelhead at the existing failed retaining wall, thereby restoring access to habitat for steelhead upstream of the bridge. | Incorporate into specifications<br><br>Contractor to implement measures during construction | Mendocino County Department of Transportation | | | |

| Mitigation Measure | Timeframe for Implementation | Responsible Monitoring Agency | Verification of Compliance | | |
|---|---|---|---|---|---|
| | | | Agency & Initials | Date | Notes |
| Mitigation Measure BIO-2: Salmonid Habitat Restoration and Enhancement<br>The following measures, when implemented, will avoid and minimize impact to this species:<br>• All work within Robinson Creek will occur between June 15 and October 15 when PCEs are not present within the BSA. If water is present within the BSA then fish relocation will be conducted by a qualified biologist prior to the start of construction.<br>• The existing rubble from the failed retaining wall and RSP will be removed from the creek channel and the channel will be restored to a more natural condition to promote fish passage.<br>• In addition to the willow plantings contained within the hybrid RSP revetment, native vegetation will be planted on the graded point bars on the inside of the channel bends. This vegetation should include native riparian tree species, as well as understory plants.<br>• The Project will create a terrace behind the RSP adjacent to the road embankment at the southern bridge approach. This terrace will be used to plant upland tree species, such as native oaks and function as a stormwater treatment facility.<br>• Installation of LWD will be anchored to bank at the inside bend in the upstream right bank between station 29+60 and 31+100, and on the downstream left bank around station 28+00 to create fish habitat.<br>• A landscape architect or botanist shall be retained to develop a plan to harvest cutting stock, design a planting plan, replant and monitor for success the replanting of approximately 125 willow/cottonwood trees. 220 native riparian trees and 5-10 native upland trees to restore the riparian habitat and associated essential fish habitat. The plan shall be implemented and monitored for success. | Incorporate into specifications<br><br>Contractor to implement measures during construction<br><br>Monitor replanting to meet success criteria | Mendocino County Department of Transportation | | | |

| | | | | | |
|---|---|---|---|---|---|
| Mitigation Measure BIO-3: Navarro Roach Avoidance<br>• Construction in Robinson Creek will be limited to June 15 through October 15, or as permitted by regulatory agencies<br>• If flowing water is present within the BSA between June 15 and October 15 then a clear water diversion using an appropriately sized culvert and sandbags will be installed. A qualified biologist shall monitor the construction site during placement and removal of stream diversions to ensure that any harm or loss of aquatic life is minimized and documented.<br>• If water is present within the Project site between June 15 and October 15, then a qualified biologist will perform fish relocation prior to the start of construction activities.<br>  • The qualified biologist with expertise in the areas of fisheries biology, including handling, collecting, and relocating fish; fish habitat relationships; and biological monitoring shall perform fish relocation. Fish relocation will be performed in a manner which minimizes all potential risks to Navarro roach.<br>  • Electrofishing, if used, shall be performed by a qualified biologist and conducted according to the NMFS Guidelines for Electrofishing Waters Containing Salmonids Listed under the Endangered Species Act.<br>• Installation of LWD will be anchored to bank at the inside bend in the upstream right bank between station 29+60 and 31+100, and on the downstream left bank around station 28+00 to create fish habitat.<br>• The existing rubble from the failed retaining wall and RSP will be removed from the creek channel and the channel will be restored to a more natural condition to promote fish passage.<br>• In addition to the willow plantings contained within the hybrid RSP revetment, native vegetation will be planted on the graded point bars on the inside of the channel bends. This vegetation should include native riparian tree species, as well as understory plants.<br>• The Project will create a terrace behind the RSP adjacent to the road embankment at the southern bridge approach. This terrace will be used to plant upland tree species, such as native oaks and function as a stormwater treatment facility. | Incorporate into specifications<br><br>Contractor to implement measures during construction<br><br>Monitor replanting to meet success criteria | Mendocino County Department of Transportation | | | |

| Mitigation Measure | Timeframe for Implementation | Responsible Monitoring Agency | Verification of Compliance | | |
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| | | | Agency & Initials | Date | Notes |
| Mitigation Measure BIO-4: Foothill Yellow Legged Frog<br>The following measures when implemented will minimize impacts to this species:<br><br>• Construction within Robinson Creek will be limited to June 15 through October 15, during periods of low flows.<br>• A qualified biologist shall conduct a preconstruction survey to determine presence of FYLF immediately prior to the start of in-channel work. If found, FYLF will be relocated to suitable habitat outside of the BSA, by a qualified biologist.<br>• Contractor shall not use plastic monofilament netting which can entrap the FYLF.<br>• The existing rubble from the failed retaining wall and RSP will be removed from the creek channel and the channel will be restored to a more natural condition.<br>• In addition to the willow plantings contained within the hybrid RSP revetment, native vegetation will be planted on the graded point bars on the inside of the channel bends. This vegetation should include native riparian tree species, as well as understory plants.<br>• The Project will create a terrace behind the RSP adjacent to the road embankment at the southern bridge approach. This terrace will be used to plant upland tree species, such as native oaks and function as a stormwater treatment facility. | Incorporate into specifications<br><br>Contractor to implement measures during construction<br><br>Monitor replanting to meet success criteria<br><br>Implement recommended protection measures as necessary | Mendocino County Department of Transportation | | | |

| Mitigation Measure | Timeframe for Implementation | Responsible Monitoring Agency | Verification of Compliance | | |
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| | | | Agency & Initials | Date | Notes |
| Mitigation Measure BIO-5: Western Pond Turtle<br>The following are avoidance and minimization measures required in order to avoid and minimize potential impacts to western pond turtles.<br><br>• A qualified biologist shall conduct a preconstruction survey to determine presence of western pond turtle immediately prior to the start of in-channel work. If found, western pond turtles will be relocated to suitable habitat outside of the BSA by a qualified biologist.<br>• If a western pond turtle is observed within the Project site, then personnel shall stop work within a 50-foot radius of the sighting and notify the biologist or resident engineer (RE). Work shall not resume within the 50-foot radius buffer until the western pond turtle has left the Project site on its own volition or has been relocated by the qualified biologist. | Incorporate into specifications<br><br>Contractor to implement measures during construction<br><br>Implement recommended protection measures as necessary | Mendocino County Department of Transportation | | | |

| Mitigation Measure | Timeframe for Implementation | Responsible Monitoring Agency | Verification of Compliance | | |
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| | | | Agency & Initials | Date | Notes |
| Mitigation Measure BIO-6: Migratory Birds and Raptors<br>To avoid impacts to avian species of special concern or avian species protected under the MBTA and the CFGC, the following avoidance and minimization measures are recommended.<br><br>The following are avoidance and minimization measures for California avian species of special concern and species protected under the MBTA and the CFGC.<br><br>• Any vegetation removal and/or ground disturbance activities should take place during the avian non-breeding season (September 1 − January 31).<br>• If construction is to begin within the avian breeding season (February 1 − August 31) then a migratory bird and raptor survey shall be conducted within the BSA by a qualified biologist. A qualified biologist shall:<br>  • Conduct a protocol level survey for all birds protected by the MBTA and CFGC within seven (7) days prior to construction activities, and map all nests located within 200 feet of construction areas;<br>  • Develop buffer zones around active nests as recommended by a qualified biologist. Construction activity shall be prohibited within the buffer zones until the young have fledged or the nest fails. Nests shall be monitored at least once per week and a report submitted to the County monthly.<br>• If construction activities stop for more than ten (10) days then another migratory bird and raptor survey shall be conducted within seven (7) days prior to the continuation of construction activities.<br>• All staging and construction activity will be limited to designated areas within the BSA and designated routes for construction equipment shall be established in order to limit disturbance to the surrounding area. | Incorporate into specifications<br><br>Contractor to implement measures during construction<br><br>Implement recommended protection measures as necessary | Mendocino County Department of Transportation | | | |

| Mitigation Measure | Timeframe for Implementation | Responsible Monitoring Agency | Verification of Compliance | | |
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| | | | Agency & Initials | Date | Notes |
| Mitigation Measure BIO-7: Pallid Bat Avoidance<br>If trees containing suitable bat habitat (i.e. sloughing bark, activities, or crevices) are removed between March 15 and August 31, a qualified biologist will conduct a preconstruction survey for roosting bats within seven days prior to tree removal. The survey will focus on suitable habitat to determine the absence or presence of roosting bats and type of roost within the tree. If the pre-construction survey determines that bats are not using the trees onsite as day roosts, then tree removal can proceed as planned.<br><br>If the tree is being utilized as a day roost and the qualified biologist determines that it is a maternity roost, then removal of the tree will be postponed until consultation with CDFW occurs. If the roost is not a maternity roost or if tree removal occurs during the winter months (i.e. October 16 – February 14), then the following phased removal of the occupied tree will be implemented:<br>• Day 1: All unoccupied roosting habitat (e.g. crevices, sloughing bark, cavities) should be removed or altered to make it less desirable for roosting. All portions of the tree that do not contain suitable habitat can be removed while avoiding occupied habitat.<br>• Day 2: All remaining portion of the tree including suitable roosting habitat can be removed.<br><br>A qualified biologist shall be onsite during tree removal activities if bats are detected. | Incorporate into specifications<br><br>Contractor to implement measures during construction<br><br>Implement recommended protection measures as necessary | Mendocino County Department of Transportation | | | |

| Mitigation Measure | Timeframe for Implementation | Responsible Monitoring Agency | Verification of Compliance | | |
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| | | | Agency & Initials | Date | Notes |
| Mitigation Measure BIO-8: Tree Protection and Replacement Plan<br>In accordance with the Mendocino County General Plan Policies RM-1, RM-27 and RM-28, Mendocino County shall preserve and protect trees in and adjacent to the Project area to the extent feasible. Prior to construction, an arborist certified by the International Society of Arboriculture shall conduct site surveys of the construction area and provide recommendations to ensure protection of trees and tree roots during construction activities such as the removal of the existing bridge abutments, the placement of new bridge abutments, re-contouring of the Mill Creek stream banks, and roadway widening.<br>Tree protection measures could include minimizing grading as much as possible; protecting trees and roots with exclusion fencing; limiting access to areas with protected trees; limiting tree trimming to the minimum necessary for construction clearance and site and equipment access; and conforming to standard tree trimming practices designed to protect trees such as the International Society of Arboriculture Pruning Standards.<br>Per the Mendocino County General Plan Policy RM-28, if oak woodland habitat is lost due to tree removal, replacement of lost oak woodlands or preservation of oak woodlands shall be provided at a 2:1 ratio. The arborist shall assist Mendocino County in determining the acreage of oak woodland lost, determining if on-site restoration is feasible, and locating an off-site location for mitigation if required. If replacement trees are required, the County shall implement a five-year maintenance and monitoring program in which the County shall inspect the mitigation planting area for the purpose of adapting maintenance techniques if necessary. Survival surveys shall be conducted biannually for five years. The County shall use the following sliding scale performance standard for evaluation of the restoration's success:<br>• First year – 95%<br>• Second year – 90%<br>• Third year – 85%<br>• Fourth year – 80%<br>• Fifth year – 75%<br>Trees shall be considered alive and healthy if they display noticeable growth and the presence of new shoots. | Incorporate into specifications<br><br>Contractor to implement measures during construction | Mendocino County Department of Transportation | | | |

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| Mitigation Measure BIO-9: Compensate for Impacts to Waters<br>MDOT shall avoid impacts to waters to the extent feasible. If fill cannot be avoided MDOT shall compensate for impacts to creeks and other waters, by creation, restoration, or preservation of waters so that there is no net loss (1:1 ratio or as required by resource agencies). Required permits from the U.S. Army Corps of Engineers, the Regional Water Quality Control Board, and the California Department of Fish and Wildlife shall be received prior to that start of any on-site construction activity. MDOT shall ensure any and all additional measures outlined in the permits are implemented. | Incorporate protection and avoidance measures into specifications<br><br>Acquire permits and fulfill compensatory mitigation requirements as defined by permits. | Mendocino County Department of Transportation | | | |

| Mitigation Measure | Timeframe for Implementation | Responsible Monitoring Agency | Verification of Compliance | | |
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| | | | Agency & Initials | Date | Notes |
| Cultural Resources | | | | | |
| Mitigation Measure CR-1: Environmentally Sensitive Area Action Plan<br>An Environmentally Sensitive Areas (ESAs) Action Plan has been developed, which presents specific methods and procedures for protecting the portions of archaeological sites outside the ADI portion of the APE. Untested areas, outside of the ADI shall be protected as ESAs as a standard condition (per Caltrans Section 106 PS Attachment 5). A combination of exclusionary fencing, flagging, signing, or monitoring to protect properties from direct physical damage by project related activities shall be implemented prior to and during construction. | Incorporate protection and avoidance measures into specifications<br><br>Develop and implement ESA Action Plan throughout the life of construction activities. | Mendocino County Department of Transportation | | | |

| Mitigation Measure | Timeframe for Implementation | Responsible Monitoring Agency | Verification of Compliance | | |
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| | | | Agency & Initials | Date | Notes |
| Mitigation Measure CR-2: Identify and Avoid or Minimize Impacts to Unknown Cultural Resources<br>Mendocino County shall retain a qualified archaeologist to be present during initial ground disturbing activities to ensure that there are no prehistoric archaeological resources present within the vertical APE. These activities would include excavation of the existing concrete abutments, headwalls, and associated footings from the creek.<br><br>If archaeological materials are encountered during construction activities, construction crews shall stop all work within 100 feet of the discovery until a qualified archaeologist can assess the discovery and provide recommendations. Such treatment and resolution could include modifying the Project to allow the materials to be left in place, or undertaking data recovery of the materials in accordance with standard archaeological methods. The preferred treatment of the resource is protection and preservation.<br><br>Resources could include buried historic features, such as artifact-filled privies, wells, and refuse pits, and artifact deposits, along with concentrations of adobe, stone, or concrete walls or foundations, and concentrations of ceramic, glass, or metal materials. Native American archaeological materials could include obsidian and chert flaked stone tools (such as projectile points and knives), midden (darken soil created culturally from use and containing heat-affected rock, artifacts, animal bones, or shellfish remains), and/or groundstone implements (such as mortars and pestles). Project personnel shall not collect cultural materials. | Incorporate into final plans and specifications | Mendocino County Department of Transportation | | | |

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| Mitigation Measure CR-3: Procedures for Encountering Human Remains<br>If human remains are encountered as a result of construction activities, any work in the vicinity shall stop and the Mendocino County Coroner shall be contacted immediately. In addition, a qualified archaeologist shall be contacted immediately to evaluate the discovery, if a monitor is not already present. If the human remains are Native American in origin, then the Coroner shall notify the Native American Heritage Commission within 24 hours of this identification, pursuant to Public Resources Code 5097.98. California Health and Safety Code Section 7050.5 states that it is a misdemeanor to knowingly disturb a human grave. | Incorporate into final plans and specifications | Mendocino County Department of Transportation | | | |

| Mitigation Measure | Timeframe for Implementation | Responsible Monitoring Agency | Verification of Compliance | | |
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| | | | Agency & Initials | Date | Notes |
| Geology / Soils | | | | | |
| Mitigation Measure GEO-1: Evaluation and Treatment of Paleontological Resources If paleontological resources (e.g., vertebrate bones, teeth, or abundant and well-preserved invertebrates or plants) are encountered during construction, Mendocino County shall ensure work in the immediate vicinity shall be diverted away from the find until a professional paleontologist assesses and salvages the find, if necessary. | Incorporate into final plans and specifications | Mendocino County Department of Transportation | | | |

| Mitigation Measure | Timeframe for Implementation | Responsible Monitoring Agency | Verification of Compliance | | |
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| | | | Agency & Initials | Date | Notes |
| Hazards and Hazardous Materials | | | | | |
| MITIGATION HAZ-1: Hazard Material Screening<br>Prior to site disturbance and demolition of the existing bridge, testing for asbestos containing material (ACM), lead-based paint and chemically treated wood and thermoplastic traffic stripping shall be conducted and appropriate methods of handling and disposal shall be implemented per the conditions of the ISA. | Conduct testing for hazardous materials identified in the ISA. Incorporate the results and recommendations into final plans and specifications | Mendocino County Department of Transportation | | | |

| Mitigation Measure | Timeframe for Implementation | Responsible Monitoring Agency | Verification of Compliance | | |
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| | | | Agency & Initials | Date | Notes |
| Hydrology / Water Quality | | | | | |
| Mitigation Measure HWQ-1: Minimize Impacts to Robinson Creek During Construction<br>MDOT or its contractor(s) shall prepare an Erosion and Sediment Control Plan prior to construction and implement it during construction to minimize impacts to Robinson Creek during Project construction.<br>The Erosion and Sediment Control Plan shall include sufficient measures to address the overall construction of the Project and, at a minimum, construction contractors should undertake the following measures, as applicable, to minimize any adverse effects on water quality:<br>• The amount of construction-related disturbance within the Robinson Creek channel and creek banks shall be limited to the extent practicable.<br>• Where the creek channel is contoured to accommodate the new bridge, modifications to the existing stream banks shall provide a smooth transition into and out of the modified stream section.<br>• Other disturbed stream banks shall be returned to pre-existing contours and natural conditions upon completion of work.<br>• Construction equipment shall be cleaned and inspected prior to use. Servicing of vehicles shall be conducted a minimum of 100 feet from Mill Creek, at designated staging areas to avoid contamination through accidental drips and spills.<br>• The Project shall comply with the Caltrans Construction Site BMP Manual section NS-13: Material and Equipment Use Over Water.<br>• Dust, erosion, sedimentation control, and dewatering activities shall follow the 2018 Caltrans Standard Specifications. | Incorporate protection and avoidance measures into specifications<br><br>Prepare Erosion and Sediment Control Plan<br><br>Contractor to implement Erosion and Sediment Control Plan during construction | Mendocino County Department of Transportation | | | |

| Mitigation Measure | Timeframe for Implementation | Responsible Monitoring Agency | Verification of Compliance | | |
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| | | | Agency & Initials | Date | Notes |
| (HWQ-1 Continued)<br>• On-site stockpiles shall be isolated with silt fence, filter fabric, and/or straw bales/fiber rolls. Silt fence and/or fiber rolls shall be placed at bridge abutments, new abutment excavation areas, and any other locations when work could result in loose sediment that could enter stream. The silt fence/fiber rolls shall be maintained and kept in place for the duration of the Project. Any sediment or debris captured by the fence/rolls shall be removed before the fence/rolls are pulled. As necessary additional erosion, sediment, and material stockpile BMPs shall be employed between work areas and adjacent waterway. No fill or runoff shall be allowed to enter the waterway.<br>• The construction zone shall be kept free from litter by providing suitable disposal containers for trash and all construction-generated material wastes. These containers shall be emptied at regular intervals and the contents properly disposed. The containers shall have covers that can be completely closed and secured.<br>• Hazardous materials shall be stored in an area protected from rainfall and stormwater run-on to prevent the offsite discharge of leaks or spills.<br>• Portable sanitary facilities shall be located a minimum of 50 feet from the creek and maintained regularly to prevent the discharges of pollutants. | See previous page | Mendocino County Department of Transportation | | | |

| Mitigation Measure | Timeframe for Implementation | Responsible Monitoring Agency | Verification of Compliance | | |
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| | | | Agency & Initials | Date | Notes |
| Mitigation Measure HWQ-2: Storm Water Control Measures During Construction<br>MDOT shall obtain coverage under State Water Resources Control Board Order No. 2009-0009- DWQ, Waste Discharge Requirements for Discharges of Storm Water Runoff Associated with Construction and Land Disturbance Activities, as amended by 2010-0014-DWQ and 2012-0006- DWQ. MDOT and/or its contractor shall submit permit registration documents (notice of intent, risk assessment, site maps, Storm Water Pollution Prevention Plan (SWPPP), annual fee, and certifications) to the State Water Resources Control Board. The SWPPP shall address pollutant sources, non-storm water discharges, best management practices, and other requirements specified in the above-mentioned Order. The SWPPP shall also include dust control practices to prevent wind erosion, sediment tracking, dust generation by construction equipment, management of concrete slurry, asphalt, pavement cutting, and other street and road activities to avoid discharge to storm drains from such work. The SWP shall be prepared in accordance with Caltrans SWPPP and Water Pollution Control Program Preparation Manual (Caltrans 2016).A Qualified Storm Water Pollution Prevention Plan Practitioner shall oversee implementation of the Plan, including visual inspections, sampling and analysis, and ensuring overall compliance. | Prepare SWPPP and permit registration documents prior to construction.<br><br>Contractor to provide Qualified Storm Water Pollution Prevention Plan Practitioner to oversee SWPPP implementation | Mendocino County Department of Transportation | | | |

| Mitigation Measure | Timeframe for Implementation | Responsible Monitoring Agency | Verification of Compliance | | |
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| | | | Agency & Initials | Date | Notes |
| Noise | | | | | |
| Mitigation Measure NOI-1: Reduce Construction Noise<br>• Project construction activities should occur during daytime hours only (as proposed).<br>• All noise-producing equipment and vehicles using internal combustion engines shall be equipped with manufacturers-recommended mufflers (pursuant to Section 14- 8.02 of Caltrans standard specifications).<br>• Nearby residences shall be notified of construction schedules so that arrangements can be made (if desired) to limit their exposure to short-term increases in ambient noise levels. | Incorporate requirements and construction best management practices into specifications<br><br>Implement best management practices during construction<br><br>Notify adjacent sensitive receptors | Mendocino County Department of Transportation | | | |

| Mitigation Measure | Timeframe for Implementation | Responsible Monitoring Agency | Verification of Compliance | | |
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| | | | Agency & Initials | Date | Notes |
| Tribal Cultural Resources | | | | | |
| Mitigation Measure TCR-1: Tribal Cultural Resources: If potential tribal cultural resources are uncovered, the County shall halt work, and workers shall avoid altering the materials and their context. Project personnel shall not collect cultural materials. MDOT shall notify California Native American tribes culturally affiliated with the Project area. MDOT, in coordination with Native American tribes, shall determine if the resource qualifies as a tribal cultural resource under CEQA. If it does, then all work must remain stopped in the immediate vicinity to allow evaluation of any materials. MDOT shall ensure that qualified resources are avoided or protected in place, in accordance with the requests of Native American tribes, to the extent feasible. Work may proceed on other parts of the project while mitigation for tribal cultural resources is being carried out. | Incorporate into specifications | Mendocino County Department of Transportation | | | |

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# Appendix A:
# Robinson Creek Channel Design Report

Robinson Creek Bridge Replacement on Lambert Lane,
Mendocino California

# Robinson Creek Channel Design Report for the Lambert Lane Bridge Replacement Project



Federal-Aid Project No. BLO-5910(099)

Mendocino County Project No. B1302

Existing Bridge No. 10C0146

Prepared for:

**Quincy Engineering**
**and**
**County of Mendocino Department of Public Works**

Prepared by:

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**March 2019**

# Robinson Creek Channel Design Report for the Lambert Lane Bridge Replacement Project

Prepared for:

**County of Mendocino Department of Public Works**

**Quincy Engineering**

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**March 2019**

Cover Photo: Oak tree recently fallen into Robinson Creek upstream of Lambert Lane following bank erosion.

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# 1 INTRODUCTION

## 1.1 Purpose of Report

The purpose of this report is to summarize the channel design for a bridge replacement project on Lambert Lane at Robinson Creek, a tributary to Anderson Creek, in the unincorporated community of Boonville, Mendocino County, California. The bridge replacement designs are being developed by Quincy Engineering for the county and is intended to replace an obsolete and scour critical bridge.

## 1.2 Project Background

The County of Mendocino and the California Department of Transportation (Caltrans), are planning to replace Lambert Lane Bridge at Robinson Creek (Bridge No. 10C0146). Lambert Lane crosses Robinson Creek approximately 2,860 linear feet upstream of the confluence with Anderson Creek and 500 feet west of State Route SR128 (Figure 1). The contributing drainage area at the bridge crossing is approximately 4.0 square miles. The bridge has been labelled functionally obsolete and is scour critical. Originally built in 1954, the existing 32-foot long single span bridge is supported on concrete abutments founded on spread footings which were placed on the alluvial channel material. Caltrans has noted hydraulic undermining of the abutments since the year 2000. In February 2015 a retaining wall along the roadway embankment on the upstream side of the western bridge approach collapsed, falling across the stream channel. This created a flow obstruction that further increased scour of the bridge foundation. As an emergency measure the county placed riprap at the base of the roadway and later pumped concrete underneath the undermined footing and formed a concrete skirt in front of the exposed footing, as seen in Figure 2.

Previous work has been conducted by Quincy Engineering in partnership with County of Mendocino Department of Public Works, including a Bridge Design Hydraulic Study (2018) and Project Report (2018). These works provide the basis for design of the proposed bridge replacement. Michael Love & Associates, Inc. (MLA) has been contracted to develop the geomorphic design and stabilization measures for the stream channel within the bridge replacement project reach, which is described within this report.

## 1.3 Fisheries Habitat and Fish Passage

Robinson Creek is a tributary to Anderson Creek within the Navarro River watershed. Robinson Creek is designated as critical habitat for Northern California steelhead, which is federally listed as a threatened species. Streamflows within Robinson Creek are intermittent, with the channel drying by early summer. These conditions suggest that the habitat available in lower Robinson Creek is primarily suitable for spawning and over-winter rearing for steelhead.

A fish passage assessment of stream crossings was conducted by RTA (2001). Because the Lambert Lane bridge is a channel spanning crossing, it was considered to provide unimpeded fish passage and was not included in the assessment. However, under current conditions, the failed retaining wall and associated riprap creates a 3-foot water surface drop, which classifies the current conditions as a barrier to adult and juvenile steelhead based on California Department of Fish and Wildlife fish passage assessment guidelines (CDFG, 2002). Channel restoration designs for the site should satisfy current fish passage standards, as described in CDFG (2009) and NMFS (2001).

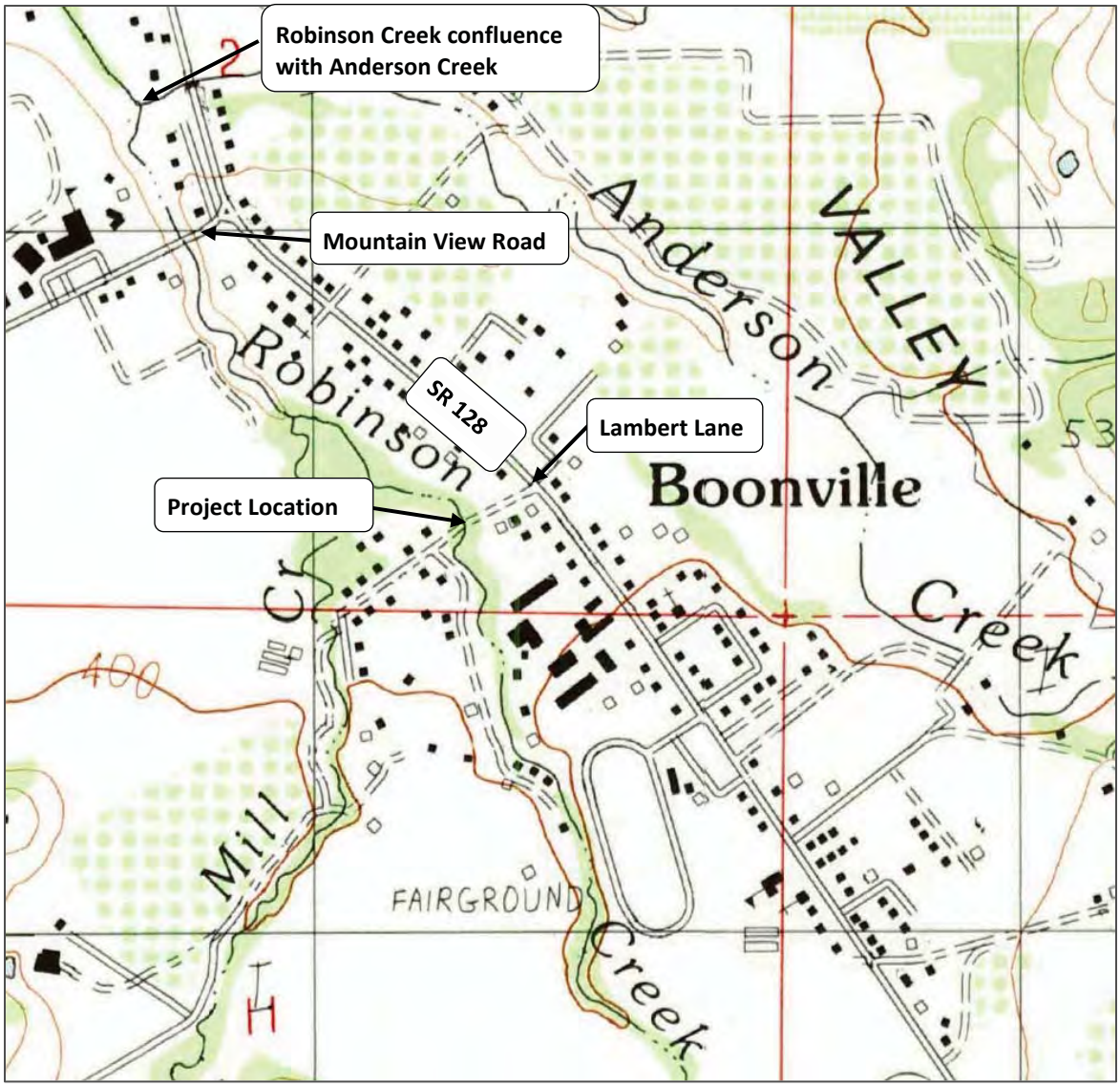



**Figure 1. Project location for bridge replacement on Lambert Lane at Robinson Creek, Boonville, Mendocino County, California.**




**Figure 2. Current condition of the channel at the Lambert Lane Bridge, with (a) riprap placed along roadway embankment at location of collapsed retaining wall and (b) a new concrete skirt along the undermined footing.**

## 1.4 Previous Studies of Geomorphic Channel Conditions

Changing geomorphic conditions within Robinson Creek and downstream Anderson Creek have been noted for decades. Channel incision (lowering of the channel bed) and channel bank erosion along Robinson Creek was noted as a significant source of sediment production within the 1998 Navarro River Watershed Restoration Plan. Incision has caused scour and undermining of bridge foundations, leading to the replacement of the Highway 128 crossing of Anderson Creek immediately upstream of the confluence of Robinson Creek and replacement of the Mountain View Road bridge crossing over Robinson Creek, downstream of Lambert Lane. Also, channel widening associated with incision processes has caused severe bank erosion threatening adjoining structures and resulting in loss of mature riparian vegetation throughout lower Robinson Creek,

The Mendocino County Resource Conservation District (RCD) and the Mendocino County Water Agency conducted studies of channel conditions to characterize the ongoing channel adjustments in Robinson Creek, focusing on the reach from the confluence with Anderson Creek to the Mendocino County Fair Grounds upstream of Lambert Lane. This included conducting profile surveys of the channel thalweg and surveys of channel cross sections in 2005 to document the channel morphology. Florsheim (2006) prepared a baseline assessment of bio-geomorphic conditions within lower Robison Creek for the RCD, and identified channel incision as the dominant process causing the observed channel instabilities. Follow-up monitoring surveys of the lower Robinson Creek channel thalweg were conducted in 2008, which found the channel showed signs of aggradation near the confluence with Anderson Creek, but also showed signs of incision within a reach between Mountain View Road and Lambert Lane bridge crossings (Florsheim, 2008). These findings were further described in a 2013 peer-reviewed publication (Florsheim et al., 2013). The RCD provided the original data from the 2005 and 2008 county surveys to MLA to compare to current channel conditions at the Lambert Lane bridge replacement project.

## 1.5 Channel Restoration Design Approach

Development of the channel restoration design for the bridge replacement project involved:

- Reviewing previous geomorphic studies and data for Robinson Creek,
- Characterizing existing geomorphic processes related to previously noted channel incision and widening that may influence the project channel reach
- Identifying the design channel profile and estimate the potential range in variability of the channel bed elevation resulting from future incision or aggradation processes
- Identifying appropriate channel dimension based on a characterization of a stream reference reach
- Identifying appropriate bank treatments based on hydraulic forces acting on the streambanks within the project reach

Channel design followed stream simulation methodology from USFS (2008) and bank stabilization measures from Caltrans design documents, as referenced within this report. The channel design is intended to provide geomorphically stable channel geometry while protecting the roadway embankment and vulnerable streambanks with hybrid RSP revetments where required due to risk of scour and lateral channel migration.

# 2 STREAM CHANNEL GEOMORPHIC CHARACTERIZATION

The proposed stream channel component of the replacement crossing was designed using the stream simulation approach outlined in Part XII of the California Salmonid Stream Habitat Restoration Manual (CDFG, 2009) and by the USFS (2008). The stream simulation approach is a geomorphically-based approach that requires a channel-spanning crossing structure with adequate capacity to convey the 100-year flow. The channel grading should seamlessly connect with the upstream and downstream channel profiles and the streambed should be composed of native material that is as mobile as bed material within the adjacent channel reaches. The approach relies on using the adjacent stream channel as a geomorphic reference for design of the crossing and channel bed.

## 2.1 Field Activities

### 2.1.1 Lower Robinson Creek Reconnaissance and Observations

On September 12, 2018 staff from MLA walked Robinson Creek stream channel from the confluence with Anderson Creek to the bridge crossing at the Mendocino County Fair Grounds. In general, the channel appeared to be relatively stable vertically, with no obvious knickpoints. The channel morphology is characterized as gravel/cobble bedded pool and riffle with fairly shallow residual pool depths. Primary features forcing the channel morphology and pool scour appear to be channel constrictions, flow obstructions and wood recruitment from bank failures.

From upstream to downstream the channel widens, and the terraces that form the valley floor get higher above the channel bed, with heights ranging from 15 to 25 feet increasing in the downstream direction. Active bank erosion sites are located at numerous locations throughout lower Robinson Creek. Indicators suggest that the channel incision process noted by Florsheim (2006 and 2008) has slowed or stopped and the channel is actively widening due to the oversteepened banks created by incision. Several locations were recently treated for bank erosion, which involved use of both large rock and vegetation treatments (live willow stakes).

### 2.1.2 Geomorphic Site Surveys

On September 12 and 13, 2018 staff from MLA conducted a geomorphic survey of the stream channel extending 500 feet downstream and 1,182 feet upstream of Lambert Lane using a Trimble S7 robotic total station. The survey datum was State Plane Zone 2 in the horizontal and NAVD88 in the vertical based on survey control established by SHN for the project. At the time of the survey the channel was dry.

The geomorphic survey consisted of a longitudinal profile of the channel thalweg extending a total distance of 1,682 feet. The profile includes breaks in slope, such as riffle crests and pool bottoms. In addition to the thalweg, the margins of the actively scoured channel bed were surveyed. In potential reference reaches, persistent inset benches above the bankfull channel bed were also surveyed. Downstream of Lambert Lane the bases of several streamside heritage bay trees were also surveyed as indicators of historical incision.

A series of five channel cross sections were surveyed upstream and four downstream of Lambert Lane for use in developing reference reach channel geometry and to extend the project hydraulic model further upstream and downstream beyond the topographic survey limits provided by SHN. Cross sections noted geomorphic features, including active channel margins, bankfull indicators, and tops of inset benches.

Pebble counts were conducted at three locations upstream of Lambert Lane to characterize the bedload gradation that will be delivered to the project reach. A potential reference reach was identified and field sketches were prepared. An annotated map of the assessed channel reach is provided in Figure 3 showing the location of the reference reach, surveyed cross sections (XS) and pebble counts (PC), along with noted locations of active bank erosion and bank armoring. Additional geomorphic field data is provided in Appendix B.

## 2.2 Comparison of 2005, 2008, 2016, and 2018 Channel Profiles

The RCD provided the original spreadsheets containing the 2005 and 2008 channel thalweg survey conducted by the county. The county's profiles begin at station 0+00 at the confluence with Anderson Creek. The elevation data, which was in vertical datum NAVD29 was converted to NAVD88 by adding 2.971 feet to the surveyed elevations. The MLA 2018 thalweg was then overlaid onto the previous surveys along with the 2016 project survey by SHN, as shown in Figure 4.

Comparison of the profiles found them to be relatively consistent through time. As noted by Florsheim (2008), some channel aggradation was observed between 2005 and 2008 in the lower 300 feet of Robinson Creek and at the confluence with Anderson Creek, suggesting that incision originating from downstream has ceased. Also, comparing the 2005 to 2008 profiles shows some lowering of the channel bed between stations 16+00 and 21+00. This reach is located at the confluence of Mill Creek, and has recently experienced extreme channel bank erosion and widening, causing the channel bed to lose confinement. This appears to be the cause of the localized lowering of the stream profile within this reach, and does not appear to be due to headward migrating incision.

The overall slope of the channel is relatively constant from the Mountain View Road bridge crossing to the bridge at the County Fair Grounds, averaging approximately 1.19%. Plotting the overall profile highlights a 500-foot section of locally aggraded channel upstream of Lambert Lane extending from station 30+00 to 35+00. Field inspection of this reach suggests the aggradation is caused in whole or in part by backwater affects created by sharp channel bends associated with the Lambert Lane bridge approach. Between 2008 and 2016 additional sediment aggradation has occurred closer to the bridge crossing as a result of a flow obstruction created by the collapsed retaining wall and associated riprap.

## 2.3 Local Scour and Aggradation downstream of Lambert Lane

Under the bridge, the right (looking downstream) footing has experienced significant local scour caused in part by flow plunging over the failed retaining wall being directed into the footing. In 2018 the scour depth along the right footing had increased to 5 feet, partially undermining the recent interim repair.

Immediately downstream of the bridge there is a tight left bend in the channel. The bank along the outside of the bend located on the property of the Boonville Hotel is oversteepened and actively eroding (Figure 5). The resulting bank failures have toppled numerous mature trees into the channel, creating a large wood jam near station 28+00. This bank failure started in 2012 with the loss of a heritage oak tree (personal communication, Linda MacElwee, RCD), but became more extensive during the winter of 2017. Between the 2016 and 2018 surveys, the height of the channel bed upstream of the large wood jam aggraded approximately 1.6 feet.

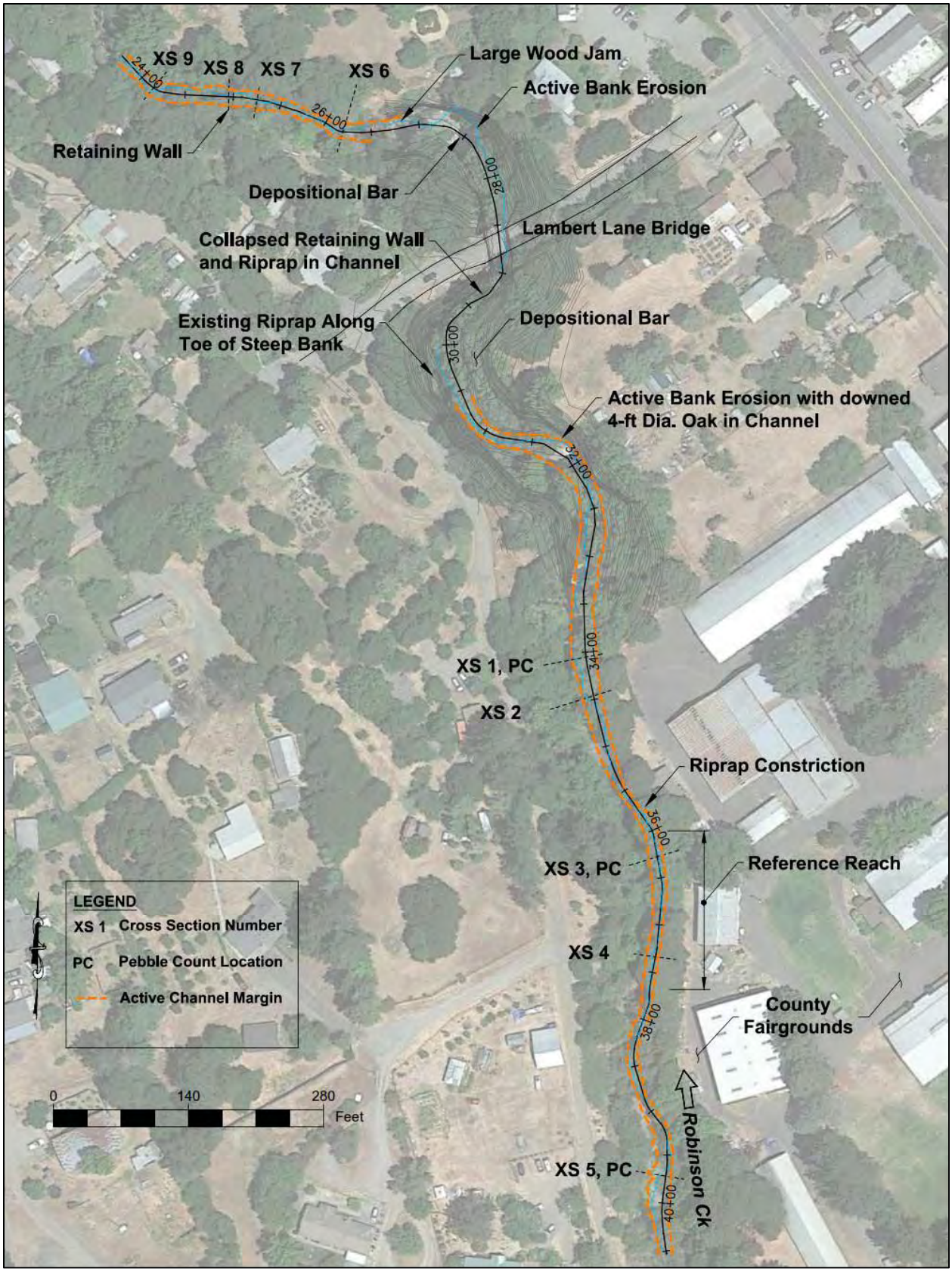



**Figure 3. Robinson Creek plan view extents of the geomorphic survey of the channel.**

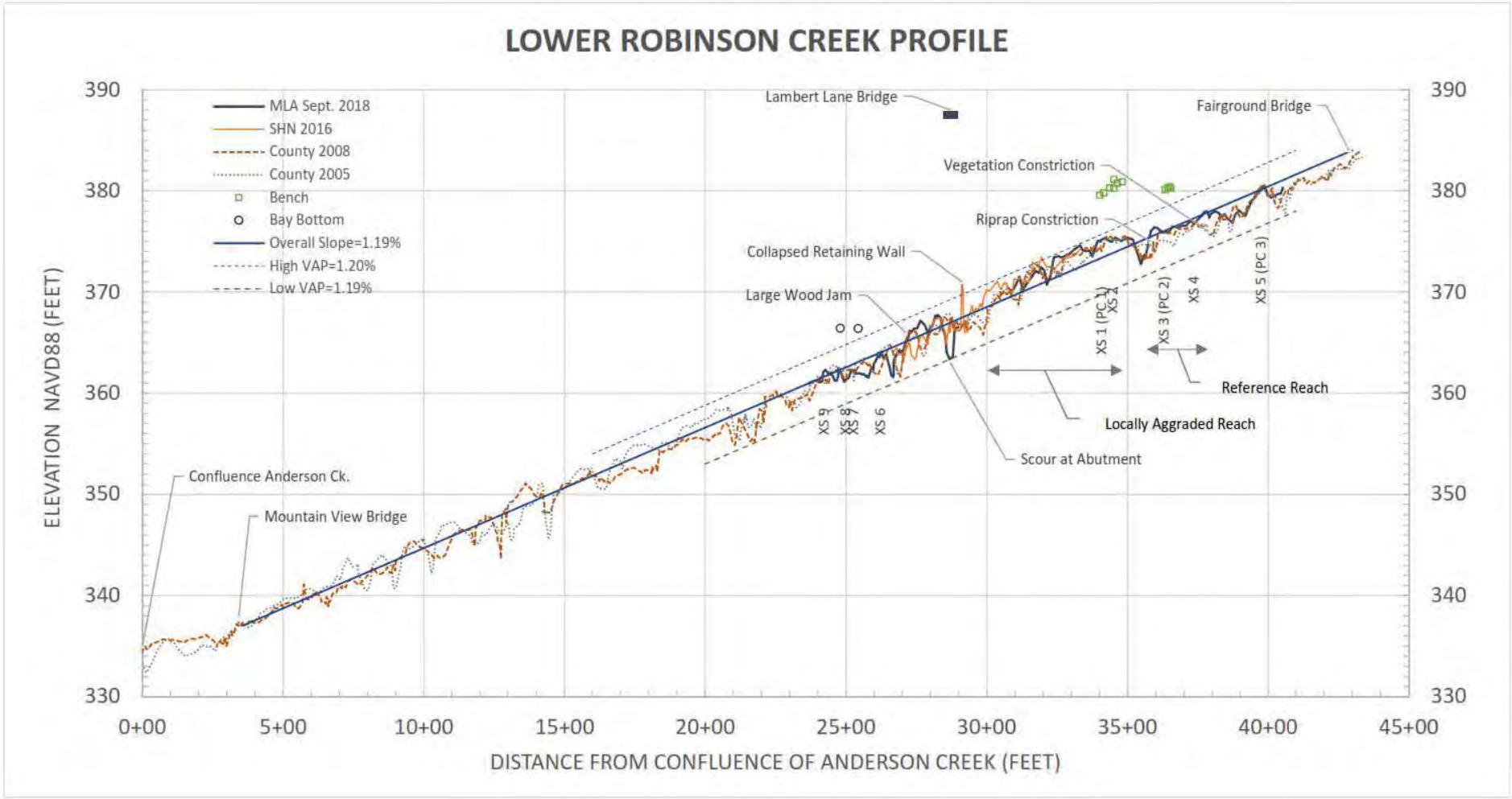



**Figure 4. Channel thalweg profile showing the MLA survey (2018), SHN survey (2016), and County surveys from 2008 and 2005. Estimated overall channel profile and high and low vertical adjustment potential (VAP) profiles through the project reach are also shown.**



**Figure 5. Looking downstream at the active bank failure and local sediment aggradation upstream of large wood jam, 150 feet downstream of the Lambert Lane bridge (near station 27+50).**

## 2.4 Stream Sinuosity

The channel has moderate sinuosity from upstream of Mountain View Road to approximately station 27+00. Beginning at station 27+00 to approximately 33+00 the channel sinuosity increases substantially, with the Lambert Lane crossing located within the most sinuous section of this reach (Figure 3). The Lambert Lane bridge crossing is located on an s-curve within the channel. The bridge is at the beginning of a tight meander towards the left. Downstream this meander continues bending left, causing the extensive bank failure and resulting large wood jam previously described.

Upstream of the Lambert Lane bridge the partially failed retaining walls and road embankment is on the outside of a right bend within the channel. On the inside of the bend there is a depositional bar that appears to have formed relatively recently (since construction of the bridge), likely in-part due to backwater affects from the abrupt turn in the channel as it approaches the bridge. The bar appears to have sharpened the radius of the channel bend and pushed the channel thalweg up against the retaining wall along the road embankment and against the nearly vertical bank upstream of the retaining wall, where riprap has been placed.

Farther upstream there is another meander bend near station 32+00. The bank along the outside of the bend is oversteepened and actively eroding, and caused a 4-foot diameter oak tree to topple into the channel. Upstream of this bend the channel is relatively straight, with low sinuosity.

## 2.5 Discussion of Geomorphic Conditions

The lower reach of Robinson Creek does not appear to be incising since the 2005 survey, and has transitioned to the widening stage of channel development, as described by Schumm et al. (1984). This is expressed by the frequent bank failure and in-channel deposition. Localized aggradation was observed upstream of the crossing, caused by the sharp bend and obstructed flow at the bridge and

from a large wood jam downstream of the bridge that resulted from bank failure at the bend immediately downstream of the crossing.

Pools were generally shallow, however deeper pools observed in the profile were usually forced by constrictions from riprap placement and flow obstructions from wood jams resulting from bank failure. The dominant bed material can be characterized as very coarse gravel with a large percentage of cobble. The bed material has minimal embeddedness, suggesting it is frequently mobilized.

## 2.6 Overall Slope and Channel Vertical Adjustment Potential (VAP)

Developing stream crossing and bank revetment designs requires consideration of the degree that the channel bed may aggrade or degrade (incise). This is accomplished through geomorphic interpretation of the channel thalweg profile, documented historical channel adjustments, and field observations of channel features, including depth of pools, location of riffle crests, height of banks, longevity of wood controls, and potential for increases or decreases in coarse sediment loads. Through this process, low and high "vertical adjustment potential" (VAP) profiles are plotted following methods outlined in Part XII of the California Salmonid Stream Habitat Restoration Manual (CDFW, 2009) and in USFS (2008).

The outcome of the channel VAP evaluation is the low and high VAP profiles and the current stable channel profile through the project reach. These VAP profiles define the estimated bounds of vertical channel adjustment that may occur in the project reach over the next several decades. The channel VAP profiles are based on both quantitative and qualitative evaluations with uncertainty inherent in their nature, which should be considered when developing engineering designs. The VAP profiles do not consider local scour, which is accounted for using other methods, but rather are based on reach scale aggradation or degradation potential.

### 2.6.1 Estimated Low Vertical Adjustment Potential (VAP) Profile

The low VAP profile is typically used as part of the overall scour analysis for setting the bottom of bridge footings and bank revetments. The estimated low VAP profile is shown on Figure 5 and Figure 6. This was estimated based on the interpretation that the channel incision process has slowed or stopped, with no substantial vertical adjustment between 2005 and 2018. Additionally, the channel bed of Anderson Creek at the confluence with Robinson Creek appears to be stable or aggrading. Therefore, the lowest points along the channel profile between station 20+00 and 43+00 were used to estimate the low VAP profile. The resulting profile has a slope equal to the overall slope of 1.19%, but is offset approximately 4 feet lower in elevation.

### 2.6.2 Estimated High Vertical Adjustment Potential (VAP) Profile

The high VAP profile is typically used to evaluate hydraulic conditions if the channel aggrades. This is applied when setting the top elevation for bank revetments and setting the soffit elevations for road-stream crossings. For the project reach, the high VAP profile was based in part on the likelihood that upstream locally aggraded sediments, as seen in Figure 5, will be released in response to a new larger bridge crossing and less abrupt channel bends. This sediment release could temporarily aggrade the channel within the project reach. Additionally, long-term aggradation could occur due to ongoing bank erosion and widening, leading to an overall increase in sediment supply. Therefore, the high VAP profile was set based on the current elevation of the aggraded channel reach, placing it approximately 2 feet higher than the overall channel profile as shown in Figure 6. The result is an estimated 6-foot range in potential channel bed elevations within the project reach during the next several decades.

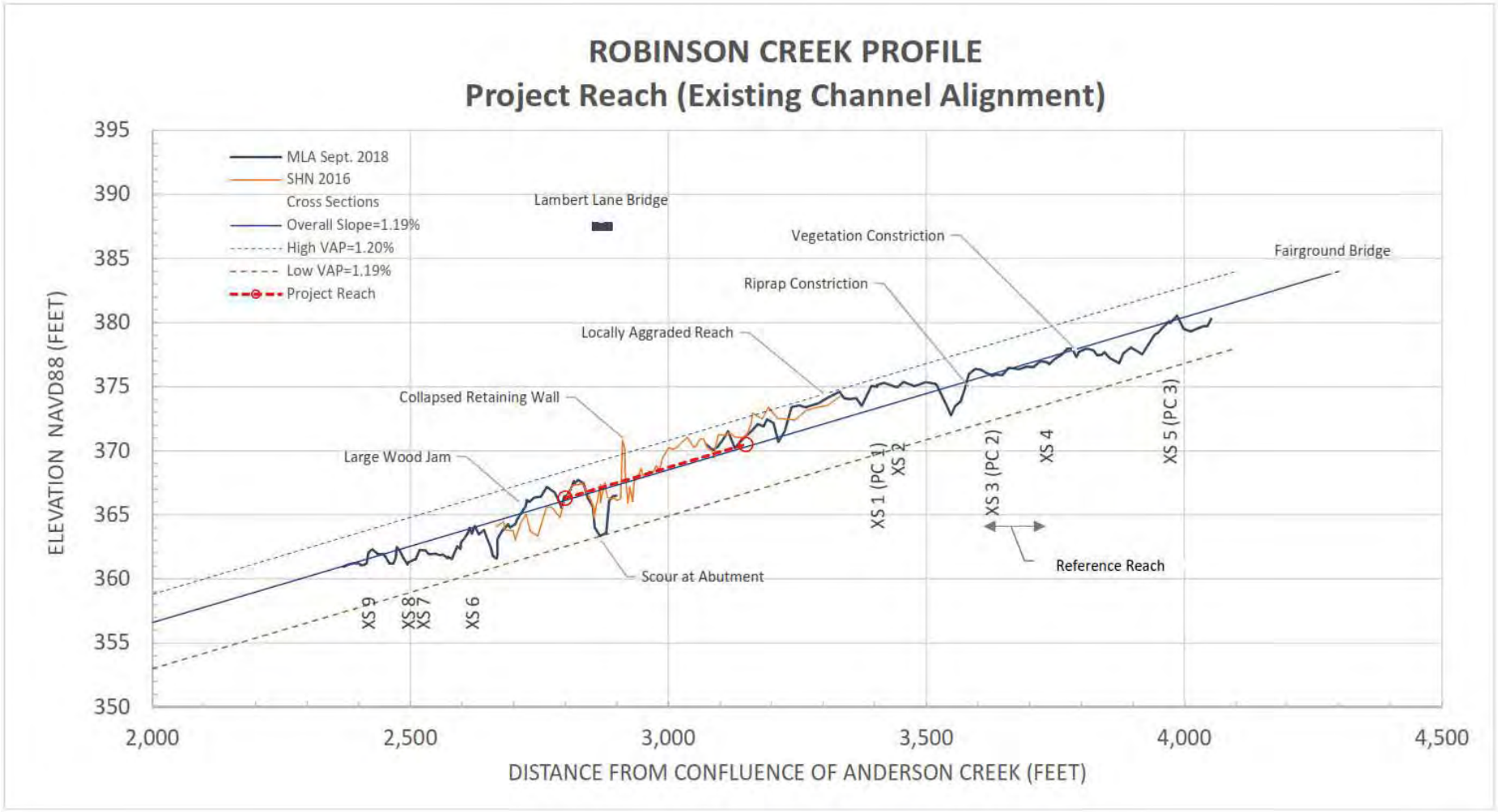



**Figure 6: Robinson Creek channel thalweg profile upstream and downstream of the existing bridge crossing at Lambert Lane. Also plotted are the overall channel slope based on the entire lower Robinson Creek profile, the current project extents, and the low and high vertical adjustment potential (VAP) profiles for the project.**

## 2.7 Hydrology

The contributing watershed area at the Lambert Lane crossing is approximately 4.0 square miles and is characterized by second growth forests in the steeper headwaters that drain into the agricultural land of Anderson Valley. The estimated mean annual precipitation for the watershed is 44.2 inches per year (USGS, 2018). A summary of basin statistics is provided in Appendix C.

The Draft Bridge Design Hydraulic Study Report by WRECO (2018) included estimates of the 50-year and 100-year return period flows calculated using two methods: the USGS North Coast regression equations (Gotvald et al. 2012) and the USACE rainfall-runoff model, HEC-HMS. WRECO (2018) selected the HEC-HMS 50- and 100-year flows of 1,340 and 1,750 cubic feet per second (cfs) for design of the Robinson Creek Bridge Replacement Project.

The USGS regression equations provide estimates of peak flows for return periods as low as the 2-year flow. Frequently occurring peak flows with return periods of 1.2 to 2.5 years are often the "channel forming flows" that convey the most sediment through time (Wollman & Miller, 1960; Leopold, 2005). There is also often a break in slope and change in vegetation within the channel cross section associated with the stream stage at the channel forming flow, which is referred to as "bankfull". Therefore, to evaluate the channel hydraulic geometry, peak flows with these return periods were estimated by extrapolating the flows from the USGS regression using a log-linear regression. The estimated peak flows for the various return periods are provided in Table 1.

## 2.8 Representative Channel Geometry

Nine channel cross sections were surveyed as part of the geomorphic assessment and used to measure active channel width, bankfull width, and bankfull depth. In addition to these sections, the survey captured the left and right margins of the active channel bed and heights of inset benches above the thalweg. Averages of active channel width, bankfull width, and bankfull depth were computed and are provide Table 2. The typical bankfull depth and width was 2.3 feet and 25 feet, respectively. These values were used to determine the appropriate dimensions for the channel within the project reach.

## 2.9 Reference Reach Selection and Characterization

The reference reach is a selected section of channel that serves as a template for design of the project channel. The reference reach should have a similar drainage area and slope as the project reach and appear geomorphically stable. Ideally, it would also have a similar planform sinuosity as the project reach. Three reaches were surveyed and assessed for use as a reference reach for channel design. The reach containing cross sections (XS) 3 and 4 was selected, although it is relatively straight compared to the project reach (Figure 3). This reference reach is upstream of the aggraded sediment from the bridge crossing and has a slope that is close to the overall channel slope of 1.19% at the project site (Figure 4 and Figure 6). Cross sections, a pebble count of the bed material was conducted and site sketch prepared for the reference reach.

**Table 1: Estimated peak flows for various return periods in Robinson Creek at Lambert Lane. Extrapolated values are indicated with (*).**

| Return Period of Peak Flow | Peak Flows Robinson Creek at Lambert Lane | |
|---|---|---|
| | North Coast Regional Regression Equations | HEC-HMS (from WRECO, 2018) |
| **1.01-Year** | 77 cfs* | |
| **1.2-Year** | 126 cfs* | |
| **1.5-Year** | 187 cfs* | |
| **2-Year** | 264 cfs | |
| **5-Year** | 517 cfs | |
| **10-Year** | 700 cfs | |
| **25-Year** | 943 cfs | |
| **50-Year** | 1,130 cfs | 1,340 cfs |
| **100-Year** | 1,320 cfs | 1,750 cfs |

**Table 2: Measured channel dimensions upstream and downstream of the Lambert Lane crossing. The selected Reference Reach is indicated with (*).**

| **Upstream of Lambert Lane** | | | | |
|---|---|---|---|---|
| **Cross Section Location** | | **Active Channel Width (ft)** | **Bankfull Width (ft)** | **Bankfull Depth (ft)** |
| XS 1 | STA 34+05 | 26.2 | 29.9 | 2.2 |
| XS 2 | STA 34+45 | 19.5 | 25 | 2.7 / 2.3 |
| XS 3* | STA 36+27 | 15.4 | 21.4 | 2.4 |
| XS 4* | STA 37+33 | 13.3 | 24.8 | 2.2 |
| XS 5 | STA 39+72 | 24.8 | 31.7 | 2.1 |
| | **Average:** | **19.8** | **26.6** | **2.3** |
| **Downstream of Lambert Lane** | | | | |
| **Cross Section Location** | | **Active Channel Width (ft)** | **Bankfull Width (ft)** | **Bankfull Depth (ft)** |
| XS 9 | STA 24+20 | 17 | 23.7 | 1.8 / 2.1 |
| XS 8 | STA 24+95 | 18.1 | 19.6 | |
| XS 7 | STA25+25 | 19.7 | 25 | 2.3 |
| XS 6 | STA 26+20 | 19.6 | 28.8 | 2.6 |
| | **Average:** | **18.6** | **24.3** | **2.2** |

### 2.9.1 Description

The reference reach has an average actively scoured bottom width of 14.4 feet and average bankfull width and depth of 23.1 feet and 2.3 feet, respectively. The reach has an inset floodplain bench running along its entire left side of the channel (looking downstream), as seen in Figure 7. This bench is consistently about 3.8 feet above the channel thalweg. There is also a discontinuous floodplain bench on the right side of the channel that is slightly lower in height. Cross section 3 is on the outside of a left bend in the reference reach. The thalweg is against the right bank, on the outside of the bend, and there is a gentle upward sloping point bar within the actively scoured channel (Figure 8).

The floodplain benches do not appear to be formed through deposition from overbank flows in the stream. Instead, they may be remnants of the historical channel bed prior to an incision event, as suggested by Florsheim (2006). As such, their inundation may not coincide to frequently occurring flows.




**Figure 7. Looking upstream at selected reference reach, with typical channel cross section and location of inset floodplain bench noted.**

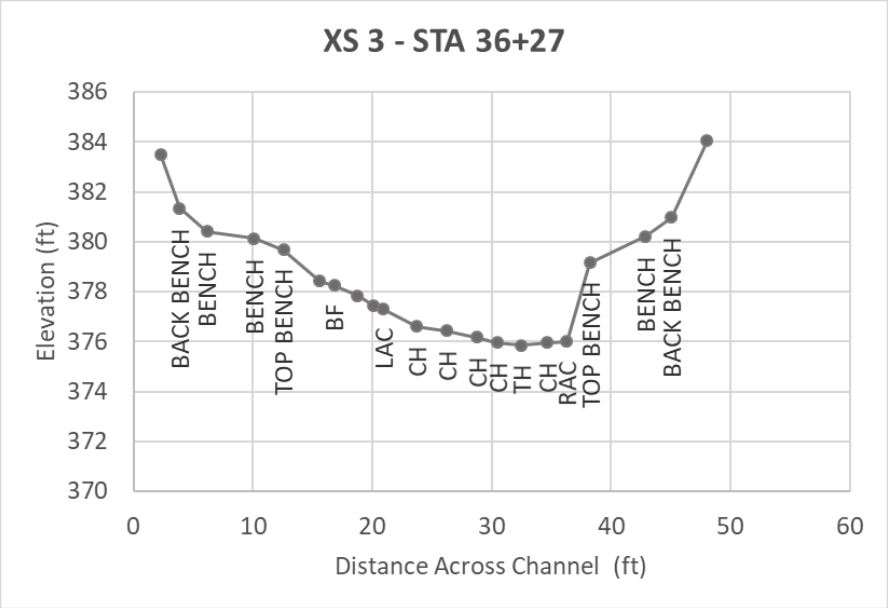



**Figure 8. Reference reach cross sections, looking downstream, with typical bench geometry. Where LAC and RAC are left and right sides of active channel, BF is bankfull, and TH is thalweg.**

### 2.9.2 Streambed Material

Pebble counts of the surface streambed material were conducted at three locations upstream of the Lambert Lane crossing to characterize the sediment size (Figure 9). Pebble count (PC) 1 was the furthest downstream and well within the influence of the existing bridge and failed retaining wall. It had substantially finer material than the other two pebble counts. PC-2 was within the reference reach. The median particle size within this reach was very coarse gravel (64 mm) and the D84 was medium cobble (128 mm).

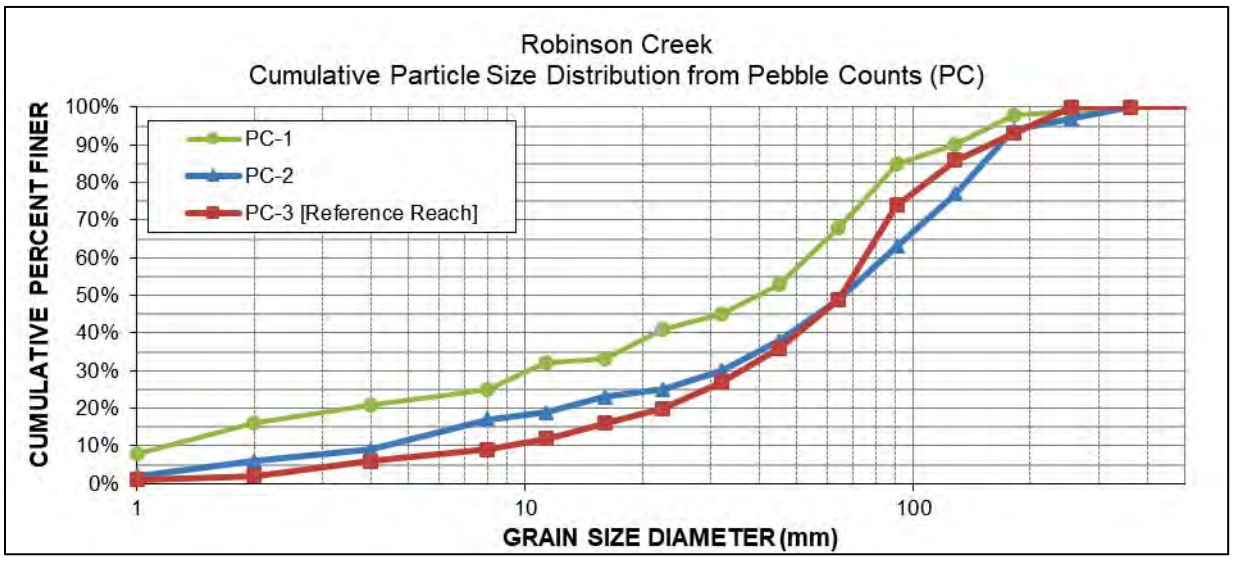



**Figure 9. Gradation of streambed material from pebble counts in Robinson Creek upstream of Lambert Lane. PC-1 is closest to the bridge crossing.**

### 2.9.3 Bankfull Capacity and Shear Stress in Reference Reach

The nine cross sections surveyed as part of the geomorphic assessment were added to the existing conditions HEC-RAS steady-state 1-D model (Appendix D) that was prepared by WRECO (2018). This model was then used to evaluate channel flow conveyance relative to geomorphic features within the reference reach, including bankfull flow. Model roughness coefficients for existing conditions matched the WRECO model, which is discussed in Section 4.1.1.

Water levels for cross section 3 within the reference reach are shown in Figure 10. Results indicate that the field indicators for bankfull correspond approximately with the 1.2-year flow. The right bench elevation becomes inundated at the 2-year return flow while the left bench inundates between a 2-year and 5-year flow. The infrequency of flows inundating the benches supports that they are likely due to recent incision within the reach. As previously noted, field evidence suggests the benches are remnants of the historical channel bed prior to an incision event.

Water velocity and channel shear stress for flows with 1- to 5-year return periods is shown in Figure 11. At 1.2-year bankfull flow of 126 cfs the cross-sectional average channel velocity is 3.9 ft/s and shear stress is 0.76 lb/ft$^2$. Bankfull flow is typically associated with initiation of bedload movement. Using a dimensionless Shields parameter of 0.052 for very coarse gravel (Julien, 1998), the median particle size, the estimated critical shear stress to initiate movement ranges between 0.54 and 1.12 lb/ft$^2$. This falls within the model-estimated shear stress at the 1.2-year flow, supporting the observed bankfull estimate.

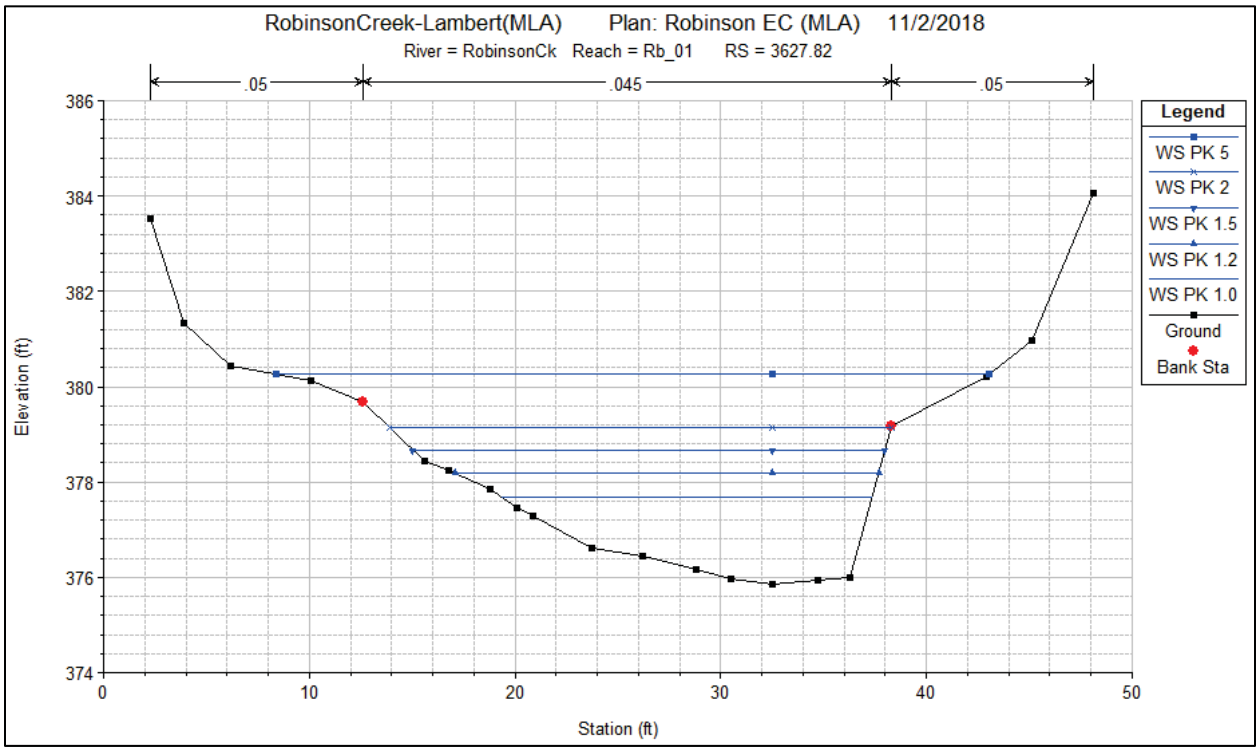



**Figure 10. Existing condition HEC-RAS model results for the cross section XS3 in the selected reference reach. The bankfull field indicators correspond to the 1.2-year return flow and the benches inundate between a 2-year and 5 -year flow.**

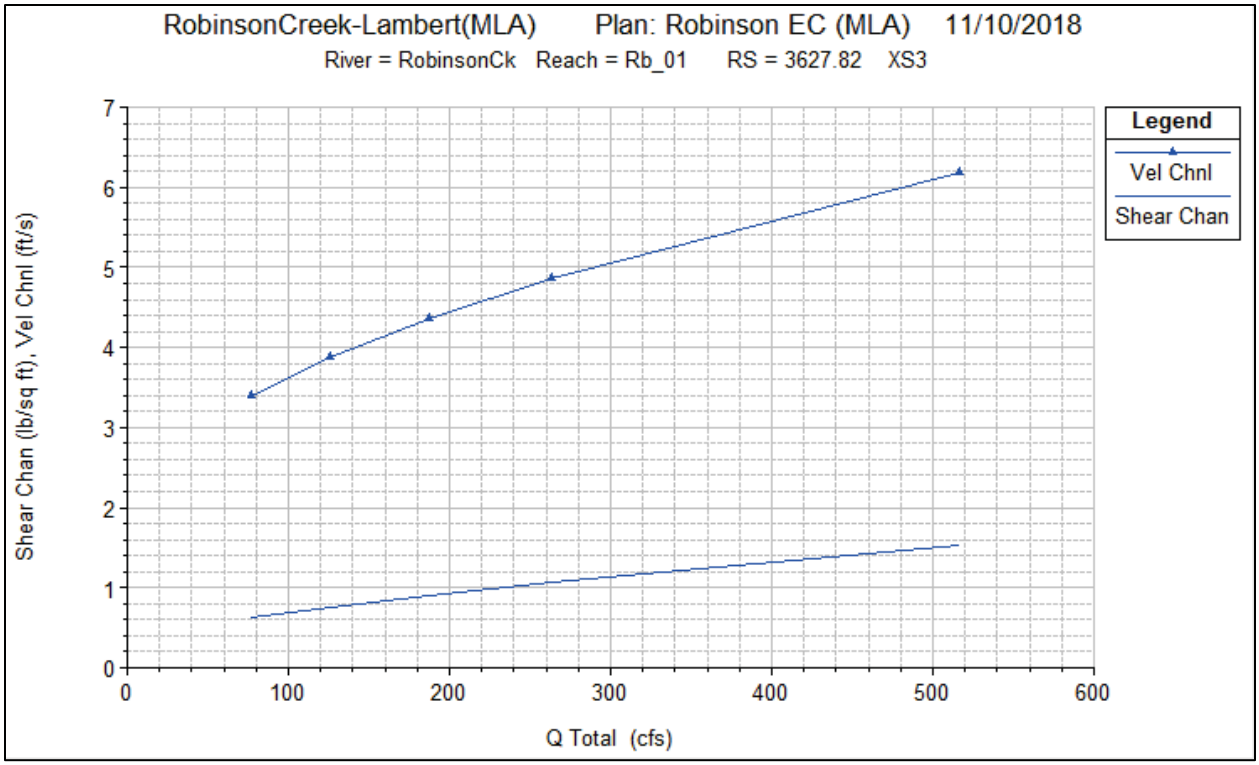



**Figure 11. Water velocities and channel shear stress for cross section XS3 between the 1.01-year flow (77 cfs) and 5-year flow (517 cfs).**

# 3 DESIGN CHANNEL LAYOUT AND GRADING

The channel design involved developing the appropriate channel profile and dimensions and then determining the appropriate bank protection measures and revegetation approach. Drawings for the channel restoration plan are provided in Appendix A.

## 3.1 Design Planform

The existing bridge crossing is at the inflection of a tight meander bend and the channel alignment has been constrained by the roadway embankment. The proposed replacement bridge has a free span of approximately 91 feet, while the existing bridge span is only 32 feet. The increased span is in-part intended to facilitate an improved alignment with the channel by decreasing the sharpness of the meander bend. A constraint to realigning the channel was the preservation of large established trees along the right bank upstream and downstream of the crossing, including an 8-foot diameter heritage oak tree close to the existing right bank of the channel near station 29+60.

The proposed alignment moves the approach channel further to the right (looking downstream) and has a sinuosity of 1.2 (valley length to channel length).

The outside of the bends will need to be protected from scour. Additionally, local toe scour along the outside of the bends must be considered as part of the design.

## 3.2 Design Profile

The design profile for the stream channel was developed based on the current overall channel profile. Figure 6 show the proposed channel profile with a slope of 1.4%, which is slightly steeper than the overall profile of 1.19%. This is due to the shortening of the channel length by approximately 28 feet by reducing the sharpness of the meander bends. The steeper profile allows for the channel slope to relax as it releases the stored sediment from upstream.

## 3.3 Release of Upstream Aggraded Sediments

At the upstream limits of the project, upstream of the crossing, the graded channel will steepen to match the existing streambed. At this location the channel has aggraded as much as 1.8 feet due to the failed retaining wall across the channel and the flow constrictions created by the bridge. An estimated 220 cubic yards of sediment is anticipated to be released during the adjustment period. During the adjustment period these sediments will be released during high flows and may temporarily deposit within the project reach or within the channel bend downstream of the bridge.

## 3.4 Design Cross Sections

Nearly the entire project reach is on one of two bends. The design channel cross section shape and dimensions were based on the reference reach, which includes cross section XS3 on a bend. A narrower bottom width of 11.5 feet and an anticipated actively scoured channel width of 15 feet is proposed to accommodate a point bar and bench on the inside of the bend (Figure 12). Although bench width will vary and is expected to adjust with time, for design purposes a bench height of 3.8 feet and a side slope of 5:1 (H:V) was selected based on reference reach observations. Bank side slopes between 1.5:1 and 2:1 are proposed for the outside of the bends and for the slope at the back of the benches.

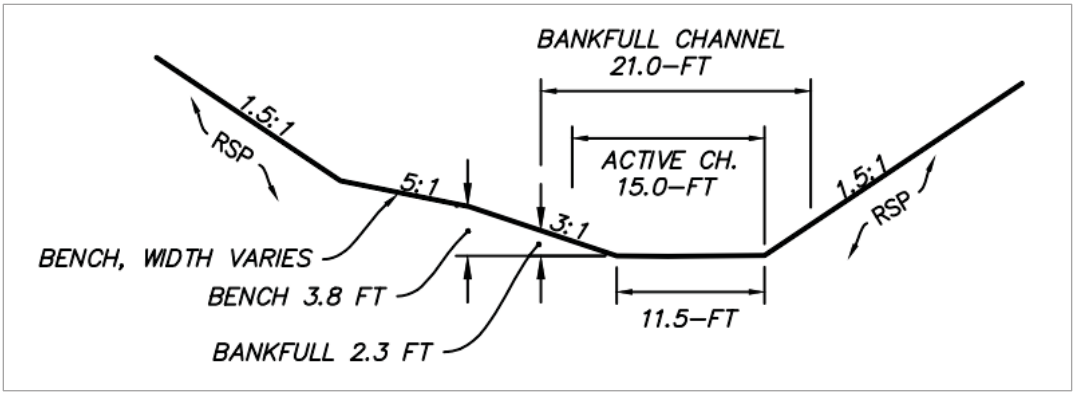



**Figure 12. Typical channel geometry under the bridge for Robinson Creek at Lambert Lane Bridge replacement.**

### 3.5 Streambed Material

The existing channel bed upstream and downstream of the culvert's influence is composed of cobbles, gravels, and fines. It is expected that native stream bed material would be stockpiled and reused in reconstruction of the channel bed and point bars. The coarser material within the project reach that more closely matches the gradation of PC3 in Figure 9 should be high-graded for this use. Finer sediments salvaged during excavation should be used for forming the point bars above bankfull elevation that are slated for planting.

### 3.6 Proposed Channel Grading

The approximate 350-foot long proposed channel was graded as a surface in AutoCAD Civil 3D. The final grading was developed through an iterative process guided in part by results from both the 1D and 2D steady state hydraulic models of proposed conditions. The grading is shown in Appendix A.

Channel grading upstream of the proposed bridge involved maintaining the existing mature trees along the right bank while minimizing the sharpness of the meander bend. The proposed point bar on the right side of the channel blends with the existing bench that supports these large trees between 29+60 and 31+40. The left bank downstream of 30+90 will be a vegetated riprap revetment intended to protect the roadway embankment from scour and erosion while guiding the flow around the sweeping bend.

As the channel approaches the bridge the channel bends towards the left. At the cross-over near station 29+60 the point bar transitions from the right bank to the left bank. Grading in the cross-over focused on maintaining flow conveyance areas similar to upstream and downstream to avoid a channel constriction. Downstream of the cross-over a vegetated riprap revetment will be required along both banks upstream of the bridge.

A point bar is maintained along the left bank as the channel bends to the left under the bridge between station 28+00 and 29+60. Riprap revetments will be placed against the bridge abutments. The riprap along the right bank is on the outside of the bend, and subject to high velocities and local scour.

Downstream of the bridge the left bank grading transitions to match the existing steep ground. Along the right bank the grading ties-out immediately upstream of an existing exposed root mass from a large oak tree along the bank.

# 4 HYDRAULIC ANALYSIS OF DESIGN CHANNEL

## 4.1 HEC-RAS One-Dimensional Hydraulic Analyses

The one-dimensional steady-state hydraulic model developed by WRECO (2018) using the HEC-RAS software (USACE, 2010) was updated for existing conditions. A separate HEC-RAS model was developed for the proposed channel grading associated with the bridge replacement. The model was used to evaluate existing hydraulic geometry of cross sections within the reference reach (see section 2.9.3) and proposed hydraulic conveyance associated with the 100-year flow for sizing riprap as part of rock slope protection (RSP) revetments.

### 4.1.1 Existing Conditions HEC-RAS Model Development

The WRECO (2018) existing conditions HEC-RAS model for the Lambert Lane bridge replacement project was derived from the project topographic surface provided by SHN. The model reach was 673 feet with 19 cross sections. The bridge routine was utilized for the existing crossing and an inline weir was used to simulate the collapsed concrete wall that is currently obstructing flow. Table 3 lists the Manning's roughness coefficients used in the existing and proposed conditions model.

**Table 3. Roughness coefficients used for existing and proposed condition hydraulic modelling. Adapted from WRECO (2018).**

| Channel Description | Manning's Roughness Coefficient (n) |
|---|---|
| Concrete Retaining Wall | 0.020 |
| Low Flow Channel, Downstream of Existing/ Proposed Bridge Structure | 0.040 |
| Low Flow Channel | 0.045 |
| Channel Bank with Rock Slope Protection (no vegetation) | 0.050 |
| Channel Bank Hybrid Rock Slope Protection with Mature Vegetation (willow)* | 0.100 |
| Overbank Area with Modest Vegetation | 0.050 to 0.080 |
| Overbank Area with Dense Vegetation | 0.100 |

MLA utilized the HEC-RAS model leaving it unchanged with the exception of extending the model length upstream and downstream by adding the nine MLA surveyed cross sections, all of which were located beyond of the existing model boundaries. Additionally, channel river stationing was adjusting to correspond to match the distance from the confluence with Anderson Creek, and therefore match the geomorphic analyses presented in Section 2. The updated existing conditions model extends a length of 1,564 feet.

The model was executed in mixed mode. Existing conditions HEC-RAS results are provided in Appendix D.

### 4.1.2 Proposed Conditions HEC-RAS Model Development

The proposed model domain extends 1,536 feet along Robinson Creek through the project area. A total of 26 cross sections were used to create the model. Eight of the cross sections were derived from the geomorphic channel sections surveyed by MLA, and the remaining cross sections were sampled from the proposed condition surface developed by MLA for the channel restoration design as shown in Appendix A

Model geometry was developed for as-built conditions. The proposed riprap revetments upstream and downstream of the bridge crossing are to be vegetated with live willow cuttings following Caltrans "hybrid revetment" design. Initially, the riprap revetment will have a relatively low Manning's roughness of 0.050. This value was determined based on the additive Manning's n method, as recommended in Caltrans (2014) *Hybrid Streambank Revetments: Vegetated Rock Slope Protection* manual. This will result in the highest water velocities impinging on the riprap, and should be used for sizing the riprap. Mature vegetation conditions following growth of the willow plantings was evaluated using the two-dimensional model and a Manning's n of 0.100, as presented in Section 4.2.

Based on observed conditions and using the additive Manning's n method, the Manning's roughness coefficient for the channel was set at 0.045 for the main channel between the specified bank markers. For overbank areas, the Manning's roughness coefficient of 0.07 was assigned to simulate the hydraulic obstructions created by brush and moderately dense vegetation along the channel and 0.05 for areas with vegetated RSP. Calculation of Manning's n is provided in Appendix D. Bank markers were placed to provide average channel velocity within the main channel, including all proposed RSP bank treatments. The proposed bridge was not included in the model for channel design, as the clearance and freeboard are well above the proposed design water surface and the concrete abutments do not encroach on the channel area.

The model was run for the 50- and 100-year return flows of 1,320 and 1,760 cfs respectively. To account for potential channel aggradation and to check the design height of RSP, the high VAP condition was also modeled. This was done by applying a fixed sediment elevation by adding 2 feet to the proposed channel bed elevations.

Proposed conditions HEC-RAS was executed in mixed mode. Results are presented in Appendix D.

### 4.1.3 Results for Existing Conditions

The existing conditions model results were primarily used to evaluate hydraulic geometry, channel capacity, and channel shear stresses within the reference reach. This is discussed in section 2.9.3.

### 4.1.4 Results for Proposed Conditions

The HEC-RAS water surface profiles for the proposed condition is provided in Figure 13. The 100-year water surface at the bridge face is at elevation 374.67, which is greater than 9 feet below the bottom of the proposed bridge deck. Average channel velocities at the 100-year flow are generally between 7 and 9 ft/s in the channel at the bridge crossing, but spike to 11.6 ft/s at the downstream limit of the project (Figure 14). This is located immediately upstream of an expansion in the channel cross section associated with the downstream bank failure. The expansion causes a local drawdown in the water surface and spike in water velocities at 28+06.

### 4.1.5 Results for High VAP Profile Conditions

Flow conveyance for the high VAP profile condition was evaluated with the proposed conditions HEC-RAS model. This was accomplished by adding two feet of "sediment fill" to the bottom of each channel cross section. Results from this analysis were used to estimate water surfaces associated with the 50- and 100-year flows with high VAP profile conditions (Figure 15). The high VAP 100-year water surface at the bridge face is at elevation 375.50, which is 0.83 feet higher than under design conditions.

## 4.2 SRH Two-Dimensional Hydraulic Analysis

A two-dimensional model of existing and proposed conditions was developed using the USBR/FHWA Sedimentation River Hydraulics (SRH-2D) model (Bureau of Reclamation, 2008). The SRH-2D model is widely used for applications similar to this project. It provides good flexibility in creating and editing the two-dimensional mesh and provides good computational stability.

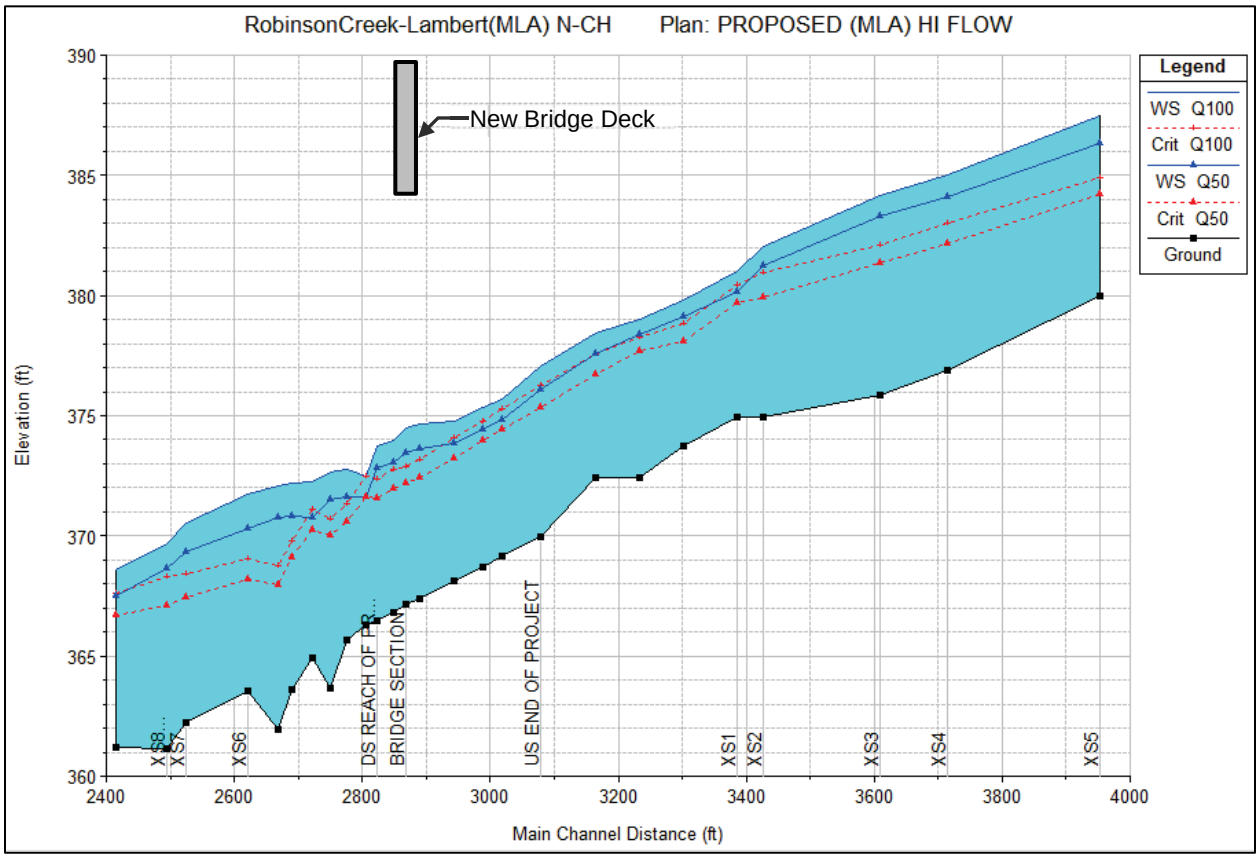



**Figure 13. HEC-RAS proposed conditions water surface profiles of the 50- and 100-year flows in Robinson Creek at Lambert Lane Crossing.**

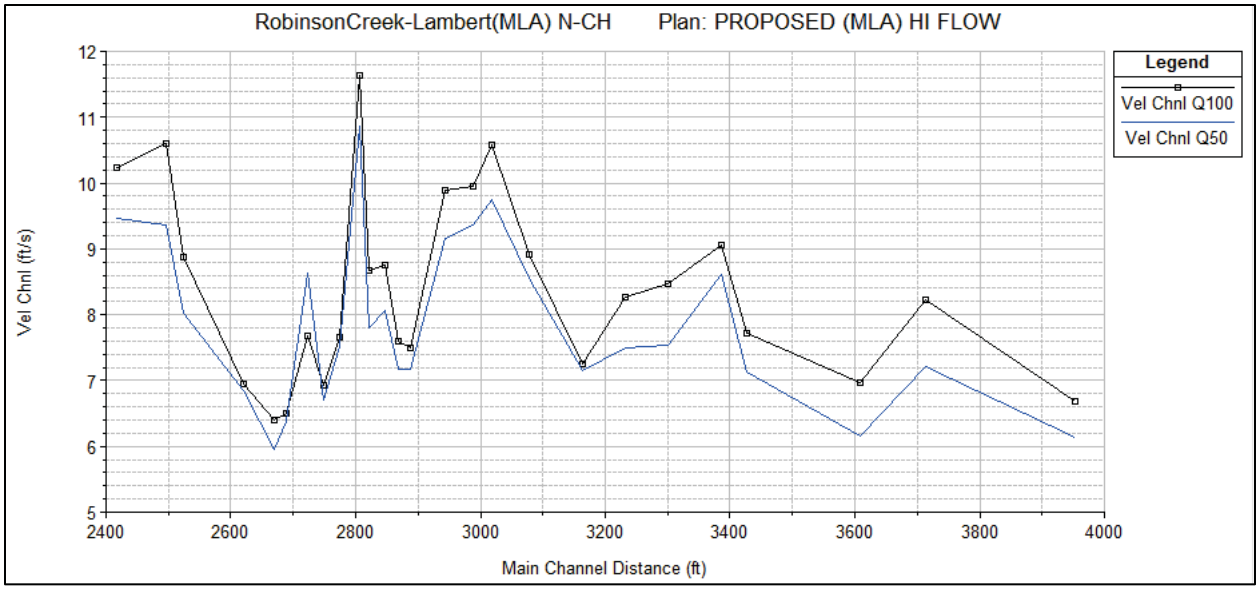



**Figure 14. HEC-RAS proposed conditions channel velocity profiles for the 50- and 100-year flows in Robinson Creek at Lambert Lane Crossing.**

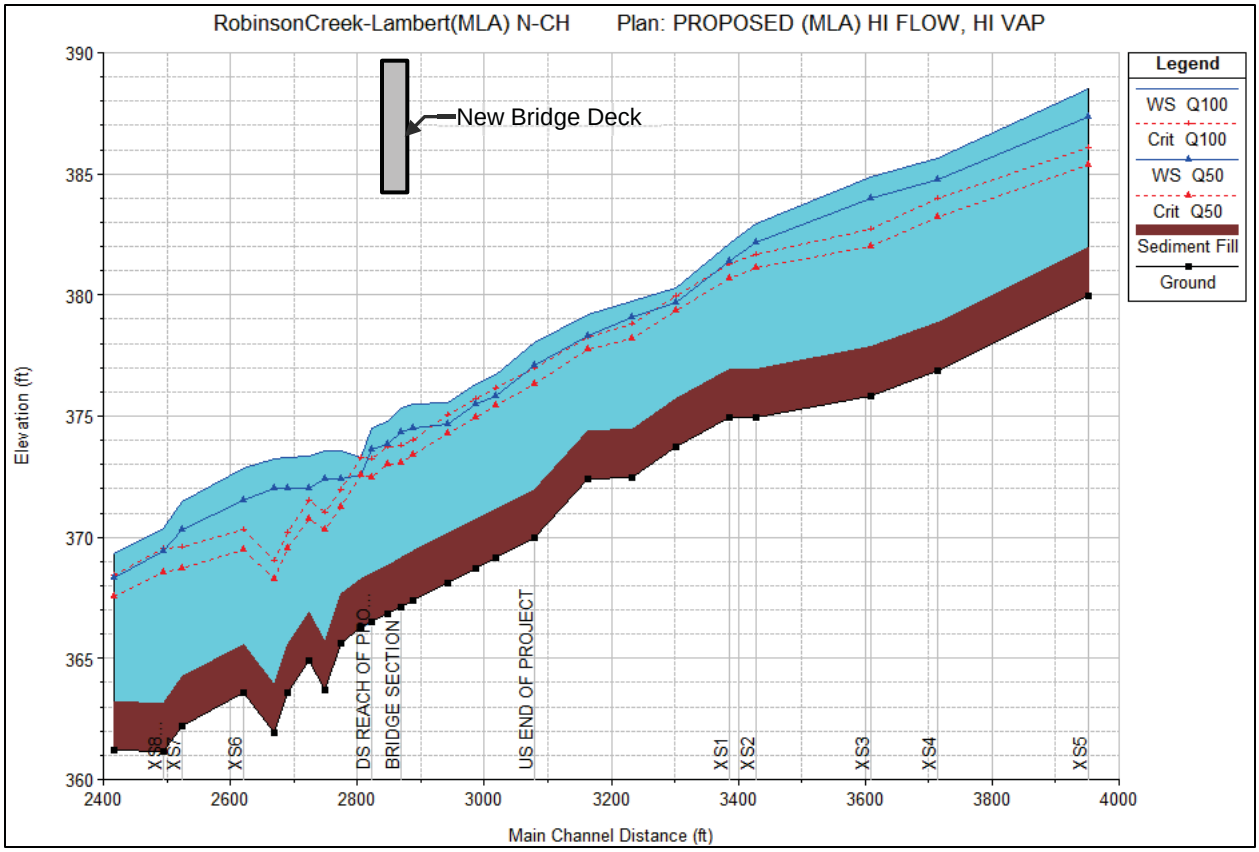



**Figure 15. HEC-RAS high VAP conditions (2 feet of aggradation) with water surface profiles for the 50- and 100-year flows in Robinson Creek at Lambert Lane Crossing.**

This analysis using SRH-2D focused on both bankfull flows and 100-year flow conditions, and was used to identify areas with high shear stress and velocities. These results were used to refine the channel grading to minimize abrupt hydraulic constrictions and areas of focused high velocities. The results were also used to set the top elevation for the RSP revetments. This was selected rather than the one-dimensional HEC-RAS model because of SRH-2D's ability to calculate super-elevation of flows along the outside of channel bends.

SRH-2D is a mesh-based model that solves the standard St. Venant's equations for gradually varying flow using finite-volume methods. The flexible mesh elements can be a combination of rectangular and triangular elements that vary in shape and size to accurately reflect the topography of the model domain. The model outputs include depth of flow, depth averaged velocity vectors (x and y direction), and shear stress for each wetted element in the mesh.

### 4.2.1 SRH2-D Model Development

The model domain for the Lambert Lane bridge replacement project included the 720 feet of surveyed channel that encompasses the project area as shown in Appendix E. The model domain extended on both sides of the channel up to the top of banks. The channel was modeled with flexible triangular elements with 3-foot sides, except where additional detail was necessary. The elevations of the element nodes were derived from the project's digital terrain model (DTM). For existing conditions, the DTM developed from the topographic surveys by SHN was used. For the existing and proposed conditions model, the SHN DTM was extend further downstream based on MLA survey points to include the entire bend in the channel and associated bank failure behind the Booneville Hotel. For proposed conditions the design surface was merged with the existing conditions DTM.

Manning's roughness coefficients were assigned to each mesh element. SRH-2D does not use contraction and expansion or eddy viscosity coefficients as part of the computations. Therefore, contraction and expansion losses need to be incorporated into the Manning's roughness values. Manning's roughness values were taken from Table 3. This includes a value of 0.100 for the hybrid RSP with mature vegetation and 0.08 for the riparian planting areas on the inside of the meander bends. These roughness values were calculated using methods recommended in Caltrans (2014), and as provided in Appendix E.

The downstream boundary condition was set based on HEC-RAS water surface elevations for cross section XS6, which is located at the downstream end of the SHR-2D model domain for both existing and proposed conditions.

### 4.2.2 SRH-2D Results

The SRH-2D results are provide in Appendix E. Figure 16 compares the water velocities and vectors for existing and proposed conditions. Existing condition results illustrate the channel constriction created by the existing bridge opening, with water velocity under the existing bridge exceeding 11 ft/s. The constriction raises water levels upstream of the bridge, creating slower velocities and widening the area of inundation during the 100-year flow.

In comparison, the proposed condition velocities are reduced under the bridge and the flow area remains relatively constant throughout the project reach. The highest velocities are at the upstream limit of the project grading, near station 31+50. This is the location that a small headcut is expected to occur as upstream stored sediments are released and transported downstream.

Downstream of the bridge crossing the proposed condition velocity distribution against the existing bank failure remain effectively unchanged from existing conditions. There is an area of high velocities at station 28+00, immediately downstream of the project grading. This is caused by an existing large oak tree on the bank, with its root mass protruding into the channel. Under existing conditions this is masked by the extremely high velocities discharging from under the bridge.

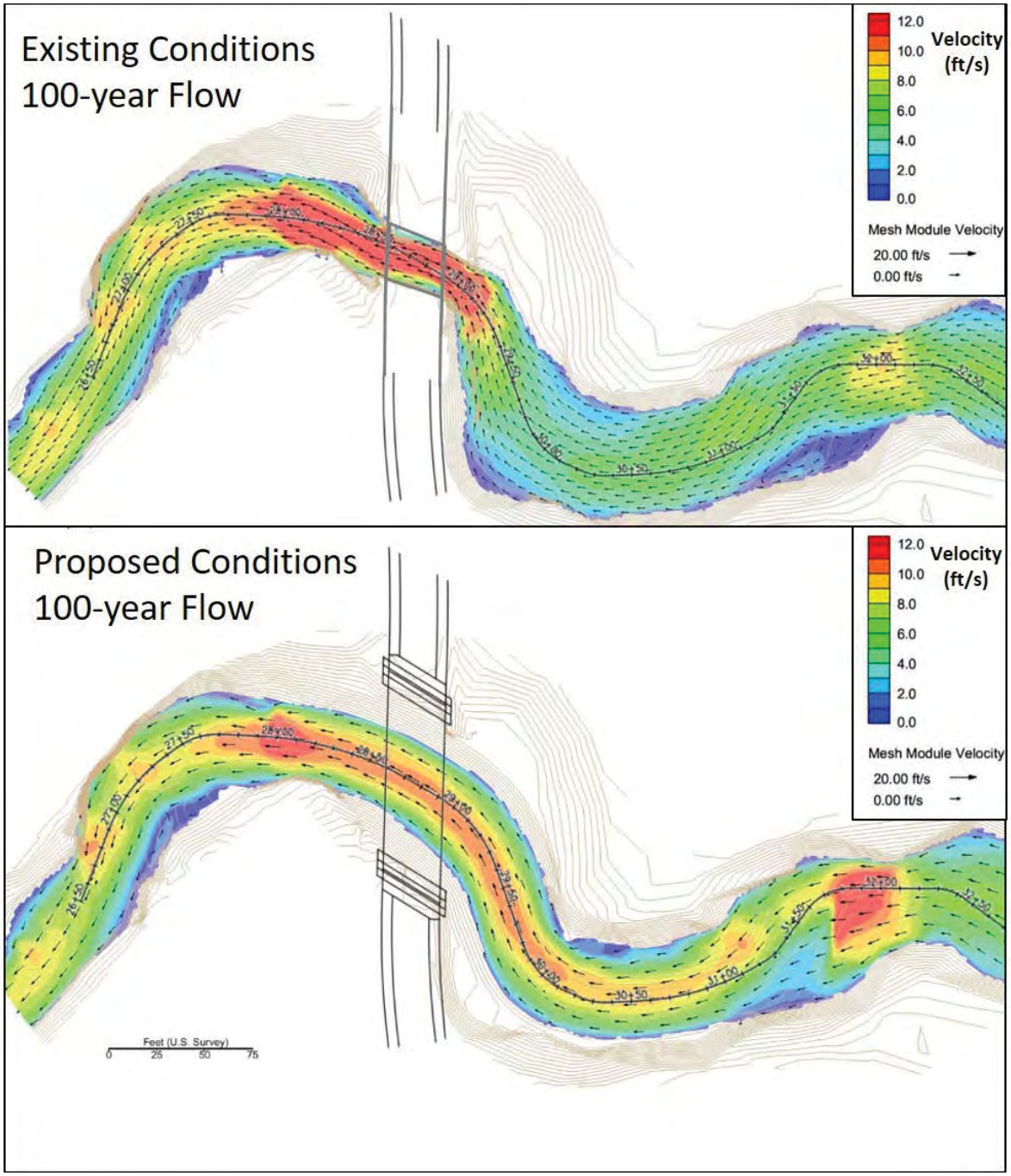



**Figure 16. SRH-2D predicted water velocities associated with the 100-year flow of 1,750 cfs for existing and proposed.**

# 5 DESIGN OF CHANNEL BANK REVETMENTS

Due to high water velocities within the channel and the steep side slopes required for the streambanks in the vicinity of the roadway and bridge, rock slope protection (RSP) will be necessary to form a stable streambank revetment. To provide channel shade and additional roughness along the streambanks to slow velocities, a *hybrid revetment* design consisting of vegetated RSP will be used following design guidance given in Caltrans Design Information Bulletin No. 87-01 (Caltrans, 2014). This uses standard guidelines for RSP sizing, thickness, and layering as described in the California Bank and Shore Rock Slope Protection Design manual (Caltrans, 2000).

## 5.1 RSP Sizing

RSP was sized for the 100-year flow condition of 1,760 cfs with as-built vegetation conditions. Three methods were used and results were compared: California Bank and Shore Protection Design, equation 1(Caltrans, 2000), and USACE (1994) equation 3-3 and equation 3-5. The three methods yield a wide range in size class for RSP and are summarized in Appendix F. The USACE equation 3-3 resulted in the most conservative (i.e. largest rock class) and was selected based on professional judgement.

The USACE equation 3-3 for determining RSP size for channel bottom and side slopes uses depth averaged channel velocity. Velocity and depth for key locations in the project site were derived from the proposed conditions HEC-RAS model (post construction "as-built" conditions). This method is applicable to side slopes of 1.5H:1V or flatter. RSP placed along the outside of channel bends will experience increased forces from impinging flows. This method accounts for bendways using the ratio of the centerline radius of the bend to wetted width of the channel. In addition to velocity and side slope, this method is sensitive to the unit weight of stone, which generally varies from 150 to 175 pounds per cubic foot. For this application a unit weight ($\gamma_s$) of 165 pounds per cubic foot was used.

A minimum safety factor of 1.1 is recommended by USACE. For the Robinson Creek channel design, a safety factor of 2.0 has been applied due to the sharp meander, potential for impact from large floating debris, and risk to vital infrastructure.

Equation 3-3 yields a representative stone size for the $D_{30}$, for which 30 percent of the gradation is finer by weight and length. To determine the $D_{50}$, a relationship is presented that is based on the ratio of $D_{84}$ to $D_{15}$ that defines the gradation of material. Standardized gradations range from 1.4 to 2.2, where a higher ratio indicates a wider range of material size. A ratio of $D_{84}/D_{15}$ of 1.6 was used for this analysis, which is consistent with Caltrans specifications for larger rock size classes.

Calculated stable rock sizes for streambank revetments in the project reach are provided in Table 4. Weights are calculated assuming a spherical shape for the rock and a unit weight of 165 lbs/ft$^3$. Caltrans RSP classes are named by the $D_{50}$ (median rock diameter). Table 4 lists the Caltrans RSP size classes and the corresponding FHWA classification that are closest to the stable $D_{50}$ rock size for the specified location.

Computations for RSP sizing are presented in Appendix F.

**Table 4. Calculated stable rock sizes for RSP along channel banks and applicable Caltrans and FHWA RSP size class. Sizing based on USACE (1994) equation 3-3.**

| Station | Location | Side Slope (H:V) | Stable Rock Size ($D_{50}$) | | |
|---|---|---|---|---|---|
| | | | Diameter (ft) | Weight (lbs) | Size Class FHWA (Caltrans) |
| **30+78** | Left Bank Approaching Bend | 1.5:1 | 1.7 | 424 | V (¼ Ton) |
| **30+18** | Left Bank Approaching Bend | 1.5:1 | 2.6 | 1,518 | VIII (1 Ton) |
| **29+87** | Lower Left Bank at Bend Apex | 1.5:1 | 2.9 | 2,107 | VIII (1 Ton) |
| | Upper Left Bank at Bend Apex | 2:1 | 2.2 | 920 | VII (½ Ton) |
| **29+42** | Both Banks at Bridge Approach | 1.5:1 | 2.2 | 920 | VII (½ Ton) |
| **28+89** | Right Bank, Upstream Bridge Face | 1.5:1 | 1.3 | 190 | IV (Light) |
| **28+68** | Right Bank Under Bridge | 1.5:1 | 1.4 | 237 | IV (Light) |
| **28+48** | Both Banks, Downstream Bridge Face | 1.5:1 | 1.6 | 354 | V (¼ Ton) |

## 5.2 RSP Layers and Thickness

RSP should be placed in a layer with a thickness sufficient to remain stable and provide maximum protection against erosive forces. Rock that interlocks and minimizes voids will help ensure the stability of the RSP layer. Design equations are based on a minimum thickness of $1*D_{100}$, the maximum size in the size class. Caltrans methods for RSP design call for use of "California Layered RSP" (Caltrans, 2000), where up to three layers of rock make up the total RSP thickness. The design follows filtration theory where, from the inside to the outside, each layer is progressively larger so an inner layer will not pass through the voids of the next layer. The total RSP thickness is made up of a backing, inner and outside layer. In some cases, an inner layer is not required.

Caltrans standard RSP size classes are divided into two construction methods. Method "A" is for larger rock that is individually placed and Method "B" is for smaller rock where dumping is acceptable. Using the stable rock sizes calculated for locations given in Table 4, the RSP size class layers and thickness were developed following Caltrans (2000), and are provided in Table 5.

Standard Caltrans design includes RSP fabric at the interface of the native slope and the backing class. However in lieu of RSP fabric, the hybrid revetment uses a gravel filter to better support vegetation plantings. A Universal Gravel Filter Gradation is appropriate for the proposed RSP revetments. It consists of 6-inch minus gravel. For slopes steeper than 2.5H:1V rounded river-run material is not recommended for the gravel filter layer.

**Table 5. RSP size class and thickness by station and location.**

| Station and Location | Side Slope (H:V) | Outer Layer | | Backing Layer | |
|---|---|---|---|---|---|
| | | RSP Class | Thickness (ft) | RSP Class | Thickness (ft) |
| 28+15 to 29+60<br>Under Bridge<br>Both Banks | 1.5:1 | ½ TON | 3.4 | Backing No. 1 | 1.8 |
| 29+60 to 30+30<br>Outside Bend<br>Lower Left Bank | 1.5:1 | 1 TON | 4.3 | Light | 2.5 |
| Outside Bend<br>Upper Left Bank | 2:1 | ½ TON | 3.4 | Backing No. 1 | 1.8 |
| 30+30 to 30+90<br>Upstream Approach<br>Left Bank | 1.5:1 | ¼ TON | 3.3 | Backing No.1 | 1.8 |

## 5.3 Toe Scour Analysis

Toe scour and undermining of RSP along streambanks is a common cause of failure. The proposed channel within the project reach will have a natural substrate bottom and includes two substantial meander bends. In meandering channels flow is impinged along the outside bend, increasing velocities and scour forces. In high flows the channel bed scours and then refills during the receding limb of the hydrograph. Toe protection can be provided by extending the toe of the RSP to a depth below the expected scour depth.

Caltrans (2014) and USACE (1998) reference methods developed in *Toe Scour Estimation in Stabilized Bendways* (Maynord 1996) as a way of predicting potential scour depth. The empirical equations were developed by synthesizing laboratory and field data for scour at bank toes around stream bends. The primary variables are the average depth in the main channel upstream of the bend, depth at the bend and centerline radius of the main channel bend. The depth of scour is the difference of the computed depth in the bend and the maximum depth as predicted by Equation 16.

Based on the radius of the channel bends a factor of safety of 1.19 was used, implying that 2% of measured scour could be 5% deeper (approximately 0.5 feet) than the predicted scour depth.

The scour analysis indicated that the toe of the RSP should be placed to a minimum depth of 3.0 feet below the channel bed. This scour depth is added to the depth the channel may degrade based on the low vertical adjustment potential (VAP) profile, which is approximately 4 feet lower than the design channel bed. This places the toe of the RSP a minimum of 7 feet below the design channel bed.

## 5.4 Design Height of RSP

Caltrans recommends the water depth during 50-year return flow for the design height of the RSP. Additional freeboard can be added to the design height based on site conditions and professional judgment. Additional consideration should be given to the potential for super-elevation at bends and the possibility of channel aggradation. In this case, results from the 2D model at the 100-year flow, which represents the matured vegetation condition of the hybrid RSP revetment was used to define the design water surface with super elevation at the bends. The final design height of the RSP was

then modified by adding the difference of the proposed water surface and the high VAP water surface as predicted by the HEC RAS model to account for potential aggradation.

Cross sections 30+78, 29+87 and 28+88 are on the straight section approaching the bend, on the right bend, and on the left bend at the bridge face. These locations represent the highest potential for scour and super elevation and were used to determine the design height of the RSP design. Table 6 lists the SHR-2D water surface at the hybrid riprap banks on the outside of the bends. The increase in water surface elevation at the high VAP conditions as compared to design conditions is based on the HEC-RAS results. This difference is added to the SRH-2D water surface elevation to arrive at the design elevation for the top of the RSP.

**Table 6. Summary RSP top elevation based on 100-year water surface elevations (WSE) for proposed conditions with mature vegetation from 2D modelling plus increase in WSE due at high VAP profile due to potential aggradation.**

| Station and Location | SRH-2D WSE along Bank (feet) | Increase in WSE at High VAP | Design Elevation for RSP Top (feet) |
|---|---|---|---|
| **28+88** Upstream Bridge Face | 375.5 | 0.8 feet | **376.3** |
| **29+87** Outside of Left Bend | 377.3 | 1.0 feet | **378.3** |
| **30+78** Straight Section Upstream of Bends | 378.0 | 1.0 feet | **379.0** |

## 5.5 Hybrid Revetment Design- Vegetated RSP

Incorporating vegetation into the streambank revetment has the beneficial effects of improving stream ecology, increasing soil strength and providing flow resistance, although it can be unpredictable over the long term (Caltrans 2014). Established vegetation will provide cover, shade the channel and provide nutrients to the stream. As root systems establish, they can support the banks by providing resistance to scour and bind the soils and rock placed along the bank.

Caltrans has developed recommendations for the use of a "hybrid revetment" that incorporates vegetation into rock slope protection to provide the benefits of stream side vegetation while managing its uncertainties. The intent is to balance the engineering benefit of armoring a bank while promoting ecological processes.

The hybrid RSP design consists of the standard RSP design as described above, with the addition of live willow staking that penetrates the rock layers and allows rooting into the native bank soils. Species most commonly used as live stakes are native willow and cottonwood trees. Plantings are placed either vertical or perpendicular to the slope face and must be long enough to extend through to the subbase and into most soil. Placement of live stakes is done in conjunction with rock placement. To provide protection to the live stakes during rock placement, cuttings should be placed into perforated cardboard tubes that are embedded into the subgrade and extend through the layered RSP (Figure 17). Cardboard is preferred as it can degrade over time and not hinder the growth of the cuttings. Growing medium is placed within the cardboard tubes to provide direct soil

contact. Additionally, voids within the placed riprap should be filled with salvaged soil to further promote root growth within the layered RSP.

For Robinson Creek, it is assumed cutting shall be made from native willow species. Stakes may need to be as long as 12 feet and should be placed vertically to maximize their rooting depth, with the butt of the live stake at or near summer groundwater levels. The willow plantings will start at bankfull, 2.3 feet above the finished channel bed, and extend up the RSP revetment. To ensure good establishment, the live stakes should be irrigated for a minimum of two seasons.

Preliminary spacing of live willow stakes is assumed to be 5 feet on-center. Prior to final design a qualified landscape architect or botanist should be retained to provide recommendations for lateral spacing, live willow stake diameter range, embedment depths into subgrade and type of soil backfill for the tubes. They should also provide provisions for harvesting and storage of cutting stock and irrigation design.

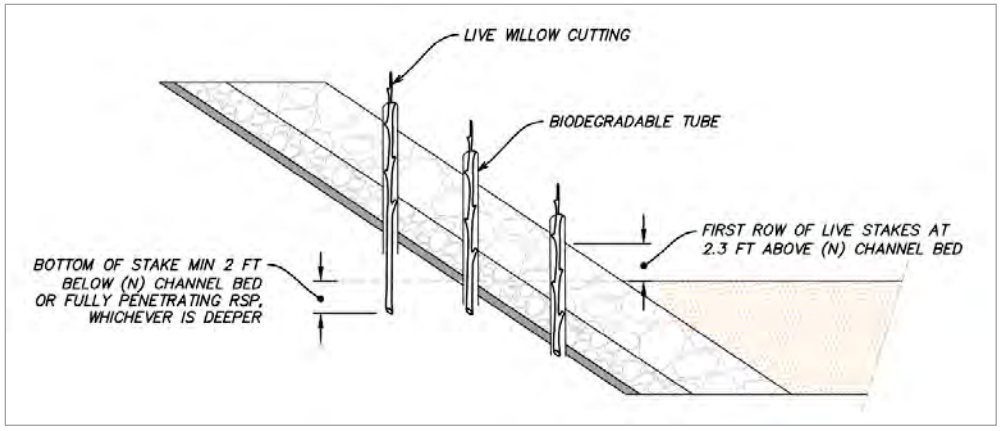



**Figure 17. Typical live stake placement for hybrid RSP revetment.**

## 5.6 RSP Design Sections

Three typical design sections were developed for the RSP bankline protection for the project (Figure 18):

1. Under the Bridge (Station 28+15 to 28+60)
2. Apex of the bend and along the roadway and bridge approach (Station 28+60 to 30+30)
3. Upstream edge of project at approach to bend Station (30+30 to 30+90)

Section 1 has 1.5:1 side slope and is located along the bend under the bridge. This reach has ½ Ton RSP (Class VII) application on both banks. The right bank is the outside bend and the left bank is the inside bend where a bench is expected to form in the wider channel. Roughly half of the RSP on the right bank will be outside the cover of the bridge deck and should utilize the Hybrid RSP discussed above.

Section 2 is located at the apex of the bend along the bridge approach currently protected by the retaining wall and RSP. The left bank will have 1-Ton RSP (Class VIII) application with a 1.5:1 slope at the toe and ½-ton RSP (Class VII) at a 2:1 slope along the upper bank. This reach should utilize Hybrid RSP. Compacted native backfill behind the RSP layers will be required where the new bank is pulled away from the existing road embankment. Above the RSP application backfill and planting should be applied to meet the existing ground.

Section 3 is located at the upstream end of the project reach and is the approach to the first bend. ¼-ton RSP (Class V) will be applied to the left bank at a 1.5:1 side slope and blend into the native bank. Hybrid RSP should be utilized. Existing RSP along this reach should be reused as practical.

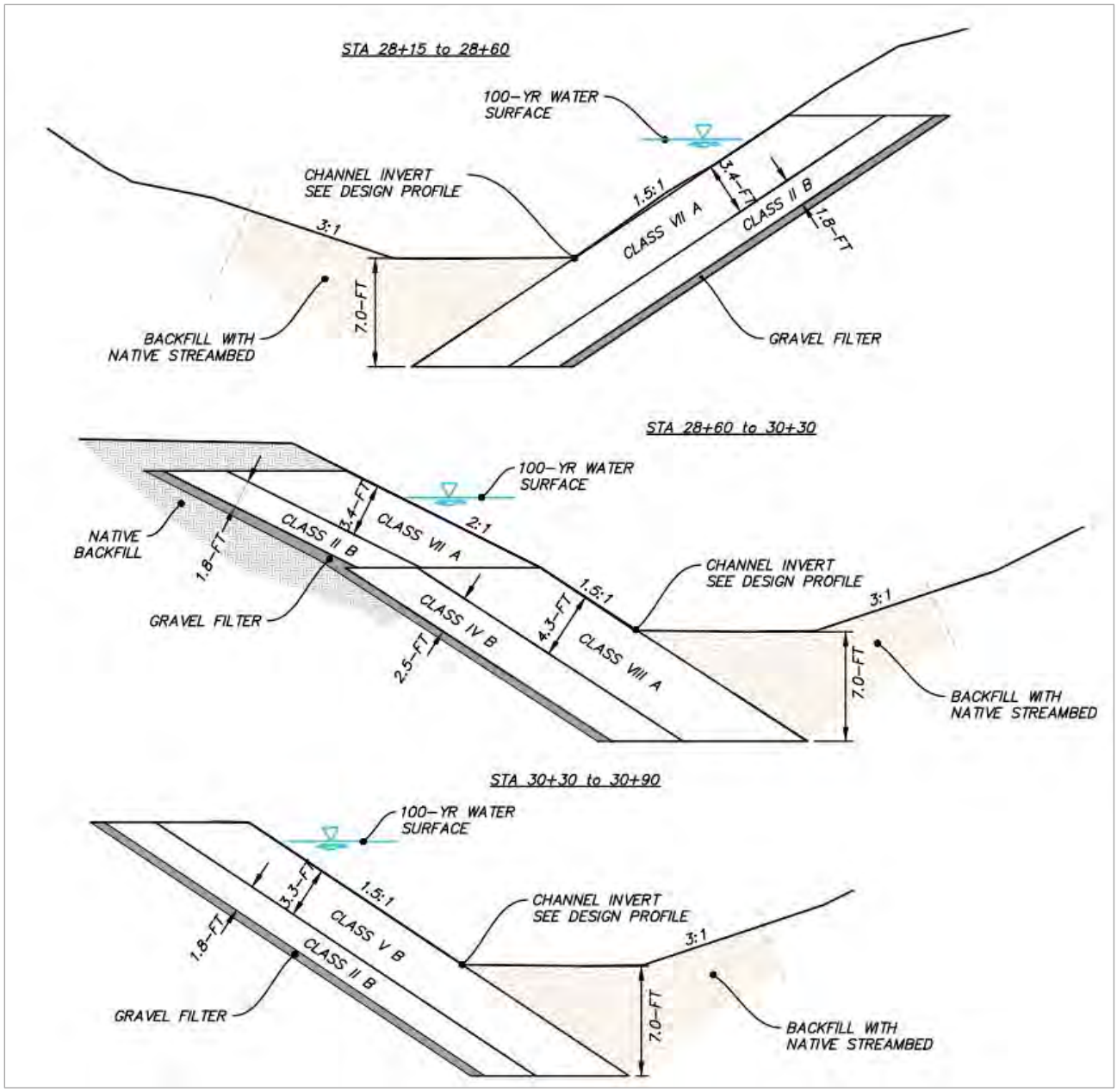



**Figure 18. Typical sections for RSP placement along design channel on Robinson Creek at Lambert Lane.**

## 5.7 Tree Removal and Additional Streamside Planting Areas

Based on the proposed channel grading shown in Appendix A, several trees will be removed. This includes a 30-inch tree (DBH) close to the bridge face, a 16-inch tree near the existing retaining wall, and an 8-inch and two 4-inch trees on the right bank. The species of these trees is not known, but if any are willows, they should be considered for use as live stakes for the hybrid revetment.

In addition to the plantings contained within the hybrid RSP revetment, native vegetation would be planted on the graded point bars on the inside of the channel bends. This includes on the right bank between station 29+50 and 31+10, and on the left bank immediately upstream and downstream of the bridge crossing. This vegetation should include native riparian tree species, as well as understory plants. Irrigation will likely be required for a minimum of two years to ensure survival.

In addition to the planting areas close to the channel, the project will create a terrace behind the RSP adjacent to the road embankment at the southern bridge approach. This terrace could be used to plant upland tree species, such as native oak trees. Prior to final design a qualified landscape architect or botanist should be retained to develop a planting plan.

## 5.8 Recommendation for Treatment of the downstream Bank Failure

The stream channel design allows for release of the stored sediments from the upstream channel. In total, approximately 220 cubic yards of streambed sediments may be released and transport downstream during this channel adjustment period. This is a relatively small amount of sediment for this stream. However, this released sediment has the potential to deposit between high flow events within the project reach and immediately downstream. Deposition could exacerbate the existing bank erosion downstream of the bridge, behind the Boonville Hotel. Given the condition of this failing bank, proximity of structures on top of this bank, and potential for channel adjustments associated with this project, efforts should be made to treat the bank failure using standard bioengineering bank revetment practices prior to, or in conjunction with, the Lambert Lane bridge replacement. The Mendocino County Resource Conservation District (RCD) has lead bank repairs using similar approaches in other location in lower Robinson Creek, and should be engaged about the potential to lead repair efforts for this bank failure.

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# Appendix A – Design Drawings

# Appendix B - Geomorphic Field Data

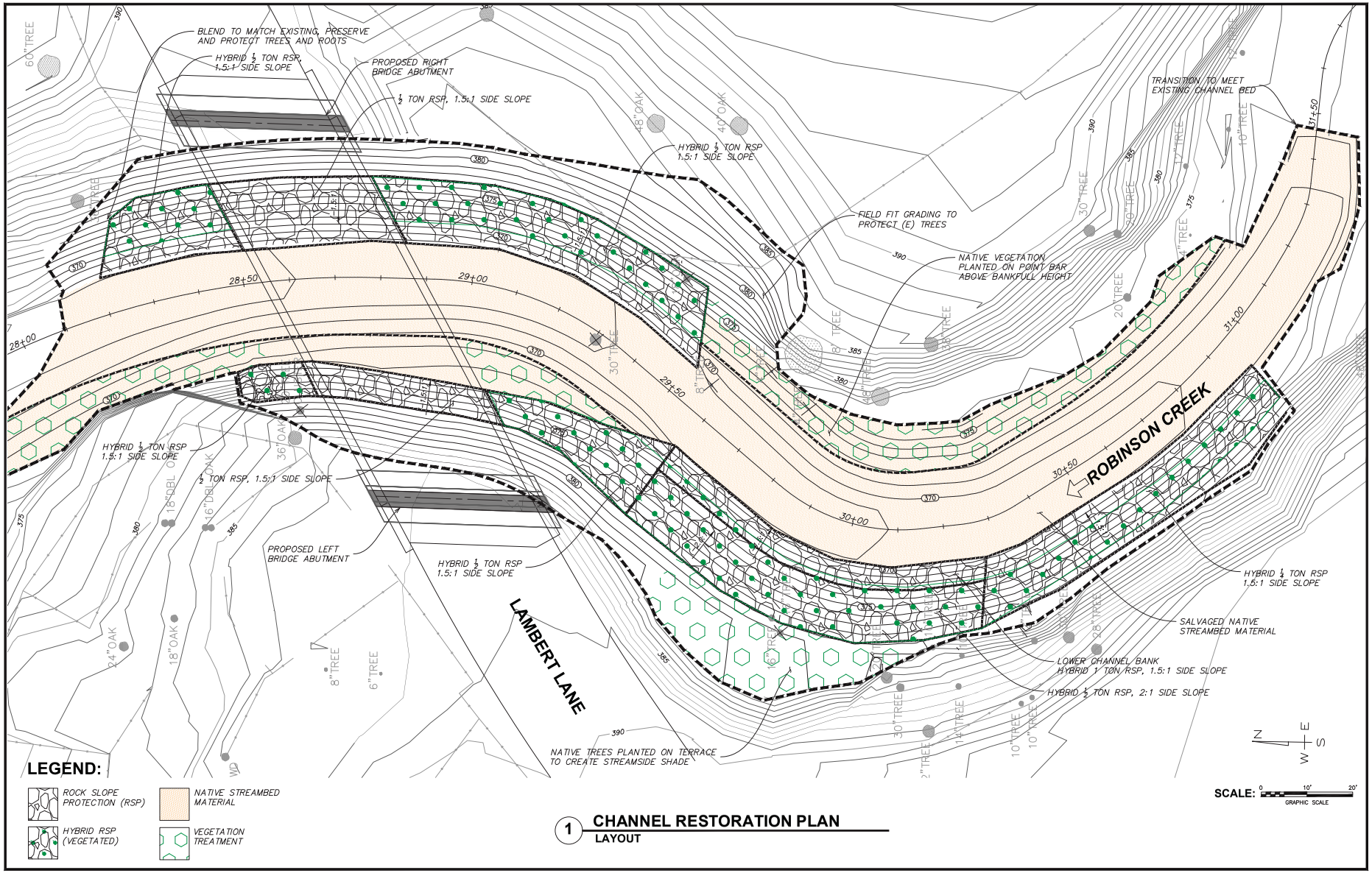
# Appendix C – Hydrology

# Appendix D - HEC RAS Results

# Appendix E - SMS Results

# Appendix F – Rock Slope Protection Design

# Appendix A – Design Drawings




1 **CHANNEL RESTORATION PLAN**
LAYOUT

Michael Love & Associates, Inc.
PO Box 4477● Arcata, CA 95518 ● (707) 822-2411

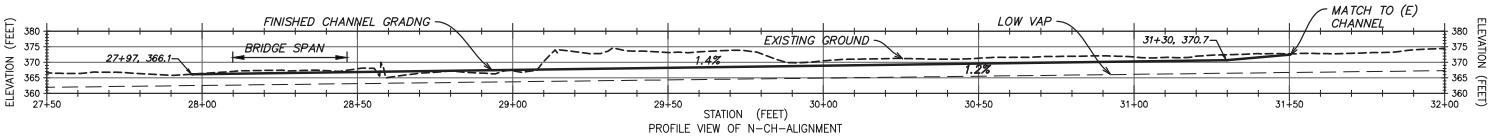
DRAFT
30% DESIGN SUBMITTAL

VERIFY SCALE
THIS BAR IS ONE INCH LONG AT FULL SCALE

MENDOCINO COUNTY DEPARTMENT OF TRANSPORTATION
ROBINSON CREEK AT LAMBERT LANE
BOONEVILLE, CA

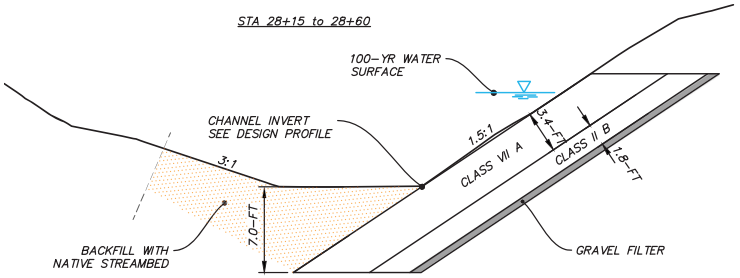
**CHANNEL RESTORATION PLAN**

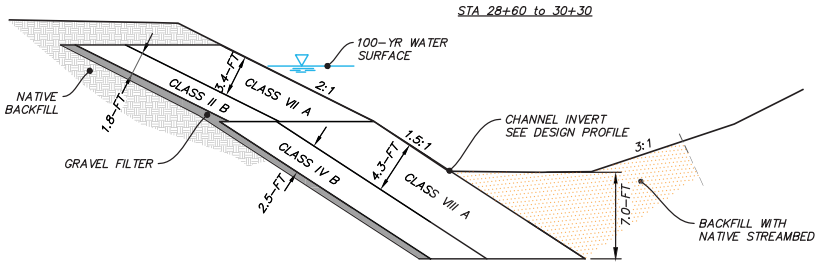
| | |
|---|---|
| DATE | OCT. 2018 |
| SUBMITTAL | 30% DESIGN |
| DESIGN | AL, ML |
| DRAWN | LLANOS |
| SHEET | 1 of 2 |

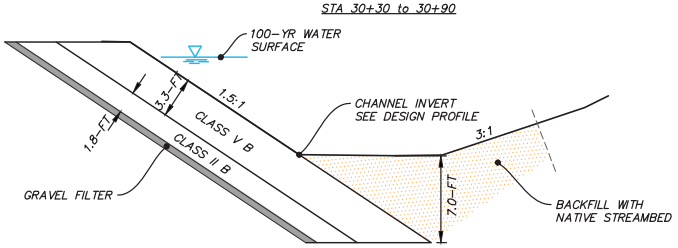



## 2 CHANNEL PROFILE

HORIZONTAL AND VERTICAL SCALE 0 20' 40' GRAPHIC SCALE

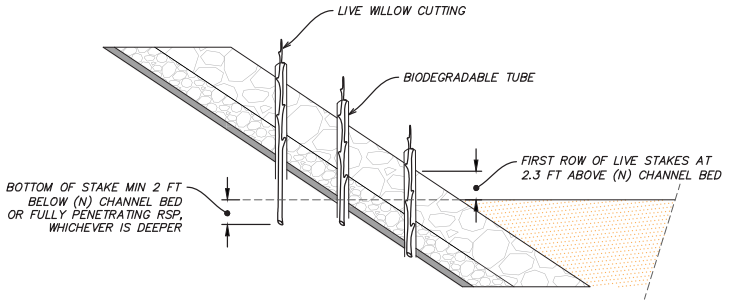



## 3 TYPICAL RSP SECTIONS

0 5' 10' GRAPHIC SCALE



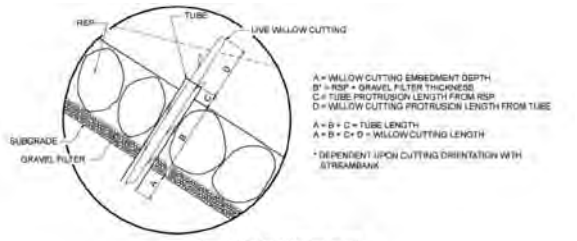
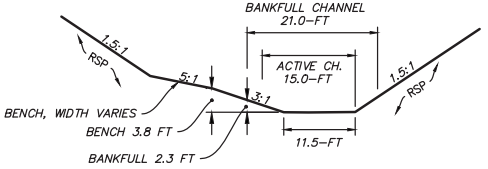




Figure 21- Live Cutting Detail

## 4 HYBRID RSP DETAIL

NTS




## 5 TYPICAL SECTION UNDER BRIDGE

NTS

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DRAFT
30% DESIGN SUBMITTAL

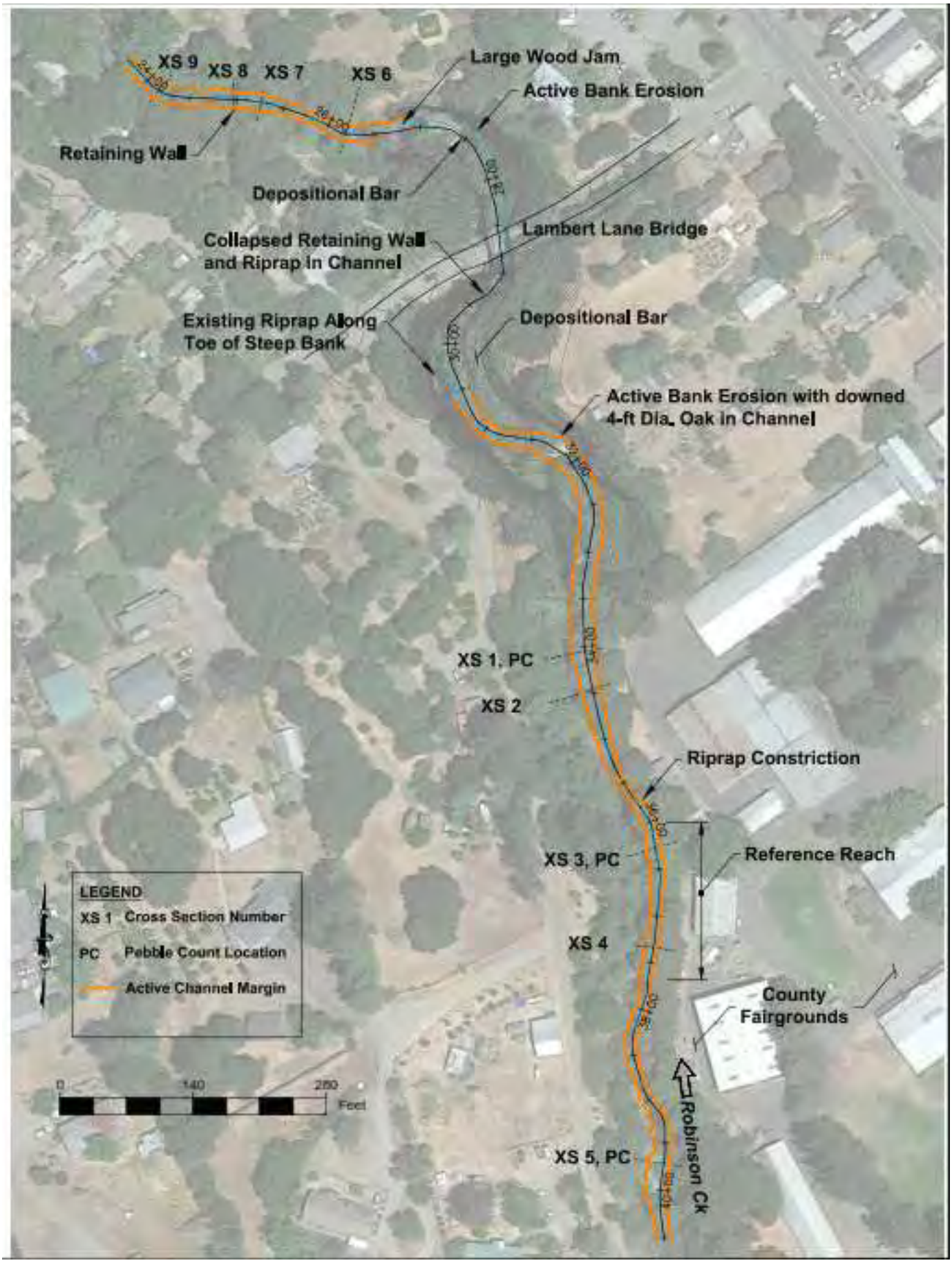
VERIFY SCALE
THIS BAR IS ONE INCH LONG AT FULL SCALE

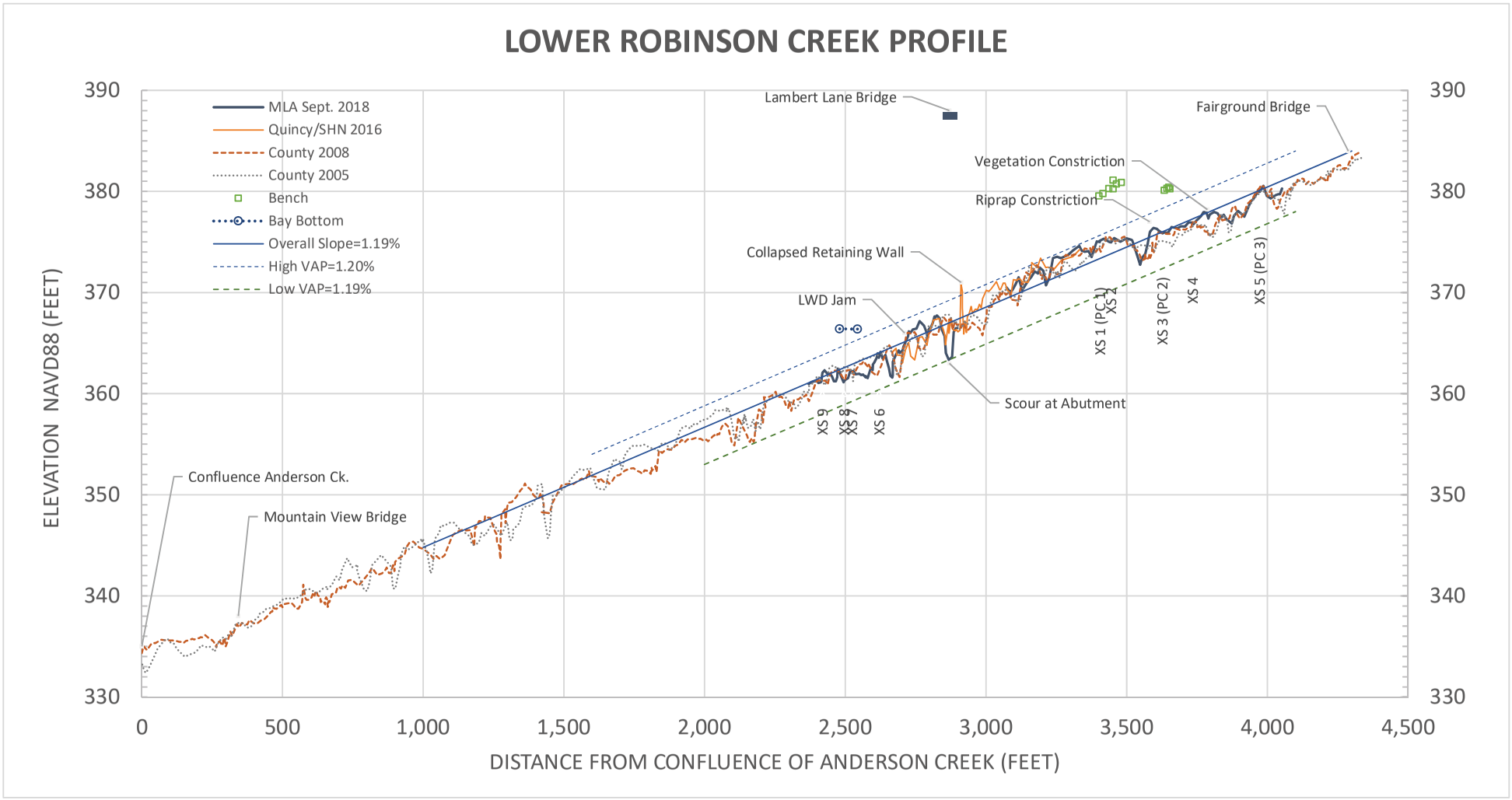
MENDOCINO COUNTY DEPARTMENT OF TRANSPORTATION
ROBINSON CREEK AT LAMBERT LANE
BOONEVILLE, CA

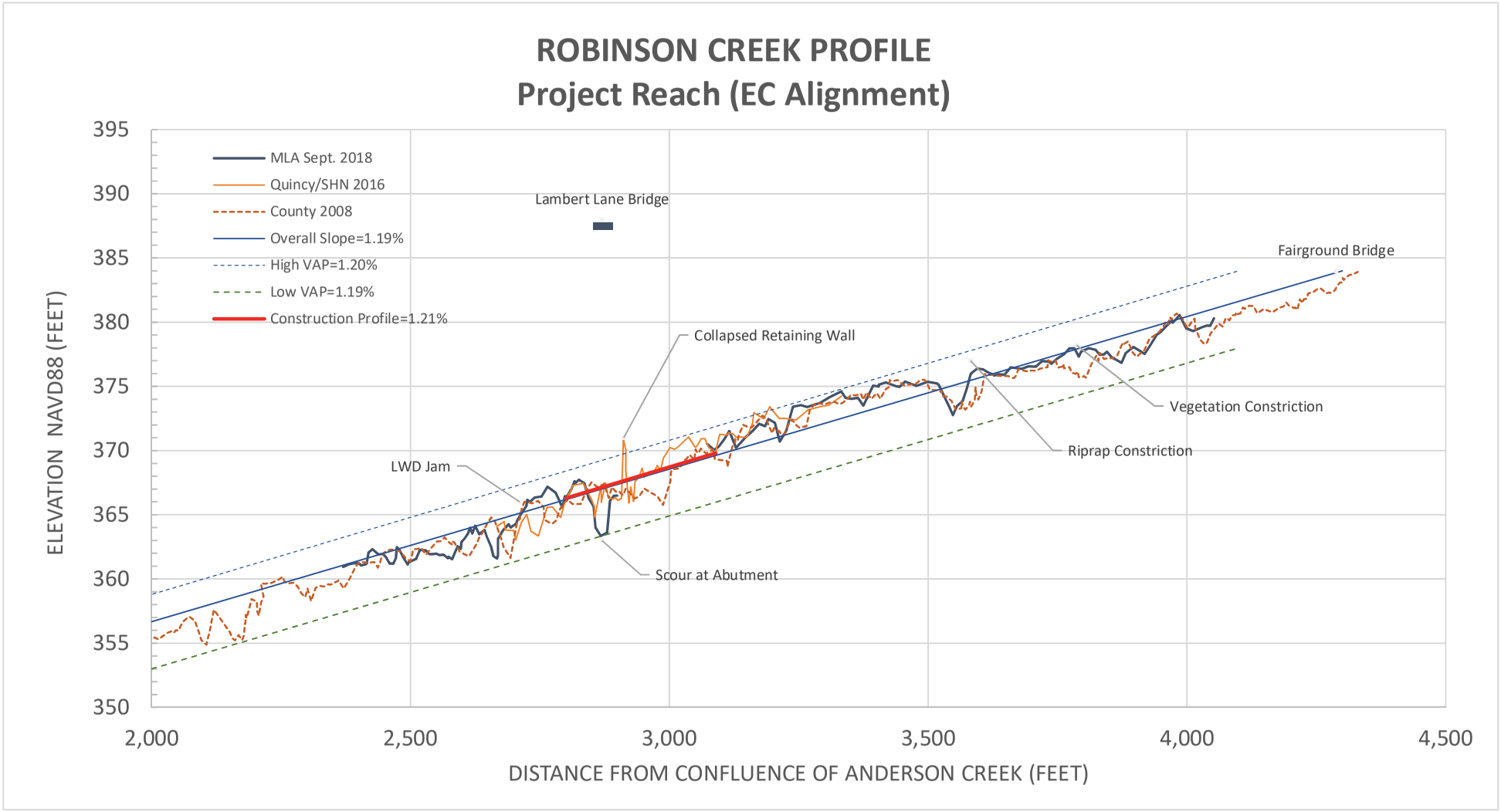
**CHANNEL PROFILE AND TYPICAL RSP REVETMENT**

| | |
|---|---|
| DATE | OCT. 2018 |
| SUBMITTAL | 30% DESIGN |
| DESIGN | AL, ML |
| DRAWN | LLANOS |
| SHEET | 2 of 2 |

# Appendix B - Geomorphic Field Data


XS 9
XS 8
XS 7
XS 6
Large Wood Jam
Active Bank Erosion
Retaining Wall
Depositional Bar
Lambert Lane Bridge
Collapsed Retaining Wall and Riprap in Channel
Existing Riprap Along Toe of Steep Bank
Depositional Bar
Active Bank Erosion with downed 4-ft Dia. Oak in Channel
XS 1, PC
XS 2
Riprap Constriction
XS 3, PC
Reference Reach
XS 4
County Fairgrounds
XS 5, PC
Robinson Ck
LEGEND
XS 1 Cross Section Number
PC Pebble Count Location
Active Channel Margin
0
140
280
Feet


LOWER ROBINSON CREEK PROFILE
ELEVATION NAVD88 (FEET)
DISTANCE FROM CONFLUENCE OF ANDERSON CREEK (FEET)
MLA Sept. 2018
Quincy/SHN 2016
County 2008
County 2005
Bench
Bay Bottom
Overall Slope=1.19%
High VAP=1.20%
Low VAP=1.19%
Lambert Lane Bridge
Fairground Bridge
Vegetation Constriction
Riprap Constriction
Collapsed Retaining Wall
LWD Jam
Scour at Abutment
Confluence Anderson Ck.
Mountain View Bridge
XS 9
XS 8
XS 7
XS 6
XS 1 (PC 1)
XS 2
XS 3 (PC 2)
XS 4
XS 5 (PC 3)
390
380
370
360
350
340
330
0
500
1,000
1,500
2,000
2,500
3,000
3,500
4,000
4,500


ROBINSON CREEK PROFILE
Project Reach (EC Alignment)
MLA Sept. 2018
Quincy/SHN 2016
County 2008
Overall Slope=1.19%
High VAP=1.20%
Low VAP=1.19%
Construction Profile=1.21%
Lambert Lane Bridge
Collapsed Retaining Wall
LWD Jam
Scour at Abutment
Riprap Constriction
Vegetation Constriction
Fairground Bridge
ELEVATION NAVD88 (FEET)
395
390
385
380
375
370
365
360
355
350
2,000
2,500
3,000
3,500
4,000
4,500
DISTANCE FROM CONFLUENCE OF ANDERSON CREEK (FEET)

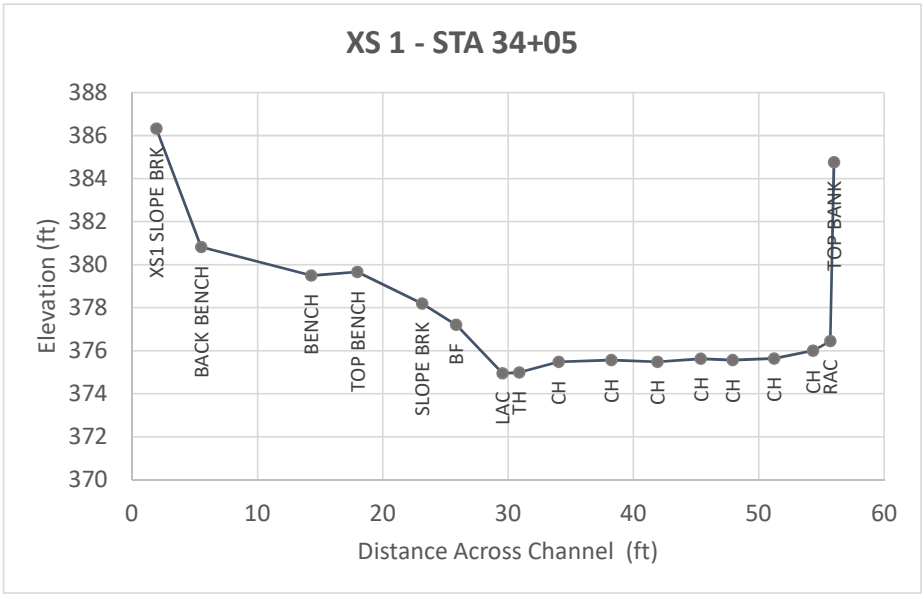
## Robinson Creek Geomorphic Survey

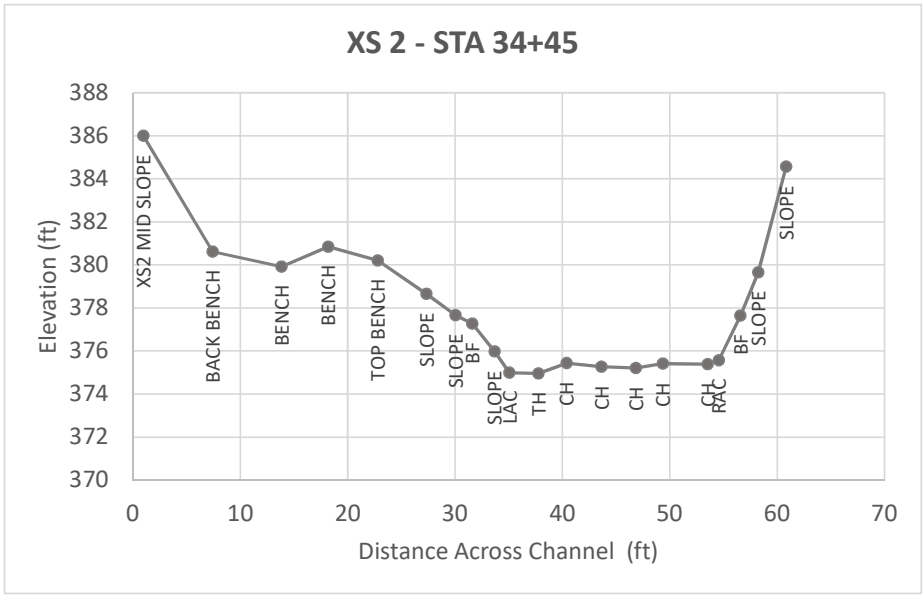
Spetember 12, 2018

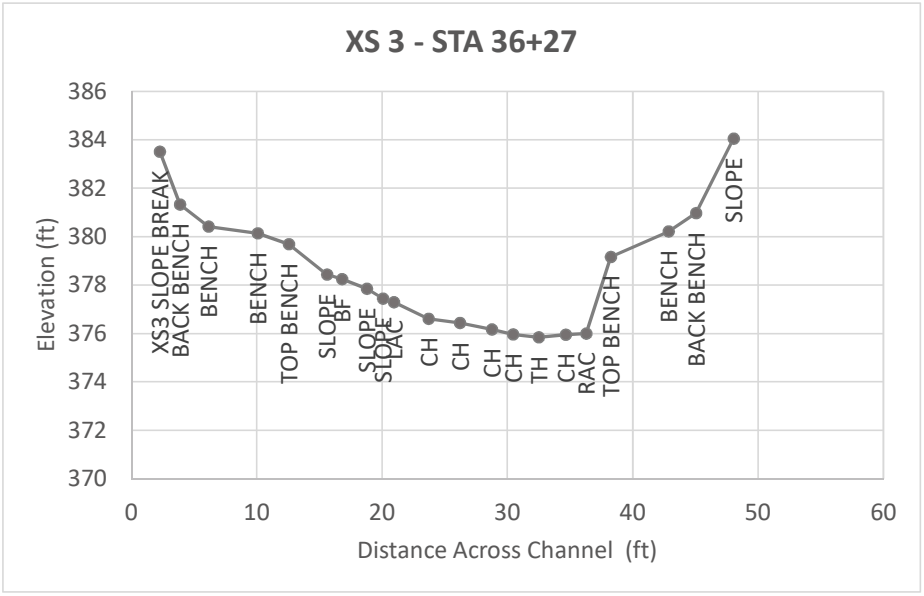
### Cross Section Data

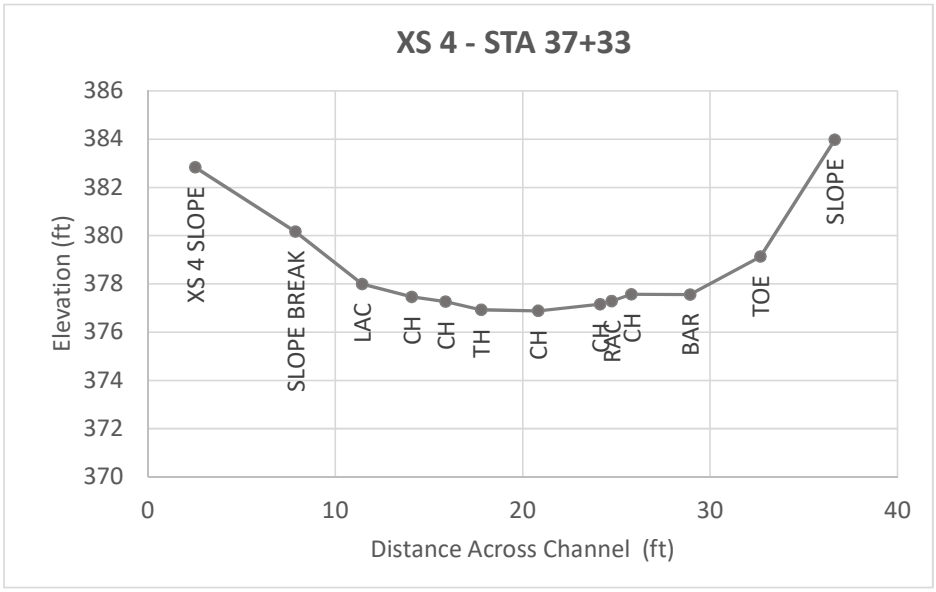
| Upstream of Lambert Lane | | | | | |
|---|---|---|---|---|---|
| **Cross Section** | **Location** | **BF Width (ft)** | **BF Depth (ft)** | | **AC Width (ft)** |
| XS 1 | STA 34+05 | 29.9 | 2.2 | | 26.2 |
| XS 2 | STA 34+45 | 25.0 | 2.7 | 2.3 | 19.5 |
| XS 3 | STA 36+27 | 21.4 | 2.4 | | 15.4 |
| XS 4 | STA 37+33 | 24.8 | 2.2 | | 13.3 |
| XS 5 | STA 39+72 | 31.7 | 2.1 | | 24.8 |
| | **Average:** | **26.6** | **2.3** | | **19.8** |

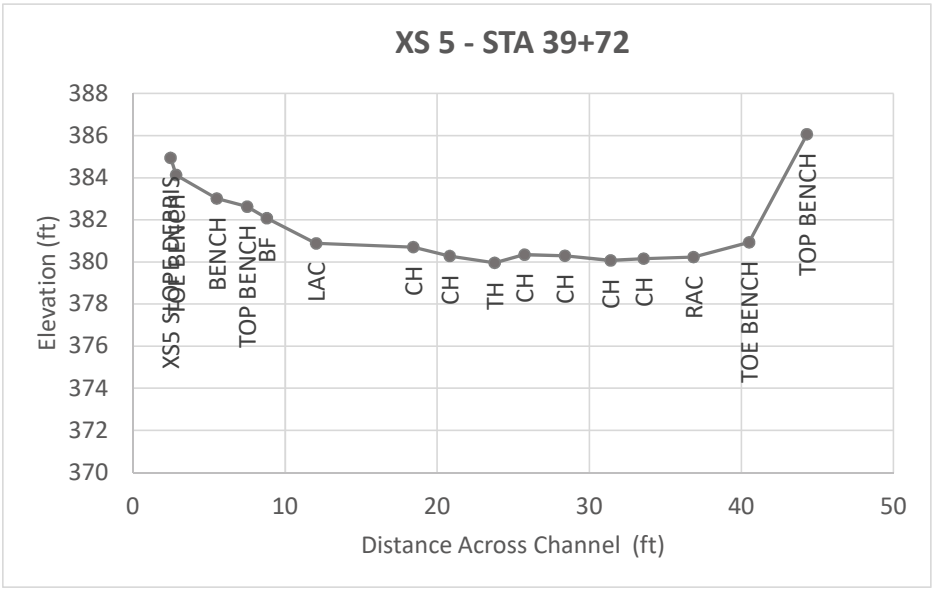
| Downstream of Lambert Lane | | | | | |
|---|---|---|---|---|---|
| **Cross Section** | **Location** | **BF Width (ft)** | **BF Depth (ft)** | | **AC Width (ft)** |
| XS 9 | STA 24+20 | 23.7 | 1.8 | 2.1 | 17.0 |
| XS 8 | STA 24+95 | 19.6 | | | 18.1 |
| XS 7 | STA25+25 | 25.0 | 2.3 | | 19.7 |
| XS 6 | STA 26+20 | 28.8 | 2.6 | | 19.6 |
| | **Average:** | **24.3** | **2.2** | | **18.6** |

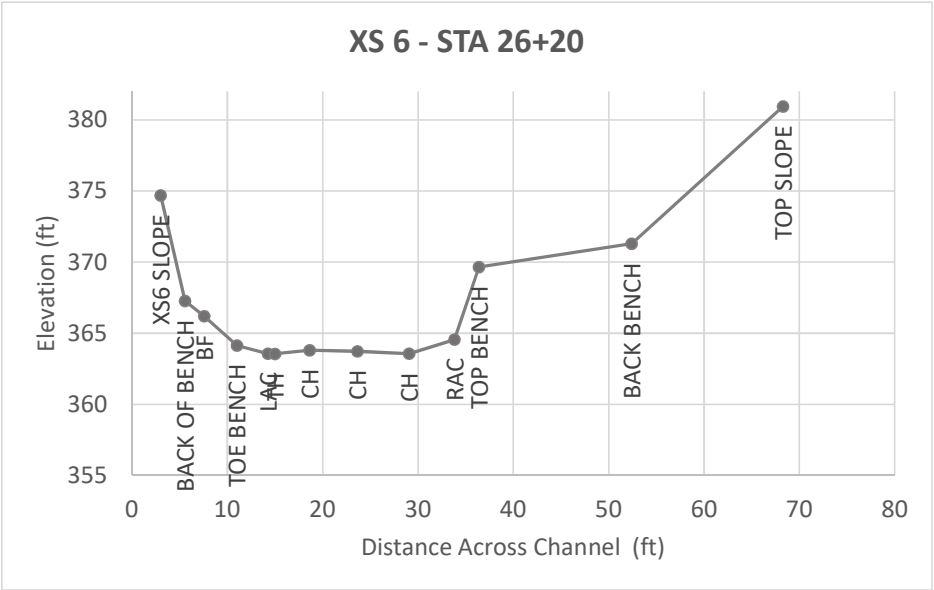

XS 1 - STA 34+05
Elevation (ft)
388
386
384
382
380
378
376
374
372
370
0
10
20
30
40
50
60
Distance Across Channel (ft)
XS1 SLOPE BRK
BACK BENCH
BENCH
TOP BENCH
SLOPE BRK
BF
LAC
TH
CH
CH
CH
CH
CH
CH
CH
RAC
TOP BANK

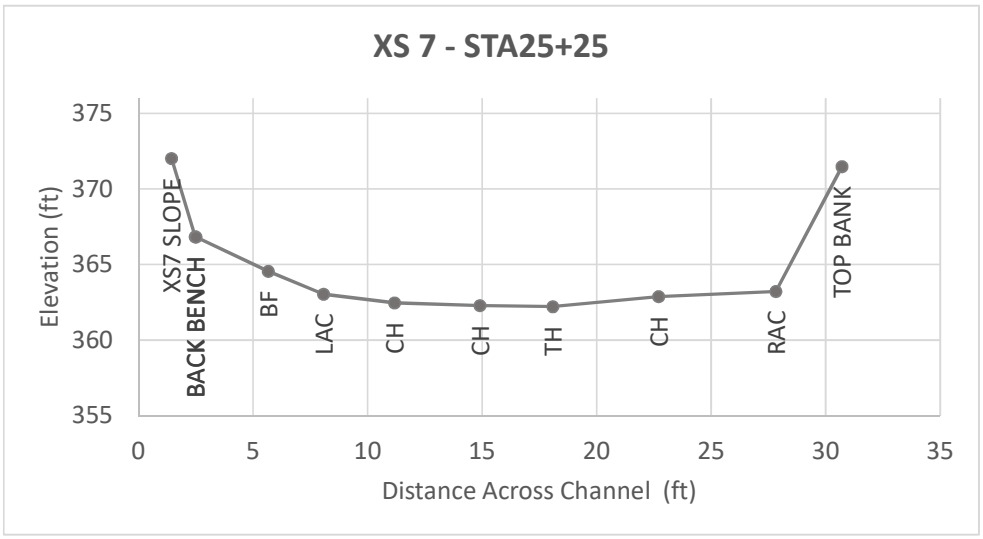

XS 2 - STA 34+45
Elevation (ft)
388
386
384
382
380
378
376
374
372
370
0
10
20
30
40
50
60
70
Distance Across Channel (ft)
XS2 MID SLOPE
BACK BENCH
BENCH
BENCH
TOP BENCH
SLOPE
SLOPE
BF
SLOPE
LAC
TH
CH
CH
CH
CH
CH
RAC
BF
SLOPE
SLOPE

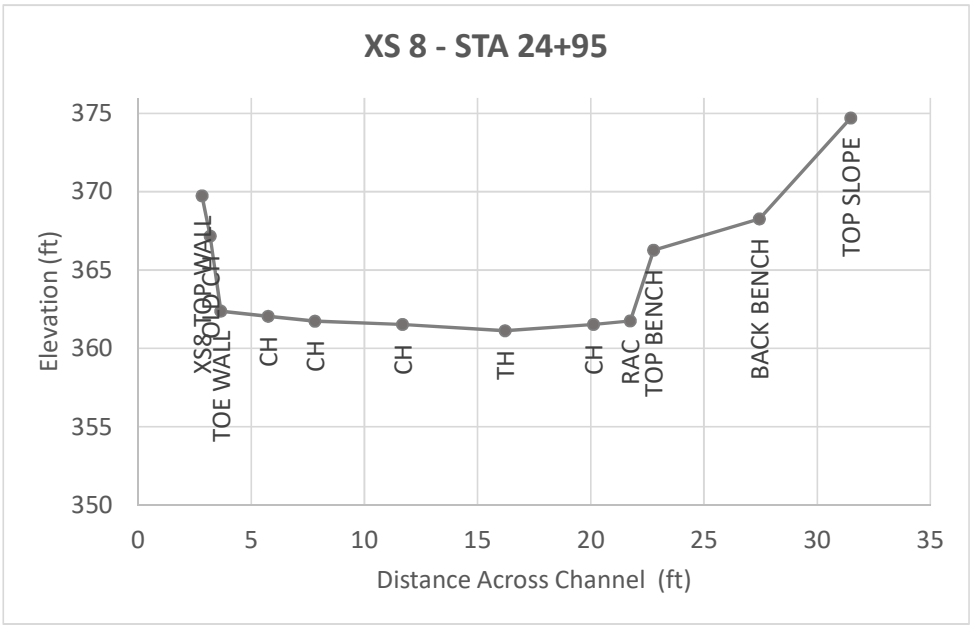

XS 3 - STA 36+27
Elevation (ft)
386
384
382
380
378
376
374
372
370
0
10
20
30
40
50
60
Distance Across Channel (ft)
XS3 SLOPE BREAK
BACK BENCH
BENCH
BENCH
TOP BENCH
SLOPE
BF
SLOPE
SLOPE
LAC
CH
CH
CH
CH
TH
CH
RAC
TOP BENCH
BENCH
BACK BENCH
SLOPE

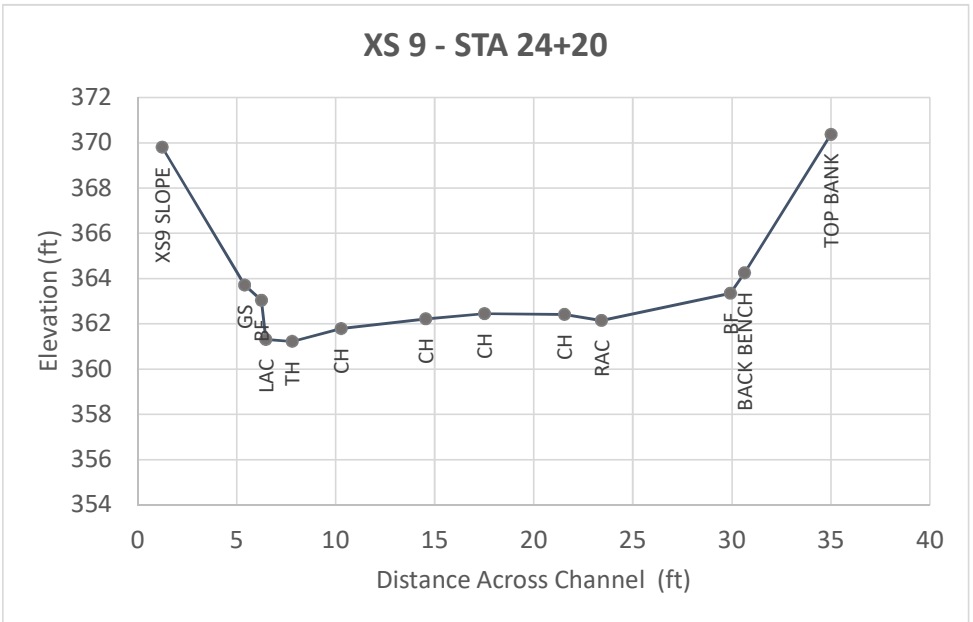

XS 4 - STA 37+33
Elevation (ft)
386
384
382
380
378
376
374
372
370
0
10
20
30
40
Distance Across Channel (ft)
XS 4 SLOPE
SLOPE BREAK
LAC
CH
CH
TH
CH
CH
RAC
CH
BAR
TOE
SLOPE

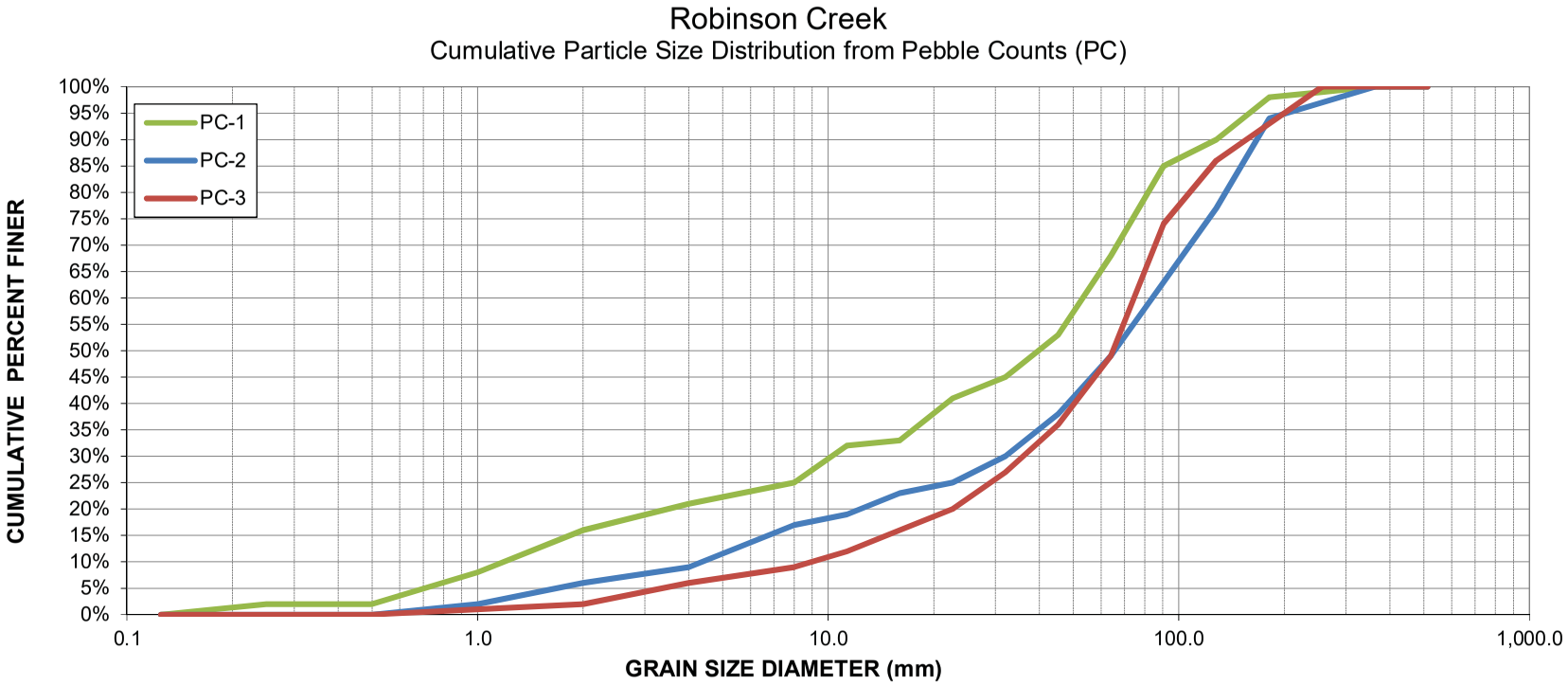

XS 5 - STA 39+72
Elevation (ft)
388
386
384
382
380
378
376
374
372
370
0
10
20
30
40
50
Distance Across Channel (ft)
BENCH
TOP BENCH
BF
LAC
CH
CH
TH
CH
CH
CH
CH
RAC
TOE BENCH
TOP BENCH

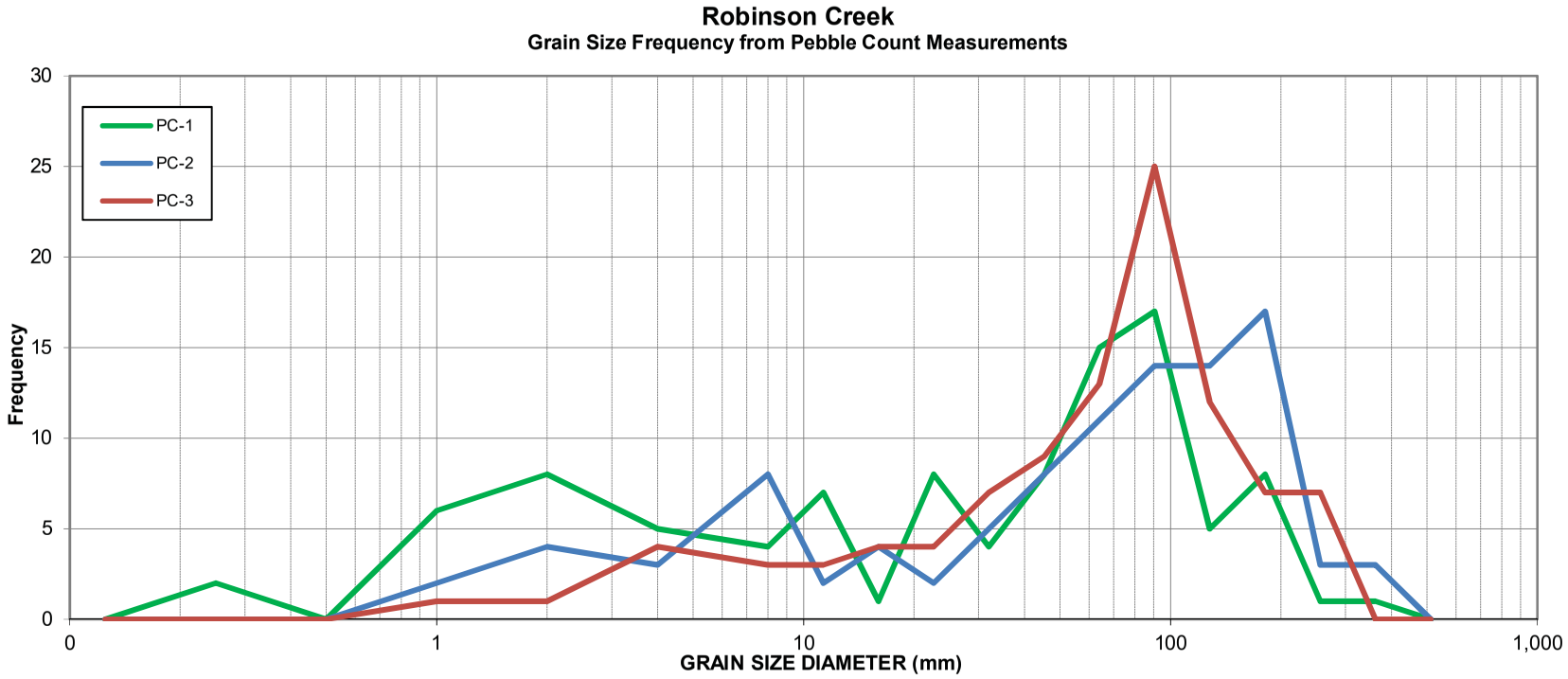

XS 6 - STA 26+20
Elevation (ft)
380
375
370
365
360
355
0
10
20
30
40
50
60
70
80
Distance Across Channel (ft)
XS6 SLOPE
BACK OF BENCH
BF
TOE BENCH
LAC
CH
CH
CH
RAC
TOP BENCH
BACK BENCH
TOP SLOPE


XS 7 - STA25+25
Elevation (ft)
375
370
365
360
355
0
5
10
15
20
25
30
35
Distance Across Channel (ft)
XS7 SLOPE
BACK BENCH
BF
LAC
CH
CH
TH
CH
RAC
TOP BANK


XS 8 - STA 24+95
Elevation (ft)
375
370
365
360
355
350
0
5
10
15
20
25
30
35
Distance Across Channel (ft)
XS8 TOP WALL
TOE WALL
CH
CH
CH
TH
CH
RAC
TOP BENCH
BACK BENCH
TOP SLOPE


XS 9 - STA 24+20
Elevation (ft)
372
370
368
366
364
362
360
358
356
354
0
5
10
15
20
25
30
35
40
Distance Across Channel (ft)
XS9 SLOPE
GS
BF
LAC
TH
CH
CH
CH
CH
RAC
BF
BACK BENCH
TOP BANK

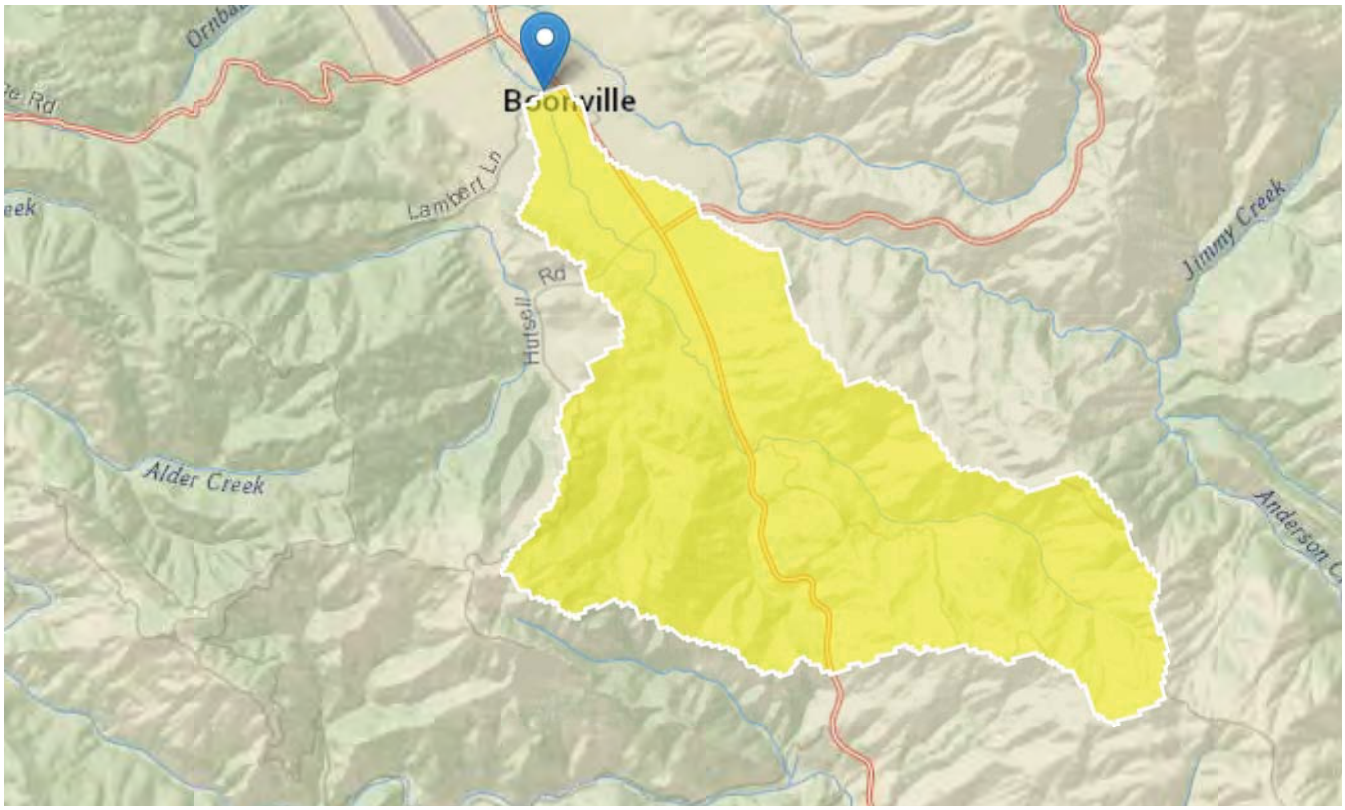

Robinson Creek
Cumulative Particle Size Distribution from Pebble Counts (PC)
CUMULATIVE PERCENT FINER
100%
95%
90%
85%
80%
75%
70%
65%
60%
55%
50%
45%
40%
35%
30%
25%
20%
15%
10%
5%
0%
PC-1
PC-2
PC-3
0.1
1.0
10.0
100.0
1,000.0
GRAIN SIZE DIAMETER (mm)


Robinson Creek
Grain Size Frequency from Pebble Count Measurements
PC-1
PC-2
PC-3
Frequency
30
25
20
15
10
5
0
0
1
10
100
1,000
GRAIN SIZE DIAMETER (mm)

# Appendix C – Hydrology

# Robinson Creek at Lambert Lane Boonville, CA

**Region ID:** CA
**Workspace ID:** CA20180907194531373000
**Clicked Point (Latitude, Longitude):** 39.00833, -123.36844
**Time:** 2018-09-07 12:45:47 -0700




Basin Characteristics

| Parameter Code | Parameter Description | Value | Unit |
|---|---|---|---|
| BASINPERIM | Perimeter of the drainage basin as defined in SIR 2004-5262 | 14.2 | thousand feet |
| BSLDEM30M | Mean basin slope computed from 30 m DEM | 23.2 | percent |
| CENTROIDX | Basin centroid horizontal (x) location in state plane coordinates | -2314707.3 | feet |
| CENTROIDY | Basin centroid vertical (y) location in state plane units | 2108387.3 | feet |

| Parameter Code | Parameter Description | Value | Unit |
|---|---|---|---|
| DRNAREA | Area that drains to a point on a stream | 4 | square miles |
| EL6000 | Percent of area above 6000 ft | | percent |
| ELEV | Mean Basin Elevation | 881 | feet |
| ELEVMAX | Maximum basin elevation | | feet |
| FOREST | Percentage of area covered by forest | 18.5 | percent |
| JANMAXTMP | Mean Maximum January Temperature | 56.41 | degrees F |
| JANMINTMP | Mean Minimum January Temperature | 37.58 | degrees F |
| LAKEAREA | Percentage of Lakes and Ponds | | percent |
| LC11DEV | Percentage of developed (urban) land from NLCD 2011 classes 21-24 | | percent |
| LC11IMP | Average percentage of impervious area determined from NLCD 2011 impervious dataset | | percent |
| LFPLENGTH | Length of longest flow path | | miles |
| MINBELEV | Minimum basin elevation | | feet |
| OUTLETELEV | Elevation of the stream outlet in thousands of feet above NAVD88. | 375 | feet |
| PRECIP | Mean Annual Precipitation | 44.2 | inches |
| RELIEF | Maximum - minimum elevation | | feet |
| RELRELF | Basin relief divided by basin perimeter | | feet per mi |

Peak-Flow Statistics Parameters [2012 5113 Region 1 North Coast]

| Parameter Code | Parameter Name | Value | Units | Min Limit | Max Limit |
|---|---|---|---|---|---|
| DRNAREA | Drainage Area | 4 | square miles | 0.04 | 3200 |
| PRECIP | Mean Annual Precipitation | 44.2 | inches | 20 | 125 |

Peak-Flow Statistics Flow Report [2012 5113 Region 1 North Coast]

PII: Prediction Interval-Lower, PIu: Prediction Interval-Upper, SEp: Standard Error of Prediction, SE: Standard Error (other -- see report)

| Statistic | Value | Unit | PII | PIu | SEp |
|---|---|---|---|---|---|

| Statistic | Value | Unit | PII | PIu | SEp |
|---|---|---|---|---|---|
| 2 Year Peak Flood | 264 | ft^3/s | 108 | 645 | 58.6 |
| 5 Year Peak Flood | 517 | ft^3/s | 247 | 1080 | 47.4 |
| 10 Year Peak Flood | 700 | ft^3/s | 347 | 1410 | 44.2 |
| 25 Year Peak Flood | 943 | ft^3/s | 482 | 1850 | 42.7 |
| 50 Year Peak Flood | 1130 | ft^3/s | 576 | 2220 | 42.7 |
| 100 Year Peak Flood | 1320 | ft^3/s | 659 | 2660 | 44.3 |
| 200 Year Peak Flood | 1510 | ft^3/s | 748 | 3040 | 44.4 |
| 500 Year Peak Flood | 1760 | ft^3/s | 851 | 3630 | 46 |

*Peak-Flow Statistics Citations*

**Gotvald, A.J., Barth, N.A., Veilleux, A.G., and Parrett, Charles,2012, Methods for determining magnitude and frequency of floods in California, based on data through water year 2006: U.S. Geological Survey Scientific Investigations Report 2012–5113, 38 p., 1 pl. (http://pubs.usgs.gov/sir/2012/5113/)**

USGS Data Disclaimer: Unless otherwise stated, all data, metadata and related materials are considered to satisfy the quality standards relative to the purpose for which the data were collected. Although these data and associated metadata have been reviewed for accuracy and completeness and approved for release by the U.S. Geological Survey (USGS), no warranty expressed or implied is made regarding the display or utility of the data for other purposes, nor on all computer systems, nor shall the act of distribution constitute any such warranty.

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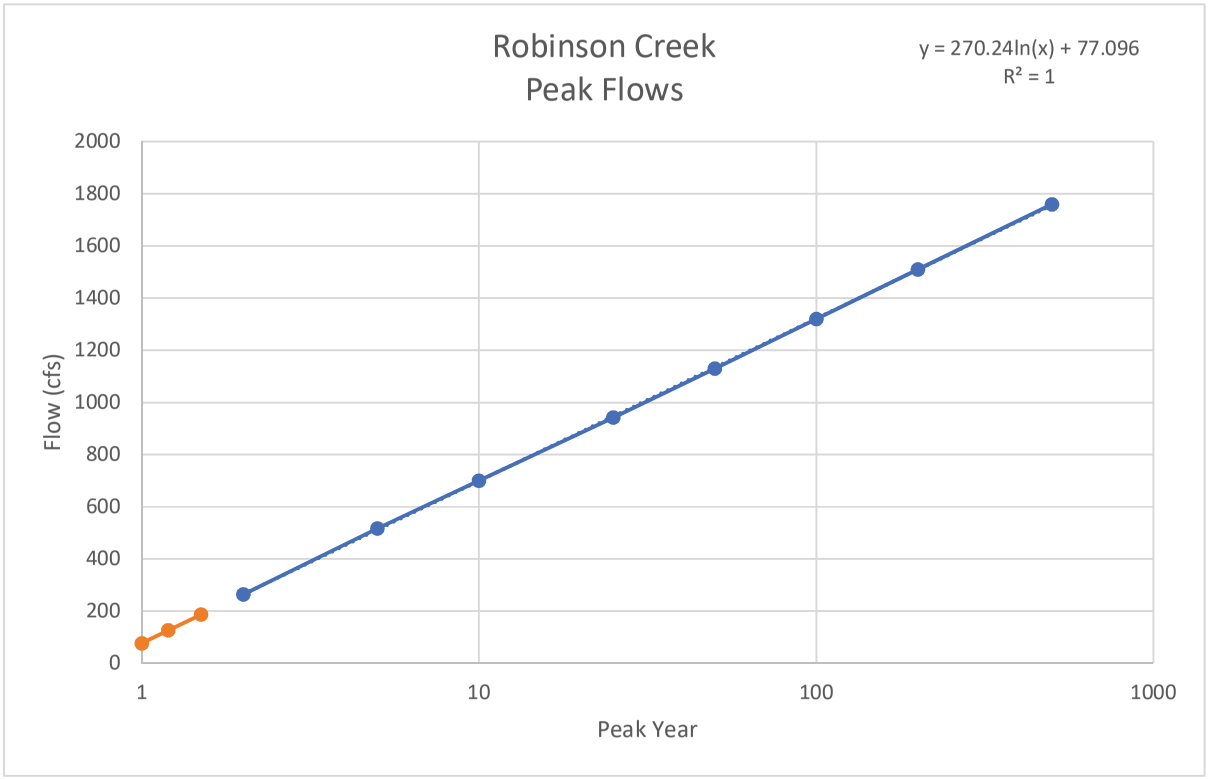
USGS Product Names Disclaimer: Any use of trade, firm, or product names is for descriptive purposes only and does not imply endorsement by the U.S. Government.

Application Version: 4.2.1

**Flood Frequency**

Robinson Creek at Lambert Lane

| | DA (sq mi)= | 4 |
|---|---|---|
| | PK (year) | Q (cfs) |
| Extrapolated | 1 | 77 |
| | 1.2 | 126 |
| | 1.5 | 187 |
| Streamstats | 2 | 264 |
| | 5 | 517 |
| | 10 | 700 |
| | 25 | 943 |
| | 50 | 1130 |
| | 100 | 1320 |
| | 200 | 1510 |
| | 500 | 1760 |



# Appendix D - HEC RAS Results

## Manning's Roughness Calculations

**Robinson Creek at Lambert Lane**

CALTRANS. 2014. Hybrid Streambank Revetments: Vegetated Rock Slope Protection. State of California Department of Transportation Design Information Bulletin. DIB 87-0.1

$$n_c = (n_0+n_1+n_2+n_3+n_4)\, m_5$$

$n_c$= main channel effective roughness value

***Post Project "As-Built Conditon"***

**Hybrid RSP revetment after construction with newly planted vegetation**

| | | | |
|---|---|---|---|
| Main Channnel Bed and Bank Surface Material | Reevaluated $n_o$= | 0.028 | Coarse Rock |
| Channel Degree of Irregularity | Reevaluated $n_1$= | 0.005 | Slightly Eroded banks or bed |
| Channel Cross Section Variation | $n_2$= | 0.005 | Thalweg Alternates sides |
| Main Channel Relative Effect of Obstructions | $n_3$= | 0.000 | No obstructions |
| Main Channel Vegetation Density | Reevaluated $n_4$= | 0.005 | Low vegetation Denisty |
| Channel Degree of Meandering | $m_5$= | 1.000 | Sinuosity of 1.2 |

| | |
|---|---|
| **$n_c$=** | **0.043** |

***Post Project "Full Grow Out Conditon"***

**Hybrid RSP revetment with mature vegetation**

| | | | |
|---|---|---|---|
| Main Channnel Bed and Bank Surface Material | Reevaluated $n_o$= | 0.028 | Coarse Rock |
| Channel Degree of Irregularity | Reevaluated $n_1$= | 0.000 | SmoothBanks |
| Channel Cross Section Variation | $n_2$= | 0.005 | Thalweg Alternates sides |
| Main Channel Relative Effect of Obstructions | $n_3$= | 0.010 | Obstruction <15% of XS from debris |
| Main Channel Vegetation Density | Reevaluated $n_4$= | 0.065 | Dense Willows |
| Channel Degree of Meandering | $m_5$= | 1.000 | Sinuosity of 1.2 |

| | |
|---|---|
| **$n_c$=** | **0.108** |

**Channel Bed**

| | | | |
|---|---|---|---|
| Main Channnel Bed and Bank Surface Material | Reevaluated $n_o$= | 0.028 | Coarse Rock |
| Channel Degree of Irregularity | Reevaluated $n_1$= | 0.000 | SmoothBanks |
| Channel Cross Section Variation | $n_2$= | 0.005 | Thalweg Alternates sides |
| Main Channel Relative Effect of Obstructions | $n_3$= | 0.010 | Obstruction <15% of XS from debris |
| Main Channel Vegetation Density | Reevaluated $n_4$= | 0.000 | No vegetationin Channel |
| Channel Degree of Meandering | $m_5$= | 1.000 | Sinuosity of 1.2 |

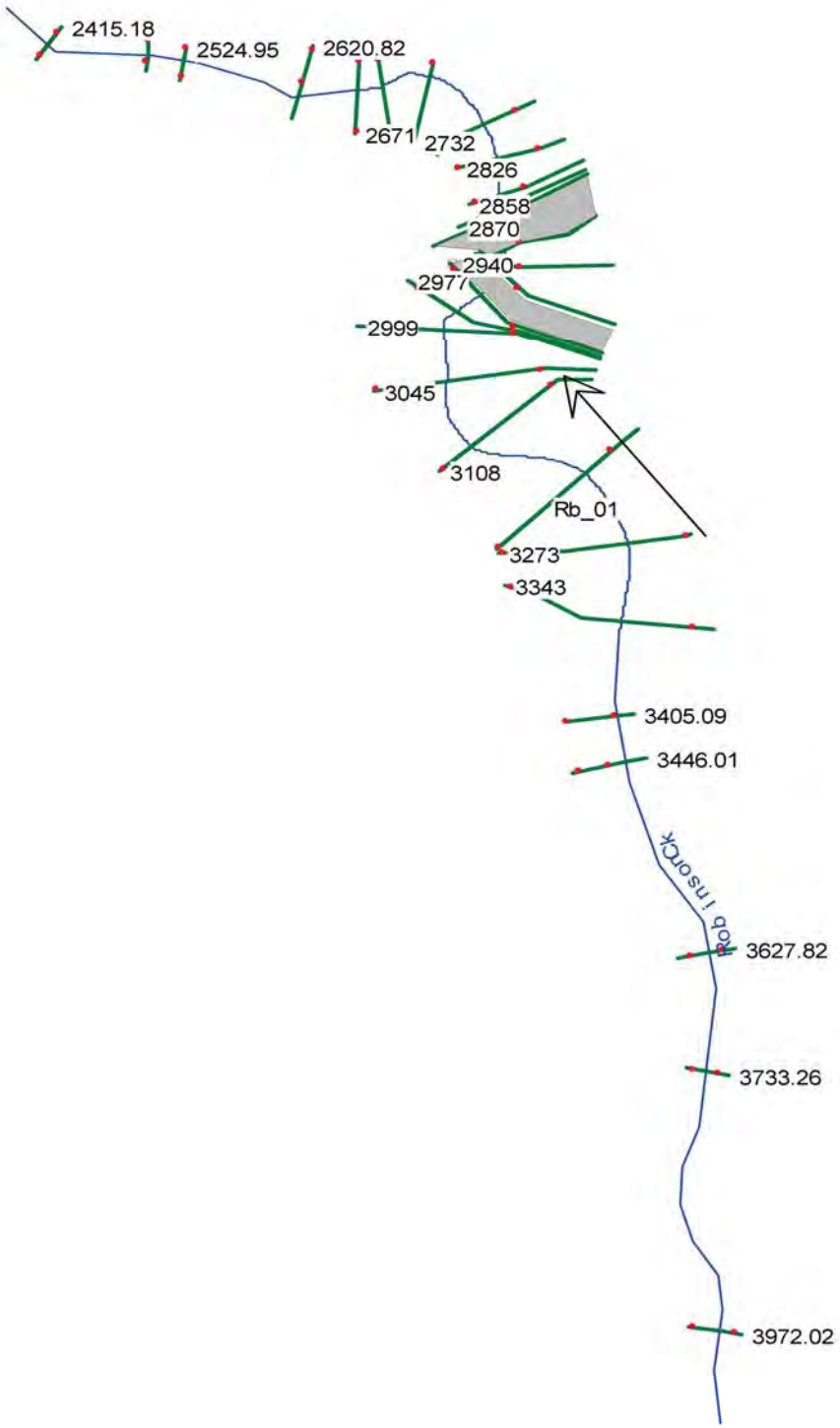
| | |
|---|---|
| **$n_c$=** | **0.043** |

**Native Planting Areas**

| | | | |
|---|---|---|---|
| Main Channnel Bed and Bank Surface Material | Reevaluated $n_o$= | 0.02 | Earth and sand |
| Channel Degree of Irregularity | Reevaluated $n_1$= | 0.005 | Slightly eroded banks |
| Channel Cross Section Variation | $n_2$= | 0.005 | Thalweg Alternates sides |
| Main Channel Relative Effect of Obstructions | $n_3$= | 0.010 | Obstruction <15% of XS from debris |
| Main Channel Vegetation Density | Reevaluated $n_4$= | 0.040 | Native Trees with wide spacing |
| Channel Degree of Meandering | $m_5$= | 1.000 | Sinuosity of 1.2 |

| | |
|---|---|
| **$n_c$=** | **0.08** |

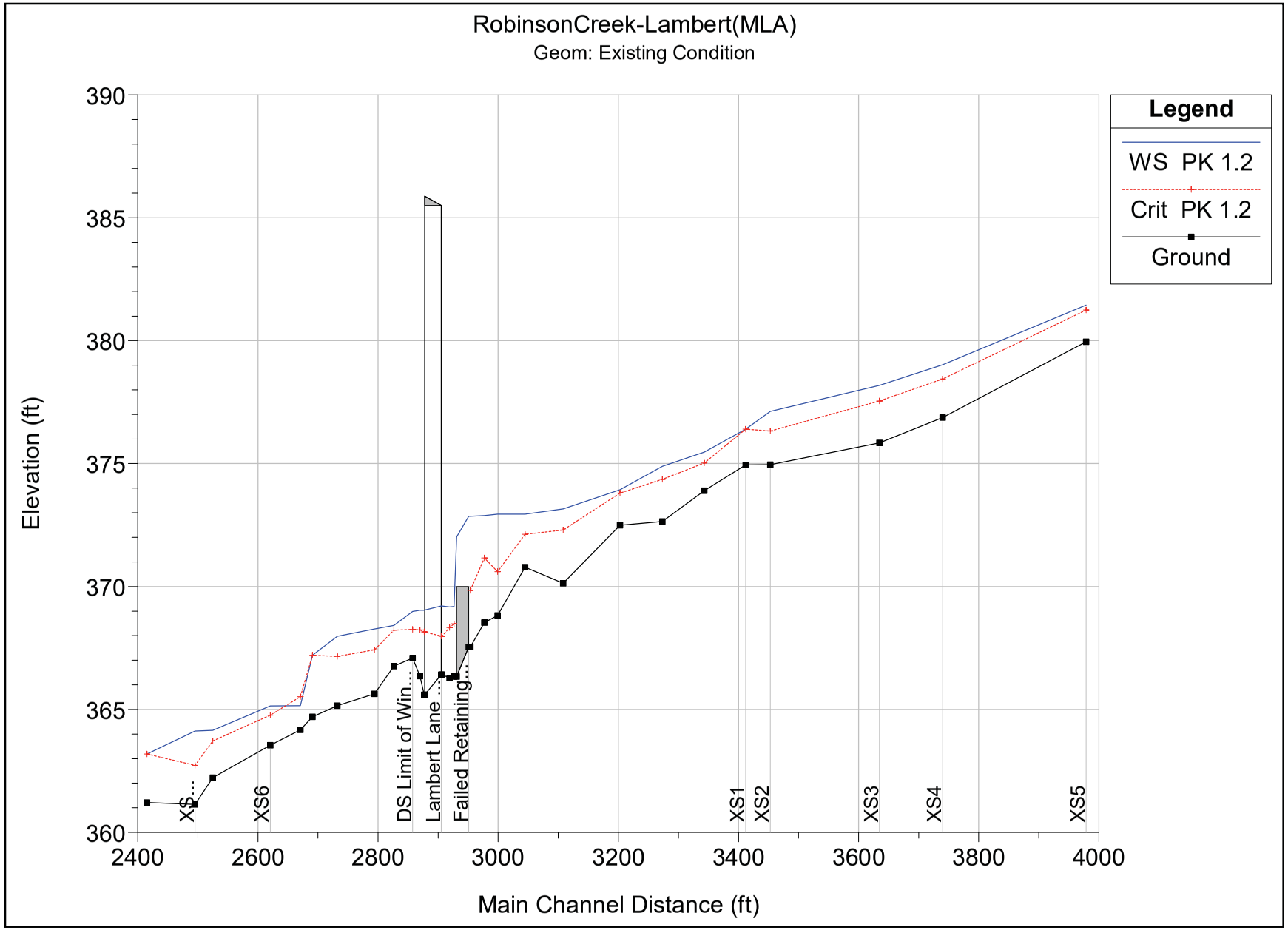
**Robinson Creek at Lambert Lane Bridge**
**HEC-RAS Reults for Existing Channel**

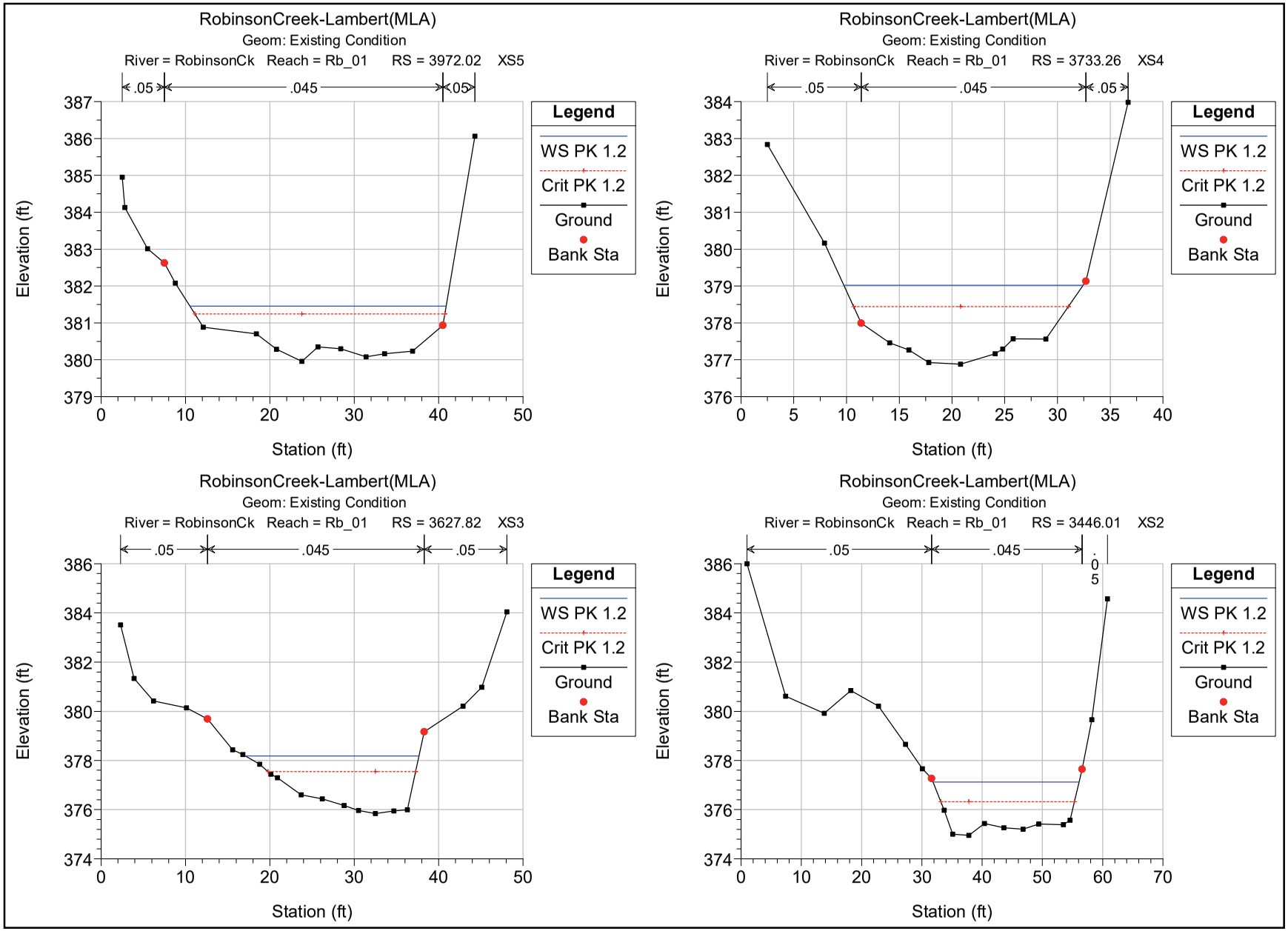


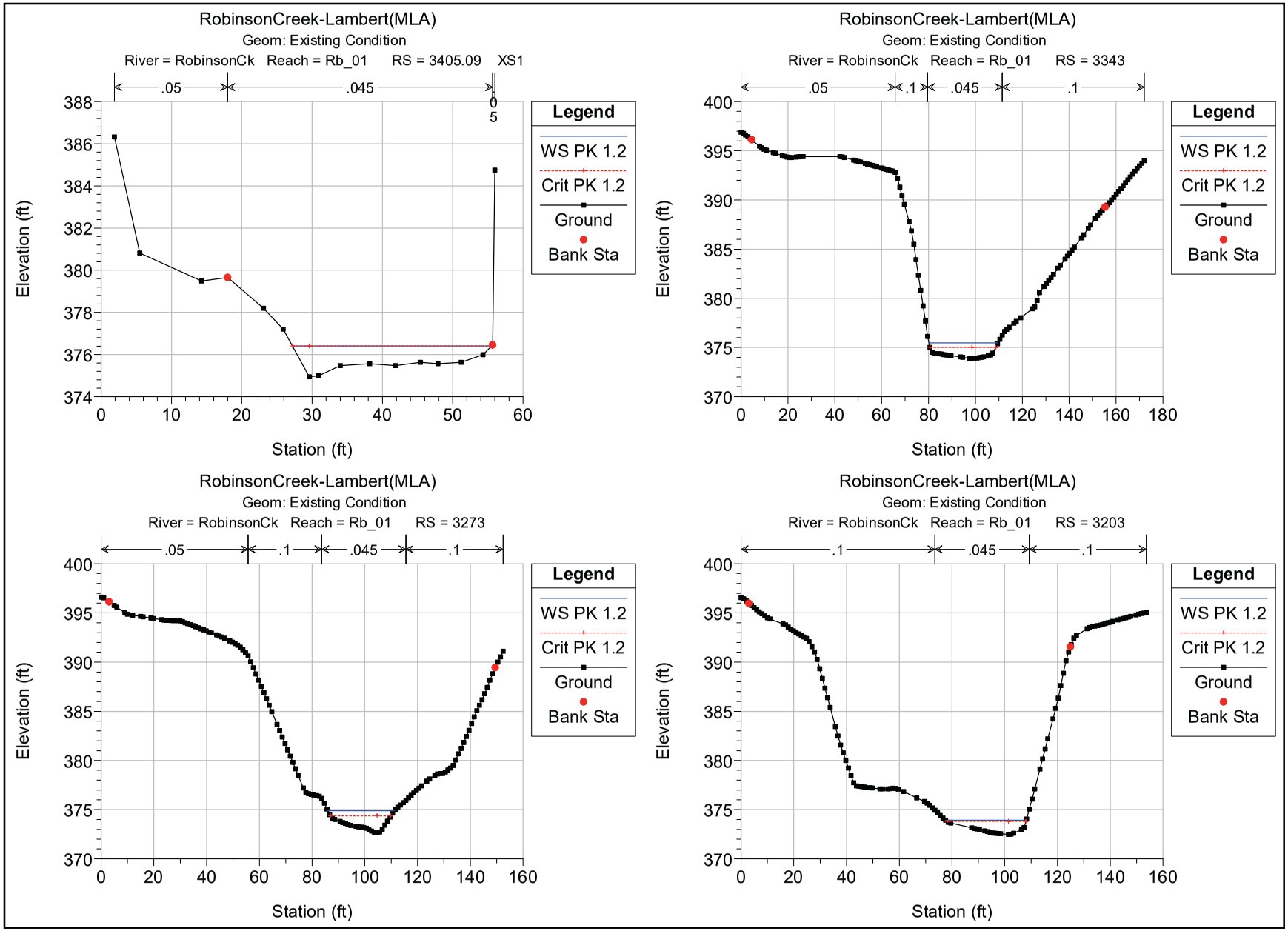
**Robinson Creek at Lambert Lane Bridge**
**HEC-RAS Reults for Existing Channel**

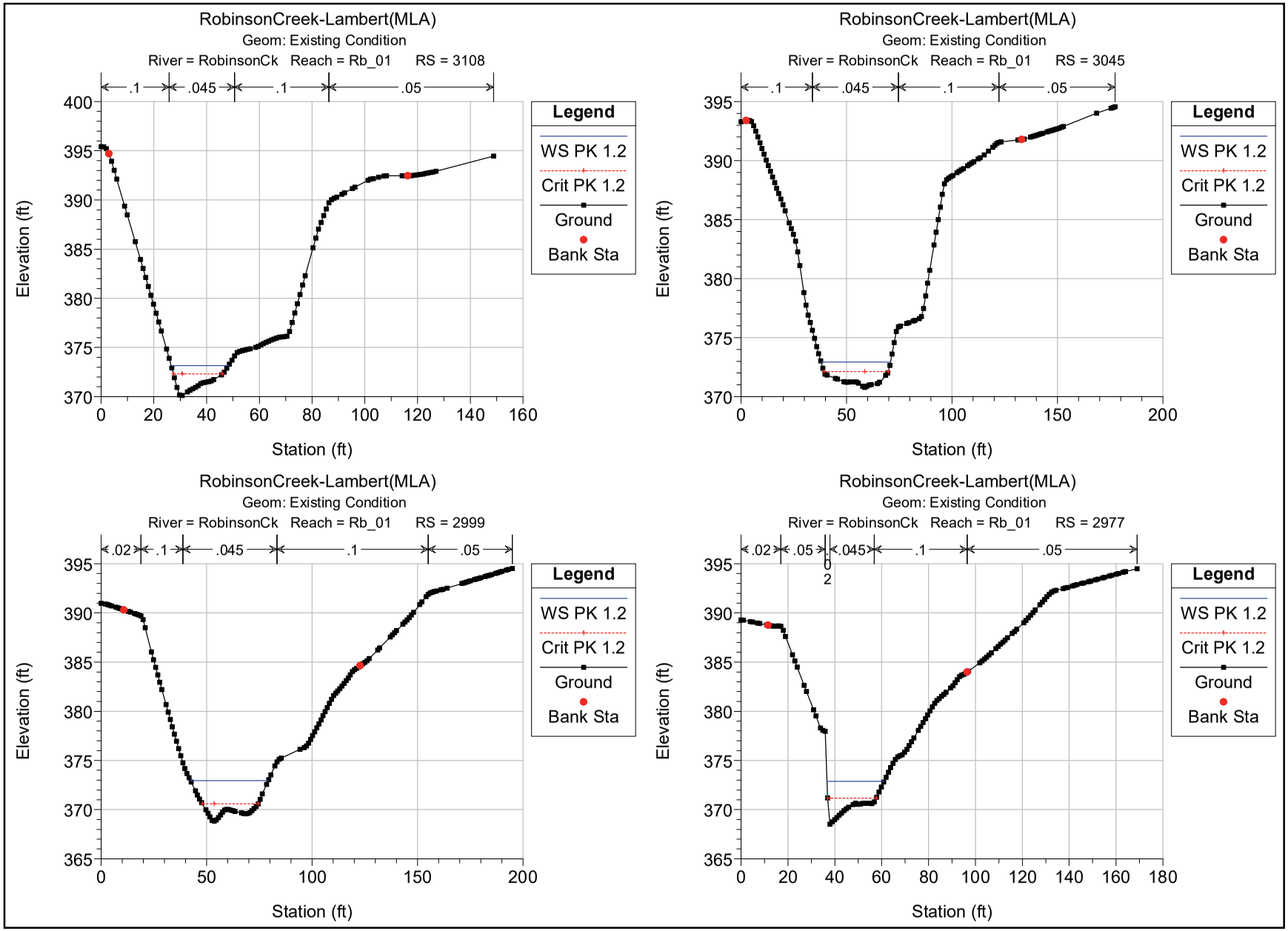
**Profile = Q1.2**
**Q Total (cfs) = 126**

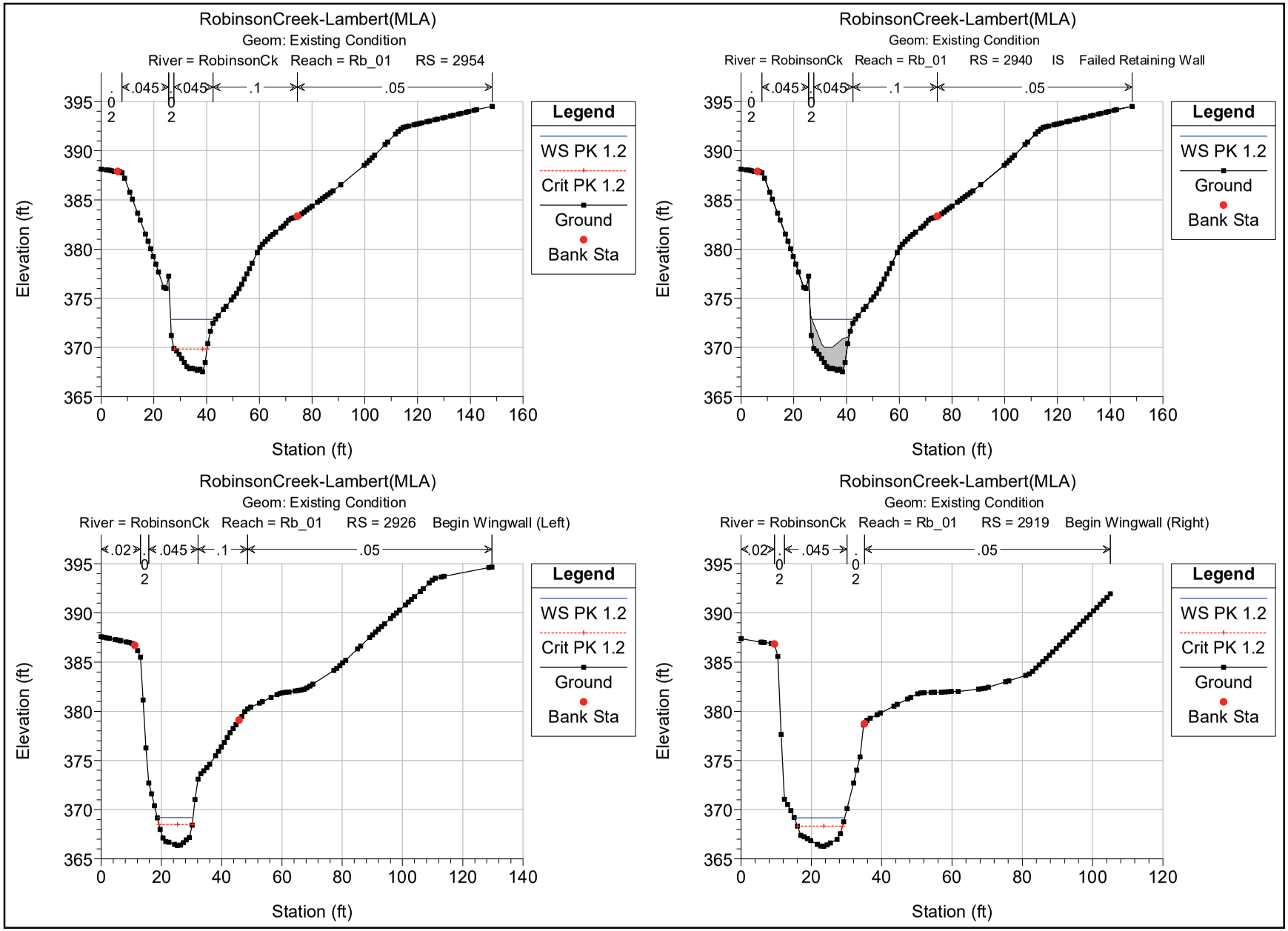
| River Sta | Description | Min Ch El (ft) | W.S. Elev (ft) | Crit W.S. (ft) | E.G. Elev (ft) | E.G. Slope (ft/ft) | Vel Chnl (ft/s) | Flow Area (sq ft) | Top Width (ft) | Froude # Chl | Depth of Flow (ft) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 3972.02 | | 379.96 | 381.45 | 381.24 | 381.72 | 0.015676 | 4.15 | 30.47 | 30.36 | 0.73 | 1.49 |
| 3733.26 | | 376.88 | 379.02 | 378.44 | 379.24 | 0.007335 | 3.77 | 33.94 | 22.7 | 0.53 | 2.14 |
| 3627.82 | | 375.85 | 378.19 | 377.55 | 378.42 | 0.008272 | 3.89 | 32.43 | 20.59 | 0.55 | 2.34 |
| 3446.01 | | 374.96 | 377.12 | 376.33 | 377.27 | 0.004788 | 3.1 | 40.59 | 24.26 | 0.42 | 2.16 |
| 3405.09 | | 374.95 | 376.4 | 376.4 | 376.83 | 0.032602 | 5.26 | 23.95 | 28.35 | 1.01 | 1.45 |
| 3343.00 | | 373.90 | 375.46 | 375.02 | 375.65 | 0.008308 | 3.44 | 36.65 | 29.42 | 0.54 | 1.56 |
| 3273.00 | | 372.65 | 374.89 | 374.36 | 375.09 | 0.007769 | 3.57 | 35.3 | 25.33 | 0.53 | 2.24 |
| 3203.00 | | 372.49 | 373.93 | 373.8 | 374.24 | 0.020368 | 4.43 | 28.41 | 30.74 | 0.81 | 1.44 |
| 3108.00 | | 370.13 | 373.15 | 372.3 | 373.32 | 0.005267 | 3.32 | 37.92 | 21.7 | 0.44 | 3.02 |
| 3045.00 | | 370.79 | 372.94 | 372.13 | 373.04 | 0.003381 | 2.51 | 50.25 | 32.94 | 0.36 | 2.15 |
| 2999.00 | | 368.82 | 372.95 | 370.6 | 372.97 | 0.000435 | 1.29 | 98.02 | 36.87 | 0.14 | 4.13 |
| 2977.00 | | 368.53 | 372.88 | 371.16 | 372.95 | 0.001988 | 2.08 | 60.5 | 24.36 | 0.23 | 4.35 |
| 2954.00 | | 367.54 | 372.85 | 369.84 | 372.92 | 0.000951 | 2.03 | 62.09 | 17.01 | 0.19 | 5.31 |
| 2940.00 | Inl Struct | | | | | | | | | | 0.00 |
| 2926.00 | | 366.34 | 369.19 | 368.48 | 369.56 | 0.010128 | 4.94 | 25.53 | 11.87 | 0.59 | 2.85 |
| 2919.00 | | 366.28 | 369.17 | 368.33 | 369.45 | 0.007328 | 4.24 | 29.71 | 14.3 | 0.52 | 2.89 |
| 2906.00 | | 366.41 | 369.21 | 367.98 | 369.32 | 0.002047 | 2.68 | 47.01 | 21.23 | 0.32 | 2.80 |
| 2891.00 | Bridge | | | | | | | | | | 0.00 |
| 2877.00 | | 365.60 | 369.04 | 368.16 | 369.21 | 0.003938 | 3.38 | 37.3 | 20.63 | 0.44 | 3.44 |
| 2870.00 | | 366.36 | 369.03 | 368.24 | 369.16 | 0.004169 | 2.88 | 43.78 | 26.39 | 0.39 | 2.67 |
| 2858.00 | | 367.09 | 368.98 | 368.25 | 369.11 | 0.004583 | 2.79 | 45.1 | 31.55 | 0.41 | 1.89 |
| 2826.00 | | 366.76 | 368.42 | 368.23 | 368.78 | 0.018333 | 4.79 | 26.28 | 22.98 | 0.79 | 1.66 |
| 2794.00 | | 365.63 | 368.27 | 367.43 | 368.39 | 0.006085 | 2.78 | 45.28 | 31.93 | 0.41 | 2.64 |
| 2732.00 | | 365.15 | 367.97 | 367.16 | 368.09 | 0.004037 | 2.69 | 46.82 | 30.13 | 0.38 | 2.82 |
| 2691.00 | | 364.70 | 367.21 | 367.21 | 367.68 | 0.034574 | 5.5 | 22.9 | 25.35 | 1.02 | 2.51 |
| 2671.00 | | 364.17 | 365.15 | 365.52 | 366.35 | 0.149476 | 8.78 | 14.36 | 24.97 | 2.04 | 0.98 |
| 2620.82 | | 363.55 | 365.15 | 364.77 | 365.39 | 0.010655 | 3.95 | 31.91 | 24.78 | 0.61 | |
| 2524.95 | | 362.23 | 364.15 | 363.71 | 364.41 | 0.009677 | 4.08 | 30.98 | 21.79 | 0.6 | |
| 2495.47 | | 361.13 | 364.12 | 362.73 | 364.23 | 0.002547 | 2.72 | 46.38 | 18.76 | 0.3 | |
| 2415.18 | | 361.22 | 363.19 | 363.19 | 363.69 | 0.034012 | 5.69 | 22.14 | 22.91 | 1.02 | |

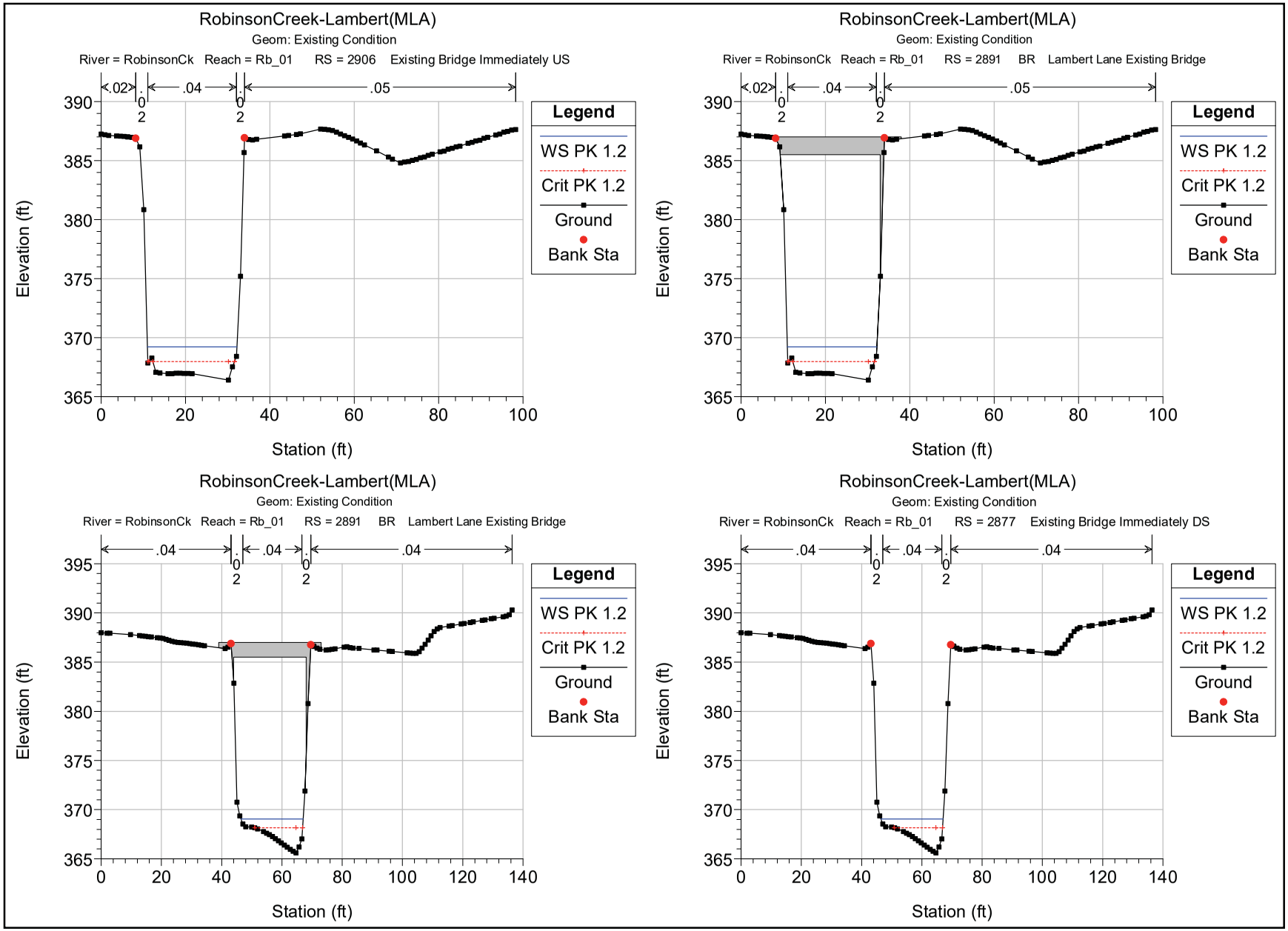

RobinsonCreek-Lambert(MLA)
Geom: Existing Condition
Legend
WS PK 1.2
Crit PK 1.2
Ground
Elevation (ft)
Main Channel Distance (ft)
390
385
380
375
370
365
360
2400
2600
2800
3000
3200
3400
3600
3800
4000
XS...
XS6
DS Limit of Win...
Lambert Lane ...
Failed Retaining...
XS1
XS2
XS3
XS4
XS5

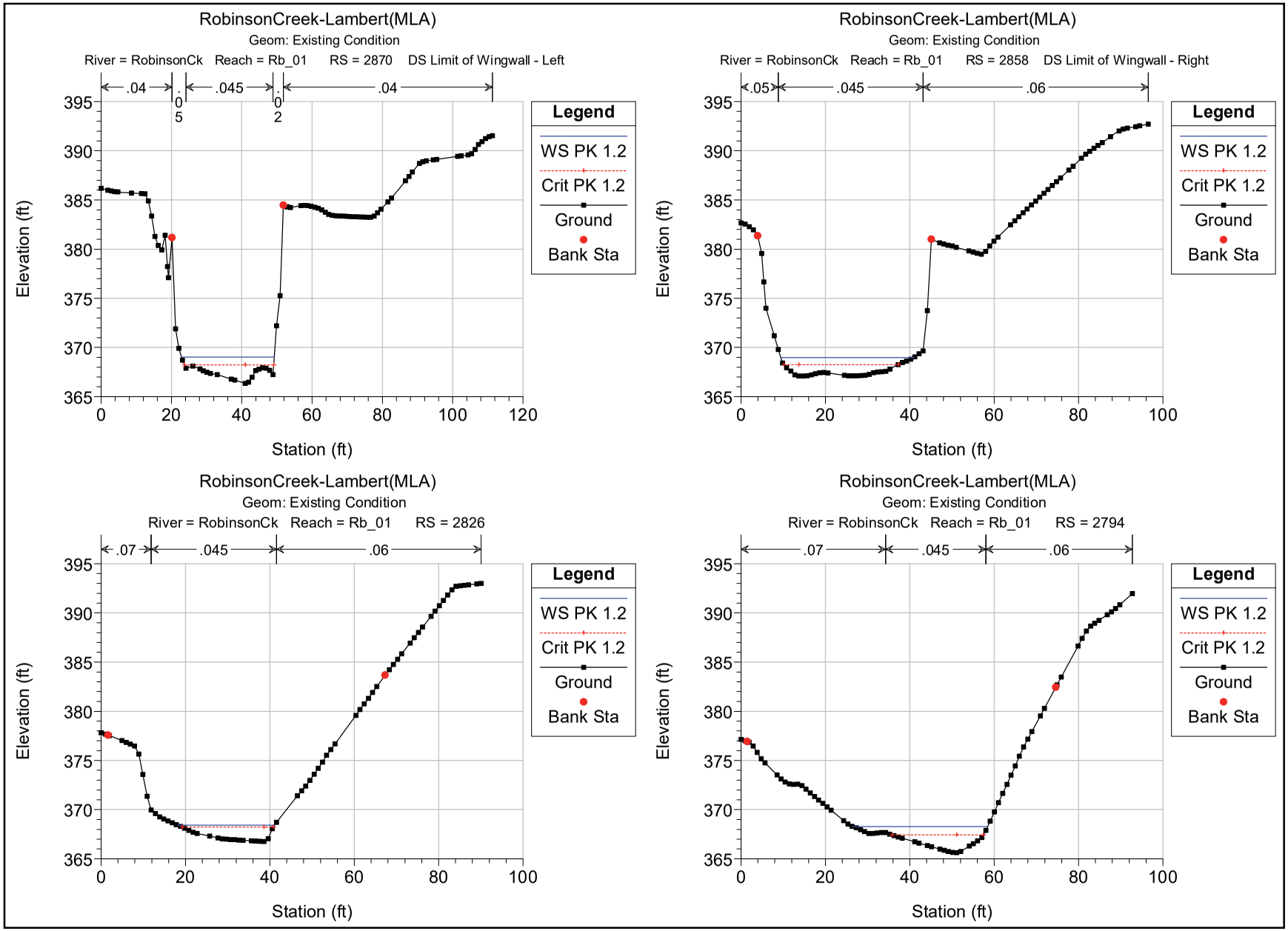

RobinsonCreek-Lambert(MLA)
Geom: Existing Condition
River = RobinsonCk Reach = Rb_01 RS = 3972.02 XS5
.05
.045
.05
Elevation (ft)
Station (ft)
Legend
WS PK 1.2
Crit PK 1.2
Ground
Bank Sta
RobinsonCreek-Lambert(MLA)
Geom: Existing Condition
River = RobinsonCk Reach = Rb_01 RS = 3733.26 XS4
.05
.045
.05
Elevation (ft)
Station (ft)
Legend
WS PK 1.2
Crit PK 1.2
Ground
Bank Sta
RobinsonCreek-Lambert(MLA)
Geom: Existing Condition
River = RobinsonCk Reach = Rb_01 RS = 3627.82 XS3
.05
.045
.05
Elevation (ft)
Station (ft)
Legend
WS PK 1.2
Crit PK 1.2
Ground
Bank Sta
RobinsonCreek-Lambert(MLA)
Geom: Existing Condition
River = RobinsonCk Reach = Rb_01 RS = 3446.01 XS2
.05
.045
.05
Elevation (ft)
Station (ft)
Legend
WS PK 1.2
Crit PK 1.2
Ground
Bank Sta

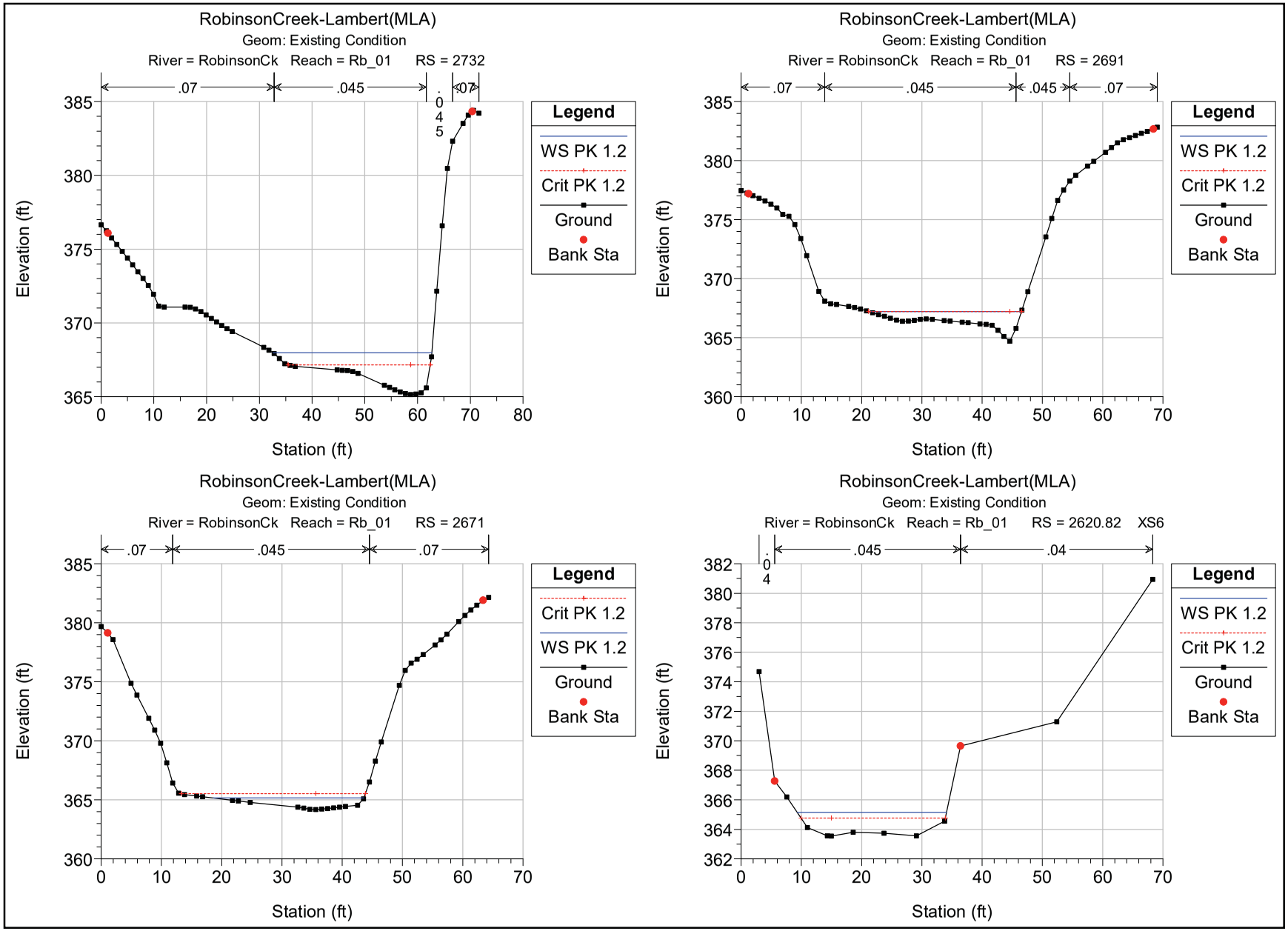

RobinsonCreek-Lambert(MLA)
Geom: Existing Condition
River = RobinsonCk Reach = Rb_01 RS = 3405.09 XS1
.05
.045
0
5
Elevation (ft)
Station (ft)
Legend
WS PK 1.2
Crit PK 1.2
Ground
Bank Sta
RobinsonCreek-Lambert(MLA)
Geom: Existing Condition
River = RobinsonCk Reach = Rb_01 RS = 3343
.05
.1
.045
.1
Elevation (ft)
Station (ft)
Legend
WS PK 1.2
Crit PK 1.2
Ground
Bank Sta
RobinsonCreek-Lambert(MLA)
Geom: Existing Condition
River = RobinsonCk Reach = Rb_01 RS = 3273
.05
.1
.045
.1
Elevation (ft)
Station (ft)
Legend
WS PK 1.2
Crit PK 1.2
Ground
Bank Sta
RobinsonCreek-Lambert(MLA)
Geom: Existing Condition
River = RobinsonCk Reach = Rb_01 RS = 3203
.1
.045
.1
Elevation (ft)
Station (ft)
Legend
WS PK 1.2
Crit PK 1.2
Ground
Bank Sta

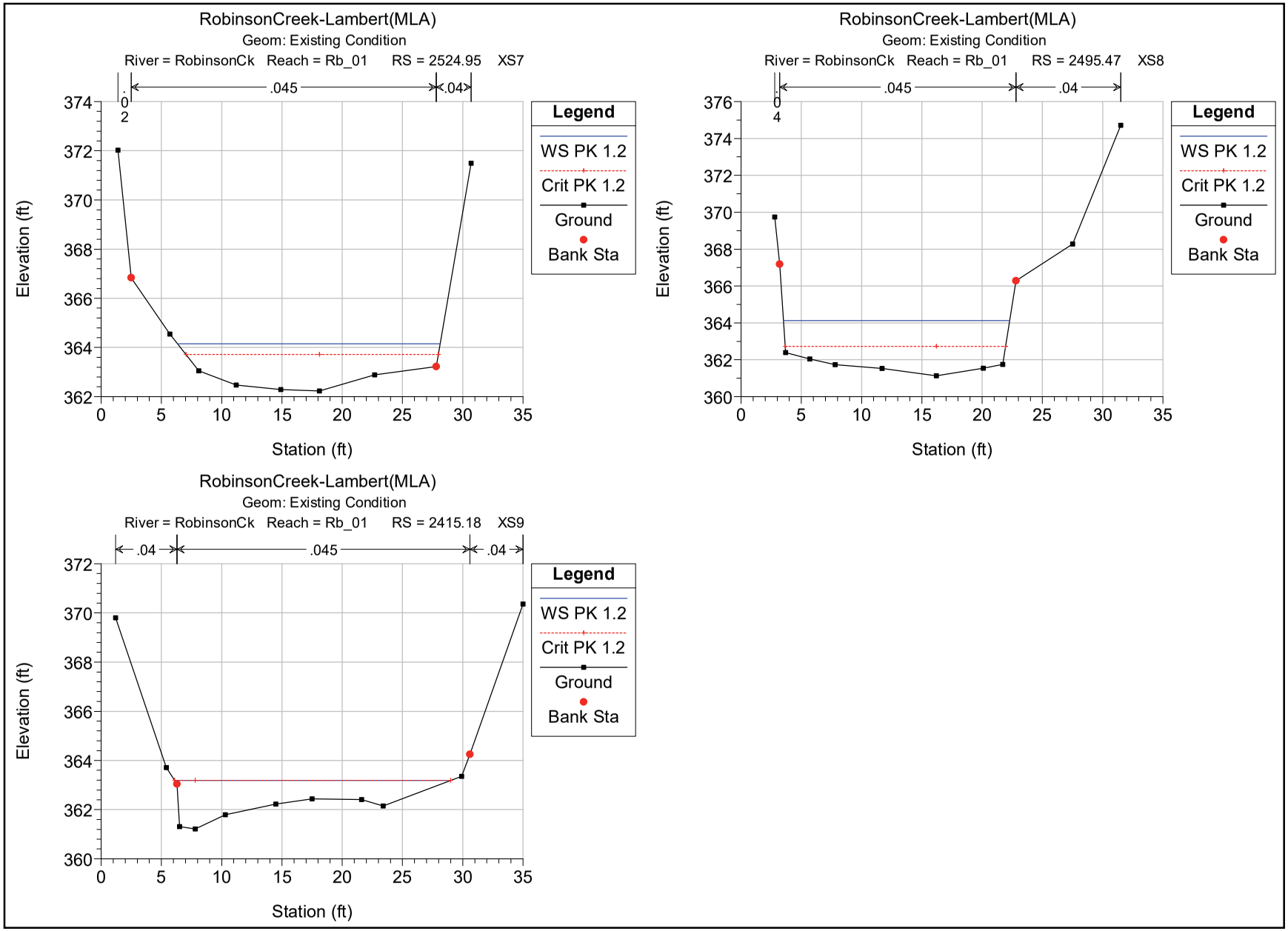

RobinsonCreek-Lambert(MLA)
Geom: Existing Condition
River = RobinsonCk Reach = Rb_01 RS = 3108
.1
.045
.1
.05
Elevation (ft)
Station (ft)
Legend
WS PK 1.2
Crit PK 1.2
Ground
Bank Sta
RobinsonCreek-Lambert(MLA)
Geom: Existing Condition
River = RobinsonCk Reach = Rb_01 RS = 3045
.1
.045
.1
.05
Elevation (ft)
Station (ft)
Legend
WS PK 1.2
Crit PK 1.2
Ground
Bank Sta
RobinsonCreek-Lambert(MLA)
Geom: Existing Condition
River = RobinsonCk Reach = Rb_01 RS = 2999
.02
.1
.045
.1
.05
Elevation (ft)
Station (ft)
Legend
WS PK 1.2
Crit PK 1.2
Ground
Bank Sta
RobinsonCreek-Lambert(MLA)
Geom: Existing Condition
River = RobinsonCk Reach = Rb_01 RS = 2977
.02
.05
.045
.1
.05
Elevation (ft)
Station (ft)
Legend
WS PK 1.2
Crit PK 1.2
Ground
Bank Sta


RobinsonCreek-Lambert(MLA)
Geom: Existing Condition
River = RobinsonCk Reach = Rb_01 RS = 2954
.045
.045
.1
.05
0
2
0
2
Legend
WS PK 1.2
Crit PK 1.2
Ground
Bank Sta
Elevation (ft)
Station (ft)
RobinsonCreek-Lambert(MLA)
Geom: Existing Condition
River = RobinsonCk Reach = Rb_01 RS = 2940 IS Failed Retaining Wall
.045
.045
.1
.05
0
2
0
2
Legend
WS PK 1.2
Ground
Bank Sta
Elevation (ft)
Station (ft)
RobinsonCreek-Lambert(MLA)
Geom: Existing Condition
River = RobinsonCk Reach = Rb_01 RS = 2926 Begin Wingwall (Left)
.02
.045
.1
.05
0
2
Legend
WS PK 1.2
Crit PK 1.2
Ground
Bank Sta
Elevation (ft)
Station (ft)
RobinsonCreek-Lambert(MLA)
Geom: Existing Condition
River = RobinsonCk Reach = Rb_01 RS = 2919 Begin Wingwall (Right)
.02
.045
.05
0
2
0
2
Legend
WS PK 1.2
Crit PK 1.2
Ground
Bank Sta
Elevation (ft)
Station (ft)


RobinsonCreek-Lambert(MLA)
Geom: Existing Condition
River = RobinsonCk Reach = Rb_01 RS = 2906 Existing Bridge Immediately US
.02
.04
.05
Legend
WS PK 1.2
Crit PK 1.2
Ground
Bank Sta
Elevation (ft)
Station (ft)
RobinsonCreek-Lambert(MLA)
Geom: Existing Condition
River = RobinsonCk Reach = Rb_01 RS = 2891 BR Lambert Lane Existing Bridge
.02
.04
.05
Legend
WS PK 1.2
Crit PK 1.2
Ground
Bank Sta
Elevation (ft)
Station (ft)
RobinsonCreek-Lambert(MLA)
Geom: Existing Condition
River = RobinsonCk Reach = Rb_01 RS = 2891 BR Lambert Lane Existing Bridge
.04
.04
.04
Legend
WS PK 1.2
Crit PK 1.2
Ground
Bank Sta
Elevation (ft)
Station (ft)
RobinsonCreek-Lambert(MLA)
Geom: Existing Condition
River = RobinsonCk Reach = Rb_01 RS = 2877 Existing Bridge Immediately DS
.04
.04
.04
Legend
WS PK 1.2
Crit PK 1.2
Ground
Bank Sta
Elevation (ft)
Station (ft)


RobinsonCreek-Lambert(MLA)
Geom: Existing Condition
River = RobinsonCk Reach = Rb_01 RS = 2870 DS Limit of Wingwall - Left
.04
.05
.045
.02
.04
Elevation (ft)
Station (ft)
Legend
WS PK 1.2
Crit PK 1.2
Ground
Bank Sta
RobinsonCreek-Lambert(MLA)
Geom: Existing Condition
River = RobinsonCk Reach = Rb_01 RS = 2858 DS Limit of Wingwall - Right
.05
.045
.06
Elevation (ft)
Station (ft)
Legend
WS PK 1.2
Crit PK 1.2
Ground
Bank Sta
RobinsonCreek-Lambert(MLA)
Geom: Existing Condition
River = RobinsonCk Reach = Rb_01 RS = 2826
.07
.045
.06
Elevation (ft)
Station (ft)
Legend
WS PK 1.2
Crit PK 1.2
Ground
Bank Sta
RobinsonCreek-Lambert(MLA)
Geom: Existing Condition
River = RobinsonCk Reach = Rb_01 RS = 2794
.07
.045
.06
Elevation (ft)
Station (ft)
Legend
WS PK 1.2
Crit PK 1.2
Ground
Bank Sta


RobinsonCreek-Lambert(MLA)
Geom: Existing Condition
River = RobinsonCk Reach = Rb_01 RS = 2732
.07
.045
.07
.045
Legend
WS PK 1.2
Crit PK 1.2
Ground
Bank Sta
Elevation (ft)
Station (ft)
RobinsonCreek-Lambert(MLA)
Geom: Existing Condition
River = RobinsonCk Reach = Rb_01 RS = 2691
.07
.045
.045
.07
Legend
WS PK 1.2
Crit PK 1.2
Ground
Bank Sta
Elevation (ft)
Station (ft)
RobinsonCreek-Lambert(MLA)
Geom: Existing Condition
River = RobinsonCk Reach = Rb_01 RS = 2671
.07
.045
.07
Legend
Crit PK 1.2
WS PK 1.2
Ground
Bank Sta
Elevation (ft)
Station (ft)
RobinsonCreek-Lambert(MLA)
Geom: Existing Condition
River = RobinsonCk Reach = Rb_01 RS = 2620.82 XS6
.045
.04
Legend
WS PK 1.2
Crit PK 1.2
Ground
Bank Sta
Elevation (ft)
Station (ft)


RobinsonCreek-Lambert(MLA)
Geom: Existing Condition
River = RobinsonCk Reach = Rb_01 RS = 2524.95 XS7
.02
.045
.04
Elevation (ft)
Station (ft)
Legend
WS PK 1.2
Crit PK 1.2
Ground
Bank Sta
RobinsonCreek-Lambert(MLA)
Geom: Existing Condition
River = RobinsonCk Reach = Rb_01 RS = 2495.47 XS8
.04
.045
.04
Elevation (ft)
Station (ft)
Legend
WS PK 1.2
Crit PK 1.2
Ground
Bank Sta
RobinsonCreek-Lambert(MLA)
Geom: Existing Condition
River = RobinsonCk Reach = Rb_01 RS = 2415.18 XS9
.04
.045
.04
Elevation (ft)
Station (ft)
Legend
WS PK 1.2
Crit PK 1.2
Ground
Bank Sta

MENDOCINO COUNTY DEPARTMENT OF TRANSPORTATION

ROBINSON CREEK AT LAMBERT LANE

BOONEVILLE, CA

**HEC-RAS LAYOUT ROBINSON CREEK AT LAMBERT LANE**

VERIFY SCALE

THIS BAR IS ONE INCH LONG AT FULL SCALE

| | |
|---|---|
| DATE | OCT. 2018 |
| SUBMITTAL | 30% DESIGN |
| DESIGN | AL, ML |
| DRAWN | LLANOS |
| SHEET | 1 |

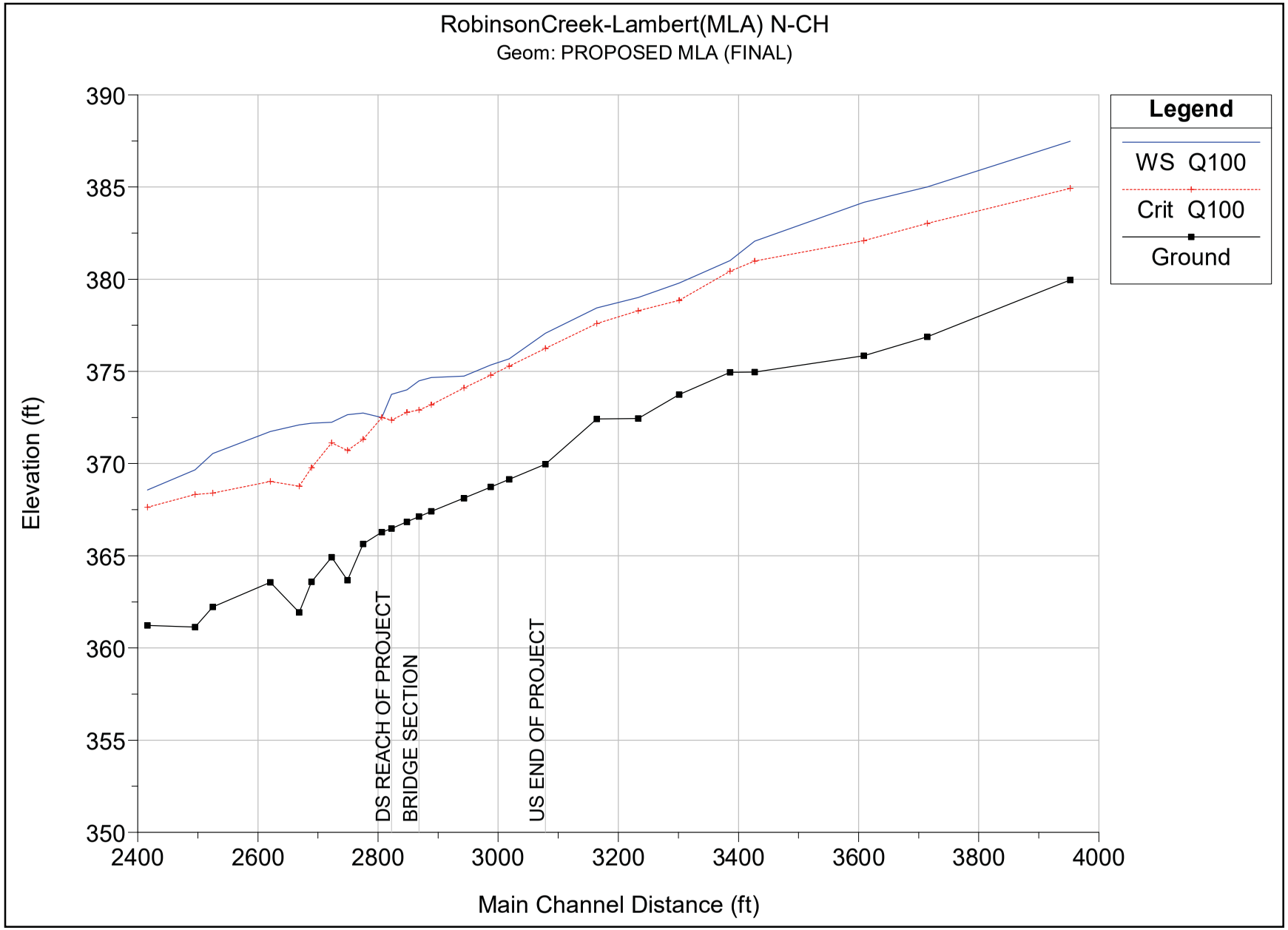

**Michael Love & Associates, Inc.**

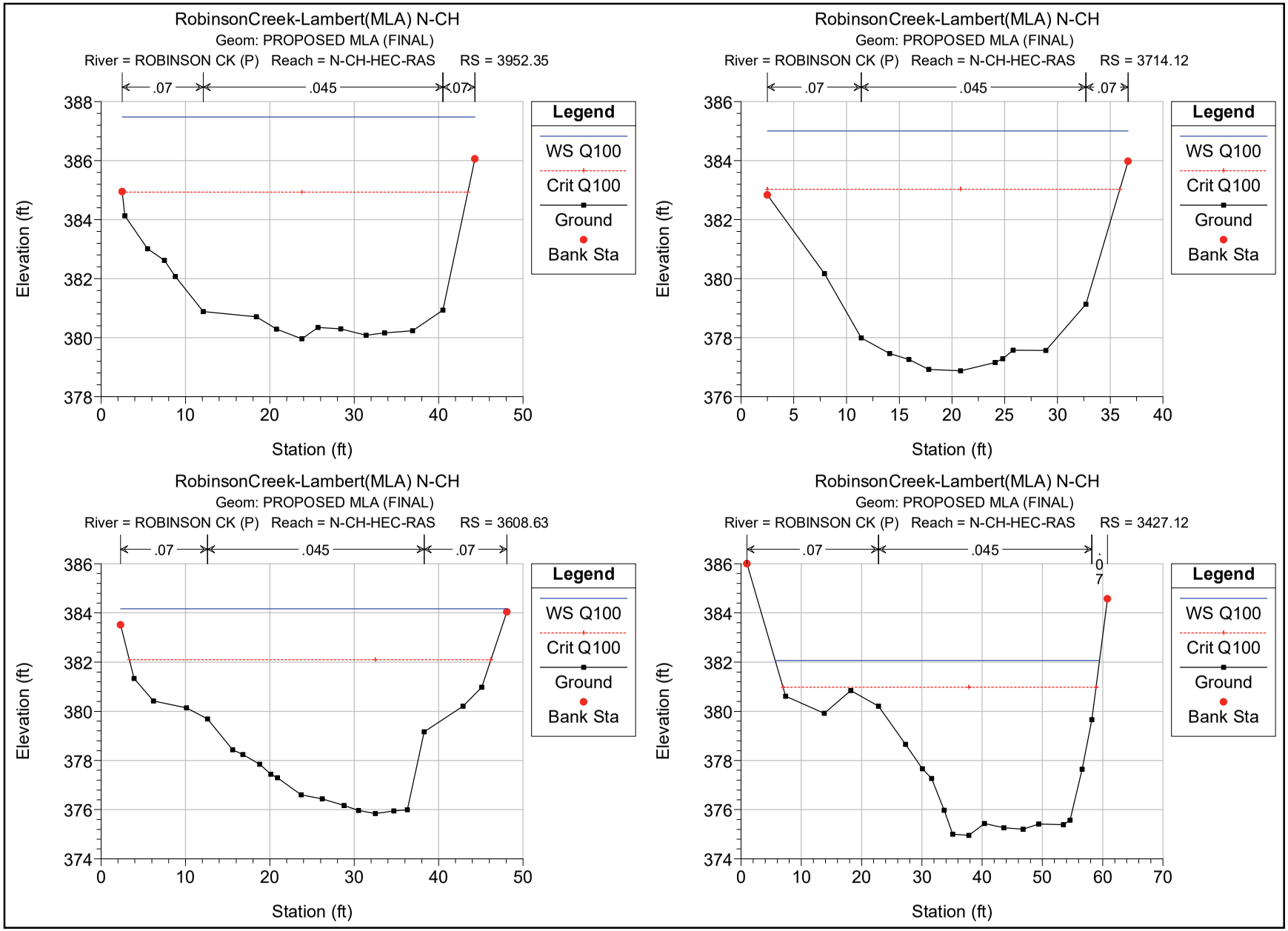
PO Box 4479 ● Arcata, CA 95518 ● (707) 822-2411

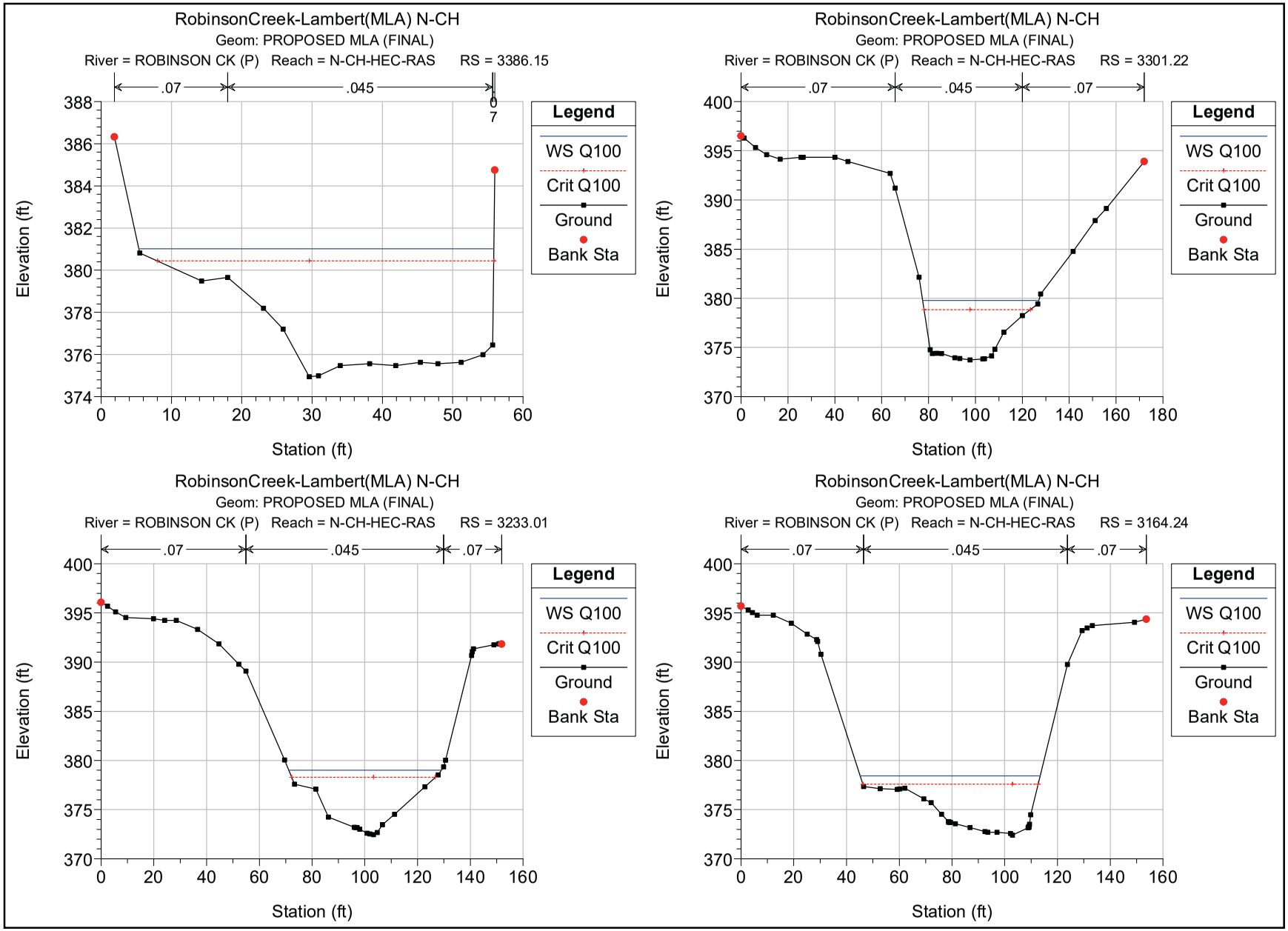
**Robinson Creek at Lambert Lane Bridge**
**HEC-RAS Reults for Design Channel (Proposed As-Built Condition)**

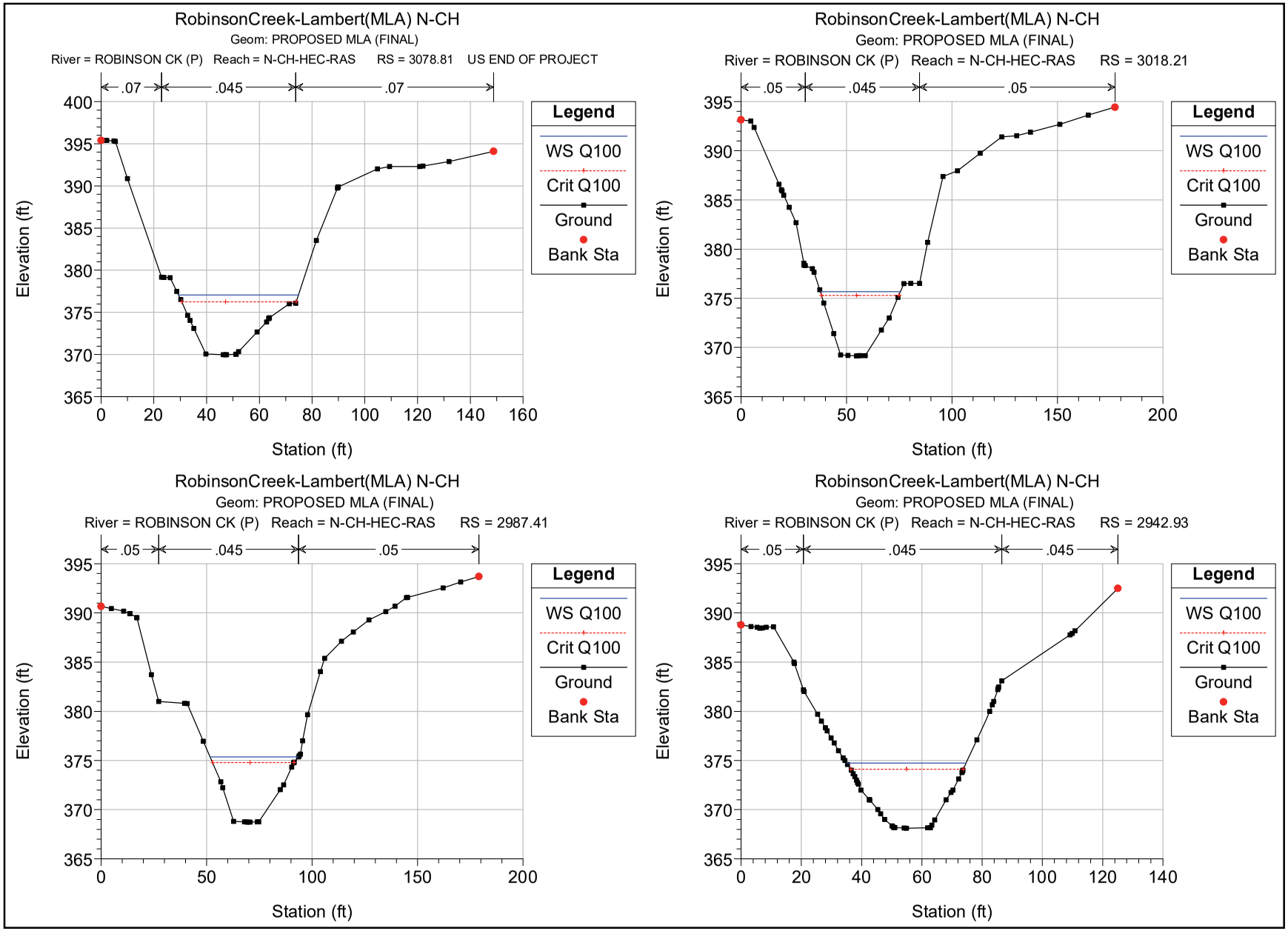
**Profile = Q100**
**Q Total (cfs) = 1,760**

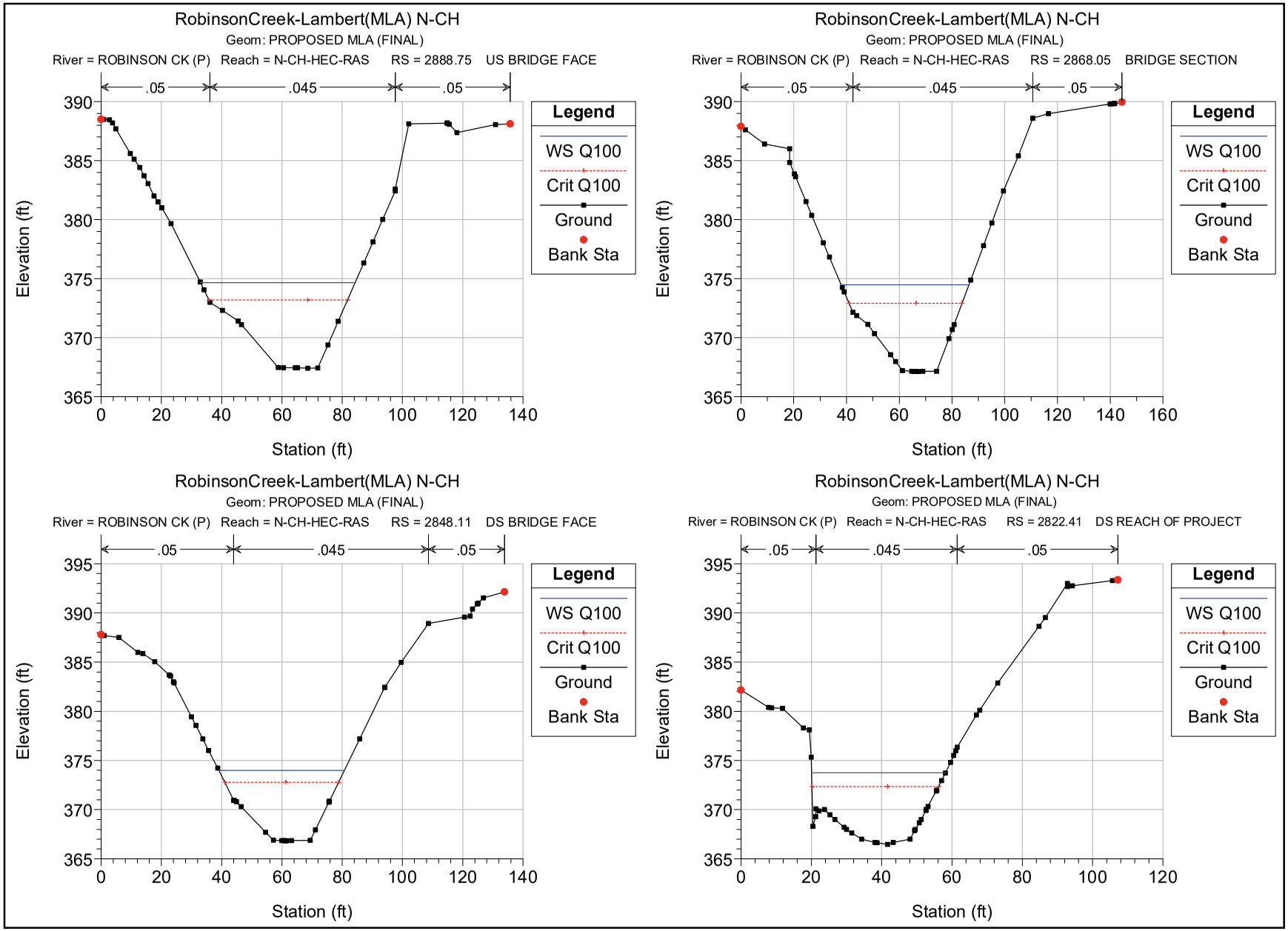
| River Sta | Description | Min Ch El (ft) | W.S. Elev (ft) | Crit W.S. (ft) | E.G. Elev (ft) | E.G. Slope (ft/ft) | Vel Chnl (ft/s) | Flow Area (sq ft) | Top Width (ft) | Froude # Chl | Depth of Flow (ft) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 3952.35 | | 379.96 | 387.48 | 384.93 | 388.17 | 0.006924 | 6.68 | 263.43 | 41.80 | 0.47 | 7.52 |
| 3714.12 | | 376.88 | 385.00 | 383.03 | 386.05 | 0.011365 | 8.23 | 213.86 | 34.20 | 0.58 | 8.12 |
| 3608.63 | | 375.85 | 384.17 | 382.09 | 384.92 | 0.008643 | 6.96 | 252.81 | 45.80 | 0.52 | 8.32 |
| 3427.12 | | 374.96 | 382.06 | 380.98 | 382.99 | 0.013182 | 7.72 | 227.87 | 53.80 | 0.66 | 7.10 |
| 3386.15 | | 374.95 | 381.02 | 380.44 | 382.29 | 0.020321 | 9.07 | 194.13 | 50.49 | 0.81 | 6.07 |
| 3301.22 | | 373.74 | 379.79 | 378.85 | 380.91 | 0.012553 | 8.46 | 208.02 | 49.57 | 0.73 | 6.05 |
| 3233.01 | | 372.45 | 379.00 | 378.29 | 380.07 | 0.011627 | 8.28 | 212.65 | 57.82 | 0.76 | 6.55 |
| 3164.24 | | 372.42 | 378.44 | 377.59 | 379.26 | 0.009792 | 7.25 | 242.67 | 68.26 | 0.68 | 6.02 |
| 3078.81 | US end of project | 369.97 | 377.07 | 376.24 | 378.30 | 0.011808 | 8.92 | 197.40 | 45.57 | 0.75 | 7.10 |
| 3018.21 | | 369.15 | 375.68 | 375.29 | 377.42 | 0.016042 | 10.59 | 166.23 | 38.06 | 0.89 | 6.53 |
| 2987.41 | | 368.73 | 375.35 | 374.79 | 376.89 | 0.01461 | 9.96 | 176.73 | 41.87 | 0.85 | 6.62 |
| 2942.93 | | 368.12 | 374.75 | 374.10 | 376.26 | 0.013406 | 9.88 | 178.11 | 39.73 | 0.82 | 6.63 |
| 2888.75 | Bridge Face (US) | 367.41 | 374.67 | 373.20 | 375.54 | 0.007424 | 7.49 | 235.09 | 51.38 | 0.62 | 7.26 |
| 2868.05 | Bridge Section | 367.13 | 374.48 | 372.91 | 375.38 | 0.00736 | 7.60 | 231.43 | 48.48 | 0.61 | 7.35 |
| 2848.11 | Bridge Face (DS) | 366.84 | 374.00 | 372.78 | 375.18 | 0.009867 | 8.75 | 201.23 | 41.70 | 0.70 | 7.16 |
| 2822.41 | | 366.48 | 373.76 | 372.36 | 374.92 | 0.010132 | 8.66 | 203.13 | 38.14 | 0.66 | 7.28 |
| 2806.19 | DS end of Project | 366.28 | 372.50 | 372.50 | 374.60 | 0.021263 | 11.64 | 151.19 | 36.45 | 1.01 | 6.22 |
| 2775.13 | | 365.64 | 372.74 | 371.31 | 373.66 | 0.008911 | 7.67 | 229.61 | 52.66 | 0.65 | 7.10 |
| 2749.18 | | 363.68 | 372.65 | 370.72 | 373.40 | 0.00719 | 6.92 | 254.23 | 56.57 | 0.58 | 8.97 |
| 2722.84 | | 364.92 | 372.24 | 371.12 | 373.15 | 0.010407 | 7.68 | 229.21 | 54.22 | 0.66 | 7.32 |
| 2689.3 | | 363.59 | 372.19 | 369.78 | 372.84 | 0.005003 | 6.50 | 270.60 | 46.42 | 0.47 | 8.60 |
| 2668.74 | | 361.93 | 372.11 | 368.78 | 372.74 | 0.004179 | 6.41 | 274.74 | 39.96 | 0.43 | 10.18 |
| 2620.59 | | 363.56 | 371.74 | 369.03 | 372.49 | 0.006006 | 6.95 | 253.14 | 47.14 | 0.53 | 8.18 |
| 2524.84 | | 362.23 | 370.54 | 368.40 | 371.77 | 0.008566 | 8.87 | 198.38 | 28.65 | 0.59 | 8.31 |
| 2495.34 | | 361.13 | 369.66 | 368.32 | 371.40 | 0.013519 | 10.60 | 166.07 | 25.55 | 0.73 | 8.53 |
| 2416.06 | | 361.22 | 368.57 | 367.63 | 370.20 | 0.016003 | 10.23 | 172.02 | 31.66 | 0.77 | 7.35 |

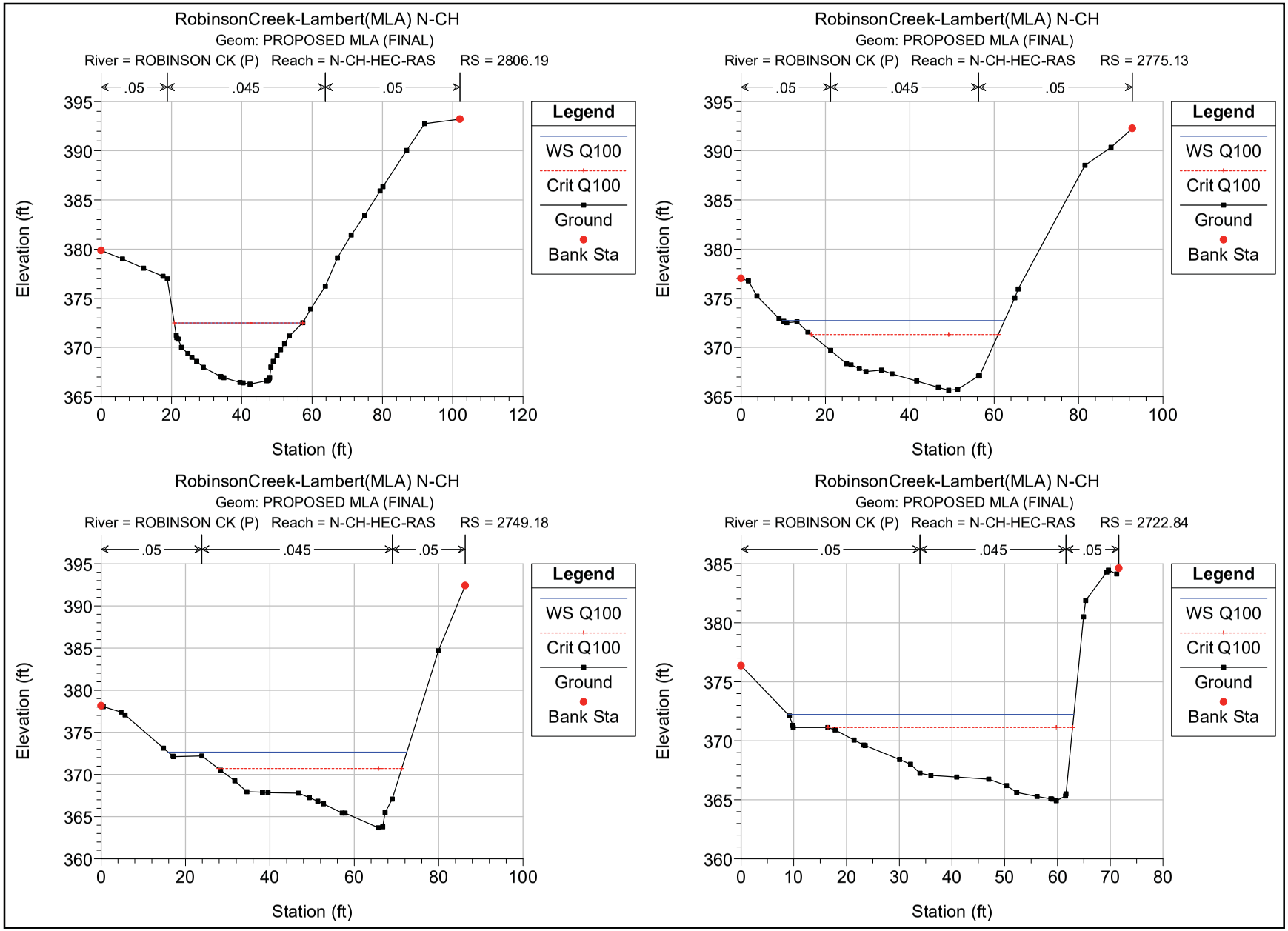

RobinsonCreek-Lambert(MLA) N-CH
Geom: PROPOSED MLA (FINAL)
Legend
WS Q100
Crit Q100
Ground
Elevation (ft)
390
385
380
375
370
365
360
355
350
2400
2600
2800
3000
3200
3400
3600
3800
4000
Main Channel Distance (ft)
DS REACH OF PROJECT
BRIDGE SECTION
US END OF PROJECT

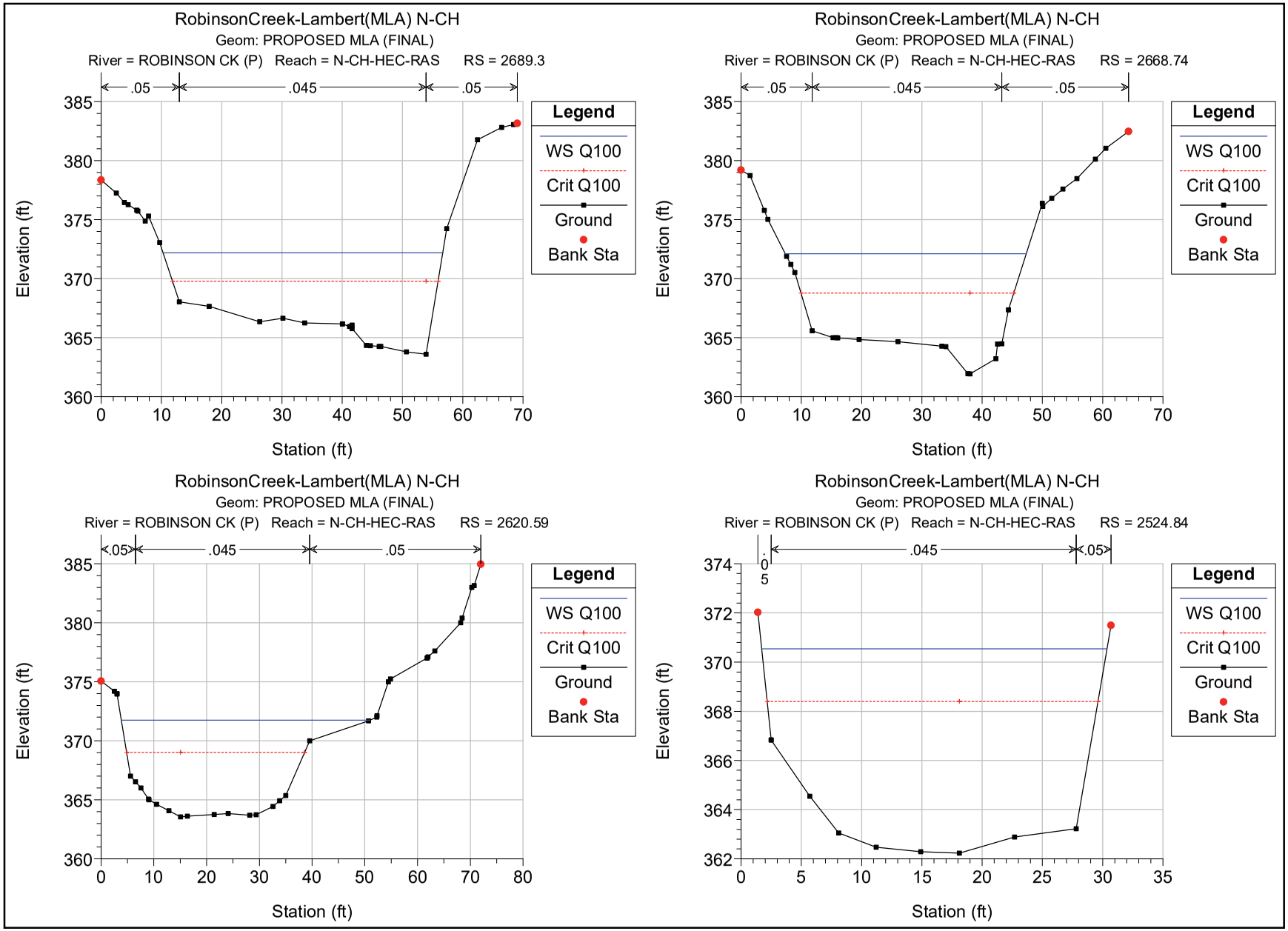

RobinsonCreek-Lambert(MLA) N-CH
Geom: PROPOSED MLA (FINAL)
River = ROBINSON CK (P) Reach = N-CH-HEC-RAS RS = 3952.35
.07
.045
.07
Elevation (ft)
Station (ft)
Legend
WS Q100
Crit Q100
Ground
Bank Sta
RobinsonCreek-Lambert(MLA) N-CH
Geom: PROPOSED MLA (FINAL)
River = ROBINSON CK (P) Reach = N-CH-HEC-RAS RS = 3714.12
.07
.045
.07
Elevation (ft)
Station (ft)
Legend
WS Q100
Crit Q100
Ground
Bank Sta
RobinsonCreek-Lambert(MLA) N-CH
Geom: PROPOSED MLA (FINAL)
River = ROBINSON CK (P) Reach = N-CH-HEC-RAS RS = 3608.63
.07
.045
.07
Elevation (ft)
Station (ft)
Legend
WS Q100
Crit Q100
Ground
Bank Sta
RobinsonCreek-Lambert(MLA) N-CH
Geom: PROPOSED MLA (FINAL)
River = ROBINSON CK (P) Reach = N-CH-HEC-RAS RS = 3427.12
.07
.045
Elevation (ft)
Station (ft)
Legend
WS Q100
Crit Q100
Ground
Bank Sta

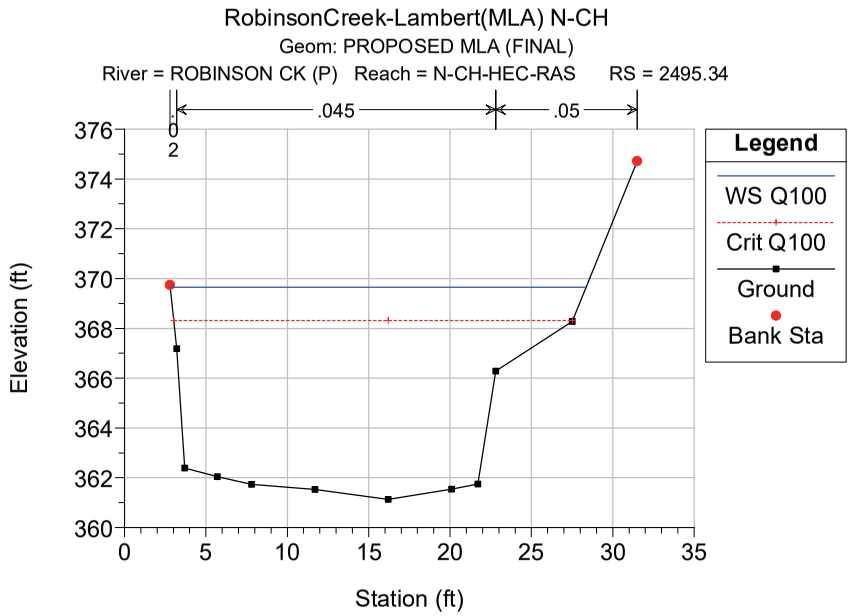

RobinsonCreek-Lambert(MLA) N-CH
Geom: PROPOSED MLA (FINAL)
River = ROBINSON CK (P) Reach = N-CH-HEC-RAS RS = 3386.15
.07
.045
0
7
Elevation (ft)
Station (ft)
Legend
WS Q100
Crit Q100
Ground
Bank Sta
RobinsonCreek-Lambert(MLA) N-CH
Geom: PROPOSED MLA (FINAL)
River = ROBINSON CK (P) Reach = N-CH-HEC-RAS RS = 3301.22
.07
.045
.07
Elevation (ft)
Station (ft)
Legend
WS Q100
Crit Q100
Ground
Bank Sta
RobinsonCreek-Lambert(MLA) N-CH
Geom: PROPOSED MLA (FINAL)
River = ROBINSON CK (P) Reach = N-CH-HEC-RAS RS = 3233.01
.07
.045
.07
Elevation (ft)
Station (ft)
Legend
WS Q100
Crit Q100
Ground
Bank Sta
RobinsonCreek-Lambert(MLA) N-CH
Geom: PROPOSED MLA (FINAL)
River = ROBINSON CK (P) Reach = N-CH-HEC-RAS RS = 3164.24
.07
.045
.07
Elevation (ft)
Station (ft)
Legend
WS Q100
Crit Q100
Ground
Bank Sta

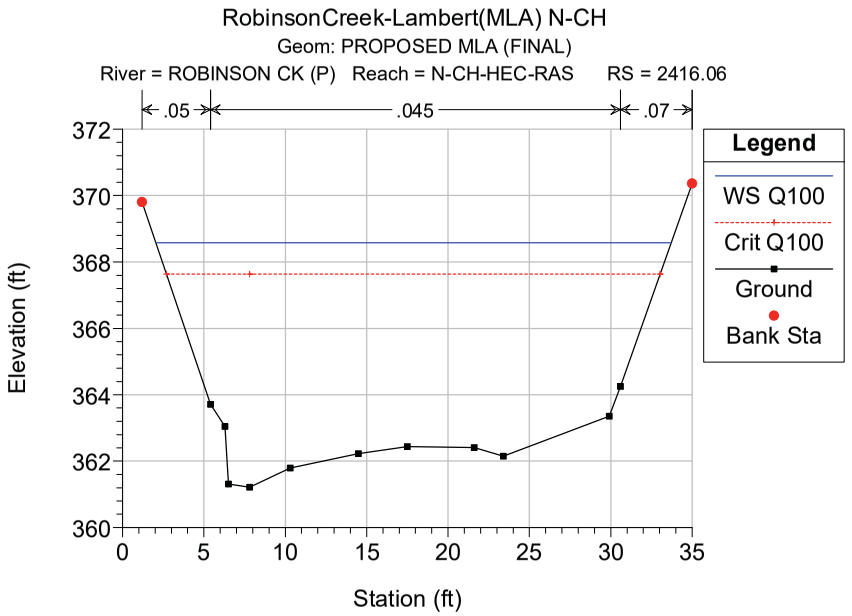

RobinsonCreek-Lambert(MLA) N-CH
Geom: PROPOSED MLA (FINAL)
River = ROBINSON CK (P) Reach = N-CH-HEC-RAS RS = 3078.81 US END OF PROJECT
.07
.045
.07
Elevation (ft)
Station (ft)
Legend
WS Q100
Crit Q100
Ground
Bank Sta
RobinsonCreek-Lambert(MLA) N-CH
Geom: PROPOSED MLA (FINAL)
River = ROBINSON CK (P) Reach = N-CH-HEC-RAS RS = 3018.21
.05
.045
.05
Elevation (ft)
Station (ft)
Legend
WS Q100
Crit Q100
Ground
Bank Sta
RobinsonCreek-Lambert(MLA) N-CH
Geom: PROPOSED MLA (FINAL)
River = ROBINSON CK (P) Reach = N-CH-HEC-RAS RS = 2987.41
.05
.045
.05
Elevation (ft)
Station (ft)
Legend
WS Q100
Crit Q100
Ground
Bank Sta
RobinsonCreek-Lambert(MLA) N-CH
Geom: PROPOSED MLA (FINAL)
River = ROBINSON CK (P) Reach = N-CH-HEC-RAS RS = 2942.93
.05
.045
.045
Elevation (ft)
Station (ft)
Legend
WS Q100
Crit Q100
Ground
Bank Sta


RobinsonCreek-Lambert(MLA) N-CH
Geom: PROPOSED MLA (FINAL)
River = ROBINSON CK (P) Reach = N-CH-HEC-RAS RS = 2888.75 US BRIDGE FACE
.05
.045
.05
Legend
WS Q100
Crit Q100
Ground
Bank Sta
Elevation (ft)
Station (ft)
RobinsonCreek-Lambert(MLA) N-CH
Geom: PROPOSED MLA (FINAL)
River = ROBINSON CK (P) Reach = N-CH-HEC-RAS RS = 2868.05 BRIDGE SECTION
.05
.045
.05
Legend
WS Q100
Crit Q100
Ground
Bank Sta
Elevation (ft)
Station (ft)
RobinsonCreek-Lambert(MLA) N-CH
Geom: PROPOSED MLA (FINAL)
River = ROBINSON CK (P) Reach = N-CH-HEC-RAS RS = 2848.11 DS BRIDGE FACE
.05
.045
.05
Legend
WS Q100
Crit Q100
Ground
Bank Sta
Elevation (ft)
Station (ft)
RobinsonCreek-Lambert(MLA) N-CH
Geom: PROPOSED MLA (FINAL)
River = ROBINSON CK (P) Reach = N-CH-HEC-RAS RS = 2822.41 DS REACH OF PROJECT
.05
.045
.05
Legend
WS Q100
Crit Q100
Ground
Bank Sta
Elevation (ft)
Station (ft)


RobinsonCreek-Lambert(MLA) N-CH
Geom: PROPOSED MLA (FINAL)
River = ROBINSON CK (P) Reach = N-CH-HEC-RAS RS = 2806.19
.05
.045
.05
Elevation (ft)
Station (ft)
Legend
WS Q100
Crit Q100
Ground
Bank Sta
RobinsonCreek-Lambert(MLA) N-CH
Geom: PROPOSED MLA (FINAL)
River = ROBINSON CK (P) Reach = N-CH-HEC-RAS RS = 2775.13
.05
.045
.05
Elevation (ft)
Station (ft)
Legend
WS Q100
Crit Q100
Ground
Bank Sta
RobinsonCreek-Lambert(MLA) N-CH
Geom: PROPOSED MLA (FINAL)
River = ROBINSON CK (P) Reach = N-CH-HEC-RAS RS = 2749.18
.05
.045
.05
Elevation (ft)
Station (ft)
Legend
WS Q100
Crit Q100
Ground
Bank Sta
RobinsonCreek-Lambert(MLA) N-CH
Geom: PROPOSED MLA (FINAL)
River = ROBINSON CK (P) Reach = N-CH-HEC-RAS RS = 2722.84
.05
.045
.05
Elevation (ft)
Station (ft)
Legend
WS Q100
Crit Q100
Ground
Bank Sta


RobinsonCreek-Lambert(MLA) N-CH
Geom: PROPOSED MLA (FINAL)
River = ROBINSON CK (P) Reach = N-CH-HEC-RAS RS = 2689.3
.05
.045
.05
Elevation (ft)
Station (ft)
Legend
WS Q100
Crit Q100
Ground
Bank Sta
RobinsonCreek-Lambert(MLA) N-CH
Geom: PROPOSED MLA (FINAL)
River = ROBINSON CK (P) Reach = N-CH-HEC-RAS RS = 2668.74
.05
.045
.05
Elevation (ft)
Station (ft)
Legend
WS Q100
Crit Q100
Ground
Bank Sta
RobinsonCreek-Lambert(MLA) N-CH
Geom: PROPOSED MLA (FINAL)
River = ROBINSON CK (P) Reach = N-CH-HEC-RAS RS = 2620.59
.05
.045
.05
Elevation (ft)
Station (ft)
Legend
WS Q100
Crit Q100
Ground
Bank Sta
RobinsonCreek-Lambert(MLA) N-CH
Geom: PROPOSED MLA (FINAL)
River = ROBINSON CK (P) Reach = N-CH-HEC-RAS RS = 2524.84
.045
.05
Elevation (ft)
Station (ft)
Legend
WS Q100
Crit Q100
Ground
Bank Sta

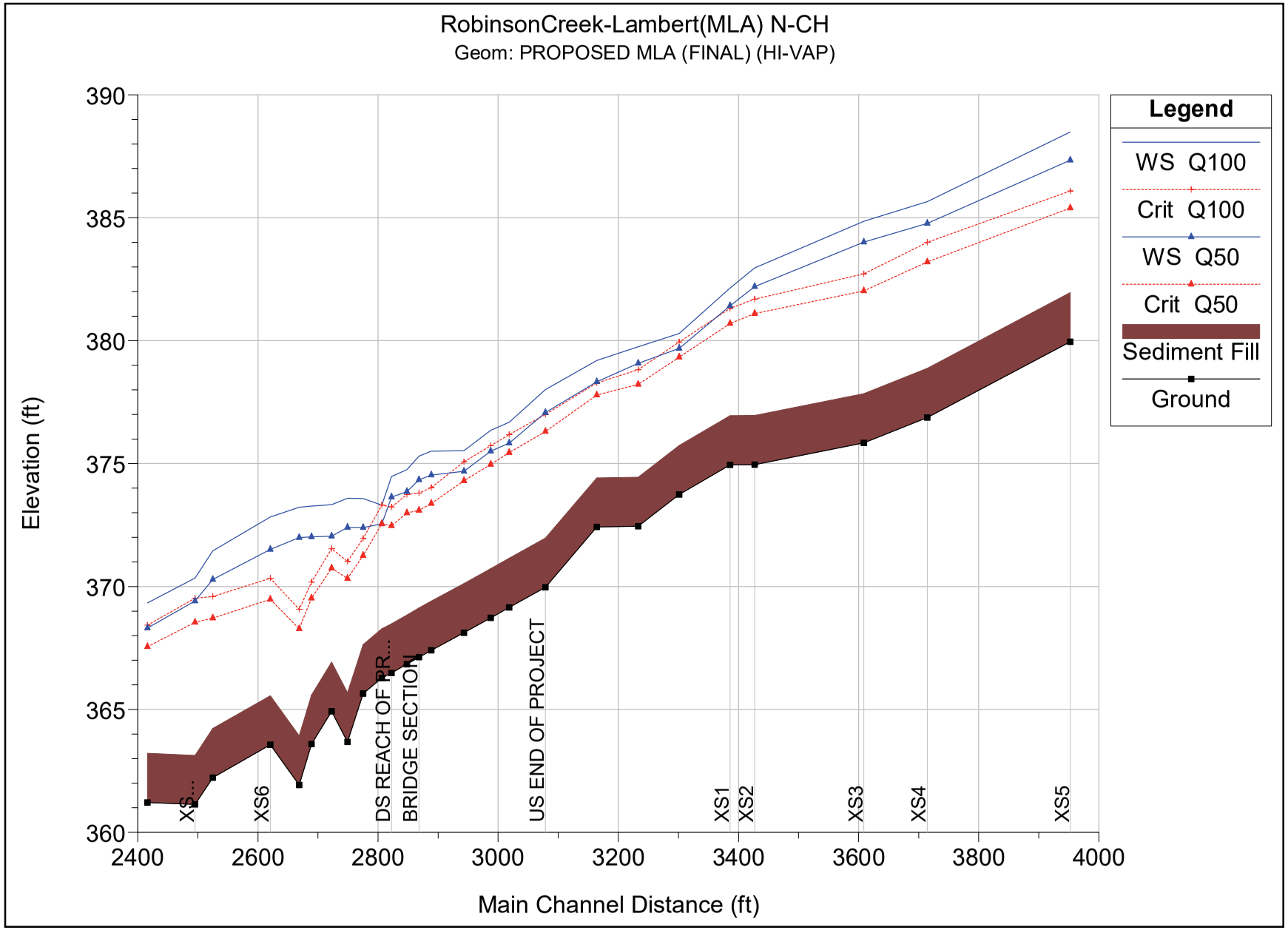

RobinsonCreek-Lambert(MLA) N-CH
Geom: PROPOSED MLA (FINAL)
River = ROBINSON CK (P) Reach = N-CH-HEC-RAS RS = 2495.34
.045
.05
Elevation (ft)
Station (ft)
Legend
WS Q100
Crit Q100
Ground
Bank Sta

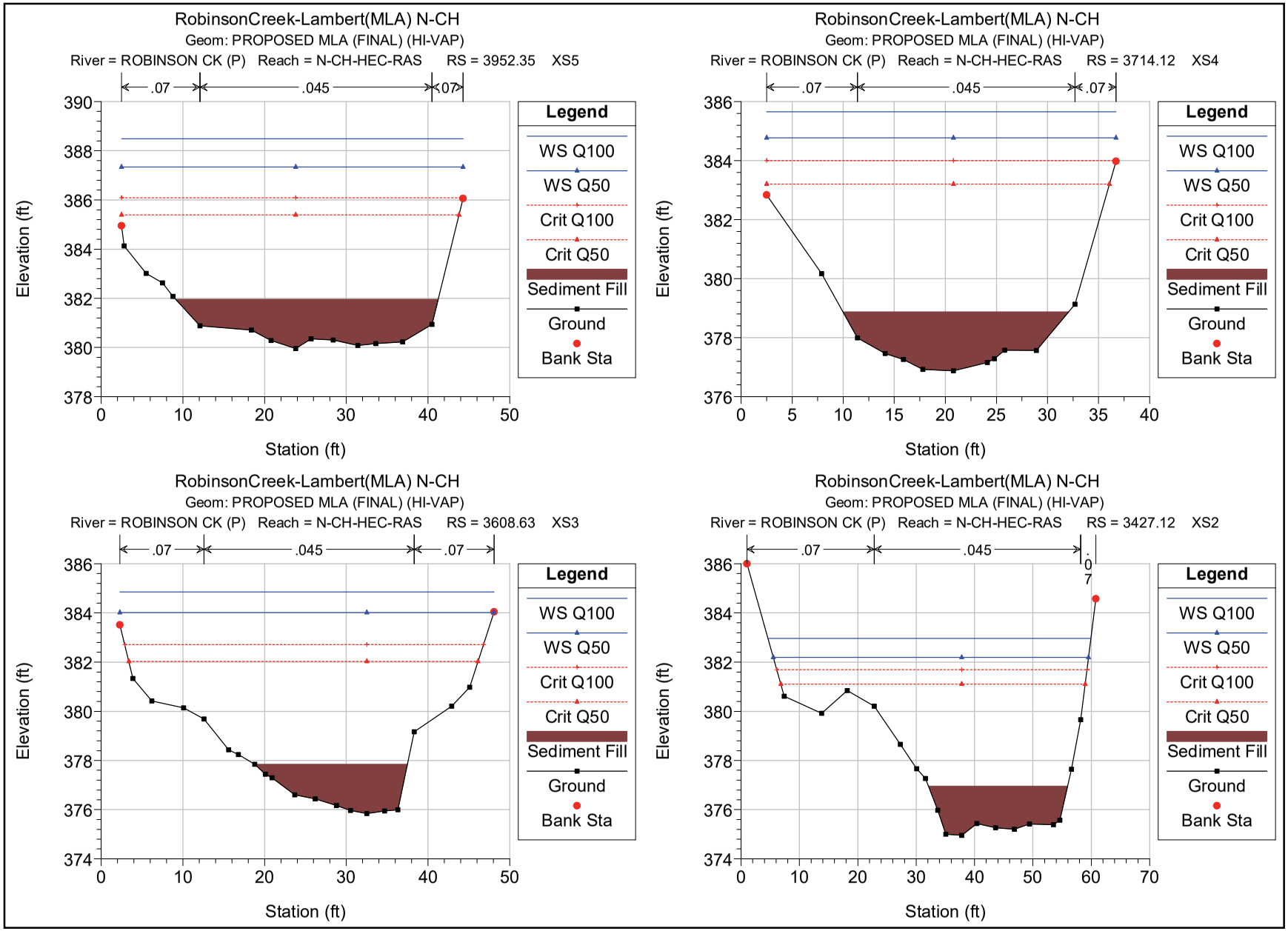

RobinsonCreek-Lambert(MLA) N-CH
Geom: PROPOSED MLA (FINAL)
River = ROBINSON CK (P) Reach = N-CH-HEC-RAS RS = 2416.06
.05
.045
.07
Elevation (ft)
Station (ft)
Legend
WS Q100
Crit Q100
Ground
Bank Sta

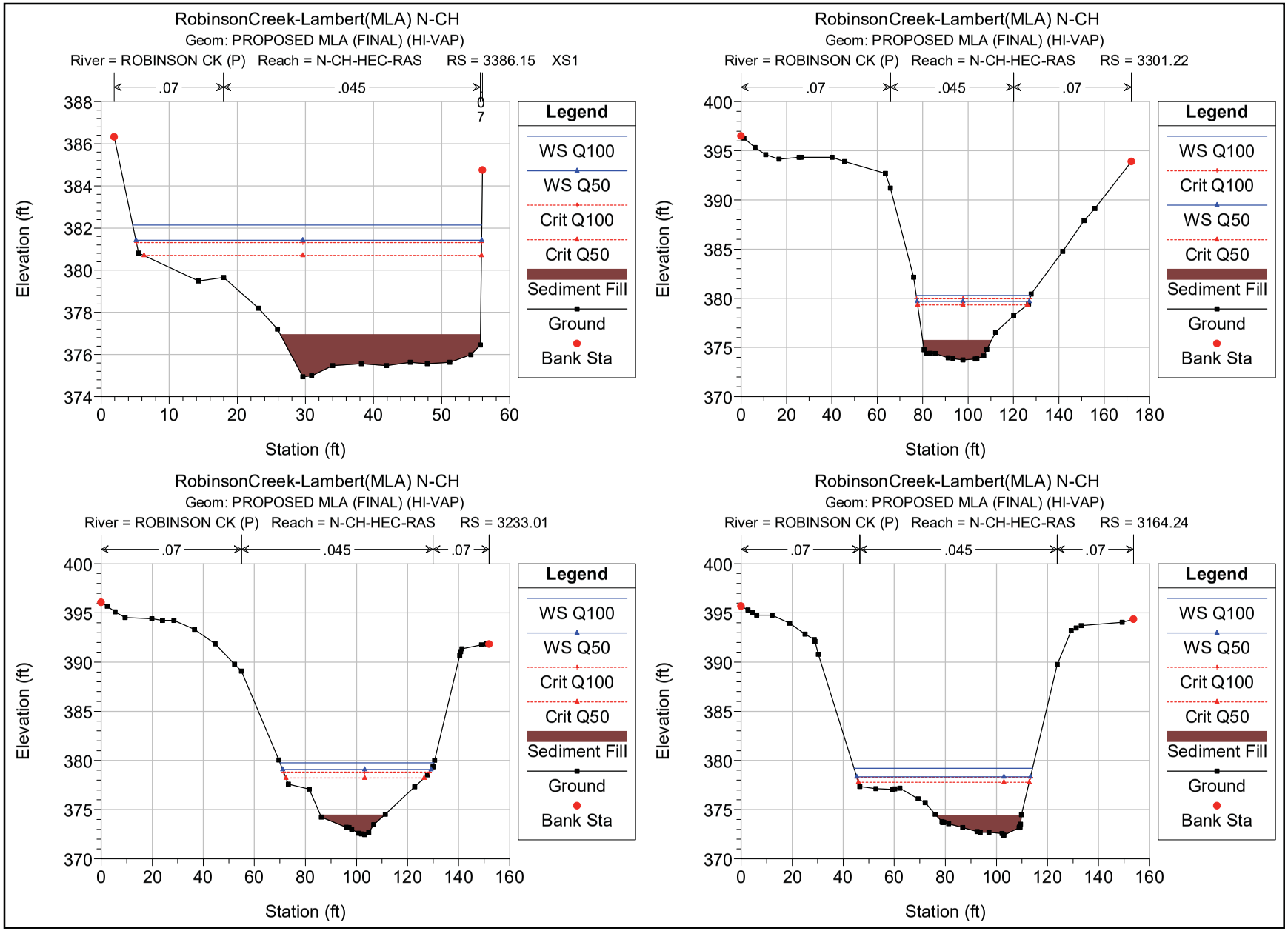
**Robinson Creek at Lambert Lane Bridge**
**HEC-RAS Reults fo High VAP Channel (Proposed As-Built Condition)**

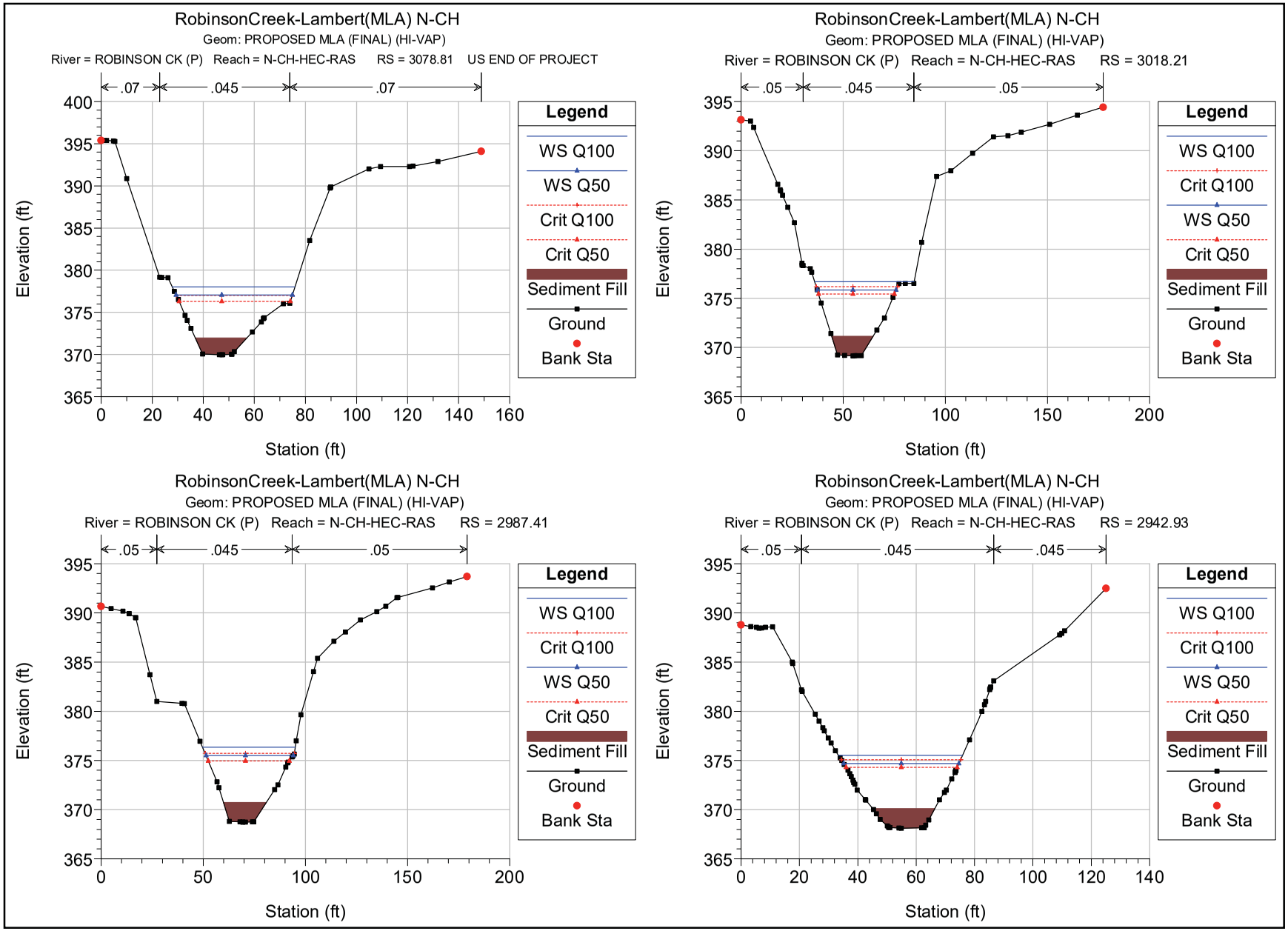
**Profile = Q100**
**Q Total (cfs) = 1,760**

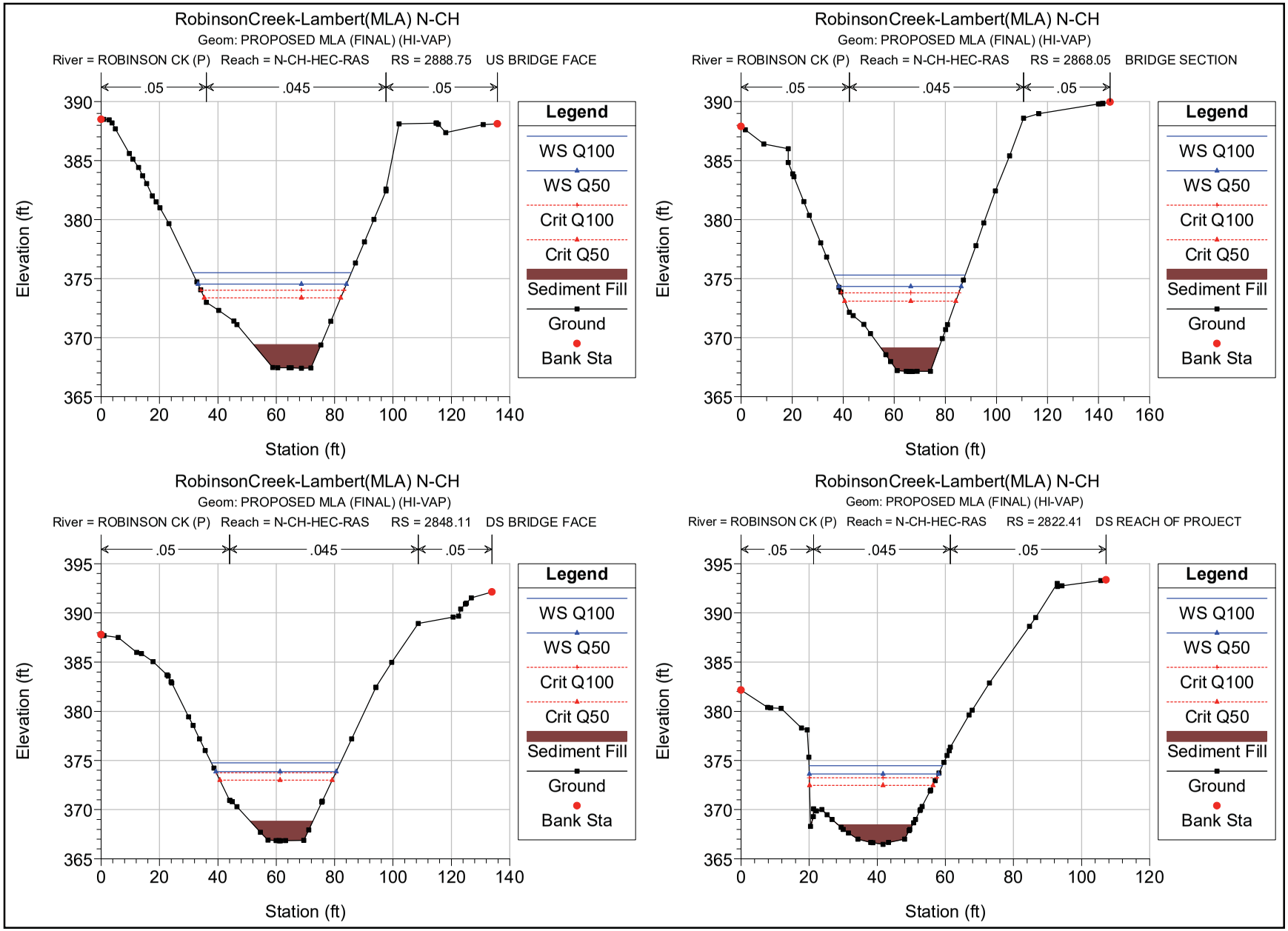
| River Sta | Description | Min Ch El (ft) | W.S. Elev (ft) | Crit W.S. (ft) | E.G. Elev (ft) | E.G. Slope (ft/ft) | Vel Chnl (ft/s) | Flow Area (sq ft) | Top Width (ft) | Froude # Chl | Depth of Flow (ft) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 3952.35 | | 381.96 | 388.49 | 386.09 | 389.2 | 0.01 | 6.79 | 259.35 | 41.80 | 0.48 | 6.53 |
| 3714.12 | | 378.88 | 385.66 | 384.00 | 386.8 | 0.01 | 8.56 | 205.54 | 34.20 | 0.62 | 6.78 |
| 3608.63 | | 377.85 | 384.85 | 382.72 | 385.58 | 0.01 | 6.81 | 258.36 | 45.80 | 0.51 | 7.00 |
| 3427.12 | | 376.96 | 382.96 | 381.69 | 383.8 | 0.01 | 7.32 | 240.44 | 55.34 | 0.62 | 6.00 |
| 3386.15 | | 376.95 | 382.14 | 381.31 | 383.21 | 0.02 | 8.32 | 211.61 | 51.27 | 0.72 | 5.19 |
| 3301.22 | | 375.74 | 380.29 | 379.95 | 381.7 | 0.02 | 9.51 | 185.15 | 50.46 | 0.87 | 4.55 |
| 3233.01 | | 374.45 | 379.75 | 378.82 | 380.66 | 0.01 | 7.64 | 230.44 | 60.27 | 0.69 | 5.30 |
| 3164.24 | | 374.42 | 379.20 | 378.28 | 379.97 | 0.01 | 7.07 | 248.91 | 69.86 | 0.66 | 4.78 |
| 3078.81 | US end of project | 371.97 | 378.01 | 377.00 | 379.1 | 0.01 | 8.36 | 210.51 | 48.04 | 0.70 | 6.04 |
| 3018.21 | | 371.15 | 376.68 | 376.18 | 378.24 | 0.02 | 10.01 | 175.85 | 48.70 | 0.93 | 5.53 |
| 2987.41 | | 370.73 | 376.35 | 375.73 | 377.71 | 0.01 | 9.35 | 188.20 | 45.39 | 0.81 | 5.62 |
| 2942.93 | | 370.12 | 375.53 | 375.07 | 377.07 | 0.01 | 9.96 | 176.78 | 42.57 | 0.86 | 5.41 |
| 2888.75 | Bridge Face (US) | 369.41 | 375.50 | 374.02 | 376.31 | 0.01 | 7.23 | 243.53 | 54.44 | 0.60 | 6.09 |
| 2868.05 | Bridge Section | 369.13 | 375.30 | 373.80 | 376.16 | 0.01 | 7.42 | 237.23 | 51.39 | 0.61 | 6.17 |
| 2848.11 | Bridge Face (DS) | 368.84 | 374.76 | 373.75 | 375.95 | 0.01 | 8.77 | 200.61 | 44.18 | 0.73 | 5.92 |
| 2822.41 | | 368.48 | 374.48 | 373.24 | 375.67 | 0.01 | 8.77 | 200.60 | 39.16 | 0.68 | 6.00 |
| 2806.19 | DS end of Project | 368.28 | 373.31 | 373.31 | 375.35 | 0.02 | 11.46 | 153.61 | 38.17 | 1.01 | 5.03 |
| 2775.13 | | 367.64 | 373.58 | 371.95 | 374.36 | 0.01 | 7.08 | 248.52 | 55.79 | 0.59 | 5.94 |
| 2749.18 | | 365.68 | 373.59 | 371.02 | 374.14 | 0.00 | 5.93 | 296.81 | 59.33 | 0.47 | 7.91 |
| 2722.84 | | 366.92 | 373.33 | 371.53 | 373.99 | 0.01 | 6.52 | 269.97 | 56.81 | 0.53 | 6.41 |
| 2689.3 | | 365.59 | 373.27 | 370.18 | 373.79 | 0.00 | 5.80 | 303.69 | 47.52 | 0.40 | 7.68 |
| 2668.74 | | 363.93 | 373.22 | 369.07 | 373.72 | 0.00 | 5.67 | 310.66 | 41.77 | 0.37 | 9.29 |
| 2620.59 | | 365.56 | 372.83 | 370.33 | 373.51 | 0.01 | 6.63 | 265.45 | 49.42 | 0.50 | 7.27 |
| 2524.84 | | 364.23 | 371.46 | 369.60 | 372.76 | 0.01 | 9.16 | 192.09 | 29.17 | 0.63 | 7.23 |
| 2495.34 | | 363.13 | 370.34 | 369.53 | 372.33 | 0.02 | 11.30 | 155.76 | 25.99 | 0.81 | 7.21 |
| 2416.06 | | 363.22 | 369.33 | 368.43 | 370.93 | 0.02 | 10.14 | 173.58 | 32.73 | 0.78 | 6.11 |

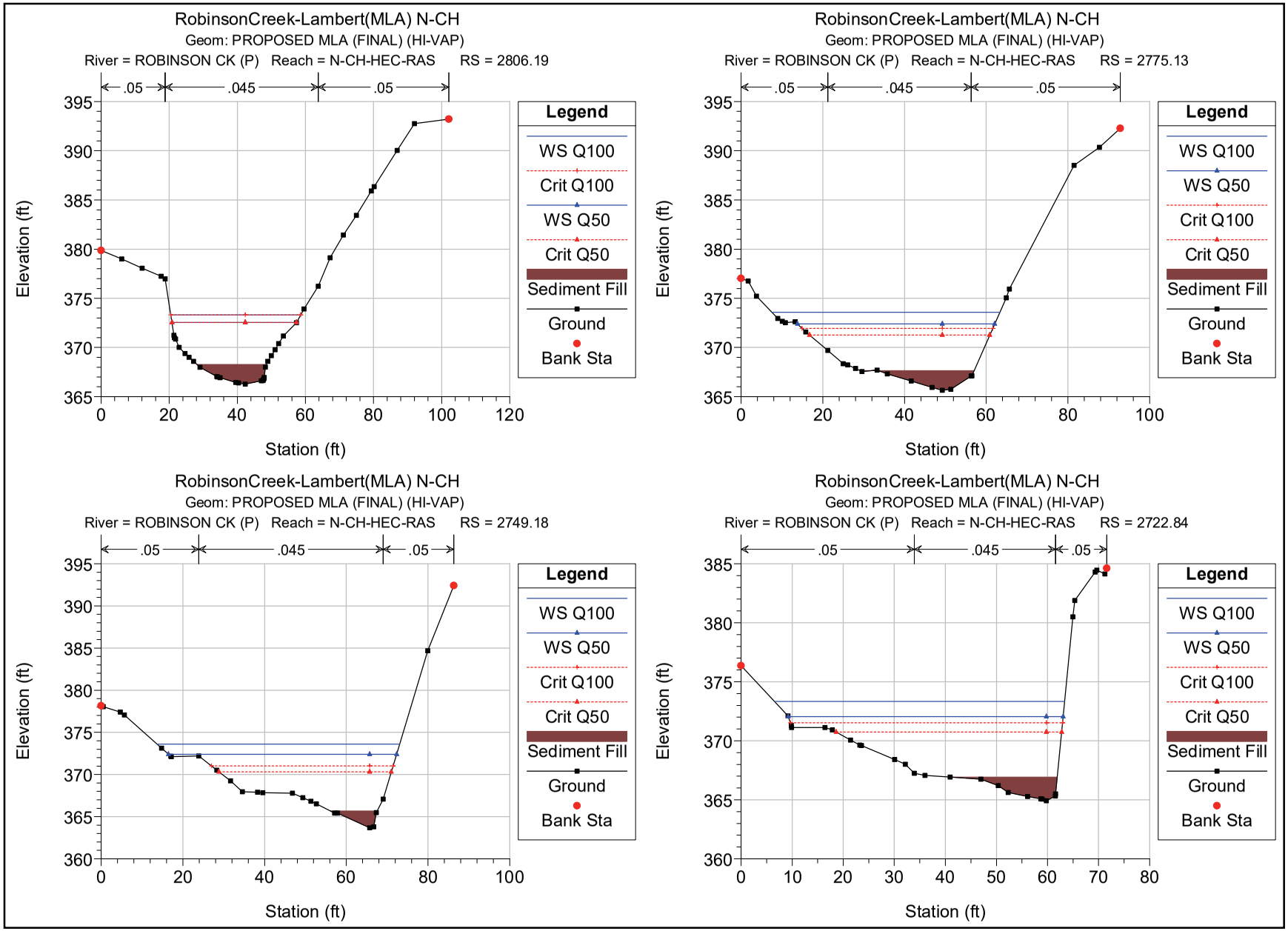

RobinsonCreek-Lambert(MLA) N-CH
Geom: PROPOSED MLA (FINAL) (HI-VAP)
Legend
WS Q100
Crit Q100
WS Q50
Crit Q50
Sediment Fill
Ground
Elevation (ft)
Main Channel Distance (ft)
390
385
380
375
370
365
360
2400
2600
2800
3000
3200
3400
3600
3800
4000
XS...
XS6
DS REACH OF BR...
BRIDGE SECTION
US END OF PROJECT
XS1
XS2
XS3
XS4
XS5

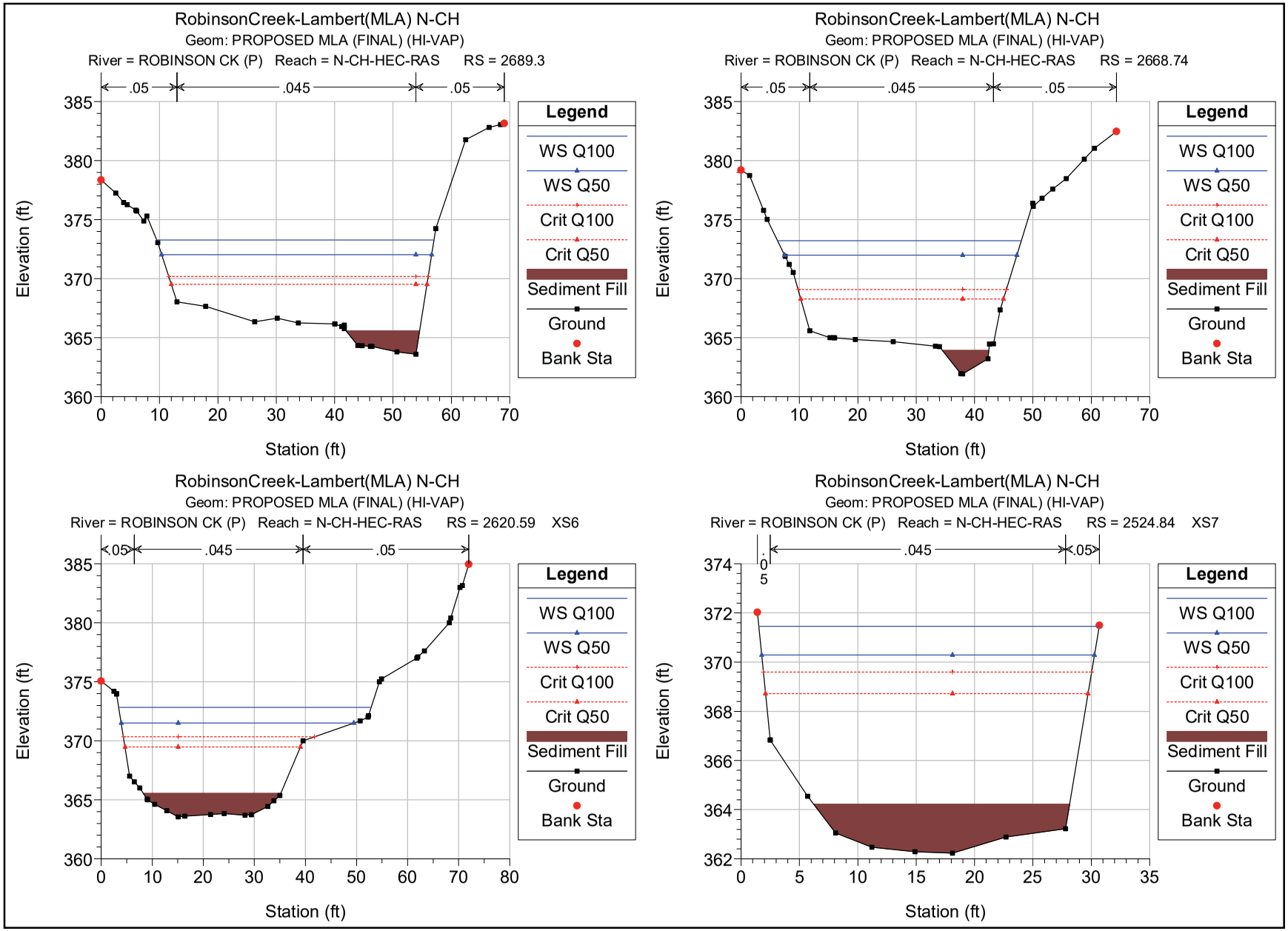

RobinsonCreek-Lambert(MLA) N-CH
Geom: PROPOSED MLA (FINAL) (HI-VAP)
River = ROBINSON CK (P) Reach = N-CH-HEC-RAS RS = 3952.35 XS5
.07
.045
.07
Elevation (ft)
Station (ft)
Legend
WS Q100
WS Q50
Crit Q100
Crit Q50
Sediment Fill
Ground
Bank Sta
RobinsonCreek-Lambert(MLA) N-CH
Geom: PROPOSED MLA (FINAL) (HI-VAP)
River = ROBINSON CK (P) Reach = N-CH-HEC-RAS RS = 3714.12 XS4
.07
.045
.07
Elevation (ft)
Station (ft)
Legend
WS Q100
WS Q50
Crit Q100
Crit Q50
Sediment Fill
Ground
Bank Sta
RobinsonCreek-Lambert(MLA) N-CH
Geom: PROPOSED MLA (FINAL) (HI-VAP)
River = ROBINSON CK (P) Reach = N-CH-HEC-RAS RS = 3608.63 XS3
.07
.045
.07
Elevation (ft)
Station (ft)
Legend
WS Q100
WS Q50
Crit Q100
Crit Q50
Sediment Fill
Ground
Bank Sta
RobinsonCreek-Lambert(MLA) N-CH
Geom: PROPOSED MLA (FINAL) (HI-VAP)
River = ROBINSON CK (P) Reach = N-CH-HEC-RAS RS = 3427.12 XS2
.07
.045
.07
Elevation (ft)
Station (ft)
Legend
WS Q100
WS Q50
Crit Q100
Crit Q50
Sediment Fill
Ground
Bank Sta

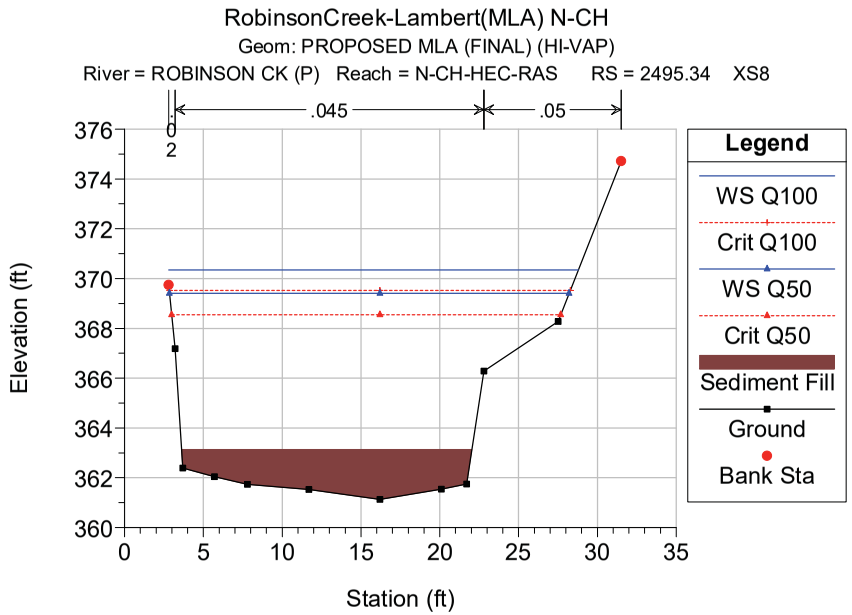

RobinsonCreek-Lambert(MLA) N-CH
Geom: PROPOSED MLA (FINAL) (HI-VAP)
River = ROBINSON CK (P) Reach = N-CH-HEC-RAS RS = 3386.15 XS1
.07
.045
.07
Legend
WS Q100
WS Q50
Crit Q100
Crit Q50
Sediment Fill
Ground
Bank Sta
Elevation (ft)
Station (ft)
RobinsonCreek-Lambert(MLA) N-CH
Geom: PROPOSED MLA (FINAL) (HI-VAP)
River = ROBINSON CK (P) Reach = N-CH-HEC-RAS RS = 3301.22
.07
.045
.07
Legend
WS Q100
Crit Q100
WS Q50
Crit Q50
Sediment Fill
Ground
Bank Sta
Elevation (ft)
Station (ft)
RobinsonCreek-Lambert(MLA) N-CH
Geom: PROPOSED MLA (FINAL) (HI-VAP)
River = ROBINSON CK (P) Reach = N-CH-HEC-RAS RS = 3233.01
.07
.045
.07
Legend
WS Q100
WS Q50
Crit Q100
Crit Q50
Sediment Fill
Ground
Bank Sta
Elevation (ft)
Station (ft)
RobinsonCreek-Lambert(MLA) N-CH
Geom: PROPOSED MLA (FINAL) (HI-VAP)
River = ROBINSON CK (P) Reach = N-CH-HEC-RAS RS = 3164.24
.07
.045
.07
Legend
WS Q100
WS Q50
Crit Q100
Crit Q50
Sediment Fill
Ground
Bank Sta
Elevation (ft)
Station (ft)

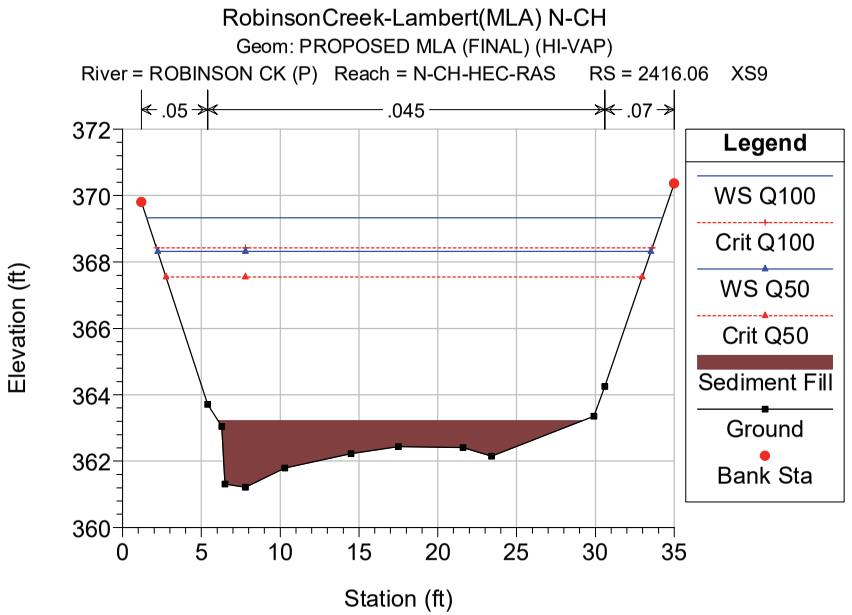

RobinsonCreek-Lambert(MLA) N-CH
Geom: PROPOSED MLA (FINAL) (HI-VAP)
River = ROBINSON CK (P) Reach = N-CH-HEC-RAS RS = 3078.81 US END OF PROJECT
.07
.045
.07
Elevation (ft)
Station (ft)
Legend
WS Q100
WS Q50
Crit Q100
Crit Q50
Sediment Fill
Ground
Bank Sta
RobinsonCreek-Lambert(MLA) N-CH
Geom: PROPOSED MLA (FINAL) (HI-VAP)
River = ROBINSON CK (P) Reach = N-CH-HEC-RAS RS = 3018.21
.05
.045
.05
Elevation (ft)
Station (ft)
Legend
WS Q100
Crit Q100
WS Q50
Crit Q50
Sediment Fill
Ground
Bank Sta
RobinsonCreek-Lambert(MLA) N-CH
Geom: PROPOSED MLA (FINAL) (HI-VAP)
River = ROBINSON CK (P) Reach = N-CH-HEC-RAS RS = 2987.41
.05
.045
.05
Elevation (ft)
Station (ft)
Legend
WS Q100
Crit Q100
WS Q50
Crit Q50
Sediment Fill
Ground
Bank Sta
RobinsonCreek-Lambert(MLA) N-CH
Geom: PROPOSED MLA (FINAL) (HI-VAP)
River = ROBINSON CK (P) Reach = N-CH-HEC-RAS RS = 2942.93
.05
.045
.045
Elevation (ft)
Station (ft)
Legend
WS Q100
Crit Q100
WS Q50
Crit Q50
Sediment Fill
Ground
Bank Sta


RobinsonCreek-Lambert(MLA) N-CH
Geom: PROPOSED MLA (FINAL) (HI-VAP)
River = ROBINSON CK (P) Reach = N-CH-HEC-RAS RS = 2888.75 US BRIDGE FACE
.05
.045
.05
Elevation (ft)
Station (ft)
Legend
WS Q100
WS Q50
Crit Q100
Crit Q50
Sediment Fill
Ground
Bank Sta
RobinsonCreek-Lambert(MLA) N-CH
Geom: PROPOSED MLA (FINAL) (HI-VAP)
River = ROBINSON CK (P) Reach = N-CH-HEC-RAS RS = 2868.05 BRIDGE SECTION
.05
.045
.05
Elevation (ft)
Station (ft)
Legend
WS Q100
WS Q50
Crit Q100
Crit Q50
Sediment Fill
Ground
Bank Sta
RobinsonCreek-Lambert(MLA) N-CH
Geom: PROPOSED MLA (FINAL) (HI-VAP)
River = ROBINSON CK (P) Reach = N-CH-HEC-RAS RS = 2848.11 DS BRIDGE FACE
.05
.045
.05
Elevation (ft)
Station (ft)
Legend
WS Q100
WS Q50
Crit Q100
Crit Q50
Sediment Fill
Ground
Bank Sta
RobinsonCreek-Lambert(MLA) N-CH
Geom: PROPOSED MLA (FINAL) (HI-VAP)
River = ROBINSON CK (P) Reach = N-CH-HEC-RAS RS = 2822.41 DS REACH OF PROJECT
.05
.045
.05
Elevation (ft)
Station (ft)
Legend
WS Q100
WS Q50
Crit Q100
Crit Q50
Sediment Fill
Ground
Bank Sta


RobinsonCreek-Lambert(MLA) N-CH
Geom: PROPOSED MLA (FINAL) (HI-VAP)
River = ROBINSON CK (P) Reach = N-CH-HEC-RAS RS = 2806.19
.05
.045
.05
Elevation (ft)
Station (ft)
Legend
WS Q100
Crit Q100
WS Q50
Crit Q50
Sediment Fill
Ground
Bank Sta
RobinsonCreek-Lambert(MLA) N-CH
Geom: PROPOSED MLA (FINAL) (HI-VAP)
River = ROBINSON CK (P) Reach = N-CH-HEC-RAS RS = 2775.13
.05
.045
.05
Elevation (ft)
Station (ft)
Legend
WS Q100
WS Q50
Crit Q100
Crit Q50
Sediment Fill
Ground
Bank Sta
RobinsonCreek-Lambert(MLA) N-CH
Geom: PROPOSED MLA (FINAL) (HI-VAP)
River = ROBINSON CK (P) Reach = N-CH-HEC-RAS RS = 2749.18
.05
.045
.05
Elevation (ft)
Station (ft)
Legend
WS Q100
WS Q50
Crit Q100
Crit Q50
Sediment Fill
Ground
Bank Sta
RobinsonCreek-Lambert(MLA) N-CH
Geom: PROPOSED MLA (FINAL) (HI-VAP)
River = ROBINSON CK (P) Reach = N-CH-HEC-RAS RS = 2722.84
.05
.045
.05
Elevation (ft)
Station (ft)
Legend
WS Q100
WS Q50
Crit Q100
Crit Q50
Sediment Fill
Ground
Bank Sta

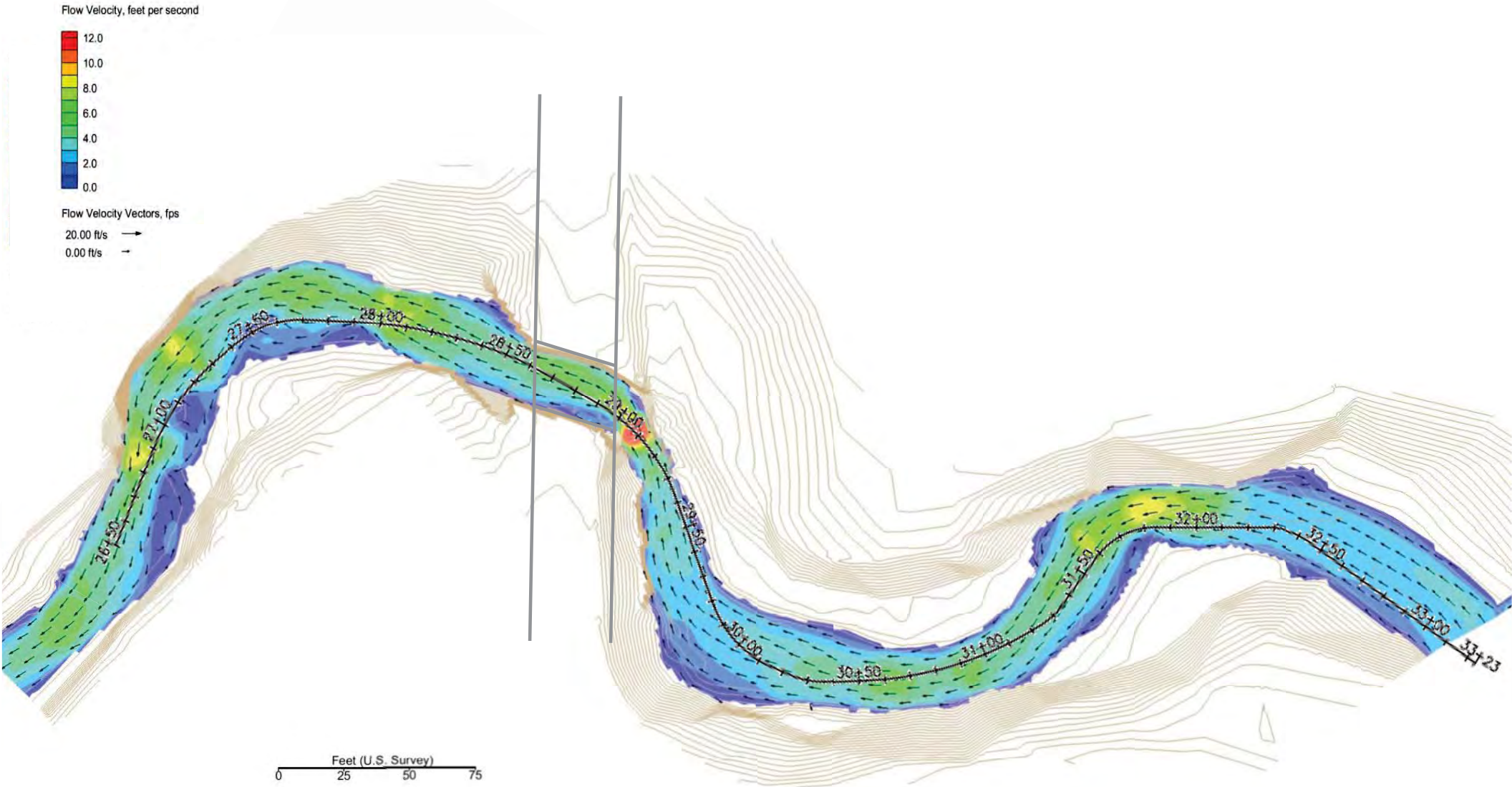

RobinsonCreek-Lambert(MLA) N-CH
Geom: PROPOSED MLA (FINAL) (HI-VAP)
River = ROBINSON CK (P) Reach = N-CH-HEC-RAS RS = 2689.3
.05
.045
.05
Elevation (ft)
Station (ft)
Legend
WS Q100
WS Q50
Crit Q100
Crit Q50
Sediment Fill
Ground
Bank Sta
RobinsonCreek-Lambert(MLA) N-CH
Geom: PROPOSED MLA (FINAL) (HI-VAP)
River = ROBINSON CK (P) Reach = N-CH-HEC-RAS RS = 2668.74
.05
.045
.05
Elevation (ft)
Station (ft)
Legend
WS Q100
WS Q50
Crit Q100
Crit Q50
Sediment Fill
Ground
Bank Sta
RobinsonCreek-Lambert(MLA) N-CH
Geom: PROPOSED MLA (FINAL) (HI-VAP)
River = ROBINSON CK (P) Reach = N-CH-HEC-RAS RS = 2620.59 XS6
.05
.045
.05
Elevation (ft)
Station (ft)
Legend
WS Q100
WS Q50
Crit Q100
Crit Q50
Sediment Fill
Ground
Bank Sta
RobinsonCreek-Lambert(MLA) N-CH
Geom: PROPOSED MLA (FINAL) (HI-VAP)
River = ROBINSON CK (P) Reach = N-CH-HEC-RAS RS = 2524.84 XS7
.045
.05
Elevation (ft)
Station (ft)
Legend
WS Q100
WS Q50
Crit Q100
Crit Q50
Sediment Fill
Ground
Bank Sta


RobinsonCreek-Lambert(MLA) N-CH
Geom: PROPOSED MLA (FINAL) (HI-VAP)
River = ROBINSON CK (P) Reach = N-CH-HEC-RAS RS = 2495.34 XS8
.045
.05
Elevation (ft)
Station (ft)
Legend
WS Q100
Crit Q100
WS Q50
Crit Q50
Sediment Fill
Ground
Bank Sta

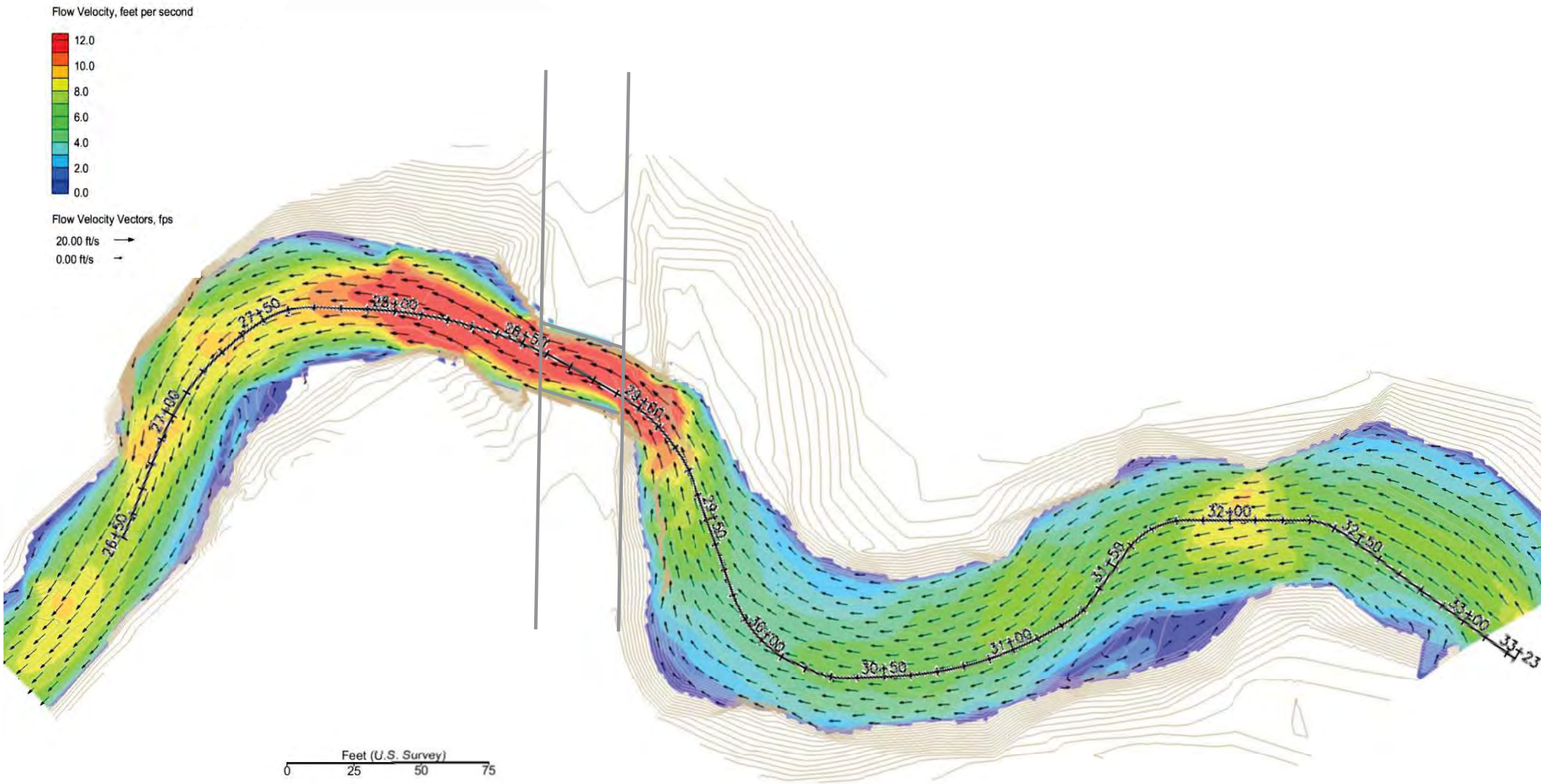

RobinsonCreek-Lambert(MLA) N-CH
Geom: PROPOSED MLA (FINAL) (HI-VAP)
River = ROBINSON CK (P) Reach = N-CH-HEC-RAS RS = 2416.06 XS9
.05
.045
.07
Elevation (ft)
Station (ft)
Legend
WS Q100
Crit Q100
WS Q50
Crit Q50
Sediment Fill
Ground
Bank Sta

# Appendix E - SMS Results

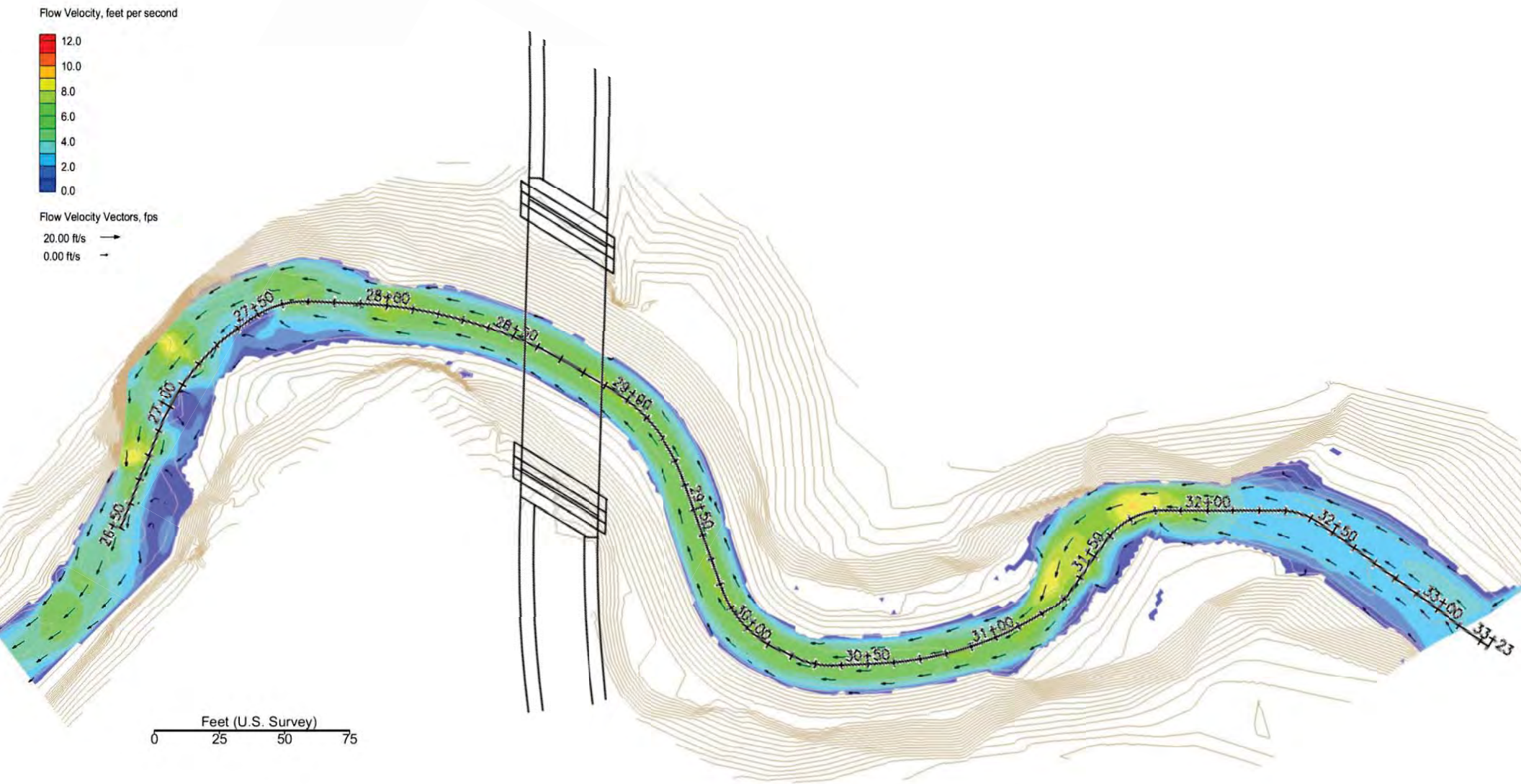
# EC 1.5-Year Velocity



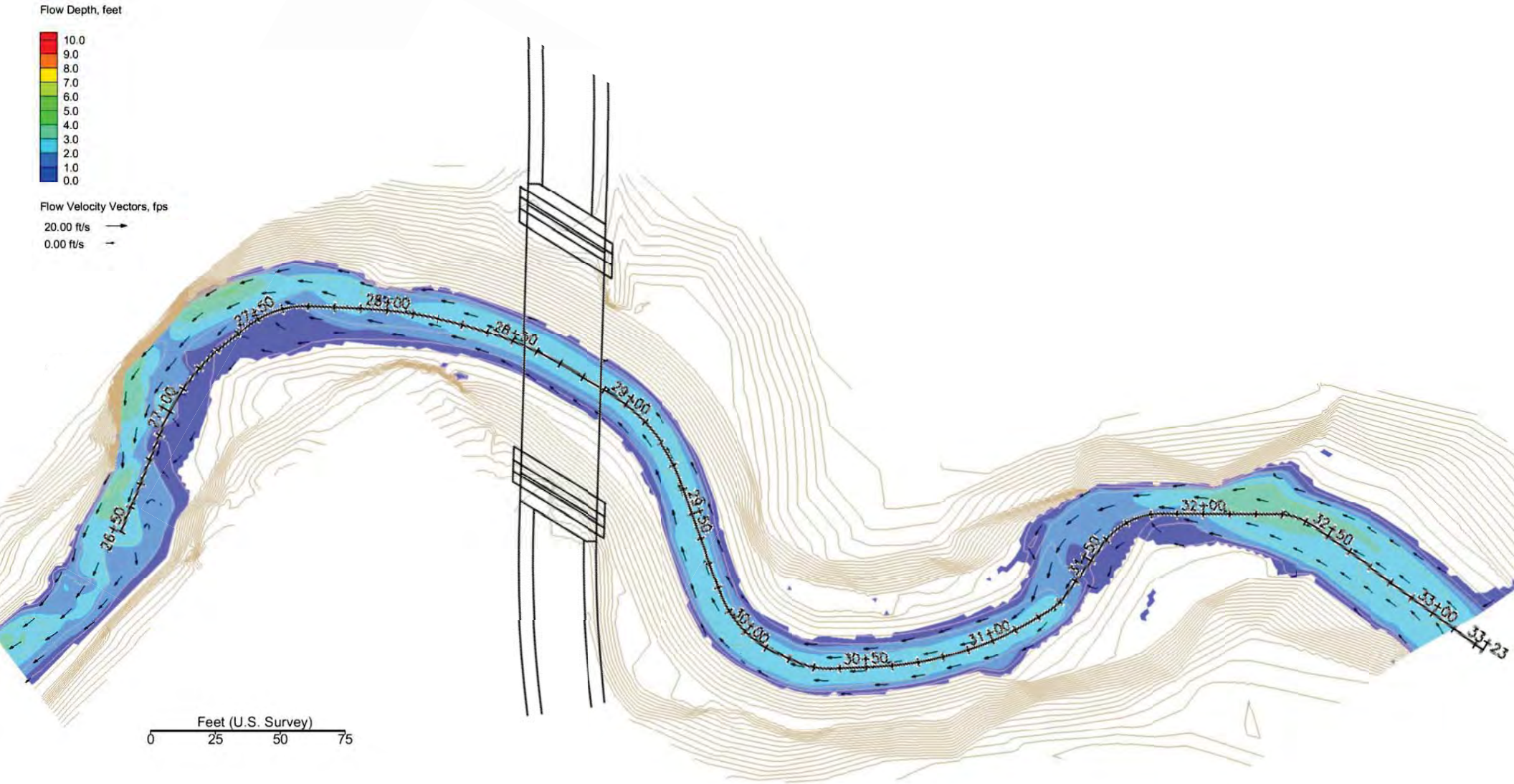
# EC 100-year Velocity



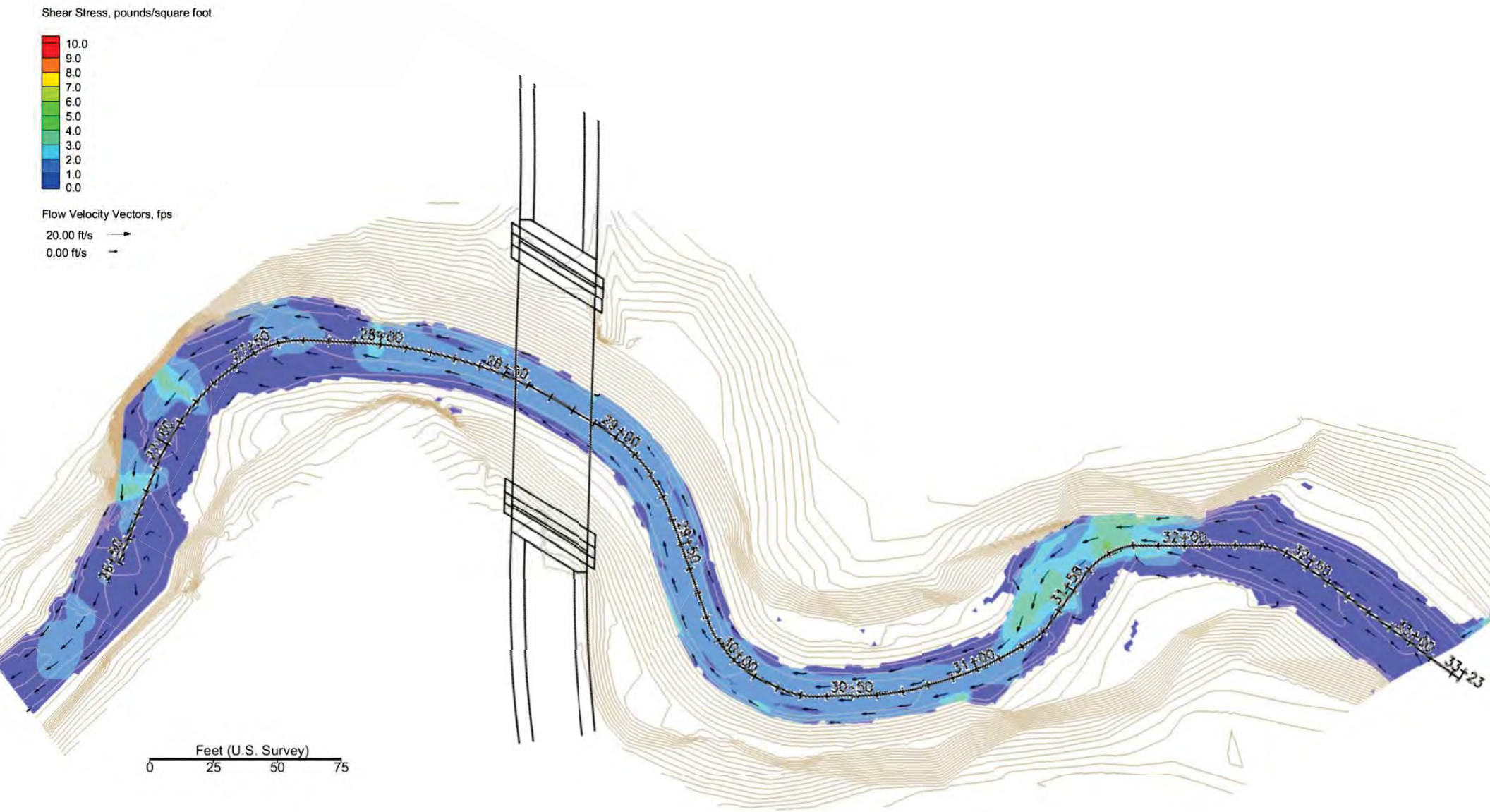
# Proposed Conditions 1.5-Year Flow Velocity



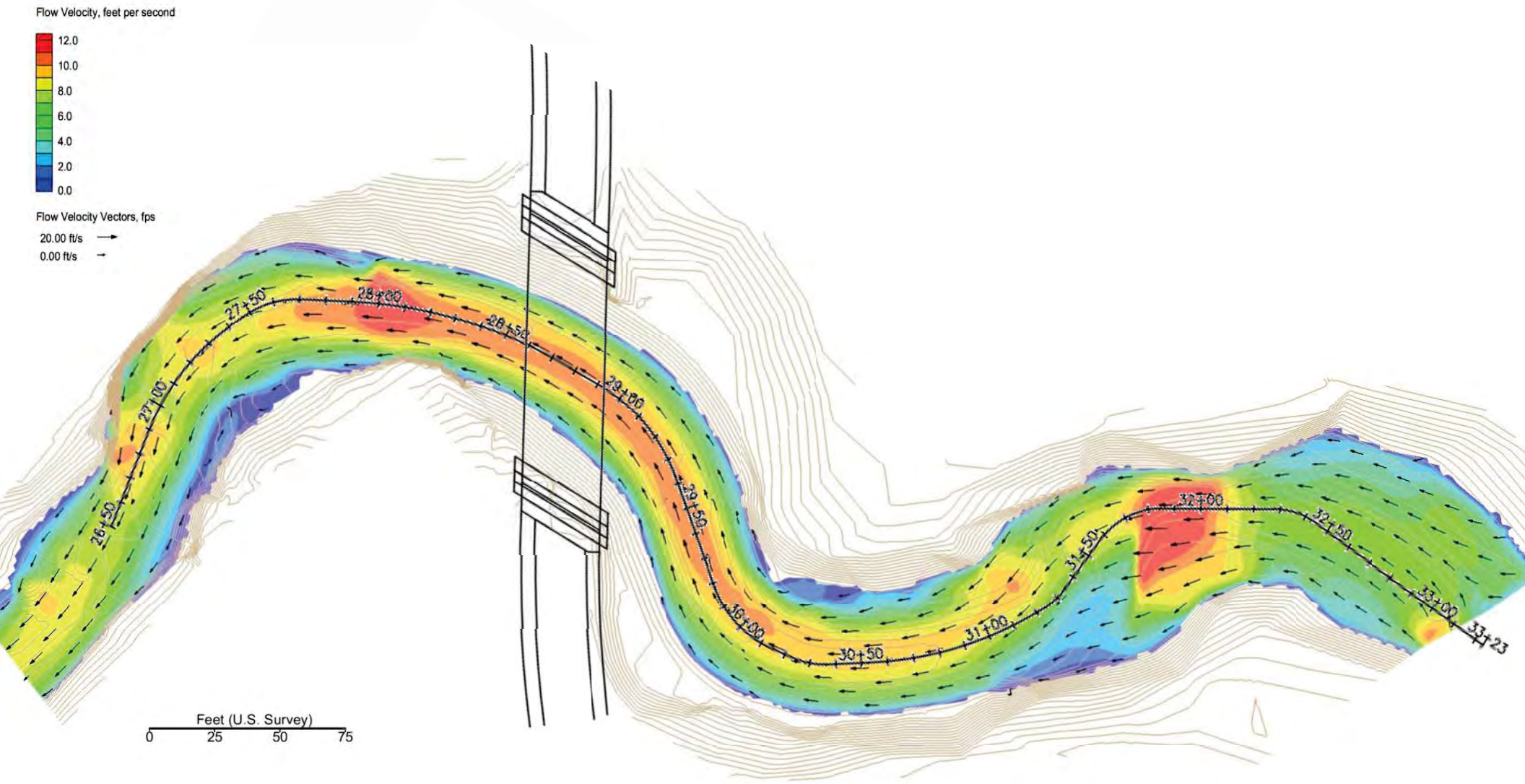
# Proposed Conditions 1.5-Year Flow Depth



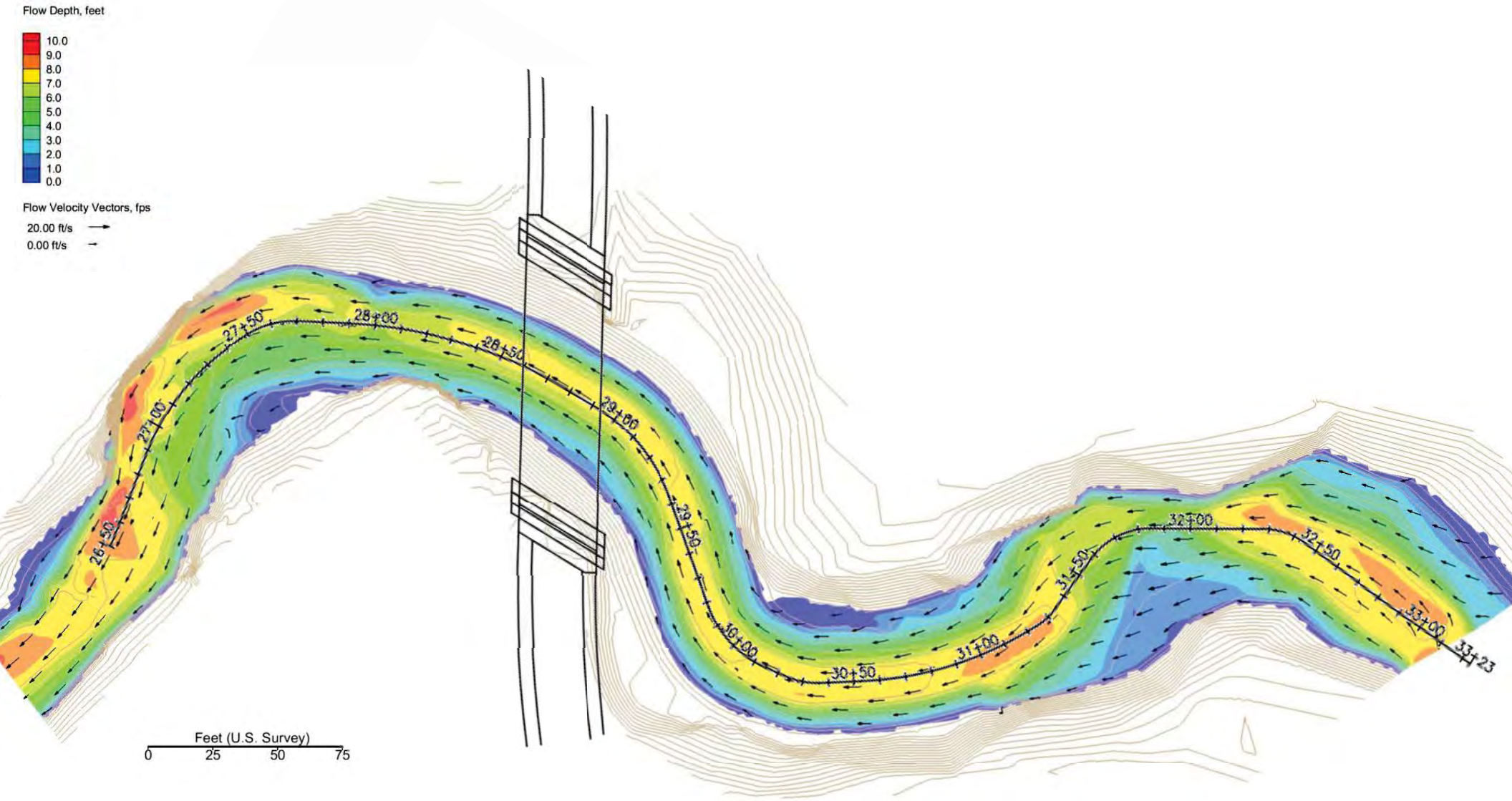
# Proposed Conditions 1.5-Year Shear



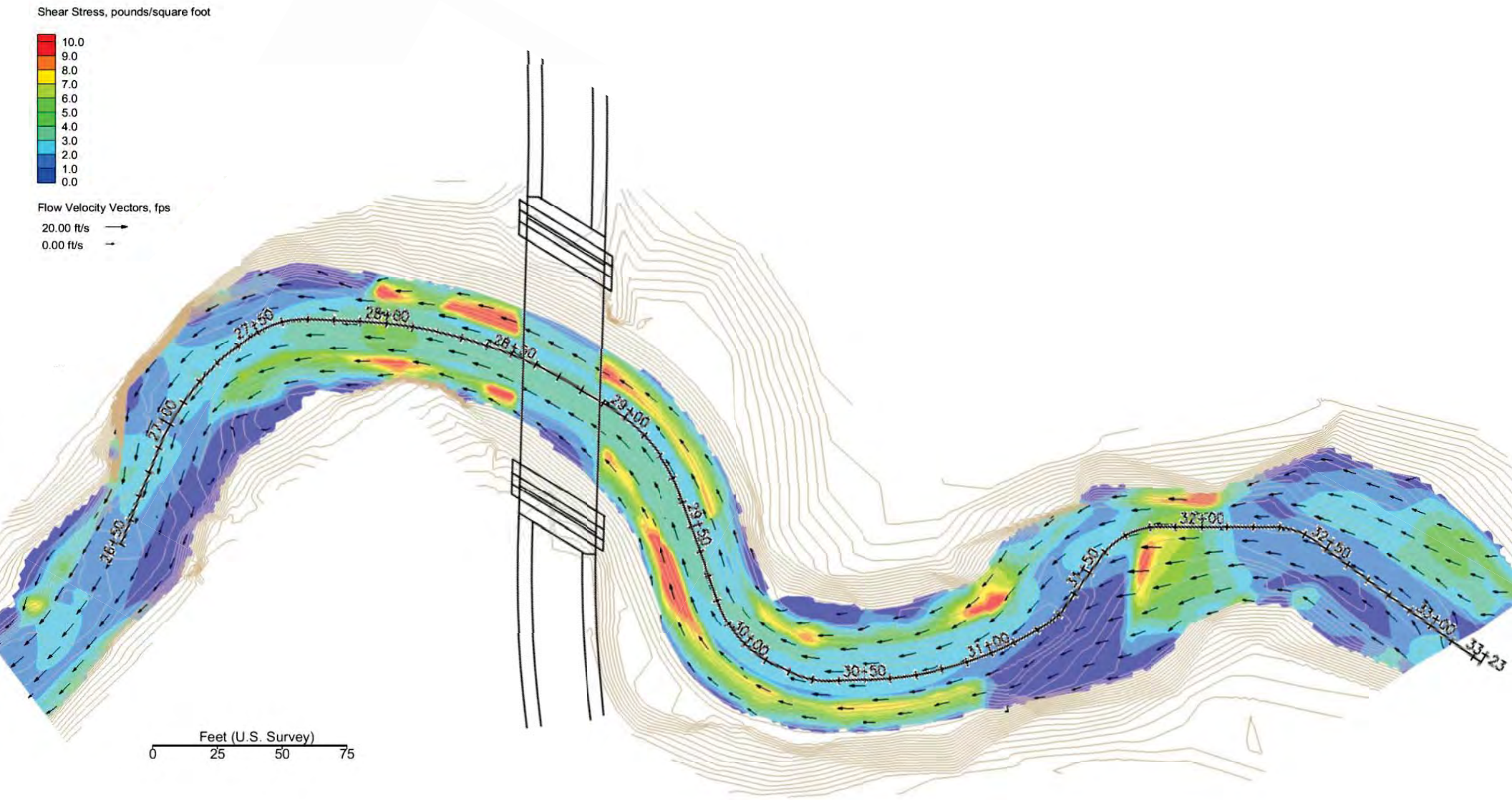
# Proposed Conditions 100-Year Flow Velocity



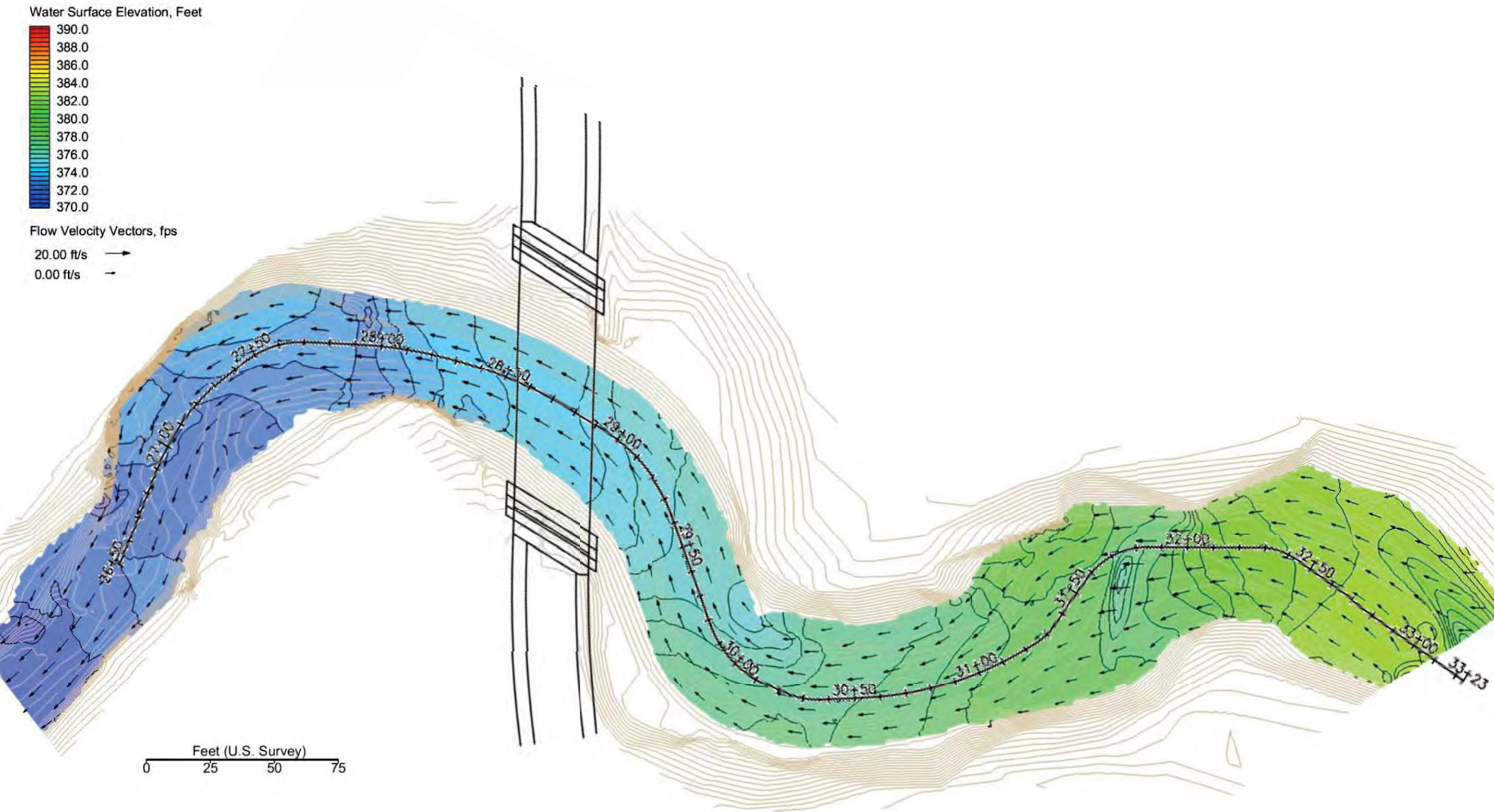
# Proposed Conditions 100-Year Flow Depth

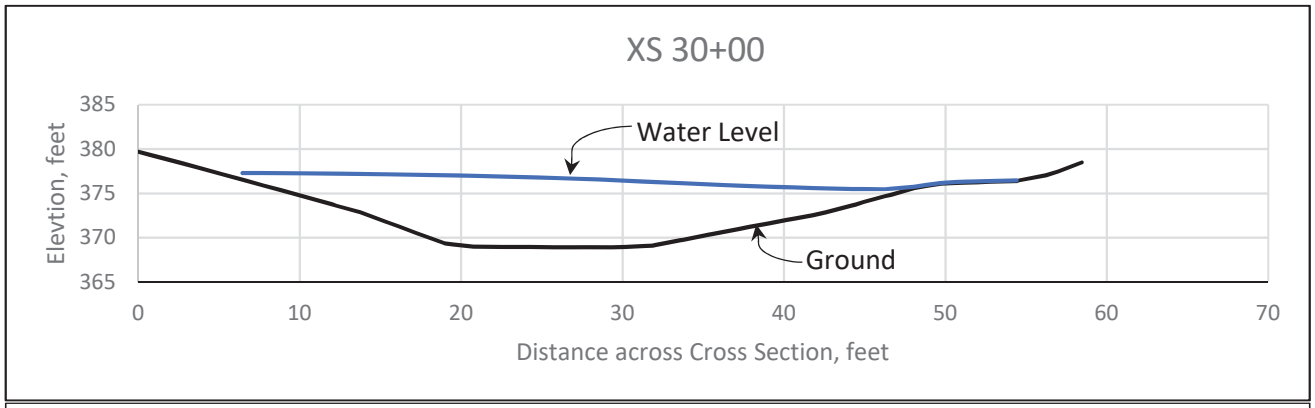


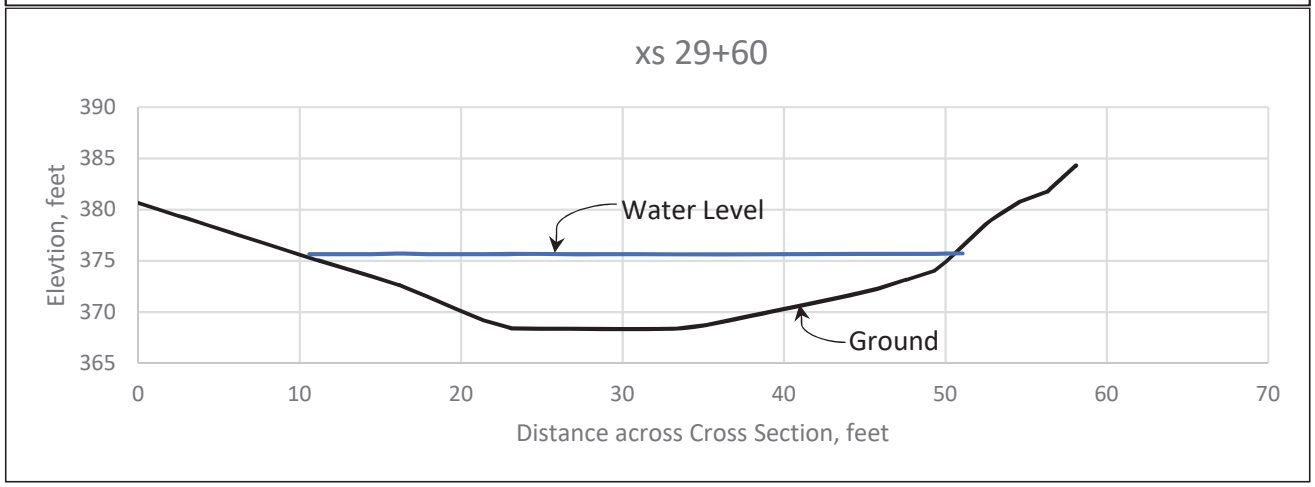
# Proposed Conditions 100-Year Shear

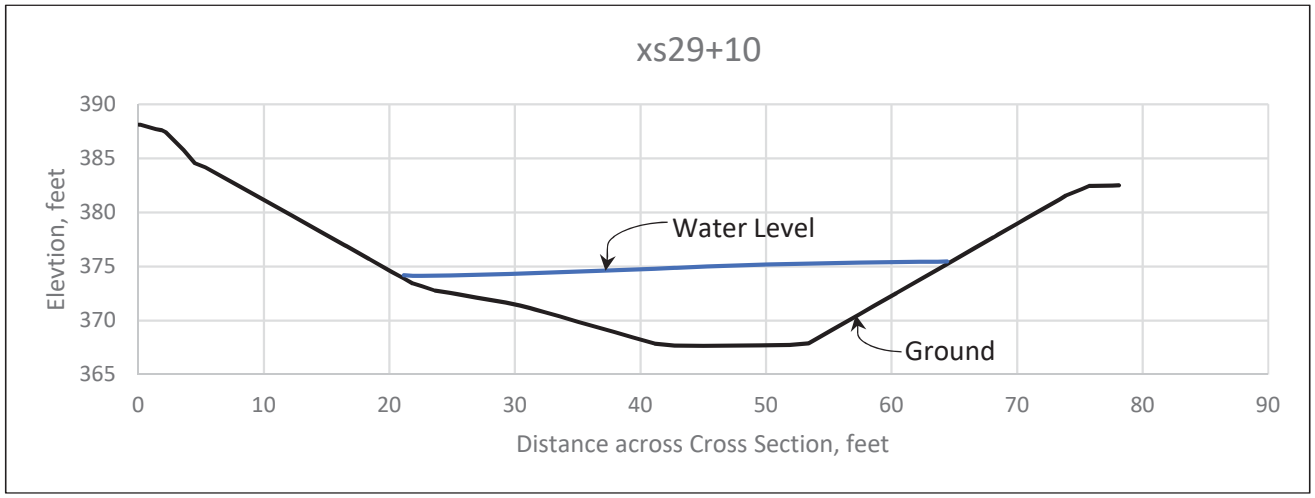


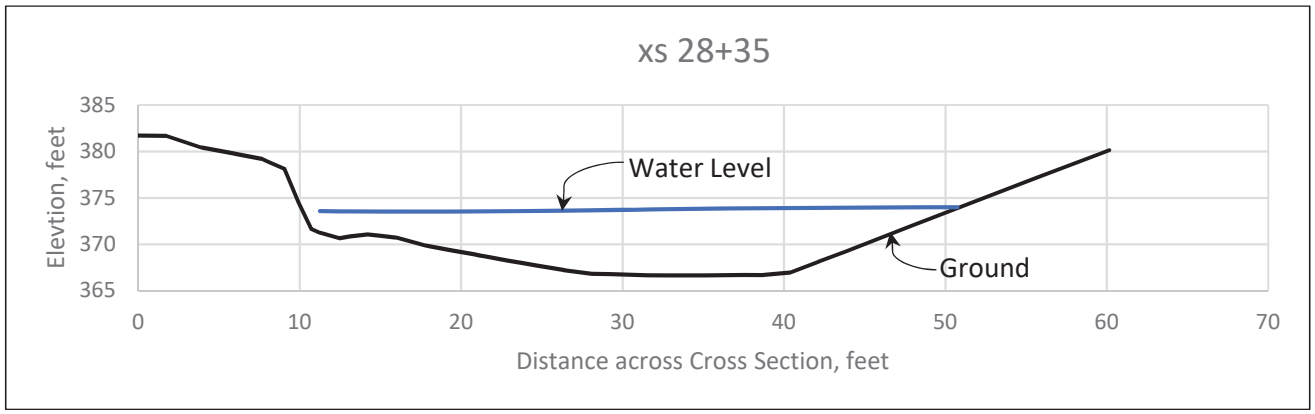
# Proposed Conditions 100-Year WSE






100-year water surface elevations predicted by the proposed-condition 2-D modeling at select cross sections.

# Appendix F – Rock Slope Protection Design

## California Bank and Shore Rock Slope Protection Design

***Methods from: CA Dept. of Transportation, Final Report No. FHWA-CA-TL-95-10, Caltrans Study No. F90TL03***

$$W = \frac{0.00002}{(SG - 1)^3} \frac{V^6}{SIN^3 (r - a)} SG$$

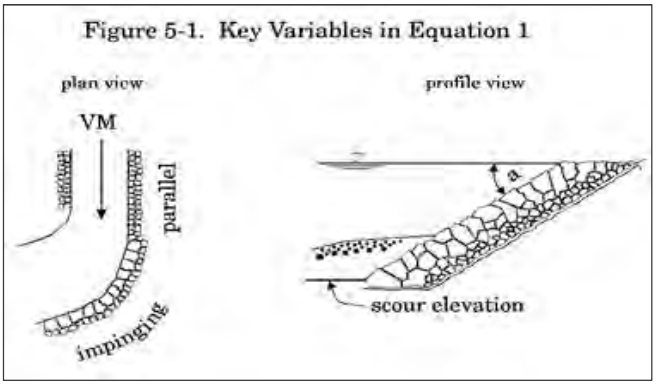
Solve for:
W = Minimum rock weight which resists forces of flowing water and remains stable on slope of stream or river bank, Pounds

**CONSTANTS**

| | | |
|---|---|---|
| Specific Gravity of the rock | SG | 2.65 |
| r = 70 Degrees (for randomly placed rubble) [1.22 Rad] | r | 1.22 |
| Velocity Multiplier:<br>for Parallel flow =0.67 (2/3),<br>for Impinging flow = 1.33 (4/3) | $V_{Multiplier}$ | -- |

| HEC-RAS RIVER STATION: | | 30+78 | 30+18 | 29+87 | | 29+42 | 28+89 | 28+68 | 28+48 |
|---|---|---|---|---|---|---|---|---|---|
| ROCK PLACEMENT LOCATION: | | Approach to Bend Left Bank | Approach to Bend Left Bank | Apex Bend Left Bank | | Bridge Approach Both Banks | US Bridge Face Right Bank | Under Bridge Right Bank | DS Bridge Face, Both Banks |
| **INPUT VARIABLES** | | | | | | | | | |
| **Side Slope Correction Factor** | | | | | | | | | |
| Side Slope | **(h:1v)** | **1.5** | **1.5** | **1.5** | **2.0** | **1.5** | **1.5** | **1.5** | **1.5** |
| Slope (radians) | a | 0.59 | 0.59 | 0.59 | 0.46 | 0.59 | 0.59 | 0.59 | 0.59 |
| **Design Variables** | | | | | | | | | |
| Velocity to which bank is exposed, (fps) | **V** | **8.92** | **10.59** | **9.96** | **10.59** | **9.88** | **7.49** | **7.60** | **8.75** |
| Velocity Multiplier | $V_{Multiplier}$ | **0.67** | **0.67** | **1.33** | **1.33** | **0.67** | **1.33** | **1.33** | **0.67** |
| **RESULTS** | | | | | | | | | |
| **Rock Size** | | | | | | | | | |
| **Min stable rock size (lbs)** | **W** | **3** | **7** | **309** | **285** | **5** | **56** | **61** | **2** |

**NOTES:**
Slope (radians) [1.5:1 =0.59, 2:1=0.46, 3:1 =0.32]



## Stone Stability Calculation

***USACE 1110-2-1601 , 1994. Hydraulic Design of Flood Control Channels, Equation 3-3***

**Equation for sizing riprap for channel bottom and side slopes**

$$D_{30} = S_f C_s C_v C_t d \left[ \left( \frac{\gamma_w}{\gamma_s - \gamma_w} \right)^{1/2} \frac{V}{\sqrt{K_1 g d}} \right]^{2.5} \qquad (3\text{-}3)$$

$$K_1 = \sqrt{1 - \frac{\sin^2 \theta}{\sin^2 \phi}}$$

*and*

$$D_{50} = D_{30} (D_{85}/D_{15})^{(1/3)}$$

| CONSTANTS | | |
|---|---|---|
| Stability Coef. for Incipient Failure (D85/D15 = 1.7 to 5.2)<br>*0.30 = Angular Rock; 0.375 = Rounded Rock* | Cs | 0.30 |
| Vertical Velocity Distribution Coefficient<br>*1.0 = Straight Chnls*<br>*1.283-.2log(R/W) = Outside of Bends*<br>*1.25 = Downstream of Conc. Channels & End of Dikes* | Cv | -- |
| Thickness of Coefficient<br>1.0 = thickness of 1D100 or 1.5D50 (whichever greater) | Ct | 1.0 |
| Gravitational Constant (ft/s^2) | g | 32.2 |
| Unit Weight of Water (lb/cf) | γw | 62.4 |
| Unit Weight of Sediment or Rock (lb/cf) | γs | 165 |

| HEC-RAS RIVER STATION: | | 30+78 | 30+18 | 29+87 | | 29+42 | 28+89 | 28+68 | 28+48 |
|---|---|---|---|---|---|---|---|---|---|
| ROCK PLACEMENT LOCATION: | | Approach to Bend | Approach to Bend | Apex Bend | | Bridge Approach | US Bridge Face | Under Bridge | DS Bridge Face |
| BANK SIDE: | | Left Bank | Left Bank | Left Bank | | Both Banks | Right Bank | Right Bank | Both Banks |
| **INPUT VARIABLES** | | | | | | | | | |
| **Side Slope Correction Factor** | | | | | | | | | |
| Angle of Repose of Riprap (deg)<br>*Normally 40 deg* | ϕ | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 |
| Side Slope | (h:1v) | 1.5 | 1.5 | 1.5 | 2.0 | 1.5 | 1.5 | 1.5 | 1.5 |
| Angle of Side Slope with Horizontal (deg)<br>[1.5:1 = 33.7, 2:1=26.6] | Θ | 33.7 | 33.7 | 33.7 | 26.6 | 33.7 | 33.7 | 33.7 | 33.7 |
| Side Slope Correction Factor | K1 | 0.51 | 0.51 | 0.51 | 0.72 | 0.51 | 0.51 | 0.51 | 0.51 |
| **Design Variables** | | | | | | | | | |
| Depth-Averaged Local Velocity[1] (ft/s) | V | 8.92 | 10.59 | 9.96 | 10.59 | 9.88 | 7.49 | 7.60 | 8.75 |
| Centerline Radius of Bend | R | | | 46.7 | 46.7 | | 67.0 | 67.0 | |
| Water Surface Width | W | | | 49.4 | 49.4 | | 40.4 | 40.4 | |
| Velocity Distrubution Coefficient[2] | Cv | 1.00 | 1.00 | 1.29 | 1.288 | 1.00 | 1.239 | 1.24 | 1.00 |
| Local Depth of Flow (ft) | d | 7.10 | 6.53 | 6.62 | 6.53 | 6.63 | 7.26 | 7.35 | 7.16 |
| Safety Factor | Sf | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| **Rock Gradation** | | | | | | | | | |
| Gradation Ratio<br>(for Calculating D50) | D84/D15 | 1.6 | 1.6 | 1.6 | 1.6 | 1.6 | 1.6 | 1.6 | 1.6 |
| | | | | | | | | | |
| **RESULTS** | | | | | | | | | |
| **D30 Rock** | | | | | | | | | |
| **Rock Diameter (ft)** | D30 | 1.4 | 2.3 | 2.5 | 1.9 | 1.9 | 1.1 | 1.2 | 1.4 |
| **Weight (lb)** [dia. rounded to tenths] | W30 | 237 | 1,051 | 1,350 | 593 | 593 | 115 | 149 | 237 |
| **D50 Rock** | | | | | | | | | |
| **Rock Diameter (ft)** | D50 | 1.7 | 2.6 | 2.9 | 2.2 | 2.2 | 1.3 | 1.4 | 1.6 |
| **Weight (lb)** [dia. rounded to tenths] | W50 | 424 | 1,518 | 2,107 | 920 | 920 | 190 | 237 | 354 |

**NOTES:**

1. *In straight reaches, V = Vave.*

2. *$C_V$ Velocity Distribution Coefficient*

Cv = 1.283-0.2*LOG(R/W)

Cv = 1.0 for straight reaches

## Stone Stability Calculation

***USACE 1110-2-1601 , 1994. Hydraulic Design of Flood Control Channels, Equation 3-5***

**Equation for Sizing Riprap in Steeper Channels for Channel Bottom and Side Slopes**

| | | | |
|---|---|---|---|
| Q100yr: | **1,760** | cfs | |
| Slope of Bed | **0.013** | ft/ft | |
| Water Surface Slope: | 0.012 | ft/ft | *(from HEC RAS)* |

$$D_{30} = \frac{1.95\ S^{0.555}\ q^{2/3}}{g^{1/3}}$$

| HEC-RAS RIVER STATION: | | 30+18 | 29+87 |
|---|---|---|---|
| **INPUT VARIABLES** | | | |
| **Unit Discharge:** | | | |
| Design Flow (cfs): | **Q100yr** | **1,760** | **1,760** |
| Active Channel Bed (Bottom) Width (ft): | ***W*** | **11.5** | **11.5** |
| Unit Discharge of Active Bed (cfs/ft): | ***q*** | 153.04 | 153.04 |
| Flow Concentration Factor (1.25 or greater for skewed approach flow) | | **1** | **1.25** |
| Gradation Ratio (for Calculating D50) | D84/D15 | 1.6 | 1.6 |
| **RESULTS** | | | |
| **D30 Rock** | | | |
| **Rock Diameter (ft)** | **D30** | **1.6** | **1.8** |
| **Weight (lb)** [dia. rounded to tenths] | **W30** | **354** | **504** |
| **D50 Rock** | | | |
| **Rock Diameter (ft)** | **D50** | **1.8** | **2.1** |
| **Weight (lb)** [dia. rounded to tenths] | **W50** | **504** | **800** |

## Scour Depth Calculation

***USACE CHL-98-20 , 1998. Users's Manual for CHANLPRO, Equation (2)***

**Equation for estimating scour depth at riprap toe**

*Ref: Toe-Scour Estimation in Stablized Bendways Maynord (1996a) Equation 16*

SF = Safety Factor (see Table 1) **1.19**

Flow Condition 1760 cfs

Return Interval Q100

| | | US Bend | | Bridge Face |
|---|---|---|---|---|
| **HEC-RAS RIVER STATION:** | | **30+18** | **29+87** | **28+88** |
| ROCK PLACEMENT LOCATION: | | Left Bank | Left Bank | Right Bank |
| **INPUT VARIABLES** | | | | |
| **Section Upstream of Bend** | | | | |
| Main Channel Area (sf) | **A** | **197.4** | **197.4** | **178.1** |
| Main Channel Width (ft) | **W** | **45.5** | **45.5** | **39.7** |
| Avg depth in crossing upstream of bend (ft) | **$D_{mnc}$** | 4.3 | 4.3 | 4.5 |
| **Section at Bend** | | | | |
| Existing water depth in Bend (ft) | **D** | **6.5** | **6.6** | **7.3** |
| Centerline radius of bend main channel (ft) | **R** | **46.7** | **46.7** | **67.0** |
| | | | | |
| R/W Should be limited from 1.5 to 10. (For R/W< 1.5, use 1.5) | **R/W** | 1.03 | 1.03 | 1.69 |
| Aspect ratio $W/D_{mnc}$ from 20 to 125 (For $W/D_{MNC}$ < 20, use 20) | **$W/D_{mnc}$** | 10.47 | 10.47 | 8.86 |
| | | | | |
| **RESULTS** | | | | |
| Max water Depth in Bend (ft) | **$D_{mxb}$** | 9.48 | 9.48 | 9.54 |
| **Scour Depth (ft)** | **$D_{scr}$** | **2.95** | **2.86** | **2.28** |
| | | | | |
| *ALTERNATIVE for R/W =1.5, and W/Dmnc=20* | ***$D_{mxb}$*** | *9.8* | *9.8* | *10.1* |
| *Scour Depth (ft)* | *$D_{scr}$* | *3.24* | *3.15* | *2.83* |

Notes:

*Based on flows with 1 to 5 year return interval or overbank depth less than 20% of channel depth*

*$D_{mnc}$ should be based on flow in main channel only*

*SF of 1.14 is recommended by USACE. For 1.14, 5% of the observed data will have a scour depth deeper than the predicted depth. A threshold of 5 percent difference between predicted and observed is used (D/D = 0.95).*

Appendix B:
Farmlands Study for the Robinson Creek Bridge Replacement on Lambert Lane Project

gallaway ENTERPRISES

117 Meyers Street • Suite 120 • Chico CA 95928 • 530-332-9909

August 18, 2020

Caltrans District 1 – Environmental Stewardship Branch
ATTN: Brandon Larsen, Senior Environmental Planner
1656 Union Street
Eureka CA 95501

**RE: Farmlands Study for the Robinson Creek Bridge Replacement on Lambert Lane Project**

Mr. Larsen;

The Mendocino County Department of Transportation (County) has reviewed the Robinson Creek Bridge Replacement on Lambert Lane Project (Project) to determine if there is potential for impact to adjacent agricultural lands from the Project's proposed construction activity. Specifically, this study focused on farmland of prime, unique, and local important farmland within the proposed project.

The purpose of the project is to replace the existing, functionally obsolete and scour critical single span bridge over Robinson Creek. The Project site is located in the town of Boonville as is surrounded by homes and commercial development, riparian woodland, and grazing land. Robinson Creek is an intermittent drainage that flows through the site. The project will not result in permanent or temporary impacts to prime, unique, or locally important farmland; therefore, a Form AD 1006 is not required. The Project's offsite staging area, located at the County Fairgrounds, is designated as grazing land and will be temporarily impacted during construction (**Figure 1**).

Additionally, none of the parcels within the Project boundary are enrolled under the Williamson Act; therefore, there will be no effect on the eligibility for the Williamson Act program (**Figure 2**).

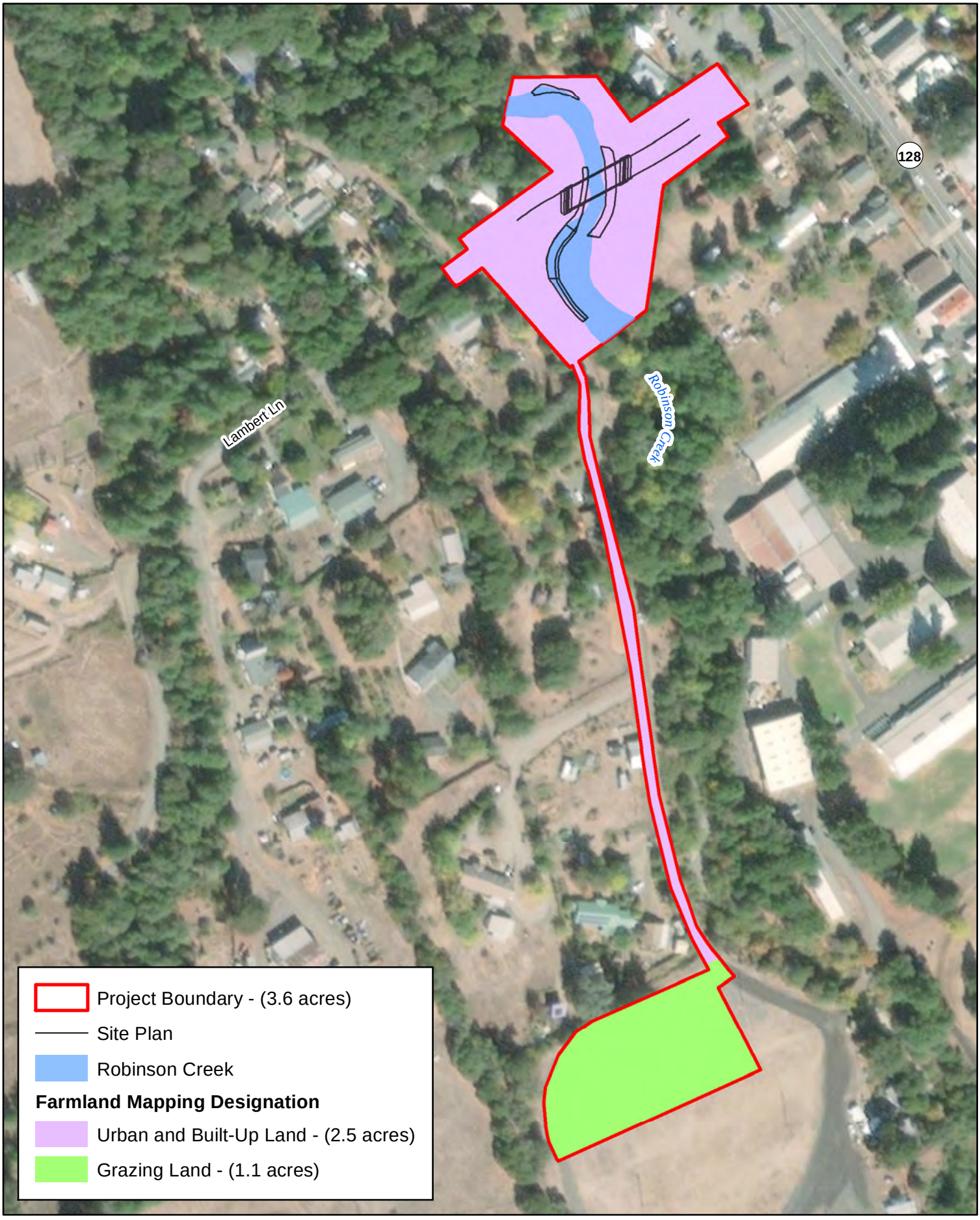
The Project will have no effect on farmland or lands under Williamson Act Contracts.

Regards,

Melissa Murphy

Melissa Murphy
Senior Biologist
melissa@gallawayenterprises.com

Enclosed: Figure 1: Farmland Designations
Figure 2: Williamson Act Lands 2012-2013




1:2,200

0 150 300 Feet

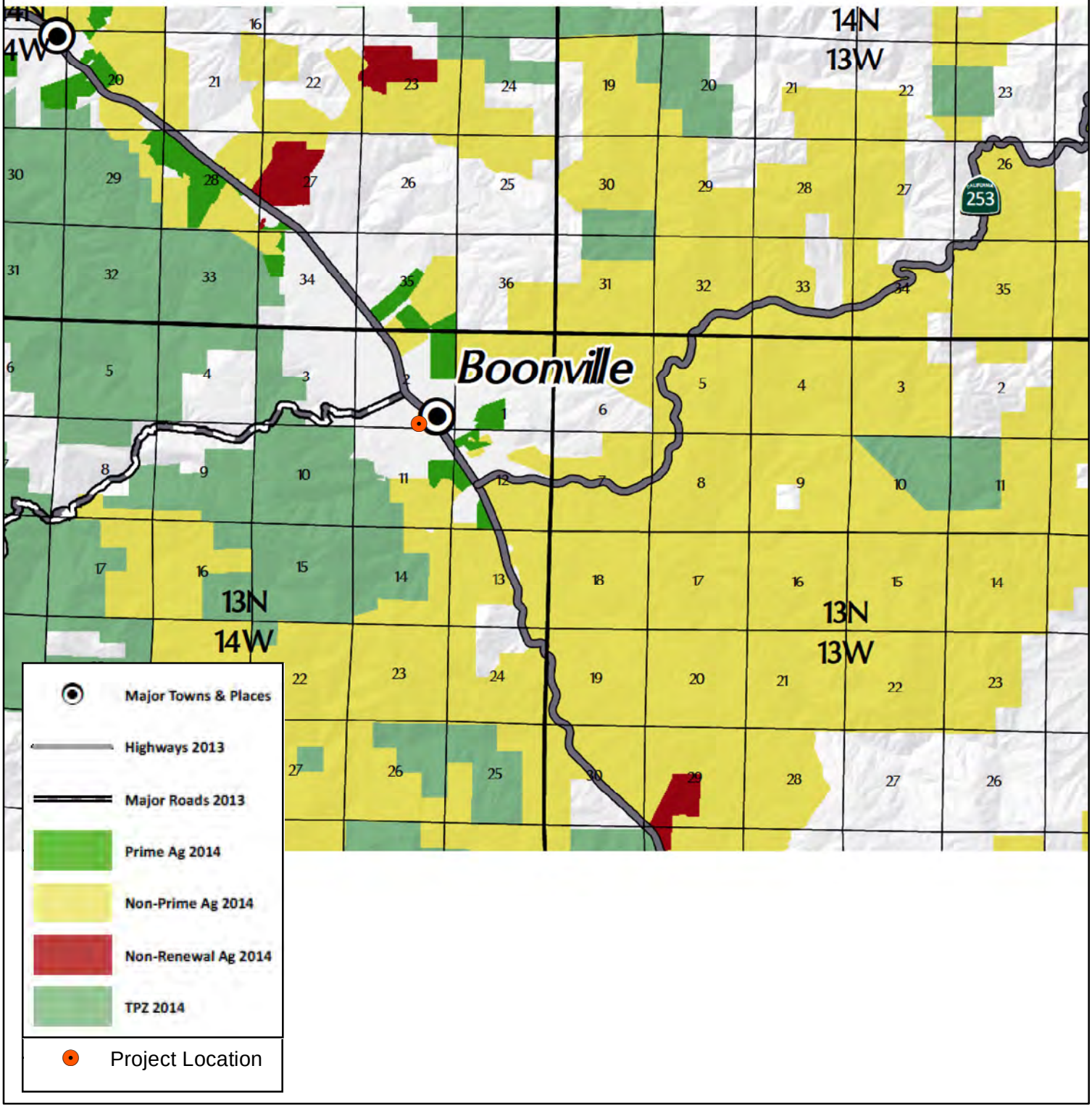
NORTH

Data Sources: ESRI, Quincy Engineering, California Department of Conservation, Maxar 10/21/2019

Robinson Creek Bridge Replacement Project
Farmland Impacts Assessment
Figure 1

gallaway ENTERPRISES

GE: #15-130 Map Date: 08/18/2020




1:9,000

0 200 400 Feet

NORTH

Data Sources: ESRI, Mendocino County

Robinson Creek Bridge Replacement Project
Williamson Act Map
Figure 2

gallaway ENTERPRISES

GE: #15-130 Map Date: 08/19/2020

Appendix C:
Natural Environment Study Robinson Creek Bridge Replacement on Lambert Lane

# ROBINSON CREEK BRIDGE REPLACEMENT ON LAMBERT LANE



# Natural Environment Study

Boonville, Mendocino County, California

Section 2, Township 13N, Range 14W

Boonville, CA Quadrangle

District 1

Bridge No. 10C0146

BRLO-5910(099)

**March 2019**

**Revised December 2020**

Caltrans
CALIFORNIA DEPARTMENT OF TRANSPORTATION

# Natural Environment Study

Section 2, Township 13N, Range 14W
Boonville, CA Quadrangle
Caltrans District 1

Federal Project Number BLO-5910(099)

Prepared By: Melissa Murphy Date: 12/8/20

Melissa Murphy, Senior Biologist
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Approved By: Christa Unger Date: 01/28/21

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District 1

Approved By: Darrell Cardiff Date: 01/28/2021

Darrell Cardiff, Sr. Environmental Planner
Caltrans Office of Local Assistance
District 1

For individuals with sensory disabilities, this document can be made available in Braille, in large print, on audiocassette, or on computer disk. To obtain a copy in one of these alternate formats, please call or write to Department of Transportation, Attn: Larry E. Planner, Environmental Planning, 50 Higuera Street, San Luis Obispo, CA 93401; (805) xxx-xxxx (Voice), or use the California Relay Service (800) 735-2929 (TTY to Voice), (800) 735-2922 (Voice to TTY) or 711.

## Summary

Mendocino County (County) and the California Department of Transportation (Caltrans) are proposing to replace the Robinson Creek Bridge on Lambert Lane. The Robinson Creek Bridge Replacement on Lambert Lane Project (Bridge No. 10C0146) (Project) is located in the town of Boonville, California on the western edge of the Anderson Valley. Lambert Lane is the only public road access in and out of a residential and agricultural area. The existing bridge has been designated as functionally obsolete and scour critical by Caltrans, qualifying it for rehabilitation or replacement under the federal Highway Bridge Program (HBP). In winter of 2015, a retaining wall on the upstream side of the west approach washed out and collapsed into the creek causing the County to place revetment to prevent continued scouring and erosion. During the winter of 2016/2017 scour further undermined the eastern abutment footing. Under current conditions, the failed retaining wall and associated riprap creates a 3-foot water surface drop, which classifies the current conditions as a barrier to adult and juvenile steelhead based on California Department of Fish and Wildlife (CDFW) fish passage assessment guidelines (CDFG, 2002). The purpose of the Project is to replace the deficient bridge with a reliable structure to provide a safe crossing that meets current standards. Channel restoration will also take place as part of the Project and will include removing the collapsed retaining wall which will restore fish passage to the upstream reaches of Robinson Creek, protecting portions of the embankment slopes from erosion with hybrid rock slope protection revetment, channel grading to remove abrupt hydraulic changes, adding point bars along portions of the creek banks, and mitigating for the removal of riparian trees with like-kind plantings to be included as part of bank protection and restoration (Michael Love & Associates, Inc. 2018). Construction will take place from June 15 through October 15. If water is present within the project area, then fish relocation will be performed by a qualified biologist. Installation of a clear water diversion may be required. There is no pile driving proposed as part of this project; therefore, acoustical impacts to northern California (NC) steelhead Distinct Population Segment (DPS) (*Oncorhynchus mykiss irideus*) were not analyzed as part of this Natural Environment Study.

Land within the Biological Study Area (BSA) is characterized as barren, urban, riverine, annual grassland, valley-foothill riparian and valley oak woodland habitats. Special-status species that have the potential to occur within the BSA include the state Species of Special Concern (SSC) western pond turtle (*Actinemys marmorata*), Navarro roach (*Lavinia symmetricus navarroensis*), and foothill yellow-legged frog northwest/north coast clade

(FYLF, *Rana boylii*), the federally threatened NC steelhead DPS, tree roosting bat species protected by the California Fish and Game Code (CFGC), and a variety of bird and raptor species protected by the Migratory Bird Treaty Act. In addition, Robinson Creek is designated as critical habitat for the NC steelhead DPS and for the Central California Coast Coho salmon Evolutionary Significant Unit (ESU) (*Oncorhynchus kisutch*). The Project site falls within an area mapped by the National Marine Fisheries Service (NMFS) as potentially containing Essential Fish Habitat (EFH) for California Coastal Chinook salmon ESU (*Oncorhynchus tshawytscha*) and Central California Coast Coho salmon ESU; however, these species are not known to occur in Robinson Creek.

With the implementation of avoidance and minimization measures including construction timing, impacts to western pond turtle, Navarro roach, FYLF, roosting bats, or nesting birds will be minimal. This Project may affect and is likely to adversely affect the NC steelhead DPS through potential relocation efforts conducted by the qualified biologist. California Coastal Chinook salmon ESU and Central California Coast Coho salmon ESU are not known to occur within Robinson Creek; therefore, the Project will have no effect on these species. This Project is not likely to adversely modify critical habitat or EFH. The Project will result in a net benefit and be self-mitigating for impacts to critical habitat and EFH through onsite restoration and restored access to the upper reaches of Robinson Creek. Approximately 201.6 linear feet (0.14 acres) of temporary impacts and 93.1 linear feet (0.01 acres) of permanent impacts to NC steelhead DPS and Central California Coast Coho salmon ESU critical habitat within the BSA are proposed; however, the removal of the existing fish barrier upstream of the bridge will restore fish passage to 0.25 acres of critical habitat within the BSA.

The Project will result in 0.28 acres of temporary and 0.06 acres of permanent impacts to jurisdictional waters of the U.S. (WOTUS). This Project is self-mitigating as both temporary and permanent impacts will have a net benefit to WOTUS; therefore, the purchase of credits at a U.S. Army Corps of Engineers (Corps) approved mitigation bank or payment to a Corps approved in-lieu fund, will not be required. Impacts will be the result of restoration activities including removing the failed retaining wall and associated rock slope protection (RSP) from the creek, streambank stabilization through hybrid RSP revetment, vegetation of created point bars, and habitat enhancement. A Regional Water Quality Control Board (RWQCB) §401 Water Quality Certification permit, a California Department of Fish and

Wildlife (CDFW) §1602 Streambed Alteration Agreement, and a Corps Nationwide §404 permit shall be obtained for the project.

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# List of Abbreviated Terms

| | |
|---|---|
| BSA | Biological Study Area |
| BMP | Best Management Practices |
| CC | California Coastal |
| CCC | Central California Coast |
| Cal-IPC | California Invasive Plant Council |
| Caltrans | California Department of Transportation |
| CDFW | California Department of Fish and Wildlife |
| CEQA | California Environmental Quality Act |
| CESA | California Endangered Species Act |
| CFGC | California Fish and Game Code |
| CIDH | Cast-In-Drilled-Hole |
| CNDDB | California Natural Diversity Database |
| CNPS | California Native Plant Society |
| Corps | United States Army Corps of Engineers |
| County | Mendocino County |
| CRPR | California Rare Plant Rank |
| CWA | Clean Water Act |
| DBH | Diameter at Breast Height |
| DPS | Distinct Population Segment |
| EFH | Essential Fish Habitat |
| EPA | Environmental Protection Agency |
| ESA | Endangered Species Act |
| ESU | Evolutionarily Significant Unit |
| GIS | Geographic Information System |
| HBP | Highway Bridge Program |
| IPaC | Information for Planning and Conservation |
| LWD | Large Woody Debris |

| | |
|---|---|
| MBTA | Migratory Bird Treaty Act |
| MLA | Michael Love & Associates, Inc. |
| MSA | Magnuson-Stevens Fishery Conservation and Management Act |
| NC | Northern California |
| NEPA | National Environmental Quality Act |
| NES | Natural Environmental Study |
| NOAA | National Oceanic and Atmospheric Administration |
| NMFS | National Marine Fisheries Service |
| NPDES | National Pollutant Discharge Elimination System |
| NRCS | Natural Resource Conservation Service |
| OHWM | Ordinary High Water Mark |
| RPW | Relatively Permanent Water |
| RSP | Rock Slope Protection |
| RWQCB | Regional Water Quality Control Board |
| SR | State Route |
| SSC | State Species of Special Concern |
| USDA | United States Department of Agriculture |
| USFS | United States Forest Service |
| USFWS | United States Fish and Wildlife Service |
| USGS | United States Geological Survey |
| WOTUS | Waters of the United States |

# 1 Introduction

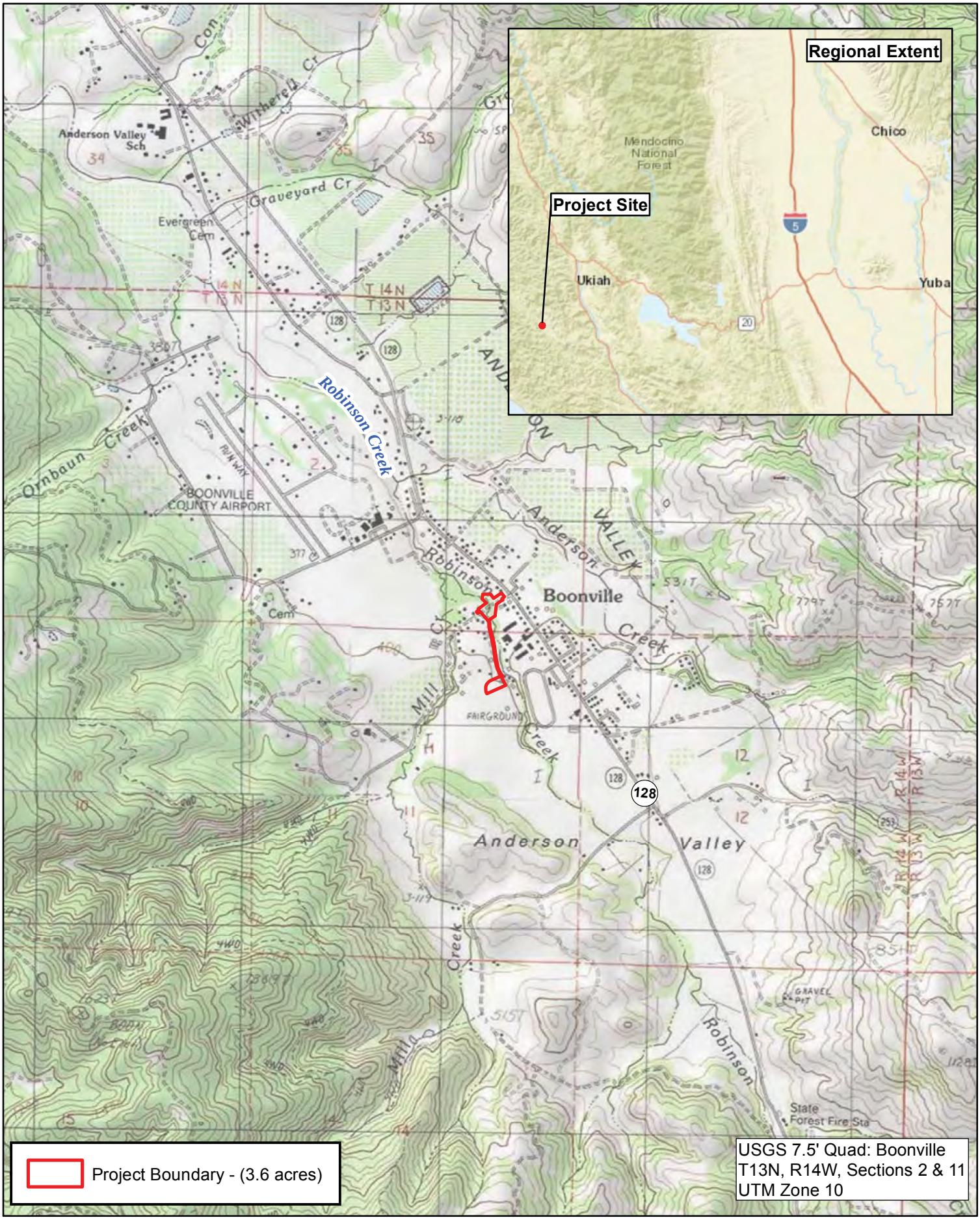
The purpose of the Robinson Creek Bridge Replacement on Lambert Lane Project (Bridge No. 10C0146) (Project) is to replace the existing Robinson Creek Bridge on Lambert Lane to provide the public with a safe, reliable crossing and improve traffic operations (**Figure 1: Regional Location Map, Figure 2: Project Location Map**). This Project is needed because the existing bridge has been designated as functionally obsolete and scour critical by the California Department of Transportation (Caltrans), due to the undermining of the spread footing foundations and collapse of a retaining wall. The purpose of this Natural Environment Study (NES) is to evaluate potential Project impacts to special-status species and their habitats within the Project vicinity.

## Project History

The Project is located in the town of Boonville, California on the western edge of the Anderson Valley (**Figure 1**). The existing bridge was constructed on Lambert Lane over Robinson Creek in 1954. Lambert Lane is the only public access road in and out of a residential and agricultural area. The existing 32-foot long single span bridge is comprised of a concrete deck slab supported on tall closed strutted abutments founded on spread footings. The existing bridge has been designated as functionally obsolete and scour critical by Caltrans, qualifying it for rehabilitation or replacement under the federal Highway Bridge Program (HBP). In winter of 2015, a retaining wall on the upstream side of the west approach washed out and collapsed into the creek causing Mendocino County (County) to place revetment to prevent continued scouring and erosion. In the winter of 2016/2017, scour further undermined the eastern abutment footing along its entire length and reinforcing steel is exposed. The purpose of the Project is to replace the deficient, unstable bridge with a reliable structure to provide a safe crossing that meets current standards. The Project is funded through the HBP with matching funds from Federal Toll Credits. Caltrans will be the lead agency for National Environmental Policy Act (NEPA) compliance through delegation from the Federal Highway Administration (FHWA) and the County, the owner of the Project, will be the lead agency for California Environmental Quality Act (CEQA) compliance.

**FISH PASSAGE**

A fish passage assessment of stream crossings was conducted by Ross Taylor and Associates (Taylor 2001). Because the Lambert Lane bridge is a channel spanning crossing, it was considered to provide unimpeded fish passage and was not included in the assessment. However, under current conditions, the failed retaining wall and associated riprap creates a




1:24,000
0 1,000 2,000 Feet
NORTH
Data Sources: ESRI, USGS, Quincy Engineering

Robinson Creek Bridge Replacement Project
Regional Location
Figure 1

gallaway ENTERPRISES

GE: #15-130 Map Date: 01/31/19




NORTH

1:2,200
0 50 100 Feet

Data Sources: ESRI, DigitalGlobe
10/31/17, USGS, Quincy Engineering

Robinson Creek Bridge Replacement Project
Project Location
Figure 2

gallaway ENTERPRISES

GE: #15-130 Map Date: 01/30/19

3-foot water surface drop, which classifies the current conditions as a barrier to adult and juvenile steelhead based on California Department of Fish and Wildlife fish passage assessment guidelines (CDFG, 2002). Channel restoration designs for the site should satisfy current fish passage standards, as described in CDFG (2009) and NMFS (2001) guidelines.

## GEOMORPHIC CHANNEL CONDITIONS

Changing geomorphic conditions within Robinson Creek and downstream Anderson Creek have been noted for decades. Channel incision (lowering of the channel bed) and channel bank erosion along Robinson Creek was noted as a significant source of sediment production within the 1998 Navarro River Watershed Restoration Plan. Incision has caused scour and undermining of bridge foundations, leading to the replacement of the State Route (SR) 128 crossing of Anderson Creek immediately upstream of the confluence of Robinson Creek and replacement of the Mountain View Road bridge crossing over Robinson Creek, downstream of Lambert Lane. Also, channel widening associated with incision processes has caused severe bank erosion threatening adjoining structures and resulting in loss of mature riparian vegetation throughout lower Robinson Creek.

The Mendocino County Resource Conservation District (RCD) and the Mendocino County Water Agency conducted studies of channel conditions to characterize the ongoing channel adjustments in Robinson Creek, focusing on the reach from the confluence with Anderson Creek to the Mendocino County Fair Grounds upstream of Lambert Lane. This included conducting profile surveys of the channel thalweg and surveys of channel cross sections in 2005 to document the channel morphology. Florsheim (2006) prepared a baseline assessment of bio-geomorphic conditions within lower Robison Creek for the RCD and identified channel incision as the dominant process causing the observed channel instabilities. Follow-up monitoring surveys of the lower Robinson Creek channel thalweg were conducted in 2008, which found the channel showed signs of aggradation near the confluence with Anderson Creek, but also showed signs of incision within a reach between Mountain View Road and Lambert Lane bridge crossings (Florsheim, 2008). These findings were further described in a 2013 peer-reviewed publication (Florsheim et al., 2013). The RCD provided the original data from the 2005 and 2008 county surveys to MLA to compare to current channel conditions at the Lambert Lane bridge replacement Project.

## Project Description

**BIOLOGICAL STUDY AREA**

The Biological Study Area (BSA) is the area in which biological surveys are conducted and where all construction and staging will occur (**Figure 3: Biological Study Area**). The BSA for this Project encompasses the bridge construction and stream restoration zone as well as the potential off-site staging area located at the County Fairgrounds. The BSA is a total of 3.6 acres.

**PROPOSED PROJECT**

The proposed Project will replace the existing Robinson Creek Bridge on Lambert Lane, approximately 400 feet west of SR 128 (**Figure 2**). The existing structure is 32 feet long and 26 feet wide with closed strutted abutments founded on spread footings on erodible alluvial material. This bridge has a history of scour issues and a scour hole that has undermined the integrity of the easterly bridge abutment. There are deficiencies in the bridge width, superstructure and substructure conditions. The replacement bridge will have 9-foot lanes and 5-foot shoulders in each direction resulting in a wider structure which meets safety standards.

In addition to the bridge replacement, portions of the stream channel upstream and downstream of the bridge, as well as a localized downstream streambank scour area adjacent to the Boonville Hotel, will be stabilized according to the Robinson Creek Channel Design for the Lambert Lane Bridge Replacement Project prepared by Michael Love & Associates, Inc. (MLA). The channel restoration is intended to provide geomorphically stable channel geometry while protecting the roadway embankment and vulnerable streambanks with hybrid rock slope protection (RSP) revetments where required due to risk of scour and lateral channel migration.

**CONSTRUCTION METHODS AND ACCESS**

The preferred construction method will be to build a replacement bridge on the existing alignment and provide a temporary detour. Based on Lambert Lane being the only public road access to approximately 30 parcels, it is necessary to keep at least one lane of traffic open during construction. Due to the instability of the existing bridge, a temporary bridge is proposed to be erected offset from the existing bridge to pass traffic around bridge construction operations within the Project site and avoid a road closure. This temporary bridge will either be a Bailey Bridge sourced from Mendocino County or a Contractor furnished temporary bridge structure.

A long span steel plate girder bridge will be constructed within the existing bridge alignment and can be fabricated in shorter lengths to facilitate transport and then assembled on-site




NORTH

1:2,200
0 100 200 Feet

Data Sources: ESRI, Quincy Engineering, DigitalGlobe 10/31/17

Robinson Creek Bridge Replacement Project
Biological Study Area
Figure 3

gallaway ENTERPRISES

GE: #15-130 Map Date: 01/31/19

(**Figure 4**). This bridge option will have a shorter construction time and will minimize impacts to the creek since it does not require falsework in the creek. Additionally, this long span bridge option provides the ability to improve the alignment of the creek to minimize future potential scour issues by increasing the channel opening and providing a softer and more gradual turn of the creek. Weathering steel will be utilized to minimize future maintenance efforts and costs. Significant changes to the vertical profile are not anticipated as the existing and replacement bridge option provide adequate hydraulic freeboard. The structure depth will be 4 feet 9 inches.

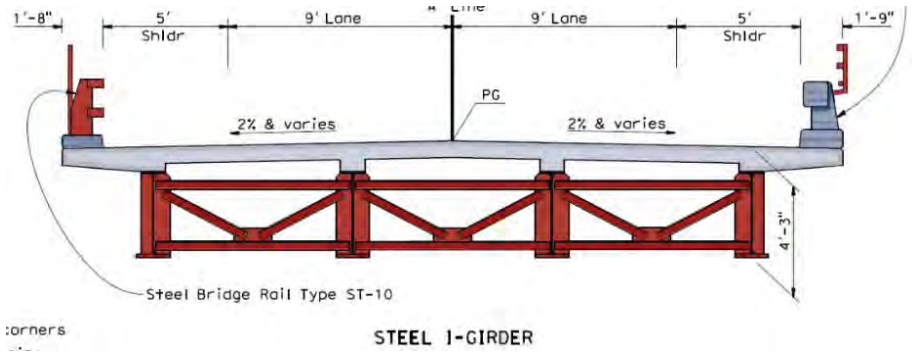



**Figure 4. Long Span Prefabricated Steel Plate Girder Bridge Design Cross-Section**

Deep foundation systems, drilled piles, will be required due to the presence of unconsolidated channel alluvium substrate. Pile type is Cast-In-Drilled-Hole (CIDH) piles. The foundation type for the retaining walls will be the same as for bridge abutments. It is anticipated that temporary shoring will be required during bridge construction.

The installation of a clear water diversion may be necessary. If required, the clear water diversion will be constructed of one appropriately sized culvert and cofferdam constructed of visqueen plastic, clean river gravel, and sandbags (**Appendix G**)

Geomorphic Channel Conditions Within the Project Area and the Proposed Bridge Structure

Lambert Lane crosses Robinson Creek approximately 2,860 linear feet upstream of the confluence with Anderson Creek and 400 feet west of SR 128. The existing bridge crossing is at the inflection of a tight meander bend and the channel alignment has been constrained by the roadway embankment. The proposed replacement bridge has a free span of approximately 91 feet, while the existing bridge span is only 32 feet. The increased span is in-part intended to facilitate an improved alignment with the channel by decreasing the sharpness of the meander bend. A constraint to realigning the channel was the preservation

of large established trees along the right bank upstream and downstream of the crossing, including an 8-foot diameter heritage oak tree close to the existing right bank of the channel upstream of the bridge. The proposed alignment moves the approach channel further to the right (looking downstream) and has a sinuosity of 1.2 (valley length to channel length).

Stream Channel Restoration Geomorphic Characterization

It is proposed that portions of the embankment slopes will be protected from erosion with RSP and that willow plantings will also be included as part of bank protection and restoration. Channel grading will minimize abrupt hydraulic constrictions and areas of focused high velocities (**Figure 5**). The proposed riprap revetments upstream and downstream of the bridge crossing and downstream by the Boonville Hotel are to be vegetated with live willow cuttings following Caltrans "hybrid revetment" design. Further, this Project will include removing the rubble and reconfiguring the RSP that covers the creek bottom, restoring the channel to a more natural condition and restoring fish passage to sections of Robinson Creek above the failed retaining wall. Channel restoration designs for the site will satisfy current fish passage standards, as described in CDFG (2009) and NMFS (2001) guidelines (**Appendix A: Robinson Creek Channel Design Report**).

The channel configuration and extent of grading was influenced by the goal of preserving trees. The first design consideration was to minimize the removal of larger oak and bay trees. Planting the RSP with willow stakes and site revegetation is intended to offset temporary loses, as willows grow quickly. Large woody debris (LWD) will be placed along the inside bend in the upstream right bank between station 29+60 and 31+100, and on the downstream left bank around station 28+00. Removed trees to be used as LWD will be a minimum of 15 feet long and have a 16-inch diameter at breast height (DBH). A plan sheet showing the location of LWD placement in the restored stream will be included in the final design. Anchoring details will be included on the LWD plan sheet and at a minimum will include the construction details shown on the example plan sheet provided as **Appendix F.**

The stream channel component of the Project was designed using the stream simulation approach outlined in Part XII of the California Salmonid Stream Habitat Restoration Manual (CDFG, 2009) and by the United States Forest Service (USFS) (2008). The stream simulation approach is a geomorphically-based approach that requires a channel-spanning crossing structure with adequate capacity to convey the 100-year flow. The channel grading should

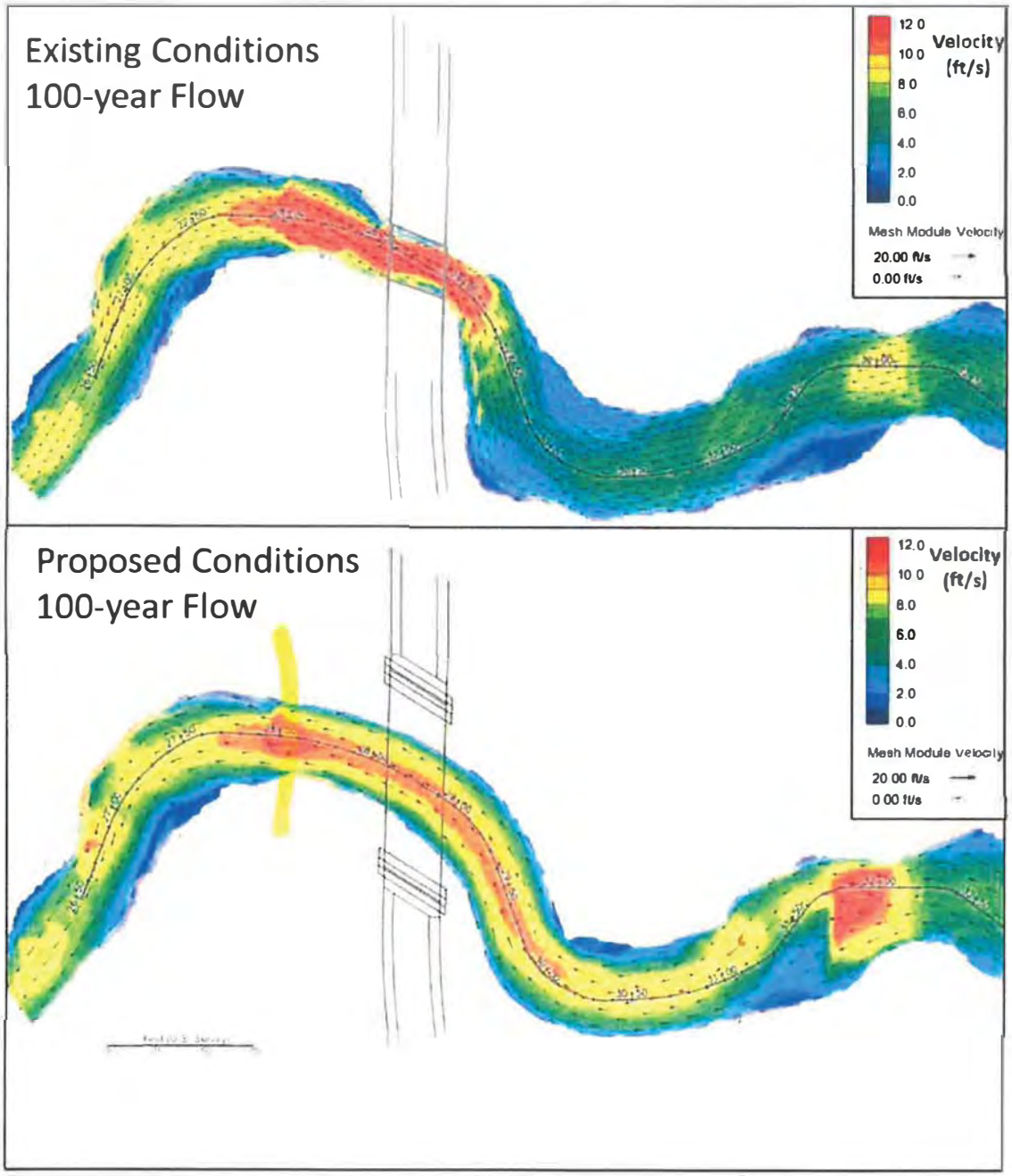



**Figure 5. Predicted water velocities associated with the 100-year flow of 1,750 cfs for existing and proposed.**

seamlessly connect with the upstream and downstream channel profiles and the streambed should be composed of native material that is as mobile as bed material within the adjacent channel reaches. The approach relies on using the adjacent stream channel as a geomorphic reference for design of the crossing and channel bed. The approximate volume of streambed material to be stockpiled and placed back in the channel is 1,200 cubic yards. All this material will be salvaged streambed material from the project stream reach. No imported material will be brought in for this use.

Hybrid Revetment Design

Incorporating vegetation into the streambank revetment has the beneficial effects of improving stream ecology, increasing soil strength and providing flow resistance, although it can be unpredictable over the long term (Caltrans 2014). Established vegetation will provide cover, shade the channel and provide nutrients to the stream. As root systems establish, they can support the banks by providing resistance to scour and bind the soils and rock placed along the bank.

Caltrans has developed recommendations for the use of a "hybrid revetment" that incorporates vegetation into RSP to provide the benefits of stream side vegetation while managing its uncertainties. The intent is to balance the engineering benefit of armoring a bank while promoting ecological processes. The hybrid RSP design consists of the standard RSP design as described above, with the addition of live willow staking that penetrates the rock layers and allows rooting into the native bank soils.

Species most commonly used as live stakes are native willow and cottonwood trees. Plantings are placed either vertical or perpendicular to the slope face and must be long enough to extend through to the subbase and into moist soil. Placement of live stakes is done in conjunction with rock placement. To provide protection to the live stakes during rock placement, cuttings should be placed into perforated cardboard tubes that are embedded into the subgrade and extend through the layered RSP. Cardboard is preferred as it can degrade over time and not hinder the growth of the cuttings. Growing medium is placed within the cardboard tubes to provide direct soil contact. Additionally, voids within the placed riprap should be filled with salvaged soil to further promote root growth within the layered RSP.

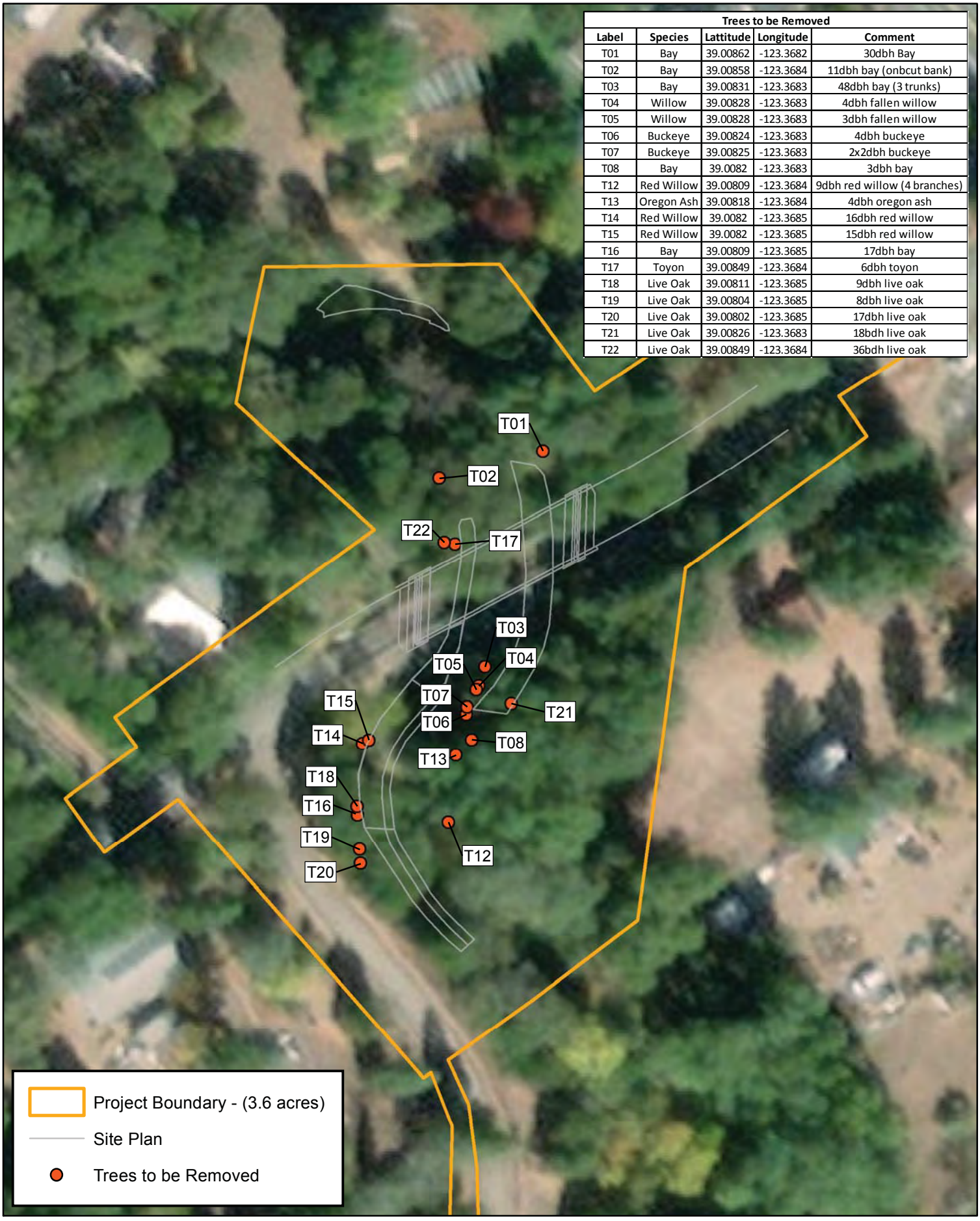
For Robinson Creek, it is assumed cutting shall be made from native willow species. Stakes may need to be as long as 12 feet and should be placed vertically to maximize their rooting depth, with the butt of the live stake at or near summer groundwater levels. The willow

plantings will start at bankfull, 2.3 feet above the finished channel bed, and extend up the RSP revetment. To ensure good establishment, the live stakes should be irrigated for a minimum of two seasons.

Based on the proposed channel grading, 19 trees will be removed (**Figure 6**). In addition to the plantings contained within the hybrid RSP revetment, native vegetation would be planted on the graded point bars on the inside of the channel bends. This vegetation should include native riparian tree species, as well as understory plants. In addition to the planting areas close to the channel, the Project will create a terrace behind the RSP adjacent to the road embankment at the southern bridge approach. This terrace will be used to plant upland tree species, such as native oaks.

Channel incision, channel bank erosion, and channel widening associated with incision processes has caused severe bank erosion, resulting in loss of mature riparian vegetation throughout lower Robinson Creek. Though the riparian trees to be removed as a result of the Project are likely important components of northern California (NC) steelhead Distinct Population Segment (DPS) and Central California Coast (CCC) Coho salmon Evolutionary Significant Unit (ESU) critical habitat, current conditions have degraded the overall quality of the critical habitat. The Project proponent proposes to replant up to 355 trees, at a 18:1 ratio, in an effort to restore the creek and mitigate potential impacts to Essential Fish Habitat (EFH) critical habitat. Robinson Creek and its associated riparian vegetation will be restored to a net benefit to NC steelhead and the critical habitat present. The following are the preliminary estimates of trees to be replanted. Upon final design, a qualified landscape architect or botanist should be consulted to determine spacing and placement, species types, and any other factors appropriate to the site. The landscape architect or botanist shall provide provisions for harvesting and storage of cutting stock and irrigation design. A landscape architect or botanist shall be retained to ensure revegetation has a high potential for success.

**Planted RSP (3,010 sf):**
Willow/cottonwood at 5 feet on center = 125 trees
**Channel bank and low terrace (1,823 sf):**
Native riparian and understory at 3 feet on center = 220 trees
**Upper Terrace (725 sf)**
Native upland trees, such as oaks = 5-10 trees




| Trees to be Removed | | | | |
|---|---|---|---|---|
| Label | Species | Lattitude | Longitude | Comment |
| T01 | Bay | 39.00862 | -123.3682 | 30dbh Bay |
| T02 | Bay | 39.00858 | -123.3684 | 11dbh bay (onbcut bank) |
| T03 | Bay | 39.00831 | -123.3683 | 48dbh bay (3 trunks) |
| T04 | Willow | 39.00828 | -123.3683 | 4dbh fallen willow |
| T05 | Willow | 39.00828 | -123.3683 | 3dbh fallen willow |
| T06 | Buckeye | 39.00824 | -123.3683 | 4dbh buckeye |
| T07 | Buckeye | 39.00825 | -123.3683 | 2x2dbh buckeye |
| T08 | Bay | 39.0082 | -123.3683 | 3dbh bay |
| T12 | Red Willow | 39.00809 | -123.3684 | 9dbh red willow (4 branches) |
| T13 | Oregon Ash | 39.00818 | -123.3684 | 4dbh oregon ash |
| T14 | Red Willow | 39.0082 | -123.3685 | 16dbh red willow |
| T15 | Red Willow | 39.0082 | -123.3685 | 15dbh red willow |
| T16 | Bay | 39.00809 | -123.3685 | 17dbh bay |
| T17 | Toyon | 39.00849 | -123.3684 | 6dbh toyon |
| T18 | Live Oak | 39.00811 | -123.3685 | 9dbh live oak |
| T19 | Live Oak | 39.00804 | -123.3685 | 8dbh live oak |
| T20 | Live Oak | 39.00802 | -123.3685 | 17dbh live oak |
| T21 | Live Oak | 39.00826 | -123.3683 | 18bdh live oak |
| T22 | Live Oak | 39.00849 | -123.3684 | 36bdh live oak |

1:787
0 50 100 Feet
Data Sources: ESRI, Quincy Engineering
NORTH Maxar 10/21/2019

Robinson Creek Bridge Replacement Project
Trees to be Removed
Figure 6

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GE: #15-130 Map Date: 08/05/2020

A quantity estimate of both temporary fill materials and permanent features required for construction within Robinson Creek in the BSA is presented in **Table 1**.

**Table 1. Impacts to Waters of the United States**

| Type of impact | Acreage of impact |
|---|---|
| Temporary Impacts – Access and Bridge Demolition/Construction | 0.28 acres |
| Permanent Impacts – Hybrid RSP Revetment and Stream Restoration | 0.06 acres |

**STAGING AREAS, RIGHTS OF WAY, AND UTILITIES**

The Project staging areas will include portions of the closed roadway at each end of the bridge and the area just southeast of the bridge. If this area is unavailable or not sufficient in size, there is an alternative area off-site at the County Fairgrounds that can also serve as a staging area. Right-of-Way including slope easements, temporary construction easements, permanent maintenance easements, and permanent acquisitions will be required. There are existing overhead electrical and telephone utilities that will need to be relocated. Additionally, there is a storm water concrete pipe that outfalls into the creek that will need to be relocated. Coordination will begin early with PG&E.

**CONSTRUCTION EQUIPMENT AND SCHEDULE**

It is anticipated that excavators, dozers, cranes, pavers, dump trucks, concrete trucks, concrete pumps, and pile drilling equipment will be required. Construction within Robinson Creek is anticipated to begin in June 15, 2021 and continue through October 15, 2021.

# 2 Study Methods

The biological and botanical surveys were conducted by Gallaway Enterprises after consulting the United States Fish and Wildlife Services (USFWS) Information for Planning and Conservation (IPaC) species list, National Oceanic and Atmospheric Administration (NOAA) NMFS species list, NOAA NMFS EFH mapper database, California Department of Fish and Wildlife (CDFW) Natural Diversity Database (CNDDB) search and the California Native Plant Societies (CNPS) list of rare and endangered plants gathered for the BSA (**Appendix B: Species Lists**). Additionally, a map was obtained from the CNDDB Geographic Information System (GIS) database, which provided general locations of species that had recorded CNDDB occurrences within a five-mile radius of the Project location (**Figure 7: CNDDB Occurrences**). Based on the results of the species lists and CNDDB map, appropriate biological and botanical surveys were conducted.

### Regulatory Requirements

The following describes federal, state, and local environmental laws and policies that are relevant to the CEQA review process and to this NES.

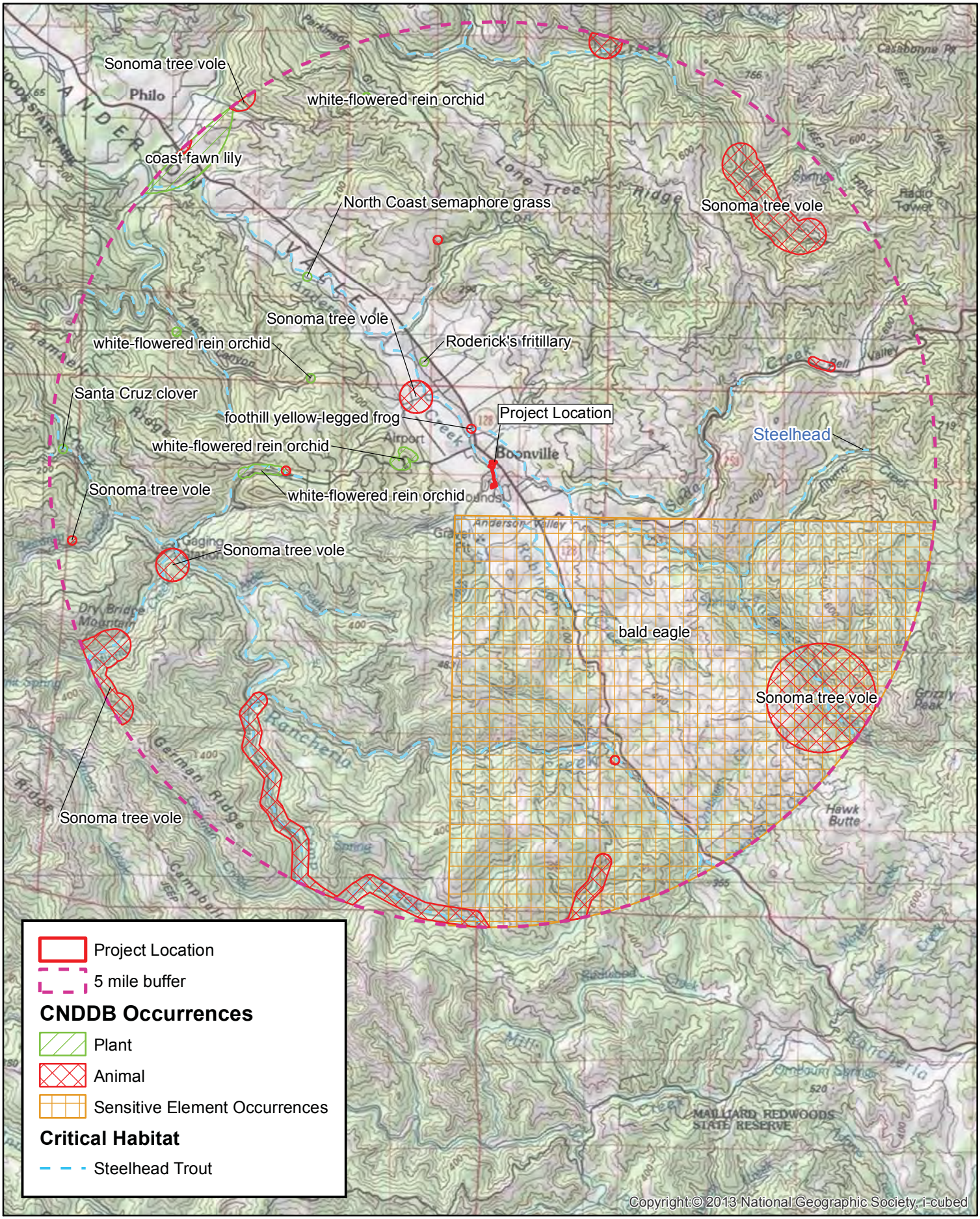
## Federal

#### Federal Endangered Species Act

The United States Congress passed the Federal Endangered Species Act (ESA) in 1973 to protect species that are endangered or threatened with extinction. The ESA is intended to operate in conjunction with the NEPA to help protect the ecosystems upon which endangered and threatened species depend. The ESA makes it unlawful to "take" a listed animal without a permit. Take is defined as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect or attempt to engage in any such conduct." Through regulations, the term "harm" is defined as "an act which actually kills or injures wildlife. Such an act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering."

#### Migratory Bird Treaty Act

The MBTA (16 USC §703) prohibits the killing of migratory birds or the destruction of their occupied nests and eggs except in accordance with regulations prescribed by the USFWS. The bird species covered by the MBTA includes nearly all of those that breed in North




NORTH

1:90,000
0 2,500 5,000 Feet

Data Sources: ESRI, USGS, USFWS
CNDDB, Quincy Engineering

Robinson Creek Bridge Replacement Project
CNDDB and Critical Habitat
Figure 7

gallaway ENTERPRISES

GE: #15-130 Map Date: 01/31/19

America, excluding introduced (i.e. exotic) species (50 Code of Federal Regulations §10.13). Activities that involve the removal of vegetation including trees, shrubs, grasses, and forbs or ground disturbance has the potential to affect bird species protected by the MBTA.

**Waters of the United States, Clean Water Act, Section 404**

The Corps and the U.S. Environmental Protection Agency (EPA) regulate the discharge of dredged or fill material into jurisdictional waters of the United States, under the Clean Water Act (CWA, §404). The term "waters of the United States" (WOTUS) is an encompassing term that includes "wetlands" and "other waters." Wetlands have been defined for regulatory purposes as follows: "those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions (33 CFR 328.3, 40 CFR 230.3). Wetlands generally include swamps, marshes, bogs, and similar areas." other waters of the United States are seasonal or perennial water bodies, including lakes, stream channels, drainages, ponds, and other surface water features, that exhibit an ordinary high-water mark but lack positive indicators for one or more of the three wetland parameters (i.e., hydrophytic vegetation, hydric soil, and wetland hydrology) (33 CFR 328.4).

The Corps may issue either individual permits on a case-by-case basis or general permits on a program level. General permits are pre-authorized and are issued to cover similar activities that are expected to cause only minimal adverse environmental effects. Nationwide permits are general permits issued to cover particular fill activities. All nationwide permits have general conditions that must be met for the permits to apply to a particular Project, as well as specific conditions that apply to each nationwide permit.

**Executive Orders 13112; Prevention and Control of Invasive Species**

On February 3, 1999, Executive Order 13112 was signed establishing the National Invasive Species Council. Executive Order 11312 directs all federal agencies to prevent and control introductions of invasive nonnative species in a cost-effective and environmentally sound manner to minimize their economic, ecological, and human health impacts. Executive Order 11312 established a national Invasive Species Council made up of federal agencies and departments and a supporting Invasive Species Advisory Committee composed of state, local, and private entities. The Invasive Species Council and Advisory Committee oversees and facilitates implementation of the Executive Order, including preparation of a National Invasive Species Management Plan.

Section two (2) of the Executive Order states:

(a) Each Federal agency whose actions may affect the status of invasive species shall, to the extent practicable and permitted by law, (1) identify such actions; (2) subject to the availability of appropriations, and within Administration budgetary limits, use relevant programs and authorities to: (i) prevent the introduction of invasive species; (ii) detect and respond rapidly to and control populations of such species in a cost-effective and environmentally sound manner; (iii) monitor invasive species populations accurately and reliably; (iv) provide for restoration of native species and habitat conditions in ecosystems that have been invaded; (v) conduct research on invasive species and develop technologies to prevent introduction and provide for environmentally sound control of invasive species; and (vi) promote public education on invasive species and the means to address them; and (3) not authorize, fund, or carry out actions that it believes are likely to cause or promote the introduction or spread of invasive species in the United States or elsewhere unless, pursuant to guidelines that it has prescribed, the agency has determined and made public its determination that the benefits of such actions clearly outweigh the potential harm caused by invasive species; and that all feasible and prudent measures to minimize risk of harm will be taken in conjunction with the actions.

(b) Federal agencies shall pursue the duties set forth in this section in consultation with the Invasive Species Council, consistent with the Invasive Species Management Plan and in cooperation with stakeholders, as appropriate, and, as approved by the Department of State, when Federal agencies are working with international organizations and foreign nations.

**The Magnuson-Stevens Act**

The Magnuson-Stevens Act (MSA) was signed in 1996 and mandates the use of annual catch limits and accountability measures to end overfishing, provide widespread market-based fishery management through limited access privilege programs, and calls for increased international cooperation. The fish off the coasts of the United States, the highly migratory species of the high seas, the species which dwell on or in the Continental Shelf appertaining to the United States, and the anadromous species which spawn in United States Rivers or estuaries, constitute valuable and renewable natural resources and they and their habitats are protected under the MSA. A national program for the conservation and management of the fishery resources of the United States is necessary to prevent overfishing, to rebuild

overfished stocks, to insure conservation, to facilitate long-term protection of EFH, and to realize the full potential of the Nation's fishery resources.

Congress defined EFH as "those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity." The EFH guidelines further interpret the EFH definition as:

- “Waters” include aquatic areas and their associated physical, chemical, and biological properties that are used by fish and may include aquatic areas historically used by fish where appropriate.
- “substrate” includes sediment, hard bottom, structures underlying the waters, and associated biological communities.
- “necessary” means the habitat required to support a sustainable fishery and the managed species contribution to a healthy ecosystem.
- and "spawning, breeding, feeding, or growth to maturity" covers a species' full life cycle.

Activities proposed to occur in EFH areas do not automatically require consultation. Consultations are triggered only when the proposed action may adversely affect EFH, and then, only Federal actions require consultation. States are not required to consult. However, if NOAAs National Marine Fisheries Service (NMFS) receives information on a State action that may adversely affect EFH, NMFS is required to provide EFH conservation recommendations to the State agency. States are not required to initiate consultation with NMFS nor respond to its recommendations (NOAAs National Marine Fisheries Service 2011).

## State of California

### California Endangered Species Act

The California Endangered Species Act (CESA) is similar to the ESA, but pertains to state-listed endangered and threatened species. The CESA requires state agencies to consult with the California Department of Fish and Wildlife (CDFW) when preparing documents to comply with the CEQA. The purpose is to ensure that the actions of the lead agency do not jeopardize the continued existence of a listed species or result in the destruction, or adverse modification of habitat essential to the continued existence of those species. In

addition to formal listing under the federal and state endangered species acts, "species of special concern" receive consideration by CDFW. Species of special concern are those whose numbers, reproductive success, or habitat may be threatened.

**California Environmental Quality Act Guidelines §15380**

Although threatened and endangered species are protected by specific federal and state statutes, CEQA Guidelines §15380(d) provides that a species not listed on the federal or state list of protected species may be considered rare or endangered if the species can be shown to meet certain specified criteria. These criteria have been modeled based on the definition in the ESA and the section of the California Fish and Game Code (CFGC) dealing with rare, threatened, and endangered plants and animals. The CEQA Guidelines (§15380) allows a public agency to undertake a review to determine if a significant effect on species that have not yet been listed by either the USFWS or CDFW (e.g. candidate species, species of concern) would occur. Thus, CEQA provides an agency with the ability to protect a species from a Project's potential impacts until the respective government agencies have an opportunity to designate the species as protected, if warranted.

**Clean Water Act, Section 401**

The CWA (§401) requires water quality certification and authorization for placement of dredged or fill material in wetlands and other waters of the United States. In accordance with the CWA (§401), criteria for allowable discharges into surface waters have been developed by the State Water Resources Control Board, Division of Water Quality. The resulting requirements are used as criteria in granting National Pollutant Discharge Elimination System (NPDES) permits or waivers, which are obtained through the Regional Water Quality Control Board (RWQCB) per the CWA (§402). Any activity or facility that will discharge waste (such as soils from construction) into surface waters, or from which waste may be discharged, must obtain an NPDES permit or waiver from the RWQCB. The RWQCB evaluates an NPDES permit application to determine whether the proposed discharge is consistent with the adopted water quality objectives of the basin plan.

**California Fish and Game Code**

The CFGC (§3503.5) states that it is "unlawful to take, possess, or destroy any birds in the order Falconiformes (hawks, eagles, and falcons) or Strigiformes or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by this code or any regulation adopted pursuant thereto." Take includes the disturbance of an active nest resulting in the abandonment or loss of young. The CFGC (§3503) also states that "it is

unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by this code or any regulation made pursuant thereto."

**Rare and Endangered Plants**

The CNPS maintains a list of plant species native to California with low population numbers, limited distribution, or otherwise threatened with extinction. This information is published in the Inventory of Rare and Endangered Vascular Plants of California. Potential impacts to populations of CNPS-ranked plants receive consideration under CEQA review. The CNPS California Rare Plant Rank (CRPR) categorizes plants as the following:

- Rank 1A: Plants presumed extinct in California;
- Rank 1B: Plants rare, threatened, or endangered in California or elsewhere;
- Rank 2: Plants rare, threatened, or endangered in California, but more numerous elsewhere;
- Rank 3: Plants about which we need more information; and
- Rank 4: Plants of limited distribution.

The California Native Plant Protection Act (CFGC §1900-1913) prohibits the taking, possessing, or sale within the state of any plants with a state designation of rare, threatened, or endangered as defined by CDFW. An exception to this prohibition allows landowners, under specific circumstances, to take listed plant species, provided that the owners first notify CDFW and give the agency at least 10 days to retrieve (and presumably replant) the plants before they are destroyed. Fish and Game Code §1913 exempts from the 'take' prohibition 'the removal of endangered or rare native plants from a canal, lateral ditch, building site, or road, or other right of way.'

## Studies Required

Gallaway Enterprises conducted biological and botanical habitat assessments and a protocol-level rare plant survey within the BSA. Biological and botanical surveys were conducted following review of the USFWS IPaC report, CNDDB Rarefind 5 report, CNPS list, and the CNDDB occurrence map (**Figure 7**). The United States Geological Survey (USGS) "Boonville" 7.5 minute quadrangle in which the Project is located were used to derive the agency species lists **(Appendix B: Species Lists)**. Based on the results of the species lists, Gallaway Enterprises conducted a general habitat assessment and protocol level rare plant botanical survey to identify any rare, endangered, threatened, or sensitive species and their habitats that may have the potential to occur within the BSA.

## Personnel and Survey Dates

The biological evaluation and rare plant botanical survey was conducted on June 29, 2018 by Gallaway Enterprises biologist, Melissa Murphy, and senior botanist and certified arborist, Elena Gregg. The purpose of the biological evaluation and rare plant botanical survey is to determine if suitable habitat occurs within the property for special-status species and if special-status species are present. Methods for each survey are described below.

Ms. Murphy has over eight years of experience surveying at the protocol and general level for listed reptiles and amphibians including foothill yellow-legged frog, giant garter snake (GGS), and California red-legged frog. Ms. Murphy has experience surveying for yellow billed cuckoo, foothill yellow-legged frog, PIT tagging reptiles, assisting in de-watering activities including fish relocation, surveying for nesting birds and raptors, capturing and banding waterfowl, and conducting habitat assessments for listed species. Ms. Murphy has installed bird and bat exclusion at a myriad of projects and works under Gallaway Enterprises' CDFW Scientific Collecting Permit as a Principal Investigator.

Mrs. Gregg has over twelve years of professional experience conducting rare plant surveys, wetland delineations, and habitat assessments in California. She has a working knowledge of CNPS, CDFW, and USFWS survey protocols and holds a CDFW collection permit for listed plant species. Through her extensive field experience in a wide array of habitats and eco-regions in northern California, Mrs. Gregg has gained knowledge of locally invasive plants species and noxious weeds.

### BIOLOGICAL HABITAT ASSESSMENT

The biological evaluation was conducted by walking the entire BSA and identifying specific habitat types and elements. If habitat was observed for special-status species it was then evaluated for quality based on vegetation composition and structure, physical features (e.g. water, soils), micro-climate, surrounding area, presence of predatory species and available resources (e.g. prey items, nesting substrates). Biological species observed within the BSA are listed in **Appendix C**.

### BOTANICAL HABITAT ASSESSMENT

A botanical habitat assessment was conducted on June 29, 2018 by senior botanist Elena Gregg to assess potential for special-status plant species to occur within the BSA. The assessment was conducted by walking in all accessible areas of the BSA and noting the habitat elements present (e.g. soils, geology, hydrology, topography, aspect, elevation, etc.)

and vegetation communities present. If present, natural and man-made disturbance patches were noted as well as the successional stage of vegetation within the BSA. Botanical species observed within the BSA during this field visit are listed in **Appendix C**.

**PROTOCOL-LEVEL RARE PLANT SURVEY**

The protocol-level rare plant survey was conducted on June 29, 2018 by senior botanist Elena Gregg following the initial botanical habitat assessment during the appropriate blooming period for the four (4) special-status plant species that were identified as having potential to occur within the BSA. The survey was conducted in accordance with the CDFW March 2018, *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities*. All accessible areas within the Project site were surveyed on foot. A Trimble Geo Explorer 6000 Series GPS Receiver was on hand to record any special-status plant occurrences observed. A list of plant species observed during the protocol-level survey is included as **Appendix C**.

## Agency Coordination and Professional Contacts

Consultation to date has included emails, phone calls, and site visits with CDFW Environmental Scientist and Fisheries Specialist, Scott Harris. A Project focus meeting was held on July 9, 2020 with Caltrans Environmental, Gallaway Enterprises, Quincy Engineering Inc, Mendocino County Department of Transportation, and NMFS in attendance. The purpose of the meeting was to discuss the incorporation of fish relocation into the BA and changes in the Project impacts resulting from the Extended Phase 2 Cultural Review. A Biological Assessment (BA) has also been prepared for this Project.

The USFWS IPaC and CNDDB Rarefind 5 species lists and the CNPS inventory of rare and endangered plants lists were reviewed in March 2019 for documentation of special-status species likely to occur within either the BSA or the USGS Bailey Ridge, Orrs Springs, Ukiah, Philo, Boonville, Elledge Peak, Zeni Ridge, Ornbaun Valley, and Yorkville 7.5 minute quadrangles (**Appendix B**). These lists were updated in December 2020. In addition to the species lists, a map was obtained from the CNDDB GIS database, which provided general locations of species that had recorded CNDDB occurrences within a five-mile radius of the Project location (**Figure 7**).

## Limitations That May Influence Results

There were no limitations that may influence results of the habitat assessment and site assessment.

# 3 Results: Environmental Setting

## Description of the Existing Biological and Physical Conditions

The Project site is positioned within the narrow Anderson Valley in the northern California coastal mountain range. The BSA consists of an approximately 3.6-acre survey area including the area surrounding the Lambert Lane bridge over Robinson Creek within the town of Boonville, Mendocino County, CA. The BSA is surrounded by a mix of rural residential homes and urban habitats. The Project is located within the Boonville USGS quadrangle, Section 2, Township 13N, Range 14W.

### Study Area

Within the BSA, vegetation communities are highly disturbed. All construction related activities will be restricted to the limits of the BSA; therefore, habitat assessments and surveys were restricted to the area within the BSA.

### Physical Conditions

The survey area ranges in elevation from 382 to 405 feet above sea level and is sloped between 0-9 percent. Soils within the survey area are loams and sandy loams with a deep restrictive layer located more than 80 inches deep. The average annual precipitation is 37.88 inches and the average temperature is 58.55° F (WRCC 2019) in the region where the survey area is located. Based on the current CWA definition of WOTUS, there is one tributary feature that meets the criteria to be considered a jurisdictional WOTUS within the BSA (**Appendix D**).

### Biological Conditions in the Biological Study Area

The BSA consists of existing asphalt roadway, concrete bridge, gravel road shoulder, a mixed species tree canopy and patches of disturbed annual grassland. The existing roadway, concrete bridge and gravel road shoulder are characterized as barren habitat and are not considered habitat for any special-status species. Habitat types present within the BSA are described below based on Mayer and Laudenslayer's *A Guide to Wildlife Habitats of California* (1988).

**VALLEY OAK WOODLAND**

Along the tops of the banks of Robinson Creek, the majority of the vegetation was dominated by a dense tree canopy consisting of valley oaks (*Quercus lobata*) and live oak (*Quercus wislizeni*), a shrub layer of California bay-laurel (*Umbellularia californica*) and an understory dominated by Himalayan blackberry, periwinkle (*Vinca major*), English ivy (*Hedera helix*), poison oak (*Toxicodendron diversilobum*) and upland herbaceous species.

**VALLEY FOOTHILL RIPARIAN**

Below the ordinary high water mark (OHWM) of Robinson Creek, there is a narrow corridor of valley foothill riparian habitat. Vegetation along the edges of the creek bed and on the steep banks of the creek include arroyo willow (Salix lasiolepis), Himalayan blackberry, and the occasional Oregon ash (Fraxinus latifolia). The strip of valley foothill riparian habitat that occurs within the limits of Robinson Creek and the transition from this habitat type to adjacent valley oak woodland and urban habitat is abrupt. Valley foothill riparian habitats provide food, water, migration, and dispersal corridors for fish species and escape, nesting, and thermal cover for an abundance of other wildlife species. Within the BSA, this habitat type is extremely narrow and occurs in close proximity to residential homes, which greatly reduces the potential habitat benefits it can provide.

**RIVERINE**

Riverine habitat occurs within Robinson Creek in the BSA. Robinson Creek exhibits intermittent flow patterns and typically has a dry period starting in the early summer through fall. The channel morphology is characterized as gravel/cobble bedded pool and riffle with fairly shallow residual pool depths under the bridge. The banks of the creek were generally steep and channelized. Robinson Creek meanders tightly through the BSA with a series of s-curves causing an extensive bank failure and resulting large wood jam from mature trees sloughing into the creek. Upstream of the Robinson Creek bridge the partially failed retaining walls and road embankment is on the outside of a right bend within the channel. On the inside of the bend there is a depositional bar that appears to have formed relatively recently (since construction of the bridge), likely in-part due to backwater affects from the abrupt turn in the channel as it approaches the bridge. The bar appears to have sharpened the radius of the channel bend and pushed the channel thalweg up against the retaining wall along the road embankment and against the nearly vertical bank upstream of the retaining wall, where riprap has been placed, creating a 3-foot water surface drop which classifies the current conditions as a barrier to adult and juvenile steelhead based on the

CDFW fish passage assessment guidelines (CDFG, 2002). Western toad (*Anaxyrus boreas*) tadpoles and juveniles were observed in areas where small isolated pools remained in the channel during the June field visit.

**ANNUAL GRASSLAND**

Disturbed annual grassland habitat occurs as small patches of openings amongst the tree canopy within the area around the bridge and is the dominant habitat type in the proposed offsite staging area. Vegetation within these annual grassland portions of the survey area was primarily composed of perennial rye-grass (*Festuca perennis*), wall hare barley (*Hordeum murinum*), hawkbit (*Leontodon saxatilis*), smooth cat's-ear (*Hypochaeris glabra*), English plantain (*Plantago lanceolata*), and yellow star-thistle (*Centaurea solstitialis*). Wildlife species use grassland habitat for foraging but require some other habitat characteristic such as rocky out crops, cliffs, caves or ponds in order to find shelter and cover for escapement. Common species that are found breeding in this habitat when it is healthy include a variety of ground nesting avian species and small mammals (Mayer and Laudenslayer 1988).

**URBAN**

Urban habitat is present adjacent to the bridge site which is composed of residential homes and associated landscaping. This environment can present a mosaic of vegetation including primarily ornamental landscaping but can incorporate native tree species. Generalist and invasive species often occupy urban habitat such as common raven (*Corvus corax*), house sparrow (*Passer domesticus*), scrub jays (*Aphelocoma californica*) and brewers blackbirds (*Euphagus cyanocephalus*) as well as small to medium mammals (e.g., raccoon, opossum, striped skunk) (Mayer and Laudenslayer 1988).

**BARREN**

Within the BSA, the roadways and bridge structure present are characterized as barren habitat. Barren habitat is defined by the absence of vegetation. The barren habitat within the Project consists primarily of asphalt, concrete and gravel. Barren habitat types generally provide low quality of habitat for wildlife.

## Regional Species and Habitats and Natural Communities of Concern

The following special-status species were identified under the USFWS IPaC, CNDDB, NMFS and the CNPS species lists (**Appendix B: Species Lists**) as having potential to occur within

the USGS "Boonville" 7.5 minute and surrounding quadrangles. Species that have the potential to occur within the BSA are based on suitable habitat within the BSA, including elevation thresholds, CNDDB occurrences within a five-mile radius of the BSA, and observations made during biological surveys and habitat assessment, thus not all species listed within the various species lists in **Appendix B** are included in **Table 2**. A summary of special-status species and their potential to occur within the BSA is provided in **Table 2**.

**Table 2. Federal and State Listed and Candidate Species Potentially Occurring or Known to Occur in the Robinson Creek at Lambert Lane BSA.**

| Common Name | Scientific Name | Status | General Habitat Description | Habitat Present/ Absent | Potential to Occur/Rationale |
|---|---|---|---|---|---|
| **PLANTS** | | | | | |
| Burke's goldfields | *Lasthenia burkei* | FE/CNPS 1B.1 | Vernal pools and swales. (April-Jun) | A | No vernal pools or swales present in the BSA and not observed during the field survey. The Project will have no effect on this species. |
| Coast fawn lily | *Erythronium revolutum* | CNPS 2B.2 | Bogs, fens, and mesic streambanks. (Mar-Jul) | A | Not observed within the BSA during the field survey. |
| Contra Costa goldfields | *Lasthenia conjugens* | FE | Vernal pools. (Mar-Jun) | A | No suitable habitat present in the BSA. The Project will have no effect on this species. |
| Great burnet | *Sangisorba officinalis* | CNPS 2B.2 | Rocky serpentine seeps, bogs, seasonal wetlands, sometimes stream banks. (Jul-Oct) | A | No suitable rocky or seep habitat present in the BSA. |
| North Coast semaphore grass | *Pleuropogon hooverianus* | CNPS 1B.1 | Shady, wet grassy areas and freshwater marshes on forest floor. (Apr-Jun) | A | No suitable wet habitat present and not observed within the BSA during the field survey. |
| Roderick's fritillary | *Fritillaria roderickii* | CNPS 1B.1 | Coastal grassy slopes and mesas. (Mar-May) | A | No suitable habitat present within the BSA. |

| Common Name | Scientific Name | Status | General Habitat Description | Habitat Present/ Absent | Potential to Occur/Rationale |
|---|---|---|---|---|---|
| Santa Cruz clover | *Trifolium buckwestiorum* | CNPS 1B.1 | Present in gravelly margins and moist grassland, sometimes in gravel roads and ditches. (Apr-Oct) | A | No suitable gravelly habitat present and not observed within the BSA during the field survey. |
| Showy Indian clover | *Trifolium amoenum* | FE/CNPS 1B.1 | Usually occurs in wetlands within valley grassland and wetland-riparian communities. (Apr-June) | A | No suitable habitat present and not observed during protocol level survey. The Project will have no effect on this species. |
| White-flowered rein orchid | *Piperia candida* | CNPS 1B.2 | Sometimes serpentinite soils, forest duff, mossy banks, rock outcrops. (May-Sep) | A | Not observed within the BSA during the field survey. |
| **INVERTEBRATES** | | | | | |
| There are no regulated invertebrates with the potential to occur in the BSA. | | | | | |
| **FISH** | | | | | |
| Central California Coast Coho salmon ESU | *Oncorhynchus kisutch* | FE/SE | Streams and small freshwater tributaries during juvenile stages, spawning habitat includes gravel substrate. | CH/A | Robinson Creek is designated as critical habitat for this species; however, within the BSA the creek is intermittent and dries completely during the summer months. CNDDB observations between 1990 and 2016 show that there have been no observations of CCC Coho in Robinson Creek (Christy 2016). In addition, an extensive review of peer reviewed literature and citizen sightings conducted by CDFW showed |

| Common Name | Scientific Name | Status | General Habitat Description | Habitat Present/ Absent | Potential to Occur/Rationale |
|---|---|---|---|---|---|
| | | | | | only one equivocal record of CCC Coho occurring within Robinson Creek within the last 50 years (pers. comm Scott Harris, CDFW Environmental Scientist.). The Project will have no effect on this species. |
| California Coastal Chinook salmon ESU | *Oncorhynchus tshawytscha* | FT | Freshwater rivers, streams, and tributaries during the juvenile stages, prefers deep, large streams. | A | Robinson Creek is intermittent and dries completely during the summer months. In addition, an extensive review of peer reviewed literature and citizen sightings conducted by CDFW showed no occurrences of CC Chinook salmon occurring within Robinson Creek within the last 50 years (pers. comm Scott Harris, CDFW Environmental Scientist, Gavette 2014). The Project will have no effect on this species. |
| Navarro roach | *Lavinia symmetricus navarroensis* | SSC | Predominately found in small warm streams but are capable of thriving in larger colder streams with diverse conditions. | HP | Robinson Creek provides suitable habitat when water is present. |

| Common Name | Scientific Name | Status | General Habitat Description | Habitat Present/ Absent | Potential to Occur/Rationale |
|---|---|---|---|---|---|
| Northern California steelhead DPS | *Oncorhynchus mykiss iridius* | FT | Wintering habitat includes streams with deep low-velocity pools while spawning habitat includes gravel substrates free of excessive silt. | CH/HP | Robinson Creek is designated critical habitat for this species, but only provides habitat when water is present during winter and spring. In addition, the current site conditions of the failed retaining wall and associated riprap immediately upstream of the bridge are considered a barrier to adult and juvenile steelhead. The Project may affect, but is not likely to adversely affect through potential relocation efforts. |
| Tidewater goby | *Eucyclogobius newberryi* | FE | Shallow water bodies characterized by brackish water with low to moderate salinity. | A | The creek present has no tidal influence and does not provide suitable habitat. The Project will have no effect on this species. |
| **REPTILES & AMPHIBIANS** | | | | | |
| California red-legged frog | *Rana draytonii* | FT/ SSC | Inhabits quiet pools of streams, marshes, and occasionally ponds. | A | There were no California red-legged frogs observed during the site visit. There is no suitable breeding habitat. There are no CNDDB occurrences within 5 miles of the BSA, and no hydrologic connection to known populations. The Project will have no effect on this |

| Common Name | Scientific Name | Status | General Habitat Description | Habitat Present/ Absent | Potential to Occur/Rationale |
|---|---|---|---|---|---|
| | | | | | species. |
| Foothill yellow-legged frog – Northwest/ North Coast Clade | *Rana boylii* | SSC | Frequents rocky streams and rivers with rocky substrate and open, sunny banks, in forests, chaparral, and woodlands. Sometimes found in isolated pools, vegetated backwaters, and deep, shaded, spring-fed pools | HP | Creek only provides habitat when water is present during winter and spring. |
| Western pond turtle | *Emys marmorata* | SSC | Inhabits permanent streams, marshes, and ponds. | HP | Creek only provides habitat when water is present during winter and spring. |
| **BIRDS** | | | | | |
| Bald eagle | *Haliaeetus leucocphealus* | FP | Coast, large lakes and river systems, with open forests with large trees and snags. | A | No nesting habitat within or adjacent to the BSA. |
| Northern goshawk | *Accipiter gentillis* | SSC | Continuous stands of deciduous or coniferous trees generally above 3000 feet. | A | Nesting habitat is not expected within ¼ mile of the roadway. |
| Osprey | *Pandion haliaetus* | WL | Associated strictly with large fish-bearing waters, needs large trees, snags, and dead-topped trees in open forests for cover and nesting. | A | Robinson Creek is not a large fish-bearing waterway. There are no known occurrences in the vicinity of the BSA. |
| **Mammals** | | | | | |
| Pallid Bat | *Antrozous pallidus* | SSC | Open dry habitats at lower elevations | HP | Mature trees with sloughing bark and/or cavities provide suitable day roosting habitat |

| Common Name | Scientific Name | Status | General Habitat Description | Habitat Present/ Absent | Potential to Occur/Rationale |
|---|---|---|---|---|---|
| | | | | | within the BSA. |
| Sonoma tree vole | *Arborimus pomo* | SSC | Old-growth Douglas-fir forest and dense forests with Douglas fir, grand fir, hemlock or spruce. | A | Only a few small Douglas fir trees present, BSA is in a highly populated area and is in a valley with open grassland/ agricultural land. |
| Townsend's big-eared bat | *Corynorhinus townsendii* | SSC | Roosts in mines and open caverns. | A | There are no mines or open caverns within the BSA; therefore, no suitable day roosting habitat present. |
| **Code Designations** | | | | | |
| Absent [A] - no habitat present and no further work needed. Habitat Present [HP] -habitat is, or may be present. The species may be present. Present [P] - the species is present. Critical Habitat [CH] - project footprint is located within a designated critical habitat unit, but does not necessarily mean that appropriate habitat is present. Status: Federal Endangered (FE); Federal Threatened (FT); Federal Candidate (FC), Federal Species of Concern (FSC); State Endangered (SE); State Threatened (ST); Fully Protected (FP); State Rare (SR); State Candidate (SC), State Species of Special Concern (SSC); State Watch List (WL); California Native Plant Society (CNPS); Sensitive Natural Community (SNC) | | | | | |

# 4 Results: Biological Resources, Discussion of Impacts and Mitigation

## Habitats and Natural Communities of Special Concern

There are no CDFW designated natural communities of special concern within or adjacent to the BSA.

There is one feature that qualifies as jurisdictional WOTUS within the BSA; Robinson Creek. Project activities will result in permanent impacts to 0.06 acres and temporary impacts to 0.28 acres of WOTUS. Impacts will be the result of channel restoration activities including removing the failed retaining wall and associated RSP from the creek, streambank stabilization through hybrid RSP revetment, vegetation of created point bars, and habitat enhancement. All impacts will have a positive benefit to Robinson Creek and water quality in general. A Draft Delineation of WOTUS Map is included as **Appendix D**.

## Special-Status Plant Species

A protocol-level botanical survey was conducted on June 29, 2018 for a total of 13 of the special-status plant species identified on the USFWS, CNPS, and CNDDB lists which have a blooming period that overlapped with the survey date. No special-status plant species were observed during the protocol-level survey. Further, a habitat assessment was conducted within the BSA on June 29, 2018 for all remaining special-status plant species identified on the CNPS and CNDDB lists. Due to the lack of vernal, marsh or seep wetland habitat and volcanic, rocky or serpentine soils, none of these special-status plant species were determined to have potential to occur within the BSA. As such, the Project is not expected to have any effect on special-status plant species.

## Special-Status Animal Species Occurrences

### NORTHERN CALIFORNIA STEELHEAD

The NC steelhead DPS is considered threatened under the federal ESA. They rely on streams, rivers, estuaries and marine habitat during their lifecycle. Because young steelhead spend a significant portion of their lives in rivers and streams, they are particularly susceptible to human induced changes to water quality and habitat threats. Steelhead spawn in streams and rivers, steelhead rear in freshwater for 1 to 4 years before migrating downstream through estuaries to the open ocean. Steelhead spend 1 to 5 years at sea

before returning to natal streams or rivers. Steelhead do not always die after spawning, but will again migrate through estuaries to the ocean.

**Survey Results**

The stretch of Robinson Creek that occurs in the BSA contains suitable habitat for steelhead when water is present during winter and spring months. Additionally, Robinson Creek has been designated as critical habitat for NC steelhead DPS (**Figure 8: NC Steelhead and CCC Coho Salmon Critical Habitat**). During the June site visit, Robinson Creek was dry with the exception of a few small shallow pools. Although there is no spawning habitat present, the BSA does offer suitable steelhead migration/emigration and non-natal rearing habitat during the late fall through late spring months (i.e. November 1 – May 31) when water levels are high and water temperatures are cool. When winter flows are adequate, the BSA provides suitable migration/emigration habitat for juvenile and adult steelhead. During the summer months (i.e. June 1 – October 31), the intermittent hydrology, still water, and warm temperatures make Robinson Creek within the BSA unsuitable habitat for any lifestage of salmonid including steelhead. Therefore, if the BSA contains water between June 1 and October 31 then there is a potential for non-natal juveniles to be present. There is potential for NC steelhead to become stranded within the BSA in isolated pools like the ones observed during the site visit.

**Project Impacts**

Construction activities will occur in Robinson Creek between June 15 and October 15. If water is present within the BSA, fish relocation will be conducted by a qualified biologist prior to the start of construction activities in the streambed. A clear water diversion shall be installed if needed. Therefore, the Project may affect, and is likely to adversely affect the NC steelhead DPS through potential relocation.

**Avoidance and Minimization Efforts**

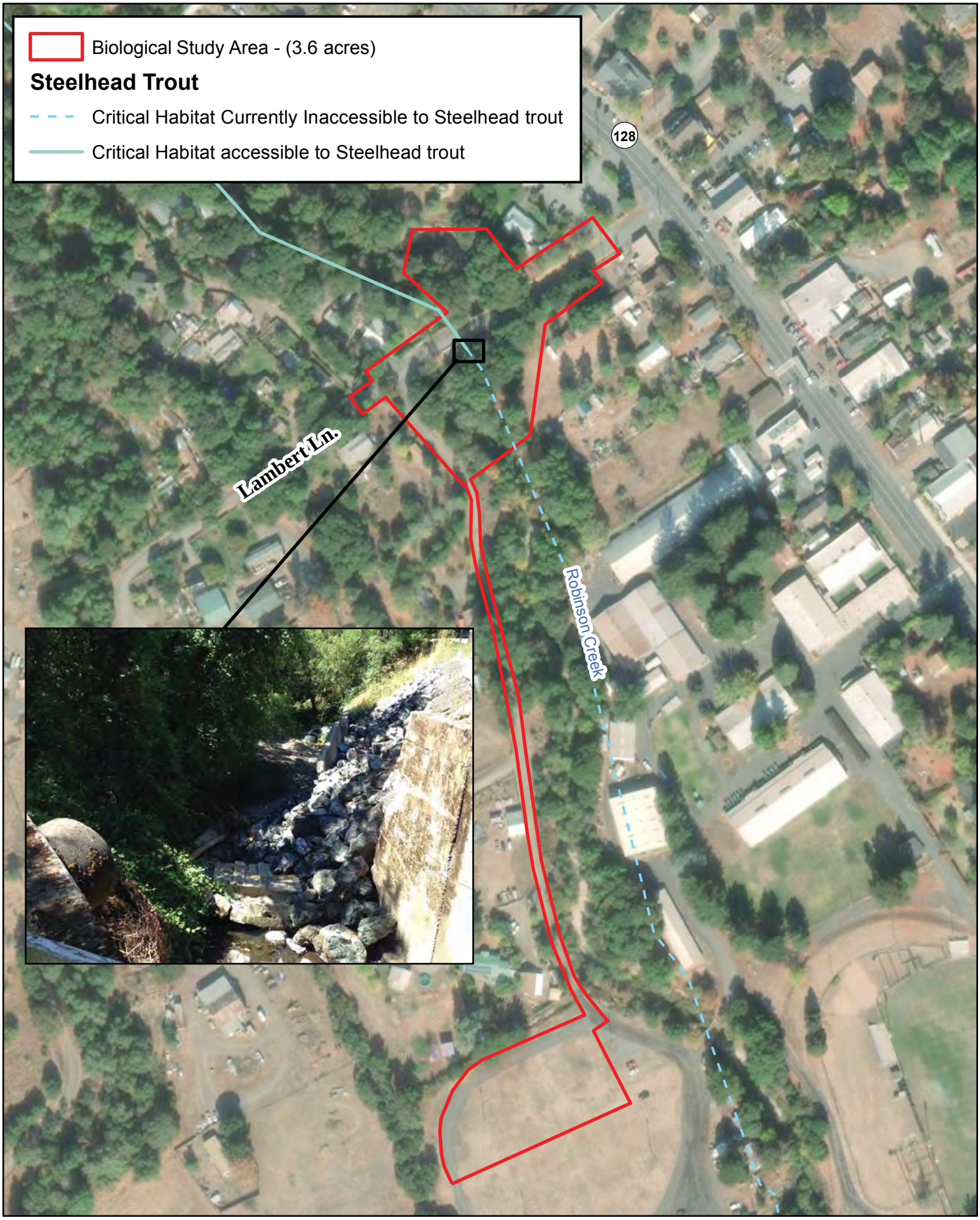
The following recommendations, when implemented, will avoid and minimize impact to this species:

- Construction within Robinson Creek will be limited to June 15 through October 15.
- If flowing water is present within the BSA between June 15 and October 15 then a clear water diversion using an appropriately sized culvert and sandbags will be installed. A qualified biologist shall monitor the construction site during placement and removal of stream diversions to ensure that any harm or loss of salmonids is minimized and documented.

- If water is present within the Project site between June 15 and October 15, then a qualified biologist will perform fish relocation prior to the start of construction activities.
  - The qualified biologist with expertise in the areas of anadromous salmonid biology, including handling, collecting, and relocating salmonids; salmonid habitat relationships; and biological monitoring shall perform fish relocation. Fish relocation will be performed in a manner which minimizes all potential risks to NC steelhead.
  - Electrofishing, if used, shall be performed by a qualified biologist and conducted according to the *NMFS Guidelines for Electrofishing Waters Containing Salmonids Listed under the Endangered Species Act.*
- Installation of LWD will be anchored to bank at the inside bend in the upstream right bank between station 29+60 and 31+100, and on the downstream left bank around station 28+00 to create fish habitat.
- Removal of the existing rubble and reconfiguring of the RSP that covers the creek bottom and restoring the channel to a more natural condition to promote fish passage. This will involve removing a current barrier to steelhead at the existing failed retaining wall, thereby restoring access to habitat for steelhead upstream of the bridge.

**Compensatory Mitigation**

No additional compensatory mitigation will be required, as the implementation of the avoidance and minimization measures discussed above will result in a net benefit to NC steelhead and their habitat. The Project will restore access to 0.25 acres of critical habitat within the BSA and the proposed stream restoration will have a beneficial effect on critical habitat.




NORTH

1:2,500
0 150 300 Feet

Data Sources: ESRI, USFWS, DigitalGlobe
10/31/2017, Quincy Engineering

Robinson Creek Bridge Replacement Project
Steelhead Critical Habitat
Figure 8

gallaway ENTERPRISES

GE: #15-130 Map Date: 03/07/19

**Cumulative Impacts**

There are no foreseeable new actions that have potential to threaten steelhead within the BSA or contribute to cumulative effects on steelhead.

## NORTHERN CALIFORNIA STEELHEAD AND CENTERAL CALIFORNIA COAST COHO SALMOND CRITICAL HABITAT

**Survey Results**

Robinson Creek within the BSA is designated as critical habitat for NC steelhead and CCC Coho salmon ESU (**Figure 8**). When water is present in Robinson Creek, the following Primary Constituent Elements (PCEs) are present within the BSA:

- Freshwater spawning sites with water quantity and quality conditions and substrate supporting spawning, incubation and larval development.
- Freshwater rearing sites with water quantity and floodplain connectivity to form and maintain physical habitat conditions and support juvenile growth and mobility; water quality and forage supporting juvenile development; and natural cover such as shade, submerged and overhanging large wood, log jams and beaver dams, aquatic vegetation, large rocks and boulders, side channels, and undercut banks.
- Freshwater migration corridors free of obstruction with water quantity and quality conditions and natural cover such as submerged and overhanging large wood, aquatic vegetation, large rocks and boulders, side channels, and undercut banks supporting juvenile and adult mobility and survival.

**Project Impacts**

The Project is not likely to adversely modify salmonid critical habitat. Critical habitat for salmonids will be affected by the proposed action through stream restoration activities and the placement of RSP within the creek with live willow staking that penetrates the rock layers and allows rooting into the native bank soils. The intent of the hybrid RSP revetment is to balance the engineering benefit of armoring a bank while promoting ecological processes. Proposed hybrid RSP revetment within the portions of Robinson Creek currently accessible to salmonids will result in approximately 93.1 linear feet (0.01 acres) of permanent impacts and temporary impacts of 201.6 linear feet (0.14 acres) to the stream (**Figure 9: Impacts to Critical Habitat**).

| Impacts to CH Currently Accessible | | | | | | |
|---|---|---|---|---|---|---|
| **Temporary Impacts** | | | | | | |
| **Label** | **Cowardin** | **Description** | **Width (ft)** | **Length (ft)** | **Area (sq ft)** | **Acres** |
| OW01 | R4SB | Intermittent | 29.2 | 201.6 | 5889.6 | 0.14 |
| **Temporary Impact Totals =** | | | | **201.6** | **5889.6** | **0.14** |
| | | | | | | |
| **Permanent Impacts** | | | | | | |
| **Label** | **Cowardin** | **Description** | **Width (ft)** | **Length (ft)** | **Area (sq ft)** | **Acres** |
| OW01 | R4SB | Intermittent | 2.0 | 93.1 | 186.2 | 0.01 |
| **Permanent Impacts Totals =** | | | | **93.1** | **186.2** | **0.01** |

39.0089, -123.3687

Lambert Ln

Robinson Creek

39.0049, -123.3674

Project Boundary - (3.6 acres)

Site Plan

**Impacts to CH Currently Accessible**

Hybrid RSP Revetment Impacts - (0.01 acres)

Temporary Impacts - (0.14 acres)

**Impacts to CH Currently Inaccessible**

Restored Access & Habitat Enhancement - (0.25 acres)

NORTH

1:1,325 1 inch = 110 feet

0 55 110 Feet

Data Sources: ESRI, Quincy Engineering
Maxar 10/21/2019

Robinson Creek Bridge Replacement Project
Impacts to NC Steelhead Critical Habitat
Figure 9

gallaway ENTERPRISES

GE: #15-130 Map Date: 08/18/2020

Currently, Robinson Creek is inaccessible to NC steelhead upstream of the existing failed retaining wall (**Figure 8**). Removal of the failed retaining wall and RSP within the creek bottom will restore fish passage and access for steelhead to 0.25 acres of critical habitat within the BSA (**Figure 9**). In addition to the removal of the fish barrier, channel grading will minimize abrupt hydraulic constrictions and areas of focused high velocities.

**Avoidance and Minimization Efforts**

The critical habitat present within the BSA will likely be impacted by construction activities. The following recommendations, when implemented, will avoid and minimize impact to this species:

- All work within Robinson Creek will occur between June 15 and October 15 when PCEs are not present within the BSA. If water is present within the BSA then fish relocation will be conducted by a qualified biologist prior to the start of construction.
- The existing rubble from the failed retaining wall and RSP will be removed from the creek channel and the channel will be restored to a more natural condition to promote fish passage.
- In addition to the willow plantings contained within the hybrid RSP revetment, native vegetation will be planted on the graded point bars on the inside of the channel bends. This vegetation should include native riparian tree species, as well as understory plants.
- The Project will create a terrace behind the RSP adjacent to the road embankment at the southern bridge approach. This terrace will be used to plant upland tree species, such as native oaks.
- Installation of LWD will be anchored to bank at the inside bend in the upstream right bank between station 29+60 and 31+100, and on the downstream left bank around station 28+00 to create fish habitat.

**Compensatory Mitigation**

No compensatory mitigation will be required since there will be a net increase in accessible critical habitat through stream restoration and removal of the existing fish barrier.

**Cumulative Impacts**

There are no foreseeable new actions that have potential to threaten NC steelhead or CCC Coho salmon critical habitat within the BSA or contribute to cumulative effects on steelhead or their critical habitat.

## NAVARRO ROACH

Navarro roach are capable of adapting to varying habitats from coastal streams to mountain foothill streams. They are predominately found in small warm streams but are capable of thriving in larger colder streams with diverse conditions. They may actually occupy several different habitat types within a single drainage. Extreme tolerance includes temperatures ranging from 30-35ºC and dissolved oxygen levels as low as 1-2 ppm. In-stream location may vary depending on geography and predators. When Navarro roach share water with Sacramento pikeminnows, roach will stick to the stream margins, whereas in the absence of these piscivorous fish roach may venture into deeper pools. Navarro roach are omnivorous and diet may depend on stream size and food availability. In smaller rivers roach feed mostly on filamentous algae, supplementing their diet with crustaceans and insects. In larger rivers these fish may focus on a diet of aquatic insects year round. The growth and development of Navarro roach is largely seasonally dependent. Most growth occurs during the summer months and roach may grow 20-40 mm in a year. Most fish of this species reach sexual maturity at age 2-3 and rarely live beyond three years total. Spawning occurs in March through early July, and timing is temperature dependent. Navarro roach breed in gravel beds or riffles where groups of females lay eggs on and into the substrate. One or two males follow each female closely to fertilize the groups of eggs. Each female may produce 250-2,000 eggs per year depending on body size. The eggs hatch in 2-3 days, but the larvae remain in the protection of the gravel substrate before emerging to swim (CalFish 2018).

### Survey Results

The stretch of Robinson Creek that occurs in the BSA contains suitable habitat for Navarro roach when there is flowing water present during the winter and spring months. During the June site visit, Robinson Creek was dry with the exception of a few small shallow, isolated pools. There is potential for Navarro roach to become stranded within the isolated pools such as those observed during the site visit.

### Project Impacts

Construction activities will occur in Robinson Creek. Channel restoration activities will result in a net increase in both enhanced fish habitat and improved fish passage throughout the BSA. To ensure impacts to Navarro roach from the proposed Project are avoided, the following avoidance and minimization measures will be implemented.

**Avoidance and Minimization Efforts**

The following recommendations, when implemented, will avoid and minimize impact to this species:

- Construction in Robinson Creek will be limited to June 15 through October 15.
- If flowing water is present within the BSA between June 15 and October 15 then a clear water diversion using an appropriately sized culvert and sandbags will be installed. A qualified biologist shall monitor the construction site during placement and removal of stream diversions to ensure that any harm or loss of aquatic life is minimized and documented.
- If water is present within the Project site between June 15 and October 15, then a qualified biologist will perform fish relocation prior to the start of construction activities.
    - The qualified biologist with expertise in the areas of fisheries biology, including handling, collecting, and relocating fish; fish habitat relationships; and biological monitoring shall perform fish relocation. Fish relocation will be performed in a manner which minimizes all potential risks to Navarro roach.
    - Electrofishing, if used, shall be performed by a qualified biologist and conducted according to the *NMFS Guidelines for Electrofishing Waters Containing Salmonids Listed under the Endangered Species Act.*
- Installation of LWD will be anchored to bank at the inside bend in the upstream right bank between station 29+60 and 31+100, and on the downstream left bank around station 28+00 to create fish habitat.
- The existing rubble from the failed retaining wall and RSP will be removed from the creek channel and the channel will be restored to a more natural condition to promote fish passage.
- In addition to the willow plantings contained within the hybrid RSP revetment, native vegetation will be planted on the graded point bars on the inside of the channel bends. This vegetation should include native riparian tree species, as well as understory plants.
- The Project will create a terrace behind the RSP adjacent to the road embankment at the southern bridge approach. This terrace will be used to plant upland tree species, such as native oaks.

**Compensatory Mitigation**

No additional compensatory mitigation will be required, as the implementation of the avoidance and minimization measures discussed above will result in a net benefit to

Navarro roach and their habitat. The Project will restore access to 0.25 acres of suitable habitat within the BSA and the proposed stream restoration will have a beneficial effect on habitat present.

**Cumulative Impacts**

There are no foreseeable new actions that have potential to threaten Navarro roach within the BSA or contribute to cumulative effects on Navarro roach.

## CALIFORNIA RED-LEGGED FROG

California Red-Legged Frog (CRLF) (*Rana draytonii*) is federally threatened and is a species of special concern in California. The CRLF is the largest native frog in California, with adults obtaining a length of 3 to 5 inches. Adult CRLF have prominent dorsolateral folds, dark spots, a bright red dorsum, and a well-defined stripe running along the upper lip. This species is primarily aquatic and most active during the night occupying perennial water sources such as streams, springs, lakes, marshes, natural and manmade ponds, and ephemeral drainages. During the breeding season, which typically runs from November through April, males call to females from the margins of ponds and slow streams (Jennings et al. 1992). Mating most commonly occurs in February or March, but can vary depending on seasonal climatic patterns. The female lays a jellylike mass of 2,000 to 5,000 reddish brown eggs in the water attached to emergent vegetation, twigs, or other structure. The resulting tadpoles, which likely feed on algae, typically require about 3 weeks to hatch, and another 11 to 20 weeks to metamorphose into juvenile frogs. Metamorphosis, therefore, typically occurs from July to September, although some tadpoles have been observed to delay metamorphosis until the following March or April. Adults are predominantly nocturnal, while juveniles can be active at any time of day.

**Survey Results**

There were no life stages of California red-legged frog observed during the site visit and no suitable breeding habitat was present within the BSA. There are no known occurrences of CRLF within 5 miles of the BSA. Also, during the June site visit, Robinson Creek was dry with the exception of a few small shallow pools. As such, Robinson Creek does not contain the necessary hydrologic regime required by CRLF for year-round occupancy.

**Project Impacts**

Due to the intermittent nature of Robinson Creek, there is no suitable breeding habitat for CRLF within the BSA. As such, the Project will have no effect on CRLF.

**Avoidance and Minimization Efforts**

The CRLF is not expected to occur within the BSA, therefore the Project will have no effect on this species and there are no recommendations for additional avoidance.

**Compensatory Mitigation**

No compensatory mitigation will be required since the Project will have no effect on CRLF or its habitat.

**Cumulative Impacts**

There are no foreseeable new actions that have potential to threaten CRLF within the BSA or contribute to cumulative effects on CRLF.

**FOOTHILL YELLOW-LEGGED FROG**

The foothill yellow legged frog northwest / north coast clade (FYLF, *Rana boylii*) is listed as a SSC. It is a gray to olive colored frog with occasional mottling or spots, and lacks a dorsolateral folk common in California Red-Legged Frog or eye strip common in Northern Pacific tree frogs (*Pseudacris regilla*). The FYLF range includes the coast ranges of Oregon south to Los Angeles County, in northern California west of the Cascade crest, and along the west side of the Sierra Nevada range as far south as Kern County. The FYLF has been found in a variety of habitats. Those habitats that have been found most suitable based on the majority of occurrences include a running perennial water source such as rocky rivers and step rocky tributaries. They have also been found in ephemeral streams, intermittent streams, and perennial ponds. Boulders and large cobble play an important role in the FYLF habitat and life history. FYLFs utilize boulders and large cobble in streams for areas of refuge from predators, basking, depositing eggs and cover during periods of inactivity such as over wintering or cold weather. Breeding season begins at the end of the spring flood season, which can be between March and May depending on local conditions. Breeding and egg laying occur in streams with running water and do not occur in ponds or lakes which are common for most ranids (true frogs). Current threats facing FYLF are primarily due to invasive and exotic predators such as the bullfrog (*Rana catesbeiana*) and centrarchid fish. Other threats include degradation of habitat, hydroelectric development, urban development, agriculture, and timber harvests (Zeiner, D.C. et al. 1990).

**Survey Results**

The stretch of Robinson Creek that occurs in the BSA contains suitable habitat for FYLF and there is a known CNDDB occurrence of FYLF approximately 0.5 miles downstream of the

BSA (Occurrence # 467) within Anderson Creek near its confluence with Rancheria Creek. This occurrence was last observed in 2004 at the SR 128 bridge over Anderson Creek. However, during the June site visit, Robinson Creek was dry with the exception of a few small shallow, isolated pools. As such, Robinson Creek only contains suitable habitat for FYLF when there is flowing water present in the creek in the winter and spring months.

**Project Impacts**

Construction activities will occur in Robinson Creek, and have the potential to affect FYLF if present. To ensure no impacts to FYLF occur due to the proposed Project, the following avoidance and minimization measures will be implemented.

**Avoidance and Minimization Efforts**

While there were no observations of FYLF during the site visit, there is suitable FYLF habitat present within the BSA. The following recommendations, when implemented, will minimize impacts to this species:

- Construction within Robinson Creek will be limited to June 15 through October 15, during periods of low flows.
- A qualified biologist shall conduct a preconstruction survey to determine presence of FYLF immediately prior to the start of in-channel work. If found, FYLF will be relocated to suitable habitat outside of the BSA by a qualified biologist.
- Contractor shall not use plastic monofilament netting which can entrap the FYLF.
- The existing rubble from the failed retaining wall and RSP will be removed from the creek channel and the channel will be restored to a more natural condition.
- In addition to the willow plantings contained within the hybrid RSP revetment, native vegetation will be planted on the graded point bars on the inside of the channel bends. This vegetation should include native riparian tree species, as well as understory plants.
- The Project will create a terrace behind the RSP adjacent to the road embankment at the southern bridge approach. This terrace will be used to plant upland tree species, such as native oaks.

**Compensatory Mitigation**

No compensatory mitigation will be required since the implementation of the avoidance and minimization measures discussed above will ensure that no impacts to FYLF will occur and channel restoration will have a beneficial effect on FYLF habitat.

**Cumulative Impacts**

There are no foreseeable new actions that have potential to threaten FYLF within the BSA or contribute to cumulative effects on FYLF.

## WESTERN POND TURTLE

The western pond turtle (*Actinemys marmorata*) is a SSC in California. Western pond turtles are drab darkish colored turtles with a yellowish to cream colored head. They range from the Washington Puget Sound to the California Sacramento Valley. Suitable aquatic habitats include slow moving to stagnant water, such as back waters and ponded areas of rivers and creeks, semi-permanent to permanent ponds and irrigation ditches. Preferred habitats include features such as hydrophytic vegetation, for foraging and cover, and basking areas to regulate body temperature. In early spring through early summer, female turtles begin to move over land in search for nesting sites. Eggs are laid on the banks of slow moving streams. The female digs a hole approximately four inches deep and lays up to eleven eggs. Afterwards the eggs are covered with sediment and are left to incubate under the warm soils. Eggs are typically laid between March and August (Zeiner, D.C etal. 1990). Current threats facing the western pond turtle include loss of suitable aquatic habitats due to rapid changes in water regimes and removal of hydrophytic vegetation.

**Survey Results**

The stretch of Robinson Creek that occurs in the BSA contains suitable habitat for western pond turtles. However, during the June site visit, Robinson Creek was dry with the exception of a few small shallow pools. As such, Robinson Creek only contains suitable habitat for western pond turtles when there is flowing water present in the creek in the winter and spring months. Given the steep banks and abundance of cobble substrate there is no potential for western pond turtle nests to occur within the BSA.

**Project Impacts**

The Project has potential to impact western pond turtles through activities that may disturb western pond turtle habitat and relocation efforts as needed. There will be no impacts to western pond turtles with the implementation of avoidance and minimization measures.

**Avoidance and Minimization Efforts**

The following are recommended avoidance and minimization measures recommended in order to avoid and minimize potential impacts to western pond turtles.

- A qualified biologist shall conduct a preconstruction survey to determine presence of western pond turtle immediately prior to the start of in-channel work. If found, western pond turtles will be relocated to suitable habitat outside of the BSA by a qualified biologist.
- If a western pond turtle is observed within the Project site, then personnel shall stop work within a 50-foot radius of the sighting and notify the biologist or resident engineer (RE). Work shall not resume within the 50-foot radius buffer until the western pond turtle has left the Project site on its own volition or has been relocated by the qualified biologist.

**Compensatory Mitigation**

No compensatory mitigation will be required since the implementation of the avoidance and minimization measures discussed above will ensure that no impacts to western pond turtles will occur.

**Cumulative Impacts**

There are no foreseeable new actions that have potential to threaten western pond turtles within the BSA or contribute to cumulative effects on western pond turtles.

## MIGRATORY BIRDS AND RAPTORS

Nesting birds are protected under the MBTA (16 USC 703) and the CFGC (3503). The MBTA (16 USC §703) prohibits the killing of migratory birds or the destruction of their occupied nests and eggs except in accordance with regulations prescribed by the USFWS. The bird species covered by the MBTA includes nearly all of those that breed in North America, excluding introduced (i.e. exotic) species (50 Code of Federal Regulations §10.13). Activities that involve the removal of vegetation including trees, shrubs, grasses, and forbs or ground disturbance has the potential to affect bird species protected by the MBTA.

The CFGC (§3503.5) states that it is "unlawful to take, possess, or destroy any birds in the order Falconiformes (hawks, eagles, and falcons) or Strigiformes (all owls except barn owls) or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by this code or any regulation adopted pursuant thereto." Take includes the disturbance of an active nest resulting in the abandonment or loss of young. The CFGC (§3503) also states that "it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by this code or any regulation made pursuant thereto."

**Survey Results**

No active nests of any migratory bird or raptor species were observed during the biologist's field visit, however, the BSA contains vegetation and habitat that have the potential to support nesting migratory birds and raptors. Construction is proposed to occur outside of the avian nesting season, thus minimizing impacts to all avian bird species. A pre-construction survey is recommended if construction is delayed into the avian breeding season (February 1 – August 31) to determine potential locations of active avian species nests within or in close proximity of the BSA.

**Project Impacts**

With the implementation of avoidance and minimization measures specified above there will be no impacts to avian species of special concern or avian species protected under the MBTA and CFGC.

**Avoidance and Minimization Efforts**

To avoid impacts to avian species of special concern or avian species protected under the MBTA and the CFGC, the following avoidance and minimization measures are recommended.

<u>The following are avoidance and minimization measures for California avian species of special concern and species protected under the MBTA and the CFGC.</u>

- Any vegetation removal and/or ground disturbance activities should take place during the avian non-breeding season (September 1 – January 31).
- If construction is to begin within the avian breeding season (February 1 – August 31) then a migratory bird and raptor survey shall be conducted within the BSA by a qualified biologist. A qualified biologist shall:
    - Conduct a protocol level survey for all birds protected by the MBTA and CFGC within seven (7) days prior to construction activities, and map all nests located within 200 feet of construction areas;
    - Develop buffer zones around active nests as recommended by a qualified biologist. Construction activity shall be prohibited within the buffer zones until the young have fledged or the nest fails. Nests shall be monitored at least once per week and a report submitted to the County monthly.

  - If construction activities stop for more than ten (10) days then another migratory bird and raptor survey shall be conducted within seven (7) days prior to the continuation of construction activities.
- All staging and construction activity will be limited to designated areas within the BSA and designated routes for construction equipment shall be established in order to limit disturbance to the surrounding area.

**Compensatory Mitigation**

There will be no compensatory mitigation necessary for Project activities in regards to avian species of special concern or avian species protected under the MBTA and CFGC.

**Cumulative Impacts**

There are no foreseeable new actions that have potential to threaten migratory birds within the BSA or contribute to cumulative effects on migratory bird species.

## BATS

Pallid bats are designated as a CDFW SSC. Pallid bats roost alone, in small groups (2 to 20 bats), or gregariously (100s of individuals). Day and night roosts include crevices in rocky outcrops and cliffs, caves, mines, trees (e.g., basal hollows of coast redwoods and giant sequoias, bole cavities of oaks, exfoliating Ponderosa pine and valley oak bark, deciduous trees in riparian areas, and fruit trees in orchards), and various human structures such as bridges (especially wooden and concrete girder designs), barns, porches, bat boxes, and human-occupied as well as vacant buildings. Roosts generally have unobstructed entrances/exits, and are high above the ground, warm, and inaccessible to terrestrial predators. However, this species has also been found roosting on or near the ground under burlap sacks, stone piles, rags, and baseboards. Lewis 1996 found that pallid bats have low roost fidelity and both pregnant and lactating pallid bats changed roosts an average of once every 1.4 days throughout the summer. Overwintering roosts have relatively cool, stable temperatures and are located in protected structures beneath the forest canopy or on the ground, out of direct sunlight. In other parts of the species' range, males and females have been found hibernating alone or in small groups, wedged deeply into narrow fissures in mines, caves, and buildings. At low latitudes, outdoor winter activity has been reported at temperatures between –5 and 10 °C.

**Survey Results**

During the field survey there was no evidence of bats roosting within the bridge structure. However, the mature oak trees surrounding the creek within the BSA have suitable habitat

elements (e.g. cavities, peeling bark) that may provide suitable day roost habitat for pallid bats.

**Project Impacts**

Construction timing within the creek is proposed from June 15 to October 15 which falls within the bat maternity season (April-August).

**Avoidance and Minimization Efforts**

If trees containing suitable bat habitat (i.e. sloughing bark, activities, or crevices) are removed between March 15 and August 31, a qualified biologist will conduct a preconstruction survey for roosting bats within seven days prior to tree removal. The survey will focus on suitable habitat to determine the absence or presence of roosting bats and type of roost within the tree. If the pre-construction survey determines that bats are not using the trees onsite as day roosts, then tree removal can proceed as planned.

If the tree is being utilized as a day roost and the qualified biologist determines that it is a maternity roost, then removal of the tree will be postponed until consultation with CDFW occurs. If the roost is not a maternity roost or if tree removal occurs during the winter months (i.e. October 16 – February 14), then the following phased removal of the occupied tree will be implemented:

- Day 1: All unoccupied roosting habitat (e.g. crevices, sloughing bark, cavities) should be removed or altered to make it less desirable for roosting. All portions of the tree that do not contain suitable habitat can be removed while avoiding occupied habitat.
- Day 2: All remaining portion of the tree including suitable roosting habitat can be removed.

A qualified biologist shall be onsite during tree removal activities if bats are detected.

**Compensatory Mitigation**

No compensatory mitigation necessary or required.

**Cumulative Impacts**

There are no foreseeable new actions that have potential to threaten bats within the BSA or contribute to cumulative effects on bats.

# 5 Conclusions and Regulatory Determinations

## Federal Endangered Species Act Consultation Summary

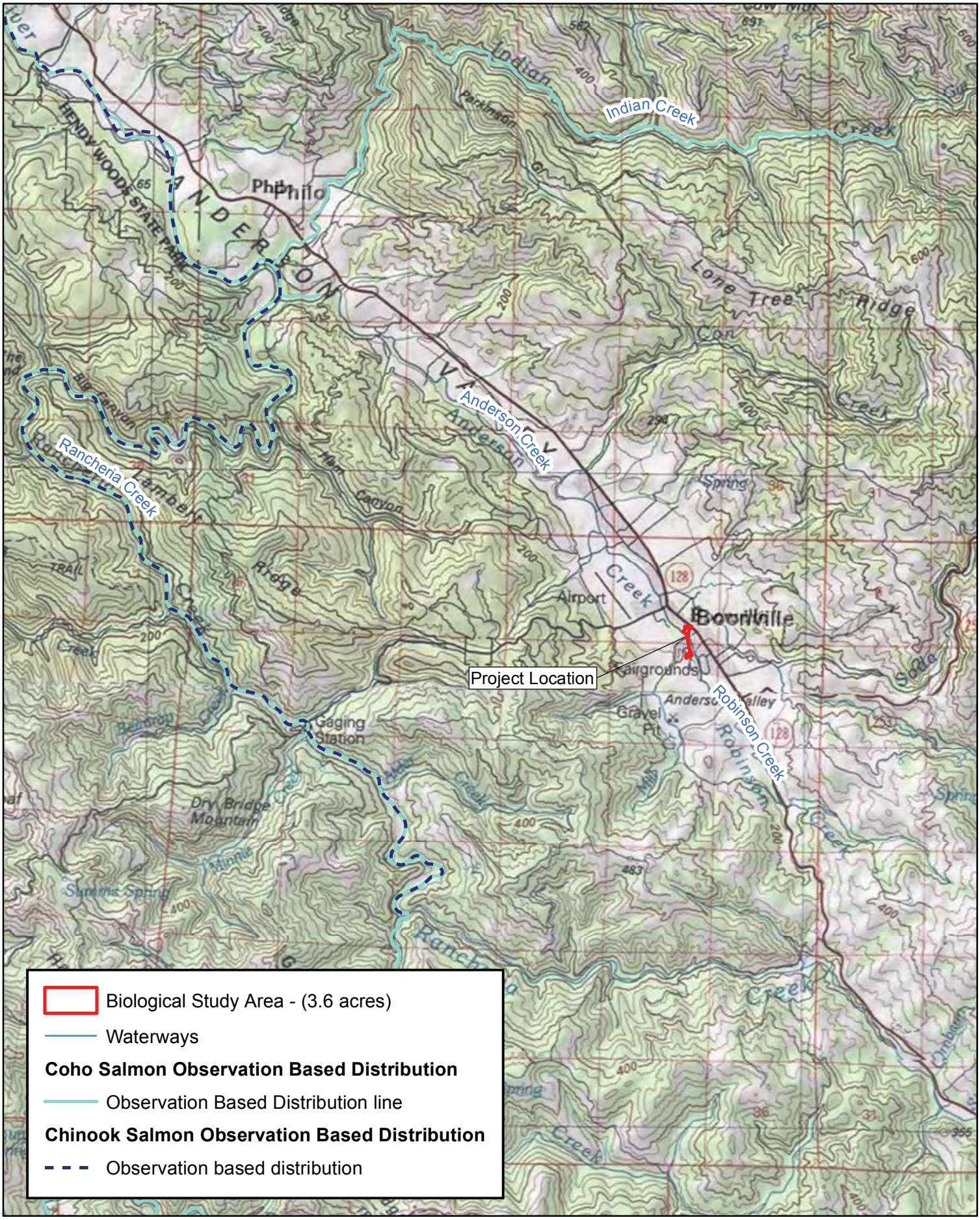
The USFWS was contacted in March 2019 for a list of endangered, threatened, sensitive and rare species, and their habitats within the BSA. This list was updated in December 2020. The list was later referenced to determine appropriate biological and botanical surveys and potential species occurrence within the BSA. The Project may affect and is likely adversely affect the NC steelhead DPS. With the implementation of avoidance and minimization measures, the Project will have no effect on any other federally listed species. The Project is not likely to adversely modify NC steelhead DPS and CCC Coho salmon critical habitat. The Project will both enhance salmonid habitat and restore fish passage to 0.25 acres of critical habitat within the BSA (**Figure 9**).

## Essential Fish Habitat Consultation Summary

Robinson Creek within the BSA falls within the Big-Navarro-Garcia Hydrologic Unit, which is mapped as EFH for all Chinook and Coho salmon species. California Coastal Chinook salmon Coho salmon Evolutionarily Significant Unit (ESU) and Central California Coast (CCC) Coho salmon ESU are the Chinook and Coho salmon species that are known to occur in nearby streams that support salmonids.

Robinson Creek is intermittent and dries completely during the summer months. CNDDB observations between 1990 and 2016 show that there have been no observations of CCC Coho in Robinson Creek (**Figure 10: Chinook and Coho Salmon Observation Based Distribution**). In addition, an extensive review of peer reviewed literature and citizen sightings conducted by CDFW indicated no occurrences of CC Chinook and only one equivocal occurrence of CCC Coho occurring within Robinson Creek within the last 50 years (pers. comm. Scott Harris, CDFW). There is no evidence or documentation that indicates that Robinson Creek was within the historical distribution of CCC Coho or CC Chinook salmon. The proposed Project will have no effect on these species.

Due to the fact that these species do not occur within Robinson Creek and the lack of evidence of historical distribution within the BSA, Robinson Creek does not meet the definition of necessary waters for Chinook and Coho salmon species and should not be considered EFH. The proposed Project will have beneficial effects to EFH. No additional mitigation for affects to EFH will be required.




1:75,000
0 0.5 1 Miles
NORTH
Data Sources: ESRI, USFWS, USGS, Quincy Engineering

Robinson Creek Bridge Replacement Project
Chinook and Coho Salmon Observation Based Distribution
Figure 10

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GE: #15-130 Map Date: 03/06/19

Temporary impacts to EFH during construction activities will be compensated for through the beneficial affects on habitat from the Project. Removal of a failed retaining wall and RSP will restore fish passage to 0.25 acres of EFH within the BSA. In addition, habitat enhancements to Robinson Creek throughout the BSA will be achieved through stream restoration including protecting the embankment slopes from erosion with hybrid RSP revetment, channel grading to remove abrupt hydraulic changes, the addition of point bars along the banks of the creek, and willow and tree plantings (**Appendices A & F**). Additionally, LWD will be anchored in place upstream and downstream of the new bridge and will provide enhanced habitat.

### California Endangered Species Act Consultation Summary

The CDFW was contacted in March 2019 for a list of endangered, threatened, sensitive and rare species, and their habitats within the BSA. This list was updated in December 2020. The list was later referenced to determine appropriate biological and botanical surveys and potential species occurrence within the BSA. With the implementation of avoidance and minimization measures, the Project is expected to have no effect on state listed species.

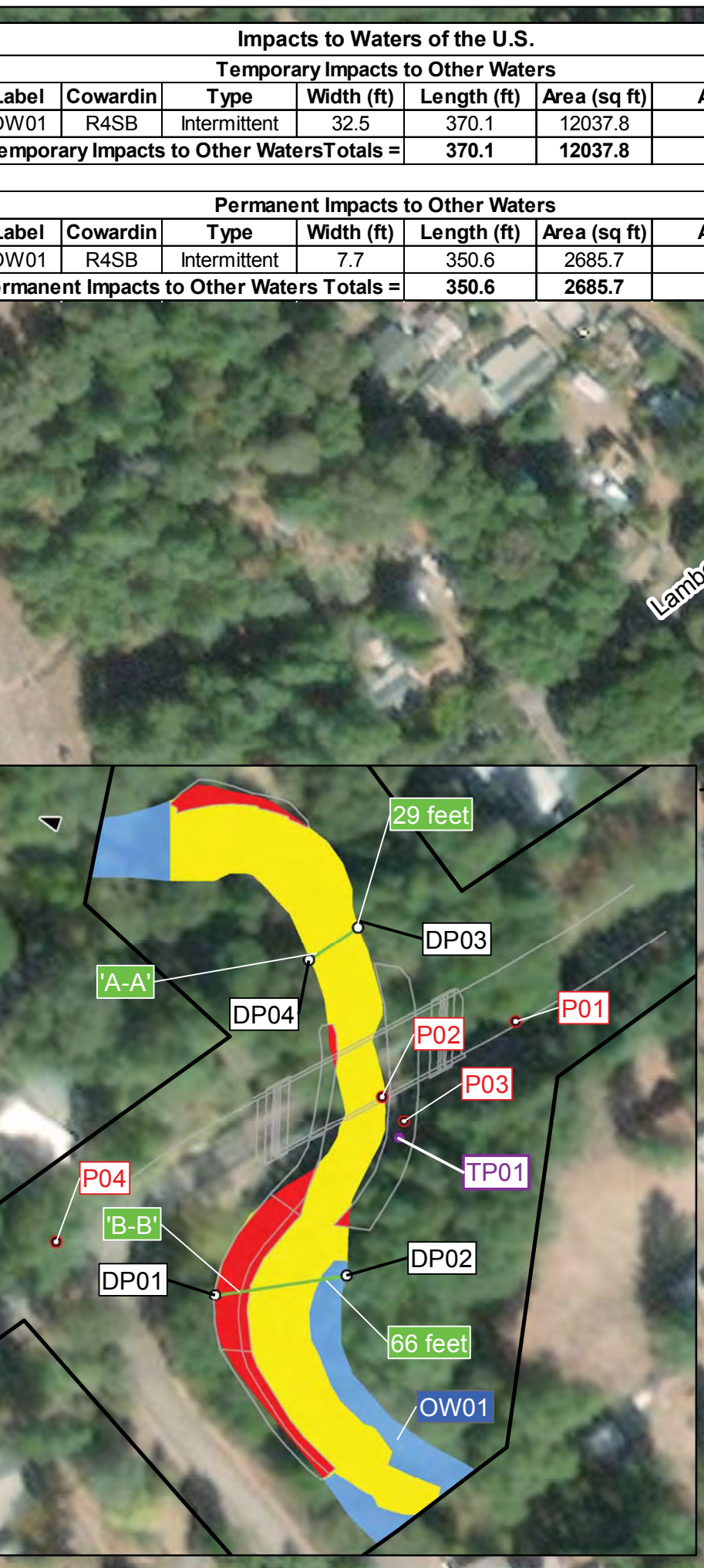
### Wetlands and Other Waters Coordination Summary

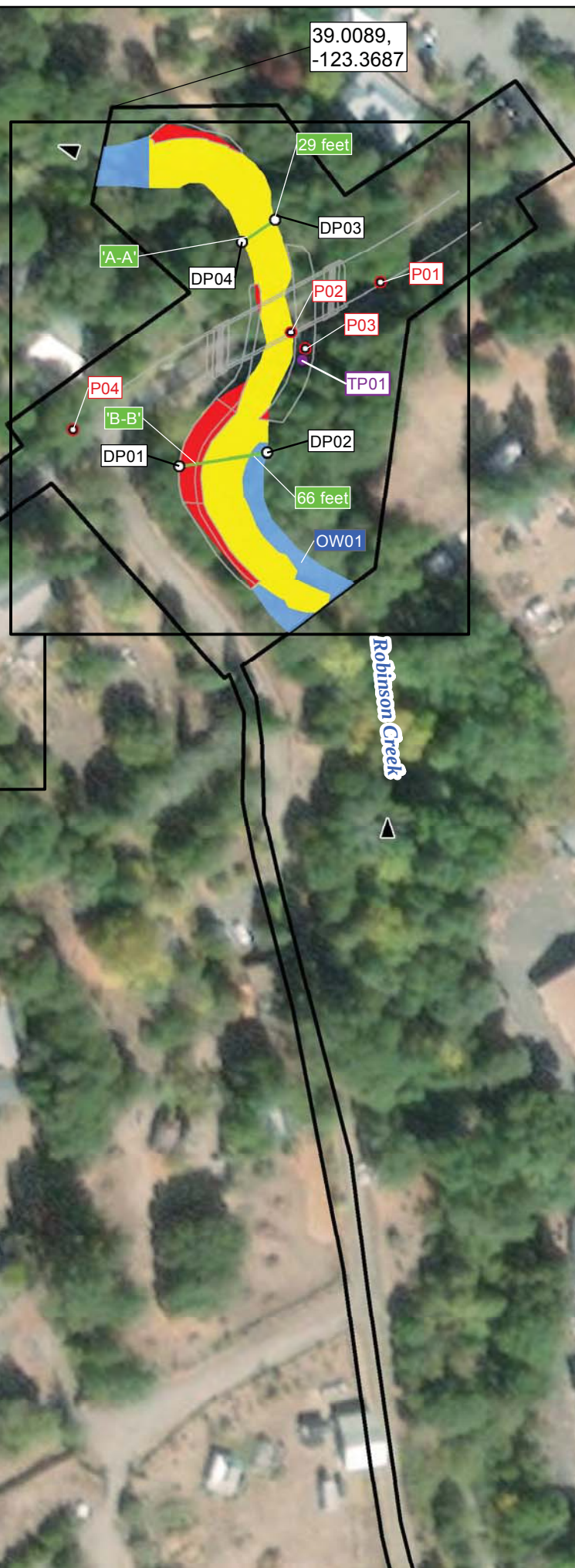
Gallaway Enterprises conducted a Delineation of WOTUS within the BSA.

The BSA was surveyed on-foot by Gallaway Enterprises staff on June 29, 2018 to identify potentially jurisdictional features. The surveys involved an examination of botanical resources, soils, hydrological features, and determination of wetland characteristics based on the United States Army Corps of Engineers Wetlands Delineation Manual (1987) and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (2008). The boundaries of non-tidal, non-wetland waters, when present, were delineated at the OHWM as defined in 33 Code of Federal Regulations (CFR) 328.3 and further described in the U.S. Army Corps of Engineers *Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States* (2008). The OHWM represents the limit of Corps jurisdiction over non-tidal waters (e.g., streams and ponds) in the absence of adjacent wetlands (33 CFR 328.04) (Curtis, et. al. 2011).

The one tributary was identified within the BSA. No wetlands were determined to be present. The one tributary will be impacted by the Project activities. As such, a RWQCB §401 Water Quality Certification permit and a U.S. Army Corps of Engineers (Corps) Nationwide

| Impacts to Waters of the U.S. | | | | | | |
|---|---|---|---|---|---|---|
| **Temporary Impacts to Other Waters** | | | | | | |
| **Label** | **Cowardin** | **Type** | **Width (ft)** | **Length (ft)** | **Area (sq ft)** | **Acres** |
| OW01 | R4SB | Intermittent | 32.5 | 370.1 | 12037.8 | 0.28 |
| **Temporary Impacts to Other WatersTotals =** | | | | **370.1** | **12037.8** | **0.28** |
| | | | | | | |
| **Permanent Impacts to Other Waters** | | | | | | |
| **Label** | **Cowardin** | **Type** | **Width (ft)** | **Length (ft)** | **Area (sq ft)** | **Acres** |
| OW01 | R4SB | Intermittent | 7.7 | 350.6 | 2685.7 | 0.06 |
| **Permanent Impacts to Other Waters Totals =** | | | | **350.6** | **2685.7** | **0.06** |




Lambert Ln

Robinson Creek

The features represented on this graphic are considered preliminary until written verification by the USACE.

- Project Boundary - (3.6 acres)
- Site Plan
- 5 foot contours
- OHWM Transects
- Photo Points - P#*

**Data Points**

- Test Pit - TP#
- OHWM Data Points - DP#

**Other Waters of the U.S. - OW# - (0.43 acres)**

- Intermittent

**Impacts to Waters of the U.S.**

- Temporary Impacts - (0.28 acres)
- Permanent Impacts - (0.06 acres)

P05

39.0049,
-123.3674

Coordinate System: NAD 1983 California State Plane II (Feet)
Projection: Lambert Conformal Conic
Datum: North American 1983
Vertical Datum: NAVD 88

Made in accordance with the Updated Map & Drawing Standards for the South Pacific Division Regulatory Program

NORTH

1:1,325 1 inch = 110 feet
0 55 110 Feet

Data Sources: ESRI, USGS, Quincy Engineering, Maxar 10/21/2019

Robinson Creek Bridge Replacement Project
Impacts to Waters of the U.S.
Figure 11

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GE: #15-130 Map Date: 08/18/2020

§404 14 permit are necessary. The Project will result in 0.28 acres of temporary and 0.06 acres of permanent impacts to jurisdictional WOTUS (**Figure 11: Impacts to Waters of the US**). This Project is self-mitigating as both temporary and permanent impacts will have a net benefit to WOTUS; therefore, the purchase of credits at a Corps approved mitigation bank or payment to a Corps approved in-lieu fund, will not be required. Impacts will be the result of restoration activities including removing the failed retaining wall and associated RSP from the creek, streambank stabilization through hybrid RSP revetment, vegetation of created point bars, and habitat enhancement.

## Invasive Species

Many non-native plant species occur in California's natural lands. Some of these non-natives have become naturalized and are relatively benign; however, there are a number of these non-natives that are considered highly invasive. The non-native plants that are considered invasive are tracked and ranked by their invasiveness by the United States Department of Agricultural (USDA) Natural Resource Conservation Service (NRCS) and the California Invasive Plant Council (Cal-IPC). Within the BSA, 15 invasive plant species were observed that are included on the USDA and/or Cal-IPC invasive and noxious weed plant list as having a moderate or higher degree of invasiveness in California **(Table 3)**.

**Table 3. Invasive Plant Species Identified within the BSA**

| Scientific Name | Common Name | CAL-IPC | USDA California State |
|---|---|---|---|
| *Ailanthus altissima* | Tree-of-heaven | Moderate | N/A |
| *Avena barbata* | Wild Oats | Moderate | N/A |
| *Bromus diandrus* | Ripgut brome | Moderate | N/A |
| *Bromus madritensis ssp. rubens* | Red brome | High | N/A |
| *Cynodon dactylon* | Bermuda grass | Moderate | CW |
| *Cynosurus echinatus* | Hedgehog dogtail | Moderate | N/A |
| *Festuca myuros* | Rat-tail fescue | Moderate | N/A |
| *Festuca perennis* | Italian ryegrass | Moderate | N/A |
| *Hedera helix* | English ivy | High | N/A |

| Scientific Name | Common Name | CAL-IPC | USDA California State |
|---|---|---|---|
| *Hordeum murinum* | Wall hare barley | Moderate | N/A |
| *Lythrum hyssopifolia* | Hyssop loosestrife | Moderate | N/A |
| *Mentha pulegium* | Pennyroyal | Moderate | N/A |
| *Rubus armeniacus* | Himalayan blackberry | High | N/A |
| *Torilis arvensis* | Hedge-parsley | Moderate | N/A |
| *Vinca major* | Periwinkle | Moderate | N/A |

| CODE DESIGNATIONS |
|---|
| **Moderate** – Ecological impacts are substantial, but not sever; moderate to high rates of dispersal but establishment dependent on ecological disturbance; limited to widespread distribution.<br>**High** – Ecological impacts severe; moderate to high rates of dispersal and establishment; widely distributed.<br>**CW** = C List (noxious weeds) |

It is recommended that general best management practices (BMP) be implemented prior and during construction activities as recommended under the Cal-IPC Preventing the Spread of Invasive Plants: Best Management Practices for Transportation and Utility Corridors (2012). The following are the recommended general BMP's under Cal-IPC:

- Schedule activities to minimize potential for introduction and spread of invasive plants.
- Designate specific areas for cleaning tools, vehicles, equipment, clothing and gear.
- Designate waste disposal areas for invasive plant materials, and contain invasive plant material during transport.
- Plan travel routes to avoid areas infested with invasive plants.
- Clean tools, equipment, and vehicles before transporting materials and before entering and leaving worksites.
- Clean clothing, footwear and gear before leaving infested areas.
- Prepare worksites to limit the introduction and spread of invasive plants.

- Minimize soil and vegetation disturbance.

## Other

*Sudden Oak Death Syndrome*

Best Management Practices should be employed to prevent the spread of Sudden Oak Death Syndrome (SOD) and other plant pathogens related to the disposal of vegetation being removed by the Project. The following are the recommended BMPs for prevention of the spread of SOD.

Sudden Oak Death Construction BMPs:

- Ensure all equipment is clean and free of any mud, duff, or vegetation prior to entering or leaving the Project site.
- If any known host species are planned for removal within the Project, all branches will be chipped and the chips spread and kept on-site and the trunks be cut into firewood for burning.
- Avoid using watering trucks in areas around host species.
- Avoid trimming any vegetation of host species during wet conditions.
- Clean and properly sanitize all cutting tools (i.e., chainsaws, hand saws, axes, mauls, etc.).

Sudden Oak Death Revegetation BMPs:

- Limit the amount of host species used as re-planting stock.
- Do not plant acorns or other seeds collected from areas known to be infested with SOD.
- Do not import soil, mulch, duff, or other organic material from areas known to be infested with SOD.
- Inspect all nursery stock for signs of infection or cankers.
- Mulch replanted area with no more than 4 inches of clean coarse bark and avoid mulching directly around trunk collar.

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# Appendix A – Robinson Creek Channel Design Report

# Appendix D:
# Draft Delineation of Jurisdictional Waters of the United States Robinson Creek Bridge Replacement on Lambert Lane

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# DRAFT DELINEATION OF JURISDICTIONAL WATERS OF THE UNITED STATES

## Robinson Creek Bridge Replacement on Lambert Lane

Boonville, Mendocino County, California

BRLO – 5910(099)

**September 2020**



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Appendix B: NRCS Soil Map and Soil Series Descriptions

Appendix C: Arid West Ordinary High Water Mark Data Sheet

# DRAFT DELINEATION OF JURISDICTIONAL WATERS OF THE UNITED STATES,

Robinson Creek Bridge Replacement on Lambert Lane, Boonville, Mendocino County, California

## Introduction and Project Location

Gallaway Enterprises conducted a delineation of waters of the U.S. (WOTUS) and aquatic resources for the Robinson Creek Bridge Replacement on Lambert Lane Project (Project) consisting of an approximately 3.6-acre survey area including the area surrounding the Lambert Lane bridge over Robinson Creek (Bridge No. 10C0146) and a portion of the Mendocino County Fairgrounds that will be used as a potential staging area within the town of Boonville, Mendocino County, CA (**Figure 1 and 2**). The Project site is surrounded by a mix of rural residential homes and urban habitats. The Project is located within the Boonville USGS Quadrangle, Section 2, Township 13N, Range 14W.

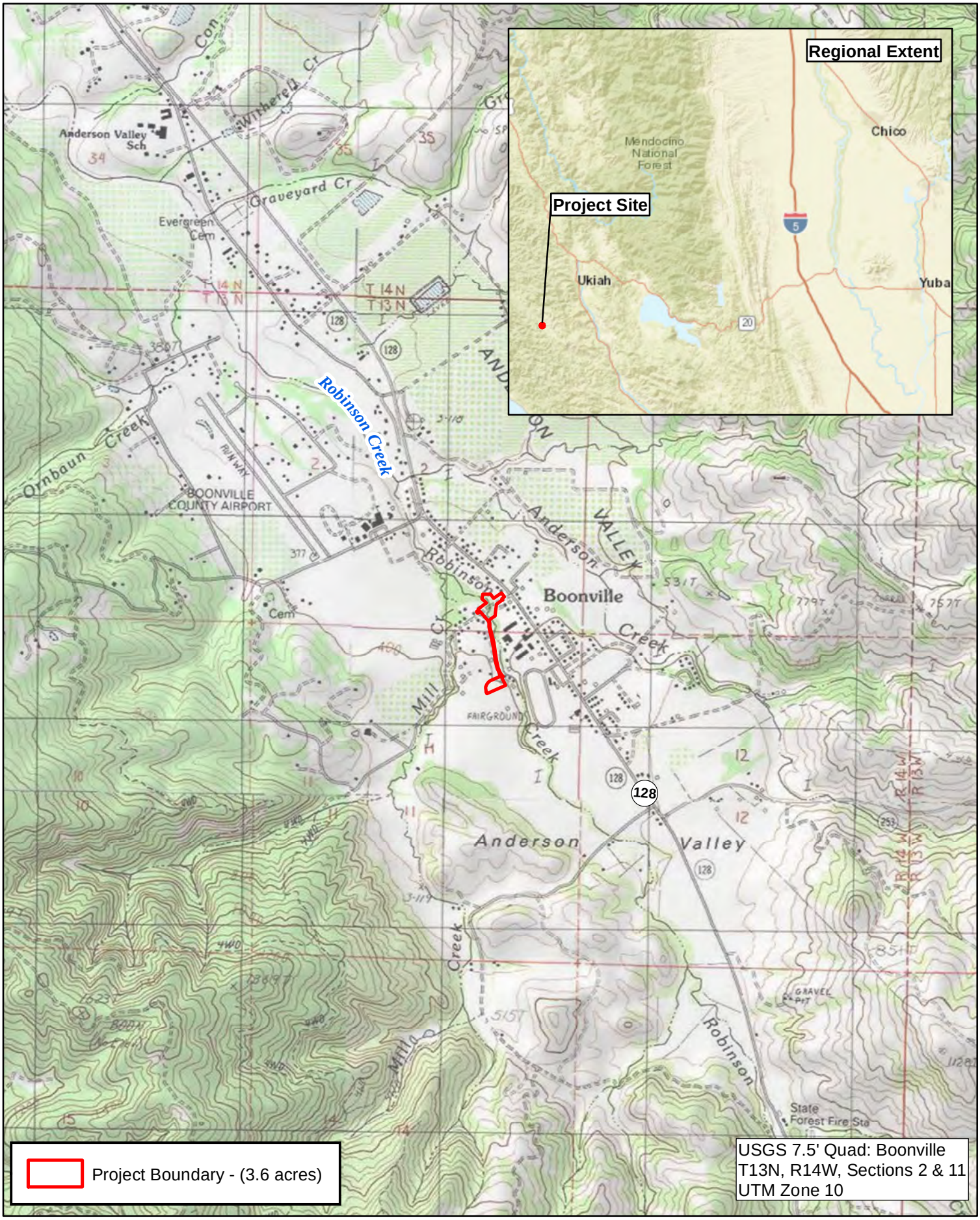
The Project site is accessible from State Route 128 by turning west onto Lambert Lane. The bridge to be replaced occurs approximately 400 feet from the intersection with State Route 128. The staging area can be accessed via Lambert Lane. From the bridge, turn left onto Lambert Lane and continue for approximately 0.2 miles and the staging area will be to the southwest.

A wetland survey was conducted on June 29, 2018 by senior botanist Elena Gregg and biologist Melissa Murphy. Waters of the United States were measured using a Trimble Geo Explorer 6000 Series GPS Receiver. The surveys involved an examination of botanical resources, soils, hydrological features, and determination of wetland characteristics based on the *United States Army Corps of Engineers Wetlands Delineation Manual* (1987, 1987 Delineation Manual); the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (2008, Arid West Manual); the *U.S. Army Corps of Engineers Jurisdictional Determination Form Instructional Guidebook* (2007); the *Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States* (2008); the *State of California 2016 Wetland Plant List* and *2019 National Wetland Plant List updated information*; and the *Clean Water Act Final Rule, Federal Register Volume 85, No-77* (Final Rule), April 21, 2020. Gallaway Enterprises have prepared this report in compliance with the Minimum Standards for Acceptance of Aquatic Resources Delineation Reports (January 2016).

### Environmental Setting and Site Conditions

The Project site is positioned within the narrow Anderson Valley in the northern California coastal mountain range. The Project site consists of the existing asphalt roadway, concrete bridge, gravel road shoulder, a mixed species tree canopy and annual grassland habitat. Robinson Creek runs through the Project site. The overall topography of the site is relatively flat, with Robinson Creek being highly channelized. The surrounding land uses consist of residential homes and urban development, with a mix of landscape and native trees and patches of disturbed annual grassland. The proposed staging area at the fairground facility is composed of highly disturbed annual grassland which is regularly mowed.

The average annual precipitation is 37.88 inches and the average temperature is 58.55° F (WRCC 2019) in the region where the survey area is located. The survey area ranges in elevation from 382 to 405 feet above sea level and is sloped between 0-9 percent. Soils within the survey area are loams with a deep restrictive layer located more than 80 inches deep.




NORTH

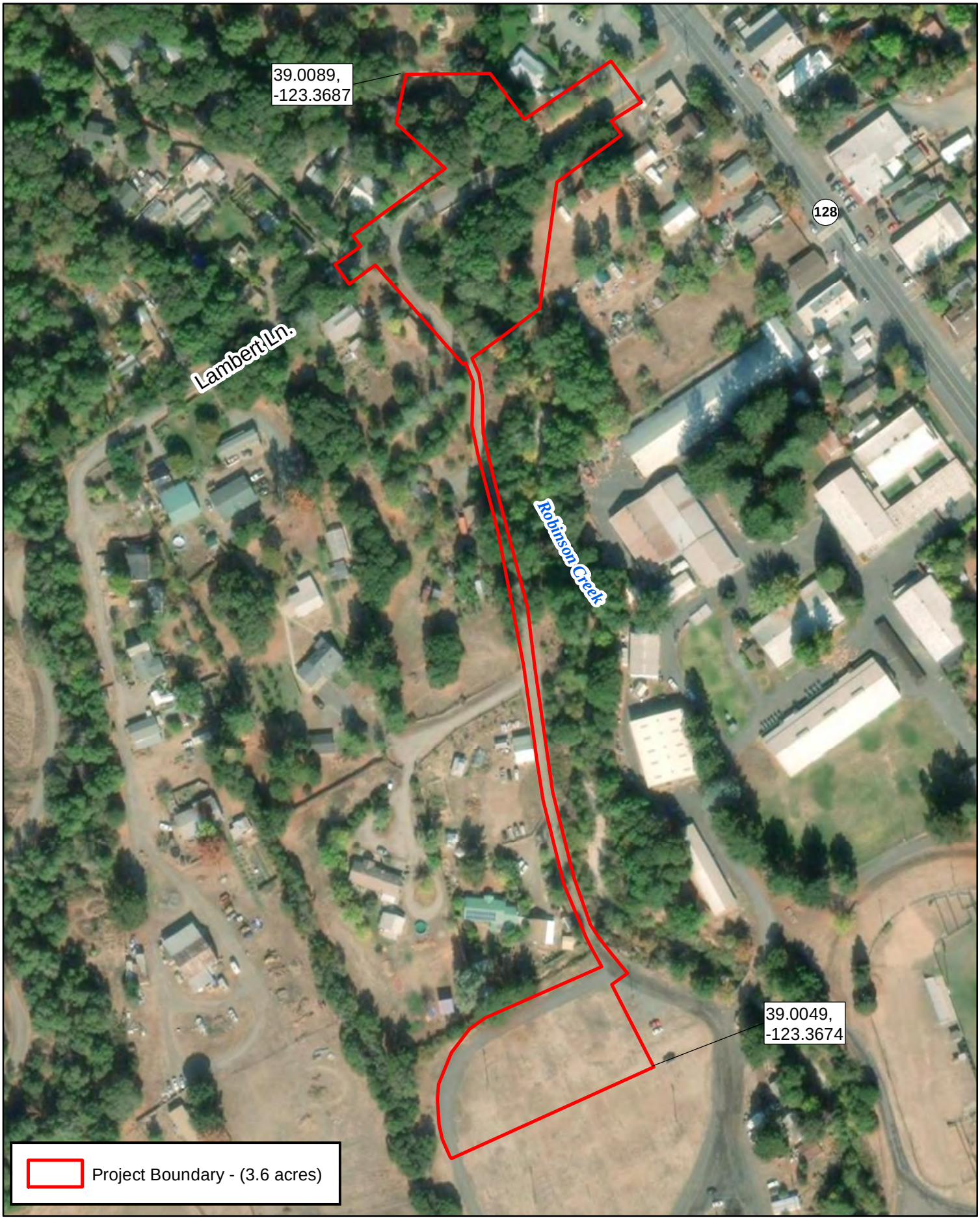
1:24,000
0 1,000 2,000 Feet

Data Sources: ESRI, USGS, Quincy Engineering

Robinson Creek Bridge Replacement Project
Regional Location
Figure 1

gallaway ENTERPRISES

GE: #15-130 Map Date: 01/31/19




NORTH

1:2,200
0 50 100 Feet

Data Sources: ESRI, DigitalGLobe
10/31/17, USGS, Quincy Engineering

Robinson Creek Bridge Replacement Project
Project Location
Figure 2

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GE: #15-130 Map Date: 01/30/19

## Survey Methodology

The entire Project site was surveyed on-foot by Gallaway Enterprises staff on June 29, 2018 to identify any potentially jurisdictional features. The survey, mapping efforts, and report production were performed according to the valid legal definitions of WOTUS in effect at the time of the field surveys and then updated to the current definitions that became effective starting June 22, 2020. The boundaries of non-tidal, non-wetland waters, when present, were delineated at the ordinary high water mark (OHWM) as defined in 33 Code of Federal Regulations (CFR) 328.3. The OHWM represents the limit of United States Army Corps of Engineers (Corps) jurisdiction over non-tidal waters (e.g., streams and ponds) in the absence of adjacent wetlands (33 CFR 328.04) (Curtis, et. al. 2011). Historic aerial photographs available on Google Earth were analyzed prior to conducting the field visit and updated aerial photographs were analyzed to confirm a lack of changes in the current site conditions. Areas identified as having potential wetland signatures were ground-truthed in the field to determine the current conditions.

Field data were entered onto data forms using the most current format. Test pit sampling was performed in areas displaying potential wetland signatures on aerial photographs and/or problem areas (**Appendix A**). Test pit sampling points involved physical sampling of soils and vegetation, and investigation regarding hydrology indicators. Only areas exhibiting the necessary wetland parameters according to the 1987 Delineation Manual and Arid West Manual on the date surveyed were mapped as wetlands. Photographs were taken to show the current site conditions. The locations of the photo points are depicted in **Figure 3** and the associated photographs are provided at the end of the report.

Many of the terms used throughout this report have specific meanings relating to the federal wetland delineation process. Term definitions are based on the 1987 Delineation Manual; the Arid West Manual; *Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States,* (Lichvar and McColley 2008) and the Final Rule. The terms defined below have specific meaning relating to the delineation of WOTUS as prescribed by §404 of the Clean Water Act (CWA).

### Determination of Hydrophytic Vegetation

The presence of hydrophytic vegetation was determined using the methods outlined in the 1987 Delineation Manual and Arid West Manual. Areas were considered to have positive indicators of hydrophytic vegetation if they pass the dominance test, meaning more than 50 percent of the dominant species are OBL, FACW, FAC. Plant species were identified to the lowest taxonomy possible. Plant indicator status was determined by reviewing the current State of California Wetland Plant List for the Arid West Region. In situations where dominance can be misleading due to seasonality, the prevalence index will be used to determine hydrophytic status of the community surrounding sample sites.

***Plant indicator status categories:***

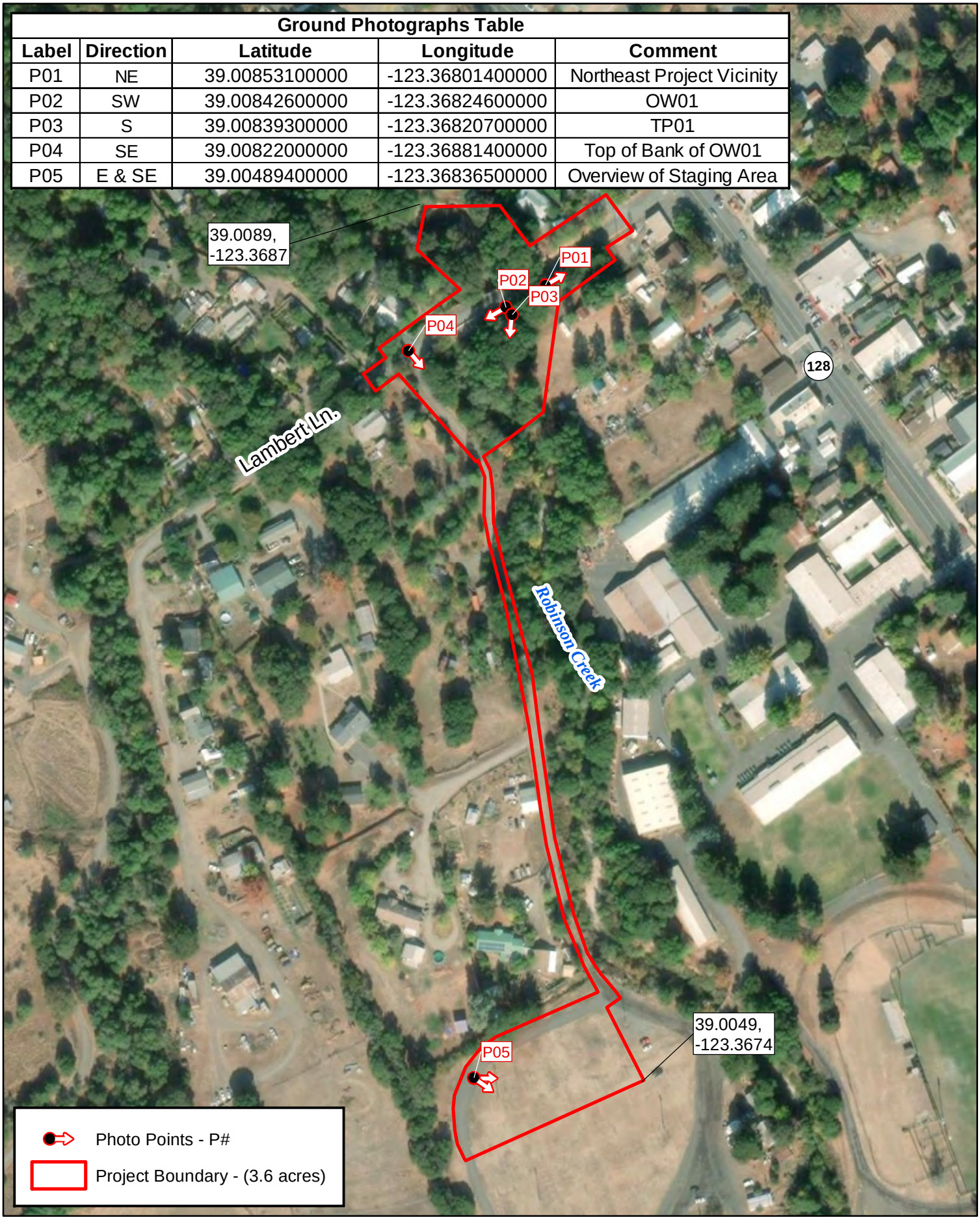
*Obligate wetland plants* (OBL) – plants that occur almost always (estimated probability 99%) in wetlands under normal conditions, but which may also occur rarely (estimated probability 1%) in non-wetlands.

*Facultative wetland plants* (FACW) - plants that usually occur (estimated probability 67% to 99%) in wetlands under normal conditions, but also occur (estimated probability 1% to 33%) in non-wetlands.

*Facultative plants* (FAC) – Plants with a similar likelihood (estimated probability 33% to 67%) of occurring in both wetlands and non-wetlands.

*Facultative upland plants* (FACU) – Plants that occur sometimes (estimated probability1% to 33%) in wetlands, but occur more often (estimated probability 67% to 99%) in non-wetlands.

| Ground Photographs Table | | | | |
|---|---|---|---|---|
| Label | Direction | Latitude | Longitude | Comment |
| P01 | NE | 39.00853100000 | -123.36801400000 | Northeast Project Vicinity |
| P02 | SW | 39.00842600000 | -123.36824600000 | OW01 |
| P03 | S | 39.00839300000 | -123.36820700000 | TP01 |
| P04 | SE | 39.00822000000 | -123.36881400000 | Top of Bank of OW01 |
| P05 | E & SE | 39.00489400000 | -123.36836500000 | Overview of Staging Area |




1:2,500
0 50 100 Feet
NORTH
Data Sources: ESRI, DigitalGLobe
10/31/17, USGS, Quincy Engineering

Robinson Creek Bridge Replacement Project
Ground Photographs Map
Figure 3

gallaway ENTERPRISES

GE: #15-130 Map Date: 02/07/19

*Obligate upland plants* (UPL) – Plants that occur rarely (estimated probability 1%) in wetlands, but occur almost always (estimated probability 99%) in non-wetlands under natural conditions.

### Determination of Hydric Soils

Soil survey information was reviewed for the current site condition. Field soil samples collected were colored using the Munsell soil color chart (2009 Edition), textured by hand, and assessed for hydric soil features (e.g. oxidized root channels, evidence of hardpan, Mn and Fe concretions) (**Appendix A**). The current Natural Resources Conservation Service (NRCS) *Field Indicators of Hydric Soils in the United States, Version 8.2* (NRCS 2018) was on hand to be used in conjunction with the Arid West Manual to determine the presence of hydric soil indicators. Information regarding local soil and series descriptions is provided in **Appendix B**.

### Determination of Wetland Hydrology

Wetland hydrology was determined to be present if a site supported one or more of the following characteristics:

- Landscape position and surface topography (e.g. position of the site relative to an up-slope water source, location within a distinct wetland drainage pattern, and concave surface topography),
- Inundation or saturation for a long duration either inferred based on field indicators or observed during repeated site visits, and
- Residual evidence of ponding or flooding resulting in field indicators such as scour marks, sediment deposits, algal matting, surface soil cracks and drift lines.

The presence of water or saturated soil for approximately 12% or 14 consecutive days during the growing season typically creates anaerobic conditions in the soil, and these conditions affect the types of plants that can grow and the types of soils that develop (Wetland Training Institute 1995).

Historic aerial photographs were analyzed to look for primary and secondary wetland hydrology indicators of inundation or saturation. The historic aerial imagery reviewed was the public, readily available imagery provided on Google Earth. If aerial signatures demonstrated the presence of surface water on 5 or more of the historic aerial photographs viewed, inundation and a primary indicator of wetland hydrology was determined to be present. Saturation, a secondary indicator of wetland hydrology, was determined to be present if saturation, "darker patches within the field," were observed on 5 or more of the 9 historic aerial photographs viewed.

### Determination of Ordinary High Water Mark

Gallaway utilized methods consistent with the Arid West Manual, the *Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States* (2008), and the *Ordinary High Water Mark Identification RGL 05-05 (2005)* (RGL 05-05) to determine the OHWM. The lateral extents of non-tidal water bodies (e.g. intermittent and ephemeral streams) were based on the OHWM, which is "the line on the shore established by the fluctuations of water" (Corps 2005). The OHWM was determined based on multiple observed physical characteristics of the area, which can include scour, multiple observed flow events (from current and historical aerial photos), shelving, drift, exposed root hairs, changes in substrate/particle size, presence of mature vegetation, deposition, and topography. If any other physical indicators as described in the Arid West OHWM Field Guide or RGL 05-05 are observed, these indicators are also utilized to help determine the location of the OHWM.

***OHWM Transects:***

Representative OHWM widths measured in the field are shown as transect lines and measured in feet as required by the Corps *Updated Map and Drawing Standards for the South Pacific Division Regulatory Program (2016)*. These transect lines are used to ensure that drainage features identified within the survey area are mapped and calculated at the appropriate average width for each channel segment based on the Corps definition of OHWM as defined in the Arid West OHWM Field Guide and the *Ordinary High Water Mark Identification RGL 05-05 (2005)* (RGL 05-05). If the average width of a feature changes, this change is shown on the delineation map as a feature transition and a new average channel width is determined. At each transect line Gallaway uses multiple observed physical indicators in determining the OHWM. The lateral extents of the transect lines identify the location of the OHWM. Benches, drift, exposed root hairs, changes in substrate/particle size, and changes in vegetation were observed within the Project site. If any other physical indicators as described in the Arid West OHWM Field Guide or RGL 05-05 are observed, these indicators are also utilized to help determine the location of the OHWM. All data collected at the transect locations is provided in **Appendix C** using the Corps 2010 *Updated Datasheet for the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States* (Curtis and Lichvar 2010).

### Jurisdictional Boundary Determination and Acreage Calculation

The wetland-upland boundary was determined based on the presence or inference of positive indicators of all mandatory criteria. Soil samples were taken within wetland and upland areas. The site was traversed on foot to identify wetland features and boundaries. The spatial data obtained during the preparation of this wetland delineation was collected using a Trimble Geo Explorer 6000 Series GPS Receiver. No readings were taken with fewer than 5 satellites. Point data locations were recorded for at least 25 seconds at a rate of 1 position per second. Area and line data were recorded at a rate of 1 position per second. All GPS data were differentially corrected for maximum accuracy. In some cases, when visual errors and degrees of precision are identified due to environmental factors negatively influencing the precision of the GPS instrument (i.e. dense tree cover, steep topography, and other factors affecting satellite connection) mapping procedures utilized available topographic and aerial imagery datasets in order to improve accuracy in feature alignment and location.

### Non-Wetland and Non-Jurisdictional Boundary Determination

Areas were determined to be non-wetlands if they did not meet the necessary wetland test parameters (hydrophytic vegetation, hydric soil, and wetland hydrology) (33 CFR 328.4) and were determined to be potentially non-jurisdictional if they were consistent with the description of non-jurisdictional features as presented in the *Corps Jurisdictional Determination Form Instructional Guidebook* (2007) and Final Rule. There were no non-jurisdictional by rule features identified within the Project site. Areas that exhibited drainage patterns but lacked an observed OHWM and lacked hydrophytic vegetation were not mapped as WOTUS since they did not meet the necessary criteria to be considered wetlands or tributaries.

## Results

**Table 1** summarizes the area calculations for the pre-jurisdictional features within the Project boundary. A complete Draft Delineation of Waters of the US map, utilizing a 1” to 110’ scale, is included as **Figure 4**.

**Table 1. Summary of Results from the Delineation of Waters of the United States for the Robinson Creek Bridge Replacement on Lambert Lane Project.**

| Label | Cowardin | Description | Width (ft) | Length (ft) | Area (sq ft) | Acres |
|---|---|---|---|---|---|---|
| T01 | R4SB | Intermittent Tributary | 38.4 | 482.5 | 18,530.2 | 0.43 |
| | | | **Tributary Totals =** | **482.5** | **18,530.2** | **0.43** |
| | | | **Total Waters of the U.S. =** | **482.5** | **18,530.2** | **0.43** |

## Waters of the United States: Tributaries

One drainage feature identified as a Tributary (Tributary) to a Traditional Navigable Water (TNW) per the Final Rule occurs within the Project site (**Figure 4**). The Tributary present exhibited evidence of intermittent flows. Tributaries are intermittent or perennial water bodies in a typical year, including lakes, stream channels, and other similar surface water features that exhibit an ordinary high-water mark, but lack positive indicators for one or more of the three wetland parameters (hydrophytic vegetation, hydric soil, and wetland hydrology) (33 CFR 328.4). The Tributary present in the Project site is Robinson Creek (T01, **Figure 4**). The boundaries of the Tributary within the Project boundary were delineated based on the observed OHWM, including physical characteristics such as natural lines impressed on the bank, shelving, changes in the character of the soil, the destruction of terrestrial vegetation, debris lines and other appropriate indicators. See **Appendix C** for the Arid West OHWM Datasheets detailing the OHWM indicators observed for the Tributary. Ponded water was observed in portions of Robinson Creek during the June field visit.

## Waters of the United States: Adjacent Waters

No wetland features were observed within the Project survey area.

During the field survey, one area was identified that was dominated by facultative vegetation, but was found, based on the test pit data taken, to lack the remaining necessary wetland parameters (**Figure 4** and **Appendix A**). This area was located on the top of bank adjacent to Robinson Creek. No riparian vegetation was observed outside of the OHWM of Robinson Creek, thus, no riparian wetlands were mapped on the site.

Photo points were taken during the 2018 site visit throughout the Project site to depict the existing site conditions (**Figure 3**).

## Soils

Gallaway collected soil data at test pit locations within the Project site. Field observations of soil characteristics included soil color, texture, structure, and the visual assessment of soil features (e.g. the presence, or absence of redoximorphic features and the depth of restrictive layers such as hardpans). Field observations of soil characteristics at the pit sites are included in the data sheet forms presented in **Appendix A**. Gallaway's soil texture evaluations rendered very dark grayish brown soil colors with loamy and sandy loam soil textures. The depth of the hand dug soil pits were dug deep enough to determine or rule out the presence/absence of hydric soil indicators.

The geographic region in which the Project site is found is often characterized as having a naturally deep restrictive layer found at a depth of more than 80 inches.

Project Boundary - (3.6 acres)

5 foot contours

OHWM Transects

Photo Points - P#*

**Data Points**

Test Pit - TP#

OHWM Data Points - DP#

**Other Waters of the U.S. - OW# - (0.43 acres)**

Intermittent

*See Figure 3, Ground Photographs Map, for additional information about Photo Points.

39.0089, -123.3687

29 feet

DP03

'A-A'

DP04

P01

P02

P03

TP01

P04

'B-B'

DP02

DP01

66 feet

OW01

Lambert Ln.

Robinson Creek

| Draft Delineation of Waters of the U.S. | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Other Waters of the U.S. | | | | | | | | |
| Label | Cowardin | Description | Latitude | Longitude | Width (ft) | Length (ft) | Area (sq ft) | Acres |
| OW01 | R4SB | Intermittent | 39.008335 | -123.36839 | 38.4 | 482.5 | 18530.2 | 0.43 |
| | | | | **Other Waters of the U.S. Totals =** | | **482.5** | **18530.2** | **0.43** |

39.0049, -123.3674

P05

The features represented on this graphic are considered preliminary until written verification by the USACE.

Coordinate System: NAD 1983 California State Plane II (Feet)
Projection: Lambert Conformal Conic
Datum: North American 1983
Vertical Datum: NAVD 88

Made in accordance with the Updated Map & Drawing Standards for the South Pacific Division Regulatory Program

NORTH

1:1,325 1 inch = 110 feet

0 55 110 Feet

Data Sources: ESRI, USGS, Quincy Engineering, Maxar 10/21/2019

Robinson Creek Bridge Replacement Project
Draft Delineation of Waters of the U.S.
Figure 4

gallaway ENTERPRISES

GE: #15-130 Map Date: 08/18/2020

Gallaway queried the National Cooperative Soil Survey database to further evaluate the current soil conditions. Three soil map units occur within the Project site. The 3 identified map units are listed below in **Table 2**. Based on Gallaway's review, 2 of the 3 soil map units identified within the survey area contain minor amounts of hydric components (4 to 5%) which are typically found on stream terraces or within depressions. A copy of the soil survey map and a description of mapped soil units for the Project site are included as Appendix B.

**Table 2. Soil Map Units, NRCS hydric soil designation, and approximate totals for the Robinson Creek Bridge Replacement on Lambert Lane Project.**

| Map Unit Symbol | Map Unit Name | % Hydric Component in Map Unit | Landform of Hydric Component | % Map Unit in Survey Area |
|---|---|---|---|---|
| **109** | Boontling loam, 2 to 9 percent slopes | 4 | Stream terraces and depressions | 71.1% |
| **127** | Cole loam, 0 to 5 percent slopes | 5 | Stream terraces | 4.9% |
| **193** | Pinole loam, 2 to 9 percent slopes | N/A | N/A | 24.0% |

## Vegetation

During the site visit, vegetation within the creek included arroyo willow (*Salix lasiolepis*) (FACW) and Himalayan blackberry (*Rubus armeniacus*) (FAC) and the occasional Oregon ash (*Fraxinus latifolia*) (FACW). Along the tops of the banks of Robinson Creek, the majority of the vegetation was dominated by a dense tree canopy consisting of valley oaks (*Quercus lobata*) (FACU) and live oak (*Quercus wislizeni*) (UPL), a shrub layer of California bay-laurel (*Umbellularia californica*) (FAC) and an understory dominated by Himalayan blackberry, periwinkle (*Vinca major*) (NL), English ivy (*Hedera helix*) (NL), poison oak (*Toxicodendron diversilobum*) (UPL) and upland herbaceous species. Vegetation within the herbaceous upland portions of the survey area was primarily composed of perennial rye-grass (*Festuca perennis*) (FAC), wall hare barley (*Hordeum murinum*) (FACU), hawkbit (*Leontodon saxatilis*) (FACU), smooth cat's-ear (*Hypochaeris glabra*) (NL), English plantain (*Plantago lanceolata*) (FAC), and yellow star-thistle (*Centaurea solstitialis*) (UPL).

## Hydrology

Precipitation and surface runoff from adjacent land function as the main hydrological inputs for the WOTUS located within the survey area. The one WOTUS present in the Project site is Robinson Creek, which is a natural intermittent drainage that is a direct Tributary of Anderson Creek. Anderson Creek is a direct Tributary of the Navarro River, a TNW.

One test pit data point was collected in a representative area that exhibited a possible riparian signature when analyzing the aerial photos. Based on test pit data collected at this location (**Appendix A**), the area

lacked the necessary wetland parameters and it, along with other similar areas within the Project site, were not mapped as wetland features.

**Site Photos – Taken June 29, 2018**



P01 – Lambert Lane roadside looking northeast (note lack of roadside ditch)



P04 – Lambert Lane intersection looking southeast (note lack of roadside ditches)



P02 – Edge of bridge over Robinson Creek looking southwest



P05 – Staging area overview looking east



P03 – Robinson Creek (OW 1) looking upstream (south) at base of bridge



P05 – Staging area overview looking southeast

## Glossary

**Abutting:** When referring to wetlands that are adjacent to a tributary, abutting defines those wetlands that are not separated from the tributary by an upland feature, such as a berm or dike.

**Adjacent:** Adjacent wetlands are defined in Corps and EPA regulations as wetlands that abut, or touch at least at one point or side, a tributary or other jurisdictional feature. Wetlands separated from other waters of the U.S. by man-made/artificial dikes or barriers, natural river berms, beach dunes and the like are 'adjacent wetlands' so long as the artificial structure allows for a direct hydrologic surface connection. The entirety of wetlands are considered adjacent if the wetland has a road or similar artificial structure dividing it as long as the road/structure allows for a direct hydrologic surface connection through or over that structure in a typical year.

The regulations define "adjacent wetlands" as wetlands that meet at least one of following criteria:

(1) There is an unbroken surface hydrologic connection between the wetland and jurisdictional waters;
(2) The wetland is inundated by flooding from a jurisdictional sea, tributary or lake/pond;
(3) The wetlands are physically separated from jurisdictional sea, tributary or lake/pond only by a natural berm, bank, dune, or similar natural feature; or
(4) The wetlands are physically separated from jurisdictional sea, tributary or lake/pond only by an artificial dike, barrier or similar artificial structure and the artificial structure allows for a direct connection between the wetland and jurisdictional water in a typical year.

The agencies will also continue to assert jurisdiction over wetlands "adjacent" to traditional navigable waters as defined in the agencies' regulations. The Rapanos decision does not affect the scope of jurisdiction over wetlands that are adjacent to traditional navigable waters. The agencies will assert jurisdiction over those adjacent wetlands that have a continuous surface connection with a relatively permanent, non-navigable tributary, without the legal obligation to make a significant nexus finding.

**Atypical situation (significantly disturbed):** In an atypical (significantly disturbed) situation, recent human activities or natural events have created conditions where positive indicators for hydrophytic vegetation, hydric soil, or wetland hydrology are not present or observable.

**Boulder.** Rock fragments larger than 60 .4 cm (24 inches) in diameter.

**Channel.** "An open conduit either naturally or artificially created which periodically or continuously contains moving water, or which forms a connecting link between two bodies of standing water" (Langbein and Iseri 1960:5).

**Channel bank.** The sloping land bordering a channel. The bank has steeper slope than the bottom of the channel and is usually steeper than the land surrounding the channel.

**Cobbles.** Rock fragments 7.6 cm (3 inches) to 25 .4 cm (10 inches) in diameter.

**Debris flow**. A moving mass of rock fragments, soil, and mud where more than 50% of the particles are larger than sand-sized.

**Drift.** Organic debris oriented to flow direction(s) (larger than small twigs).

**Ephemeral stream.** An ephemeral stream has flowing water only in direct response to precipitation events in a typical year. Ephemeral streambeds are located above the water table year-round. Groundwater is not a source of water for the stream. Runoff from rainfall is the primary source of water for stream flow.

**Facultative wetland (FACW).** Wetland indicator category; species usually occurs in wetlands (estimated probability 67–99%) but occasionally found in non-wetlands.

**Flat.** A level landform composed of unconsolidated sediments usually mud or sand. Flats may be irregularly shaped or elongate and continuous with the shore, whereas bars are generally elongate, parallel to the shore, and separated from the shore by water.

**Gravel.** A mixture composed primarily of rock fragments 2mm (0 .08 inch) to 7.6 cm (3 inches) in diameter. Usually contains much sand.

**Growing season** The frost-free period of the year (see U.S. Department of Interior, National Atlas 1970:110-111 for generalized regional delineation).

**Herbaceous.** With the characteristics of an herb; a plant with no persistent woody stem above ground.

**Hydric soil**. Soil is hydric that is saturated, flooded, or ponded long enough during the growing season to develop anaerobic (oxygen-depleted) conditions in its upper part (i.e., within the shallow rooting zone of herbaceous plants).

**Hydrophyte**, **hydrophytic.** Any plant growing in water or on a substrate that is at least periodically deficient in oxygen as a result of excessive water content.

**Intermittent stream.** An intermittent stream has flowing water during certain times of the year and more than in direct response from precipitation, when elevated groundwater provides water for stream flow. During dry periods, intermittent streams may not have flowing water.

**Jurisdictional Waters**. Features that meet the definition of waters of the Unites States provided below and that fall under Corps regulations pursuant to Section 404 of the CWA are considered jurisdictional features. These include territorial seas; tributaries; lakes and ponds and impoundments of jurisdictional waters; and adjacent wetlands.

**Litter.** Organic debris oriented to flow direction(s) (small twigs and leaves).

**Man-induced wetlands.** A man-induced wetland is an area that has developed at least some characteristics of naturally occurring wetlands due to either intentional or incidental human activities.

**Normal circumstances.** This term refers to the soil and hydrologic conditions that are normally present, without regard to whether the vegetation has been removed.

**Obligate wetland (OBL).** Wetland indicator category; species occurs almost always (estimated probability 99%) under natural conditions in wetlands.

**Perennial stream.** A perennial stream has flowing water year-round during atypical year. The water table is located above the stream bed for most of the year. Groundwater is the primary source of water for stream flow. Runoff from rainfall is a supplemental source of water for stream flow.

**Ponded**. Ponding is a condition in which free water covers the soil surface (e.g., in a closed depression) and is removed only by percolation, evaporation, or transpiration.

**Reach**. A segment of a stream channel.

**Scour.** Soil and debris movement.

**Sheetflow.** Overland flow occurring in a continuous sheet; a relatively high-frequency, low-magnitude event.

**Shrub.** A woody plant which at maturity is usually less than 6 m(20 feet) tall and generally exhibits several erect, spreading, or prostrate stems and has a bushy appearance ; e.g., speckled alder (*Alnus rugosa*) or buttonbush (*Cephalanthus occidentalis*).

**Stone.** Rock fragments larger than 25 .4 cm (10 inches) but less than 60 .4 cm (24 inches).

**Traditional Navigable Waters (TNWs).** "[a]ll waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide." These waters are referred to in this guidance as traditional navigable waters. The traditional navigable waters include all of the "navigable waters of the United States," as defined in 33 C.F.R. Part 329 and by numerous decisions of the federal courts, plus all other waters that are navigable-in-fact (for example, the Great Salt Lake, UT, and Lake Minnetonka, MN). Thus, the traditional navigable waters include, but are not limited to, the "navigable waters of the United States" within the meaning of Section 10 of the Rivers and Harbors Act of 1899 (also known as "Section 10 waters").

**Tree.** A woody plant which at maturity is usually 6 m (20 feet) or more in height and generally has a single trunk, unbranched for 1 m or more above the ground, and a more or less definite crown; e.g., red maple (*Acer rubrum*), northern white cedar (*Thuja occidentalis*).

**Tributary**. Tributaries are defined by regulation as a "river, stream or similar naturally occurring surface water channel that contributes surface water flow to a [jurisdictional water] in a typical year either directly or through one or more [jurisdictional water]. A tributary must be perennial or intermittent in a typical year." Tributaries include natural perennial or intermittent drainages that have been realigned or relocated.

**Typical Year.** Defined by the EPA and Corps as meaning when precipitation and other climactic variables are within the normal periodic range for the geographic area based on a rolling thirty-year period.

**Water table.** The upper surface of a zone of saturation. No water table exists where that surface is formed by an impermeable body.

**Waters of the United States (WOTUS)**. This is the encompassing term for areas under federal jurisdiction pursuant to Section 404 of the CWA. Waters of the United States are divided into "adjacent wetlands" and "tributaries".

**Watershed (drainage basin)**. An area of land that drains to a single outlet and is separated from other watersheds by a divide.

**Wetland**. Wetlands are defined as "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 life in saturated soil conditions" (33 CFR 328.3 [b], 40 CFR 230.3). To be considered under potential federal jurisdiction, a wetland must support positive indicators for hydrophytic vegetation, hydric soil, and wetland hydrology.

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## Appendix A: Wetland Determination Data Forms

# WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Robinson Creek Bridge on Lambert Lane | City/County: Mendocino County | Sampling Date: 06-29-16

Applicant/Owner: County ROW | State: CA | Sampling Point: TP 01

Investigator(s): E. Gregg | Section, Township, Range: Section 2, T 13N, R 14W

Landform (hillslope, terrace, etc.): fan terrace | Local relief (concave, convex, none): sloped | Slope (%): 4

Subregion (LRR): C - Mediterranean California | Lat: 39.00839274160 | Long: -123.36820710200 | Datum: NAD 83

Soil Map Unit Name: Pinole loam, 2 to 9 percent slopes | NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (●) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

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

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

| | | | |
|---|---|---|---|
| Hydrophytic Vegetation Present? | Yes ( ) | No (●) | |
| Hydric Soil Present? | Yes ( ) | No (●) | **Is the Sampled Area within a Wetland?** Yes ( ) No (●) |
| Wetland Hydrology Present? | Yes ( ) | No (●) | |

Remarks: Area is representative of the top-of-bank of Robinson Creek. Due to the channelized nature of the creek, the top-of-bank does not meet the criteria for a riparian wetland.

## VEGETATION

| Tree Stratum (Use scientific names.) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. *Quercus wislizeni* | 10 | Yes | Not Listed |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| Total Cover: | 10 % | | |
| **Sapling/Shrub Stratum** | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| Total Cover: | % | | |
| **Herb Stratum** | | | |
| 1. *Rubus armeniacus* | 50 | Yes | FAC |
| 2. *Vitis californica* | 30 | Yes | FACU |
| 3. *Toxicodendron diversilobum* | 15 | No | UPL |
| 4. *Artemisia douglasiana* | 5 | No | FAC |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| Total Cover: | 100 % | | |
| **Woody Vine Stratum** | | | |
| 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: 33.3 % (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply by: | |
|---|---|---|---|
| OBL species | | x 1 = | 0 |
| FACW species | | x 2 = | 0 |
| FAC species | 55 | x 3 = | 165 |
| FACU species | 30 | x 4 = | 120 |
| UPL species | 25 | x 5 = | 125 |
| Column Totals: | 110 (A) | | 410 (B) |

Prevalence Index = B/A = 3.73

**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.

**Hydrophytic Vegetation Present?** Yes ( ) No (●)

Remarks:

## SOIL

Sampling Point: TP 01

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

| Depth (inches) | Matrix Color (moist) | Matrix % | Redox Features Color (moist) | Redox Features % | Type[1] | Loc[2] | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-6 | | | | | | | | organic layer |
| 6-10 | 10YR 3/2 | 100 | | | | | sandy loam | gravel present |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[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 distributed or problematic

**Restrictive Layer (if present):**

Type: n/a

Depth (inches): n/a

**Hydric Soil Present?** Yes ○ No ◉

Remarks: test pit dug deep enough to determine the presence/absence of hydric indicators. No hydric soil indicators met.

## 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 Plowed Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

**Field Observations:**

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches):

**Wetland Hydrology Present?** Yes ○ No ◉

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

Remarks: No wetland hydrology indicators observed.

## Appendix B: NRCS Soils Map and Soil Series Descriptions

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

# Custom Soil Resource Report for Mendocino County, Western Part, California

## Robinson Bridge Replacement Project




February 7, 2019

# Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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# How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

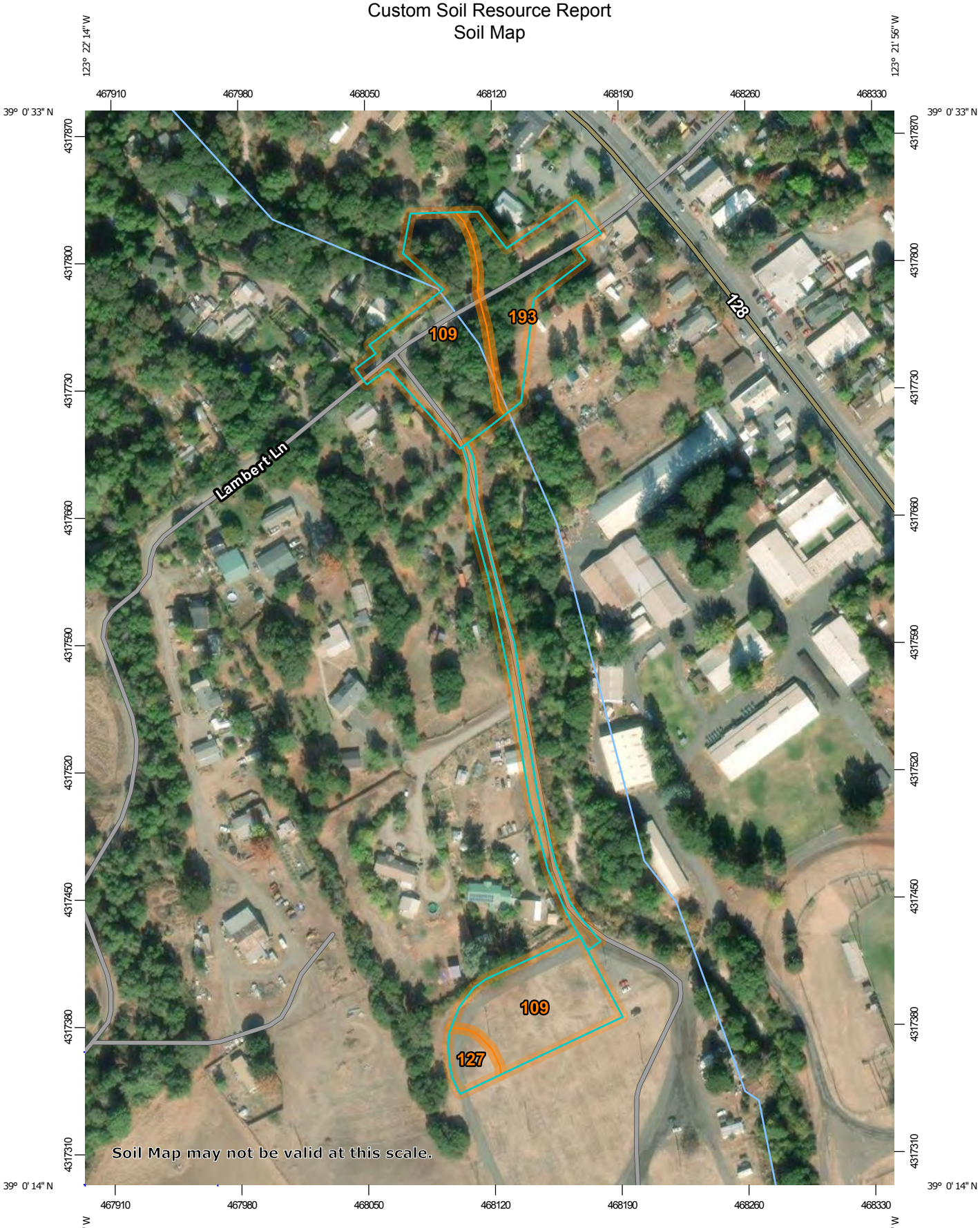
After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

# Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

# Custom Soil Resource Report
## Soil Map




Map Scale: 1:2,880 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 40 80 160 240

Feet: 0 100 200 400 600

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 10N WGS84

## MAP LEGEND

**Area of Interest (AOI)**
- Area of Interest (AOI)

**Soils**
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

**Special Point Features**
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

**Water Features**
- Streams and Canals

**Transportation**
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

**Background**
- Aerial Photography

## MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Mendocino County, Western Part, California
Survey Area Data: Version 13, Sep 17, 2018

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Dec 31, 2009—Nov 6, 2017

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

# Map Unit Legend

| Map Unit Symbol | Map Unit Name | Acres in AOI | Percent of AOI |
|---|---|---|---|
| 109 | Boontling loam, 2 to 9 percent slopes | 2.6 | 71.1% |
| 127 | Cole loam, 0 to 5 percent slopes | 0.2 | 4.9% |
| 193 | Pinole loam, 2 to 9 percent slopes | 0.9 | 24.0% |
| **Totals for Area of Interest** | | **3.7** | **100.0%** |

# Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or

landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

# Mendocino County, Western Part, California

## 109—Boontling loam, 2 to 9 percent slopes

### Map Unit Setting

*National map unit symbol:* hmk8
*Elevation:* 200 to 450 feet
*Mean annual precipitation:* 40 to 50 inches
*Mean annual air temperature:* 54 to 57 degrees F
*Frost-free period:* 175 to 250 days
*Farmland classification:* Prime farmland if irrigated

### Map Unit Composition

*Boontling and similar soils:* 85 percent
*Minor components:* 15 percent
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Boontling

#### Setting

*Landform:* Stream terraces
*Landform position (two-dimensional):* Backslope
*Landform position (three-dimensional):* Tread
*Down-slope shape:* Linear
*Across-slope shape:* Linear
*Parent material:* Alluvium derived from igneous, metamorphic and sedimentary rock

#### Typical profile

*H1 - 0 to 12 inches:* loam
*H2 - 12 to 30 inches:* loam
*H3 - 30 to 40 inches:* clay loam
*H4 - 40 to 60 inches:* gravelly clay loam

#### Properties and qualities

*Slope:* 2 to 9 percent
*Depth to restrictive feature:* More than 80 inches
*Natural drainage class:* Somewhat poorly drained
*Runoff class:* High
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high (0.20 to 0.60 in/hr)
*Depth to water table:* About 30 to 42 inches
*Frequency of flooding:* None
*Frequency of ponding:* None
*Available water storage in profile:* High (about 9.3 inches)

#### Interpretive groups

*Land capability classification (irrigated):* 2w
*Land capability classification (nonirrigated):* 3w
*Hydrologic Soil Group:* C
*Ecological site:* Deep Loamy (Perennial Grass) (R004XB057CA)
*Hydric soil rating:* No

**Minor Components**

**Cole**
*Percent of map unit:* 3 percent
*Hydric soil rating:* No

**Feliz**
*Percent of map unit:* 3 percent
*Hydric soil rating:* No

**Pinole**
*Percent of map unit:* 3 percent
*Hydric soil rating:* No

**Perrygulch**
*Percent of map unit:* 2 percent
*Landform:* Stream terraces
*Hydric soil rating:* Yes

**Unnamed**
*Percent of map unit:* 2 percent
*Landform:* Depressions
*Hydric soil rating:* Yes

**Unnamed, gentler or steeper slopes**
*Percent of map unit:* 2 percent
*Hydric soil rating:* No

## 127—Cole loam, 0 to 5 percent slopes

**Map Unit Setting**
*National map unit symbol:* hml1
*Elevation:* 150 to 1,500 feet
*Mean annual precipitation:* 40 to 60 inches
*Mean annual air temperature:* 55 to 61 degrees F
*Frost-free period:* 150 to 250 days
*Farmland classification:* Prime farmland if irrigated

**Map Unit Composition**
*Cole and similar soils:* 85 percent
*Minor components:* 15 percent
*Estimates are based on observations, descriptions, and transects of the mapunit.*

**Description of Cole**

**Setting**
*Landform:* Stream terraces
*Landform position (two-dimensional):* Backslope
*Landform position (three-dimensional):* Tread
*Down-slope shape:* Linear
*Across-slope shape:* Linear

*Parent material:* Alluvium derived from igneous, metamorphic and sedimentary rock

**Typical profile**

*H1 - 0 to 18 inches:* loam
*H2 - 18 to 60 inches:* clay

**Properties and qualities**

*Slope:* 0 to 5 percent
*Depth to restrictive feature:* More than 80 inches
*Natural drainage class:* Somewhat poorly drained
*Runoff class:* High
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately low to moderately high (0.06 to 0.20 in/hr)
*Depth to water table:* About 30 to 42 inches
*Frequency of flooding:* None
*Frequency of ponding:* None
*Available water storage in profile:* High (about 9.3 inches)

**Interpretive groups**

*Land capability classification (irrigated):* 2w
*Land capability classification (nonirrigated):* 3w
*Hydrologic Soil Group:* D
*Hydric soil rating:* No

**Minor Components**

**Boontling**

*Percent of map unit:* 10 percent
*Hydric soil rating:* No

**Unnamed**

*Percent of map unit:* 5 percent
*Landform:* Stream terraces
*Hydric soil rating:* Yes

## 193—Pinole loam, 2 to 9 percent slopes

**Map Unit Setting**

*National map unit symbol:* hmnw
*Elevation:* 400 to 1,500 feet
*Mean annual precipitation:* 32 to 50 inches
*Mean annual air temperature:* 55 to 59 degrees F
*Frost-free period:* 200 to 250 days
*Farmland classification:* Prime farmland if irrigated

**Map Unit Composition**

*Pinole and similar soils:* 85 percent
*Minor components:* 15 percent
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Pinole

#### Setting

*Landform:* Stream terraces
*Landform position (two-dimensional):* Backslope
*Landform position (three-dimensional):* Tread
*Down-slope shape:* Linear
*Across-slope shape:* Linear
*Parent material:* Alluvium derived from igneous, metamorphic and sedimentary rock

#### Typical profile

*H1 - 0 to 10 inches:* loam
*H2 - 10 to 62 inches:* sandy clay loam

#### Properties and qualities

*Slope:* 2 to 9 percent
*Depth to restrictive feature:* More than 80 inches
*Natural drainage class:* Well drained
*Runoff class:* High
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high (0.20 to 0.60 in/hr)
*Depth to water table:* More than 80 inches
*Frequency of flooding:* None
*Frequency of ponding:* None
*Available water storage in profile:* High (about 10.1 inches)

#### Interpretive groups

*Land capability classification (irrigated):* 2e
*Land capability classification (nonirrigated):* 3e
*Hydrologic Soil Group:* C
*Ecological site:* DEEP LOAMY (ANNUAL GRASS) (R014XD082CA)
*Hydric soil rating:* No

### Minor Components

#### Boontling

*Percent of map unit:* 5 percent
*Hydric soil rating:* No

#### Gschwend

*Percent of map unit:* 5 percent
*Hydric soil rating:* No

#### Unnamed, steeper slopes

*Percent of map unit:* 5 percent
*Hydric soil rating:* No

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## Appendix C: Arid West Ordinary High Water Mark Data Sheet

# Arid West Ephemeral and Intermittent Streams OHWM Datasheet

**Project:** Lambert Ln. bridge over Robinson Creek **Date:** 6-29-18 **Time:** 2pm
**Project Number:** 15-130 **Town:** Boonville **State:** CA
**Stream:** Robinson Creek **Photo begin file#:** **Photo end file#:**
**Investigator(s):** EG / MM

Y ☒ / N ☐ Do normal circumstances exist on the site?

Y ☐ / N ☒ Is the site significantly disturbed?

**Location Details:** Boonville, CA on Lambert Lane

**Projection:** Google **Datum:** WGS 84
**Coordinates:** 39.068589, -123.368427

**Potential anthropogenic influences on the channel system:**
urban runoff, channelized, abutting residential lots

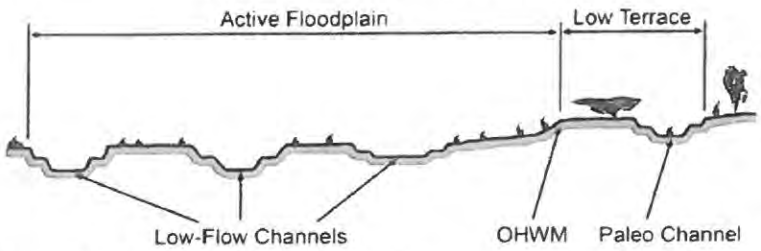
**Brief site description:** channelized with cut banks, dense tree canopy.

**Checklist of resources (if available):**

- ☒ Aerial photography
  Dates:
- ☒ Topographic maps
- ☐ Geologic maps
- ☐ Vegetation maps
- ☒ Soils maps
- ☐ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ☒ Global positioning system (GPS)
- ☐ Other studies

- ☐ Stream gage data
  Gage number:
  Period of record:
  - ☐ History of recent effective discharges
  - ☐ Results of flood frequency analysis
  - ☐ Most recent shift-adjusted rating
  - ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

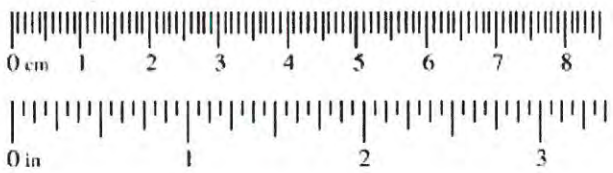



**Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:**

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ☐ Mapping on aerial photograph
   - ☒ Digitized on computer
   - ☒ GPS
   - ☐ Other:

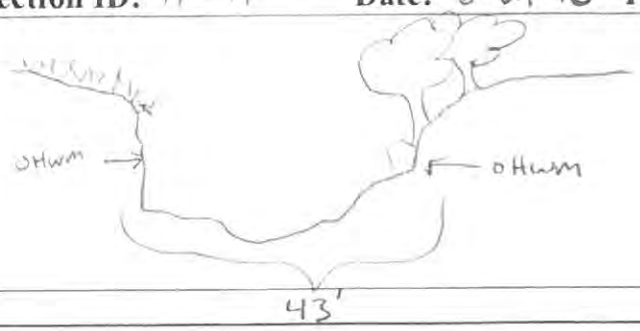
## Wentworth Size Classes

| Inches (in) | Millimeters (mm) | Wentworth size class | |
|---|---|---|---|
| 10.08 | 256 | Boulder | |
| | | Cobble | Gravel |
| 2.56 | 64 | Pebble | |
| 0.157 | 4 | Granule | |
| 0.079 | 2.00 | Very coarse sand | |
| 0.039 | 1.00 | Coarse sand | |
| 0.020 | 0.50 | Medium sand | Sand |
| 1/2 0.0098 | 0.25 | Fine sand | |
| 1/4 0.005 | 0.125 | Very fine sand | |
| 1/8 0.0025 | 0.0625 | Coarse silt | |
| 1/16 0.0012 | 0.031 | Medium silt | |
| 1/32 0.00061 | 0.0156 | Fine silt | Silt |
| 1/64 0.00031 | 0.0078 | Very fine silt | |
| 1/128 0.00015 | 0.0039 | Clay | Mud |



**Project ID:** 15-130 **Cross section ID:** 'A - A' **Date:** 6-29-18 **Time:** 2 PM

**Cross section drawing:**




## OHWM

**GPS point:** OHWM Transect 'A-A' (See WD Map)

**Indicators:**

- [x] Change in average sediment texture
- [x] Change in vegetation species
- [x] Change in vegetation cover
- [x] Break in bank slope
- [x] Other: Exposed roots
- [ ] Other: _____

**Comments:**

## Floodplain unit: [x] Low-Flow Channel [ ] Active Floodplain [ ] Low Terrace

**GPS point:** _____

**Characteristics of the floodplain unit:**

Average sediment texture: Cobble

Total veg cover: ~~0~~ % Tree: ____% Shrub: ____% Herb: ____%

Community successional stage:

- [ ] NA
- [x] Early (herbaceous & seedlings)
- [ ] Mid (herbaceous, shrubs, saplings)
- [ ] Late (herbaceous, shrubs, mature trees)

**Indicators:**

- [ ] Mudcracks
- [ ] Ripples
- [ ] Drift and/or debris
- [x] Presence of bed and bank
- [ ] Benches
- [ ] Soil development
- [ ] Surface relief
- [x] Other: Sediment deposits
- [x] Other: vegetation cover change
- [ ] Other: _____

**Comments:**

**Project ID:** 15-130 **Cross section ID:** 'A-A' **Date:** 6-29-18 **Time:** 2 pm

**Floodplain unit:** ☐ Low-Flow Channel ☒ Active Floodplain ☐ Low Terrace

**GPS point:** _____

**Characteristics of the floodplain unit:**

Average sediment texture: cobble/silt

Total veg cover: 190 % Tree: 100 % Shrub: 10 % Herb: 80 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☒ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

**Indicators:**

- ☐ Mudcracks
- ☐ Ripples
- ☒ Drift and/or debris
- ☒ Presence of bed and bank
- ☒ Benches
- ☐ Soil development
- ☐ Surface relief
- ☒ Other: change in vegetation cover
- ☒ Other: Exposed roots
- ☐ Other: _____

**Comments:**

**Floodplain unit:** ☐ Low-Flow Channel ☐ Active Floodplain ☒ Low Terrace

**GPS point:** _____

**Characteristics of the floodplain unit:**

Average sediment texture: silt

Total veg cover: 170 % Tree: 70 % Shrub: ____ % Herb: 100 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☒ Late (herbaceous, shrubs, mature trees)

**Indicators:**

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☒ Benches
- ☒ Soil development
- ☒ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

**Comments:**

# Arid West Ephemeral and Intermittent Streams OHWM Datasheet

**Project:** Lambert Ln. Bridge over Robinson Creek **Date:** 6-29-16 **Time:** 1:30 pm
**Project Number:** 15-130 **Town:** Boonville **State:** CA
**Stream:** Robinson Creek **Photo begin file#:** **Photo end file#:**
**Investigator(s):** EG/MM

Y ☒ / N ☐ Do normal circumstances exist on the site?

Y ☐ / N ☒ Is the site significantly disturbed?

**Location Details:** Boonville, on Lambert Lane

**Projection:** Google **Datum:** WGS 84
**Coordinates:** 39.008154, -123.368459

**Potential anthropogenic influences on the channel system:**
runoff, channelized w/ residential lots abutting channel, Bridge → headwall failure adjacent to bridge (downstream of transect).

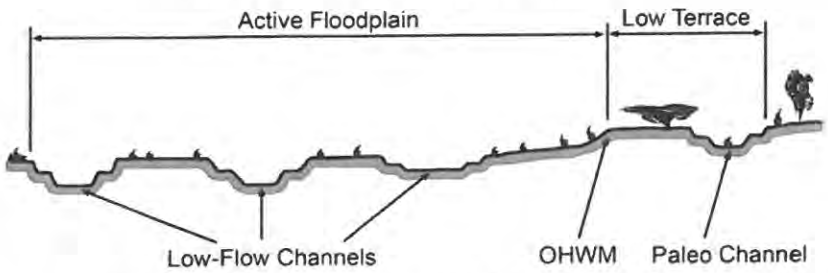
**Brief site description:**
channelized w/ cut banks, tree canopy moderately dense

**Checklist of resources (if available):**

- ☒ Aerial photography
  Dates:
- ☒ Topographic maps
- ☐ Geologic maps
- ☐ Vegetation maps
- ☒ Soils maps
- ☐ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ☒ Global positioning system (GPS)
- ☐ Other studies

- ☐ Stream gage data
  Gage number:
  Period of record:
  - ☐ History of recent effective discharges
  - ☐ Results of flood frequency analysis
  - ☐ Most recent shift-adjusted rating
  - ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

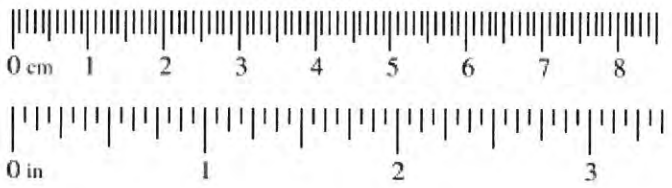



**Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:**

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ☐ Mapping on aerial photograph
   - ☒ Digitized on computer
   - ☒ GPS
   - ☐ Other:

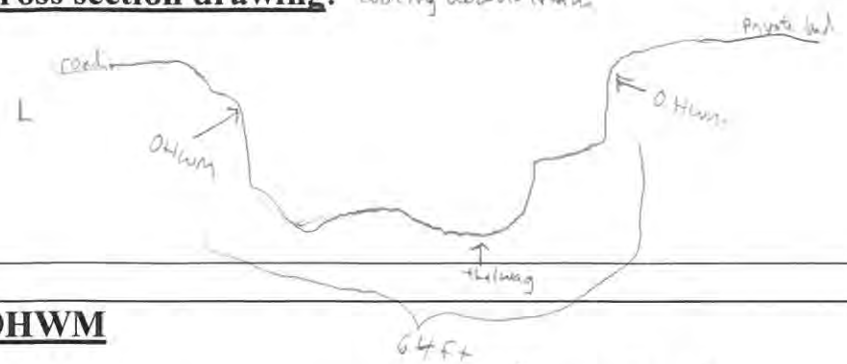
## Wentworth Size Classes

| Inches (in) | Millimeters (mm) | Wentworth size class | |
|---|---|---|---|
| 10.08 | 256 | Boulder | |
| | | Cobble | Gravel |
| 2.56 | 64 | | |
| 0.157 | 4 | Pebble | |
| | | Granule | |
| 0.079 | 2.00 | | |
| 0.039 | 1.00 | Very coarse sand | |
| 0.020 | 0.50 | Coarse sand | |
| 1/2 0.0098 | 0.25 | Medium sand | Sand |
| 1/4 0.005 | 0.125 | Fine sand | |
| 1/8 0.0025 | 0.0625 | Very fine sand | |
| 1/16 0.0012 | 0.031 | Coarse silt | |
| 1/32 0.00061 | 0.0156 | Medium silt | Silt |
| 1/64 0.00031 | 0.0078 | Fine silt | |
| 1/128 0.00015 | 0.0039 | Very fine silt | |
| | | Clay | Mud |



**Project ID:** 15-130 **Cross section ID:** 'B-B' **Date:** 6-29-16 **Time:** 1:28 pm

**Cross section drawing:** looking downstream




## OHWM

**GPS point:** OHWM transect 'B-B' (see WD map)

**Indicators:**

- ☐ Change in average sediment texture
- ☒ Change in vegetation species
- ☒ Change in vegetation cover
- ☒ Break in bank slope
- ☒ Other: Exposed roots
- ☐ Other: _____

**Comments:**

## Floodplain unit:

☒ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

**GPS point:** low flow

**Characteristics of the floodplain unit:**

Average sediment texture: Cobble

Total veg cover: 5 % Tree: ____ % Shrub: ____ % Herb: 5 % → all blackberry

Community successional stage:

- ☐ NA
- ☒ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

**Indicators:**

- ☐ Mudcracks
- ☐ Ripples
- ☒ Drift and/or debris
- ☒ Presence of bed and bank
- ☒ Benches
- ☐ Soil development
- ☐ Surface relief
- ☒ Other: Lack of veg or soil
- ☒ Other: cobble bar
- ☐ Other: _____

**Comments:**

**Project ID:** IS-130 **Cross section ID:** 'B-B' **Date:** 6-29-16 **Time:** 1:30pm

**Floodplain unit:** ☐ Low-Flow Channel ☒ Active Floodplain ☐ Low Terrace

**GPS point:** OHWM

**Characteristics of the floodplain unit:**

Average sediment texture: Silt

Total veg cover: 180 % Tree: 100 % Shrub: ____ % Herb: 80 %

Community successional stage: ↳ Bay ↳ Blackberry + Ivy

- ☐ NA
- ☒ Early (herbaceous & seedlings)
- ☒ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

**Indicators:**

- ☐ Mudcracks
- ☐ Ripples
- ☒ Drift and/or debris
- ☐ Presence of bed and bank
- ☒ Benches
- ☒ Soil development
- ☐ Surface relief
- ☒ Other: change in veg cover
- ☒ Other: Exposed roots
- ☐ Other: ____

**Comments:**

---

**Floodplain unit:** ☐ Low-Flow Channel ☐ Active Floodplain ☒ Low Terrace

**GPS point:** ____

**Characteristics of the floodplain unit:**

Average sediment texture: Silt

Total veg cover: ____ % Tree: 90 % Shrub: 10 % Herb: 70 %

Community successional stage: ↳ Bay ↳ toyon ↳ Ivy, Blackberry, grasses

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☒ Late (herbaceous, shrubs, mature trees)

**Indicators:**

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☒ Benches
- ☐ Soil development
- ☐ Surface relief
- ☒ Other: Change in veg composition
- ☐ Other: ____
- ☐ Other: ____

**Comments:**

Appendix E:
Archaeological Evaluation Report (Phase II) Over Robinson Creek Bridge Replacement Project

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# Appendix F:
# Initial Site Assessment Robinson Creek Bridge Replacement on Lambert Lane

# INITIAL SITE ASSESSMENT

## Robinson Creek Bridge Replacement on Lambert Lane

**Boonville, Mendocino County, California**

Existing Bridge 10C-0146

BRLO-5910 (099)

Prepared by:

**Crawford & Associates, Inc.**

1100 Corporate Way, Suite 230

Sacramento, CA 95831

July 5, 2016

Job No. 16-278.1

Prepared for:

**Quincy Engineering, Inc.**

11017 Cobblerock Drive, Suite 100

Rancho Cordova, CA 95670

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Sacramento | Modesto | Pleasanton | Rocklin | Ukiah

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16-278.1
July 5, 2016

James L. Foster Jr.
Quincy Engineering
11017 Cobblerock Drive, Suite 100
Rancho Cordova, California 95670

Subject: **INITIAL SITE ASSESSMENT**
Robinson Creek Bridge Replacement on Lambert Lane
Mendocino County, California

Dear Mr. Foster:

Crawford & Associates, Inc. has prepared this Initial Site Assessment for the Robinson Creek Bridge Replacement on Lambert Lane in Mendocino County, California. The purpose of this assessment is to identify and provide a preliminary assessment of the potential impacts of known or potential Recognized Environmental Conditions within the study area that may influence design and construction of the project.

We include an executive summary, property information, records review, reconnaissance, findings and recommendations, and limitations in this report.

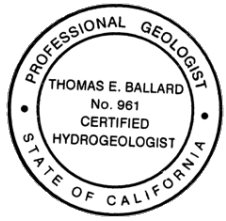
We appreciate the opportunity to be on your team for the Robinson Creek Bridge Replacement on Lambert Lane project. Please call us if you have questions or comments.

Sincerely,

**CRAWFORD & ASSOCIATES, INC.**

Julie Price
Environmental Specialist

Thomas E. Ballard
P.G. #7299, C.H.G. #961
Hydrogeologist




Rick Sowers, PE, CEG
Principal Engineering Geologist

Taber
Since 1954

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**APPENDIX D – Historical Topographic Maps**
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**APPENDIX H – Other Reports**

# 1 EXECUTIVE SUMMARY

Crawford & Associates, Inc. performed an Initial Site Assessment for the Robinson Creek Bridge Replacement on Lambert Lane in Mendocino County, CA. The proposed project consists of a new bridge, lane widening near the bridge approaches, overhead utility realignment, pavement overlay, and storm drainage improvements. The project may also include realignment of the stream channel and bank stabilization.

The study area subject to this assessment includes the Lambert Lane bridge at Robinson Creek and adjacent area as shown in Appendix A.

The bridge was constructed in 1954. Due to scour, bridge abutments have been deemed unstable and functionally obsolete. Properties adjacent to the bridge have been used for primarily residential purposes. Commercial uses are located along the Highway 128 corridor, approximately 350 feet northeast of the bridge site.

The purpose of this assessment is to identify recognized soil or groundwater contamination and hazardous material issues that may affect the planned project improvements. Crawford & Associates, Inc. identified the following potential hazardous materials issues that should be considered in the planning of project improvements.

- Historic leaking underground storage tanks were removed from a former gas station located at 14125 Highway 128, approximately 400 feet east (upgradient) of the project site. The case is open and the site continues to be monitored for petroleum hydrocarbons.
- Historic leaking underground storage tanks were removed from a former gas station located at 14289 Highway 128, approximately 1000 feet east (upgradient) of the project site. Contaminants of concern include diesel, MTBE, TBA, other fuel oxygenates and gasoline. Detection of petroleum hydrocarbons in site soil and groundwater has been reported over a 25-year period, and has not been completely abated. The case remains open.

A review of historical aerial photographs of the site and vicinity suggests there are no visible conditions to indicate that further investigation is warranted beyond what is described in Section 5 of this report.

The proposed project will impact an existing roadway, bridge structure, retaining wall, watercourse, stream bank and adjacent residential properties. The following general hazardous materials or environmental concerns are typical of similar projects and have been evaluated in this assessment. A detailed discussion is provided in Section 5.2.

- Asbestos Containing Material (ACM)
- Lead-based Paint
- Chemically Treated Wood
- Thermoplastic Traffic Striping
- Naturally Occurring Asbestos (NOA)
- Transformers
- Agricultural Chemicals (Pesticides/Herbicides)
- Aerially Deposited Lead (ADL)
- Petroleum Hydrocarbons

This report identifies recognized environmental conditions and general hazardous materials issues that may be present at the site, and provides recommendations for further investigation. Additional research and assessment may provide more certainty on conditions to be encountered during demolition and construction.

# 2 INTRODUCTION

## 2.1 PURPOSE

The following report summarizes an Initial Site Assessment (ISA) performed by Crawford & Associates, Inc. (CAInc) for the bridge replacement located on Lambert Lane at Robinson Creek in Mendocino County, California. This ISA was prepared for use by Mendocino County for this specific project in accordance with the agreement between Quincy Engineering (Quincy) and CAInc. The purpose of this ISA is to help identify potential or known hazardous materials, hazardous waste, and/or contamination (recognized environmental conditions) at the project site. Selected references are included in Appendix A. Photographs are included in Appendix B.

We use the term Recognized Environmental Condition (REC) consistent with ASTM E1527-13. ASTM E1527-13 defines REC as:

> *"the presence or likely presence of any hazardous substances or petroleum products in, on, or at a property: (1) due to release to the environment; (2) under conditions indicative of a release to the environment; or (3) under conditions that pose a material threat of a future release to the environment. De minimis conditions are not recognized environmental conditions."*

## 2.2 SCOPE OF SERVICES

Crawford & Associates, Inc. completed the following tasks to prepare this Initial Site Assessment:

- Conducted limited site inspections of the property and vicinity.
- Initiated a search request with Environmental Data Resources, Inc. (EDR) to search federal, state, and local regulatory agency databases to determine whether areas of environmental concern exist on or near the project site. Search distances ranged between ¼ and one mile from the project site, depending on the database.
- Reviewed available information to assess past and present activities conducted within the project study area and assessed the potential for hazardous materials impact.
- Reviewed historical aerial photographic coverage and topographic map coverage of the project area and vicinity for indications of potential sources of contamination.
- Performed review of federal, state, and county records for indications of the use, misuse, or storage of hazardous and/or potentially hazardous substances on or near the site.
- Reviewed the site geology.
- Performed a limited review of documents provided on the State Geotracker website and from other sources.

## 2.3 PROJECT DESCRIPTION

The existing bridge (BR# 10C-146) was built in 1954 and is a single-span concrete slab bridge about 32 feet long and 26 feet wide with timber railings. Tall concrete wall abutments founded on spread footings support the bridge. The base of the footings is approximately 21.2' from the road surface of the bridge; (approximate elevation of 367 feet based on the As-Built plan). At the east abutment

footing, the channel has scoured about 3 feet below the footing, exposing coarse cobbles in a silty sand matrix. The bridge is considered scour critical with footing exposure and undermining.

Robinson Creek immediately upstream of the bridge makes a sharp, 90-degree curve to the east, then turns 90-degrees again to pass through the bridge opening. This channel geometry severely impacts the southwest approach. The southwest approach slope is protected by a concrete retaining wall that extends about 50 feet upstream from the wingwall. About half of the wall (adjacent to the bridge) has failed and fallen into the creek; the remaining wall has cracked and deflected. Large RSP has been placed in the failed wall area and behind the remaining wall section to protect the western approach.

The proposed project will replace the existing bridge either on a new alignment slightly upstream of the existing bridge (Alternative 1) or on the existing alignment (Alternative 2). Alternative 1, due to the creek's path, will require a significantly longer single-span structure of approximately 100 feet. The longer span moves the abutments away from the active creek bed and reduces scour concerns. The bridge superstructure for this alternative is likely a cast-in-place, post-tensioned (CIP/PT) concrete box girder or a steel plate girder.

Alternative 2 replaces the existing bridge with a slightly longer (about 54 feet) single-span structure. The longer span compared to the existing bridge will allow the abutments to move back from the creek bed and be protected from scour with slope grading and rock slope protection (RSP). The bridge superstructure for this alternative is either a CIP/PT concrete slab or a pre-cast, pre-stressed (PC/PS) concrete slab.

With either alternative, some channel modification is anticipated to reduce the sharp, 90-degree bends and smooth the channel geometry to a modified "S" curve.

# 3 PHYSICAL SETTING

## 3.1 DATABASE SEARCH

The following physical setting source records were searched by EDR to provide data for this section of the report:

**Topographic Information**

- USGS 7.5' Digital Elevation Model (DEM)
- Current USGS 7.5 Minute Topographic Map

**Hydrologic Information**

- Flood Zone Data
- NWI – National Wetlands Inventory
- State Wetlands Data: Wetland Inventory

**Hydrogeologic Information**

- AQUIFLOW® Information System

**Geologic Information**

- Geologic Age and Rock Stratigraphic Unit

- STATSGO – State Soil Geographic Database
- SSURGO – Soil Survey Geographic Database

**Local/Regional Water Agency Records**

- FEDERAL WATER WELLS
- PWS – Public Water Systems
- PWS ENF – Public Water Systems Violation and Enforcement Data
- USGS Water Wells – USGS National Water Inventory System (NWIS)
- STATE RECORDS
- Water Well Database
- California Drinking Water Quality Database

**Other State Database Information**

- California Oil and Gas Well Locations
- State Database: CA Radon
- Area Radon Information
- EPA Radon Zones
- Airport Landing Facilities
- Epicenters
- California Earthquake Fault Lines

## 3.2 PROJECT LOCATION

The project is located in the town of Boonville, Mendocino County, California. Boonville is situated at the southeast end of Anderson Valley along SR 128, approximately 0.5 miles northwest of the intersection of SR 128 and SR 253, and 13 miles southwest of Ukiah. The bridge site lies within Section 2 of T13N, R14W and is located approximately 0.1 miles southwest of SR 128 on Lambert Lane (CR 123A) over Robinson Creek. The site coordinates are 39.008447°N, 123.368342°W and the approximate elevation of the road is 388 feet, according to Google Earth. See Appendix A for Site Map.

## 3.3 GEOLOGIC CONDITIONS

The project is located within the Coast Ranges Geomorphic Province, characterized by a series of northwest trending mountain ranges sub-parallel to the San Andreas Fault. The Coast Ranges are composed of thick Mesozoic and Cenozoic sedimentary strata. The project site is located within Anderson Valley, an alluvial valley situated within the Coast Ranges.

Published geologic mapping[1] shows Anderson Valley underlain by Quaternary age, non-marine, terrace deposits, primarily consisting of sand and gravel with minor amounts of silt and clay. This formation can reach thicknesses of up to 150 feet in the Boonville area based on the California Groundwater Bulletin 118, Anderson Valley Groundwater Basin (2004)[2]. The USDA-NRCS Web Soil Survey[3] shows the site as

[1] Jennings, C.W., and Strand, R.G. (1960), Geologic Map of California: Ukiah sheet, 1:250,000, California Division of Mines and Geology

[2] California Department of Water Resources (2004), Anderson Valley Groundwater Basin, California Groundwater Bulletin 118

[3] Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture, Web Soil Survey, http://websoilsurvey.nrcs.usda.gov/

being underlain by Boontling loam and Pinole loam in the upper 5 feet of soil, with gravel common below a depth of 3 feet. See Figure 3 for a regional geologic map.

## 3.4 GROUNDWATER ELEVATIONS

The project site is located within the FEMA-designated 100-year floodplain[4]. Robinson Creek flows intermittently, with flows becoming underflow during the dry summer and fall period. The creek contained less than one foot of flowing water at the time of a site review on May 11, 2016 and contained no flowing water at the time of a site review on August 26, 2015. Groundwater flows generally north, based on surface topography.

The EDR search identified one Federal USGS well between ¼ and ½ mile northwest (downstream) of the project site. The State Database identified 5 wells within ¼ to ½ mile of the project site, the closest of which is approximately ¼ mile south (upstream) of the project site, used for observation. Four additional wells were identified within ½ to one mile of the project site. Depth to groundwater is not provided for any of the wells listed. Data from nearby monitoring wells found on the GeoTracker website[5] also did not include groundwater elevations. The GeoCheck® source map findings by EDR are presented in Appendix E.

Data from two well sites was reviewed for this study[6]. The first well site, located 1400 feet south of the bridge, recently had an average yearly groundwater depth fluctuation of approximately 15.5' to 30.5' below the ground surface (elevation of 403 feet). The second well site, located 2800 feet northwest of the bridge, recently had an average yearly groundwater depth fluctuation of approximately 4' to 14' below the ground surface (elevation of 380 feet). The measurements were taken in the second half of March and the second half of October respectively. The creek contained less than one foot of flowing water at the time of a site review in May of 2016 and contained no flowing water at the time of a site review in August of 2015. We expect that groundwater at the bridge site is within about 10 feet of the channel bottom.

## 3.5 CURRENT LAND USE

In general, current land use within the project limits consists of a rural local road serving residential and agricultural parcels to the north, south and west. The unincorporated town of Boonville is located along State Highway 128 approximately 350 feet northeast of the project site. Land uses in this area of SH 128 are a mix of commercial and residential, and the zoning is General Commercial (C2) and Rural Community (RC). The Mendocino County Fairgrounds are located southeast (upstream) of the project site.

Occupying property to the northeast of the project site is the Boonville Hotel, a small inn and restaurant whose parking lost hosts the community's seasonal weekly Farmer's Market. The northwest boundary of the Project site abuts the rear yard of the Boonville Hotel property, which consists of gardens and undeveloped natural and riparian areas transitioning to Robinson Creek.

[4] Federal Insurance Rate Map (FIRM) Panel 0601830887B
[5] *http://geotracker.waterboards.ca.gov/*
[6] *http://www.water.ca.gov/waterdatalibrary/*

Along the east side of the project site is a 1.7-acre residential parcel with a large back yard extending to Robinson Creek, comprised primarily of grasses, with woody vegetation along Robinson Creek and the Lambert Lane frontage.

On the west side of the project site are single-family residential parcels of varying sizes. An unpaved road runs parallel to Robinson Creek along its west side. Continuing westward, land use becomes agricultural and parcel sizes become larger. Timberland begins about one mile west of the project site. Heading eastbound from the project site toward town, land uses become more dense and commercial in nature.

## 3.6 HISTORICAL LAND USE

### 3.6.1 SUMMARY

There have been slight changes in land uses within the project site in the past 70 years. The primary change is closure of a lumber mill located approximately 700 feet south (upstream) of the project site sometime between 42 and 58 years ago. A small number of residences and outbuildings were constructed near the study area. Predominant land use in the general project area has historically been single-family residential.

### 3.6.2 HISTORICAL AERIAL PHOTOGRAPHS

Aerial photographs were provided by EDR for the years shown in Table 1. The photographs were reviewed for information about historic conditions and land uses within the study area. The photos are described in chronological order below. Aerial photographs are included in Appendix C.

**Table 1: Historical Aerial Photographs**

| Year | Source | Scale |
|---|---|---|
| 1957 | USGS | 1”=500’ |
| 1974 | USGS | 1”=500’ |
| 1985 | USGS | 1”=500’ |
| 1993 | USGS | 1”=500’ |
| 1998 | USGS/DOQQ | 1”=500’ |
| 2005 | USDA/NAIS | 1”=500’ |
| 2006 | USDA/NAIS | 1”=500’ |
| 2009 | USDA/NAIS | 1”=500’ |
| 2010 | USDA/NAIS | 1”=500’ |
| 2012 | USDA/NAIS | 1”=500’ |

**1957** Lambert Lane appears to be unpaved. Riparian vegetation is thick around Robinson Creek. Robinson Creek bends sharply at the Lambert Lane crossing and appears to be nearly discontinuous. The surrounding area is portrayed as rural residential. The photograph depicts an unimproved road running perpendicular to Lambert Road and parallel to Robinson Creek on its west side. A lumber mill covers approximately 20 acres south of the project site along the west side of Robinson Creek (upstream).

**1974** The site previously occupied by a lumber mill is vacant and the landscape appears scarred. No other substantive changes are evident from the 1957 photograph.

**1985** Natural recruitment of vegetation (grasses) may have occurred at the former lumber mill site, as the scarring appears less pronounced. A small backyard orchard is depicted on the east side of Robinson Creek approximately 300 feet upstream from the project site.

**1993** This aerial photograph is of poor quality. The riparian vegetation on both sides of Robinson Creek appears to be thicker. Otherwise no substantive changes can be discerned from the 1985 photograph.

**1998** Trees are growing in a row along the south side of Lambert Lane on the east side of the project site and appear to be planted. No substantive changes are evident from the 1993 photograph.

**2005, 2010 and 2012** No substantive changes within or adjacent to the project site are evident from the 1998 photograph.

### 3.6.3 HISTORICAL TOPOGRAPHIC MAPS

Historical topographic maps were provided by EDR for the years shown in Table 2, and are discussed in chronological order below. The study area is located across multiple quadrangles. Maps were reviewed for significant changes in topography or property improvements. Topographic maps are included in Appendix D.

**Table 2: Historical Topographic Maps**

| Year | Quad | Series | Scale |
|---|---|---|---|
| 1943 | Ornbaun | 15 | 1:62,500 |
| 1943 | Boonville | 15 | 1:62,500 |
| 1959 | Boonville | 15 | 1:62,500 |
| 1960 | Ornbaun Valley | 15 | 1:62,500 |
| 1991 | Zeni Ridge | 7.5 | 1:24,000 |
| 1991 | Boonville | 7.5 | 1:24,000 |
| 1991 | Philo | 7.5 | 1:24,000 |
| 1991 | Ornbaun Valley | 7.5 | 1:24,000 |
| 2012 | Zeni Ridge | 7.5 | 1:24,000 |
| 2012 | Boonville | 7.5 | 1:24,000 |
| 2012 | Philo | 7.5 | 1:24,000 |
| 2012 | Ornbaun Valley | 7.5 | 1:24,000 |

The 1943 Boonville and Ornbaun Quadrangle topographic maps do not illustrate Lambert Lane. Robinson Creek is portrayed on the map as an intermittent stream and is not labeled. There are structures located on all sides of the study area except for the southwest (upstream) side. Evidence of the fairground to the southeast is depicted by an oval ring, presumably the horse track. SH 128 is dotted with structures in downtown Boonville.

The 1959 Boonville Quadrangle and 1960 Ornbaun Valley Quadrangle topographic maps portray Lambert Lane as a light duty (unlabeled) crossing over Robinson Creek with no outlet. Robinson Creek is labeled and is portrayed as a perennial stream trending approximately north-south. A light duty road on the west side of Robinson Creek and parallel to the creek (upstream) divides into two roads, both without outlets. The previously undeveloped area southwest of the bridge portrays nine structures, presumably residential. The County Fairgrounds are labeled and there are several more surface roads accessed by SH 128 in the downtown area.

The 1991 topographic mapping consists of four quadrangles: Boonville, Ornbaun Valley, Zeni Ridge and Philo. The maps illustrate the same road features as the 1959 and 1960 maps, but at a different scale. Robinson Creek is depicted as an intermittent stream. Surface roads are more visibly illustrated. No other significant changes are noted from the 1959/1960 maps.

The 2012 topographic mapping also consists of four quadrangles: Boonville, Ornbaun Valley, Zeni Ridge and Philo. The 2012 maps do not include structures. Lambert Lane is labeled. No change is depicted in the study area with respect to creek features. No significant changes are noted from the 1991 maps.

### 3.6.4 SANBORN® FIRE INSURANCE MAPS

No Sanborn® Fire Insurance Maps were available for this location. Relevant documentation, provided by EDR, is included in Appendix F.

### 3.6.5 CITY DIRECTORY

Crawford & Associates, Inc. reviewed the EDR-provided City Directory Image Report, which provides the name of the resident or business associated with each address in the property vicinity approximately every five years from 1992 to 2013. The listings on Lambert Lane appear to be residential. The listings on Highway 128 include a California Department of Forestry and Fire Protection (CalFire) fire station. The City Directory Report by EDR is presented in Appendix G.

# 4 DATABASE SEARCH AND RECORDS REVIEW

## 4.1 DATABASE SEARCH

Databases and site lists maintained by environmental regulatory agencies were searched for properties within the study area to identify sites with known releases of hazardous materials or petroleum products, and sites with the potential for such releases. Each database and site list was searched for sites within the ASTM standard search radius relative to the project site. Database records are provided in Appendix E. The following databases and site lists were searched:

**Standard Environmental Records**

**Federal NPL site list**

- NPL – National Priority List
- Proposed NPL -- Proposed National Priority List Sites
- NPL LIENS -- Federal Superfund Liens

**Federal Delisted NPL site list**

- Delisted NPL -- National Priority List Deletions

**Federal CERCLIS list**

- FEDERAL FACILITY -- Federal Facility Site Information listing
- SEMS – Superfund Enterprise Management System (formerly CERCLIS)

**Federal CERCLIS NFRAP site List**

- SEMS-ARCHIVE – Superfund Enterprise Management System Archive; No Further Remedial Action Planned (formerly CERCLIS-NFRAP)

**Federal RCRA CORRACTS facilities list**

- CORRACTS – Corrective Action Report

**Federal RCRA non-CORRACTS TSD facilities list**

- RCRA TSDF – RCRA – Treatment, Storage and Disposal

**Federal RCRA generators list**

- RCRA-LQG – RCRA – Large Quantity Generators
- RCRA-SQG -- RCRA - Small Quantity Generators
- RCRA-CESQG -- RCRA - Conditionally Exempt Small Quantity Generator

**Federal institutional controls / engineering controls registries**

- LUCIS -- Land Use Control Information System
- US ENG CONTROLS -- Engineering Controls Sites List
- US INST CONTROL -- Sites with Institutional Controls

**Federal ERNS list**

- ERNS -- Emergency Response Notification System

**State- and tribal - equivalent NPL**

- RESPONSE -- State Response Sites

**State- and tribal – equivalent CERCLIS**

- ENVIROSTOR -- EnviroStor Database

**State and tribal landfill and/or solid waste disposal site lists**

- SWF/LF (SWIS) -- Solid Waste Information System

**State and tribal leaking storage tank lists**

- LUST -- Geotracker's Leaking Underground Fuel Tank Report
- INDIAN LUST -- Leaking Underground Storage Tanks on Indian Land
- SLIC -- Statewide SLIC (Spills, Leaks, Investigations and Cleanup) Cases

**State and tribal registered storage tank lists**

- UST -- Active UST (Underground Storage Tank) Facilities
- AST -- Aboveground Petroleum Storage Tank Facilities
- INDIAN UST -- Underground Storage Tanks on Indian Land
- FEMA UST -- Underground Storage Tank Listing

**State and tribal voluntary cleanup sites**

- VCP -- Voluntary Cleanup Program Properties
- INDIAN VCP -- Voluntary Cleanup Priority Listing on Indian Land

**State and Tribal Brownfields Sites**

- BROWNFIELDS – Considered Brownfields Sites Listing

**Additional Environmental Records**

**Local Brownfield lists**

- US BROWNFIELDS -- A Listing of Brownfields Sites

**Local Lists of Landfill / Solid Waste Disposal Sites**

- WMUDS/SWAT -- Waste Management Unit Database
- SWRCY -- Recycler Database
- HAULERS -- Registered Waste Tire Haulers Listing
- ODI -- Open Dump Inventory
- INDIAN ODI -- Report on the Status of Open Dumps on Indian Lands
- DEBRIS REGION 9 -- Torres Martinez Reservation Illegal Dump Site Locations

**Local Lists of Hazardous Waste / Contaminated Sites**

- US HIST CDL -- National Clandestine Laboratory Register
- HIST Cal-Sites -- Historic Calsites Database
- SCH -- School Property Evaluation Program
- CDL -- Clandestine Drug Labs
- US CDL -- Clandestine Drug Labs
- Toxic Pits -- Toxic Pits Cleanup Act Sites

**Local Lists of Registered Storage Tanks**

- SWEEPS UST – SWEEPS UST Listing
- UST MENDOCINO – Mendocino County UST Database
- CA FID UST – Facility Inventory Database
- HIST UST – Hazardous Substance Storage Container Database

**Local Land Records**

- LIENS -- Environmental Liens Listing
- LIENS 2 -- CERCLA Lien Information
- DEED -- Deed Restriction Listing

**Records of Emergency Release Reports**

- HMIRS -- Hazardous Materials Information Reporting System
- CHMIRS -- California Hazardous Material Incident Report System
- LDS -- Land Disposal Sites Listing
- MCS -- Military Cleanup Sites Listing
- SPILLS 90 -- SPILLS 90 data from FirstSearch

**Other Ascertainable Records**

- RCRA NonGen / NLR -- RCRA - Non Generators / No Longer Regulated
- FUDS -- Formerly Used Defense Sites
- DOD -- Department of Defense Sites
- FEDLAND – Federal and Indian Lands
- SCRD DRYCLEANERS -- State Coalition for Remediation of Drycleaners Listing
- US FIN ASSUR -- Financial Assurance Information
- EPA WATCH LIST – EPA WATCH LIST
- 2020 COR ACTION – 2020 Corrective Action Program List
- TSCA -- Toxic Substances Control Act
- TRIS -- Toxic Chemical Release Inventory System
- SSTS -- Section 7 Tracking Systems
- RODS -- Records of Decisions
- RMP -- Risk Management Plans
- RAATS -- RCRA Administrative Action Tracking System
- PRP – Potentially Responsible Parties
- PADS – PCB Activity Database System
- ICIS -- Integrated Compliance Information System
- FTTS – FIFRA / TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
- FTTS INSP – FIFRA / TSCA Tracking System inspections and enforcements
- MLTS -- Material Licensing Tracking System
- COAL ASH DOE – Steam-Electric Plant Operation Data
- COAL ASH EPA -- Coal Combustion Residues Surface Impoundments List
- PCB TRANSFORMER -- PCB Transformer Registration Database
- RADINFO -- Radiation Information Database
- HIST FTTS -- FIFRA/TSCA Tracking System Administrative Case Listing
- HIST FTTS -- FIFRA/TSCA Tracking System Inspection & Enforcement Case Listing
- DOT OPS -- Incident and Accident Data
- CONSENT -- Superfund (CERCLA) Consent Decrees
- BRS – Biennial Reporting System
- INDIAN RESERV -- Indian Reservations
- FUSRAP – Formerly Utilized Sites Remedial Action Program
- UMTRA -- Uranium Mill Tailings Sites
- LEAD SMELTER – Lead Smelter Sites
- US AIRS -- Aerometric Information Retrieval System Facility Subsystem
- US AIRS MINOR – Air Facility System Data
- US MINES -- Mines Master Index File
- FINDS -- Facility Index System/Facility Registry System
- UXO – Unexploded Ordnance Sites
- DOCKET HWC – Hazardous Waste Compliance Docket Listing
- CA BOND EXP. PLAN -- Bond Expenditure Plan
- NPDES -- NPDES Permits Listing
- UIC -- UIC Listing
- CORTESE -- "Cortese" Hazardous Waste & Substances Sites List

- DRYCLEANERS -- Cleaner Facilities
- EMI -- Emissions Inventory Data
- ENF -- Enforcement Action Listing
- Financial Assurance -- Financial Assurance Information Listing
- HAZNET -- Facility and Manifest Data
- HIST CORTESE – Hazardous Waste & Substance Sites List
- HWP -- EnviroStor Permitted Facilities Listing
- HWT -- Registered Hazardous Waste Transporter Database
- MINES – Mines Site Location Listing
- MWMP -- Medical Waste Management Program Listing
- NPDES – NPDES Permits Listing
- PEST LIC – Pesticide Regulation Licenses Listing
- PROC -- Certified Processors Database
- NOTIFY 65 -- Proposition 65 Records
- UIC – UIC Listing
- WASTEWATER PITS – Oil Wastewater Pits Listing
- WDS – Waste Discharge System
- WIP -- Well Investigation Program Case List
- ECHO – Enforcement & Compliance History Information
- FUELS PROGRAM – EPA Fuels Program Registered Listing

**EDR High Risk Historical Records**

- EDR MGP -- EDR Proprietary Manufactured Gas Plants
- EDR Hist Auto – EDR Exclusive Historic Gas Stations
- EDR Hist Cleaner -- EDR Exclusive Historic Dry Cleaners

**EDR Recovered Government Archives**

- RGA LUST -- Recovered Government Archive Leaking Underground Storage Tank
- RGA LF -- Recovered Government Archive Solid Waste Facilities List

## 4.2 SUMMARY OF RECORDS SEARCH

The project site was not identified in any of the databases searched by EDR. The following surrounding sites are listed on Federal, State, or Local ASTM Standard or supplemental environmental databases and located within the appropriate ASTM search distances of the subject property. Sites with adequate address information were plotted by EDR (Appendix E). Sites with inadequate address information are listed as "orphan sites" and mapped locations were not provided. CAInc reviewed the list of three orphan sites identified by EDR for potential impacts to the site (Appendix G).

**THE PARTNERS BUILDING**

Located at 14111 Highway 128, the site is approximately 378 feet northwest of the project site (downstream) at a higher elevation. The site is listed in the LUST, SWEEPS UST and HIST CORTESE databases. A UST from a former gas station reportedly leaked into the soil, potentially contaminating a nearby domestic well used for drinking water supply. The tank was removed in 1993. The case was completed and closed on April 21, 2011.

**CHEVRON #9-6221**
Located at 14125 Highway 128, the site is approximately 400 feet east of the project site at a higher elevation. The property is listed in the LUST and HIST CORTESE databases. In 1978, gasoline was detected in a domestic well adjacent to the former Chevron service station. A total of six USTs were removed in 1978 and 1991. Discharge was reportedly stopped in 1989. In 2014, a site assessment was conducted, monitoring wells were installed and water quality monitoring was initiated. Potential contaminants of concern are benzene, diesel and gasoline. The case remains open, undergoing site assessment.

**CHEVRON, JEFF; CHEVRON, EFF; JEFFS CHEVRON; JEFF'S CHEVRON; UNION OIL SS 4319**
Located at 14289 Highway 128, the site is approximately 1000 feet east of the project site at a higher elevation. The site is listed under multiple names (as shown above) in the LUST, SWEEPS UST, HIST UST, HIST CORTESE, CHMIRS and ENF databases. In 1988, diesel was discovered in three domestic wells surrounding the site. Following a cleanup and abatement order from the RWQCB, a site assessment was conducted and monitoring wells installed. In 1992, two USTs were removed, and in 1999, three additional USTs were removed. In 2014, soil remediation was conducted. Contaminants of concern include diesel, MTBE, TBA, other fuel oxygenates and gasoline. Ten wells are monitored semi-annually. Significant impacts to groundwater have occurred and further remediation has been proposed. The case remains open, undergoing assessment and interim remedial action.

**CDOT BOONVILLE; CALTRANS BOONVILLE MAINT STAT**
Located at 14001 Highway 128, the site is approximately 2700 feet northwest of the project site at a lower elevation. This site is listed on the LUST, SWEEPS UST and HIST CORTESE databases. A release of gasoline from a UST located at the site was reported in 1993. There are no reported cleanup actions. The case was completed and closed on November 19, 1996. This is not the site of the current Caltrans maintenance station, which is located at 13550 Hwy 128.

**REDWOOD DRIVE IN (orphan site)**
Located at 13980 Highway 128, the site is an existing gas station approximately 580 feet north of the project site (downstream) at a higher elevation. The site is listed in the LUST database. A release of diesel from a UST was reported in 1998. No cleanup action was reported. The case was completed and closed on November 30, 2007.

**MCDPW BOONVILLE ROAD YARD (orphan site)**
Located at 14000 Highway 128, the County's Boonville corporation yard is approximately 475 feet northwest of the project site (downstream) at a lower elevation. In 1997, a 2,000-gallon UST leaking diesel and a 200-gallon UST containing gasoline were removed. Groundwater monitoring wells were installed and low level petroleum hydrocarbons were detected in groundwater. The case was completed and closed on March 27, 2013.

**ANDERSON VALLEY WELL CONTAMINATION (orphan site)**
No information was found about this site.

### 4.3 PRIOR ENVIRONMENTAL REPORTS

There were no prior environmental reports found for the site or surrounding properties.

### 4.4 WELL SEARCH

The EDR search identified no Federal or State wells at or adjacent to the project site. The search identified one Federal USGS well between ¼ and ½ mile northwest (downstream) of the project site. The State Database identified one well approximately ¼ mile south (upstream) of the project site, used for observation. The GeoCheck® source map findings by EDR are presented in Appendix E.

Two wells were found within the project vicinity in the State's Water Data Library[7], one 1400 feet south of the bridge and one 2800 feet northwest of the bridge.

## 5 RECONNAISSANCE

Reconnaissance of the project site was performed on August 26, 2015 and May 11, 2016 by Rick Sowers, PE, CEG. The reconnaissance consisted of a walking and driving traverse along Lambert Lane. Visual observations were conducted of bridge construction above and under the bridge deck, of the stream bed and bank, of the roadway and bridge approaches, and of properties bordering the project site. These observations were intended to identify the land uses and activities on adjacent land, and the presence, or likely presence, of hazardous substances or petroleum products at the project site or on adjacent properties.

The bridge was examined for indications of materials that may be considered hazardous, including components of the concrete structure, storm drain culvert and guard rails. The location of overhead utilities was noted.

Mr. Sowers observed that the timber guard rail posts had stippling characteristic of treated wood. Timber that is chemically preserved is handled as hazardous treated wood waste (TWW) when disposed. White paint was observed on the timber guard rails. Historically, lead was a constituent of paint used on bridges. Over time successive layers of paint could have given rise to concentrations of lead which exceed California Department of Toxic Substances Control (DTSC) hazardous waste criteria. It was observed that the bridge was not painted, except for grey paint used to cover graffiti under the bridge.

Observations made during the site reconnaissance generally support the research and background data. Photographs are provided in Appendix B.

## 6 FINDINGS AND RECOMMENDATIONS

The purpose of this report is to identify recognized soil or groundwater contamination or hazardous material issues that could impact the project. The assessment identified the following potential hazardous materials issues that should be considered in the planning of project improvements.

[7] *http://www.water.ca.gov/waterdatalibrary/*

## 6.1 POTENTIAL HAZARDOUS MATERIALS SITES

A records review of regulatory databases indicate the following potential hazardous materials locations which may have potential to impact the site.

**CHEVRON #9-6221**

Historic leaking underground storage tanks were removed from a former gas station located at 14125 Highway 128, approximately 400 feet east (upgradient) of the project site. A site assessment was conducted in 2014 to determine the level and nature of soil and groundwater impacts beneath the site[8]. Soil results indicate that hydrocarbon concentrations are below established Environmental Screening Levels (ESLs) downgradient of the site, that petroleum hydrocarbon impacts to groundwater are limited to the source area, and the source mass of dissolve-phase petroleum hydrocarbons is limited in extent. A 58-foot wide benzene plume that exceeds ESLs is confined to within the property limits. According to the report, groundwater flow direction is assumed to be north and northwest, not in the direction of the bridge site. Due to the reported limits of contamination and direction of groundwater flow, it is unlikely that contamination from the Chevron #9-6221 site has impacted the project site.

**JEFF'S CHEVRON**

Historic leaking underground storage tanks were removed from a former gas station located at 14289 Highway 128, approximately 1,000 feet east (upgradient) of the project site. Contaminants of concern include diesel, MTBE, TBA, other fuel oxygenates and gasoline. Detection of petroleum hydrocarbons in site soil and groundwater has been reported over a 25-year period, and has not been completely abated. The USTs were removed in 1992 and 1999; soil remediation was conducted in 2014. A feasibility study prepared by EBA Engineering (EBA)[9] in 2015 contains a description of the spatial characteristics of petroleum hydrocarbon impacts together with isoconcentration maps which depict the extent of contamination in soil and groundwater. According to the study, contaminants "*essentially encompass the entire project site*," but do not extend significantly beyond the site's property lines in the direction of the bridge. A monitoring report[10] also prepared by EBA notes the direction of groundwater flow is generally west. Analytical results[11] of water sampled in 2004 from two wells west of the former gas station (between the gas station and the project site) did not detect any of the offending contaminants that have been found at the gas station site. Based on the results of the EBA study, it is unlikely that contamination from Jeff's Chevron has affected the project site.

A review of historical aerial photographs reveal the existence of a lumber mill approximately 700 feet upstream, due southwest (upstream) of the project site. The mill was present on the 1954 photograph and was not present on the 1975 photograph. Environmental records reviewed for this study did not document any known environmental issues associated with this lumber mill operation. Based on a lack of evidence of any environmental impacts associated with the lumber mill operation and distance from the project site, it appears the potential for impacts from the former mill property are low.

[8] Site Assessment Report and Sensitive Receptor Survey for Former Chevron Station 96221, prepared by ARCADIS, September 14, 2014.

[9] Feasibility Study and Corrective Action Plan Addendum for Former Jeff's Chevron, 14289 Highway 128, Boonville, California, prepared by EBA Engineering, December 2015.

[10] Fourth Quarter 2015 and First Quarter 2016 Groundwater Monitoring Report, 14289 Highway 128 (Former Jeff's Chevron)

[11] http://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T0604500045&assigned_name=REALTY

Based on the project location and the documented extent of soil and groundwater impacts from identified environmental sites listed above, the potential to encounter RECs from these locations is low.

## 6.2 GENERAL HAZARDOUS MATERIALS ISSUES

### 6.2.1 ASBESTOS CONTAINING MATERIAL (ACM)

Existing structures that will be impacted by project demolition are constructed of materials having the potential to contain asbestos. Concrete bridge components (piers, footings, abutments, deck) and concrete pipes (storm drain) could potentially contain asbestos. Asbestos containing material (ACM), as defined in the California Code of Regulations, Title 8, Section 1529 of the Construction Safety Orders, can be present in construction materials such as bridge joint seals, bearing pads, shims, deck drains or other less obvious materials such as pipe conduits for utilities. Federal regulations require a Certified Asbestos Consultant make definitive conclusions regarding the presence of ACM. Under the federal asbestos National Emissions Standards for Hazardous Air Pollutants regulations (NESHAP, 40 CFR Part 61, Subpart M), a Certified Asbestos Consultant (CAC) must make definitive conclusions regarding the presence of asbestos containing materials (ACM). Prior to demolition, the existing structures are required to have an asbestos survey completed to determine the appropriate method of handling and disposal. Written notification to the Air Quality Management District of demolition or renovation operations on structures is required at least 10 business days prior to conducting the work, regardless of the presence or absence of asbestos in building materials.

### 6.2.2 LEAD-BASED PAINT

The bridge superstructure is unpainted, and as such does not contain lead-based paint. Grey paint covers graffiti on both pier walls under the bridge. The grey paint on the pier walls appears to be reasonably new and is unlikely to contain lead.

The bridge railings at the approach are constructed of pressure-treated timber posts painted white. The age of the paint is unknown. It is recommended that the paint on the bridge railings be tested for lead. The method of disposal for the treated timber posts is dependent on whether they contain lead-based paint. Painted surfaces must be disposed of in accordance with the Caltrans Standard Special Provisions for removal of lead paint Provision 14-11.08, Disturbance Of Existing Paint Systems On Bridges. Treated wood waste is addressed in the following section.

### 6.2.3 CHEMICALLY TREATED WOOD

Chemically treated wood must be handled as treated wood waste (TWW) and disposed of as hazardous waste. If the bridge railings do not contain lead, they will be disposed of as TWW. Should additional timber be uncovered during bridge demolition and replacement, e.g., buried creosote timber piles, this timber would also be treated as TWW. Section 66261.9.5 of Department of Toxic Substances Control (DTSC) regulations provide alternative management standards (AMS) for treated wood waste. Caltrans Special Standard Provision SSP 14-11.09 for TWW is based on AMS regulations. This special standard provision directs the contractor to follow the AMS, including providing training to all personnel that may come in contact with TWW. Training must include, at a minimum, safe handling; sorting and segregating; storage; labeling (including date); and proper disposal methods. Chemically treated wood removed from the project site must adhere to SPP 14-11.09.

### 6.2.4 THERMOPLASTIC TRAFFIC STRIPING

Thermoplastic traffic striping typically contains heavy metals, including lead and chromium, at concentrations in excess of the hazardous waste thresholds established by the California Code of Regulations, and may produce toxic fumes when heated. Consequently, the yellow traffic striping within the project area may be tested to determine whether hazardous materials are present, or, because the volume of striping material is so low, it could be treated as hazardous waste and disposed of accordingly, at a Class 1 disposal facility.

### 6.2.5 NATURALLY OCCURRING ASBESTOS (NOA)

Crawford & Associates, Inc. reviewed the potential for Naturally Occurring Asbestos (NOA) in the study area by performing field reconnaissance and reviewing published geologic mapping (Department of Conservation Open-File Report 2000-019). The geologic mapping reviewed as part of this study does not indicate ultramafic rocks or rocks suspected to contain NOA are present within the study area. Crawford & Associates, Inc. did not observe rock outcrops or rock fragments that are suspected to contain NOA in the study area during field investigations. Although NOA can be associated with faults, no mapped faults are depicted within the study area. The potential for NOA in the study area is considered generally low and no further study is recommended.

### 6.2.6 TRANSFORMERS

Overhead utility lines (telephone and electricity) traverse the project site and will need to be relocated. The scope of this assessment did not include an inventory of past and present transformers. However, transformers were observed attached to a utility pole approximately 70 feet northeast of the bridge. Historically, electrical transformers have contained polychlorinated biphenyls. Identification and remediation of old transformers is the responsibility of the utility owner.

### 6.2.7 AGRICULTURAL CHEMICALS

Adjacent properties surrounding the project site are residential. No evidence of pesticide or herbicide mixing, storage or use within the right-of-way was observed during site visits. Agricultural chemicals may be used by home gardeners on neighboring properties, but it is unlikely they would be used in significant quantities that would warrant further investigation.

### 6.2.8 AERIALLY DEPOSITED LEAD (ADL)

Generally, ADL may be an issue on roads which have historically experienced significant traffic, particularly where vehicles would be stopping and idling, i.e., at a stop sign or a high congestion area. The Average Daily Traffic on the bridge was reported to be 28 in 2011[12]. Due to the low historical traffic in the study area, ADL concentrations are expected to be insignificant and an ADL study is not warranted.

### 6.2.9 PETROLEUM HYDROCARBONS

Crawford & Associates, Inc. did not observe or find direct or indirect evidence of spills or releases of oil or fuel within the project area. No further study with respect to petroleum hydrocarbons is recommended at this time.

[12] National Bridge Inventory Data, *uglybridges.com*

## 7 LIMITATIONS

This report summarizes the findings and opinions of Crawford & Associates, Inc. (CAInc), with regard to the potential for the presence of contamination/hazardous materials within the project area at concentrations likely to warrant mitigation under current statutes and guidelines. Findings and opinions within this report are based on information obtained on given dates, or provided by specified individuals, through record reviews, site review, and related activities. CAInc's information is only as good as the information provided by these sources. Site conditions may change after documented observations have been made. A warrant or guarantee cannot be made that hazardous materials do not exist at the site. To further reduce risk, an extensive invasive exploration may be necessary prior to project implementation.

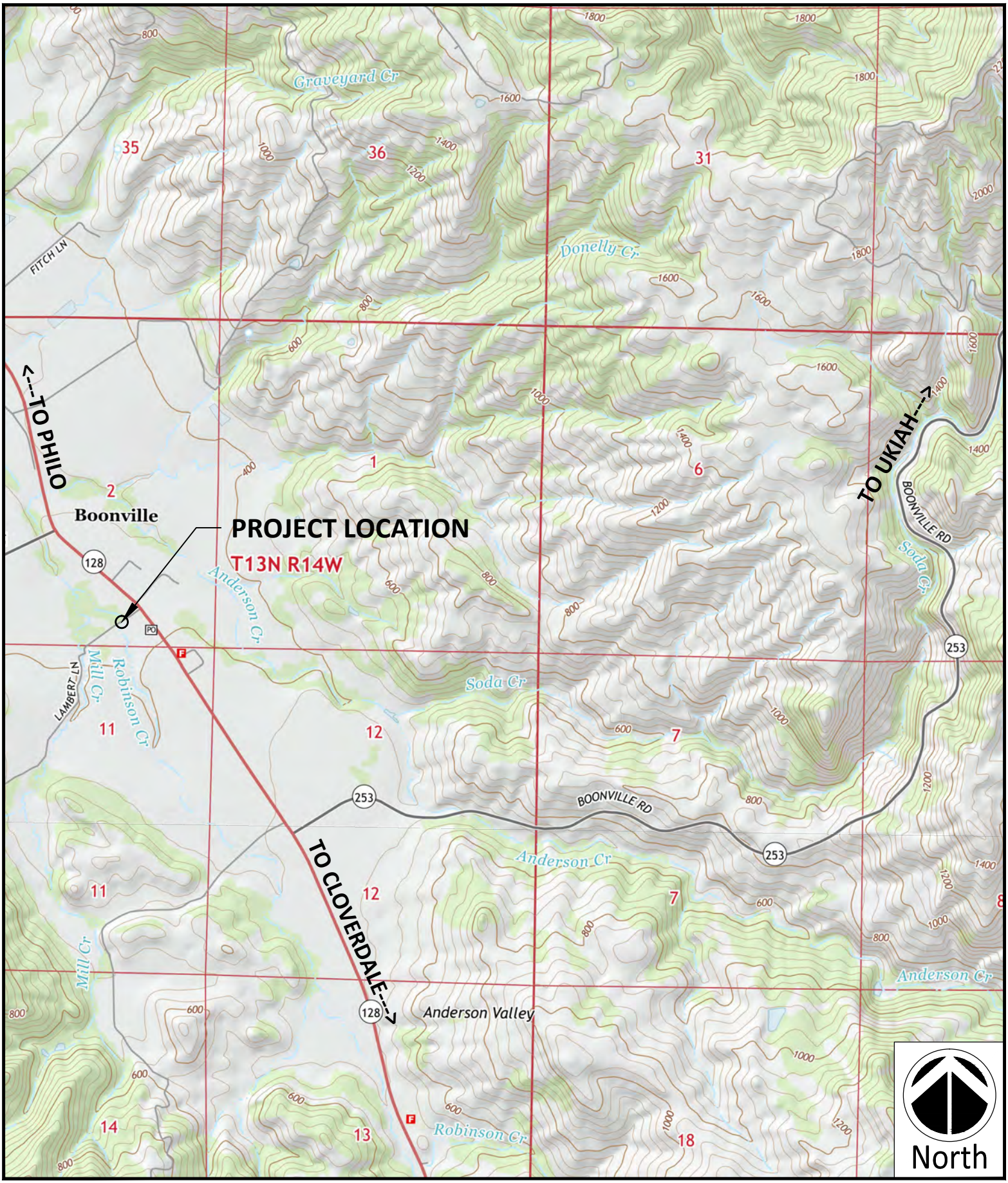
This report was prepared for the specific use of Quincy Engineering and their agents for this project, and applies only to the area identified as the project area. CAInc is not responsible for interpretations by others of data presented in this report. This report does not represent a legal opinion. No warranty is expressed or implied. Conclusions in this report are based on professional judgment and experience. Work for this assessment was performed in accordance with generally accepted standards of practice in northern California at the time of the assessment.

The scope of this investigation did not include determining the presence of radon. Identifying endangered species, geologic hazards, archeological sites, or ecologically sensitive areas are also beyond the scope of this report.

The governmental records summary within this report is derived from public records, which are updated on a continual basis. For this reason, it is not advisable to use this information to base a decision after 180 days of the issue date of this report. Conditions at the site can and will change over time. Please contact CAInc to revise this report to reflect new information.

# APPENDIX A

**Site Maps**




| | | |
|---|---|---|
| Project Mgr. | | |
| Project Eng. | | |
| Designer | | |
| Checked By | | |
| Drawn By | RRH | 05/23/2016 |
| | | |
| | | |
| | By | Date |

**Map Sources**

*-USGS 7.5' Quadrangle, Boonville, Mendocino County, California, 2015*

*-USGS 7.5' Quadrangle, Ornbaun Valley, Mendocino County, California, 2015*

Crawford & Associates, Inc.
Geotechnical Engineering, Design and Construction Services
4030 S. Land Park Drive, Suite C
Sacramento, CA 95822

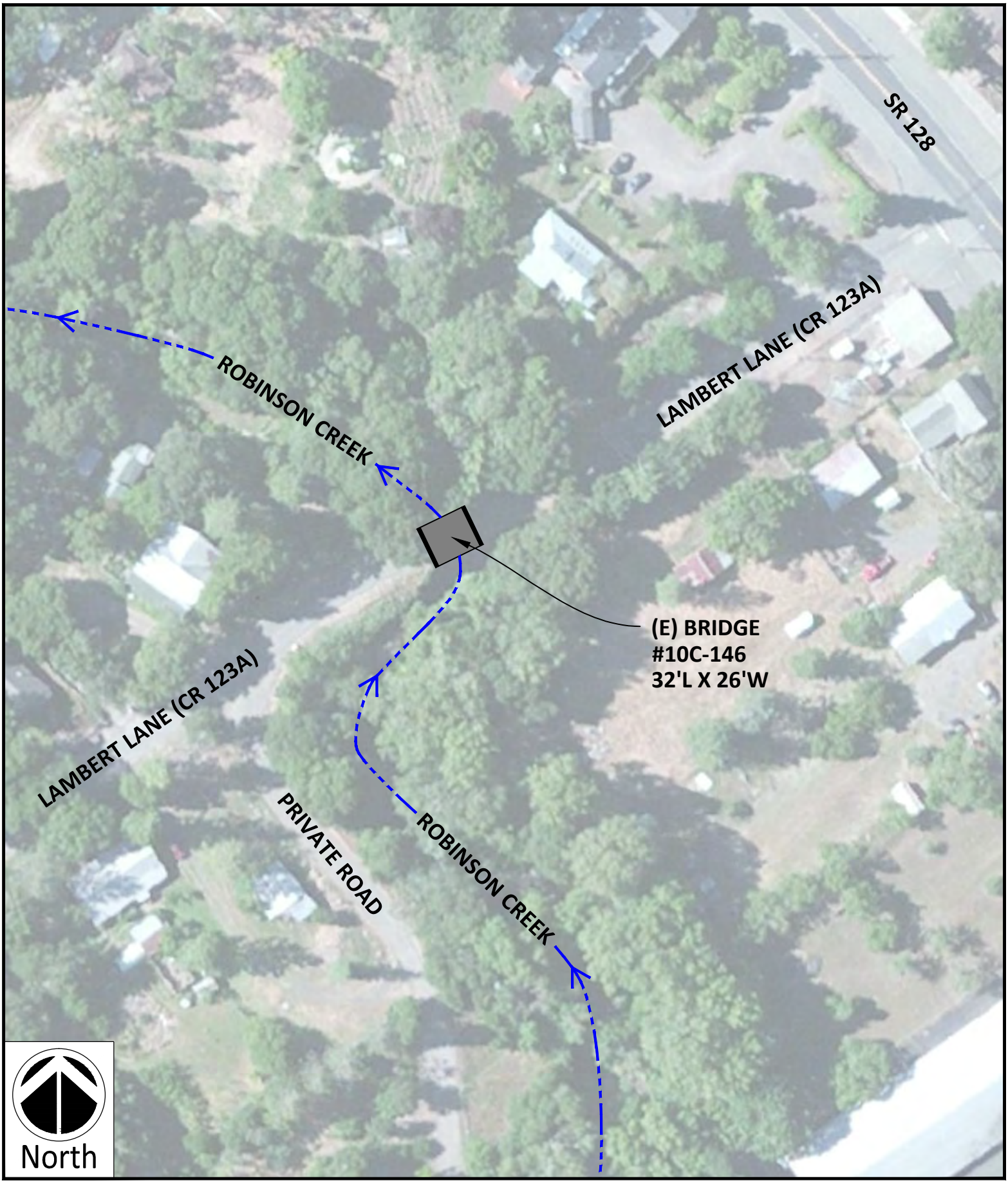
ROBINSON CREEK BRIDGE REPLACEMENT ON LAMBERT LANE
BRIDGE #10C-146

BOONVILLE, MENDOCINO COUNTY, CA

**Figure 1**
Vicinity Map

| | |
|---|---|
| Project No. | 16-278.1 |
| Scale | 1"=2000' |
| Date | 05/23/2016 |

Xrefs: 16-278-XC-BORDER-BX11.dwg
Path: S:\AutoCAD Civil 3D\Projects\16-278.1-Robinson Creek Bridge\16-278-ROBINSON CREEK BRIDGE.dwg Plot Date: May 23, 2016 at 11:52am




| | | |
|---|---|---|
| Project Mgr. | | |
| Project Eng. | | |
| Designer | | |
| Checked By | | |
| Drawn By | RRH | 05/23/2016 |
| | | |
| | | |
| | By | Date |

**Map Source**
*-Base map via AutoCAD Civil 3D Geolocation Map tool*

Crawford & Associates, Inc.
Geotechnical Engineering, Design and Construction Services
4030 S. Land Park Drive, Suite C
Sacramento, CA 95822

ROBINSON CREEK BRIDGE REPLACEMENT ON LAMBERT LANE BRIDGE #10C-146

BOONVILLE, MENDOCINO COUNTY, CA

**Figure 2**
Location Map

| | |
|---|---|
| Project No. | 16-278.1 |
| Scale | 1"=75' |
| Date | 05/23/2016 |

Xrefs: 16-278-XC-BORDER-8X11.dwg
Path: S:\AutoCAD Civil 3D\Projects\16-278.1-Robinson Creek Bridge\16-278-ROBINSON CREEK BRIDGE.dwg Plot Date: Jun 27, 2016 at 11:49am

LEGEND:

- ENVIRONMENTAL STUDY LIMITS
- PROPERTY LINES
- POTENTIAL STAGING AREA

0 40 80 120 160

SCALE: 1"=160'

029-130-12
PACIFIC TELEPHONE &
TELEGRAPH COMPANY

HWY 128

029-130-13
JOHNSON GARY & WANDA M

029-140-46
BURROUGHS JOAN M TTEE

029-140-47
JUNE JANESE A

029-130-05
B R H ASSOCIATES INC.

029-130-04
B R H ASSOCIATES INC.

029-110-23
SCOMMEGNA ROGER

029-110-12
COUNTY OF MENDOCINO

ROBINSON CREEK

029-150-12
COUNTY OF MENDOCINO

029-150-39
CORLETTE MICHELLE

LAMBERT LANE

EXISTING CONCRETE
BRIDGE TO BE REPLACED

029-130-07
MCCARTHY MATTHEW
& DIXIE LEE TTEES

029-130-11
DANIELS STEVENS
& BEVERLY

DATE CREATED: 05/13/2016

COUNTY OF MENDOCINO
DEPARTMENT OF TRANSPORTATION
340 LAKE MENDOCINO DRIVE* UKIAH* CA * 95482
TEL (707) 463-4071

LAMBERT LANE
OVER ROBINSON CREEK BRIDGE
BRLO-5910(099)
BRIDGE No. 10C-0146
ENVIRONMENTAL STUDY LIMITS

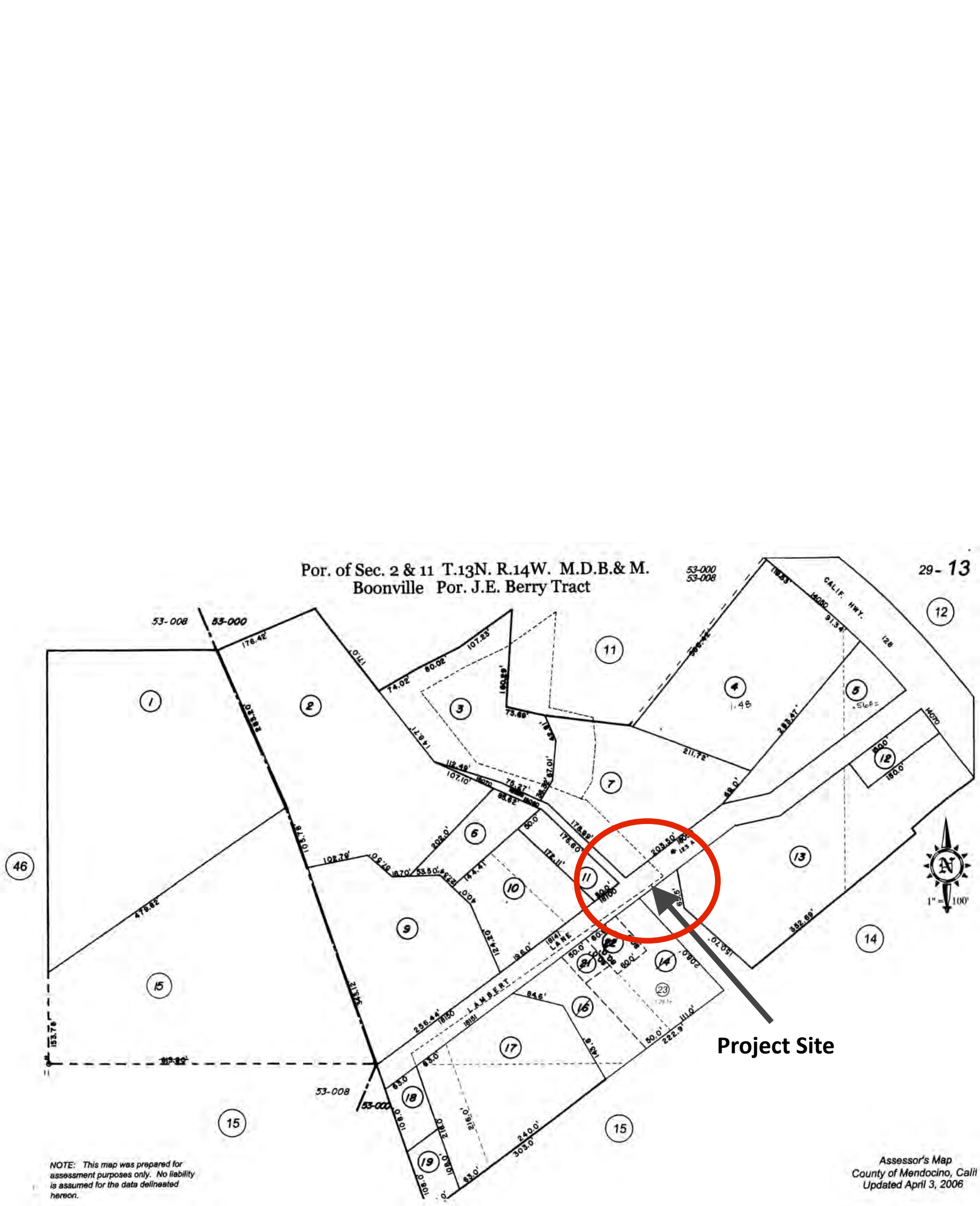
SHEET 1
OF
1 SHEETS

REVIEWED BY: RW
DRAWN BY: AC
DESIGNED BY: RW
DGN FILE => S:\Client\Mendocino\M10-700 Robinson Creek Bridge\500-Design\505 -PROJECT Files\Exhibits\M10700 ESL.dgn
PLOTTED => 5/17/2016 11:11

Por. of Sec. 2 & 11 T.13N. R.14W. M.D.B.& M.
Boonville Por. J.E. Berry Tract

53-000
53-008

29 - 13



## APPENDIX B

**Site Photographs**



**Photo 1.** Project Site. Failed retaining wall, rock slope protection, shotgun storm drain, 8/26/15




**Photo 2.** East Bridge Approach. Painted guard rails, yellow striping, 8/26/16



**Photo 3.** Failed retaining wall, painted guard rail, wing wall, grey paint covering graffiti, 8/26/15




**Photo 4.** West bridge approach, residential land uses; woody vegetation, 8/26/15



**Photo 5.** Cracked retaining wall upstream of bridge on west bank, 5/11/16



**Photo 6.** Robinson Creek, looking downstream toward bridge, 5/11/16



**Photo 7.** Robinson Creek, looking upstream toward bridge, 5/11/16



**Photo 8.** Paint on pier walls, two coats, both sides of bridge, covering graffiti, 5/11/16

# APPENDIX C

**Historical Aerial Photographs**

Robinson Creek Bridge Replacement On Lambert Lane

18050 Lambert Lane

Boonville, CA 95415

Inquiry Number: 4635090.9

June 06, 2016

# The EDR Aerial Photo Decade Package

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

# EDR Aerial Photo Decade Package

06/06/16

**Site Name:**

Robinson Creek Bridge Replac
18050 Lambert Lane
Boonville, CA 95415
EDR Inquiry # 4635090.9

**Client Name:**

Crawford & Associates Inc.
4030 South Land Park Drive Suite C
Sacramento, CA 95822-0000
Contact: Julie Price

Environmental Data Resources, Inc. (EDR) Aerial Photo Decade Package is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDR's professional researchers provide digitally reproduced historical aerial photographs, and when available, provide one photo per decade.

## *Search Results:*

| Year | Scale | Details | Source |
|---|---|---|---|
| 2012 | 1"=500' | Flight Year: 2012 | USDA/NAIP |
| 2010 | 1"=500' | Flight Year: 2010 | USDA/NAIP |
| 2009 | 1"=500' | Flight Year: 2009 | USDA/NAIP |
| 2006 | 1"=500' | Flight Year: 2006 | USDA/NAIP |
| 2005 | 1"=500' | Flight Year: 2005 | USDA/NAIP |
| 1998 | 1"=500' | Acquisition Date: July, 12 1993 | USGS/DOQQ |
| 1993 | 1"=500' | Flight Date: January, 01 1993 | USGS |
| 1985 | 1"=500' | Flight Date: January, 01 1985 | USGS |
| 1974 | 1"=500' | Flight Date: January, 01 1974 | USGS |
| 1957 | 1"=500' | Flight Date: January, 01 1957 | USGS |

**When delivered electronically by EDR, the aerial photo images included with this report are for ONE TIME USE ONLY. Further reproduction of these aerial photo images is prohibited without permission from EDR. For more information contact your EDR Account Executive.**


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INQUIRY #: 4635090.9
YEAR: 2012
= 500'
N
EDR


INQUIRY #: 4635090.9
YEAR: 2010
= 500'
N
EDR


INQUIRY #: 4635090.9
YEAR: 2009
= 500'
N
EDR


INQUIRY #: 4635090.9
YEAR: 2006
= 500'
N
EDR


INQUIRY #: 4635090.9
YEAR: 2005
= 500'
N
EDR


INQUIRY #: 4635090.9
YEAR: 1998
= 500'
N
EDR


INQUIRY #: 4635090.9
YEAR: 1993
= 500'
N
EDR


INQUIRY #: 4635090.9
YEAR: 1985
= 500'
N
EDR


INQUIRY #: 4635090.9
YEAR: 1974
= 500'
N
EDR


INQUIRY #: 4635090.9
YEAR: 1957
= 500'
N
EDR

# APPENDIX D

**Historical Topographic Maps**

Robinson Creek Bridge Replacement On Lambert Lane

18050 Lambert Lane

Boonville, CA 95415

Inquiry Number: 4635090.4

June 01, 2016

# EDR Historical Topo Map Report

## with QuadMatch™

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

# EDR Historical Topo Map Report

06/01/16

**Site Name:**

Robinson Creek Bridge Replac
18050 Lambert Lane
Boonville, CA 95415
EDR Inquiry # 4635090.4

**Client Name:**

Crawford & Associates Inc.
4030 South Land Park Drive Suite C
Sacramento, CA 95822-0000
Contact: Julie Price

EDR Topographic Map Library has been searched by EDR and maps covering the target property location as provided by Crawford & Associates Inc. were identified for the years listed below. EDR's Historical Topo Map Report is designed to assist professionals in evaluating potential liability on a target property resulting from past activities. EDRs Historical Topo Map Report includes a search of a collection of public and private color historical topographic maps, dating back to the late 1800s.

***Search Results:***

**P.O.#** NA
**Project:** Robinson Creek Bridge

***Coordinates:***

| | |
|---|---|
| **Latitude:** | 39.008454 39° 0' 30" North |
| **Longitude:** | -123.368248 -123° 22' 6" West |
| **UTM Zone:** | Zone 10 North |
| **UTM X Meters:** | 468116.51 |
| **UTM Y Meters:** | 4317779.23 |
| **Elevation:** | 374.28' above sea level |

**Maps Provided:**

2012
1991
1959, 1960
1943

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## *Topo Sheet Key*

This EDR Topo Map Report is based upon the following USGS topographic map sheets.

### 2012 Source Sheets



Zeni Ridge

7.5-minute, 24000



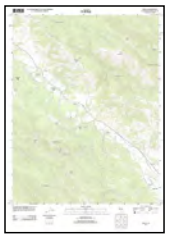
Ornbaun Valley

7.5-minute, 24000



Boonville

7.5-minute, 24000



Philo

7.5-minute, 24000

### 1991 Source Sheets



Zeni Ridge

7.5-minute, 24000
Aerial Photo Revised 1985
Edited 1991



Boonville

7.5-minute, 24000
Aerial Photo Revised 1985
Edited 1991



Philo

7.5-minute, 24000
Aerial Photo Revised 1985
Edited 1991



Ornbaun Valley

7.5-minute, 24000
Aerial Photo Revised 1985
Edited 1991

### 1959, 1960 Source Sheets



Boonville

15-minute, 62500
Aerial Photo Revised 1957



Ornbaun Valley

15-minute, 62500
Aerial Photo Revised 1957

### 1943 Source Sheets



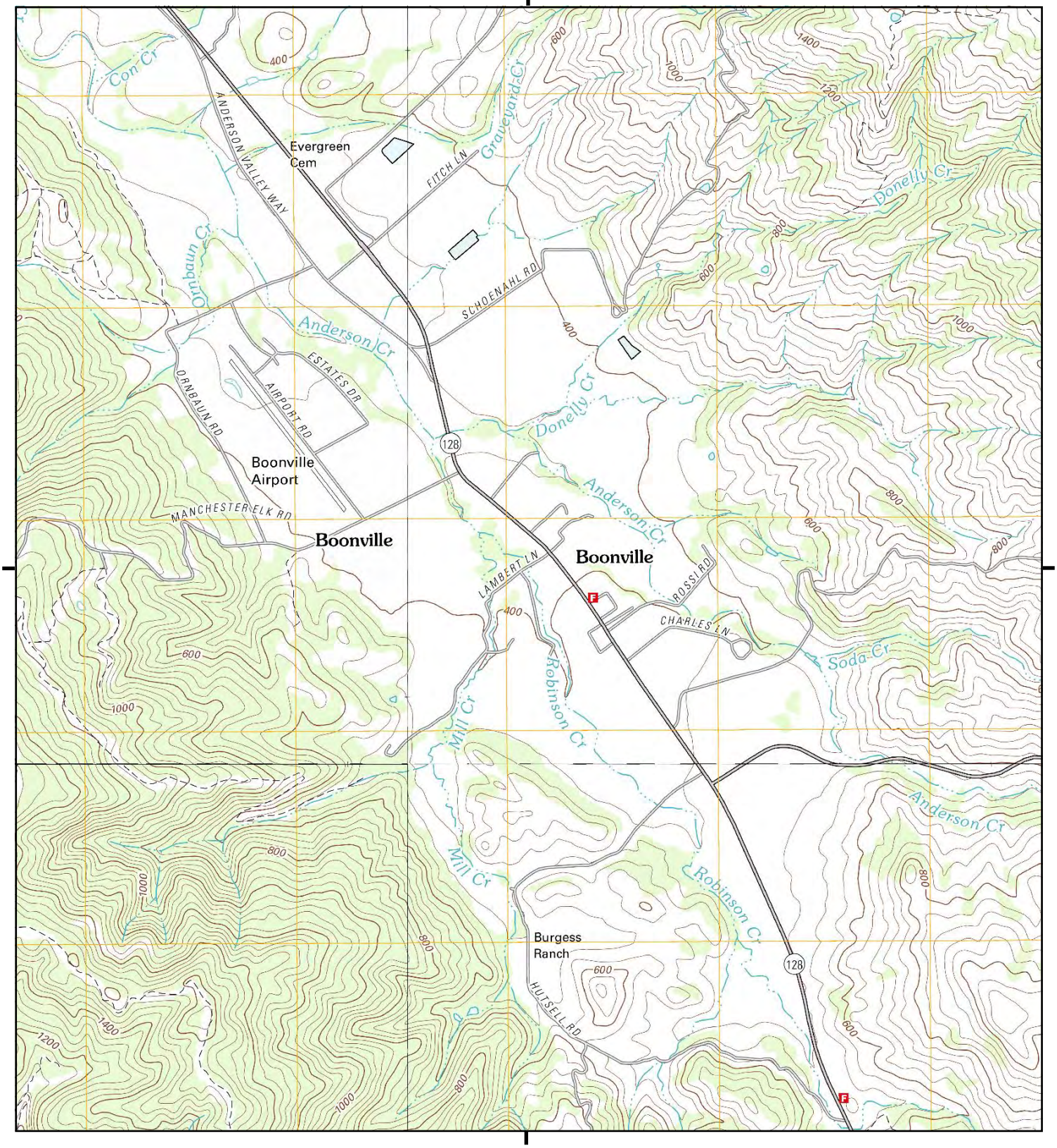
Ornbaun

15-minute, 62500
Aerial Photo Revised 1942



Boonville

15-minute, 62500
Aerial Photo Revised 1942




This report includes information from the following map sheet(s).

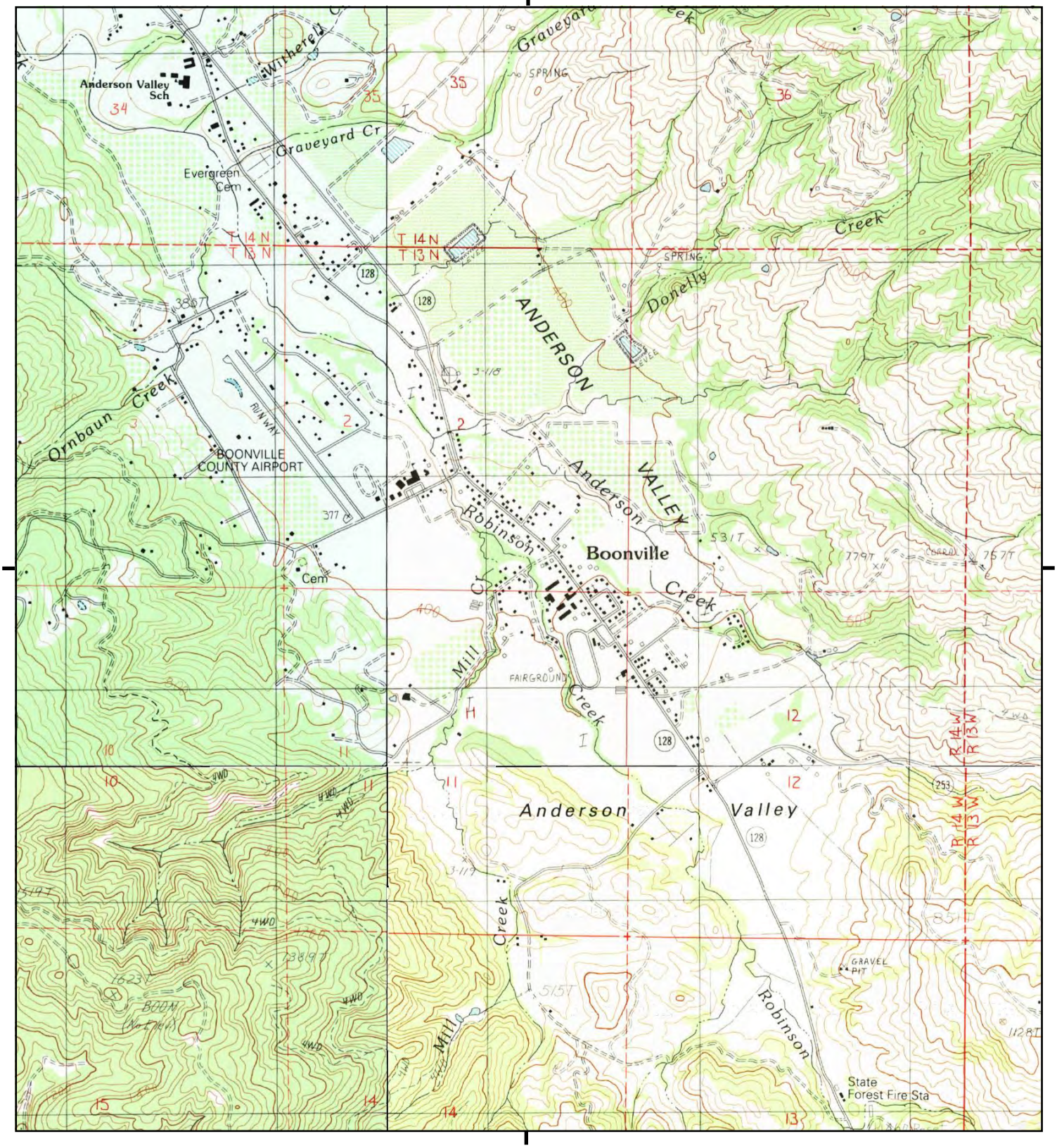
0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Boonville, 2012, 7.5-minute
SE, Ornbaun Valley, 2012, 7.5-minute
SW, Zeni Ridge, 2012, 7.5-minute
NW, Philo, 2012, 7.5-minute

SITE NAME: Robinson Creek Bridge Replacement On
ADDRESS: 18050 Lambert Lane
Boonville, CA 95415
CLIENT: Crawford & Associates Inc.

N




This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Boonville, 1991, 7.5-minute
SE, Ornbaun Valley, 1991, 7.5-minute
SW, Zeni Ridge, 1991, 7.5-minute
NW, Philo, 1991, 7.5-minute

SITE NAME: Robinson Creek Bridge Replacement On
ADDRESS: 18050 Lambert Lane
Boonville, CA 95415
CLIENT: Crawford & Associates Inc.

N




This report includes information from the following map sheet(s).

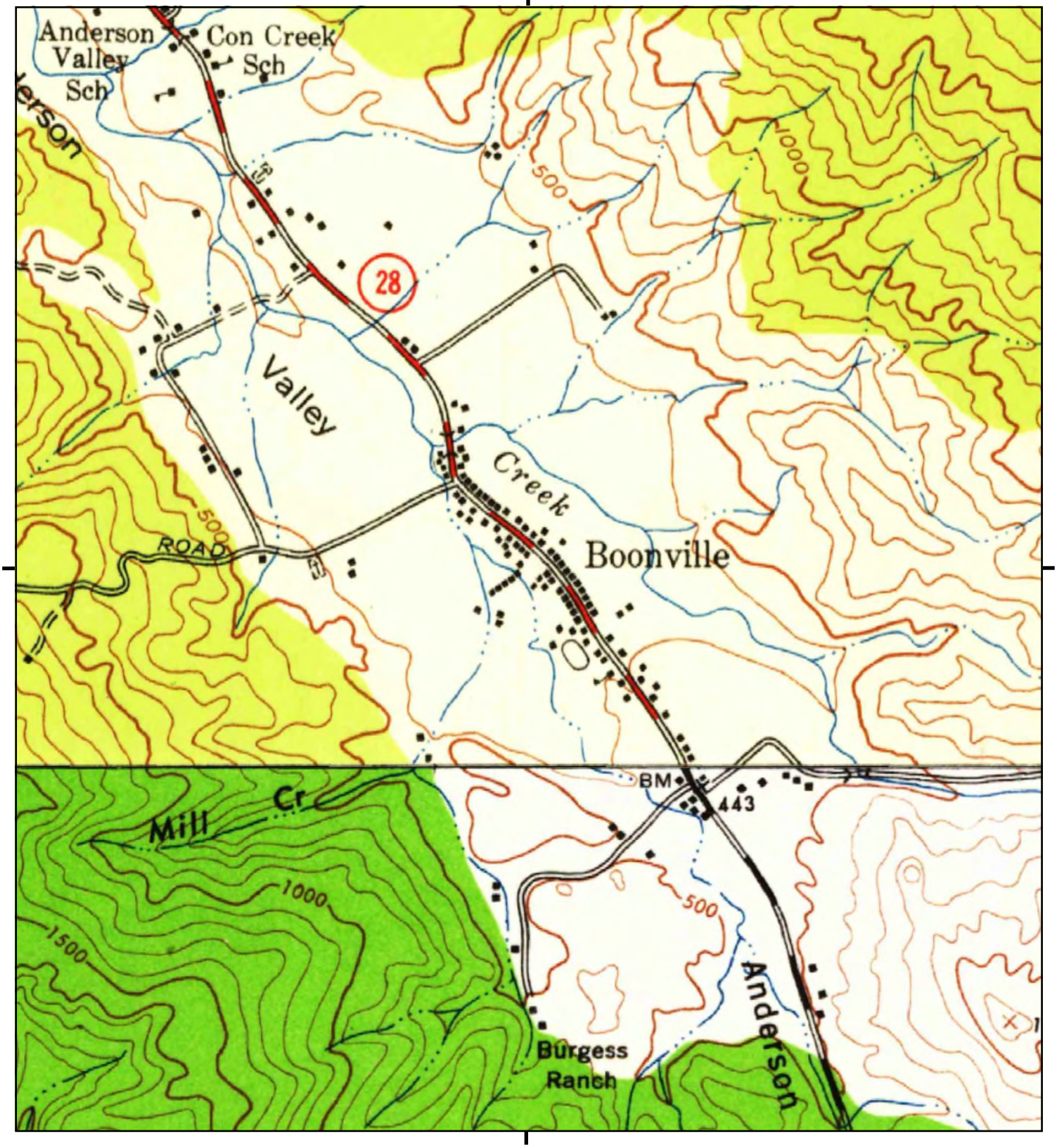
0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Boonville, 1959, 15-minute
S, Ornbaun Valley, 1960, 15-minute

SITE NAME: Robinson Creek Bridge Replacement On
ADDRESS: 18050 Lambert Lane
Boonville, CA 95415
CLIENT: Crawford & Associates Inc.

N




This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Boonville, 1943, 15-minute
S, Ornbaun, 1943, 15-minute

SITE NAME: Robinson Creek Bridge Replacement On
ADDRESS: 18050 Lambert Lane
Boonville, CA 95415
CLIENT: Crawford & Associates Inc.

N

## APPENDIX E

**EDR Radius Map™ Report with GeoCheck®**
**Inquiry Number: 4635090.4**

**Robinson Creek Bridge Replacement On Lambert Lane**
18050 Lambert Lane
Boonville, CA 95415

Inquiry Number: 4635090.2s
June 01, 2016

# The EDR Radius Map™ Report with GeoCheck®

EDR® Environmental Data Resources Inc

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

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| Map Findings Summary | 4 |
| Map Findings | 8 |
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| Government Records Searched/Data Currency Tracking | GR-1 |

**GEOCHECK ADDENDUM**

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***Thank you for your business.***
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with any questions or comments.


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# EXECUTIVE SUMMARY

A search of available environmental records was conducted by Environmental Data Resources, Inc (EDR). The report was designed to assist parties seeking to meet the search requirements of EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), the ASTM Standard Practice for Environmental Site Assessments (E 1527-13) or custom requirements developed for the evaluation of environmental risk associated with a parcel of real estate.

## TARGET PROPERTY INFORMATION

### ADDRESS

18050 LAMBERT LANE
BOONVILLE, CA 95415

### COORDINATES

| | |
|---|---|
| Latitude (North): | 39.0084540 - 39° 0' 30.43'' |
| Longitude (West): | 123.3682480 - 123° 22' 5.69'' |
| Universal Tranverse Mercator: | Zone 10 |
| UTM X (Meters): | 468115.7 |
| UTM Y (Meters): | 4317571.0 |
| Elevation: | 374 ft. above sea level |

## USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

| | |
|---|---|
| Target Property Map: | 5602854 BOONVILLE, CA |
| Version Date: | 2012 |
| Southeast Map: | 5603878 ORNBAUN VALLEY, CA |
| Version Date: | 2012 |
| Southwest Map: | 5603894 ZENI RIDGE, CA |
| Version Date: | 2012 |
| Northwest Map: | 5602894 PHILO, CA |
| Version Date: | 2012 |

## AERIAL PHOTOGRAPHY IN THIS REPORT

| | |
|---|---|
| Portions of Photo from: | 20120529, 20120530 |
| Source: | USDA |

## MAPPED SITES SUMMARY

Target Property Address:
18050 LAMBERT LANE
BOONVILLE, CA 95415

Click on Map ID to see full detail.

| MAP ID | SITE NAME | ADDRESS | DATABASE ACRONYMS | RELATIVE ELEVATION | DIST (ft. & mi.) DIRECTION |
|---|---|---|---|---|---|
| A1 | THE PARTNERS BUILDIN | 14111 HWY 128 | SWEEPS UST | Higher | 121, 0.023, ENE |
| A2 | PARTNERS BUILDING | 14111 HIGHWAY 128 | LUST, HIST CORTESE | Higher | 121, 0.023, ENE |
| A3 | CHEVRON #9-6221 | 14125 HIGHWAY 128 | LUST, HIST CORTESE | Higher | 349, 0.066, ENE |
| B4 | CALTRANS BOONVILLE M | 14001 HIGHWAY 128 P. | SWEEPS UST | Lower | 431, 0.082, NNW |
| B5 | CDOT BOONVILLE | 14001 HIGHWAY 128 | LUST, HIST CORTESE | Lower | 431, 0.082, NNW |
| C6 | CHEVRON, JEFF | 14289 HIGHWAY 128 | LUST, SWEEPS UST, CHMIRS, ENF, HIST CORTESE | Higher | 865, 0.164, SE |
| C7 | CHEVRON, EFF | HIGHWAY 128 14289 | LUST | Higher | 865, 0.164, SE |
| C8 | JEFF'S CHEVRON | 14289 128 | HIST CORTESE | Higher | 865, 0.164, SE |
| C9 | UNION OIL SS 4319 | 14289 HIGHWAY 128 | HIST UST | Higher | 865, 0.164, SE |
| C10 | JEFFS CHEVRON | 14289 HIWAY 128 | HIST UST | Higher | 865, 0.164, SE |

# EXECUTIVE SUMMARY

## TARGET PROPERTY SEARCH RESULTS

The target property was not listed in any of the databases searched by EDR.

## DATABASES WITH NO MAPPED SITES

No mapped sites were found in EDR's search of available ("reasonably ascertainable ") government records either on the target property or within the search radius around the target property for the following databases:

## STANDARD ENVIRONMENTAL RECORDS

### *Federal NPL site list*

NPL ---------- National Priority List
Proposed NPL ---------- Proposed National Priority List Sites
NPL LIENS ---------- Federal Superfund Liens

### *Federal Delisted NPL site list*

Delisted NPL ---------- National Priority List Deletions

### *Federal CERCLIS list*

FEDERAL FACILITY ---------- Federal Facility Site Information listing
SEMS ---------- Superfund Enterprise Management System

### *Federal CERCLIS NFRAP site list*

SEMS-ARCHIVE ---------- Superfund Enterprise Management System Archive

### *Federal RCRA CORRACTS facilities list*

CORRACTS ---------- Corrective Action Report

### *Federal RCRA non-CORRACTS TSD facilities list*

RCRA-TSDF ---------- RCRA - Treatment, Storage and Disposal

### *Federal RCRA generators list*

RCRA-LQG ---------- RCRA - Large Quantity Generators
RCRA-SQG ---------- RCRA - Small Quantity Generators
RCRA-CESQG ---------- RCRA - Conditionally Exempt Small Quantity Generator

### *Federal institutional controls / engineering controls registries*

LUCIS ---------- Land Use Control Information System
US ENG CONTROLS ---------- Engineering Controls Sites List

US INST CONTROL ---------- Sites with Institutional Controls

***Federal ERNS list***

ERNS ---------- Emergency Response Notification System

***State- and tribal - equivalent NPL***

RESPONSE ---------- State Response Sites

***State- and tribal - equivalent CERCLIS***

ENVIROSTOR ---------- EnviroStor Database

***State and tribal landfill and/or solid waste disposal site lists***

SWF/LF ---------- Solid Waste Information System

***State and tribal leaking storage tank lists***

INDIAN LUST ---------- Leaking Underground Storage Tanks on Indian Land
SLIC ---------- Statewide SLIC Cases

***State and tribal registered storage tank lists***

FEMA UST ---------- Underground Storage Tank Listing
UST ---------- Active UST Facilities
AST ---------- Aboveground Petroleum Storage Tank Facilities
INDIAN UST ---------- Underground Storage Tanks on Indian Land

***State and tribal voluntary cleanup sites***

VCP ---------- Voluntary Cleanup Program Properties
INDIAN VCP ---------- Voluntary Cleanup Priority Listing

***State and tribal Brownfields sites***

BROWNFIELDS ---------- Considered Brownfieds Sites Listing

**ADDITIONAL ENVIRONMENTAL RECORDS**

***Local Brownfield lists***

US BROWNFIELDS ---------- A Listing of Brownfields Sites

***Local Lists of Landfill / Solid Waste Disposal Sites***

WMUDS/SWAT ---------- Waste Management Unit Database
SWRCY ---------- Recycler Database
HAULERS ---------- Registered Waste Tire Haulers Listing
INDIAN ODI ---------- Report on the Status of Open Dumps on Indian Lands
DEBRIS REGION 9 ---------- Torres Martinez Reservation Illegal Dump Site Locations
ODI ---------- Open Dump Inventory

***Local Lists of Hazardous waste / Contaminated Sites***

US HIST CDL ---------- Delisted National Clandestine Laboratory Register

HIST Cal-Sites ---- Historical Calsites Database
SCH ---- School Property Evaluation Program
CDL ---- Clandestine Drug Labs
Toxic Pits ---- Toxic Pits Cleanup Act Sites
US CDL ---- National Clandestine Laboratory Register

***Local Lists of Registered Storage Tanks***

CA FID UST ---- Facility Inventory Database

***Local Land Records***

LIENS ---- Environmental Liens Listing
LIENS 2 ---- CERCLA Lien Information
DEED ---- Deed Restriction Listing

***Records of Emergency Release Reports***

HMIRS ---- Hazardous Materials Information Reporting System
CHMIRS ---- California Hazardous Material Incident Report System
LDS ---- Land Disposal Sites Listing
MCS ---- Military Cleanup Sites Listing
SPILLS 90 ---- SPILLS 90 data from FirstSearch

***Other Ascertainable Records***

RCRA NonGen / NLR ---- RCRA - Non Generators / No Longer Regulated
FUDS ---- Formerly Used Defense Sites
DOD ---- Department of Defense Sites
SCRD DRYCLEANERS ---- State Coalition for Remediation of Drycleaners Listing
US FIN ASSUR ---- Financial Assurance Information
EPA WATCH LIST ---- EPA WATCH LIST
2020 COR ACTION ---- 2020 Corrective Action Program List
TSCA ---- Toxic Substances Control Act
TRIS ---- Toxic Chemical Release Inventory System
SSTS ---- Section 7 Tracking Systems
ROD ---- Records Of Decision
RMP ---- Risk Management Plans
RAATS ---- RCRA Administrative Action Tracking System
PRP ---- Potentially Responsible Parties
PADS ---- PCB Activity Database System
ICIS ---- Integrated Compliance Information System
FTTS ---- FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
MLTS ---- Material Licensing Tracking System
COAL ASH DOE ---- Steam-Electric Plant Operation Data
COAL ASH EPA ---- Coal Combustion Residues Surface Impoundments List
PCB TRANSFORMER ---- PCB Transformer Registration Database
RADINFO ---- Radiation Information Database
HIST FTTS ---- FIFRA/TSCA Tracking System Administrative Case Listing
DOT OPS ---- Incident and Accident Data
CONSENT ---- Superfund (CERCLA) Consent Decrees
INDIAN RESERV ---- Indian Reservations
FUSRAP ---- Formerly Utilized Sites Remedial Action Program
UMTRA ---- Uranium Mill Tailings Sites

LEAD SMELTERS Lead Smelter Sites
US AIRS Aerometric Information Retrieval System Facility Subsystem
US MINES Mines Master Index File
FINDS Facility Index System/Facility Registry System
UXO Unexploded Ordnance Sites
DOCKET HWC Hazardous Waste Compliance Docket Listing
CA BOND EXP. PLAN Bond Expenditure Plan
Cortese "Cortese" Hazardous Waste & Substances Sites List
CUPA Listings CUPA Resources List
DRYCLEANERS Cleaner Facilities
EMI Emissions Inventory Data
ENF Enforcement Action Listing
Financial Assurance Financial Assurance Information Listing
HAZNET Facility and Manifest Data
HWP EnviroStor Permitted Facilities Listing
HWT Registered Hazardous Waste Transporter Database
MINES Mines Site Location Listing
MWMP Medical Waste Management Program Listing
NPDES NPDES Permits Listing
PEST LIC Pesticide Regulation Licenses Listing
PROC Certified Processors Database
Notify 65 Proposition 65 Records
UIC UIC Listing
WASTEWATER PITS Oil Wastewater Pits Listing
WDS Waste Discharge System
WIP Well Investigation Program Case List
ECHO Enforcement & Compliance History Information
FUELS PROGRAM EPA Fuels Program Registered Listing

**EDR HIGH RISK HISTORICAL RECORDS**

***EDR Exclusive Records***

EDR MGP EDR Proprietary Manufactured Gas Plants
EDR Hist Auto EDR Exclusive Historic Gas Stations
EDR Hist Cleaner EDR Exclusive Historic Dry Cleaners

**EDR RECOVERED GOVERNMENT ARCHIVES**

***Exclusive Recovered Govt. Archives***

RGA LF Recovered Government Archive Solid Waste Facilities List
RGA LUST Recovered Government Archive Leaking Underground Storage Tank

**SURROUNDING SITES: SEARCH RESULTS**

Surrounding sites were identified in the following databases.

Elevations have been determined from the USGS Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified. Sites with an elevation equal to or higher than the target property have been differentiated below from sites with an elevation lower than the target property.
Page numbers and map identification numbers refer to the EDR Radius Map report where detailed data on individual sites can be reviewed.

Sites listed in ***bold italics*** are in multiple databases.

Unmappable (orphan) sites are not considered in the foregoing analysis.

# EXECUTIVE SUMMARY

## STANDARD ENVIRONMENTAL RECORDS

### *State and tribal leaking storage tank lists*

LUST: The Leaking Underground Storage Tank Incident Reports contain an inventory of reported leaking underground storage tank incidents. The data come from the State Water Resources Control Board Leaking Underground Storage Tank Information System.

A review of the LUST list, as provided by EDR, and dated 03/14/2016 has revealed that there are 5 LUST sites within approximately 0.5 miles of the target property.

| Equal/Higher Elevation | Address | Direction / Distance | Map ID | Page |
|---|---|---|---|---|
| ***PARTNERS BUILDING***<br>Status: Completed - Case Closed<br>Facility Id: 1TMC269<br>Global Id: T0604500229 | ***14111 HIGHWAY 128*** | ***ENE 0 - 1/8 (0.023 mi.)*** | ***A2*** | ***8*** |
| ***CHEVRON #9-6221***<br>Status: Open - Site Assessment<br>Facility Id: 1TMC089<br>Global Id: T0604500078 | ***14125 HIGHWAY 128*** | ***ENE 0 - 1/8 (0.066 mi.)*** | ***A3*** | ***10*** |
| ***CHEVRON, JEFF***<br>Status: Open - Assessment & Interim Remedial Action<br>Global Id: T0604500045 | ***14289 HIGHWAY 128*** | ***SE 1/8 - 1/4 (0.164 mi.)*** | ***C6*** | ***16*** |
| CHEVRON, EFF<br>Facility Id: 1TMC053 | HIGHWAY 128 14289 | SE 1/8 - 1/4 (0.164 mi.) | C7 | 28 |

| Lower Elevation | Address | Direction / Distance | Map ID | Page |
|---|---|---|---|---|
| ***CDOT BOONVILLE***<br>Status: Completed - Case Closed<br>Global Id: T0604500233 | ***14001 HIGHWAY 128*** | ***NNW 0 - 1/8 (0.082 mi.)*** | ***B5*** | ***15*** |

## ADDITIONAL ENVIRONMENTAL RECORDS

### *Local Lists of Registered Storage Tanks*

SWEEPS UST: Statewide Environmental Evaluation and Planning System. This underground storage tank listing was updated and maintained by a company contacted by the SWRCB in the early 1990's. The listing is no longer updated or maintained. The local agency is the contact for more information on a site on the SWEEPS list.

A review of the SWEEPS UST list, as provided by EDR, and dated 06/01/1994 has revealed that there are 3 SWEEPS UST sites within approximately 0.25 miles of the target property.

| Equal/Higher Elevation | Address | Direction / Distance | Map ID | Page |
|---|---|---|---|---|
| THE PARTNERS BUILDIN<br>Comp Number: 70455 | 14111 HWY 128 | ENE 0 - 1/8 (0.023 mi.) | A1 | 8 |
| ***CHEVRON, JEFF*** | ***14289 HIGHWAY 128*** | ***SE 1/8 - 1/4 (0.164 mi.)*** | ***C6*** | ***16*** |

Status: A
Tank Status: A
Comp Number: 14716

| Lower Elevation | Address | Direction / Distance | Map ID | Page |
|---|---|---|---|---|
| CALTRANS BOONVILLE M<br>Status: A<br>Tank Status: A<br>Comp Number: 67893 | 14001 HIGHWAY 128 P. | NNW 0 - 1/8 (0.082 mi.) | B4 | 14 |

HIST UST: Historical UST Registered Database.

A review of the HIST UST list, as provided by EDR, and dated 10/15/1990 has revealed that there are 2 HIST UST sites within approximately 0.25 miles of the target property.

| Equal/Higher Elevation | Address | Direction / Distance | Map ID | Page |
|---|---|---|---|---|
| UNION OIL SS 4319<br>Facility Id: 00000006055 | 14289 HIGHWAY 128 | SE 1/8 - 1/4 (0.164 mi.) | C9 | 29 |
| JEFFS CHEVRON<br>Facility Id: 00000014716 | 14289 HIWAY 128 | SE 1/8 - 1/4 (0.164 mi.) | C10 | 29 |

***Other Ascertainable Records***

HIST CORTESE: The sites for the list are designated by the State Water Resource Control Board [LUST], the Integrated Waste Board [SWF/LS], and the Department of Toxic Substances Control [CALSITES]. This listing is no longer updated by the state agency.

A review of the HIST CORTESE list, as provided by EDR, and dated 04/01/2001 has revealed that there are 5 HIST CORTESE sites within approximately 0.5 miles of the target property.

| Equal/Higher Elevation | Address | Direction / Distance | Map ID | Page |
|---|---|---|---|---|
| ***PARTNERS BUILDING***<br>Reg Id: 1TMC269 | ***14111 HIGHWAY 128*** | ***ENE 0 - 1/8 (0.023 mi.)*** | ***A2*** | ***8*** |
| ***CHEVRON #9-6221***<br>Reg Id: 1TMC089 | ***14125 HIGHWAY 128*** | ***ENE 0 - 1/8 (0.066 mi.)*** | ***A3*** | ***10*** |
| ***CHEVRON, JEFF***<br>Reg Id: 1TMC053 | ***14289 HIGHWAY 128*** | ***SE 1/8 - 1/4 (0.164 mi.)*** | ***C6*** | ***16*** |
| JEFF'S CHEVRON<br>Reg Id: 1B1MCO53NSL | 14289 128 | SE 1/8 - 1/4 (0.164 mi.) | C8 | 28 |

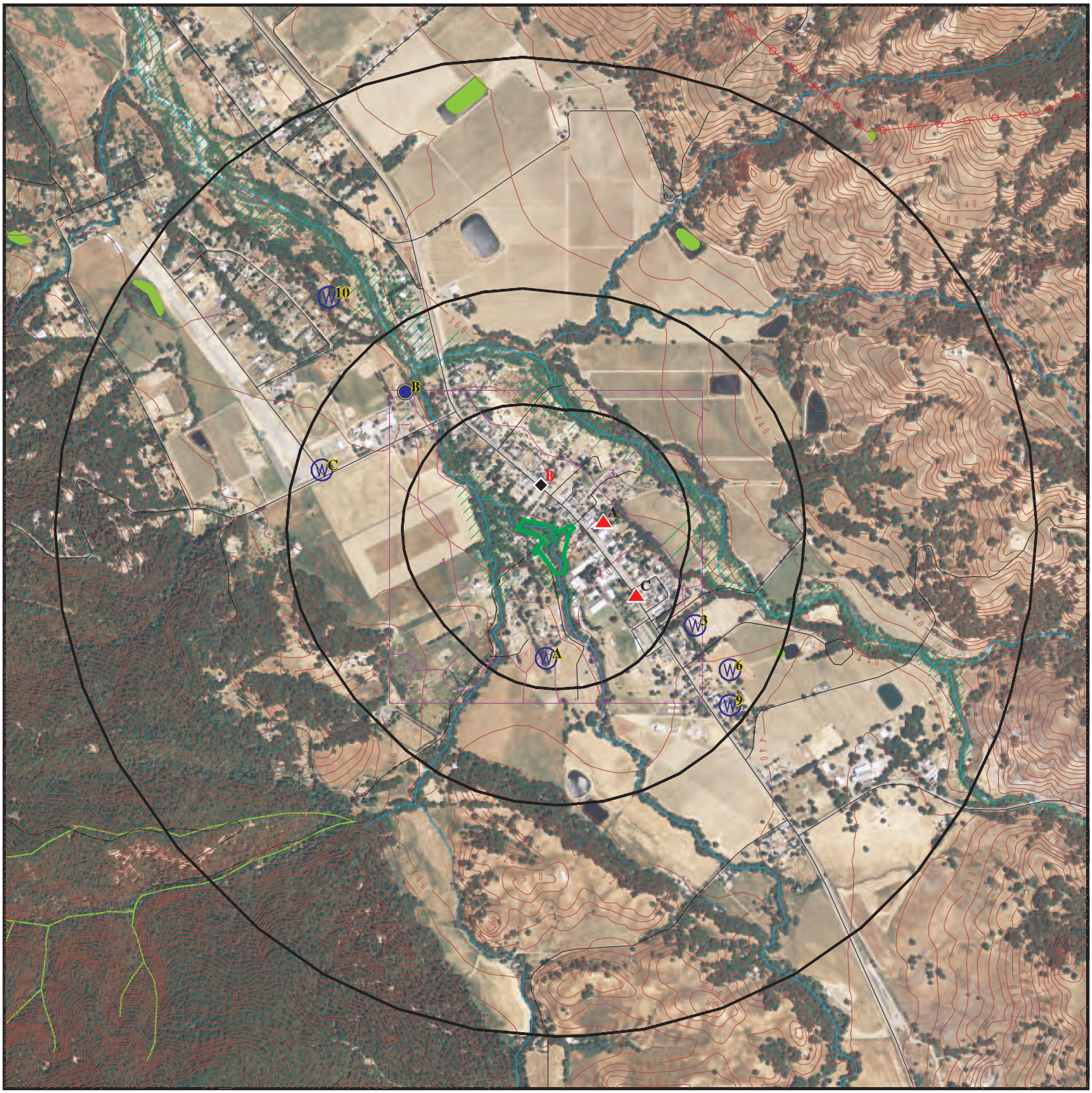
| Lower Elevation | Address | Direction / Distance | Map ID | Page |
|---|---|---|---|---|
| ***CDOT BOONVILLE***<br>Reg Id: 1TMC273 | ***14001 HIGHWAY 128*** | ***NNW 0 - 1/8 (0.082 mi.)*** | ***B5*** | ***15*** |

# EXECUTIVE SUMMARY

Due to poor or inadequate address information, the following sites were not mapped. Count: 3 records.

| Site Name | Database(s) |
|---|---|
| REDWOOD DRIVE IN | LUST |
| MCDPW BOONVILLE ROAD YARD | LUST |
| ANDERSON VALLEY WELL CONTAMINATION | SLIC |

# OVERVIEW MAP - 4635090.2S




Target Property

Sites at elevations higher than or equal to the target property

Sites at elevations lower than the target property

Manufactured Gas Plants

National Priority List Sites

Dept. Defense Sites

0 1/4 1/2 1 Miles

Indian Reservations BIA

Power transmission lines

100-year flood zone

500-year flood zone

National Wetland Inventory

State Wetlands

Areas of Concern

N

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

| | | | |
|---|---|---|---|
| SITE NAME: | Robinson Creek Bridge Replacement On Lambert Lane | CLIENT: | Crawford & Associates Inc. |
| ADDRESS: | 18050 Lambert Lane<br>Boonville CA 95415 | CONTACT: | Julie Price |
| | | INQUIRY #: | 4635090.2s |
| LAT/LONG: | 39.008454 / 123.368248 | DATE: | June 01, 2016 9:39 pm |

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# DETAIL MAP - 4635090.2S




Target Property
Sites at elevations higher than or equal to the target property
Sites at elevations lower than the target property
Manufactured Gas Plants
Sensitive Receptors
National Priority List Sites
Dept. Defense Sites

0 1/16 1/8 1/4 Miles

Indian Reservations BIA
100-year flood zone
500-year flood zone

Areas of Concern

N

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

| | | | |
|---|---|---|---|
| SITE NAME: | Robinson Creek Bridge Replacement On Lambert Lane | CLIENT: | Crawford & Associates Inc. |
| ADDRESS: | 18050 Lambert Lane<br>Boonville CA 95415 | CONTACT: | Julie Price |
| LAT/LONG: | 39.008454 / 123.368248 | INQUIRY #: | 4635090.2s |
| | | DATE: | June 01, 2016 9:40 pm |

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# MAP FINDINGS SUMMARY

| Database | Search Distance (Miles) | Target Property | < 1/8 | 1/8 - 1/4 | 1/4 - 1/2 | 1/2 - 1 | > 1 | Total Plotted |
|---|---|---|---|---|---|---|---|---|
| **STANDARD ENVIRONMENTAL RECORDS** | | | | | | | | |
| ***Federal NPL site list*** | | | | | | | | |
| NPL | 1.000 | | 0 | 0 | 0 | 0 | NR | 0 |
| Proposed NPL | 1.000 | | 0 | 0 | 0 | 0 | NR | 0 |
| NPL LIENS | 0.001 | | 0 | NR | NR | NR | NR | 0 |
| ***Federal Delisted NPL site list*** | | | | | | | | |
| Delisted NPL | 1.000 | | 0 | 0 | 0 | 0 | NR | 0 |
| ***Federal CERCLIS list*** | | | | | | | | |
| FEDERAL FACILITY | 0.500 | | 0 | 0 | 0 | NR | NR | 0 |
| SEMS | 0.500 | | 0 | 0 | 0 | NR | NR | 0 |
| ***Federal CERCLIS NFRAP site list*** | | | | | | | | |
| SEMS-ARCHIVE | 0.500 | | 0 | 0 | 0 | NR | NR | 0 |
| ***Federal RCRA CORRACTS facilities list*** | | | | | | | | |
| CORRACTS | 1.000 | | 0 | 0 | 0 | 0 | NR | 0 |
| ***Federal RCRA non-CORRACTS TSD facilities list*** | | | | | | | | |
| RCRA-TSDF | 0.500 | | 0 | 0 | 0 | NR | NR | 0 |
| ***Federal RCRA generators list*** | | | | | | | | |
| RCRA-LQG | 0.250 | | 0 | 0 | NR | NR | NR | 0 |
| RCRA-SQG | 0.250 | | 0 | 0 | NR | NR | NR | 0 |
| RCRA-CESQG | 0.250 | | 0 | 0 | NR | NR | NR | 0 |
| ***Federal institutional controls / engineering controls registries*** | | | | | | | | |
| LUCIS | 0.500 | | 0 | 0 | 0 | NR | NR | 0 |
| US ENG CONTROLS | 0.500 | | 0 | 0 | 0 | NR | NR | 0 |
| US INST CONTROL | 0.500 | | 0 | 0 | 0 | NR | NR | 0 |
| ***Federal ERNS list*** | | | | | | | | |
| ERNS | 0.001 | | 0 | NR | NR | NR | NR | 0 |
| ***State- and tribal - equivalent NPL*** | | | | | | | | |
| RESPONSE | 1.000 | | 0 | 0 | 0 | 0 | NR | 0 |
| ***State- and tribal - equivalent CERCLIS*** | | | | | | | | |
| ENVIROSTOR | 1.000 | | 0 | 0 | 0 | 0 | NR | 0 |
| ***State and tribal landfill and/or solid waste disposal site lists*** | | | | | | | | |
| SWF/LF | 0.500 | | 0 | 0 | 0 | NR | NR | 0 |
| ***State and tribal leaking storage tank lists*** | | | | | | | | |
| LUST | 0.500 | | 3 | 2 | 0 | NR | NR | 5 |

# MAP FINDINGS SUMMARY

| Database | Search Distance (Miles) | Target Property | < 1/8 | 1/8 - 1/4 | 1/4 - 1/2 | 1/2 - 1 | > 1 | Total Plotted |
|---|---|---|---|---|---|---|---|---|
| INDIAN LUST | 0.500 | | 0 | 0 | 0 | NR | NR | 0 |
| SLIC | 0.500 | | 0 | 0 | 0 | NR | NR | 0 |
| ***State and tribal registered storage tank lists*** | | | | | | | | |
| FEMA UST | 0.250 | | 0 | 0 | NR | NR | NR | 0 |
| UST | 0.250 | | 0 | 0 | NR | NR | NR | 0 |
| AST | 0.250 | | 0 | 0 | NR | NR | NR | 0 |
| INDIAN UST | 0.250 | | 0 | 0 | NR | NR | NR | 0 |
| ***State and tribal voluntary cleanup sites*** | | | | | | | | |
| VCP | 0.500 | | 0 | 0 | 0 | NR | NR | 0 |
| INDIAN VCP | 0.500 | | 0 | 0 | 0 | NR | NR | 0 |
| ***State and tribal Brownfields sites*** | | | | | | | | |
| BROWNFIELDS | 0.500 | | 0 | 0 | 0 | NR | NR | 0 |
| **ADDITIONAL ENVIRONMENTAL RECORDS** | | | | | | | | |
| ***Local Brownfield lists*** | | | | | | | | |
| US BROWNFIELDS | 0.500 | | 0 | 0 | 0 | NR | NR | 0 |
| ***Local Lists of Landfill / Solid Waste Disposal Sites*** | | | | | | | | |
| WMUDS/SWAT | 0.500 | | 0 | 0 | 0 | NR | NR | 0 |
| SWRCY | 0.500 | | 0 | 0 | 0 | NR | NR | 0 |
| HAULERS | 0.001 | | 0 | NR | NR | NR | NR | 0 |
| INDIAN ODI | 0.500 | | 0 | 0 | 0 | NR | NR | 0 |
| DEBRIS REGION 9 | 0.500 | | 0 | 0 | 0 | NR | NR | 0 |
| ODI | 0.500 | | 0 | 0 | 0 | NR | NR | 0 |
| ***Local Lists of Hazardous waste / Contaminated Sites*** | | | | | | | | |
| US HIST CDL | 0.001 | | 0 | NR | NR | NR | NR | 0 |
| HIST Cal-Sites | 1.000 | | 0 | 0 | 0 | 0 | NR | 0 |
| SCH | 0.250 | | 0 | 0 | NR | NR | NR | 0 |
| CDL | 0.001 | | 0 | NR | NR | NR | NR | 0 |
| Toxic Pits | 1.000 | | 0 | 0 | 0 | 0 | NR | 0 |
| US CDL | 0.001 | | 0 | NR | NR | NR | NR | 0 |
| ***Local Lists of Registered Storage Tanks*** | | | | | | | | |
| SWEEPS UST | 0.250 | | 2 | 1 | NR | NR | NR | 3 |
| HIST UST | 0.250 | | 0 | 2 | NR | NR | NR | 2 |
| CA FID UST | 0.250 | | 0 | 0 | NR | NR | NR | 0 |
| ***Local Land Records*** | | | | | | | | |
| LIENS | 0.001 | | 0 | NR | NR | NR | NR | 0 |
| LIENS 2 | 0.001 | | 0 | NR | NR | NR | NR | 0 |
| DEED | 0.500 | | 0 | 0 | 0 | NR | NR | 0 |
| ***Records of Emergency Release Reports*** | | | | | | | | |
| HMIRS | 0.001 | | 0 | NR | NR | NR | NR | 0 |

# MAP FINDINGS SUMMARY

| Database | Search Distance (Miles) | Target Property | < 1/8 | 1/8 - 1/4 | 1/4 - 1/2 | 1/2 - 1 | > 1 | Total Plotted |
|---|---|---|---|---|---|---|---|---|
| CHMIRS | 0.001 | | 0 | NR | NR | NR | NR | 0 |
| LDS | 0.001 | | 0 | NR | NR | NR | NR | 0 |
| MCS | 0.001 | | 0 | NR | NR | NR | NR | 0 |
| SPILLS 90 | 0.001 | | 0 | NR | NR | NR | NR | 0 |
| ***Other Ascertainable Records*** | | | | | | | | |
| RCRA NonGen / NLR | 0.250 | | 0 | 0 | NR | NR | NR | 0 |
| FUDS | 1.000 | | 0 | 0 | 0 | 0 | NR | 0 |
| DOD | 1.000 | | 0 | 0 | 0 | 0 | NR | 0 |
| SCRD DRYCLEANERS | 0.500 | | 0 | 0 | 0 | NR | NR | 0 |
| US FIN ASSUR | 0.001 | | 0 | NR | NR | NR | NR | 0 |
| EPA WATCH LIST | 0.001 | | 0 | NR | NR | NR | NR | 0 |
| 2020 COR ACTION | 0.250 | | 0 | 0 | NR | NR | NR | 0 |
| TSCA | 0.001 | | 0 | NR | NR | NR | NR | 0 |
| TRIS | 0.001 | | 0 | NR | NR | NR | NR | 0 |
| SSTS | 0.001 | | 0 | NR | NR | NR | NR | 0 |
| ROD | 1.000 | | 0 | 0 | 0 | 0 | NR | 0 |
| RMP | 0.001 | | 0 | NR | NR | NR | NR | 0 |
| RAATS | 0.001 | | 0 | NR | NR | NR | NR | 0 |
| PRP | 0.001 | | 0 | NR | NR | NR | NR | 0 |
| PADS | 0.001 | | 0 | NR | NR | NR | NR | 0 |
| ICIS | 0.001 | | 0 | NR | NR | NR | NR | 0 |
| FTTS | 0.001 | | 0 | NR | NR | NR | NR | 0 |
| MLTS | 0.001 | | 0 | NR | NR | NR | NR | 0 |
| COAL ASH DOE | 0.001 | | 0 | NR | NR | NR | NR | 0 |
| COAL ASH EPA | 0.500 | | 0 | 0 | 0 | NR | NR | 0 |
| PCB TRANSFORMER | 0.001 | | 0 | NR | NR | NR | NR | 0 |
| RADINFO | 0.001 | | 0 | NR | NR | NR | NR | 0 |
| HIST FTTS | 0.001 | | 0 | NR | NR | NR | NR | 0 |
| DOT OPS | 0.001 | | 0 | NR | NR | NR | NR | 0 |
| CONSENT | 1.000 | | 0 | 0 | 0 | 0 | NR | 0 |
| INDIAN RESERV | 0.001 | | 0 | NR | NR | NR | NR | 0 |
| FUSRAP | 1.000 | | 0 | 0 | 0 | 0 | NR | 0 |
| UMTRA | 0.500 | | 0 | 0 | 0 | NR | NR | 0 |
| LEAD SMELTERS | 0.001 | | 0 | NR | NR | NR | NR | 0 |
| US AIRS | 0.001 | | 0 | NR | NR | NR | NR | 0 |
| US MINES | 0.250 | | 0 | 0 | NR | NR | NR | 0 |
| FINDS | 0.001 | | 0 | NR | NR | NR | NR | 0 |
| UXO | 1.000 | | 0 | 0 | 0 | 0 | NR | 0 |
| DOCKET HWC | 0.001 | | 0 | NR | NR | NR | NR | 0 |
| CA BOND EXP. PLAN | 1.000 | | 0 | 0 | 0 | 0 | NR | 0 |
| Cortese | 0.500 | | 0 | 0 | 0 | NR | NR | 0 |
| CUPA Listings | 0.250 | | 0 | 0 | NR | NR | NR | 0 |
| DRYCLEANERS | 0.250 | | 0 | 0 | NR | NR | NR | 0 |
| EMI | 0.001 | | 0 | NR | NR | NR | NR | 0 |
| ENF | 0.001 | | 0 | NR | NR | NR | NR | 0 |
| Financial Assurance | 0.001 | | 0 | NR | NR | NR | NR | 0 |
| HAZNET | 0.001 | | 0 | NR | NR | NR | NR | 0 |
| HIST CORTESE | 0.500 | | 3 | 2 | 0 | NR | NR | 5 |
| HWP | 1.000 | | 0 | 0 | 0 | 0 | NR | 0 |
| HWT | 0.250 | | 0 | 0 | NR | NR | NR | 0 |

# MAP FINDINGS SUMMARY

| Database | Search Distance (Miles) | Target Property | < 1/8 | 1/8 - 1/4 | 1/4 - 1/2 | 1/2 - 1 | > 1 | Total Plotted |
|---|---|---|---|---|---|---|---|---|
| MINES | 0.001 | | 0 | NR | NR | NR | NR | 0 |
| MWMP | 0.250 | | 0 | 0 | NR | NR | NR | 0 |
| NPDES | 0.001 | | 0 | NR | NR | NR | NR | 0 |
| PEST LIC | 0.001 | | 0 | NR | NR | NR | NR | 0 |
| PROC | 0.500 | | 0 | 0 | 0 | NR | NR | 0 |
| Notify 65 | 1.000 | | 0 | 0 | 0 | 0 | NR | 0 |
| UIC | 0.001 | | 0 | NR | NR | NR | NR | 0 |
| WASTEWATER PITS | 0.500 | | 0 | 0 | 0 | NR | NR | 0 |
| WDS | 0.001 | | 0 | NR | NR | NR | NR | 0 |
| WIP | 0.250 | | 0 | 0 | NR | NR | NR | 0 |
| ECHO | 0.001 | | 0 | NR | NR | NR | NR | 0 |
| FUELS PROGRAM | 0.250 | | 0 | 0 | NR | NR | NR | 0 |
| **EDR HIGH RISK HISTORICAL RECORDS** | | | | | | | | |
| ***EDR Exclusive Records*** | | | | | | | | |
| EDR MGP | 1.000 | | 0 | 0 | 0 | 0 | NR | 0 |
| EDR Hist Auto | 0.125 | | 0 | NR | NR | NR | NR | 0 |
| EDR Hist Cleaner | 0.125 | | 0 | NR | NR | NR | NR | 0 |
| **EDR RECOVERED GOVERNMENT ARCHIVES** | | | | | | | | |
| ***Exclusive Recovered Govt. Archives*** | | | | | | | | |
| RGA LF | 0.001 | | 0 | NR | NR | NR | NR | 0 |
| RGA LUST | 0.001 | | 0 | NR | NR | NR | NR | 0 |
| - Totals -- | | 0 | 8 | 7 | 0 | 0 | 0 | 15 |

NOTES:

TP = Target Property

NR = Not Requested at this Search Distance

Sites may be listed in more than one database

**A1** **THE PARTNERS BUILDING** **SWEEPS UST** **S100862517**
**ENE** **14111 HWY 128** **N/A**
**< 1/8** **BOONVILLE, CA 95415**
**0.023 mi.**
**121 ft.** **Site 1 of 3 in cluster A**

**Relative:**
**Higher**

**Actual:**
**378 ft.**

SWEEPS UST:

| | |
|---|---|
| Status: | Not reported |
| Comp Number: | 70455 |
| Number: | Not reported |
| Board Of Equalization: | Not reported |
| Referral Date: | Not reported |
| Action Date: | Not reported |
| Created Date: | Not reported |
| Owner Tank Id: | Not reported |
| SWRCB Tank Id: | 23-000-070455-000001 |
| Tank Status: | Not reported |
| Capacity: | 300 |
| Active Date: | Not reported |
| Tank Use: | M.V. FUEL |
| STG: | PRODUCT |
| Content: | LEADED |
| Number Of Tanks: | 1 |

---

**A2** **PARTNERS BUILDING** **LUST** **S101298714**
**ENE** **14111 HIGHWAY 128** **HIST CORTESE** **N/A**
**< 1/8** **BOONVILLE, CA 95415**
**0.023 mi.**
**121 ft.** **Site 2 of 3 in cluster A**

**Relative:**
**Higher**

**Actual:**
**378 ft.**

LUST:

| | |
|---|---|
| Region: | STATE |
| Global Id: | T0604500229 |
| Latitude: | 39.0099266 |
| Longitude: | -123.3686474 |
| Case Type: | LUST Cleanup Site |
| Status: | Completed - Case Closed |
| Status Date: | 04/21/2011 |
| Lead Agency: | NORTH COAST RWQCB (REGION 1) |
| Case Worker: | ZZZ |
| Local Agency: | MENDOCINO COUNTY |
| RB Case Number: | 1TMC269 |
| LOC Case Number: | Not reported |
| File Location: | Regional Board |
| Potential Media Affect: | Well used for drinking water supply |
| Potential Contaminants of Concern: | Gasoline |
| Site History: | Not reported |

Click here to access the California GeoTracker records for this facility:

Contact:

| | |
|---|---|
| Global Id: | T0604500229 |
| Contact Type: | Local Agency Caseworker |
| Contact Name: | WAYNE BRILEY |
| Organization Name: | MENDOCINO COUNTY |
| Address: | 501 LOW GAP ROAD, ROOM 1326 |
| City: | UKIAH |
| Email: | Not reported |
| Phone Number: | Not reported |

**PARTNERS BUILDING (Continued)** **S101298714**

Global Id: T0604500229
Contact Type: Regional Board Caseworker
Contact Name: REGIONAL WATER BOARD SITE CLOSED
Organization Name: NORTH COAST RWQCB (REGION 1)
Address: 5550 SKYLANE BOULEVARD, SUITE A
City: SANTA ROSA
Email: craig.hunt@waterboards.ca.gov
Phone Number: 7075762220

Status History:
Global Id: T0604500229
Status: Completed - Case Closed
Status Date: 04/21/2011

Global Id: T0604500229
Status: Open - Case Begin Date
Status Date: 12/03/1993

Global Id: T0604500229
Status: Open - Inactive
Status Date: 05/26/2009

Global Id: T0604500229
Status: Open - Site Assessment
Status Date: 12/07/1993

Global Id: T0604500229
Status: Open - Site Assessment
Status Date: 01/07/2011

Regulatory Activities:
Global Id: T0604500229
Action Type: Other
Date: 12/03/1993
Action: Leak Discovery

Global Id: T0604500229
Action Type: Other
Date: 12/03/1993
Action: Leak Reported

Global Id: T0604500229
Action Type: ENFORCEMENT
Date: 05/26/2009
Action: File review

Global Id: T0604500229
Action Type: ENFORCEMENT
Date: 03/24/2011
Action: Notification - Fee Title Owners Notice

Global Id: T0604500229
Action Type: Other
Date: 12/03/1993
Action: Leak Stopped

**PARTNERS BUILDING (Continued)** **S101298714**

Global Id: T0604500229
Action Type: ENFORCEMENT
Date: 01/10/2011
Action: Notification - Preclosure

Global Id: T0604500229
Action Type: ENFORCEMENT
Date: 01/10/2011
Action: Staff Letter

Global Id: T0604500229
Action Type: ENFORCEMENT
Date: 01/07/2011
Action: File Review - Closure

Global Id: T0604500229
Action Type: ENFORCEMENT
Date: 01/10/2011
Action: Staff Letter

Global Id: T0604500229
Action Type: ENFORCEMENT
Date: 04/21/2011
Action: Closure/No Further Action Letter

LUST REG 1:
Region: 1
Facility ID: 1TMC269
Staff Initials: CSH

HIST CORTESE:
Region: CORTESE
Facility County Code: 23
Reg By: LTNKA
Reg Id: 1TMC269

---

**A3** **CHEVRON #9-6221** **LUST** **S101307538**
**ENE** **14125 HIGHWAY 128** **HIST CORTESE** **N/A**
**< 1/8** **BOONVILLE, CA 95415**
**0.066 mi.**
**349 ft.** **Site 3 of 3 in cluster A**

**Relative:**
**Higher**

**Actual:**
**382 ft.**

LUST:
Region: STATE
Global Id: T0604500078
Latitude: 39.0088688575374
Longitude: -123.366605371897
Case Type: LUST Cleanup Site
Status: Open - Site Assessment
Status Date: 08/29/2011
Lead Agency: NORTH COAST RWQCB (REGION 1)
Case Worker: RBD
Local Agency: MENDOCINO COUNTY
RB Case Number: 1TMC089
LOC Case Number: Not reported
File Location: Regional Board

**CHEVRON #9-6221 (Continued)** **S101307538**

Potential Media Affect: Aquifer used for drinking water supply, Other Groundwater (uses other than drinking water), Soil, Well used for drinking water supply
Potential Contaminants of Concern: Benzene, Diesel, Gasoline
Site History: Not reported

Click here to access the California GeoTracker records for this facility:

Contact:
Global Id: T0604500078
Contact Type: Regional Board Caseworker
Contact Name: ROBERT DICKERSON
Organization Name: NORTH COAST RWQCB (REGION 1)
Address: 5550 SKYLANE BLVD. ST. A,
City: SANTA ROSA
Email: robert.dickerson@waterboards.ca.gov
Phone Number: Not reported

Status History:
Global Id: T0604500078
Status: Open - Case Begin Date
Status Date: 12/14/1989

Global Id: T0604500078
Status: Open - Inactive
Status Date: 05/26/2009

Global Id: T0604500078
Status: Open - Site Assessment
Status Date: 12/14/1989

Global Id: T0604500078
Status: Open - Site Assessment
Status Date: 02/05/1990

Global Id: T0604500078
Status: Open - Site Assessment
Status Date: 02/22/1990

Global Id: T0604500078
Status: Open - Site Assessment
Status Date: 08/29/2011

Regulatory Activities:
Global Id: T0604500078
Action Type: RESPONSE
Date: 09/30/2014
Action: Site Assessment Report - Regulator Responded

Global Id: T0604500078
Action Type: ENFORCEMENT
Date: 03/11/2015
Action: Meeting

Global Id: T0604500078
Action Type: Other
Date: 12/14/1989
Action: Leak Discovery

**CHEVRON #9-6221 (Continued)** **S101307538**

Global Id: T0604500078
Action Type: Other
Date: 12/14/1989
Action: Leak Reported

Global Id: T0604500078
Action Type: RESPONSE
Date: 06/30/2015
Action: Well Installation Workplan - Regulator Responded

Global Id: T0604500078
Action Type: ENFORCEMENT
Date: 04/17/2012
Action: Staff Letter

Global Id: T0604500078
Action Type: ENFORCEMENT
Date: 02/14/2014
Action: Technical Correspondence / Assistance / Other

Global Id: T0604500078
Action Type: RESPONSE
Date: 09/30/2014
Action: Sensitive Receptor Survey Report

Global Id: T0604500078
Action Type: RESPONSE
Date: 06/30/2015
Action: Other Workplan - Regulator Responded

Global Id: T0604500078
Action Type: ENFORCEMENT
Date: 06/21/2012
Action: Staff Letter

Global Id: T0604500078
Action Type: ENFORCEMENT
Date: 07/24/2013
Action: Staff Letter

Global Id: T0604500078
Action Type: ENFORCEMENT
Date: 04/07/2015
Action: Staff Letter

Global Id: T0604500078
Action Type: ENFORCEMENT
Date: 12/14/1989
Action: * Historical Enforcement

Global Id: T0604500078
Action Type: ENFORCEMENT
Date: 01/09/1978
Action: Complaint

Global Id: T0604500078
Action Type: ENFORCEMENT

**CHEVRON #9-6221 (Continued)** **S101307538**

Date: 03/19/2014
Action: Staff Letter

Global Id: T0604500078
Action Type: ENFORCEMENT
Date: 05/26/2009
Action: File review

Global Id: T0604500078
Action Type: ENFORCEMENT
Date: 06/28/2013
Action: Staff Letter

Global Id: T0604500078
Action Type: ENFORCEMENT
Date: 08/21/2015
Action: Technical Correspondence / Assistance / Other

Global Id: T0604500078
Action Type: RESPONSE
Date: 05/06/2016
Action: Well Installation Report

Global Id: T0604500078
Action Type: RESPONSE
Date: 06/30/2015
Action: Other Report / Document

Global Id: T0604500078
Action Type: Other
Date: 12/14/1989
Action: Leak Stopped

Global Id: T0604500078
Action Type: RESPONSE
Date: 05/06/2016
Action: Monitoring Report - Other

Global Id: T0604500078
Action Type: RESPONSE
Date: 08/03/2015
Action: Other Report / Document

Global Id: T0604500078
Action Type: ENFORCEMENT
Date: 10/16/2013
Action: Staff Letter

Global Id: T0604500078
Action Type: RESPONSE
Date: 08/15/2012
Action: Other Report / Document

Global Id: T0604500078
Action Type: RESPONSE
Date: 09/13/2013
Action: Soil and Water Investigation Workplan - Regulator Responded

**CHEVRON #9-6221 (Continued)** **S101307538**

Global Id: T0604500078
Action Type: REMEDIATION
Date: 11/01/1991
Action: Excavation

Global Id: T0604500078
Action Type: REMEDIATION
Date: 07/07/1978
Action: Excavation

Global Id: T0604500078
Action Type: ENFORCEMENT
Date: 04/21/2015
Action: Staff Letter

LUST REG 1:
Region: 1
Facility ID: 1TMC089
Staff Initials: CSH

HIST CORTESE:
Region: CORTESE
Facility County Code: 23
Reg By: LTNKA
Reg Id: 1TMC089

---

**B4** **CALTRANS BOONVILLE MAINT STAT** **SWEEPS UST** **S106923912**
**NNW** **14001 HIGHWAY 128 P.M. 28.2** **N/A**
**< 1/8** **BOONVILLE, CA 95415**
**0.082 mi.**
**431 ft.** **Site 1 of 2 in cluster B**

**Relative:**
**Lower**

**Actual:**
**368 ft.**

SWEEPS UST:
Status: Active
Comp Number: 67893
Number: 6
Board Of Equalization: Not reported
Referral Date: 10-31-90
Action Date: 10-31-90
Created Date: 07-31-88
Owner Tank Id: 1
SWRCB Tank Id: 23-000-067893-000001
Tank Status: A
Capacity: 4000
Active Date: 07-01-85
Tank Use: M.V. FUEL
STG: P
Content: DIESEL
Number Of Tanks: 2

Status: Active
Comp Number: 67893
Number: 6
Board Of Equalization: Not reported
Referral Date: 10-31-90
Action Date: 10-31-90

**CALTRANS BOONVILLE MAINT STAT (Continued)** **S106923912**

| | |
|---|---|
| Created Date: | 07-31-88 |
| Owner Tank Id: | 2 |
| SWRCB Tank Id: | 23-000-067893-000002 |
| Tank Status: | A |
| Capacity: | 4000 |
| Active Date: | 07-01-85 |
| Tank Use: | M.V. FUEL |
| STG: | P |
| Content: | LEADED |
| Number Of Tanks: | Not reported |

---

**B5** **CDOT BOONVILLE** **LUST** **S105022873**
**NNW** **14001 HIGHWAY 128** **HIST CORTESE** **N/A**
**< 1/8** **BOONVILLE, CA 95415**
**0.082 mi.**
**431 ft.** **Site 2 of 2 in cluster B**

**Relative:**
**Lower**

**Actual:**
**368 ft.**

LUST:

| | |
|---|---|
| Region: | STATE |
| Global Id: | T0604500233 |
| Latitude: | 39.0148281996686 |
| Longitude: | -123.373868465424 |
| Case Type: | LUST Cleanup Site |
| Status: | Completed - Case Closed |
| Status Date: | 11/19/1996 |
| Lead Agency: | NORTH COAST RWQCB (REGION 1) |
| Case Worker: | ZZZ |
| Local Agency: | MENDOCINO COUNTY |
| RB Case Number: | 1TMC273 |
| LOC Case Number: | Not reported |
| File Location: | Not reported |
| Potential Media Affect: | Soil |
| Potential Contaminants of Concern: | Gasoline |
| Site History: | Not reported |

Click here to access the California GeoTracker records for this facility:

Contact:

| | |
|---|---|
| Global Id: | T0604500233 |
| Contact Type: | Regional Board Caseworker |
| Contact Name: | REGIONAL WATER BOARD SITE CLOSED |
| Organization Name: | NORTH COAST RWQCB (REGION 1) |
| Address: | 5550 SKYLANE BOULEVARD, SUITE A |
| City: | SANTA ROSA |
| Email: | craig.hunt@waterboards.ca.gov |
| Phone Number: | 7075762220 |

Status History:

| | |
|---|---|
| Global Id: | T0604500233 |
| Status: | Completed - Case Closed |
| Status Date: | 11/19/1996 |
| Global Id: | T0604500233 |
| Status: | Open - Case Begin Date |
| Status Date: | 12/21/1993 |
| Global Id: | T0604500233 |
| Status: | Open - Remediation |

**CDOT BOONVILLE (Continued)** **S105022873**

Status Date: 11/18/1996

Global Id: T0604500233
Status: Open - Site Assessment
Status Date: 01/07/1994

Global Id: T0604500233
Status: Open - Site Assessment
Status Date: 12/28/1995

Global Id: T0604500233
Status: Open - Site Assessment
Status Date: 05/06/1996

Global Id: T0604500233
Status: Open - Site Assessment
Status Date: 11/18/1996

Global Id: T0604500233
Status: Open - Verification Monitoring
Status Date: 11/18/1996

Regulatory Activities:
Global Id: T0604500233
Action Type: Other
Date: 12/21/1993
Action: Leak Discovery

Global Id: T0604500233
Action Type: Other
Date: 12/21/1993
Action: Leak Reported

Global Id: T0604500233
Action Type: Other
Date: 12/21/1993
Action: Leak Stopped

HIST CORTESE:
Region: CORTESE
Facility County Code: 23
Reg By: LTNKA
Reg Id: 1TMC273

---

**C6** **CHEVRON, JEFF** **LUST** **S105022875**
**SE** **14289 HIGHWAY 128** **SWEEPS UST** **N/A**
**1/8-1/4** **BOONVILLE, CA 95415** **CHMIRS**
**0.164 mi.** **ENF**
**865 ft.** **Site 1 of 5 in cluster C** **HIST CORTESE**

**Relative: Higher**

**Actual: 410 ft.**

LUST:
Region: STATE
Global Id: T0604500045
Latitude: 39.0068625846727
Longitude: -123.364781141281
Case Type: LUST Cleanup Site

**CHEVRON, JEFF (Continued)** **S105022875**

| | |
|---|---|
| Status: | Open - Assessment & Interim Remedial Action |
| Status Date: | 07/21/2015 |
| Lead Agency: | NORTH COAST RWQCB (REGION 1) |
| Case Worker: | RBD |
| Local Agency: | MENDOCINO COUNTY |
| RB Case Number: | 1TMC053 |
| LOC Case Number: | Not reported |
| File Location: | Regional Board |
| Potential Media Affect: | Aquifer used for drinking water supply, Other Groundwater (uses other than drinking water), Soil, Well used for drinking water supply |
| Potential Contaminants of Concern: | Diesel, Gasoline, MTBE / TBA / Other Fuel Oxygenates |
| Site History: | Not reported |

Click here to access the California GeoTracker records for this facility:

Contact:

| | |
|---|---|
| Global Id: | T0604500045 |
| Contact Type: | Regional Board Caseworker |
| Contact Name: | ROBERT DICKERSON |
| Organization Name: | NORTH COAST RWQCB (REGION 1) |
| Address: | 5550 SKYLANE BLVD. ST. A, |
| City: | SANTA ROSA |
| Email: | robert.dickerson@waterboards.ca.gov |
| Phone Number: | Not reported |

Status History:

| | |
|---|---|
| Global Id: | T0604500045 |
| Status: | Open - Assessment & Interim Remedial Action |
| Status Date: | 11/09/2010 |
| Global Id: | T0604500045 |
| Status: | Open - Assessment & Interim Remedial Action |
| Status Date: | 07/21/2015 |
| Global Id: | T0604500045 |
| Status: | Open - Case Begin Date |
| Status Date: | 03/08/1994 |
| Global Id: | T0604500045 |
| Status: | Open - Site Assessment |
| Status Date: | 03/08/1994 |
| Global Id: | T0604500045 |
| Status: | Open - Site Assessment |
| Status Date: | 04/30/1996 |
| Global Id: | T0604500045 |
| Status: | Open - Site Assessment |
| Status Date: | 05/05/1996 |

Regulatory Activities:

| | |
|---|---|
| Global Id: | T0604500045 |
| Action Type: | ENFORCEMENT |
| Date: | 04/24/2015 |
| Action: | Staff Letter |
| Global Id: | T0604500045 |

**CHEVRON, JEFF (Continued)** **S105022875**

| | |
|---|---|
| Action Type: | ENFORCEMENT |
| Date: | 11/14/1989 |
| Action: | Clean-up and Abatement Order - #89-150 |
| Global Id: | T0604500045 |
| Action Type: | RESPONSE |
| Date: | 09/30/2015 |
| Action: | Corrective Action Plan / Remedial Action Plan - Addendum |
| Global Id: | T0604500045 |
| Action Type: | RESPONSE |
| Date: | 05/30/2013 |
| Action: | Conceptual Site Model |
| Global Id: | T0604500045 |
| Action Type: | RESPONSE |
| Date: | 04/12/2013 |
| Action: | Other Report / Document |
| Global Id: | T0604500045 |
| Action Type: | RESPONSE |
| Date: | 11/11/2013 |
| Action: | Other Workplan - Regulator Responded |
| Global Id: | T0604500045 |
| Action Type: | RESPONSE |
| Date: | 02/18/2014 |
| Action: | Well Destruction Workplan - Regulator Responded |
| Global Id: | T0604500045 |
| Action Type: | Other |
| Date: | 03/08/1994 |
| Action: | Leak Discovery |
| Global Id: | T0604500045 |
| Action Type: | Other |
| Date: | 03/08/1994 |
| Action: | Leak Reported |
| Global Id: | T0604500045 |
| Action Type: | RESPONSE |
| Date: | 10/31/2009 |
| Action: | Monitoring Report - Semi-Annually |
| Global Id: | T0604500045 |
| Action Type: | RESPONSE |
| Date: | 04/30/2010 |
| Action: | Monitoring Report - Semi-Annually |
| Global Id: | T0604500045 |
| Action Type: | RESPONSE |
| Date: | 10/31/2010 |
| Action: | Monitoring Report - Semi-Annually |
| Global Id: | T0604500045 |
| Action Type: | RESPONSE |
| Date: | 04/30/2011 |

**CHEVRON, JEFF (Continued)** **S105022875**

Action: Monitoring Report - Semi-Annually

Global Id: T0604500045
Action Type: RESPONSE
Date: 10/31/2011
Action: Monitoring Report - Semi-Annually

Global Id: T0604500045
Action Type: RESPONSE
Date: 04/30/2012
Action: Monitoring Report - Semi-Annually

Global Id: T0604500045
Action Type: RESPONSE
Date: 10/31/2012
Action: Monitoring Report - Semi-Annually

Global Id: T0604500045
Action Type: RESPONSE
Date: 04/30/2013
Action: Monitoring Report - Semi-Annually

Global Id: T0604500045
Action Type: RESPONSE
Date: 10/31/2013
Action: Monitoring Report - Semi-Annually

Global Id: T0604500045
Action Type: RESPONSE
Date: 04/30/2014
Action: Monitoring Report - Semi-Annually

Global Id: T0604500045
Action Type: RESPONSE
Date: 10/31/2014
Action: Monitoring Report - Semi-Annually

Global Id: T0604500045
Action Type: RESPONSE
Date: 04/30/2015
Action: Monitoring Report - Semi-Annually

Global Id: T0604500045
Action Type: RESPONSE
Date: 10/31/2015
Action: Monitoring Report - Semi-Annually

Global Id: T0604500045
Action Type: RESPONSE
Date: 04/30/2016
Action: Monitoring Report - Semi-Annually

Global Id: T0604500045
Action Type: RESPONSE
Date: 10/31/2016
Action: Monitoring Report - Semi-Annually

**CHEVRON, JEFF (Continued)** **S105022875**

Global Id: T0604500045
Action Type: ENFORCEMENT
Date: 01/15/2013
Action: Staff Letter

Global Id: T0604500045
Action Type: ENFORCEMENT
Date: 06/03/2010
Action: Staff Letter

Global Id: T0604500045
Action Type: ENFORCEMENT
Date: 07/21/2015
Action: File review

Global Id: T0604500045
Action Type: RESPONSE
Date: 12/31/1989
Action: Preliminary Site Assessment Workplan

Global Id: T0604500045
Action Type: RESPONSE
Date: 09/01/2014
Action: Other Report / Document

Global Id: T0604500045
Action Type: ENFORCEMENT
Date: 07/27/2010
Action: Staff Letter

Global Id: T0604500045
Action Type: ENFORCEMENT
Date: 03/13/2013
Action: Staff Letter

Global Id: T0604500045
Action Type: ENFORCEMENT
Date: 03/02/2009
Action: File review

Global Id: T0604500045
Action Type: RESPONSE
Date: 07/02/2008
Action: Clean Up Fund - 5-Year Review Summary

Global Id: T0604500045
Action Type: RESPONSE
Date: 04/12/2013
Action: Other Report / Document

Global Id: T0604500045
Action Type: ENFORCEMENT
Date: 03/08/1994
Action: * Historical Enforcement

Global Id: T0604500045
Action Type: ENFORCEMENT

**CHEVRON, JEFF (Continued)** **S105022875**

Date: 01/14/2003
Action: Notification - Proposition 65

Global Id: T0604500045
Action Type: RESPONSE
Date: 02/22/2002
Action: Monitoring Report - Quarterly

Global Id: T0604500045
Action Type: RESPONSE
Date: 05/16/2002
Action: Monitoring Report - Quarterly

Global Id: T0604500045
Action Type: RESPONSE
Date: 12/01/2002
Action: Corrective Action Plan / Remedial Action Plan

Global Id: T0604500045
Action Type: ENFORCEMENT
Date: 12/19/2013
Action: Staff Letter

Global Id: T0604500045
Action Type: RESPONSE
Date: 01/13/1978
Action: Correspondence

Global Id: T0604500045
Action Type: RESPONSE
Date: 05/21/2013
Action: Other Report / Document

Global Id: T0604500045
Action Type: RESPONSE
Date: 05/09/2013
Action: Other Report / Document

Global Id: T0604500045
Action Type: RESPONSE
Date: 04/08/2013
Action: Other Report / Document

Global Id: T0604500045
Action Type: ENFORCEMENT
Date: 06/26/2012
Action: Verbal Enforcement

Global Id: T0604500045
Action Type: RESPONSE
Date: 05/03/2012
Action: Clean Up Fund - 5-Year Review Summary

Global Id: T0604500045
Action Type: RESPONSE
Date: 11/30/2014
Action: Interim Remedial Action Report

**CHEVRON, JEFF (Continued)** **S105022875**

Global Id: T0604500045
Action Type: Other
Date: 03/08/1994
Action: Leak Stopped

Global Id: T0604500045
Action Type: RESPONSE
Date: 11/21/1988
Action: Correspondence

Global Id: T0604500045
Action Type: RESPONSE
Date: 06/11/2013
Action: Other Report / Document

Global Id: T0604500045
Action Type: ENFORCEMENT
Date: 04/23/2013
Action: Notice of Responsibility

Global Id: T0604500045
Action Type: ENFORCEMENT
Date: 11/12/2002
Action: Staff Letter

Global Id: T0604500045
Action Type: RESPONSE
Date: 03/22/2010
Action: Clean Up Fund - 5-Year Review Summary

Global Id: T0604500045
Action Type: RESPONSE
Date: 08/21/2012
Action: Clean Up Fund - 5-Year Review Summary

Global Id: T0604500045
Action Type: RESPONSE
Date: 09/13/2002
Action: Monitoring Report - Quarterly

Global Id: T0604500045
Action Type: RESPONSE
Date: 10/07/2002
Action: Monitoring Report - Quarterly

Global Id: T0604500045
Action Type: ENFORCEMENT
Date: 09/18/2002
Action: Staff Letter

Global Id: T0604500045
Action Type: ENFORCEMENT
Date: 10/23/2015
Action: Email Correspondence

Global Id: T0604500045
Action Type: REMEDIATION

**CHEVRON, JEFF (Continued)** **S105022875**

Date: 01/21/1999
Action: Excavation

Global Id: T0604500045
Action Type: REMEDIATION
Date: 04/10/2014
Action: Dual Phase Extraction

Global Id: T0604500045
Action Type: REMEDIATION
Date: 04/21/2014
Action: Excavation

Global Id: T0604500045
Action Type: REMEDIATION
Date: 03/01/1992
Action: Excavation

Global Id: T0604500045
Action Type: ENFORCEMENT
Date: 05/19/2011
Action: Staff Letter

Global Id: T0604500045
Action Type: ENFORCEMENT
Date: 03/24/2011
Action: Staff Letter

Global Id: T0604500045
Action Type: ENFORCEMENT
Date: 03/24/2011
Action: Staff Letter

Global Id: T0604500045
Action Type: RESPONSE
Date: 05/27/2011
Action: Proposed Plan

Global Id: T0604500045
Action Type: RESPONSE
Date: 11/30/2014
Action: Well Destruction Report

Global Id: T0604500045
Action Type: RESPONSE
Date: 05/17/2013
Action: Other Workplan

Global Id: T0604500045
Action Type: RESPONSE
Date: 11/30/2014
Action: Pilot Study/ Treatability Report

Global Id: T0604500045
Action Type: RESPONSE
Date: 06/04/2013
Action: Corrective Action Plan / Remedial Action Plan - Addendum - Regulator

**CHEVRON, JEFF (Continued)** **S105022875**

Responded

Global Id: T0604500045
Action Type: ENFORCEMENT
Date: 07/09/2009
Action: File review

Global Id: T0604500045
Action Type: ENFORCEMENT
Date: 07/29/2009
Action: Staff Letter

SWEEPS UST:
Status: Active
Comp Number: 14716
Number: 9
Board Of Equalization: 44-014078
Referral Date: 03-24-92
Action Date: 03-24-92
Created Date: 07-31-88
Owner Tank Id: 88-1
SWRCB Tank Id: 23-000-014716-000001
Tank Status: A
Capacity: 10000
Active Date: 03-24-92
Tank Use: M.V. FUEL
STG: P
Content: REG UNLEADED
Number Of Tanks: 4

Status: Active
Comp Number: 14716
Number: 9
Board Of Equalization: 44-014078
Referral Date: 03-24-92
Action Date: 03-24-92
Created Date: 07-31-88
Owner Tank Id: 88-3
SWRCB Tank Id: 23-000-014716-000003
Tank Status: A
Capacity: 8000
Active Date: 03-24-92
Tank Use: M.V. FUEL
STG: P
Content: REG UNLEADED
Number Of Tanks: Not reported

Status: Active
Comp Number: 14716
Number: 9
Board Of Equalization: 44-014078
Referral Date: 03-24-92
Action Date: 03-24-92
Created Date: 07-31-88
Owner Tank Id: 88-4
SWRCB Tank Id: 23-000-014716-000004

**CHEVRON, JEFF (Continued)** **S105022875**

| | |
|---|---|
| Tank Status: | A |
| Capacity: | 550 |
| Active Date: | 03-24-92 |
| Tank Use: | UNKNOWN |
| STG: | W |
| Content: | REGULAR UNLEADED |
| Number Of Tanks: | Not reported |

| | |
|---|---|
| Status: | Active |
| Comp Number: | 14716 |
| Number: | 9 |
| Board Of Equalization: | 44-014078 |
| Referral Date: | 03-24-92 |
| Action Date: | 03-24-92 |
| Created Date: | 07-31-88 |
| Owner Tank Id: | 88-2 |
| SWRCB Tank Id: | 23-000-014716-000005 |
| Tank Status: | A |
| Capacity: | 8000 |
| Active Date: | 03-24-92 |
| Tank Use: | M.V. FUEL |
| STG: | P |
| Content: | DIESEL |
| Number Of Tanks: | Not reported |

CHMIRS:

| | |
|---|---|
| OES Incident Number: | 4-7072 |
| OES notification: | 12/11/2014 |
| OES Date: | Not reported |
| OES Time: | Not reported |
| **Date Completed:** | **Not reported** |
| Property Use: | Not reported |
| Agency Id Number: | Not reported |
| Agency Incident Number: | Not reported |
| Time Notified: | Not reported |
| Time Completed: | Not reported |
| Surrounding Area: | Not reported |
| Estimated Temperature: | Not reported |
| Property Management: | Not reported |
| More Than Two Substances Involved?: | Not reported |
| Resp Agncy Personel # Of Decontaminated: | Not reported |
| Responding Agency Personel # Of Injuries: | Not reported |
| Responding Agency Personel # Of Fatalities: | Not reported |
| Others Number Of Decontaminated: | Not reported |
| Others Number Of Injuries: | Not reported |
| Others Number Of Fatalities: | Not reported |
| Vehicle Make/year: | Not reported |
| Vehicle License Number: | Not reported |
| Vehicle State: | Not reported |
| Vehicle Id Number: | Not reported |
| CA DOT PUC/ICC Number: | Not reported |
| Company Name: | Not reported |
| Reporting Officer Name/ID: | Not reported |
| Report Date: | Not reported |
| Facility Telephone: | Not reported |
| Waterway Involved: | No |
| Waterway: | Not reported |

**CHEVRON, JEFF (Continued)** **S105022875**

| | |
|---|---|
| Spill Site: | Merchant/Business |
| Cleanup By: | No |
| Containment: | Not reported |
| What Happened: | Not reported |
| Type: | Not reported |
| Measure: | Not reported |
| Other: | Not reported |
| Type: | PETROLEUM |
| Measure: | Qt.(s) |
| Other: | Not reported |
| Date/Time: | 1000 |
| Year: | 2014 |
| Agency: | DFW |
| Incident Date: | 12/10/2014 |
| Admin Agency: | Not reported |
| Amount: | Not reported |
| Contained: | Yes |
| Site Type: | Not reported |
| E Date: | Not reported |
| Substance: | used motor oil |
| Quantity Released: | 1 |
| Unknown: | Not reported |
| Substance #2: | Not reported |
| Substance #3: | Not reported |
| Evacuations: | Not reported |
| Number of Injuries: | Not reported |
| Number of Fatalities: | Not reported |
| #1 Pipeline: | No |
| #2 Pipeline: | No |
| #3 Pipeline: | No |
| #1 Vessel >= 300 Tons: | No |
| #2 Vessel >= 300 Tons: | No |
| #3 Vessel >= 300 Tons: | No |
| Evacs: | No |
| Injuries: | Human Error |
| Fatals: | No |
| Comments: | Not reported |
| Description: | RP states that two 50 gal barrels of used motor oil are being rained on and the residual oil on the outside of the barrels is being washed onto the ground. |

ENF:

| | |
|---|---|
| Region: | 1 |
| Facility Id: | 214251 |
| Agency Name: | Not reported |
| Place Type: | Service/Commercial |
| Place Subtype: | Gasoline Service Station |
| Facility Type: | Industrial |
| Agency Type: | Not reported |
| # Of Agencies: | Not reported |
| Place Latitude: | 39.00851 |
| Place Longitude: | -123.36664 |
| SIC Code 1: | 5541 |
| SIC Desc 1: | Gasoline Service Stations |
| SIC Code 2: | Not reported |
| SIC Desc 2: | Not reported |

**CHEVRON, JEFF (Continued)** **S105022875**

| | |
|---|---|
| SIC Code 3: | Not reported |
| SIC Desc 3: | Not reported |
| NAICS Code 1: | Not reported |
| NAICS Desc 1: | Not reported |
| NAICS Code 2: | Not reported |
| NAICS Desc 2: | Not reported |
| NAICS Code 3: | Not reported |
| NAICS Desc 3: | Not reported |
| # Of Places: | 1 |
| Source Of Facility: | Enf Action |
| Design Flow: | Not reported |
| Threat To Water Quality: | Not reported |
| Complexity: | Not reported |
| Pretreatment: | Not reported |
| Facility Waste Type: | Not reported |
| Facility Waste Type 2: | Not reported |
| Facility Waste Type 3: | Not reported |
| Facility Waste Type 4: | Not reported |
| Program: | Not reported |
| Program Category1: | Not reported |
| Program Category2: | TANKS |
| # Of Programs: | Not reported |
| WDID: | Not reported |
| Reg Measure Id: | Not reported |
| Reg Measure Type: | Not reported |
| Region: | Not reported |
| Order #: | Not reported |
| Npdes# CA#: | Not reported |
| Major-Minor: | Not reported |
| Npdes Type: | Not reported |
| Reclamation: | Not reported |
| Dredge Fill Fee: | Not reported |
| 301H: | Not reported |
| Application Fee Amt Received: | Not reported |
| Status: | Not reported |
| Status Date: | Not reported |
| Effective Date: | Not reported |
| Expiration/Review Date: | Not reported |
| Termination Date: | Not reported |
| WDR Review - Amend: | Not reported |
| WDR Review - Revise/Renew: | Not reported |
| WDR Review - Rescind: | Not reported |
| WDR Review - No Action Required: | Not reported |
| WDR Review - Pending: | Not reported |
| WDR Review - Planned: | Not reported |
| Status Enrollee: | Not reported |
| Individual/General: | Not reported |
| Fee Code: | Not reported |
| Direction/Voice: | Not reported |
| Enforcement Id(EID): | 219909 |
| Region: | 1 |
| Order / Resolution Number: | LT951113 |
| Enforcement Action Type: | Staff Enforcement Letter |
| Effective Date: | 11/13/1995 |
| Adoption/Issuance Date: | Not reported |
| Achieve Date: | Not reported |
| Termination Date: | 11/13/1995 |

**CHEVRON, JEFF (Continued)** **S105022875**

| | |
|---|---|
| ACL Issuance Date: | Not reported |
| EPL Issuance Date: | Not reported |
| Status: | Historical |
| Title: | Enforcement - 1B1MC089NUG Chevron 9-2578, Jeff's Chevron |
| Description: | REQUESTING SUBMITTAL OF CLARIFICATION. |
| Program: | UST |
| Latest Milestone Completion Date: | Not reported |
| # Of Programs1: | 1 |
| Total Assessment Amount: | $0.00 |
| Initial Assessed Amount: | $0.00 |
| Liability $ Amount: | $0.00 |
| Project $ Amount: | $0.00 |
| Liability $ Paid: | $0.00 |
| Project $ Completed: | $0.00 |
| Total $ Paid/Completed Amount: | $0.00 |

HIST CORTESE:

| | |
|---|---|
| Region: | CORTESE |
| Facility County Code: | 23 |
| Reg By: | LTNKA |
| Reg Id: | 1TMC053 |

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**C7** **CHEVRON, EFF** **LUST** **S101307539**
**SE** **HIGHWAY 128 14289** **N/A**
**1/8-1/4** **BOONVILLE, CA**
**0.164 mi.**
**865 ft.** **Site 2 of 5 in cluster C**

**Relative:**
**Higher**

**Actual:**
**410 ft.**

LUST REG 1:

| | |
|---|---|
| Region: | 1 |
| Facility ID: | 1TMC053 |
| Staff Initials: | JMG |

---

**C8** **JEFF'S CHEVRON** **HIST CORTESE** **S105022876**
**SE** **14289 128** **N/A**
**1/8-1/4** **BOONVILLE, CA**
**0.164 mi.**
**865 ft.** **Site 3 of 5 in cluster C**

**Relative:**
**Higher**

**Actual:**
**410 ft.**

HIST CORTESE:

| | |
|---|---|
| Region: | CORTESE |
| Facility County Code: | 23 |
| Reg By: | WBC&D |
| Reg Id: | 1B1MCO53NSL |

**C9** **UNION OIL SS 4319** **HIST UST** **1000167213**
**SE** **14289 HIGHWAY 128** **N/A**
**1/8-1/4** **BOONVILLE, CA 95415**
**0.164 mi.**
**865 ft.** **Site 4 of 5 in cluster C**

**Relative:**
**Higher**

**Actual:**
**410 ft.**

HIST UST:

| | |
|---|---|
| File Number: | 00029969 |
| URL: | http://geotracker.waterboards.ca.gov/ustpdfs/pdf/00029969.pdf |
| Region: | STATE |
| Facility ID: | 00000006055 |
| Facility Type: | Gas Station |
| Other Type: | Not reported |
| Contact Name: | JIM F SHORT |
| Telephone: | 7078953018 |
| Owner Name: | UNION OIL CO. |
| Owner Address: | 1 CALIFORNIA ST. SUITE 2700 |
| Owner City,St,Zip: | SAN FRANCISCO, CA 94111 |
| Total Tanks: | 0003 |
| | |
| Tank Num: | 001 |
| Container Num: | 3988-1-1 |
| Year Installed: | 1974 |
| Tank Capacity: | 00010000 |
| Tank Used for: | PRODUCT |
| Type of Fuel: | UNLEADED |
| Container Construction Thickness: | Not reported |
| Leak Detection: | Stock Inventor, 10 |
| | |
| Tank Num: | 002 |
| Container Num: | 3988-2-1 |
| Year Installed: | 1955 |
| Tank Capacity: | 00008000 |
| Tank Used for: | PRODUCT |
| Type of Fuel: | PREMIUM |
| Container Construction Thickness: | Not reported |
| Leak Detection: | Stock Inventor, 10 |
| | |
| Tank Num: | 003 |
| Container Num: | 3988-4-1 |
| Year Installed: | Not reported |
| Tank Capacity: | 00000550 |
| Tank Used for: | WASTE |
| Type of Fuel: | WASTE OIL |
| Container Construction Thickness: | Not reported |
| Leak Detection: | Stock Inventor |

Click here for Geo Tracker PDF:

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**C10** **JEFFS CHEVRON** **HIST UST** **U001609613**
**SE** **14289 HIWAY 128** **N/A**
**1/8-1/4** **BOONVILLE, CA 95415**
**0.164 mi.**
**865 ft.** **Site 5 of 5 in cluster C**

**Relative:**
**Higher**

**Actual:**
**410 ft.**

HIST UST:

| | |
|---|---|
| File Number: | 00029782 |
| URL: | http://geotracker.waterboards.ca.gov/ustpdfs/pdf/00029782.pdf |
| Region: | STATE |
| Facility ID: | 00000014716 |

**JEFFS CHEVRON (Continued)** **U001609613**

| | |
|---|---|
| Facility Type: | Gas Station |
| Other Type: | Not reported |
| Contact Name: | Not reported |
| Telephone: | 7078953018 |
| Owner Name: | JIM AND CAROLYN SHORT |
| Owner Address: | 17891 HAEHL STREET |
| Owner City,St,Zip: | BOONVILLE, CA 95415 |
| Total Tanks: | 0004 |
| | |
| Tank Num: | 001 |
| Container Num: | A-1 |
| Year Installed: | 1980 |
| Tank Capacity: | 00010000 |
| Tank Used for: | PRODUCT |
| Type of Fuel: | UNLEADED |
| Container Construction Thickness: | 10 |
| Leak Detection: | None |
| | |
| Tank Num: | 002 |
| Container Num: | A-2 |
| Year Installed: | Not reported |
| Tank Capacity: | 00008000 |
| Tank Used for: | PRODUCT |
| Type of Fuel: | UNLEADED |
| Container Construction Thickness: | Not reported |
| Leak Detection: | None |
| | |
| Tank Num: | 003 |
| Container Num: | A-3 |
| Year Installed: | Not reported |
| Tank Capacity: | 00000000 |
| Tank Used for: | PRODUCT |
| Type of Fuel: | UNLEADED |
| Container Construction Thickness: | Not reported |
| Leak Detection: | None |
| | |
| Tank Num: | 004 |
| Container Num: | A-4 |
| Year Installed: | Not reported |
| Tank Capacity: | 00000000 |
| Tank Used for: | PRODUCT |
| Type of Fuel: | UNLEADED |
| Container Construction Thickness: | Not reported |
| Leak Detection: | None |

Click here for Geo Tracker PDF:

Count: 3 records. ORPHAN SUMMARY

| City | EDR ID | Site Name | Site Address | Zip | Database(s) |
|---|---|---|---|---|---|
| BOONVILLE | S105050868 | ANDERSON VALLEY WELL CONTAMINATION | HIGHWAY 128 | 95415 | SLIC |
| BOONVILLE | S103587605 | REDWOOD DRIVE IN | HIGHWAY 128 13980 | | LUST |
| BOONVILLE | S102949332 | MCDPW BOONVILLE ROAD YARD | HIGHWAY 128 14000 | | LUST |

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

To maintain currency of the following federal and state databases, EDR contacts the appropriate governmental agency on a monthly or quarterly basis, as required.

**Number of Days to Update:** Provides confirmation that EDR is reporting records that have been updated within 90 days from the date the government agency made the information available to the public.

**STANDARD ENVIRONMENTAL RECORDS**

***Federal NPL site list***

NPL: National Priority List

National Priorities List (Superfund). The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As such, EDR provides polygon coverage for over 1,000 NPL site boundaries produced by EPA's Environmental Photographic Interpretation Center (EPIC) and regional EPA offices.

Date of Government Version: 03/07/2016
Date Data Arrived at EDR: 04/05/2016
Date Made Active in Reports: 04/15/2016
Number of Days to Update: 10

Source: EPA
Telephone: N/A
Last EDR Contact: 04/05/2016
Next Scheduled EDR Contact: 04/18/2016
Data Release Frequency: Quarterly

NPL Site Boundaries

Sources:

EPA's Environmental Photographic Interpretation Center (EPIC)
Telephone: 202-564-7333

EPA Region 1
Telephone 617-918-1143

EPA Region 6
Telephone: 214-655-6659

EPA Region 3
Telephone 215-814-5418

EPA Region 7
Telephone: 913-551-7247

EPA Region 4
Telephone 404-562-8033

EPA Region 8
Telephone: 303-312-6774

EPA Region 5
Telephone 312-886-6686

EPA Region 9
Telephone: 415-947-4246

EPA Region 10
Telephone 206-553-8665

Proposed NPL: Proposed National Priority List Sites

A site that has been proposed for listing on the National Priorities List through the issuance of a proposed rule in the Federal Register. EPA then accepts public comments on the site, responds to the comments, and places on the NPL those sites that continue to meet the requirements for listing.

Date of Government Version: 03/07/2016
Date Data Arrived at EDR: 04/05/2016
Date Made Active in Reports: 04/15/2016
Number of Days to Update: 10

Source: EPA
Telephone: N/A
Last EDR Contact: 04/05/2016
Next Scheduled EDR Contact: 04/18/2016
Data Release Frequency: Quarterly

NPL LIENS: Federal Superfund Liens

Federal Superfund Liens. Under the authority granted the USEPA by CERCLA of 1980, the USEPA has the authority to file liens against real property in order to recover remedial action expenditures or when the property owner received notification of potential liability. USEPA compiles a listing of filed notices of Superfund Liens.

Date of Government Version: 10/15/1991
Date Data Arrived at EDR: 02/02/1994
Date Made Active in Reports: 03/30/1994
Number of Days to Update: 56

Source: EPA
Telephone: 202-564-4267
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

***Federal Delisted NPL site list***

Delisted NPL: National Priority List Deletions

The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.

Date of Government Version: 03/07/2016
Date Data Arrived at EDR: 04/05/2016
Date Made Active in Reports: 04/15/2016
Number of Days to Update: 10

Source: EPA
Telephone: N/A
Last EDR Contact: 04/05/2016
Next Scheduled EDR Contact: 04/18/2016
Data Release Frequency: Quarterly

***Federal CERCLIS list***

FEDERAL FACILITY: Federal Facility Site Information listing

A listing of National Priority List (NPL) and Base Realignment and Closure (BRAC) sites found in the Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) Database where EPA Federal Facilities Restoration and Reuse Office is involved in cleanup activities.

Date of Government Version: 11/13/2015
Date Data Arrived at EDR: 01/06/2016
Date Made Active in Reports: 05/20/2016
Number of Days to Update: 135

Source: Environmental Protection Agency
Telephone: 703-603-8704
Last EDR Contact: 04/08/2016
Next Scheduled EDR Contact: 07/18/2016
Data Release Frequency: Varies

SEMS: Superfund Enterprise Management System

SEMS (Superfund Enterprise Management System) tracks hazardous waste sites, potentially hazardous waste sites, and remedial activities performed in support of EPA's Superfund Program across the United States. The list was formerly know as CERCLIS, renamed to SEMS by the EPA in 2015. The list contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). This dataset also contains sites which are either proposed to or on the National Priorities List (NPL) and the sites which are in the screening and assessment phase for possible inclusion on the NPL.

Date of Government Version: 03/07/2016
Date Data Arrived at EDR: 04/05/2016
Date Made Active in Reports: 04/15/2016
Number of Days to Update: 10

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 04/05/2016
Next Scheduled EDR Contact: 08/01/2016
Data Release Frequency: Quarterly

***Federal CERCLIS NFRAP site list***

SEMS-ARCHIVE: Superfund Enterprise Management System Archive

SEMS-ARCHIVE (Superfund Enterprise Management System Archive) tracks sites that have no further interest under the Federal Superfund Program based on available information. The list was formerly known as the CERCLIS-NFRAP, renamed to SEMS ARCHIVE by the EPA in 2015. EPA may perform a minimal level of assessment work at a site while it is archived if site conditions change and/or new information becomes available. Archived sites have been removed and archived from the inventory of SEMS sites. Archived status indicates that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list the site on the National Priorities List (NPL), unless information indicates this decision was not appropriate or other considerations require a recommendation for listing at a later time. The decision does not necessarily mean that there is no hazard associated with a given site; it only means that. based upon available information, the location is not judged to be potential NPL site.

Date of Government Version: 03/07/2016
Date Data Arrived at EDR: 04/05/2016
Date Made Active in Reports: 04/15/2016
Number of Days to Update: 10

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 04/05/2016
Next Scheduled EDR Contact: 08/01/2016
Data Release Frequency: Quarterly

***Federal RCRA CORRACTS facilities list***

CORRACTS: Corrective Action Report

CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

Date of Government Version: 12/09/2015
Date Data Arrived at EDR: 03/02/2016
Date Made Active in Reports: 04/05/2016
Number of Days to Update: 34

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 03/30/2016
Next Scheduled EDR Contact: 07/11/2016
Data Release Frequency: Quarterly

***Federal RCRA non-CORRACTS TSD facilities list***

RCRA-TSDF: RCRA - Treatment, Storage and Disposal

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Transporters are individuals or entities that move hazardous waste from the generator offsite to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

Date of Government Version: 12/09/2015
Date Data Arrived at EDR: 03/02/2016
Date Made Active in Reports: 04/05/2016
Number of Days to Update: 34

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 03/30/2016
Next Scheduled EDR Contact: 07/11/2016
Data Release Frequency: Quarterly

***Federal RCRA generators list***

RCRA-LQG: RCRA - Large Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Large quantity generators (LQGs) generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month.

Date of Government Version: 12/09/2015
Date Data Arrived at EDR: 03/02/2016
Date Made Active in Reports: 04/05/2016
Number of Days to Update: 34

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 03/30/2016
Next Scheduled EDR Contact: 07/11/2016
Data Release Frequency: Quarterly

RCRA-SQG: RCRA - Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month.

Date of Government Version: 12/09/2015
Date Data Arrived at EDR: 03/02/2016
Date Made Active in Reports: 04/05/2016
Number of Days to Update: 34

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 03/30/2016
Next Scheduled EDR Contact: 07/11/2016
Data Release Frequency: Quarterly

RCRA-CESQG: RCRA - Conditionally Exempt Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Conditionally exempt small quantity generators (CESQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month.

Date of Government Version: 12/09/2015
Date Data Arrived at EDR: 03/02/2016
Date Made Active in Reports: 04/05/2016
Number of Days to Update: 34

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 03/30/2016
Next Scheduled EDR Contact: 07/11/2016
Data Release Frequency: Varies

***Federal institutional controls / engineering controls registries***

LUCIS: Land Use Control Information System

LUCIS contains records of land use control information pertaining to the former Navy Base Realignment and Closure properties.

Date of Government Version: 05/28/2015
Date Data Arrived at EDR: 05/29/2015
Date Made Active in Reports: 06/11/2015
Number of Days to Update: 13

Source: Department of the Navy
Telephone: 843-820-7326
Last EDR Contact: 05/16/2016
Next Scheduled EDR Contact: 08/29/2016
Data Release Frequency: Varies

US ENG CONTROLS: Engineering Controls Sites List

A listing of sites with engineering controls in place. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health.

Date of Government Version: 09/10/2015
Date Data Arrived at EDR: 09/11/2015
Date Made Active in Reports: 11/03/2015
Number of Days to Update: 53

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 02/29/2016
Next Scheduled EDR Contact: 06/13/2016
Data Release Frequency: Varies

US INST CONTROL: Sites with Institutional Controls

A listing of sites with institutional controls in place. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls.

Date of Government Version: 09/10/2015
Date Data Arrived at EDR: 09/11/2015
Date Made Active in Reports: 11/03/2015
Number of Days to Update: 53

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 02/29/2016
Next Scheduled EDR Contact: 06/13/2016
Data Release Frequency: Varies

***Federal ERNS list***

ERNS: Emergency Response Notification System

Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances.

Date of Government Version: 03/28/2016
Date Data Arrived at EDR: 03/30/2016
Date Made Active in Reports: 05/20/2016
Number of Days to Update: 51

Source: National Response Center, United States Coast Guard
Telephone: 202-267-2180
Last EDR Contact: 03/30/2016
Next Scheduled EDR Contact: 07/11/2016
Data Release Frequency: Annually

***State- and tribal - equivalent NPL***

RESPONSE: State Response Sites

Identifies confirmed release sites where DTSC is involved in remediation, either in a lead or oversight capacity. These confirmed release sites are generally high-priority and high potential risk.

Date of Government Version: 02/01/2016
Date Data Arrived at EDR: 02/03/2016
Date Made Active in Reports: 03/22/2016
Number of Days to Update: 48

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 05/04/2016
Next Scheduled EDR Contact: 08/15/2016
Data Release Frequency: Quarterly

***State- and tribal - equivalent CERCLIS***

ENVIROSTOR: EnviroStor Database

The Department of Toxic Substances Control's (DTSC's) Site Mitigation and Brownfields Reuse Program's (SMBRP's) EnviroStor database identifes sites that have known contamination or sites for which there may be reasons to investigate further. The database includes the following site types: Federal Superfund sites (National Priorities List (NPL)); State Response, including Military Facilities and State Superfund; Voluntary Cleanup; and School sites. EnviroStor provides similar information to the information that was available in CalSites, and provides additional site information, including, but not limited to, identification of formerly-contaminated properties that have been released for reuse, properties where environmental deed restrictions have been recorded to prevent inappropriate land uses, and risk characterization information that is used to assess potential impacts to public health and the environment at contaminated sites.

Date of Government Version: 02/01/2016
Date Data Arrived at EDR: 02/03/2016
Date Made Active in Reports: 03/22/2016
Number of Days to Update: 48

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 05/04/2016
Next Scheduled EDR Contact: 08/15/2016
Data Release Frequency: Quarterly

***State and tribal landfill and/or solid waste disposal site lists***

SWF/LF (SWIS): Solid Waste Information System

Active, Closed and Inactive Landfills. SWF/LF records typically contain an inve ntory of solid waste disposal facilities or landfills. These may be active or i nactive facilities or open dumps that failed to meet RCRA Section 4004 criteria for solid waste landfills or disposal sites.

Date of Government Version: 02/15/2016
Date Data Arrived at EDR: 02/17/2016
Date Made Active in Reports: 04/01/2016
Number of Days to Update: 44

Source: Department of Resources Recycling and Recovery
Telephone: 916-341-6320
Last EDR Contact: 05/18/2016
Next Scheduled EDR Contact: 08/29/2016
Data Release Frequency: Quarterly

***State and tribal leaking storage tank lists***

LUST: Geotracker's Leaking Underground Fuel Tank Report

Leaking Underground Storage Tank Incident Reports. LUST records contain an inventory of reported leaking underground storage tank incidents. Not all states maintain these records, and the information stored varies by state. For more information on a particular leaking underground storage tank sites, please contact the appropriate regulatory agency.

Date of Government Version: 03/14/2016
Date Data Arrived at EDR: 03/16/2016
Date Made Active in Reports: 05/16/2016
Number of Days to Update: 61

Source: State Water Resources Control Board
Telephone: see region list
Last EDR Contact: 03/16/2016
Next Scheduled EDR Contact: 06/27/2016
Data Release Frequency: Quarterly

LUST REG 5: Leaking Underground Storage Tank Database

Leaking Underground Storage Tank locations. Alameda, Alpine, Amador, Butte, Colusa, Contra Costa, Calveras, El Dorado, Fresno, Glenn, Kern, Kings, Lake, Lassen, Madera, Mariposa, Merced, Modoc, Napa, Nevada, Placer, Plumas, Sacramento, San Joaquin, Shasta, Solano, Stanislaus, Sutter, Tehama, Tulare, Tuolumne, Yolo, Yuba counties.

Date of Government Version: 07/01/2008
Date Data Arrived at EDR: 07/22/2008
Date Made Active in Reports: 07/31/2008
Number of Days to Update: 9

Source: California Regional Water Quality Control Board Central Valley Region (5)
Telephone: 916-464-4834
Last EDR Contact: 07/01/2011
Next Scheduled EDR Contact: 10/17/2011
Data Release Frequency: No Update Planned

LUST REG 4: Underground Storage Tank Leak List

Los Angeles, Ventura counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 09/07/2004
Date Data Arrived at EDR: 09/07/2004
Date Made Active in Reports: 10/12/2004
Number of Days to Update: 35

Source: California Regional Water Quality Control Board Los Angeles Region (4)
Telephone: 213-576-6710
Last EDR Contact: 09/06/2011
Next Scheduled EDR Contact: 12/19/2011
Data Release Frequency: No Update Planned

LUST REG 3: Leaking Underground Storage Tank Database

Leaking Underground Storage Tank locations. Monterey, San Benito, San Luis Obispo, Santa Barbara, Santa Cruz counties.

Date of Government Version: 05/19/2003
Date Data Arrived at EDR: 05/19/2003
Date Made Active in Reports: 06/02/2003
Number of Days to Update: 14

Source: California Regional Water Quality Control Board Central Coast Region (3)
Telephone: 805-542-4786
Last EDR Contact: 07/18/2011
Next Scheduled EDR Contact: 10/31/2011
Data Release Frequency: No Update Planned

LUST REG 2: Fuel Leak List

Leaking Underground Storage Tank locations. Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, Sonoma counties.

Date of Government Version: 09/30/2004
Date Data Arrived at EDR: 10/20/2004
Date Made Active in Reports: 11/19/2004
Number of Days to Update: 30

Source: California Regional Water Quality Control Board San Francisco Bay Region (2)
Telephone: 510-622-2433
Last EDR Contact: 09/19/2011
Next Scheduled EDR Contact: 01/02/2012
Data Release Frequency: Quarterly

LUST REG 1: Active Toxic Site Investigation

Del Norte, Humboldt, Lake, Mendocino, Modoc, Siskiyou, Sonoma, Trinity counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 02/01/2001
Date Data Arrived at EDR: 02/28/2001
Date Made Active in Reports: 03/29/2001
Number of Days to Update: 29

Source: California Regional Water Quality Control Board North Coast (1)
Telephone: 707-570-3769
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

LUST REG 6V: Leaking Underground Storage Tank Case Listing
Leaking Underground Storage Tank locations. Inyo, Kern, Los Angeles, Mono, San Bernardino counties.

Date of Government Version: 06/07/2005
Date Data Arrived at EDR: 06/07/2005
Date Made Active in Reports: 06/29/2005
Number of Days to Update: 22

Source: California Regional Water Quality Control Board Victorville Branch Office (6)
Telephone: 760-241-7365
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: No Update Planned

LUST REG 7: Leaking Underground Storage Tank Case Listing
Leaking Underground Storage Tank locations. Imperial, Riverside, San Diego, Santa Barbara counties.

Date of Government Version: 02/26/2004
Date Data Arrived at EDR: 02/26/2004
Date Made Active in Reports: 03/24/2004
Number of Days to Update: 27

Source: California Regional Water Quality Control Board Colorado River Basin Region (7)
Telephone: 760-776-8943
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

LUST REG 8: Leaking Underground Storage Tanks
California Regional Water Quality Control Board Santa Ana Region (8). For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 02/14/2005
Date Data Arrived at EDR: 02/15/2005
Date Made Active in Reports: 03/28/2005
Number of Days to Update: 41

Source: California Regional Water Quality Control Board Santa Ana Region (8)
Telephone: 909-782-4496
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: Varies

LUST REG 6L: Leaking Underground Storage Tank Case Listing
For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 09/09/2003
Date Data Arrived at EDR: 09/10/2003
Date Made Active in Reports: 10/07/2003
Number of Days to Update: 27

Source: California Regional Water Quality Control Board Lahontan Region (6)
Telephone: 530-542-5572
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: No Update Planned

LUST REG 9: Leaking Underground Storage Tank Report
Orange, Riverside, San Diego counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 03/01/2001
Date Data Arrived at EDR: 04/23/2001
Date Made Active in Reports: 05/21/2001
Number of Days to Update: 28

Source: California Regional Water Quality Control Board San Diego Region (9)
Telephone: 858-637-5595
Last EDR Contact: 09/26/2011
Next Scheduled EDR Contact: 01/09/2012
Data Release Frequency: No Update Planned

INDIAN LUST R4: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Florida, Mississippi and North Carolina.

Date of Government Version: 11/24/2015
Date Data Arrived at EDR: 12/01/2015
Date Made Active in Reports: 01/04/2016
Number of Days to Update: 34

Source: EPA Region 4
Telephone: 404-562-8677
Last EDR Contact: 04/26/2016
Next Scheduled EDR Contact: 08/08/2016
Data Release Frequency: Semi-Annually

INDIAN LUST R1: Leaking Underground Storage Tanks on Indian Land
A listing of leaking underground storage tank locations on Indian Land.

Date of Government Version: 10/27/2015
Date Data Arrived at EDR: 10/29/2015
Date Made Active in Reports: 01/04/2016
Number of Days to Update: 67

Source: EPA Region 1
Telephone: 617-918-1313
Last EDR Contact: 04/29/2016
Next Scheduled EDR Contact: 08/08/2016
Data Release Frequency: Varies

INDIAN LUST R10: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Alaska, Idaho, Oregon and Washington.

Date of Government Version: 01/07/2016
Date Data Arrived at EDR: 01/08/2016
Date Made Active in Reports: 02/18/2016
Number of Days to Update: 41
Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 04/29/2016
Next Scheduled EDR Contact: 08/08/2016
Data Release Frequency: Quarterly

INDIAN LUST R9: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Arizona, California, New Mexico and Nevada

Date of Government Version: 01/08/2015
Date Data Arrived at EDR: 01/08/2015
Date Made Active in Reports: 02/09/2015
Number of Days to Update: 32
Source: Environmental Protection Agency
Telephone: 415-972-3372
Last EDR Contact: 04/27/2016
Next Scheduled EDR Contact: 08/08/2016
Data Release Frequency: Quarterly

INDIAN LUST R5: Leaking Underground Storage Tanks on Indian Land
Leaking underground storage tanks located on Indian Land in Michigan, Minnesota and Wisconsin.

Date of Government Version: 11/04/2015
Date Data Arrived at EDR: 11/13/2015
Date Made Active in Reports: 01/04/2016
Number of Days to Update: 52
Source: EPA, Region 5
Telephone: 312-886-7439
Last EDR Contact: 04/27/2016
Next Scheduled EDR Contact: 08/08/2016
Data Release Frequency: Varies

INDIAN LUST R7: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Iowa, Kansas, and Nebraska

Date of Government Version: 03/30/2015
Date Data Arrived at EDR: 04/28/2015
Date Made Active in Reports: 06/22/2015
Number of Days to Update: 55
Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 04/29/2016
Next Scheduled EDR Contact: 08/08/2016
Data Release Frequency: Varies

INDIAN LUST R8: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Colorado, Montana, North Dakota, South Dakota, Utah and Wyoming.

Date of Government Version: 10/13/2015
Date Data Arrived at EDR: 10/23/2015
Date Made Active in Reports: 02/18/2016
Number of Days to Update: 118
Source: EPA Region 8
Telephone: 303-312-6271
Last EDR Contact: 04/27/2016
Next Scheduled EDR Contact: 08/08/2016
Data Release Frequency: Quarterly

INDIAN LUST R6: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in New Mexico and Oklahoma.

Date of Government Version: 08/20/2015
Date Data Arrived at EDR: 10/30/2015
Date Made Active in Reports: 02/18/2016
Number of Days to Update: 111
Source: EPA Region 6
Telephone: 214-665-6597
Last EDR Contact: 04/29/2016
Next Scheduled EDR Contact: 08/08/2016
Data Release Frequency: Varies

SLIC: Statewide SLIC Cases
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 03/14/2016
Date Data Arrived at EDR: 03/16/2016
Date Made Active in Reports: 05/16/2016
Number of Days to Update: 61
Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 03/16/2016
Next Scheduled EDR Contact: 06/27/2016
Data Release Frequency: Varies

SLIC REG 1: Active Toxic Site Investigations

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/03/2003
Date Data Arrived at EDR: 04/07/2003
Date Made Active in Reports: 04/25/2003
Number of Days to Update: 18

Source: California Regional Water Quality Control Board, North Coast Region (1)
Telephone: 707-576-2220
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

SLIC REG 2: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/30/2004
Date Data Arrived at EDR: 10/20/2004
Date Made Active in Reports: 11/19/2004
Number of Days to Update: 30

Source: Regional Water Quality Control Board San Francisco Bay Region (2)
Telephone: 510-286-0457
Last EDR Contact: 09/19/2011
Next Scheduled EDR Contact: 01/02/2012
Data Release Frequency: Quarterly

SLIC REG 3: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 05/18/2006
Date Data Arrived at EDR: 05/18/2006
Date Made Active in Reports: 06/15/2006
Number of Days to Update: 28

Source: California Regional Water Quality Control Board Central Coast Region (3)
Telephone: 805-549-3147
Last EDR Contact: 07/18/2011
Next Scheduled EDR Contact: 10/31/2011
Data Release Frequency: Semi-Annually

SLIC REG 4: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 11/17/2004
Date Data Arrived at EDR: 11/18/2004
Date Made Active in Reports: 01/04/2005
Number of Days to Update: 47

Source: Region Water Quality Control Board Los Angeles Region (4)
Telephone: 213-576-6600
Last EDR Contact: 07/01/2011
Next Scheduled EDR Contact: 10/17/2011
Data Release Frequency: Varies

SLIC REG 5: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/01/2005
Date Data Arrived at EDR: 04/05/2005
Date Made Active in Reports: 04/21/2005
Number of Days to Update: 16

Source: Regional Water Quality Control Board Central Valley Region (5)
Telephone: 916-464-3291
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: Semi-Annually

SLIC REG 6V: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 05/24/2005
Date Data Arrived at EDR: 05/25/2005
Date Made Active in Reports: 06/16/2005
Number of Days to Update: 22

Source: Regional Water Quality Control Board, Victorville Branch
Telephone: 619-241-6583
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: Semi-Annually

SLIC REG 6L: SLIC Sites
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/07/2004
Date Data Arrived at EDR: 09/07/2004
Date Made Active in Reports: 10/12/2004
Number of Days to Update: 35
Source: California Regional Water Quality Control Board, Lahontan Region
Telephone: 530-542-5574
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

SLIC REG 7: SLIC List
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 11/24/2004
Date Data Arrived at EDR: 11/29/2004
Date Made Active in Reports: 01/04/2005
Number of Days to Update: 36
Source: California Regional Quality Control Board, Colorado River Basin Region
Telephone: 760-346-7491
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

SLIC REG 8: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/03/2008
Date Data Arrived at EDR: 04/03/2008
Date Made Active in Reports: 04/14/2008
Number of Days to Update: 11
Source: California Region Water Quality Control Board Santa Ana Region (8)
Telephone: 951-782-3298
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: Semi-Annually

SLIC REG 9: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/10/2007
Date Data Arrived at EDR: 09/11/2007
Date Made Active in Reports: 09/28/2007
Number of Days to Update: 17
Source: California Regional Water Quality Control Board San Diego Region (9)
Telephone: 858-467-2980
Last EDR Contact: 08/08/2011
Next Scheduled EDR Contact: 11/21/2011
Data Release Frequency: Annually

***State and tribal registered storage tank lists***

FEMA UST: Underground Storage Tank Listing
A listing of all FEMA owned underground storage tanks.

Date of Government Version: 01/01/2010
Date Data Arrived at EDR: 02/16/2010
Date Made Active in Reports: 04/12/2010
Number of Days to Update: 55
Source: FEMA
Telephone: 202-646-5797
Last EDR Contact: 04/11/2016
Next Scheduled EDR Contact: 07/25/2016
Data Release Frequency: Varies

UST: Active UST Facilities
Active UST facilities gathered from the local regulatory agencies

Date of Government Version: 03/14/2016
Date Data Arrived at EDR: 03/16/2016
Date Made Active in Reports: 05/04/2016
Number of Days to Update: 49
Source: SWRCB
Telephone: 916-341-5851
Last EDR Contact: 03/16/2016
Next Scheduled EDR Contact: 06/27/2016
Data Release Frequency: Semi-Annually

AST: Aboveground Petroleum Storage Tank Facilities
A listing of aboveground storage tank petroleum storage tank locations.

Date of Government Version: 08/01/2009
Date Data Arrived at EDR: 09/10/2009
Date Made Active in Reports: 10/01/2009
Number of Days to Update: 21

Source: California Environmental Protection Agency
Telephone: 916-327-5092
Last EDR Contact: 03/11/2016
Next Scheduled EDR Contact: 07/11/2016
Data Release Frequency: Quarterly

INDIAN UST R7: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 7 (Iowa, Kansas, Missouri, Nebraska, and 9 Tribal Nations).

Date of Government Version: 09/23/2014
Date Data Arrived at EDR: 11/25/2014
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 65

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 04/29/2016
Next Scheduled EDR Contact: 08/08/2016
Data Release Frequency: Varies

INDIAN UST R6: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 6 (Louisiana, Arkansas, Oklahoma, New Mexico, Texas and 65 Tribes).

Date of Government Version: 08/20/2015
Date Data Arrived at EDR: 10/30/2015
Date Made Active in Reports: 02/18/2016
Number of Days to Update: 111

Source: EPA Region 6
Telephone: 214-665-7591
Last EDR Contact: 04/29/2016
Next Scheduled EDR Contact: 08/08/2016
Data Release Frequency: Semi-Annually

INDIAN UST R5: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 5 (Michigan, Minnesota and Wisconsin and Tribal Nations).

Date of Government Version: 11/05/2015
Date Data Arrived at EDR: 11/13/2015
Date Made Active in Reports: 01/04/2016
Number of Days to Update: 52

Source: EPA Region 5
Telephone: 312-886-6136
Last EDR Contact: 04/27/2016
Next Scheduled EDR Contact: 08/08/2016
Data Release Frequency: Varies

INDIAN UST R1: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 1 (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont and ten Tribal Nations).

Date of Government Version: 10/20/2015
Date Data Arrived at EDR: 10/29/2015
Date Made Active in Reports: 01/04/2016
Number of Days to Update: 67

Source: EPA, Region 1
Telephone: 617-918-1313
Last EDR Contact: 04/29/2016
Next Scheduled EDR Contact: 08/08/2016
Data Release Frequency: Varies

INDIAN UST R4: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 4 (Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee and Tribal Nations)

Date of Government Version: 11/24/2015
Date Data Arrived at EDR: 12/01/2015
Date Made Active in Reports: 01/04/2016
Number of Days to Update: 34

Source: EPA Region 4
Telephone: 404-562-9424
Last EDR Contact: 04/26/2016
Next Scheduled EDR Contact: 08/08/2016
Data Release Frequency: Semi-Annually

INDIAN UST R10: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 10 (Alaska, Idaho, Oregon, Washington, and Tribal Nations).

Date of Government Version: 01/07/2016
Date Data Arrived at EDR: 01/08/2016
Date Made Active in Reports: 02/18/2016
Number of Days to Update: 41

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 04/29/2016
Next Scheduled EDR Contact: 08/08/2016
Data Release Frequency: Quarterly

INDIAN UST R9: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 9 (Arizona, California, Hawaii, Nevada, the Pacific Islands, and Tribal Nations).

Date of Government Version: 12/14/2014
Date Data Arrived at EDR: 02/13/2015
Date Made Active in Reports: 03/13/2015
Number of Days to Update: 28

Source: EPA Region 9
Telephone: 415-972-3368
Last EDR Contact: 04/27/2016
Next Scheduled EDR Contact: 08/08/2016
Data Release Frequency: Quarterly

INDIAN UST R8: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 8 (Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming and 27 Tribal Nations).

Date of Government Version: 10/13/2015
Date Data Arrived at EDR: 10/23/2015
Date Made Active in Reports: 02/18/2016
Number of Days to Update: 118

Source: EPA Region 8
Telephone: 303-312-6137
Last EDR Contact: 04/29/2016
Next Scheduled EDR Contact: 08/08/2016
Data Release Frequency: Quarterly

***State and tribal voluntary cleanup sites***

VCP: Voluntary Cleanup Program Properties

Contains low threat level properties with either confirmed or unconfirmed releases and the project proponents have request that DTSC oversee investigation and/or cleanup activities and have agreed to provide coverage for DTSC's costs.

Date of Government Version: 02/01/2016
Date Data Arrived at EDR: 02/03/2016
Date Made Active in Reports: 03/22/2016
Number of Days to Update: 48

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 05/04/2016
Next Scheduled EDR Contact: 08/15/2016
Data Release Frequency: Quarterly

INDIAN VCP R1: Voluntary Cleanup Priority Listing

A listing of voluntary cleanup priority sites located on Indian Land located in Region 1.

Date of Government Version: 07/27/2015
Date Data Arrived at EDR: 09/29/2015
Date Made Active in Reports: 02/18/2016
Number of Days to Update: 142

Source: EPA, Region 1
Telephone: 617-918-1102
Last EDR Contact: 04/01/2016
Next Scheduled EDR Contact: 07/11/2016
Data Release Frequency: Varies

INDIAN VCP R7: Voluntary Cleanup Priority Lisitng

A listing of voluntary cleanup priority sites located on Indian Land located in Region 7.

Date of Government Version: 03/20/2008
Date Data Arrived at EDR: 04/22/2008
Date Made Active in Reports: 05/19/2008
Number of Days to Update: 27

Source: EPA, Region 7
Telephone: 913-551-7365
Last EDR Contact: 04/20/2009
Next Scheduled EDR Contact: 07/20/2009
Data Release Frequency: Varies

***State and tribal Brownfields sites***

BROWNFIELDS: Considered Brownfieds Sites Listing
A listing of sites the SWRCB considers to be Brownfields since these are sites have come to them through the MOA Process.

Date of Government Version: 02/29/2016
Date Data Arrived at EDR: 03/07/2016
Date Made Active in Reports: 05/04/2016
Number of Days to Update: 58
Source: State Water Resources Control Board
Telephone: 916-323-7905
Last EDR Contact: 03/07/2016
Next Scheduled EDR Contact: 06/20/2016
Data Release Frequency: Varies

**ADDITIONAL ENVIRONMENTAL RECORDS**

***Local Brownfield lists***

US BROWNFIELDS: A Listing of Brownfields Sites
Brownfields are real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. Cleaning up and reinvesting in these properties takes development pressures off of undeveloped, open land, and both improves and protects the environment. Assessment, Cleanup and Redevelopment Exchange System (ACRES) stores information reported by EPA Brownfields grant recipients on brownfields properties assessed or cleaned up with grant funding as well as information on Targeted Brownfields Assessments performed by EPA Regions. A listing of ACRES Brownfield sites is obtained from Cleanups in My Community. Cleanups in My Community provides information on Brownfields properties for which information is reported back to EPA, as well as areas served by Brownfields grant programs.

Date of Government Version: 12/22/2015
Date Data Arrived at EDR: 12/23/2015
Date Made Active in Reports: 02/18/2016
Number of Days to Update: 57
Source: Environmental Protection Agency
Telephone: 202-566-2777
Last EDR Contact: 03/22/2016
Next Scheduled EDR Contact: 07/04/2016
Data Release Frequency: Semi-Annually

***Local Lists of Landfill / Solid Waste Disposal Sites***

WMUDS/SWAT: Waste Management Unit Database
Waste Management Unit Database System. WMUDS is used by the State Water Resources Control Board staff and the Regional Water Quality Control Boards for program tracking and inventory of waste management units. WMUDS is composed of the following databases: Facility Information, Scheduled Inspections Information, Waste Management Unit Information, SWAT Program Information, SWAT Report Summary Information, SWAT Report Summary Data, Chapter 15 (formerly Subchapter 15) Information, Chapter 15 Monitoring Parameters, TPCA Program Information, RCRA Program Information, Closure Information, and Interested Parties Information.

Date of Government Version: 04/01/2000
Date Data Arrived at EDR: 04/10/2000
Date Made Active in Reports: 05/10/2000
Number of Days to Update: 30
Source: State Water Resources Control Board
Telephone: 916-227-4448
Last EDR Contact: 05/06/2016
Next Scheduled EDR Contact: 08/22/2016
Data Release Frequency: No Update Planned

SWRCY: Recycler Database
A listing of recycling facilities in California.

Date of Government Version: 03/15/2016
Date Data Arrived at EDR: 03/16/2016
Date Made Active in Reports: 05/09/2016
Number of Days to Update: 54
Source: Department of Conservation
Telephone: 916-323-3836
Last EDR Contact: 03/16/2016
Next Scheduled EDR Contact: 06/27/2016
Data Release Frequency: Quarterly

HAULERS: Registered Waste Tire Haulers Listing
A listing of registered waste tire haulers.

Date of Government Version: 02/20/2016
Date Data Arrived at EDR: 02/23/2016
Date Made Active in Reports: 05/16/2016
Number of Days to Update: 83

Source: Integrated Waste Management Board
Telephone: 916-341-6422
Last EDR Contact: 05/13/2016
Next Scheduled EDR Contact: 08/22/2016
Data Release Frequency: Varies

INDIAN ODI: Report on the Status of Open Dumps on Indian Lands

Location of open dumps on Indian land.

Date of Government Version: 12/31/1998
Date Data Arrived at EDR: 12/03/2007
Date Made Active in Reports: 01/24/2008
Number of Days to Update: 52

Source: Environmental Protection Agency
Telephone: 703-308-8245
Last EDR Contact: 04/27/2016
Next Scheduled EDR Contact: 08/15/2016
Data Release Frequency: Varies

DEBRIS REGION 9: Torres Martinez Reservation Illegal Dump Site Locations

A listing of illegal dump sites location on the Torres Martinez Indian Reservation located in eastern Riverside County and northern Imperial County, California.

Date of Government Version: 01/12/2009
Date Data Arrived at EDR: 05/07/2009
Date Made Active in Reports: 09/21/2009
Number of Days to Update: 137

Source: EPA, Region 9
Telephone: 415-947-4219
Last EDR Contact: 04/21/2016
Next Scheduled EDR Contact: 08/08/2016
Data Release Frequency: No Update Planned

ODI: Open Dump Inventory

An open dump is defined as a disposal facility that does not comply with one or more of the Part 257 or Part 258 Subtitle D Criteria.

Date of Government Version: 06/30/1985
Date Data Arrived at EDR: 08/09/2004
Date Made Active in Reports: 09/17/2004
Number of Days to Update: 39

Source: Environmental Protection Agency
Telephone: 800-424-9346
Last EDR Contact: 06/09/2004
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

***Local Lists of Hazardous waste / Contaminated Sites***

US HIST CDL: National Clandestine Laboratory Register

A listing of clandestine drug lab locations that have been removed from the DEAs National Clandestine Laboratory Register.

Date of Government Version: 09/17/2015
Date Data Arrived at EDR: 12/04/2015
Date Made Active in Reports: 02/18/2016
Number of Days to Update: 76

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 03/01/2016
Next Scheduled EDR Contact: 06/13/2016
Data Release Frequency: No Update Planned

HIST CAL-SITES: Calsites Database

The Calsites database contains potential or confirmed hazardous substance release properties. In 1996, California EPA reevaluated and significantly reduced the number of sites in the Calsites database. No longer updated by the state agency. It has been replaced by ENVIROSTOR.

Date of Government Version: 08/08/2005
Date Data Arrived at EDR: 08/03/2006
Date Made Active in Reports: 08/24/2006
Number of Days to Update: 21

Source: Department of Toxic Substance Control
Telephone: 916-323-3400
Last EDR Contact: 02/23/2009
Next Scheduled EDR Contact: 05/25/2009
Data Release Frequency: No Update Planned

SCH: School Property Evaluation Program

This category contains proposed and existing school sites that are being evaluated by DTSC for possible hazardous materials contamination. In some cases, these properties may be listed in the CalSites category depending on the level of threat to public health and safety or the environment they pose.

Date of Government Version: 02/01/2016
Date Data Arrived at EDR: 02/03/2016
Date Made Active in Reports: 03/22/2016
Number of Days to Update: 48

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 05/04/2016
Next Scheduled EDR Contact: 08/15/2016
Data Release Frequency: Quarterly

CDL: Clandestine Drug Labs

A listing of drug lab locations. Listing of a location in this database does not indicate that any illegal drug lab materials were or were not present there, and does not constitute a determination that the location either requires or does not require additional cleanup work.

Date of Government Version: 09/30/2015
Date Data Arrived at EDR: 01/19/2016
Date Made Active in Reports: 03/22/2016
Number of Days to Update: 63

Source: Department of Toxic Substances Control
Telephone: 916-255-6504
Last EDR Contact: 04/21/2016
Next Scheduled EDR Contact: 07/25/2016
Data Release Frequency: Varies

TOXIC PITS: Toxic Pits Cleanup Act Sites

Toxic PITS Cleanup Act Sites. TOXIC PITS identifies sites suspected of containing hazardous substances where cleanup has not yet been completed.

Date of Government Version: 07/01/1995
Date Data Arrived at EDR: 08/30/1995
Date Made Active in Reports: 09/26/1995
Number of Days to Update: 27

Source: State Water Resources Control Board
Telephone: 916-227-4364
Last EDR Contact: 01/26/2009
Next Scheduled EDR Contact: 04/27/2009
Data Release Frequency: No Update Planned

US CDL: Clandestine Drug Labs

A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 09/17/2015
Date Data Arrived at EDR: 12/04/2015
Date Made Active in Reports: 02/18/2016
Number of Days to Update: 76

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 03/01/2016
Next Scheduled EDR Contact: 06/13/2016
Data Release Frequency: Quarterly

***Local Lists of Registered Storage Tanks***

SWEEPS UST: SWEEPS UST Listing

Statewide Environmental Evaluation and Planning System. This underground storage tank listing was updated and maintained by a company contacted by the SWRCB in the early 1990's. The listing is no longer updated or maintained. The local agency is the contact for more information on a site on the SWEEPS list.

Date of Government Version: 06/01/1994
Date Data Arrived at EDR: 07/07/2005
Date Made Active in Reports: 08/11/2005
Number of Days to Update: 35

Source: State Water Resources Control Board
Telephone: N/A
Last EDR Contact: 06/03/2005
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

UST MENDOCINO: Mendocino County UST Database

A listing of underground storage tank locations in Mendocino County.

Date of Government Version: 11/25/2015
Date Data Arrived at EDR: 12/01/2015
Date Made Active in Reports: 12/17/2015
Number of Days to Update: 16

Source: Department of Public Health
Telephone: 707-463-4466
Last EDR Contact: 03/28/2016
Next Scheduled EDR Contact: 06/13/2016
Data Release Frequency: Annually

HIST UST: Hazardous Substance Storage Container Database

The Hazardous Substance Storage Container Database is a historical listing of UST sites. Refer to local/county source for current data.

Date of Government Version: 10/15/1990
Date Data Arrived at EDR: 01/25/1991
Date Made Active in Reports: 02/12/1991
Number of Days to Update: 18

Source: State Water Resources Control Board
Telephone: 916-341-5851
Last EDR Contact: 07/26/2001
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

CA FID UST: Facility Inventory Database

The Facility Inventory Database (FID) contains a historical listing of active and inactive underground storage tank locations from the State Water Resource Control Board. Refer to local/county source for current data.

Date of Government Version: 10/31/1994
Date Data Arrived at EDR: 09/05/1995
Date Made Active in Reports: 09/29/1995
Number of Days to Update: 24

Source: California Environmental Protection Agency
Telephone: 916-341-5851
Last EDR Contact: 12/28/1998
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

***Local Land Records***

LIENS: Environmental Liens Listing

A listing of property locations with environmental liens for California where DTSC is a lien holder.

Date of Government Version: 03/08/2016
Date Data Arrived at EDR: 03/11/2016
Date Made Active in Reports: 05/04/2016
Number of Days to Update: 54

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 03/07/2016
Next Scheduled EDR Contact: 06/20/2016
Data Release Frequency: Varies

LIENS 2: CERCLA Lien Information

A Federal CERCLA ('Superfund') lien can exist by operation of law at any site or property at which EPA has spent Superfund monies. These monies are spent to investigate and address releases and threatened releases of contamination. CERCLIS provides information as to the identity of these sites and properties.

Date of Government Version: 02/18/2014
Date Data Arrived at EDR: 03/18/2014
Date Made Active in Reports: 04/24/2014
Number of Days to Update: 37

Source: Environmental Protection Agency
Telephone: 202-564-6023
Last EDR Contact: 04/26/2016
Next Scheduled EDR Contact: 08/08/2016
Data Release Frequency: Varies

DEED: Deed Restriction Listing

Site Mitigation and Brownfields Reuse Program Facility Sites with Deed Restrictions & Hazardous Waste Management Program Facility Sites with Deed / Land Use Restriction. The DTSC Site Mitigation and Brownfields Reuse Program (SMBRP) list includes sites cleaned up under the program's oversight and generally does not include current or former hazardous waste facilities that required a hazardous waste facility permit. The list represents deed restrictions that are active. Some sites have multiple deed restrictions. The DTSC Hazardous Waste Management Program (HWMP) has developed a list of current or former hazardous waste facilities that have a recorded land use restriction at the local county recorder's office. The land use restrictions on this list were required by the DTSC HWMP as a result of the presence of hazardous substances that remain on site after the facility (or part of the facility) has been closed or cleaned up. The types of land use restriction include deed notice, deed restriction, or a land use restriction that binds current and future owners.

Date of Government Version: 03/07/2016
Date Data Arrived at EDR: 03/08/2016
Date Made Active in Reports: 05/04/2016
Number of Days to Update: 57

Source: DTSC and SWRCB
Telephone: 916-323-3400
Last EDR Contact: 03/08/2016
Next Scheduled EDR Contact: 06/20/2016
Data Release Frequency: Semi-Annually

***Records of Emergency Release Reports***

HMIRS: Hazardous Materials Information Reporting System

Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

Date of Government Version: 06/24/2015
Date Data Arrived at EDR: 06/26/2015
Date Made Active in Reports: 09/02/2015
Number of Days to Update: 68

Source: U.S. Department of Transportation
Telephone: 202-366-4555
Last EDR Contact: 03/30/2016
Next Scheduled EDR Contact: 07/11/2016
Data Release Frequency: Annually

CHMIRS: California Hazardous Material Incident Report System

California Hazardous Material Incident Reporting System. CHMIRS contains information on reported hazardous material incidents (accidental releases or spills).

Date of Government Version: 12/16/2015
Date Data Arrived at EDR: 01/27/2016
Date Made Active in Reports: 03/22/2016
Number of Days to Update: 55

Source: Office of Emergency Services
Telephone: 916-845-8400
Last EDR Contact: 04/27/2016
Next Scheduled EDR Contact: 08/08/2016
Data Release Frequency: Varies

LDS: Land Disposal Sites Listing

The Land Disposal program regulates of waste discharge to land for treatment, storage and disposal in waste management units.

Date of Government Version: 03/14/2016
Date Data Arrived at EDR: 03/16/2016
Date Made Active in Reports: 05/16/2016
Number of Days to Update: 61

Source: State Water Qualilty Control Board
Telephone: 866-480-1028
Last EDR Contact: 03/16/2016
Next Scheduled EDR Contact: 06/27/2016
Data Release Frequency: Quarterly

MCS: Military Cleanup Sites Listing

The State Water Resources Control Board and nine Regional Water Quality Control Boards partner with the Department of Defense (DoD) through the Defense and State Memorandum of Agreement (DSMOA) to oversee the investigation and remediation of water quality issues at military facilities.

Date of Government Version: 03/14/2016
Date Data Arrived at EDR: 03/16/2016
Date Made Active in Reports: 05/16/2016
Number of Days to Update: 61

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 03/16/2016
Next Scheduled EDR Contact: 06/27/2016
Data Release Frequency: Quarterly

SPILLS 90: SPILLS90 data from FirstSearch

Spills 90 includes those spill and release records available exclusively from FirstSearch databases. Typically, they may include chemical, oil and/or hazardous substance spills recorded after 1990. Duplicate records that are already included in EDR incident and release records are not included in Spills 90.

Date of Government Version: 06/06/2012
Date Data Arrived at EDR: 01/03/2013
Date Made Active in Reports: 02/22/2013
Number of Days to Update: 50

Source: FirstSearch
Telephone: N/A
Last EDR Contact: 01/03/2013
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

***Other Ascertainable Records***

RCRA NonGen / NLR: RCRA - Non Generators / No Longer Regulated

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Non-Generators do not presently generate hazardous waste.

Date of Government Version: 12/09/2015
Date Data Arrived at EDR: 03/02/2016
Date Made Active in Reports: 04/05/2016
Number of Days to Update: 34

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 03/30/2016
Next Scheduled EDR Contact: 07/11/2016
Data Release Frequency: Varies

FUDS: Formerly Used Defense Sites

The listing includes locations of Formerly Used Defense Sites properties where the US Army Corps of Engineers is actively working or will take necessary cleanup actions.

Date of Government Version: 01/31/2015
Date Data Arrived at EDR: 07/08/2015
Date Made Active in Reports: 10/13/2015
Number of Days to Update: 97

Source: U.S. Army Corps of Engineers
Telephone: 202-528-4285
Last EDR Contact: 03/11/2016
Next Scheduled EDR Contact: 06/20/2016
Data Release Frequency: Varies

DOD: Department of Defense Sites

This data set consists of federally owned or administered lands, administered by the Department of Defense, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 11/10/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 62

Source: USGS
Telephone: 888-275-8747
Last EDR Contact: 04/15/2016
Next Scheduled EDR Contact: 07/25/2016
Data Release Frequency: Semi-Annually

FEDLAND: Federal and Indian Lands

Federally and Indian administrated lands of the United States. Lands included are administrated by: Army Corps of Engineers, Bureau of Reclamation, National Wild and Scenic River, National Wildlife Refuge, Public Domain Land, Wilderness, Wilderness Study Area, Wildlife Management Area, Bureau of Indian Affairs, Bureau of Land Management, Department of Justice, Forest Service, Fish and Wildlife Service, National Park Service.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 02/06/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 339

Source: U.S. Geological Survey
Telephone: 888-275-8747
Last EDR Contact: 04/15/2016
Next Scheduled EDR Contact: 07/25/2016
Data Release Frequency: N/A

SCRD DRYCLEANERS: State Coalition for Remediation of Drycleaners Listing

The State Coalition for Remediation of Drycleaners was established in 1998, with support from the U.S. EPA Office of Superfund Remediation and Technology Innovation. It is comprised of representatives of states with established drycleaner remediation programs. Currently the member states are Alabama, Connecticut, Florida, Illinois, Kansas, Minnesota, Missouri, North Carolina, Oregon, South Carolina, Tennessee, Texas, and Wisconsin.

Date of Government Version: 03/07/2011
Date Data Arrived at EDR: 03/09/2011
Date Made Active in Reports: 05/02/2011
Number of Days to Update: 54

Source: Environmental Protection Agency
Telephone: 615-532-8599
Last EDR Contact: 05/20/2016
Next Scheduled EDR Contact: 08/29/2016
Data Release Frequency: Varies

US FIN ASSUR: Financial Assurance Information

All owners and operators of facilities that treat, store, or dispose of hazardous waste are required to provide proof that they will have sufficient funds to pay for the clean up, closure, and post-closure care of their facilities.

Date of Government Version: 09/01/2015
Date Data Arrived at EDR: 09/03/2015
Date Made Active in Reports: 11/03/2015
Number of Days to Update: 61

Source: Environmental Protection Agency
Telephone: 202-566-1917
Last EDR Contact: 05/18/2016
Next Scheduled EDR Contact: 08/29/2016
Data Release Frequency: Quarterly

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

EPA WATCH LIST: EPA WATCH LIST

EPA maintains a "Watch List" to facilitate dialogue between EPA, state and local environmental agencies on enforcement matters relating to facilities with alleged violations identified as either significant or high priority. Being on the Watch List does not mean that the facility has actually violated the law only that an investigation by EPA or a state or local environmental agency has led those organizations to allege that an unproven violation has in fact occurred. Being on the Watch List does not represent a higher level of concern regarding the alleged violations that were detected, but instead indicates cases requiring additional dialogue between EPA, state and local agencies - primarily because of the length of time the alleged violation has gone unaddressed or unresolved.

Date of Government Version: 08/30/2013
Date Data Arrived at EDR: 03/21/2014
Date Made Active in Reports: 06/17/2014
Number of Days to Update: 88

Source: Environmental Protection Agency
Telephone: 617-520-3000
Last EDR Contact: 05/09/2016
Next Scheduled EDR Contact: 08/22/2016
Data Release Frequency: Quarterly

2020 COR ACTION: 2020 Corrective Action Program List

The EPA has set ambitious goals for the RCRA Corrective Action program by creating the 2020 Corrective Action Universe. This RCRA cleanup baseline includes facilities expected to need corrective action. The 2020 universe contains a wide variety of sites. Some properties are heavily contaminated while others were contaminated but have since been cleaned up. Still others have not been fully investigated yet, and may require little or no remediation. Inclusion in the 2020 Universe does not necessarily imply failure on the part of a facility to meet its RCRA obligations.

Date of Government Version: 04/22/2013
Date Data Arrived at EDR: 03/03/2015
Date Made Active in Reports: 03/09/2015
Number of Days to Update: 6

Source: Environmental Protection Agency
Telephone: 703-308-4044
Last EDR Contact: 05/12/2016
Next Scheduled EDR Contact: 08/22/2016
Data Release Frequency: Varies

TSCA: Toxic Substances Control Act

Toxic Substances Control Act. TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site.

Date of Government Version: 12/31/2012
Date Data Arrived at EDR: 01/15/2015
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 14

Source: EPA
Telephone: 202-260-5521
Last EDR Contact: 03/24/2016
Next Scheduled EDR Contact: 07/04/2016
Data Release Frequency: Every 4 Years

TRIS: Toxic Chemical Release Inventory System

Toxic Release Inventory System. TRIS identifies facilities which release toxic chemicals to the air, water and land in reportable quantities under SARA Title III Section 313.

Date of Government Version: 12/31/2014
Date Data Arrived at EDR: 11/24/2015
Date Made Active in Reports: 04/05/2016
Number of Days to Update: 133

Source: EPA
Telephone: 202-566-0250
Last EDR Contact: 02/24/2016
Next Scheduled EDR Contact: 06/06/2016
Data Release Frequency: Annually

SSTS: Section 7 Tracking Systems

Section 7 of the Federal Insecticide, Fungicide and Rodenticide Act, as amended (92 Stat. 829) requires all registered pesticide-producing establishments to submit a report to the Environmental Protection Agency by March 1st each year. Each establishment must report the types and amounts of pesticides, active ingredients and devices being produced, and those having been produced and sold or distributed in the past year.

Date of Government Version: 12/31/2009
Date Data Arrived at EDR: 12/10/2010
Date Made Active in Reports: 02/25/2011
Number of Days to Update: 77

Source: EPA
Telephone: 202-564-4203
Last EDR Contact: 04/25/2016
Next Scheduled EDR Contact: 08/08/2016
Data Release Frequency: Annually

ROD: Records Of Decision

Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid in the cleanup.

Date of Government Version: 11/25/2013
Date Data Arrived at EDR: 12/12/2013
Date Made Active in Reports: 02/24/2014
Number of Days to Update: 74

Source: EPA
Telephone: 703-416-0223
Last EDR Contact: 03/08/2016
Next Scheduled EDR Contact: 06/20/2016
Data Release Frequency: Annually

RMP: Risk Management Plans

When Congress passed the Clean Air Act Amendments of 1990, it required EPA to publish regulations and guidance for chemical accident prevention at facilities using extremely hazardous substances. The Risk Management Program Rule (RMP Rule) was written to implement Section 112(r) of these amendments. The rule, which built upon existing industry codes and standards, requires companies of all sizes that use certain flammable and toxic substances to develop a Risk Management Program, which includes a(n): Hazard assessment that details the potential effects of an accidental release, an accident history of the last five years, and an evaluation of worst-case and alternative accidental releases; Prevention program that includes safety precautions and maintenance, monitoring, and employee training measures; and Emergency response program that spells out emergency health care, employee training measures and procedures for informing the public and response agencies (e.g the fire department) should an accident occur.

Date of Government Version: 08/01/2015
Date Data Arrived at EDR: 08/26/2015
Date Made Active in Reports: 11/03/2015
Number of Days to Update: 69

Source: Environmental Protection Agency
Telephone: 202-564-8600
Last EDR Contact: 04/25/2016
Next Scheduled EDR Contact: 08/08/2016
Data Release Frequency: Varies

RAATS: RCRA Administrative Action Tracking System

RCRA Administration Action Tracking System. RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA. For administration actions after September 30, 1995, data entry in the RAATS database was discontinued. EPA will retain a copy of the database for historical records. It was necessary to terminate RAATS because a decrease in agency resources made it impossible to continue to update the information contained in the database.

Date of Government Version: 04/17/1995
Date Data Arrived at EDR: 07/03/1995
Date Made Active in Reports: 08/07/1995
Number of Days to Update: 35

Source: EPA
Telephone: 202-564-4104
Last EDR Contact: 06/02/2008
Next Scheduled EDR Contact: 09/01/2008
Data Release Frequency: No Update Planned

PRP: Potentially Responsible Parties

A listing of verified Potentially Responsible Parties

Date of Government Version: 10/25/2013
Date Data Arrived at EDR: 10/17/2014
Date Made Active in Reports: 10/20/2014
Number of Days to Update: 3

Source: EPA
Telephone: 202-564-6023
Last EDR Contact: 05/12/2016
Next Scheduled EDR Contact: 08/22/2016
Data Release Frequency: Quarterly

PADS: PCB Activity Database System

PCB Activity Database. PADS Identifies generators, transporters, commercial storers and/or brokers and disposers of PCB's who are required to notify the EPA of such activities.

Date of Government Version: 07/01/2014
Date Data Arrived at EDR: 10/15/2014
Date Made Active in Reports: 11/17/2014
Number of Days to Update: 33

Source: EPA
Telephone: 202-566-0500
Last EDR Contact: 04/12/2016
Next Scheduled EDR Contact: 07/25/2016
Data Release Frequency: Annually

ICIS: Integrated Compliance Information System

The Integrated Compliance Information System (ICIS) supports the information needs of the national enforcement and compliance program as well as the unique needs of the National Pollutant Discharge Elimination System (NPDES) program.

Date of Government Version: 01/23/2015
Date Data Arrived at EDR: 02/06/2015
Date Made Active in Reports: 03/09/2015
Number of Days to Update: 31

Source: Environmental Protection Agency
Telephone: 202-564-5088
Last EDR Contact: 04/08/2016
Next Scheduled EDR Contact: 07/25/2016
Data Release Frequency: Quarterly

FTTS: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)

FTTS tracks administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA and EPCRA (Emergency Planning and Community Right-to-Know Act). To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25

Source: EPA/Office of Prevention, Pesticides and Toxic Substances
Telephone: 202-566-1667
Last EDR Contact: 05/20/2016
Next Scheduled EDR Contact: 09/05/2016
Data Release Frequency: Quarterly

FTTS INSP: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)

A listing of FIFRA/TSCA Tracking System (FTTS) inspections and enforcements.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25

Source: EPA
Telephone: 202-566-1667
Last EDR Contact: 05/20/2016
Next Scheduled EDR Contact: 09/05/2016
Data Release Frequency: Quarterly

MLTS: Material Licensing Tracking System

MLTS is maintained by the Nuclear Regulatory Commission and contains a list of approximately 8,100 sites which possess or use radioactive materials and which are subject to NRC licensing requirements. To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 03/07/2016
Date Data Arrived at EDR: 03/18/2016
Date Made Active in Reports: 04/15/2016
Number of Days to Update: 28

Source: Nuclear Regulatory Commission
Telephone: 301-415-7169
Last EDR Contact: 05/06/2016
Next Scheduled EDR Contact: 08/22/2016
Data Release Frequency: Quarterly

COAL ASH DOE: Steam-Electric Plant Operation Data

A listing of power plants that store ash in surface ponds.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 08/07/2009
Date Made Active in Reports: 10/22/2009
Number of Days to Update: 76

Source: Department of Energy
Telephone: 202-586-8719
Last EDR Contact: 04/15/2016
Next Scheduled EDR Contact: 07/25/2016
Data Release Frequency: Varies

COAL ASH EPA: Coal Combustion Residues Surface Impoundments List

A listing of coal combustion residues surface impoundments with high hazard potential ratings.

Date of Government Version: 07/01/2014
Date Data Arrived at EDR: 09/10/2014
Date Made Active in Reports: 10/20/2014
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: N/A
Last EDR Contact: 03/11/2016
Next Scheduled EDR Contact: 06/20/2016
Data Release Frequency: Varies

PCB TRANSFORMER: PCB Transformer Registration Database
The database of PCB transformer registrations that includes all PCB registration submittals.

Date of Government Version: 02/01/2011
Date Data Arrived at EDR: 10/19/2011
Date Made Active in Reports: 01/10/2012
Number of Days to Update: 83
Source: Environmental Protection Agency
Telephone: 202-566-0517
Last EDR Contact: 04/26/2016
Next Scheduled EDR Contact: 08/08/2016
Data Release Frequency: Varies

RADINFO: Radiation Information Database
The Radiation Information Database (RADINFO) contains information about facilities that are regulated by U.S. Environmental Protection Agency (EPA) regulations for radiation and radioactivity.

Date of Government Version: 07/07/2015
Date Data Arrived at EDR: 07/09/2015
Date Made Active in Reports: 09/16/2015
Number of Days to Update: 69
Source: Environmental Protection Agency
Telephone: 202-343-9775
Last EDR Contact: 04/08/2016
Next Scheduled EDR Contact: 07/18/2016
Data Release Frequency: Quarterly

HIST FTTS: FIFRA/TSCA Tracking System Administrative Case Listing
A complete administrative case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40
Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2007
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

HIST FTTS INSP: FIFRA/TSCA Tracking System Inspection & Enforcement Case Listing
A complete inspection and enforcement case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40
Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2008
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

DOT OPS: Incident and Accident Data
Department of Transporation, Office of Pipeline Safety Incident and Accident data.

Date of Government Version: 07/31/2012
Date Data Arrived at EDR: 08/07/2012
Date Made Active in Reports: 09/18/2012
Number of Days to Update: 42
Source: Department of Transporation, Office of Pipeline Safety
Telephone: 202-366-4595
Last EDR Contact: 05/04/2016
Next Scheduled EDR Contact: 08/15/2016
Data Release Frequency: Varies

CONSENT: Superfund (CERCLA) Consent Decrees
Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites. Released periodically by United States District Courts after settlement by parties to litigation matters.

Date of Government Version: 12/31/2014
Date Data Arrived at EDR: 04/17/2015
Date Made Active in Reports: 06/02/2015
Number of Days to Update: 46

Source: Department of Justice, Consent Decree Library
Telephone: Varies
Last EDR Contact: 03/24/2016
Next Scheduled EDR Contact: 07/11/2016
Data Release Frequency: Varies

BRS: Biennial Reporting System

The Biennial Reporting System is a national system administered by the EPA that collects data on the generation and management of hazardous waste. BRS captures detailed data from two groups: Large Quantity Generators (LQG) and Treatment, Storage, and Disposal Facilities.

Date of Government Version: 12/31/2013
Date Data Arrived at EDR: 02/24/2015
Date Made Active in Reports: 09/30/2015
Number of Days to Update: 218

Source: EPA/NTIS
Telephone: 800-424-9346
Last EDR Contact: 02/26/2016
Next Scheduled EDR Contact: 06/06/2016
Data Release Frequency: Biennially

INDIAN RESERV: Indian Reservations

This map layer portrays Indian administered lands of the United States that have any area equal to or greater than 640 acres.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 12/08/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 34

Source: USGS
Telephone: 202-208-3710
Last EDR Contact: 04/15/2016
Next Scheduled EDR Contact: 07/25/2016
Data Release Frequency: Semi-Annually

FUSRAP: Formerly Utilized Sites Remedial Action Program

DOE established the Formerly Utilized Sites Remedial Action Program (FUSRAP) in 1974 to remediate sites where radioactive contamination remained from Manhattan Project and early U.S. Atomic Energy Commission (AEC) operations.

Date of Government Version: 11/23/2015
Date Data Arrived at EDR: 11/24/2015
Date Made Active in Reports: 02/18/2016
Number of Days to Update: 86

Source: Department of Energy
Telephone: 202-586-3559
Last EDR Contact: 05/09/2016
Next Scheduled EDR Contact: 08/22/2016
Data Release Frequency: Varies

UMTRA: Uranium Mill Tailings Sites

Uranium ore was mined by private companies for federal government use in national defense programs. When the mills shut down, large piles of the sand-like material (mill tailings) remain after uranium has been extracted from the ore. Levels of human exposure to radioactive materials from the piles are low; however, in some cases tailings were used as construction materials before the potential health hazards of the tailings were recognized.

Date of Government Version: 09/14/2010
Date Data Arrived at EDR: 10/07/2011
Date Made Active in Reports: 03/01/2012
Number of Days to Update: 146

Source: Department of Energy
Telephone: 505-845-0011
Last EDR Contact: 05/23/2016
Next Scheduled EDR Contact: 09/05/2016
Data Release Frequency: Varies

LEAD SMELTER 1: Lead Smelter Sites

A listing of former lead smelter site locations.

Date of Government Version: 11/25/2014
Date Data Arrived at EDR: 11/26/2014
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 64

Source: Environmental Protection Agency
Telephone: 703-603-8787
Last EDR Contact: 04/07/2016
Next Scheduled EDR Contact: 07/18/2016
Data Release Frequency: Varies

LEAD SMELTER 2: Lead Smelter Sites

A list of several hundred sites in the U.S. where secondary lead smelting was done from 1931and 1964. These sites may pose a threat to public health through ingestion or inhalation of contaminated soil or dust

Date of Government Version: 04/05/2001
Date Data Arrived at EDR: 10/27/2010
Date Made Active in Reports: 12/02/2010
Number of Days to Update: 36

Source: American Journal of Public Health
Telephone: 703-305-6451
Last EDR Contact: 12/02/2009
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

US AIRS (AFS): Aerometric Information Retrieval System Facility Subsystem (AFS)

The database is a sub-system of Aerometric Information Retrieval System (AIRS). AFS contains compliance data on air pollution point sources regulated by the U.S. EPA and/or state and local air regulatory agencies. This information comes from source reports by various stationary sources of air pollution, such as electric power plants, steel mills, factories, and universities, and provides information about the air pollutants they produce. Action, air program, air program pollutant, and general level plant data. It is used to track emissions and compliance data from industrial plants.

Date of Government Version: 10/20/2015
Date Data Arrived at EDR: 10/27/2015
Date Made Active in Reports: 01/04/2016
Number of Days to Update: 69

Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 03/24/2016
Next Scheduled EDR Contact: 07/11/2016
Data Release Frequency: Annually

US AIRS MINOR: Air Facility System Data

A listing of minor source facilities.

Date of Government Version: 10/20/2015
Date Data Arrived at EDR: 10/27/2015
Date Made Active in Reports: 01/04/2016
Number of Days to Update: 69

Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 03/24/2016
Next Scheduled EDR Contact: 07/11/2016
Data Release Frequency: Annually

US MINES: Mines Master Index File

Contains all mine identification numbers issued for mines active or opened since 1971. The data also includes violation information.

Date of Government Version: 02/09/2016
Date Data Arrived at EDR: 03/02/2016
Date Made Active in Reports: 04/15/2016
Number of Days to Update: 44

Source: Department of Labor, Mine Safety and Health Administration
Telephone: 303-231-5959
Last EDR Contact: 03/02/2016
Next Scheduled EDR Contact: 06/13/2016
Data Release Frequency: Semi-Annually

US MINES 2: Ferrous and Nonferrous Metal Mines Database Listing

This map layer includes ferrous (ferrous metal mines are facilities that extract ferrous metals, such as iron ore or molybdenum) and nonferrous (Nonferrous metal mines are facilities that extract nonferrous metals, such as gold, silver, copper, zinc, and lead) metal mines in the United States.

Date of Government Version: 12/05/2005
Date Data Arrived at EDR: 02/29/2008
Date Made Active in Reports: 04/18/2008
Number of Days to Update: 49

Source: USGS
Telephone: 703-648-7709
Last EDR Contact: 03/04/2016
Next Scheduled EDR Contact: 06/13/2016
Data Release Frequency: Varies

US MINES 3: Active Mines & Mineral Plants Database Listing

Active Mines and Mineral Processing Plant operations for commodities monitored by the Minerals Information Team of the USGS.

Date of Government Version: 04/14/2011
Date Data Arrived at EDR: 06/08/2011
Date Made Active in Reports: 09/13/2011
Number of Days to Update: 97

Source: USGS
Telephone: 703-648-7709
Last EDR Contact: 03/04/2016
Next Scheduled EDR Contact: 06/13/2016
Data Release Frequency: Varies

FINDS: Facility Index System/Facility Registry System

Facility Index System. FINDS contains both facility information and 'pointers' to other sources that contain more detail. EDR includes the following FINDS databases in this report: PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), C-DOCKET (Criminal Docket System used to track criminal enforcement actions for all environmental statutes), FFIS (Federal Facilities Information System), STATE (State Environmental Laws and Statutes), and PADS (PCB Activity Data System).

Date of Government Version: 07/20/2015
Date Data Arrived at EDR: 09/09/2015
Date Made Active in Reports: 11/03/2015
Number of Days to Update: 55

Source: EPA
Telephone: (415) 947-8000
Last EDR Contact: 03/08/2016
Next Scheduled EDR Contact: 06/20/2016
Data Release Frequency: Quarterly

UXO: Unexploded Ordnance Sites

A listing of unexploded ordnance site locations

Date of Government Version: 10/25/2015
Date Data Arrived at EDR: 01/29/2016
Date Made Active in Reports: 04/05/2016
Number of Days to Update: 67

Source: Department of Defense
Telephone: 571-373-0407
Last EDR Contact: 04/18/2016
Next Scheduled EDR Contact: 07/04/2016
Data Release Frequency: Varies

DOCKET HWC: Hazardous Waste Compliance Docket Listing

A complete list of the Federal Agency Hazardous Waste Compliance Docket Facilities.

Date of Government Version: 03/01/2016
Date Data Arrived at EDR: 03/03/2016
Date Made Active in Reports: 04/05/2016
Number of Days to Update: 33

Source: Environmental Protection Agency
Telephone: 202-564-0527
Last EDR Contact: 02/24/2016
Next Scheduled EDR Contact: 06/13/2016
Data Release Frequency: Varies

CA BOND EXP. PLAN: Bond Expenditure Plan

Department of Health Services developed a site-specific expenditure plan as the basis for an appropriation of Hazardous Substance Cleanup Bond Act funds. It is not updated.

Date of Government Version: 01/01/1989
Date Data Arrived at EDR: 07/27/1994
Date Made Active in Reports: 08/02/1994
Number of Days to Update: 6

Source: Department of Health Services
Telephone: 916-255-2118
Last EDR Contact: 05/31/1994
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

CORTESE: "Cortese" Hazardous Waste & Substances Sites List

The sites for the list are designated by the State Water Resource Control Board (LUST), the Integrated Waste Board (SWF/LS), and the Department of Toxic Substances Control (Cal-Sites).

Date of Government Version: 03/28/2016
Date Data Arrived at EDR: 03/30/2016
Date Made Active in Reports: 05/09/2016
Number of Days to Update: 40

Source: CAL EPA/Office of Emergency Information
Telephone: 916-323-3400
Last EDR Contact: 03/30/2016
Next Scheduled EDR Contact: 07/11/2016
Data Release Frequency: Quarterly

DRYCLEANERS: Cleaner Facilities

A list of drycleaner related facilities that have EPA ID numbers. These are facilities with certain SIC codes: power laundries, family and commercial; garment pressing and cleaner's agents; linen supply; coin-operated laundries and cleaning; drycleaning plants, except rugs; carpet and upholster cleaning; industrial launderers; laundry and garment services.

Date of Government Version: 02/08/2016
Date Data Arrived at EDR: 02/24/2016
Date Made Active in Reports: 04/01/2016
Number of Days to Update: 37

Source: Department of Toxic Substance Control
Telephone: 916-327-4498
Last EDR Contact: 02/05/2016
Next Scheduled EDR Contact: 06/20/2016
Data Release Frequency: Annually

EMI: Emissions Inventory Data

Toxics and criteria pollutant emissions data collected by the ARB and local air pollution agencies.

Date of Government Version: 12/31/2014
Date Data Arrived at EDR: 03/22/2016
Date Made Active in Reports: 05/09/2016
Number of Days to Update: 48

Source: California Air Resources Board
Telephone: 916-322-2990
Last EDR Contact: 03/22/2016
Next Scheduled EDR Contact: 07/04/2016
Data Release Frequency: Varies

ENF: Enforcement Action Listing

A listing of Water Board Enforcement Actions. Formal is everything except Oral/Verbal Communication, Notice of Violation, Expedited Payment Letter, and Staff Enforcement Letter.

Date of Government Version: 01/26/2016
Date Data Arrived at EDR: 01/29/2016
Date Made Active in Reports: 03/22/2016
Number of Days to Update: 53

Source: State Water Resoruces Control Board
Telephone: 916-445-9379
Last EDR Contact: 05/23/2016
Next Scheduled EDR Contact: 08/08/2016
Data Release Frequency: Varies

Financial Assurance 1: Financial Assurance Information Listing

Financial Assurance information

Date of Government Version: 01/28/2016
Date Data Arrived at EDR: 01/29/2016
Date Made Active in Reports: 03/22/2016
Number of Days to Update: 53

Source: Department of Toxic Substances Control
Telephone: 916-255-3628
Last EDR Contact: 04/21/2016
Next Scheduled EDR Contact: 08/08/2016
Data Release Frequency: Varies

Financial Assurance 2: Financial Assurance Information Listing

A listing of financial assurance information for solid waste facilities. Financial assurance is intended to ensure that resources are available to pay for the cost of closure, post-closure care, and corrective measures if the owner or operator of a regulated facility is unable or unwilling to pay.

Date of Government Version: 02/17/2016
Date Data Arrived at EDR: 02/23/2016
Date Made Active in Reports: 04/01/2016
Number of Days to Update: 38

Source: California Integrated Waste Management Board
Telephone: 916-341-6066
Last EDR Contact: 05/13/2016
Next Scheduled EDR Contact: 08/29/2016
Data Release Frequency: Varies

HAZNET: Facility and Manifest Data

Facility and Manifest Data. The data is extracted from the copies of hazardous waste manifests received each year by the DTSC. The annual volume of manifests is typically 700,000 - 1,000,000 annually, representing approximately 350,000 - 500,000 shipments. Data are from the manifests submitted without correction, and therefore many contain some invalid values for data elements such as generator ID, TSD ID, waste category, and disposal method. This database begins with calendar year 1993.

Date of Government Version: 12/31/2014
Date Data Arrived at EDR: 10/14/2015
Date Made Active in Reports: 12/11/2015
Number of Days to Update: 58

Source: California Environmental Protection Agency
Telephone: 916-255-1136
Last EDR Contact: 04/15/2016
Next Scheduled EDR Contact: 07/25/2016
Data Release Frequency: Annually

HIST CORTESE: Hazardous Waste & Substance Site List

The sites for the list are designated by the State Water Resource Control Board [LUST], the Integrated Waste Board [SWF/LS], and the Department of Toxic Substances Control [CALSITES]. This listing is no longer updated by the state agency.

Date of Government Version: 04/01/2001
Date Data Arrived at EDR: 01/22/2009
Date Made Active in Reports: 04/08/2009
Number of Days to Update: 76

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 01/22/2009
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

HWP: EnviroStor Permitted Facilities Listing
Detailed information on permitted hazardous waste facilities and corrective action ("cleanups") tracked in EnviroStor.

Date of Government Version: 02/22/2016
Date Data Arrived at EDR: 02/24/2016
Date Made Active in Reports: 04/01/2016
Number of Days to Update: 37
Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 02/24/2016
Next Scheduled EDR Contact: 06/06/2016
Data Release Frequency: Quarterly

HWT: Registered Hazardous Waste Transporter Database
A listing of hazardous waste transporters. In California, unless specifically exempted, it is unlawful for any person to transport hazardous wastes unless the person holds a valid registration issued by DTSC. A hazardous waste transporter registration is valid for one year and is assigned a unique registration number.

Date of Government Version: 01/11/2016
Date Data Arrived at EDR: 01/13/2016
Date Made Active in Reports: 02/22/2016
Number of Days to Update: 40
Source: Department of Toxic Substances Control
Telephone: 916-440-7145
Last EDR Contact: 04/12/2016
Next Scheduled EDR Contact: 07/25/2016
Data Release Frequency: Quarterly

MINES: Mines Site Location Listing
A listing of mine site locations from the Office of Mine Reclamation.

Date of Government Version: 03/15/2016
Date Data Arrived at EDR: 03/16/2016
Date Made Active in Reports: 05/09/2016
Number of Days to Update: 54
Source: Department of Conservation
Telephone: 916-322-1080
Last EDR Contact: 03/16/2016
Next Scheduled EDR Contact: 06/27/2016
Data Release Frequency: Varies

MWMP: Medical Waste Management Program Listing
The Medical Waste Management Program (MWMP) ensures the proper handling and disposal of medical waste by permitting and inspecting medical waste Offsite Treatment Facilities (PDF) and Transfer Stations (PDF) throughout the state. MWMP also oversees all Medical Waste Transporters.

Date of Government Version: 02/29/2016
Date Data Arrived at EDR: 03/08/2016
Date Made Active in Reports: 05/04/2016
Number of Days to Update: 57
Source: Department of Public Health
Telephone: 916-558-1784
Last EDR Contact: 03/08/2016
Next Scheduled EDR Contact: 06/20/2016
Data Release Frequency: Varies

NPDES: NPDES Permits Listing
A listing of NPDES permits, including stormwater.

Date of Government Version: 02/16/2016
Date Data Arrived at EDR: 02/17/2016
Date Made Active in Reports: 04/01/2016
Number of Days to Update: 44
Source: State Water Resources Control Board
Telephone: 916-445-9379
Last EDR Contact: 05/18/2016
Next Scheduled EDR Contact: 08/29/2016
Data Release Frequency: Quarterly

PEST LIC: Pesticide Regulation Licenses Listing
A listing of licenses and certificates issued by the Department of Pesticide Regulation. The DPR issues licenses and/or certificates to: Persons and businesses that apply or sell pesticides; Pest control dealers and brokers; Persons who advise on agricultural pesticide applications.

Date of Government Version: 03/07/2016
Date Data Arrived at EDR: 03/08/2016
Date Made Active in Reports: 05/16/2016
Number of Days to Update: 69
Source: Department of Pesticide Regulation
Telephone: 916-445-4038
Last EDR Contact: 03/08/2016
Next Scheduled EDR Contact: 06/20/2016
Data Release Frequency: Quarterly

PROC: Certified Processors Database
A listing of certified processors.

Date of Government Version: 03/15/2016
Date Data Arrived at EDR: 03/16/2016
Date Made Active in Reports: 05/09/2016
Number of Days to Update: 54
Source: Department of Conservation
Telephone: 916-323-3836
Last EDR Contact: 03/16/2016
Next Scheduled EDR Contact: 06/27/2016
Data Release Frequency: Quarterly

NOTIFY 65: Proposition 65 Records
Listings of all Proposition 65 incidents reported to counties by the State Water Resources Control Board and the Regional Water Quality Control Board. This database is no longer updated by the reporting agency.

Date of Government Version: 09/10/2015
Date Data Arrived at EDR: 01/05/2016
Date Made Active in Reports: 02/12/2016
Number of Days to Update: 38
Source: State Water Resources Control Board
Telephone: 916-445-3846
Last EDR Contact: 04/18/2016
Next Scheduled EDR Contact: 07/04/2016
Data Release Frequency: No Update Planned

UIC: UIC Listing
A listing of wells identified as underground injection wells, in the California Oil and Gas Wells database.

Date of Government Version: 07/23/2015
Date Data Arrived at EDR: 09/15/2015
Date Made Active in Reports: 10/13/2015
Number of Days to Update: 28
Source: Deaprtment of Conservation
Telephone: 916-445-2408
Last EDR Contact: 03/16/2016
Next Scheduled EDR Contact: 06/27/2016
Data Release Frequency: Varies

WASTEWATER PITS: Oil Wastewater Pits Listing
Water officials discovered that oil producers have been dumping chemical-laden wastewater into hundreds of unlined pits that are operating without proper permits. Inspections completed by the Central Valley Regional Water Quality Control Board revealed the existence of previously unidentified waste sites. The water board?s review found that more than one-third of the region?s active disposal pits are operating without permission.

Date of Government Version: 04/15/2015
Date Data Arrived at EDR: 04/17/2015
Date Made Active in Reports: 06/23/2015
Number of Days to Update: 67
Source: RWQCB, Central Valley Region
Telephone: 559-445-5577
Last EDR Contact: 01/15/2016
Next Scheduled EDR Contact: 04/25/2016
Data Release Frequency: Varies

WDS: Waste Discharge System
Sites which have been issued waste discharge requirements.

Date of Government Version: 06/19/2007
Date Data Arrived at EDR: 06/20/2007
Date Made Active in Reports: 06/29/2007
Number of Days to Update: 9
Source: State Water Resources Control Board
Telephone: 916-341-5227
Last EDR Contact: 05/20/2016
Next Scheduled EDR Contact: 09/05/2016
Data Release Frequency: Quarterly

WIP: Well Investigation Program Case List
Well Investigation Program case in the San Gabriel and San Fernando Valley area.

Date of Government Version: 07/03/2009
Date Data Arrived at EDR: 07/21/2009
Date Made Active in Reports: 08/03/2009
Number of Days to Update: 13
Source: Los Angeles Water Quality Control Board
Telephone: 213-576-6726
Last EDR Contact: 03/28/2016
Next Scheduled EDR Contact: 07/11/2016
Data Release Frequency: Varies

ECHO: Enforcement & Compliance History Information
ECHO provides integrated compliance and enforcement information for about 800,000 regulated facilities nationwide.

Date of Government Version: 09/20/2015
Date Data Arrived at EDR: 09/23/2015
Date Made Active in Reports: 01/04/2016
Number of Days to Update: 103

Source: Environmental Protection Agency
Telephone: 202-564-2280
Last EDR Contact: 03/23/2016
Next Scheduled EDR Contact: 07/04/2016
Data Release Frequency: Quarterly

FUELS PROGRAM: EPA Fuels Program Registered Listing

This listing includes facilities that are registered under the Part 80 (Code of Federal Regulations) EPA Fuels Programs. All companies now are required to submit new and updated registrations.

Date of Government Version: 02/22/2016
Date Data Arrived at EDR: 02/24/2016
Date Made Active in Reports: 05/20/2016
Number of Days to Update: 86

Source: EPA
Telephone: 800-385-6164
Last EDR Contact: 02/24/2016
Next Scheduled EDR Contact: 06/06/2016
Data Release Frequency: Quarterly

**EDR HIGH RISK HISTORICAL RECORDS**

***EDR Exclusive Records***

EDR MGP: EDR Proprietary Manufactured Gas Plants

The EDR Proprietary Manufactured Gas Plant Database includes records of coal gas plants (manufactured gas plants) compiled by EDR's researchers. Manufactured gas sites were used in the United States from the 1800's to 1950's to produce a gas that could be distributed and used as fuel. These plants used whale oil, rosin, coal, or a mixture of coal, oil, and water that also produced a significant amount of waste. Many of the byproducts of the gas production, such as coal tar (oily waste containing volatile and non-volatile chemicals), sludges, oils and other compounds are potentially hazardous to human health and the environment. The byproduct from this process was frequently disposed of directly at the plant site and can remain or spread slowly, serving as a continuous source of soil and groundwater contamination.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

EDR Hist Auto: EDR Exclusive Historic Gas Stations

EDR has searched selected national collections of business directories and has collected listings of potential gas station/filling station/service station sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include gas station/filling station/service station establishments. The categories reviewed included, but were not limited to gas, gas station, gasoline station, filling station, auto, automobile repair, auto service station, service station, etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR Hist Cleaner: EDR Exclusive Historic Dry Cleaners

EDR has searched selected national collections of business directories and has collected listings of potential dry cleaner sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include dry cleaning establishments. The categories reviewed included, but were not limited to dry cleaners, cleaners, laundry, laundromat, cleaning/laundry, wash & dry etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

**EDR RECOVERED GOVERNMENT ARCHIVES**

***Exclusive Recovered Govt. Archives***

RGA LF: Recovered Government Archive Solid Waste Facilities List

The EDR Recovered Government Archive Landfill database provides a list of landfills derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the Department of Resources Recycling and Recovery in California.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 01/13/2014
Number of Days to Update: 196

Source: Department of Resources Recycling and Recovery
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

RGA LUST: Recovered Government Archive Leaking Underground Storage Tank

The EDR Recovered Government Archive Leaking Underground Storage Tank database provides a list of LUST incidents derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the State Water Resources Control Board in California.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 12/30/2013
Number of Days to Update: 182

Source: State Water Resources Control Board
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

**COUNTY RECORDS**

ALAMEDA COUNTY:

Contaminated Sites

A listing of contaminated sites overseen by the Toxic Release Program (oil and groundwater contamination from chemical releases and spills) and the Leaking Underground Storage Tank Program (soil and ground water contamination from leaking petroleum USTs).

Date of Government Version: 01/11/2016
Date Data Arrived at EDR: 01/12/2016
Date Made Active in Reports: 02/22/2016
Number of Days to Update: 41

Source: Alameda County Environmental Health Services
Telephone: 510-567-6700
Last EDR Contact: 04/11/2016
Next Scheduled EDR Contact: 07/25/2016
Data Release Frequency: Semi-Annually

Underground Tanks

Underground storage tank sites located in Alameda county.

Date of Government Version: 01/11/2016
Date Data Arrived at EDR: 01/14/2016
Date Made Active in Reports: 03/01/2016
Number of Days to Update: 47

Source: Alameda County Environmental Health Services
Telephone: 510-567-6700
Last EDR Contact: 04/11/2016
Next Scheduled EDR Contact: 07/25/2016
Data Release Frequency: Semi-Annually

AMADOR COUNTY:

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

CUPA Facility List
Cupa Facility List

Date of Government Version: 03/21/2016
Date Data Arrived at EDR: 03/22/2016
Date Made Active in Reports: 05/04/2016
Number of Days to Update: 43

Source: Amador County Environmental Health
Telephone: 209-223-6439
Last EDR Contact: 03/21/2016
Next Scheduled EDR Contact: 06/20/2016
Data Release Frequency: Varies

BUTTE COUNTY:

CUPA Facility Listing
Cupa facility list.

Date of Government Version: 02/19/2016
Date Data Arrived at EDR: 02/23/2016
Date Made Active in Reports: 04/01/2016
Number of Days to Update: 38

Source: Public Health Department
Telephone: 530-538-7149
Last EDR Contact: 05/23/2016
Next Scheduled EDR Contact: 07/25/2016
Data Release Frequency: No Update Planned

CALVERAS COUNTY:

CUPA Facility Listing
Cupa Facility Listing

Date of Government Version: 02/02/2016
Date Data Arrived at EDR: 02/04/2016
Date Made Active in Reports: 02/22/2016
Number of Days to Update: 18

Source: Calveras County Environmental Health
Telephone: 209-754-6399
Last EDR Contact: 03/28/2016
Next Scheduled EDR Contact: 07/11/2016
Data Release Frequency: Quarterly

COLUSA COUNTY:

CUPA Facility List
Cupa facility list.

Date of Government Version: 02/22/2016
Date Data Arrived at EDR: 02/24/2016
Date Made Active in Reports: 04/01/2016
Number of Days to Update: 37

Source: Health & Human Services
Telephone: 530-458-0396
Last EDR Contact: 05/23/2016
Next Scheduled EDR Contact: 08/22/2016
Data Release Frequency: Varies

CONTRA COSTA COUNTY:

Site List
List includes sites from the underground tank, hazardous waste generator and business plan/2185 programs.

Date of Government Version: 02/24/2016
Date Data Arrived at EDR: 02/26/2016
Date Made Active in Reports: 04/01/2016
Number of Days to Update: 35

Source: Contra Costa Health Services Department
Telephone: 925-646-2286
Last EDR Contact: 05/02/2016
Next Scheduled EDR Contact: 08/15/2016
Data Release Frequency: Semi-Annually

DEL NORTE COUNTY:

CUPA Facility List
Cupa Facility list

Date of Government Version: 01/22/2016
Date Data Arrived at EDR: 02/05/2016
Date Made Active in Reports: 03/07/2016
Number of Days to Update: 31

Source: Del Norte County Environmental Health Division
Telephone: 707-465-0426
Last EDR Contact: 04/29/2016
Next Scheduled EDR Contact: 08/15/2016
Data Release Frequency: Varies

EL DORADO COUNTY:

CUPA Facility List
CUPA facility list.

Date of Government Version: 02/22/2016
Date Data Arrived at EDR: 02/24/2016
Date Made Active in Reports: 04/01/2016
Number of Days to Update: 37

Source: El Dorado County Environmental Management Department
Telephone: 530-621-6623
Last EDR Contact: 05/02/2016
Next Scheduled EDR Contact: 08/15/2016
Data Release Frequency: Varies

FRESNO COUNTY:

CUPA Resources List
Certified Unified Program Agency. CUPA's are responsible for implementing a unified hazardous materials and hazardous waste management regulatory program. The agency provides oversight of businesses that deal with hazardous materials, operate underground storage tanks or aboveground storage tanks.

Date of Government Version: 04/04/2016
Date Data Arrived at EDR: 04/06/2016
Date Made Active in Reports: 05/04/2016
Number of Days to Update: 28

Source: Dept. of Community Health
Telephone: 559-445-3271
Last EDR Contact: 04/04/2016
Next Scheduled EDR Contact: 07/18/2016
Data Release Frequency: Semi-Annually

HUMBOLDT COUNTY:

CUPA Facility List
CUPA facility list.

Date of Government Version: 03/16/2016
Date Data Arrived at EDR: 03/21/2016
Date Made Active in Reports: 05/04/2016
Number of Days to Update: 44

Source: Humboldt County Environmental Health
Telephone: N/A
Last EDR Contact: 05/23/2016
Next Scheduled EDR Contact: 09/05/2016
Data Release Frequency: Varies

IMPERIAL COUNTY:

CUPA Facility List
Cupa facility list.

Date of Government Version: 01/25/2016
Date Data Arrived at EDR: 01/27/2016
Date Made Active in Reports: 02/22/2016
Number of Days to Update: 26

Source: San Diego Border Field Office
Telephone: 760-339-2777
Last EDR Contact: 04/21/2016
Next Scheduled EDR Contact: 08/08/2016
Data Release Frequency: Varies

INYO COUNTY:

CUPA Facility List
Cupa facility list.

Date of Government Version: 09/10/2013
Date Data Arrived at EDR: 09/11/2013
Date Made Active in Reports: 10/14/2013
Number of Days to Update: 33

Source: Inyo County Environmental Health Services
Telephone: 760-878-0238
Last EDR Contact: 05/23/2016
Next Scheduled EDR Contact: 09/05/2016
Data Release Frequency: Varies

KERN COUNTY:

Underground Storage Tank Sites & Tank Listing
Kern County Sites and Tanks Listing.

Date of Government Version: 03/01/2016
Date Data Arrived at EDR: 03/03/2016
Date Made Active in Reports: 05/09/2016
Number of Days to Update: 67

Source: Kern County Environment Health Services Department
Telephone: 661-862-8700
Last EDR Contact: 05/09/2016
Next Scheduled EDR Contact: 08/22/2016
Data Release Frequency: Quarterly

KINGS COUNTY:

CUPA Facility List
A listing of sites included in the county's Certified Unified Program Agency database. California's Secretary for Environmental Protection established the unified hazardous materials and hazardous waste regulatory program as required by chapter 6.11 of the California Health and Safety Code. The Unified Program consolidates the administration, permits, inspections, and enforcement activities.

Date of Government Version: 02/23/2016
Date Data Arrived at EDR: 02/25/2016
Date Made Active in Reports: 04/01/2016
Number of Days to Update: 36

Source: Kings County Department of Public Health
Telephone: 559-584-1411
Last EDR Contact: 05/23/2016
Next Scheduled EDR Contact: 09/05/2016
Data Release Frequency: Varies

LAKE COUNTY:

CUPA Facility List
Cupa facility list

Date of Government Version: 02/09/2016
Date Data Arrived at EDR: 02/12/2016
Date Made Active in Reports: 04/01/2016
Number of Days to Update: 49

Source: Lake County Environmental Health
Telephone: 707-263-1164
Last EDR Contact: 04/18/2016
Next Scheduled EDR Contact: 08/01/2016
Data Release Frequency: Varies

LOS ANGELES COUNTY:

San Gabriel Valley Areas of Concern
San Gabriel Valley areas where VOC contamination is at or above the MCL as designated by region 9 EPA office.

Date of Government Version: 03/30/2009
Date Data Arrived at EDR: 03/31/2009
Date Made Active in Reports: 10/23/2009
Number of Days to Update: 206

Source: EPA Region 9
Telephone: 415-972-3178
Last EDR Contact: 03/21/2016
Next Scheduled EDR Contact: 07/04/2016
Data Release Frequency: No Update Planned

HMS: Street Number List
Industrial Waste and Underground Storage Tank Sites.

Date of Government Version: 03/30/2016
Date Data Arrived at EDR: 04/01/2016
Date Made Active in Reports: 05/09/2016
Number of Days to Update: 38

Source: Department of Public Works
Telephone: 626-458-3517
Last EDR Contact: 04/01/2016
Next Scheduled EDR Contact: 07/25/2016
Data Release Frequency: Semi-Annually

List of Solid Waste Facilities
Solid Waste Facilities in Los Angeles County.

Date of Government Version: 01/19/2016
Date Data Arrived at EDR: 01/20/2016
Date Made Active in Reports: 03/22/2016
Number of Days to Update: 62

Source: La County Department of Public Works
Telephone: 818-458-5185
Last EDR Contact: 04/20/2016
Next Scheduled EDR Contact: 08/01/2016
Data Release Frequency: Varies

City of Los Angeles Landfills
Landfills owned and maintained by the City of Los Angeles.

Date of Government Version: 01/01/2016
Date Data Arrived at EDR: 01/26/2016
Date Made Active in Reports: 03/22/2016
Number of Days to Update: 56

Source: Engineering & Construction Division
Telephone: 213-473-7869
Last EDR Contact: 04/18/2016
Next Scheduled EDR Contact: 08/01/2016
Data Release Frequency: Varies

Site Mitigation List
Industrial sites that have had some sort of spill or complaint.

Date of Government Version: 01/15/2015
Date Data Arrived at EDR: 01/29/2015
Date Made Active in Reports: 03/10/2015
Number of Days to Update: 40

Source: Community Health Services
Telephone: 323-890-7806
Last EDR Contact: 03/28/2016
Next Scheduled EDR Contact: 08/01/2016
Data Release Frequency: Annually

City of El Segundo Underground Storage Tank
Underground storage tank sites located in El Segundo city.

Date of Government Version: 03/30/2015
Date Data Arrived at EDR: 04/02/2015
Date Made Active in Reports: 04/13/2015
Number of Days to Update: 11

Source: City of El Segundo Fire Department
Telephone: 310-524-2236
Last EDR Contact: 04/18/2016
Next Scheduled EDR Contact: 08/01/2016
Data Release Frequency: Semi-Annually

City of Long Beach Underground Storage Tank
Underground storage tank sites located in the city of Long Beach.

Date of Government Version: 11/04/2015
Date Data Arrived at EDR: 11/13/2015
Date Made Active in Reports: 12/17/2015
Number of Days to Update: 34

Source: City of Long Beach Fire Department
Telephone: 562-570-2563
Last EDR Contact: 01/25/2016
Next Scheduled EDR Contact: 05/09/2016
Data Release Frequency: Annually

City of Torrance Underground Storage Tank
Underground storage tank sites located in the city of Torrance.

Date of Government Version: 01/12/2016
Date Data Arrived at EDR: 01/15/2016
Date Made Active in Reports: 02/08/2016
Number of Days to Update: 24

Source: City of Torrance Fire Department
Telephone: 310-618-2973
Last EDR Contact: 01/11/2016
Next Scheduled EDR Contact: 04/25/2016
Data Release Frequency: Semi-Annually

MADERA COUNTY:

CUPA Facility List

A listing of sites included in the county's Certified Unified Program Agency database. California's Secretary for Environmental Protection established the unified hazardous materials and hazardous waste regulatory program as required by chapter 6.11 of the California Health and Safety Code. The Unified Program consolidates the administration, permits, inspections, and enforcement activities.

Date of Government Version: 03/02/2016
Date Data Arrived at EDR: 03/07/2016
Date Made Active in Reports: 05/04/2016
Number of Days to Update: 58

Source: Madera County Environmental Health
Telephone: 559-675-7823
Last EDR Contact: 05/23/2016
Next Scheduled EDR Contact: 09/05/2016
Data Release Frequency: Varies

MARIN COUNTY:

Underground Storage Tank Sites

Currently permitted USTs in Marin County.

Date of Government Version: 10/05/2015
Date Data Arrived at EDR: 10/08/2015
Date Made Active in Reports: 10/15/2015
Number of Days to Update: 7

Source: Public Works Department Waste Management
Telephone: 415-499-6647
Last EDR Contact: 04/18/2016
Next Scheduled EDR Contact: 07/18/2016
Data Release Frequency: Semi-Annually

MERCED COUNTY:

CUPA Facility List

CUPA facility list.

Date of Government Version: 02/26/2016
Date Data Arrived at EDR: 03/01/2016
Date Made Active in Reports: 05/04/2016
Number of Days to Update: 64

Source: Merced County Environmental Health
Telephone: 209-381-1094
Last EDR Contact: 05/23/2016
Next Scheduled EDR Contact: 09/05/2016
Data Release Frequency: Varies

MONO COUNTY:

CUPA Facility List

CUPA Facility List

Date of Government Version: 03/03/2016
Date Data Arrived at EDR: 03/07/2016
Date Made Active in Reports: 05/04/2016
Number of Days to Update: 58

Source: Mono County Health Department
Telephone: 760-932-5580
Last EDR Contact: 02/29/2016
Next Scheduled EDR Contact: 06/13/2016
Data Release Frequency: Varies

MONTEREY COUNTY:

CUPA Facility Listing

CUPA Program listing from the Environmental Health Division.

Date of Government Version: 03/15/2016
Date Data Arrived at EDR: 03/18/2016
Date Made Active in Reports: 05/04/2016
Number of Days to Update: 47

Source: Monterey County Health Department
Telephone: 831-796-1297
Last EDR Contact: 05/23/2016
Next Scheduled EDR Contact: 09/05/2016
Data Release Frequency: Varies

NAPA COUNTY:

Sites With Reported Contamination
A listing of leaking underground storage tank sites located in Napa county.

Date of Government Version: 12/05/2011
Date Data Arrived at EDR: 12/06/2011
Date Made Active in Reports: 02/07/2012
Number of Days to Update: 63
Source: Napa County Department of Environmental Management
Telephone: 707-253-4269
Last EDR Contact: 02/29/2016
Next Scheduled EDR Contact: 06/13/2016
Data Release Frequency: No Update Planned

Closed and Operating Underground Storage Tank Sites
Underground storage tank sites located in Napa county.

Date of Government Version: 01/15/2008
Date Data Arrived at EDR: 01/16/2008
Date Made Active in Reports: 02/08/2008
Number of Days to Update: 23
Source: Napa County Department of Environmental Management
Telephone: 707-253-4269
Last EDR Contact: 02/29/2016
Next Scheduled EDR Contact: 06/13/2016
Data Release Frequency: No Update Planned

NEVADA COUNTY:

CUPA Facility List
CUPA facility list.

Date of Government Version: 01/27/2016
Date Data Arrived at EDR: 02/04/2016
Date Made Active in Reports: 02/22/2016
Number of Days to Update: 18
Source: Community Development Agency
Telephone: 530-265-1467
Last EDR Contact: 04/29/2016
Next Scheduled EDR Contact: 08/15/2016
Data Release Frequency: Varies

ORANGE COUNTY:

List of Industrial Site Cleanups
Petroleum and non-petroleum spills.

Date of Government Version: 02/01/2016
Date Data Arrived at EDR: 02/12/2016
Date Made Active in Reports: 04/01/2016
Number of Days to Update: 49
Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 05/09/2016
Next Scheduled EDR Contact: 08/22/2016
Data Release Frequency: Annually

List of Underground Storage Tank Cleanups
Orange County Underground Storage Tank Cleanups (LUST).

Date of Government Version: 02/01/2016
Date Data Arrived at EDR: 02/12/2016
Date Made Active in Reports: 04/01/2016
Number of Days to Update: 49
Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 05/09/2016
Next Scheduled EDR Contact: 08/22/2016
Data Release Frequency: Quarterly

List of Underground Storage Tank Facilities
Orange County Underground Storage Tank Facilities (UST).

Date of Government Version: 02/01/2016
Date Data Arrived at EDR: 02/10/2016
Date Made Active in Reports: 04/01/2016
Number of Days to Update: 51
Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 05/11/2016
Next Scheduled EDR Contact: 08/22/2016
Data Release Frequency: Quarterly

PLACER COUNTY:

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Master List of Facilities
List includes aboveground tanks, underground tanks and cleanup sites.

Date of Government Version: 03/07/2016
Date Data Arrived at EDR: 03/09/2016
Date Made Active in Reports: 05/04/2016
Number of Days to Update: 56
Source: Placer County Health and Human Services
Telephone: 530-745-2363
Last EDR Contact: 03/07/2016
Next Scheduled EDR Contact: 06/20/2016
Data Release Frequency: Semi-Annually

RIVERSIDE COUNTY:

Listing of Underground Tank Cleanup Sites
Riverside County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 04/13/2016
Date Data Arrived at EDR: 04/15/2016
Date Made Active in Reports: 05/09/2016
Number of Days to Update: 24
Source: Department of Environmental Health
Telephone: 951-358-5055
Last EDR Contact: 03/21/2016
Next Scheduled EDR Contact: 07/04/2016
Data Release Frequency: Quarterly

Underground Storage Tank Tank List
Underground storage tank sites located in Riverside county.

Date of Government Version: 01/20/2016
Date Data Arrived at EDR: 01/22/2016
Date Made Active in Reports: 03/22/2016
Number of Days to Update: 60
Source: Department of Environmental Health
Telephone: 951-358-5055
Last EDR Contact: 03/21/2016
Next Scheduled EDR Contact: 07/04/2016
Data Release Frequency: Quarterly

SACRAMENTO COUNTY:

Toxic Site Clean-Up List
List of sites where unauthorized releases of potentially hazardous materials have occurred.

Date of Government Version: 11/02/2015
Date Data Arrived at EDR: 01/05/2016
Date Made Active in Reports: 02/12/2016
Number of Days to Update: 38
Source: Sacramento County Environmental Management
Telephone: 916-875-8406
Last EDR Contact: 04/06/2016
Next Scheduled EDR Contact: 07/18/2016
Data Release Frequency: Quarterly

Master Hazardous Materials Facility List
Any business that has hazardous materials on site - hazardous material storage sites, underground storage tanks, waste generators.

Date of Government Version: 11/02/2015
Date Data Arrived at EDR: 01/05/2016
Date Made Active in Reports: 02/12/2016
Number of Days to Update: 38
Source: Sacramento County Environmental Management
Telephone: 916-875-8406
Last EDR Contact: 04/06/2016
Next Scheduled EDR Contact: 07/18/2016
Data Release Frequency: Quarterly

SAN BERNARDINO COUNTY:

Hazardous Material Permits
This listing includes underground storage tanks, medical waste handlers/generators, hazardous materials handlers, hazardous waste generators, and waste oil generators/handlers.

Date of Government Version: 03/15/2016
Date Data Arrived at EDR: 03/18/2016
Date Made Active in Reports: 05/09/2016
Number of Days to Update: 52

Source: San Bernardino County Fire Department Hazardous Materials Division
Telephone: 909-387-3041
Last EDR Contact: 05/09/2016
Next Scheduled EDR Contact: 08/22/2016
Data Release Frequency: Quarterly

SAN DIEGO COUNTY:

Hazardous Materials Management Division Database

The database includes: HE58 - This report contains the business name, site address, business phone number, establishment 'H' permit number, type of permit, and the business status. HE17 - In addition to providing the same information provided in the HE58 listing, HE17 provides inspection dates, violations received by the establishment, hazardous waste generated, the quantity, method of storage, treatment/disposal of waste and the hauler, and information on underground storage tanks. Unauthorized Release List - Includes a summary of environmental contamination cases in San Diego County (underground tank cases, non-tank cases, groundwater contamination, and soil contamination are included.)

Date of Government Version: 09/23/2013
Date Data Arrived at EDR: 09/24/2013
Date Made Active in Reports: 10/17/2013
Number of Days to Update: 23

Source: Hazardous Materials Management Division
Telephone: 619-338-2268
Last EDR Contact: 03/07/2016
Next Scheduled EDR Contact: 06/20/2016
Data Release Frequency: Quarterly

Solid Waste Facilities

San Diego County Solid Waste Facilities.

Date of Government Version: 10/31/2015
Date Data Arrived at EDR: 11/07/2015
Date Made Active in Reports: 01/04/2016
Number of Days to Update: 58

Source: Department of Health Services
Telephone: 619-338-2209
Last EDR Contact: 04/21/2016
Next Scheduled EDR Contact: 08/08/2016
Data Release Frequency: Varies

Environmental Case Listing

The listing contains all underground tank release cases and projects pertaining to properties contaminated with hazardous substances that are actively under review by the Site Assessment and Mitigation Program.

Date of Government Version: 03/23/2010
Date Data Arrived at EDR: 06/15/2010
Date Made Active in Reports: 07/09/2010
Number of Days to Update: 24

Source: San Diego County Department of Environmental Health
Telephone: 619-338-2371
Last EDR Contact: 03/03/2016
Next Scheduled EDR Contact: 06/20/2016
Data Release Frequency: No Update Planned

SAN FRANCISCO COUNTY:

Local Oversite Facilities

A listing of leaking underground storage tank sites located in San Francisco county.

Date of Government Version: 09/19/2008
Date Data Arrived at EDR: 09/19/2008
Date Made Active in Reports: 09/29/2008
Number of Days to Update: 10

Source: Department Of Public Health San Francisco County
Telephone: 415-252-3920
Last EDR Contact: 05/06/2016
Next Scheduled EDR Contact: 08/22/2016
Data Release Frequency: Quarterly

Underground Storage Tank Information

Underground storage tank sites located in San Francisco county.

Date of Government Version: 11/29/2010
Date Data Arrived at EDR: 03/10/2011
Date Made Active in Reports: 03/15/2011
Number of Days to Update: 5

Source: Department of Public Health
Telephone: 415-252-3920
Last EDR Contact: 05/06/2016
Next Scheduled EDR Contact: 08/22/2016
Data Release Frequency: Quarterly

SAN JOAQUIN COUNTY:

San Joaquin Co. UST
A listing of underground storage tank locations in San Joaquin county.

Date of Government Version: 04/06/2016
Date Data Arrived at EDR: 04/08/2016
Date Made Active in Reports: 05/04/2016
Number of Days to Update: 26
Source: Environmental Health Department
Telephone: N/A
Last EDR Contact: 04/04/2016
Next Scheduled EDR Contact: 07/04/2016
Data Release Frequency: Semi-Annually

SAN LUIS OBISPO COUNTY:

CUPA Facility List
Cupa Facility List.

Date of Government Version: 02/22/2016
Date Data Arrived at EDR: 02/24/2016
Date Made Active in Reports: 04/01/2016
Number of Days to Update: 37
Source: San Luis Obispo County Public Health Department
Telephone: 805-781-5596
Last EDR Contact: 05/23/2016
Next Scheduled EDR Contact: 09/05/2016
Data Release Frequency: Varies

SAN MATEO COUNTY:

Business Inventory
List includes Hazardous Materials Business Plan, hazardous waste generators, and underground storage tanks.

Date of Government Version: 10/14/2015
Date Data Arrived at EDR: 10/15/2015
Date Made Active in Reports: 11/16/2015
Number of Days to Update: 32
Source: San Mateo County Environmental Health Services Division
Telephone: 650-363-1921
Last EDR Contact: 03/28/2016
Next Scheduled EDR Contact: 06/27/2016
Data Release Frequency: Annually

Fuel Leak List
A listing of leaking underground storage tank sites located in San Mateo county.

Date of Government Version: 03/14/2016
Date Data Arrived at EDR: 03/15/2016
Date Made Active in Reports: 05/09/2016
Number of Days to Update: 55
Source: San Mateo County Environmental Health Services Division
Telephone: 650-363-1921
Last EDR Contact: 03/14/2016
Next Scheduled EDR Contact: 06/27/2016
Data Release Frequency: Semi-Annually

SANTA BARBARA COUNTY:

CUPA Facility Listing
CUPA Program Listing from the Environmental Health Services division.

Date of Government Version: 09/08/2011
Date Data Arrived at EDR: 09/09/2011
Date Made Active in Reports: 10/07/2011
Number of Days to Update: 28
Source: Santa Barbara County Public Health Department
Telephone: 805-686-8167
Last EDR Contact: 05/23/2016
Next Scheduled EDR Contact: 09/05/2016
Data Release Frequency: Varies

SANTA CLARA COUNTY:

Cupa Facility List
Cupa facility list

Date of Government Version: 02/22/2016
Date Data Arrived at EDR: 03/04/2016
Date Made Active in Reports: 05/09/2016
Number of Days to Update: 66

Source: Department of Environmental Health
Telephone: 408-918-1973
Last EDR Contact: 05/23/2016
Next Scheduled EDR Contact: 09/05/2016
Data Release Frequency: Varies

HIST LUST - Fuel Leak Site Activity Report

A listing of open and closed leaking underground storage tanks. This listing is no longer updated by the county. Leaking underground storage tanks are now handled by the Department of Environmental Health.

Date of Government Version: 03/29/2005
Date Data Arrived at EDR: 03/30/2005
Date Made Active in Reports: 04/21/2005
Number of Days to Update: 22

Source: Santa Clara Valley Water District
Telephone: 408-265-2600
Last EDR Contact: 03/23/2009
Next Scheduled EDR Contact: 06/22/2009
Data Release Frequency: No Update Planned

LOP Listing

A listing of leaking underground storage tanks located in Santa Clara county.

Date of Government Version: 03/03/2014
Date Data Arrived at EDR: 03/05/2014
Date Made Active in Reports: 03/18/2014
Number of Days to Update: 13

Source: Department of Environmental Health
Telephone: 408-918-3417
Last EDR Contact: 02/29/2016
Next Scheduled EDR Contact: 06/13/2016
Data Release Frequency: Annually

Hazardous Material Facilities

Hazardous material facilities, including underground storage tank sites.

Date of Government Version: 02/05/2016
Date Data Arrived at EDR: 02/10/2016
Date Made Active in Reports: 04/01/2016
Number of Days to Update: 51

Source: City of San Jose Fire Department
Telephone: 408-535-7694
Last EDR Contact: 05/23/2016
Next Scheduled EDR Contact: 08/22/2016
Data Release Frequency: Annually

SANTA CRUZ COUNTY:

CUPA Facility List

CUPA facility listing.

Date of Government Version: 02/26/2016
Date Data Arrived at EDR: 03/01/2016
Date Made Active in Reports: 05/04/2016
Number of Days to Update: 64

Source: Santa Cruz County Environmental Health
Telephone: 831-464-2761
Last EDR Contact: 05/23/2016
Next Scheduled EDR Contact: 09/05/2016
Data Release Frequency: Varies

SHASTA COUNTY:

CUPA Facility List

Cupa Facility List.

Date of Government Version: 03/18/2016
Date Data Arrived at EDR: 03/21/2016
Date Made Active in Reports: 05/04/2016
Number of Days to Update: 44

Source: Shasta County Department of Resource Management
Telephone: 530-225-5789
Last EDR Contact: 05/23/2016
Next Scheduled EDR Contact: 09/05/2016
Data Release Frequency: Varies

SOLANO COUNTY:

Leaking Underground Storage Tanks
A listing of leaking underground storage tank sites located in Solano county.

Date of Government Version: 03/14/2016
Date Data Arrived at EDR: 03/22/2016
Date Made Active in Reports: 05/09/2016
Number of Days to Update: 48

Source: Solano County Department of Environmental Management
Telephone: 707-784-6770
Last EDR Contact: 03/14/2016
Next Scheduled EDR Contact: 06/27/2016
Data Release Frequency: Quarterly

Underground Storage Tanks
Underground storage tank sites located in Solano county.

Date of Government Version: 03/14/2016
Date Data Arrived at EDR: 03/21/2016
Date Made Active in Reports: 05/04/2016
Number of Days to Update: 44

Source: Solano County Department of Environmental Management
Telephone: 707-784-6770
Last EDR Contact: 03/14/2016
Next Scheduled EDR Contact: 06/27/2016
Data Release Frequency: Quarterly

SONOMA COUNTY:

Cupa Facility List
Cupa Facility list

Date of Government Version: 04/05/2016
Date Data Arrived at EDR: 04/08/2016
Date Made Active in Reports: 05/04/2016
Number of Days to Update: 26

Source: County of Sonoma Fire & Emergency Services Department
Telephone: 707-565-1174
Last EDR Contact: 03/28/2016
Next Scheduled EDR Contact: 07/11/2016
Data Release Frequency: Varies

Leaking Underground Storage Tank Sites
A listing of leaking underground storage tank sites located in Sonoma county.

Date of Government Version: 04/01/2016
Date Data Arrived at EDR: 04/05/2016
Date Made Active in Reports: 05/09/2016
Number of Days to Update: 34

Source: Department of Health Services
Telephone: 707-565-6565
Last EDR Contact: 03/28/2016
Next Scheduled EDR Contact: 07/11/2016
Data Release Frequency: Quarterly

SUTTER COUNTY:

Underground Storage Tanks
Underground storage tank sites located in Sutter county.

Date of Government Version: 03/14/2016
Date Data Arrived at EDR: 03/15/2016
Date Made Active in Reports: 05/04/2016
Number of Days to Update: 50

Source: Sutter County Department of Agriculture
Telephone: 530-822-7500
Last EDR Contact: 03/07/2016
Next Scheduled EDR Contact: 06/20/2016
Data Release Frequency: Semi-Annually

TUOLUMNE COUNTY:

CUPA Facility List
Cupa facility list

Date of Government Version: 03/08/2016
Date Data Arrived at EDR: 03/11/2016
Date Made Active in Reports: 05/09/2016
Number of Days to Update: 59

Source: Divison of Environmental Health
Telephone: 209-533-5633
Last EDR Contact: 04/21/2016
Next Scheduled EDR Contact: 08/08/2016
Data Release Frequency: Varies

VENTURA COUNTY:

Business Plan, Hazardous Waste Producers, and Operating Underground Tanks

The BWT list indicates by site address whether the Environmental Health Division has Business Plan (B), Waste Producer (W), and/or Underground Tank (T) information.

Date of Government Version: 12/28/2015
Date Data Arrived at EDR: 01/29/2016
Date Made Active in Reports: 03/22/2016
Number of Days to Update: 53

Source: Ventura County Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 04/25/2016
Next Scheduled EDR Contact: 08/08/2016
Data Release Frequency: Quarterly

Inventory of Illegal Abandoned and Inactive Sites

Ventura County Inventory of Closed, Illegal Abandoned, and Inactive Sites.

Date of Government Version: 12/01/2011
Date Data Arrived at EDR: 12/01/2011
Date Made Active in Reports: 01/19/2012
Number of Days to Update: 49

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 04/04/2016
Next Scheduled EDR Contact: 07/18/2016
Data Release Frequency: Annually

Listing of Underground Tank Cleanup Sites

Ventura County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 05/29/2008
Date Data Arrived at EDR: 06/24/2008
Date Made Active in Reports: 07/31/2008
Number of Days to Update: 37

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 05/13/2016
Next Scheduled EDR Contact: 08/22/2016
Data Release Frequency: Quarterly

Medical Waste Program List

To protect public health and safety and the environment from potential exposure to disease causing agents, the Environmental Health Division Medical Waste Program regulates the generation, handling, storage, treatment and disposal of medical waste throughout the County.

Date of Government Version: 12/28/2015
Date Data Arrived at EDR: 01/29/2016
Date Made Active in Reports: 03/22/2016
Number of Days to Update: 53

Source: Ventura County Resource Management Agency
Telephone: 805-654-2813
Last EDR Contact: 04/25/2016
Next Scheduled EDR Contact: 08/08/2016
Data Release Frequency: Quarterly

Underground Tank Closed Sites List

Ventura County Operating Underground Storage Tank Sites (UST)/Underground Tank Closed Sites List.

Date of Government Version: 02/26/2016
Date Data Arrived at EDR: 03/17/2016
Date Made Active in Reports: 05/04/2016
Number of Days to Update: 48

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 03/17/2016
Next Scheduled EDR Contact: 06/27/2016
Data Release Frequency: Quarterly

YOLO COUNTY:

Underground Storage Tank Comprehensive Facility Report

Underground storage tank sites located in Yolo county.

Date of Government Version: 02/01/2016
Date Data Arrived at EDR: 02/05/2016
Date Made Active in Reports: 03/22/2016
Number of Days to Update: 46

Source: Yolo County Department of Health
Telephone: 530-666-8646
Last EDR Contact: 04/04/2016
Next Scheduled EDR Contact: 07/18/2016
Data Release Frequency: Annually

YUBA COUNTY:

CUPA Facility List
CUPA facility listing for Yuba County.

Date of Government Version: 02/01/2016
Date Data Arrived at EDR: 02/05/2016
Date Made Active in Reports: 02/22/2016
Number of Days to Update: 17

Source: Yuba County Environmental Health Department
Telephone: 530-749-7523
Last EDR Contact: 04/29/2016
Next Scheduled EDR Contact: 08/15/2016
Data Release Frequency: Varies

**OTHER DATABASE(S)**

Depending on the geographic area covered by this report, the data provided in these specialty databases may or may not be complete. For example, the existence of wetlands information data in a specific report does not mean that all wetlands in the area covered by the report are included. Moreover, the absence of any reported wetlands information does not necessarily mean that wetlands do not exist in the area covered by the report.

CT MANIFEST: Hazardous Waste Manifest Data
Facility and manifest data. Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a tsd facility.

Date of Government Version: 07/30/2013
Date Data Arrived at EDR: 08/19/2013
Date Made Active in Reports: 10/03/2013
Number of Days to Update: 45

Source: Department of Energy & Environmental Protection
Telephone: 860-424-3375
Last EDR Contact: 05/13/2016
Next Scheduled EDR Contact: 08/29/2016
Data Release Frequency: No Update Planned

NJ MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 12/31/2013
Date Data Arrived at EDR: 07/17/2015
Date Made Active in Reports: 08/12/2015
Number of Days to Update: 26

Source: Department of Environmental Protection
Telephone: N/A
Last EDR Contact: 04/12/2016
Next Scheduled EDR Contact: 07/25/2016
Data Release Frequency: Annually

NY MANIFEST: Facility and Manifest Data
Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a TSD facility.

Date of Government Version: 02/01/2016
Date Data Arrived at EDR: 02/03/2016
Date Made Active in Reports: 03/22/2016
Number of Days to Update: 48

Source: Department of Environmental Conservation
Telephone: 518-402-8651
Last EDR Contact: 05/06/2016
Next Scheduled EDR Contact: 08/15/2016
Data Release Frequency: Annually

PA MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 12/31/2014
Date Data Arrived at EDR: 07/24/2015
Date Made Active in Reports: 08/18/2015
Number of Days to Update: 25

Source: Department of Environmental Protection
Telephone: 717-783-8990
Last EDR Contact: 04/18/2016
Next Scheduled EDR Contact: 08/01/2016
Data Release Frequency: Annually

RI MANIFEST: Manifest information
Hazardous waste manifest information

Date of Government Version: 12/31/2013
Date Data Arrived at EDR: 06/19/2015
Date Made Active in Reports: 07/15/2015
Number of Days to Update: 26

Source: Department of Environmental Management
Telephone: 401-222-2797
Last EDR Contact: 05/23/2016
Next Scheduled EDR Contact: 09/05/2016
Data Release Frequency: Annually

WI MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 12/31/2014
Date Data Arrived at EDR: 03/19/2015
Date Made Active in Reports: 04/07/2015
Number of Days to Update: 19

Source: Department of Natural Resources
Telephone: N/A
Last EDR Contact: 03/14/2016
Next Scheduled EDR Contact: 06/27/2016
Data Release Frequency: Annually

Oil/Gas Pipelines
Source: PennWell Corporation
Petroleum Bundle (Crude Oil, Refined Products, Petrochemicals, Gas Liquids (LPG/NGL), and Specialty Gases (Miscellaneous)) N = Natural Gas Bundle (Natural Gas, Gas Liquids (LPG/NGL), and Specialty Gases (Miscellaneous)). This map includes information copyrighted by PennWell Corporation. This information is provided on a best effort basis and PennWell Corporation does not guarantee its accuracy nor warrant its fitness for any particular purpose. Such information has been reprinted with the permission of PennWell.

Electric Power Transmission Line Data
Source: PennWell Corporation
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Sensitive Receptors: There are individuals deemed sensitive receptors due to their fragile immune systems and special sensitivity to environmental discharges. These sensitive receptors typically include the elderly, the sick, and children. While the location of all sensitive receptors cannot be determined, EDR indicates those buildings and facilities - schools, daycares, hospitals, medical centers, and nursing homes - where individuals who are sensitive receptors are likely to be located.

AHA Hospitals:
Source: American Hospital Association, Inc.
Telephone: 312-280-5991
The database includes a listing of hospitals based on the American Hospital Association's annual survey of hospitals.

Medical Centers: Provider of Services Listing
Source: Centers for Medicare & Medicaid Services
Telephone: 410-786-3000
A listing of hospitals with Medicare provider number, produced by Centers of Medicare & Medicaid Services, a federal agency within the U.S. Department of Health and Human Services.

Nursing Homes
Source: National Institutes of Health
Telephone: 301-594-6248
Information on Medicare and Medicaid certified nursing homes in the United States.

Public Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on elementary and secondary public education in the United States. It is a comprehensive, annual, national statistical database of all public elementary and secondary schools and school districts, which contains data that are comparable across all states.

Private Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on private school locations in the United States.

Daycare Centers: Licensed Facilities
Source: Department of Social Services
Telephone: 916-657-4041

Flood Zone Data: This data, available in select counties across the country, was obtained by EDR in 2003 & 2011 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005 and 2010 from the U.S. Fish and Wildlife Service.

State Wetlands Data: Wetland Inventory
Source: Department of Fish & Game
Telephone: 916-445-0411

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Current USGS 7.5 Minute Topographic Map
Source: U.S. Geological Survey

**STREET AND ADDRESS INFORMATION**

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# GEOCHECK ®- PHYSICAL SETTING SOURCE ADDENDUM

**TARGET PROPERTY ADDRESS**

ROBINSON CREEK BRIDGE REPLACEMENT ON LAMBERT LANE
18050 LAMBERT LANE
BOONVILLE, CA 95415

**TARGET PROPERTY COORDINATES**

| | |
|---|---|
| Latitude (North): | 39.008454 - 39° 0' 30.43'' |
| Longitude (West): | 123.368248 - 123° 22' 5.69'' |
| Universal Tranverse Mercator: | Zone 10 |
| UTM X (Meters): | 468115.7 |
| UTM Y (Meters): | 4317571.0 |
| Elevation: | 374 ft. above sea level |

**USGS TOPOGRAPHIC MAP**

| | |
|---|---|
| Target Property Map: | 5602854 BOONVILLE, CA |
| Version Date: | 2012 |
| Southeast Map: | 5603878 ORNBAUN VALLEY, CA |
| Version Date: | 2012 |
| Southwest Map: | 5603894 ZENI RIDGE, CA |
| Version Date: | 2012 |
| Northwest Map: | 5602894 PHILO, CA |
| Version Date: | 2012 |

EDR's GeoCheck Physical Setting Source Addendum is provided to assist the environmental professional in forming an opinion about the impact of potential contaminant migration.

Assessment of the impact of contaminant migration generally has two principal investigative components:

1. Groundwater flow direction, and
2. Groundwater flow velocity.

Groundwater flow direction may be impacted by surface topography, hydrology, hydrogeology, characteristics of the soil, and nearby wells. Groundwater flow velocity is generally impacted by the nature of the geologic strata.

# GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

**GROUNDWATER FLOW DIRECTION INFORMATION**

Groundwater flow direction for a particular site is best determined by a qualified environmental professional using site-specific well data. If such data is not reasonably ascertainable, it may be necessary to rely on other sources of information, such as surface topographic information, hydrologic information, hydrogeologic data collected on nearby properties, and regional groundwater flow information (from deep aquifers).

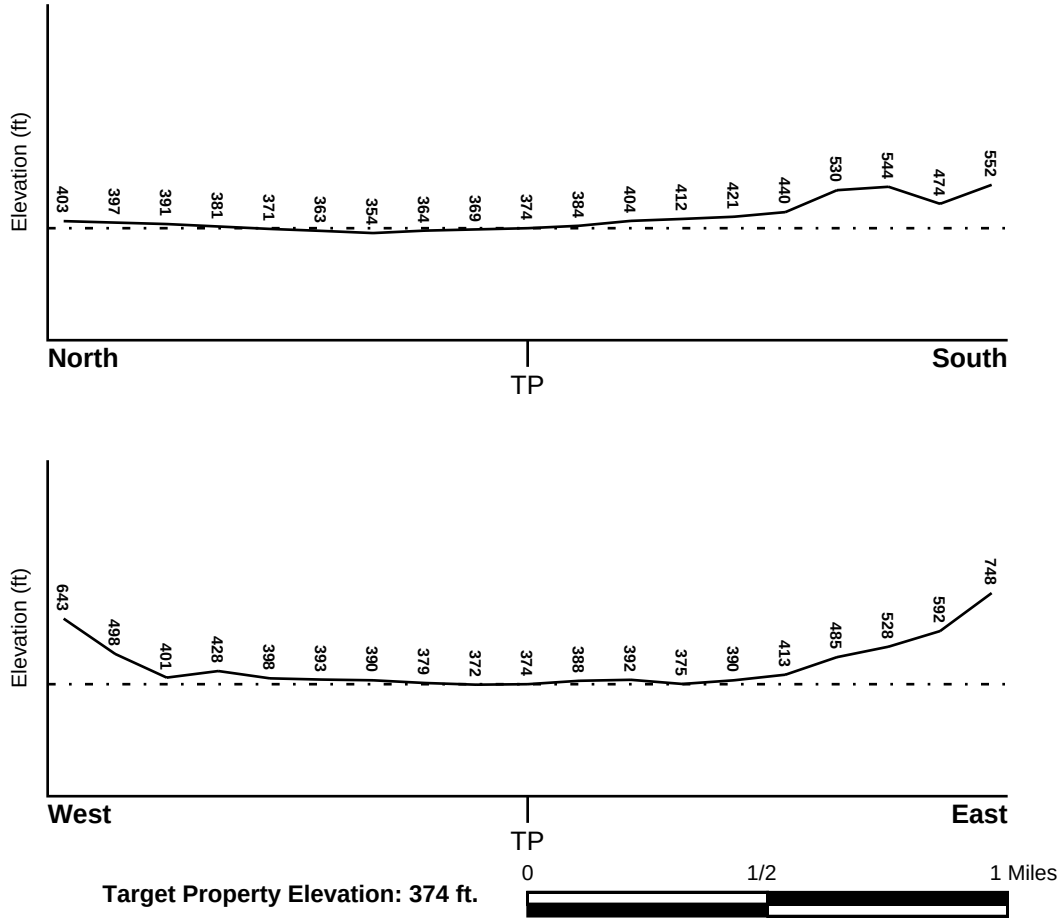
**TOPOGRAPHIC INFORMATION**

Surface topography may be indicative of the direction of surficial groundwater flow. This information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

**TARGET PROPERTY TOPOGRAPHY**

General Topographic Gradient: General North

**SURROUNDING TOPOGRAPHY: ELEVATION PROFILES**




**Target Property Elevation: 374 ft.**

Source: Topography has been determined from the USGS 7.5' Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified.

# GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

## HYDROLOGIC INFORMATION

Surface water can act as a hydrologic barrier to groundwater flow. Such hydrologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Refer to the Physical Setting Source Map following this summary for hydrologic information (major waterways and bodies of water).

### FEMA FLOOD ZONE

| Target Property County | FEMA Flood Electronic Data |
|---|---|
| MENDOCINO, CA | YES - refer to the Overview Map and Detail Map |

Flood Plain Panel at Target Property: 0601830887B - FEMA Q3 Flood data

Additional Panels in search area: 0601830886B - FEMA Q3 Flood data

### NATIONAL WETLAND INVENTORY

| NWI Quad at Target Property | NWI Electronic Data Coverage |
|---|---|
| NOT AVAILABLE | YES - refer to the Overview Map and Detail Map |

## HYDROGEOLOGIC INFORMATION

Hydrogeologic information obtained by installation of wells on a specific site can often be an indicator of groundwater flow direction in the immediate area. Such hydrogeologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

***Site-Specific Hydrogeological Data*:***

| | |
|---|---|
| Search Radius: | 1.25 miles |
| Status: | Not found |

## AQUIFLOW®

Search Radius: 1.000 Mile.

EDR has developed the AQUIFLOW Information System to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted by environmental professionals to regulatory authorities at select sites and has extracted the date of the report, groundwater flow direction as determined hydrogeologically, and the depth to water table.

| MAP ID | LOCATION FROM TP | GENERAL DIRECTION GROUNDWATER FLOW |
|---|---|---|
| Not Reported | | |

* ©1996 Site--specific hydrogeological data gathered by CERCLIS Alerts, Inc., Bainbridge Island, WA. All rights reserved. All of the information and opinions presented are those of the cited EPA report(s), which were completed under a Comprehensive Environmental Response Compensation and Liability Information System (CERCLIS) investigation.

# GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

**GROUNDWATER FLOW VELOCITY INFORMATION**

Groundwater flow velocity information for a particular site is best determined by a qualified environmental professional using site specific geologic and soil strata data. If such data are not reasonably ascertainable, it may be necessary to rely on other sources of information, including geologic age identification, rock stratigraphic unit and soil characteristics data collected on nearby properties and regional soil information. In general, contaminant plumes move more quickly through sandy-gravelly types of soils than silty-clayey types of soils.

**GEOLOGIC INFORMATION IN GENERAL AREA OF TARGET PROPERTY**

Geologic information can be used by the environmental professional in forming an opinion about the relative speed at which contaminant migration may be occurring.

**ROCK STRATIGRAPHIC UNIT**

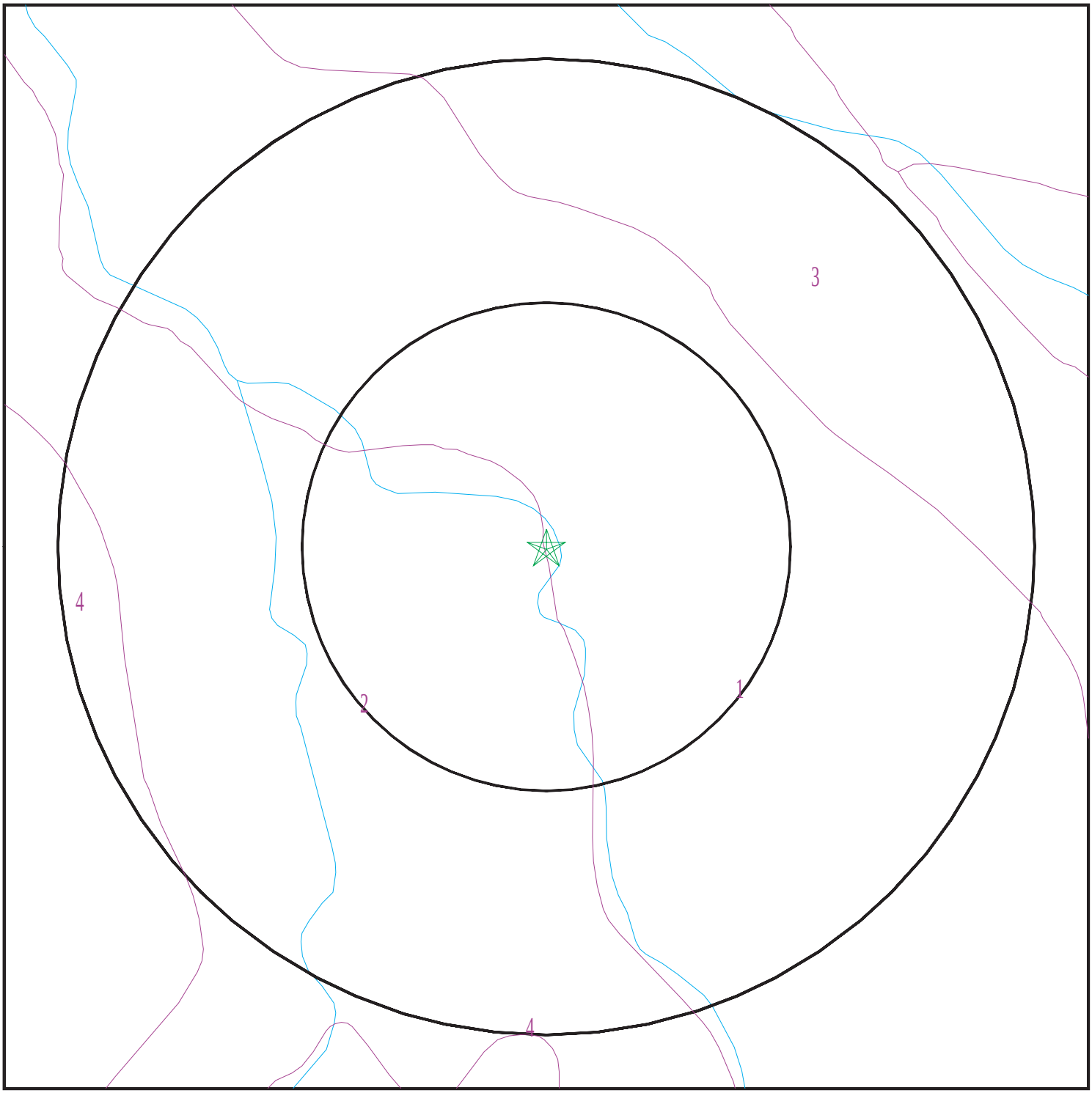
| | |
|---|---|
| Era: | Mesozoic |
| System: | Cretaceous |
| Series: | Upper Mesozoic |
| Code: | uMze*(decoded above as Era, System & Series)* |

**GEOLOGIC AGE IDENTIFICATION**

Category: Eugeosynclinal Deposits

Geologic Age and Rock Stratigraphic Unit Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - a digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

# SSURGO SOIL MAP - 4635090.2s




Target Property
SSURGO Soil
Water

0 1/16 1/8 1/4 Miles

N

| | | | |
|---|---|---|---|
| SITE NAME: | Robinson Creek Bridge Replacement On Lambert Lane | CLIENT: | Crawford & Associates Inc. |
| ADDRESS: | 18050 Lambert Lane<br>Boonville CA 95415 | CONTACT: | Julie Price |
| LAT/LONG: | 39.008454 / 123.368248 | INQUIRY #: | 4635090.2s |
| | | DATE: | June 01, 2016 9:40 pm |

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# GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

**DOMINANT SOIL COMPOSITION IN GENERAL AREA OF TARGET PROPERTY**

The U.S. Department of Agriculture's (USDA) Soil Conservation Service (SCS) leads the National Cooperative Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. The following information is based on Soil Conservation Service SSURGO data.

---

**Soil Map ID: 1**

Soil Component Name: Pinole

Soil Surface Texture: loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

**Soil Layer Information**

| | Boundary | | | Classification | | Saturated hydraulic conductivity micro m/sec | Soil Reaction (pH) |
|---|---|---|---|---|---|---|---|
| Layer | Upper | Lower | Soil Texture Class | AASHTO Group | Unified Soil | | |
| 1 | 0 inches | 9 inches | loam | Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils. | FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay. FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt. | Max: 14.11 Min: 4.23 | Max: 6.5 Min: 5.6 |
| 2 | 9 inches | 61 inches | sandy clay loam | Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils. | FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay | Max: 4.23 Min: 1.41 | Max: 6.5 Min: 5.6 |

**Soil Map ID: 2**

Soil Component Name: Boontling

Soil Surface Texture: loam

Hydrologic Group: Class C - Slow infiltration rates. Soils with layers impeding downward movement of water, or soils with moderately fine or fine textures.

Soil Drainage Class: Somewhat poorly drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 92 inches

**Soil Layer Information**

| | Boundary | | | Classification | | Saturated hydraulic conductivity micro m/sec | Soil Reaction (pH) |
|---|---|---|---|---|---|---|---|
| Layer | Upper | Lower | Soil Texture Class | AASHTO Group | Unified Soil | | |
| 1 | 0 inches | 11 inches | loam | Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils. | FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay. FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt. | Max: 14.11 Min: 4.23 | Max: 6.5 Min: 5.6 |
| 2 | 11 inches | 29 inches | loam | Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils. | FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay | Max: 14.11 Min: 4.23 | Max: 7.3 Min: 5.6 |
| 3 | 29 inches | 40 inches | clay loam | Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils. | FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay | Max: 4.23 Min: 1.41 | Max: 7.3 Min: 5.6 |
| 4 | 40 inches | 59 inches | gravelly clay loam | Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils. | FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay | Max: 4.23 Min: 1.41 | Max: 7.3 Min: 5.6 |

**Soil Map ID: 3**

Soil Component Name: Feliz

Soil Surface Texture: loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

**Soil Layer Information**

| | Boundary | | | Classification | | Saturated hydraulic conductivity micro m/sec | Soil Reaction (pH) |
|---|---|---|---|---|---|---|---|
| Layer | Upper | Lower | Soil Texture Class | AASHTO Group | Unified Soil | | |
| 1 | 0 inches | 27 inches | loam | Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils. | FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay. FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt. | Max: 14.11 Min: 4.23 | Max: 6.5 Min: 5.6 |
| 2 | 27 inches | 59 inches | loam | Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils. | FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay | Max: 14.11 Min: 4.23 | Max: 6.5 Min: 5.6 |

**Soil Map ID: 4**

Soil Component Name: Cole

Soil Surface Texture: loam

Hydrologic Group: Class C - Slow infiltration rates. Soils with layers impeding downward movement of water, or soils with moderately fine or fine textures.

Soil Drainage Class: Somewhat poorly drained

# GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 92 inches

| Soil Layer Information | | | | | | | |
|---|---|---|---|---|---|---|---|
| | Boundary | | | Classification | | Saturated hydraulic conductivity micro m/sec | Soil Reaction (pH) |
| Layer | Upper | Lower | Soil Texture Class | AASHTO Group | Unified Soil | | |
| 1 | 0 inches | 18 inches | loam | Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils. | FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt. | Max: 14.11<br>Min: 4.23 | Max: 7.3<br>Min: 6.1 |
| 2 | 18 inches | 59 inches | clay | Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils. | FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay | Max: 1.41<br>Min: 0.42 | Max: 7.3<br>Min: 5.6 |

## LOCAL / REGIONAL WATER AGENCY RECORDS

EDR Local/Regional Water Agency records provide water well information to assist the environmental professional in assessing sources that may impact ground water flow direction, and in forming an opinion about the impact of contaminant migration on nearby drinking water wells.

## WELL SEARCH DISTANCE INFORMATION

| DATABASE | SEARCH DISTANCE (miles) |
|---|---|
| Federal USGS | 1.000 |
| Federal FRDS PWS | Nearest PWS within 0.001 miles |
| State Database | 1.000 |

## FEDERAL USGS WELL INFORMATION

| MAP ID | WELL ID | LOCATION FROM TP |
|---|---|---|
| B5 | USGS40000191088 | 1/4 - 1/2 Mile NW |

## FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION

| MAP ID | WELL ID | LOCATION FROM TP |
|---|---|---|

# GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

**FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION**

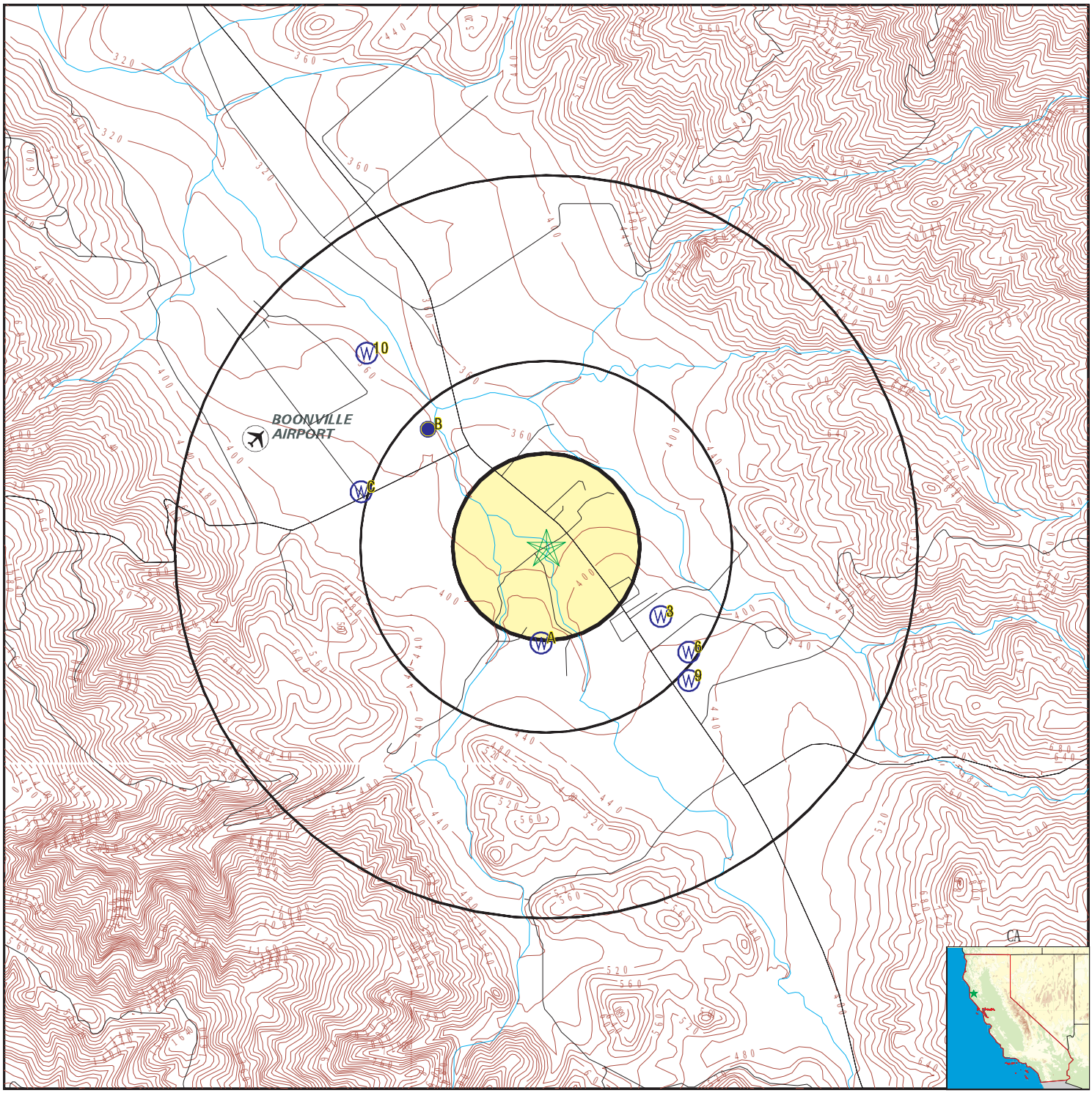
| MAP ID | WELL ID | LOCATION FROM TP |
|---|---|---|
| No PWS System Found | | |

Note: PWS System location is not always the same as well location.

**STATE DATABASE WELL INFORMATION**

| MAP ID | WELL ID | LOCATION FROM TP |
|---|---|---|
| A1 | CADW60000001143 | 1/4 - 1/2 Mile South |
| A2 | CADW60000014903 | 1/4 - 1/2 Mile South |
| 3 | 11263 | 1/4 - 1/2 Mile ESE |
| B4 | 11262 | 1/4 - 1/2 Mile NW |
| 6 | 11265 | 1/4 - 1/2 Mile SE |
| C7 | CADW60000001144 | 1/2 - 1 Mile WNW |
| C8 | CADW60000014904 | 1/2 - 1 Mile WNW |
| 9 | 11264 | 1/2 - 1 Mile SE |
| 10 | 11261 | 1/2 - 1 Mile NW |

# PHYSICAL SETTING SOURCE MAP - 4635090.2s




- County Boundary
- Major Roads
- Contour Lines
- Earthquake Fault Lines
- Airports
- Earthquake epicenter, Richter 5 or greater
- Water Wells
- Public Water Supply Wells
- Cluster of Multiple Icons
- Groundwater Flow Direction
- GI Indeterminate Groundwater Flow at Location
- GV Groundwater Flow Varies at Location
- HD Closest Hydrogeological Data
- Oil, gas or related wells

| | | | |
|---|---|---|---|
| SITE NAME: | Robinson Creek Bridge Replacement On Lambert Lane | CLIENT: | Crawford & Associates Inc. |
| ADDRESS: | 18050 Lambert Lane<br>Boonville CA 95415 | CONTACT: | Julie Price |
| | | INQUIRY #: | 4635090.2s |
| LAT/LONG: | 39.008454 / 123.368248 | DATE: | June 01, 2016 9:40 pm |

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# GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

**A1**
**South**
**1/4 - 1/2 Mile**
**Higher**

**CA WELLS** **CADW60000001143**

| | |
|---|---|
| Objectid: | 1143 |
| Latitude: | 39.0047 |
| Longitude: | -123.3685 |
| Site code: | 390047N1233685W002 |
| State well numbe: | 13N14W11B002M |
| Local well name: | 'AV-1B' |
| Well use id: | 1 |
| Well use descrip: | Observation |
| County id: | 23 |
| County name: | Mendocino |
| Basin code: | '1-19' |
| Basin desc: | Anderson Valley |
| Dwr region id: | 80236 |
| Dwr region: | North Central Region Office |
| Site id: | CADW60000001143 |

---

**A2**
**South**
**1/4 - 1/2 Mile**
**Higher**

**CA WELLS** **CADW60000014903**

| | |
|---|---|
| Objectid: | 14903 |
| Latitude: | 39.0047 |
| Longitude: | -123.3685 |
| Site code: | 390047N1233685W001 |
| State well numbe: | 13N14W11B001M |
| Local well name: | 'AV-1A' |
| Well use id: | 1 |
| Well use descrip: | Observation |
| County id: | 23 |
| County name: | Mendocino |
| Basin code: | '1-19' |
| Basin desc: | Anderson Valley |
| Dwr region id: | 80236 |
| Dwr region: | North Central Region Office |
| Site id: | CADW60000014903 |

---

**3**
**ESE**
**1/4 - 1/2 Mile**
**Higher**

**CA WELLS** **11263**

**Water System Information:**

| | | | |
|---|---|---|---|
| Prime Station Code: | 13N/14W-11A07 M | User ID: | RXR |
| FRDS Number: | 2300733001 | County: | Mendocino |
| District Number: | 03 | Station Type: | WELL/AMBNT/MUN/INTAKE |
| Water Type: | Well/Groundwater | Well Status: | Active Untreated |
| Source Lat/Long: | 390021.0 1232141.0 | Precision: | 1,000 Feet (10 Seconds) |
| Source Name: | MAIN WELL | | |

System Number: 2300733
System Name: HAEHL STREET WATER SYSTEM
Organization That Operates System:
P.O. BOX 3
BOONVILLE, CA 95415
Pop Served: 587 Connections: 7
Area Served: Not Reported

---

**B4**
**NW** **CA WELLS** **11262**
**1/4 - 1/2 Mile**
**Higher**

**Water System Information:**

| | | | |
|---|---|---|---|
| Prime Station Code: | 13N/14W-02L01 M | User ID: | RXR |
| FRDS Number: | 2300764001 | County: | Mendocino |
| District Number: | 03 | Station Type: | WELL/AMBNT/MUN/INTAKE |
| Water Type: | Well/Groundwater | Well Status: | Active Raw |
| Source Lat/Long: | 390046.0 1232222.0 | Precision: | 1,000 Feet (10 Seconds) |
| Source Name: | RIVER WELL | | |
| System Number: | 2300764 | | |
| System Name: | Anderson Valley High School | | |
| Organization That Operates System: | | | |
| | P.O. BOX 457 | | |
| | BOONVILLE, CA 95415 | | |
| Pop Served: | 400 | Connections: | 4 |
| Area Served: | Not Reported | | |

---

**B5**
**NW** **FED USGS** **USGS40000191088**
**1/4 - 1/2 Mile**
**Lower**

| | | | |
|---|---|---|---|
| Org. Identifier: | USGS-CA | | |
| Formal name: | USGS California Water Science Center | | |
| Monloc Identifier: | USGS-390048123222701 | | |
| Monloc name: | 013N014W02L001M | | |
| Monloc type: | Well | | |
| Monloc desc: | Not Reported | | |
| Huc code: | 18010108 | Drainagearea value: | Not Reported |
| Drainagearea Units: | Not Reported | Contrib drainagearea: | Not Reported |
| Contrib drainagearea units: | Not Reported | Latitude: | 39.0134167 |
| Longitude: | -123.3743889 | Sourcemap scale: | 24000 |
| Horiz Acc measure: | .5 | Horiz Acc measure units: | seconds |
| Horiz Collection method: | Global positioning system (GPS), uncorrected | | |
| Horiz coord refsys: | NAD83 | Vert measure val: | 363 |
| Vert measure units: | feet | Vertacc measure val: | 10 |
| Vert accmeasure units: | feet | | |
| Vertcollection method: | Interpolated from digital elevation model (DEM) | | |
| Vert coord refsys: | NAVD88 | Countrycode: | US |
| Aquifername: | California Coastal Basin aquifers | | |
| Formation type: | Not Reported | | |
| Aquifer type: | Not Reported | | |
| Construction date: | 19951113 | Welldepth: | 120 |
| Welldepth units: | ft | Wellholedepth: | 135 |
| Wellholedepth units: | ft | | |

Ground-water levels, Number of Measurements: 0

# GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

**6**
**SE**
**1/4 - 1/2 Mile**
**Higher**

**CA WELLS** **11265**

**Water System Information:**

| | | | |
|---|---|---|---|
| Prime Station Code: | 13N/14W-12D04 M | User ID: | 23C |
| FRDS Number: | 2300830001 | County: | Mendocino |
| District Number: | 53 | Station Type: | WELL/AMBNT/MUN/INTAKE |
| Water Type: | Well/Groundwater | Well Status: | Active Raw |
| Source Lat/Long: | 390016.0 1232136.0 | Precision: | 1,000 Feet (10 Seconds) |
| Source Name: | NEW WELL | | |
| System Number: | 2300830 | | |
| System Name: | BOONVILLE APARTMENTS | | |
| Organization That Operates System: | | | |
| | 1144 HELEN AVE. | | |
| | UKIAH, CA 95482 | | |
| Pop Served: | 44 | Connections: | 11 |
| Area Served: | Not Reported | | |
| Sample Collected: | 22-MAR-12 | Findings: | 0.14 MG/L |
| Chemical: | FLUORIDE (F) (NATURAL-SOURCE) | | |
| Sample Collected: | 22-MAR-12 | Findings: | 130. UG/L |
| Chemical: | BARIUM | | |
| Sample Collected: | 25-SEP-14 | Findings: | . 230. US |
| Chemical: | SPECIFIC CONDUCTANCE | | |
| Sample Collected: | 13-MAY-15 | Findings: | . 250. US |
| Chemical: | SPECIFIC CONDUCTANCE | | |
| Sample Collected: | 20-MAY-15 | Findings: | . 0.12 MG/L |
| Chemical: | FLUORIDE (F) (NATURAL-SOURCE) | | |
| Sample Collected: | 20-MAY-15 | Findings: | . 140. UG/L |
| Chemical: | BARIUM | | |

---

**C7**
**WNW**
**1/2 - 1 Mile**
**Higher**

**CA WELLS** **CADW60000001144**

| | |
|---|---|
| Objectid: | 1144 |
| Latitude: | 39.0106 |
| Longitude: | -123.3775 |
| Site code: | 390106N1233775W001 |
| State well numbe: | 13N14W02N001M |
| Local well name: | 'AV-2B' |
| Well use id: | 1 |
| Well use descrip: | Observation |
| County id: | 23 |
| County name: | Mendocino |
| Basin code: | '1-19' |
| Basin desc: | Anderson Valley |
| Dwr region id: | 80236 |
| Dwr region: | North Central Region Office |
| Site id: | CADW60000001144 |

# GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

**C8**
**WNW**
**1/2 - 1 Mile**
**Higher** | **CA WELLS** | **CADW60000014904**

| | |
|---|---|
| Objectid: | 14904 |
| Latitude: | 39.0106 |
| Longitude: | -123.3775 |
| Site code: | 390106N1233775W002 |
| State well numbe: | 13N14W02N002M |
| Local well name: | 'AV-2A' |
| Well use id: | 1 |
| Well use descrip: | Observation |
| County id: | 23 |
| County name: | Mendocino |
| Basin code: | '1-19' |
| Basin desc: | Anderson Valley |
| Dwr region id: | 80236 |
| Dwr region: | North Central Region Office |
| Site id: | CADW60000014904 |

---

**9**
**SE**
**1/2 - 1 Mile**
**Higher** | **CA WELLS** | **11264**

**Water System Information:**

| | | | |
|---|---|---|---|
| Prime Station Code: | 13N/14W-12D03 M | User ID: | 23C |
| FRDS Number: | 2300830002 | County: | Mendocino |
| District Number: | 53 | Station Type: | WELL/AMBNT/MUN/INTAKE |
| Water Type: | Well/Groundwater | Well Status: | Active Raw |
| Source Lat/Long: | 390012.0 1232136.0 | Precision: | 1,000 Feet (10 Seconds) |
| Source Name: | WELL 01 | | |
| System Number: | 2300830 | | |
| System Name: | BOONVILLE APARTMENTS | | |
| Organization That Operates System: | | | |
| | 1144 HELEN AVE. | | |
| | UKIAH, CA 95482 | | |
| Pop Served: | 44 | Connections: | 11 |
| Area Served: | Not Reported | | |

---

**10**
**NW**
**1/2 - 1 Mile**
**Lower** | **CA WELLS** | **11261**

**Water System Information:**

| | | | |
|---|---|---|---|
| Prime Station Code: | 13N/14W-02E01 M | User ID: | RXR |
| FRDS Number: | 2300506001 | County: | Mendocino |
| District Number: | 03 | Station Type: | WELL/AMBNT/MUN/INTAKE |
| Water Type: | Well/Groundwater | Well Status: | Active Raw |
| Source Lat/Long: | 390058.0 1232234.0 | Precision: | 1,000 Feet (10 Seconds) |
| Source Name: | WELL 01 | | |

# GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

System Number: 2300506
System Name: MEADOW ESTATES MUTUAL
Organization That Operates System:
P.O. BOX 64
BOONVILLE, CA 95415
Pop Served: 45 Connections: 15
Area Served: Not Reported

# GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS
# RADON

**AREA RADON INFORMATION**

State Database: CA Radon

Radon Test Results

| Zipcode | Num Tests | > 4 pCi/L |
|---|---|---|
| 95415 | 2 | 0 |

Federal EPA Radon Zone for MENDOCINO County: 3

Note: Zone 1 indoor average level > 4 pCi/L.
: Zone 2 indoor average level >= 2 pCi/L and <= 4 pCi/L.
: Zone 3 indoor average level < 2 pCi/L.

---

Federal Area Radon Information for Zip Code: 95415

Number of sites tested: 1

| Area | Average Activity | % <4 pCi/L | % 4-20 pCi/L | % >20 pCi/L |
|---|---|---|---|---|
| Living Area - 1st Floor | 1.300 pCi/L | 100% | 0% | 0% |
| Living Area - 2nd Floor | Not Reported | Not Reported | Not Reported | Not Reported |
| Basement | Not Reported | Not Reported | Not Reported | Not Reported |

# PHYSICAL SETTING SOURCE RECORDS SEARCHED

## TOPOGRAPHIC INFORMATION

USGS 7.5' Digital Elevation Model (DEM)
Source: United States Geologic Survey
EDR acquired the USGS 7.5' Digital Elevation Model in 2002 and updated it in 2006. The 7.5 minute DEM corresponds to the USGS 1:24,000- and 1:25,000-scale topographic quadrangle maps. The DEM provides elevation data with consistent elevation units and projection.

Current USGS 7.5 Minute Topographic Map
Source: U.S. Geological Survey

## HYDROLOGIC INFORMATION

Flood Zone Data: This data, available in select counties across the country, was obtained by EDR in 2003 & 2011 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005 and 2010 from the U.S. Fish and Wildlife Service.

State Wetlands Data: Wetland Inventory
Source: Department of Fish & Game
Telephone: 916-445-0411

## HYDROGEOLOGIC INFORMATION

AQUIFLOW$^{R}$ Information System
Source: EDR proprietary database of groundwater flow information
EDR has developed the AQUIFLOW Information System (AIS) to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted to regulatory authorities at select sites and has extracted the date of the report, hydrogeologically determined groundwater flow direction and depth to water table information.

## GEOLOGIC INFORMATION

Geologic Age and Rock Stratigraphic Unit
Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - A digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

STATSGO: State Soil Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Service (NRCS)
The U.S. Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS) leads the national Conservation Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps.

SSURGO: Soil Survey Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Service (NRCS)
Telephone: 800-672-5559
SSURGO is the most detailed level of mapping done by the Natural Resources Conservation Service, mapping scales generally range from 1:12,000 to 1:63,360. Field mapping methods using national standards are used to construct the soil maps in the Soil Survey Geographic (SSURGO) database. SSURGO digitizing duplicates the original soil survey maps. This level of mapping is designed for use by landowners, townships and county natural resource planning and management.

# PHYSICAL SETTING SOURCE RECORDS SEARCHED

## LOCAL / REGIONAL WATER AGENCY RECORDS

FEDERAL WATER WELLS

PWS: Public Water Systems
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Public Water System data from the Federal Reporting Data System. A PWS is any water system which provides water to at least 25 people for at least 60 days annually. PWSs provide water from wells, rivers and other sources.

PWS ENF: Public Water Systems Violation and Enforcement Data
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Violation and Enforcement data for Public Water Systems from the Safe Drinking Water Information System (SDWIS) after August 1995. Prior to August 1995, the data came from the Federal Reporting Data System (FRDS).

USGS Water Wells: USGS National Water Inventory System (NWIS)
This database contains descriptive information on sites where the USGS collects or has collected data on surface water and/or groundwater. The groundwater data includes information on wells, springs, and other sources of groundwater.

STATE RECORDS

Water Well Database
Source: Department of Water Resources
Telephone: 916-651-9648

California Drinking Water Quality Database
Source: Department of Public Health
Telephone: 916-324-2319
The database includes all drinking water compliance and special studies monitoring for the state of California since 1984. It consists of over 3,200,000 individual analyses along with well and water system information.

## OTHER STATE DATABASE INFORMATION

California Oil and Gas Well Locations
Source: Department of Conservation
Telephone: 916-323-1779
Oil and Gas well locations in the state.

RADON

State Database: CA Radon
Source: Department of Health Services
Telephone: 916-324-2208
Radon Database for California

Area Radon Information
Source: USGS
Telephone: 703-356-4020
The National Radon Database has been developed by the U.S. Environmental Protection Agency (USEPA) and is a compilation of the EPA/State Residential Radon Survey and the National Residential Radon Survey. The study covers the years 1986 - 1992. Where necessary data has been supplemented by information collected at private sources such as universities and research institutions.

EPA Radon Zones
Source: EPA
Telephone: 703-356-4020
Sections 307 & 309 of IRAA directed EPA to list and identify areas of U.S. with the potential for elevated indoor radon levels.

# PHYSICAL SETTING SOURCE RECORDS SEARCHED

OTHER

Airport Landing Facilities: Private and public use landing facilities
Source: Federal Aviation Administration, 800-457-6656

Epicenters: World earthquake epicenters, Richter 5 or greater
Source: Department of Commerce, National Oceanic and Atmospheric Administration

California Earthquake Fault Lines: The fault lines displayed on EDR's Topographic map are digitized quaternary fault lines, prepared in 1975 by the United State Geological Survey. Additional information (also from 1975) regarding activity at specific fault lines comes from California's Preliminary Fault Activity Map prepared by the California Division of Mines and Geology.

**STREET AND ADDRESS INFORMATION**

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## APPENDIX F

**Sanborn® Map Report**

Robinson Creek Bridge Replacement On Lambert Lane

18050 Lambert Lane

Boonville, CA 95415

Inquiry Number: 4635090.3

June 01, 2016

# Certified Sanborn® Map Report

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

# Certified Sanborn® Map Report

06/01/16

**Site Name:**

Robinson Creek Bridge Replac
18050 Lambert Lane
Boonville, CA 95415
EDR Inquiry # 4635090.3

**Client Name:**

Crawford & Associates Inc.
4030 South Land Park Drive Suite C
Sacramento, CA 95822-0000
Contact: Julie Price

The Sanborn Library has been searched by EDR and maps covering the target property location as provided by Crawford & Associates Inc. were identified for the years listed below. The Sanborn Library is the largest, most complete collection of fire insurance maps. The collection includes maps from Sanborn, Bromley, Perris & Browne, Hopkins, Barlow, and others. Only Environmental Data Resources Inc. (EDR) is authorized to grant rights for commercial reproduction of maps by the Sanborn Library LLC, the copyright holder for the collection. Results can be authenticated by visiting www.edrnet.com/sanborn.

The Sanborn Library is continually enhanced with newly identified map archives. This report accesses all maps in the collection as of the day this report was generated.

## *Certified Sanborn Results:*

**Certification #** C135-405C-9463

**PO #** NA

**Project** Robinson Creek Bridge

UNMAPPED PROPERTY

This report certifies that the complete holdings of the Sanborn Library, LLC collection have been searched based on client supplied target property information, and fire insurance maps covering the target property were not found.

Sanborn® Library search results

Certification #: C135-405C-9463

The Sanborn Library includes more than 1.2 million fire insurance maps from Sanborn, Bromley, Perris & Browne, Hopkins, Barlow and others which track historical property usage in approximately 12,000 American cities and towns. Collections searched:

- ☑ Library of Congress
- ☑ University Publications of America
- ☑ EDR Private Collection

*The Sanborn Library LLC Since 1866™*

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## APPENDIX G

**EDR City Directory Image Report**

**Robinson Creek Bridge Replacement On Lambert Lane**
18050 Lambert Lane
Boonville, CA 95415

Inquiry Number: 4635090.5
June 02, 2016

# The EDR-City Directory Image Report

Environmental Data Resources Inc

6 Armstrong Road
Shelton, CT 06484
800.352.0050
www.edrnet.com

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## SECTION

**Executive Summary**

**Findings**

**City Directory Images**

***Thank you for your business.***
Please contact EDR at 1-800-352-0050
with any questions or comments.

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# EXECUTIVE SUMMARY

## DESCRIPTION

Environmental Data Resources, Inc.'s (EDR) City Directory Report is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDR's City Directory Report includes a search of available city directory data at 5 year intervals.

## RESEARCH SUMMARY

The following research sources were consulted in the preparation of this report. A check mark indicates where information was identified in the source and provided in this report.

| Year | Target Street | Cross Street | Source |
|---|---|---|---|
| 2013 | ☑ | ☑ | Cole Information Services |
| 2008 | ☑ | ☑ | Cole Information Services |
| 2003 | ☑ | ☑ | Cole Information Services |
| 1999 | ☑ | ☑ | Cole Information Services |
| 1995 | ☑ | ☑ | Cole Information Services |
| 1992 | ☑ | ☑ | Cole Information Services |

## RECORD SOURCES

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# FINDINGS

## TARGET PROPERTY STREET

18050 Lambert Lane
Boonville, CA 95415

| *Year* | *CD Image* | *Source* |
|---|---|---|
| **LAMBERT LN** | | |
| 2013 | pg A2 | Cole Information Services |
| 2008 | pg A4 | Cole Information Services |
| 2003 | pg A6 | Cole Information Services |
| 1999 | pg A8 | Cole Information Services |
| 1995 | pg A10 | Cole Information Services |
| 1992 | pg A12 | Cole Information Services |
| **LAMBRT LN** | | |
| 1992 | pg A13 | Cole Information Services |

# FINDINGS

## CROSS STREETS

| *Year* | *CD Image* | *Source* |
|---|---|---|

## HIGHWAY 128

| | | |
|---|---|---|
| 2013 | pg. A1 | Cole Information Services |
| 2008 | pg. A3 | Cole Information Services |
| 2003 | pg. A5 | Cole Information Services |
| 1999 | pg. A7 | Cole Information Services |
| 1995 | pg. A9 | Cole Information Services |
| 1992 | pg. A11 | Cole Information Services |

# City Directory Images

| Target Street | Cross Street | Source |
|---|---|---|
| - | ✓ | Cole Information Services |

# HIGHWAY 128 2013

14571 ELIZABETH SANCHEZ
14600 D CAHN
14655 SHEEP DUNG ESTATES
THEE OTHER PLACE
14701 ALEX WOOD
16001 STATE OF CALIFORNIA
16300 JAMES TAUL

| Target Street | Cross Street | Source |
|---|---|---|
| ✓ | - | Cole Information Services |

# LAMBERT LN 2013

| | |
|---|---|
| 18060 | ALVARO VUCIO |
| 18070 | MARIA ALVAREZ |
| 18075 | JAMES LUTTICKEN |
| 18077 | MARCELA MENDOZA |
| 18080 | SOLEDAD BAROSA |
| 18150 | MICHAEL REEVES |
| 18201 | VICENTE MENDOZA |
| 18251 | JULIE BURROUGHS |
| 18500 | CARLOS LOPEZ |
| 18750 | ANDY BALESTRACCI |

| Target Street | Cross Street | Source |
|---|---|---|
| - | ✓ | Cole Information Services |

# HIGHWAY 128 2008

14715 GONZALO FLORES
15701 JOEL OBERLY
16300 JAMES TAUL

| Target Street | Cross Street | Source |
|---|---|---|
| ✓ | - | Cole Information Services |

# LAMBERT LN 2008

| | |
|---|---|
| 18055 | BRIT ANTRIM |
| 18070 | JUAN MANRIQUEZ |
| 18077 | MARCELA MENDOZA |
| 18080 | ANITA MENDOZA |
| 18141 | J NEW |
| 18150 | MICHAEL REEVES |
| 18201 | VICENTE MENDOZA |
| 18251 | JULIE BURROUGHS |
| 18750 | ANDY BALESTRACCI |

| Target Street | Cross Street | Source |
|---|---|---|
| - | ✓ | Cole Information Services |

## HIGHWAY 128 2003

| | |
|---|---|
| 14575 | ROBERT DANIELS |
| 14651 | DON FRAZER |
| 14715 | GONZALO FLORES |
| 15400 | WILLIAM NOBLES |
| 15701 | JOEL OBERLY |
| 16100 | LEE SIDWELL |
| 16300 | ROGELIO RIVERA |
| 16301 | ALICE PERCIVAL |
| 16651 | BRYAN WYANT |
| 18450 | SHERI HANSEN |

| Target Street | Cross Street | Source |
|---|---|---|
| ✓ | - | Cole Information Services |

# LAMBERT LN 2003

| | |
|---|---|
| 18050 | PHILLIP EASON |
| 18055 | BRIT ANTRIM |
| 18060 | ALEJANDRO ALVAREZ |
| 18070 | MARGARITA PRADO |
| 18077 | JOSE DIAZ |
| 18080 | SALVADOR JIMENEZ |
| 18100 | STEVEN DANIELS |
| 18111 | ISABELLE MCKENNEY |
| 18150 | MICHAEL REEVES |
| 18151 | ALMEEDA MASON |
| 18201 | ANTONIO BAROZA |
| 18251 | DAVID GAUTREY |
| 18500 | CARLOS LOPEZ |
| 18750 | ANDY BALESTRACCI |

# HIGHWAY 128 1999

14600 D CAHN
14655 D HACKWORTH
14715 GONZALO FLORES
14751 AMERICAN CHINCHILLAS
15701 JOEL OBERLY
16001 CALIFORNIA STAT OF FOR & FIRE PROTECT DEPARTMENT OF
16100 GWEN SIDWELL
16300 JAMES TAUL
18450 SHERI HANSEN

| Target Street | Cross Street | Source |
|---|---|---|
| ✓ | - | Cole Information Services |

# LAMBERT LN 1999

| | |
|---|---|
| 18055 | TODD CAPUZELO |
| 18070 | MARGARITA PRADO |
| 18077 | MARCELA MENDOZA |
| 18080 | SOLEDAD BAROSA |
| 18141 | J NEW |
| 18150 | MICHAEL REEVES |
| 18201 | VICENTE MENDOZA |
| 18251 | JULIE BURROUGHS |
| 18500 | CARLOS LOPEZ |
| 18750 | ANDY BALESTRACCI |

| Target Street | Cross Street | Source |
|---|---|---|
| - | ✓ | Cole Information Services |

## HIGHWAY 128 1995

14751 AMERICAN CHINCHILLAS
16001 FOREST FIRE STATION

| Target Street | Cross Street | Source |
|---|---|---|
| ✓ | - | Cole Information Services |

# LAMBERT LN 1995

| | |
|---|---|
| 18050 | EASON, PHILLIP D |
| 18075 | MCCORKELL, DOROTHY |
| 18077 | DIAZ, JOSE |
| 18080 | BUTTS, PAUL A |
| 18111 | MCKENNEY, N R |
| 18150 | REEVES, MICHAEL |
| 18151 | MASON, ALMEEDA |
| 18251 | ROSE, JESSE |
| | WALKER, GENE |
| 18500 | BECERRA, PEDRO |
| 18750 | GOODELL, ROBERT |

| Target Street | Cross Street | Source |
|---|---|---|
| - | ✓ | Cole Information Services |

# HIGHWAY 128 1992

| | |
|---|---|
| 14551 | KOSKELA, JACK |
| 14751 | ONE MIND FARM |
| 14801 | DEELY, FAY H |
| 15010 | KASPARIAN, D |
| 15400 | CETANI, DAVID |
| 16001 | CA ST FRSTRY STA |
| 16301 | PERCIVAL, ROLAND G |
| 16480 | ROSS, WILLIAM D |
| 16500 | CHAMBERS, WILLIAM H |
| 17500 | BURGER, R K |

| Target Street | Cross Street | Source |
|---|---|---|
| ✓ | - | Cole Information Services |

# LAMBERT LN 1992

| | |
|---|---|
| 18050 | EASON, PHILLIP D |
| 18055 | BALANDRAN, AGUSTIN |
| 18075 | MCCORKELL, DARREL |
| 18077 | DIAZ, JOSE |
| 18080 | BUTTS, PAUL A |
| 18111 | MCKENNEY, N R |
| 18150 | REEVES, MICHAEL |
| 18251 | ROSE, JESSE |
| 18500 | MCKAY, STEVEN |
| 18510 | BURROUGH, J |
| 18750 | GOODELL, ROBERT |
| | HERING, ELLEN |

| Target Street | Cross Street | Source |
| --- | --- | --- |
| ✓ | - | Cole Information Services |

# LAMBRT LN 1992

18151 MASON, ALMEEDA
18251 WALKER, GENE

# APPENDIX H

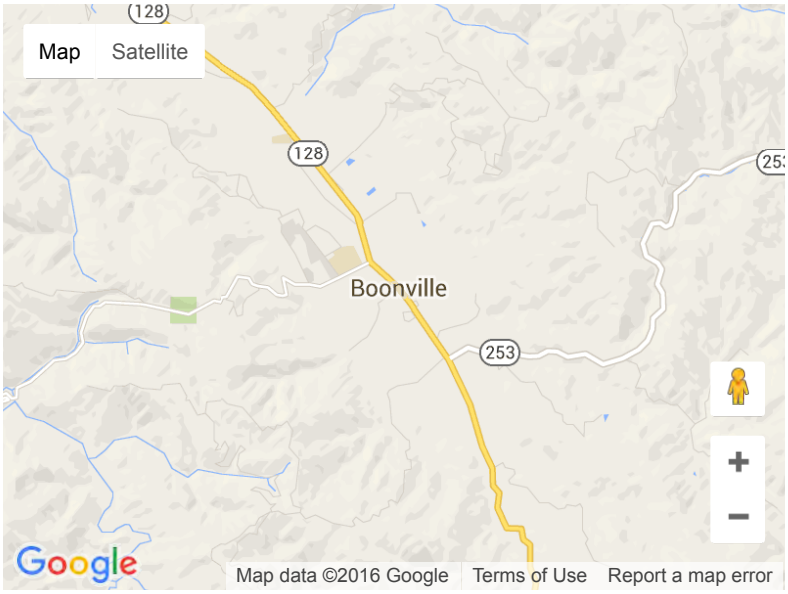
**Other Reports**

# LAMBERT LANE over ROBINSON CREEK

Mendocino County, California

## Map

Enlarge map




- Google Maps
- Bing Maps
- OpenStreetMap
- MapQuest.com
- USGS National Map
- Geo URI (Android)

**Coordinates:**
+39.00778, -123.36778
39°00'28" N, 123°22'04" W

## Facts

Source: National Bridge Inventory
Information not verified. Use at your own risk.

| | |
|---|---|
| Name: | LAMBERT LANE over ROBINSON CREEK |
| Structure number: | 10C0146 |
| Location: | 0.1 MI W OF S.H. 128 |
| Purpose: | Carries highway over waterway |
| Route classification: | Local (Rural) [09] |
| Length of largest span: | 27.9 ft. [8.5 m] |
| Total length: | 32.2 ft. [9.8 m] |
| Roadway width between curbs: | 24.0 ft. [7.3 m] |
| Deck width edge-to-edge: | 25.9 ft. [7.9 m] |
| Skew angle: | 12° |
| Owner: | County Highway Agency [02] |
| Year built: | 1954 |
| Historic significance: | Bridge is not eligible for the National Register of Historic Places [5] |
| Main span material: | Concrete [1] |
| Main span design: | Slab [01] |
| Deck type: | Concrete Cast-in-Place [1] |
| Wearing surface: | Bituminous [6] |

## Latest Available Inspection: February 2014

| | |
|---|---|
| Status: | Open, no restriction [A] |
| Average daily traffic: | 28 [as of 2011] |
| Deck condition: | Satisfactory [6 out of 9] |
| Superstructure condition: | Good [7 out of 9] |
| Substructure condition: | Fair [5 out of 9] |
| Structural appraisal: | Somewhat better than minimum adequacy to tolerate being left in place as is [5] |
| Deck geometry appraisal: | Equal to present minimum criteria [6] |
| Water adequacy appraisal: | Better than present minimum criteria [7] |
| Roadway alignment appraisal: | Basically intolerable requiring high priority of replacement [2] |
| Channel protection: | Bank protection is in need of minor repairs. River control devices and embankment protection have a little minor damage. Banks and/or channel have minor amounts of drift. [7] |
| Scour condition: | Bridge is scour critical; bridge foundations determined to be unstable. [3] |
| Operating rating: | 46.0 tons [41.8 metric tons] |
| Inventory rating: | 27.8 tons [25.3 metric tons] |
| Evaluation: | Functionally obsolete [2] |
| Sufficiency rating: | 70.5 |
| Recommended work: | Bridge rehabilitation because of general structure deterioration or inadequate strength. [35] |
| Estimated cost of work: | $129,000 |

## Previous Inspections

| Date | Suff. rating | Evaluation | Deck | Super. | Sub. | ADT |
|---|---|---|---|---|---|---|
| February 2014 | 70.5 | Functionally obsolete | Satisfactory | Good | Fair | 28 |
| February 2014 | 70.5 | Functionally obsolete | Satisfactory | Good | Fair | 28 |
| January 2012 | 83.6 | Not deficient | Good | Good | Satisfactory | 28 |
| February 2010 | 82.6 | Not deficient | Good | Good | Satisfactory | 20 |
| March 2008 | 82.6 | Not deficient | Good | Good | Satisfactory | 20 |
| March 2006 | 82.6 | Not deficient | Good | Good | Satisfactory | 20 |
| April 2004 | 82.6 | Not deficient | Good | Good | Satisfactory | 20 |
| March 2002 | 82.6 | Not deficient | Good | Good | Satisfactory | 20 |
| January 2001 | 82.6 | Not deficient | Good | Good | Satisfactory | 20 |
| January 1995 | 82.6 | Not deficient | Satisfactory | Satisfactory | Good | 20 |
| March 1993 | 82.3 | Not deficient | Good | Good | Satisfactory | 20 |
| October 1990 | 82.3 | Not deficient | Good | Good | Satisfactory | 20 |



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Disclaimer: All data is taken from the National Bridge Inventory and has **not** been verified.
This page's URL is http://uglybridges.com/1040506

STATE WATER RESOURCES CONTROL BOARD

GEOTRACKER

# CASE SUMMARY

REPORT DATE
12/21/1993

HAZARDOUS MATERIAL INCIDENT REPORT FILED WITH OES?

## I. REPORTED BY -

UNKNOWN

## CREATED BY

UNKNOWN

## III. SITE LOCATION

FACILITY NAME
CDOT BOONVILLE

FACILITY ID

FACILITY ADDRESS
14001 HIGHWAY 128
BOONVILLE, CA 95415
MENDOCINO COUNTY

ORIENTATION OF SITE TO STREET

CROSS STREET

## V. SUBSTANCES RELEASED / CONTAMINANT(S) OF CONCERN

GASOLINE

## VI. DISCOVERY/ABATEMENT

DATE DISCHARGE BEGAN

DATE DISCOVERED
12/21/1993

HOW DISCOVERED
Other Means

DESCRIPTION

DATE STOPPED
12/21/1993

STOP METHOD

DESCRIPTION

## VII. SOURCE/CAUSE

SOURCE OF DISCHARGE

CAUSE OF DISCHARGE

DISCHARGE DESCRIPTION

## VIII. CASE TYPE

CASE TYPE
Soil

## IX. REMEDIAL ACTION

NO REMEDIAL ACTIONS ENTERED

## X. GENERAL COMMENTS

## XI. CERTIFICATION

**I HEREBY CERTIFY THAT THE INFORMATION REPORTED HEREIN IS TRUE AND ACCURATE TO THE BEST OF MY KNOWLEDGE.**

## XII. REGULATORY USE ONLY

LOCAL AGENCY CASE NUMBER

REGIONAL BOARD CASE NUMBER
1TMC273

### LOCAL AGENCY

| CONTACT NAME | INITIALS | ORGANIZATION_NAME | EMAIL ADDRESS |
|---|---|---|---|
| WAYNE BRILEY | | MENDOCINO COUNTY | brileyw@co.mendocino.ca.us |

ADDRESS
501 LOW GAP ROAD, ROOM 1326
UKIAH, CA 95482

CONTACT DESCRIPTION

| PHONE TYPE | PHONE NUMBER | EXTENSION |
|---|---|---|
| office | (707)-234-6648 | |

**REGIONAL BOARD**

| CONTACT NAME | INITIALS | ORGANIZATION_NAME | EMAIL ADDRESS |
|---|---|---|---|
| REGIONAL WATER BOARD SITE CLOSED | ZZZ | NORTH COAST RWQCB (REGION 1) | craig.hunt@waterboards.ca.gov |

ADDRESS
5550 SKYLANE BOULEVARD, SUITE A
SANTA ROSA, CA 95403

CONTACT DESCRIPTION

| PHONE TYPE | PHONE NUMBER | EXTENSION |
|---|---|---|
| MAIN PHONE | (707)-576-2220 | |
| MAIN FAX | (707)-523-0135 | |

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# CASE SUMMARY

REPORT DATE
12/14/1989

HAZARDOUS MATERIAL INCIDENT REPORT FILED WITH OES?
N

**I. REPORTED BY** -

UNKNOWN

**CREATED BY**

UNKNOWN

## III. SITE LOCATION

FACILITY NAME
CHEVRON #9-6221

FACILITY ID

FACILITY ADDRESS
14125 HIGHWAY 128
BOONVILLE, CA 95415
MENDOCINO COUNTY

ORIENTATION OF SITE TO STREET

CROSS STREET
Haehl Street

## V. SUBSTANCES RELEASED / CONTAMINANT(S) OF CONCERN

BENZENE
DIESEL
GASOLINE

## VI. DISCOVERY/ABATEMENT

DATE DISCHARGE BEGAN

| DATE DISCOVERED | HOW DISCOVERED | DESCRIPTION |
|---|---|---|
| 12/14/1989 | UST System Modification | |

| DATE STOPPED | STOP METHOD | DESCRIPTION |
|---|---|---|
| 12/14/1989 | Close and Remove Tank<br>Replace product piping<br>Close and Replace Tank | |

## VII. SOURCE/CAUSE

SOURCE OF DISCHARGE

CAUSE OF DISCHARGE
Corrosion
Unknown

DISCHARGE DESCRIPTION

## VIII. CASE TYPE

CASE TYPE
Aquifer used for drinking water supply
Soil
Well used for drinking water supply
Other Groundwater (uses other than drinking water)

## IX. REMEDIAL ACTION

| REMEDIAL ACTION | BEGIN DATE | END DATE | DESCRIPTION |
|---|---|---|---|
| Excavation | 7/7/1978 | 7/7/1978 | three underground storage tanks removed. |
| Excavation | 11/1/1991 | 12/31/1991 | Three 6000 gallon underground storage tanks and associated piping. |

## X. GENERAL COMMENTS

## XI. CERTIFICATION

**I HEREBY CERTIFY THAT THE INFORMATION REPORTED HEREIN IS TRUE AND ACCURATE TO THE BEST OF MY KNOWLEDGE.**

## XII. REGULATORY USE ONLY

LOCAL AGENCY CASE NUMBER

REGIONAL BOARD CASE NUMBER
1TMC089

### LOCAL AGENCY

| CONTACT NAME | INITIALS | ORGANIZATION_NAME | EMAIL ADDRESS |
|---|---|---|---|
| WAYNE BRILEY | | MENDOCINO COUNTY | brileyw@co.mendocino.ca.us |

ADDRESS
501 LOW GAP ROAD, ROOM 1326
UKIAH, CA 95482

CONTACT DESCRIPTION

| PHONE TYPE | PHONE NUMBER | EXTENSION |
|---|---|---|
| office | (707)-234-6648 | |

### REGIONAL BOARD

| CONTACT NAME | INITIALS | ORGANIZATION_NAME | EMAIL ADDRESS |
|---|---|---|---|
| ROBERT DICKERSON | RBD | NORTH COAST RWQCB (REGION 1) | robert.dickerson@waterboards.ca.gov |

ADDRESS
5550 SKYLANE BLVD. ST. A,
SANTA ROSA, CA 95403

CONTACT DESCRIPTION

| PHONE TYPE | PHONE NUMBER | EXTENSION |
|---|---|---|
| Main | (707)-576-2220 | |

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STATE WATER RESOURCES CONTROL BOARD

# GEOTRACKER

## CASE SUMMARY

REPORT DATE
3/8/1994

HAZARDOUS MATERIAL INCIDENT REPORT FILED WITH OES?

**I. REPORTED BY** -
UNKNOWN

**CREATED BY**
UNKNOWN

**III. SITE LOCATION**

FACILITY NAME
CHEVRON, JEFF

FACILITY ID

FACILITY ADDRESS
14289 HIGHWAY 128
BOONVILLE, CA 95415
MENDOCINO COUNTY

ORIENTATION OF SITE TO STREET

CROSS STREET
Haehl

**V. SUBSTANCES RELEASED / CONTAMINANT(S) OF CONCERN**

DIESEL
MTBE / TBA / OTHER FUEL OXYGENATES
GASOLINE

**VI. DISCOVERY/ABATEMENT**

DATE DISCHARGE BEGAN

DATE DISCOVERED
3/8/1994

HOW DISCOVERED
Other Means

DESCRIPTION

DATE STOPPED
3/8/1994

STOP METHOD

DESCRIPTION

**VII. SOURCE/CAUSE**

SOURCE OF DISCHARGE
Tank

CAUSE OF DISCHARGE
Corrosion

DISCHARGE DESCRIPTION

**VIII. CASE TYPE**

CASE TYPE
Aquifer used for drinking water supply
Soil
Well used for drinking water supply
Other Groundwater (uses other than drinking water)

**IX. REMEDIAL ACTION**

| REMEDIAL ACTION | BEGIN DATE | END DATE | DESCRIPTION |
|---|---|---|---|
| Excavation | 3/1/1992 | 3/31/1992 | one 8000 gallon diesel and one 8000 gallon gasoline underground storage tanks |
| Excavation | 1/21/1999 | 1/22/1999 | one 8000 gallon gasoline, one 10,000 gallon gasoline, and one 500 gallon waste oil underground storage tanks |
| Other (Use Description Field) | 4/8/2014 | 4/8/2014 | Abandonment of the petroleum hydrocarbon impacted onsite domestic well SSDW and free product removal |
| Dual Phase | | | |

| | | | |
|---|---|---|---|
| Extraction | 4/10/2014 | 4/18/2014 | |
| Excavation | 4/21/2014 | 4/21/2014 | product piping, etc removed 80cubic yards of soil excavated |

## X. GENERAL COMMENTS

## XI. CERTIFICATION

**I HEREBY CERTIFY THAT THE INFORMATION REPORTED HEREIN IS TRUE AND ACCURATE TO THE BEST OF MY KNOWLEDGE.**

## XII. REGULATORY USE ONLY

LOCAL AGENCY CASE NUMBER

REGIONAL BOARD CASE NUMBER
1TMC053

### LOCAL AGENCY

CONTACT NAME
LOCAL PERMIT WORKER MENDO COUNTY

INITIALS

ORGANIZATION_NAME
MENDOCINO COUNTY

EMAIL ADDRESS

ADDRESS
501 LOW GAP ROAD, ROOM 1326
UKIAH, CA

CONTACT DESCRIPTION

### REGIONAL BOARD

CONTACT NAME
ROBERT DICKERSON

INITIALS
RBD

ORGANIZATION_NAME
NORTH COAST RWQCB (REGION 1)

EMAIL ADDRESS
robert.dickerson@waterboards.ca.gov

ADDRESS
5550 SKYLANE BLVD. ST. A,
SANTA ROSA, CA 95403

CONTACT DESCRIPTION

| PHONE TYPE | PHONE NUMBER | EXTENSION |
|---|---|---|
| Main | (707)-576-2220 | |

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# CSM REPORT FOR PUBLIC NOTICING

## PROJECT INFORMATION (DATA PULLED FROM GEOTRACKER) - MAP THIS SITE

| SITE NAME / ADDRESS | STATUS | STATUS DATE | RELEASE REPORT DATE | AGE OF CASE | CLEANUP OVERSIGHT AGENCIES |
|---|---|---|---|---|---|
| MCDPW BOONVILLE ROAD YARD (Global ID: T0604500301)<br>14000 HIGHWAY 128<br>BOONVILLE, CA 95415 | Completed - Case Closed | 3/27/2013 | 9/9/1997 | 19 | NORTH COAST RWQCB (REGION 1) *(LEAD) - CASE #: 1TMC368*<br>***CASEWORKER:*** *REGIONAL WATER BOARD SITE CLOSED* - ***SUPERVISOR:*** *CRAIG HUNT* |

**SITE HISTORY**

Mendocino County Department of Public Works yard site. USTs removed. Groundwater monitoring wells installed. Low level petroleum hydrocarbons identified in groundwater.

### CLEANUP ACTION INFO

| ACTION TYPE | BEGIN DATE | END DATE | PHASE | CONTAMINANT MASS REMOVED | DESCRIPTION |
|---|---|---|---|---|---|
| EXCAVATION | 5/8/1997 | 5/8/1997 | Other (See Description) | | one 200 gallon gasoline and on 2000 gallon diesel UST |

### RISK INFORMATION

VIEW LTCP CHECKLIST | VIEW PATH TO CLOSURE PLAN | VIEW CASE REVIEWS

| CONTAMINANTS OF CONCERN | CURRENT LAND USE | BENEFICIAL USE | DISCHARGE SOURCE | DATE REPORTED | STOP METHOD | NEARBY / IMPACTED WELLS |
|---|---|---|---|---|---|---|
| Diesel | Commercial | GW - Agricultural Supply, GW - Municipal and Domestic Supply | | 9/9/1997 | | 0 |

| FREE PRODUCT | OTHER CONSTITUENTS | NAME OF WATER SYSTEM | LAST REGULATORY ACTIVITY | LAST ESI UPLOAD | LAST EDF UPLOAD | EXPECTED CLOSURE DATE | MOST RECENT CLOSURE REQUEST |
|---|---|---|---|---|---|---|---|
| NO | NO | Boonville | 2/20/2015 | 7/23/2015 | 8/10/2011 | | |

### CDPH WELLS WITHIN 1500 FEET OF THIS SITE

NONE

### CALCULATED FIELDS (BASED ON LATITUDE / LONGITUDE)

| APN | GW BASIN NAME | WATERSHED NAME |
|---|---|---|
| 02911012 | Anderson Valley (1-19) | Mendocino Coast - Navarro River (113.50) |

**COUNTY**
Mendocino

**PUBLIC WATER SYSTEM(S)**

### MOST RECENT CONCENTRATIONS OF PETROLEUM CONSTITUENTS IN GROUNDWATER

VIEW ESI SUBMITTALS

| FIELD PT NAME | DATE | TPHg | BENZENE | TOLUENE | ETHYL-BENZENE | XYLENES | MTBE | TBA |
|---|---|---|---|---|---|---|---|---|
| BD-1 | 8/2/2010 | ND | ND | | ND | ND | ND | ND |
| DOM WELL | 5/17/2011 | ND | ND | ND | ND | ND | ND | ND |
| MW-1 | 5/17/2011 | 25 UG/L | ND | ND | ND | ND | 0.95 UG/L | ND |
| MW-2 | 5/17/2011 | ND | ND | ND | ND | ND | ND | ND |
| MW-3 | 5/17/2011 | ND | ND | ND | ND | ND | ND | ND |
| MW-4 | 5/17/2011 | ND | ND | ND | ND | ND | ND | ND |
| QCTB | 5/17/2011 | ND | ND | ND | ND | ND | ND | ND |

### MOST RECENT CONCENTRATIONS OF PETROLEUM CONSTITUENTS IN SOIL

VIEW ESI SUBMITTALS

NO SOIL DATA HAS BEEN SUBMITTED TO GEOTRACKER ESI FOR THIS SITE

### MOST RECENT GEO_WELL DATA

VIEW ESI SUBMITTALS

| FIELD PT NAME | DATE | DEPTH TO WATER (FT) | SHEEN | DEPTH TO FREE PRODUCT (FT) |
|---|---|---|---|---|
| MW-1 | 5/17/2011 | 18.55 | N | |
| MW-2 | 5/17/2011 | 18.64 | N | |
| MW-3 | 5/17/2011 | 18.25 | N | |
| MW-4 | 5/17/2011 | 17.7 | N | |

STATE WATER RESOURCES CONTROL BOARD

CA.GOV GEOTRACKER

# CASE SUMMARY

REPORT DATE
9/9/1997

HAZARDOUS MATERIAL INCIDENT REPORT FILED WITH OES?

**I. REPORTED BY** -

UNKNOWN

**CREATED BY**

UNKNOWN

**III. SITE LOCATION**

FACILITY NAME
MCDPW BOONVILLE ROAD YARD

FACILITY ID

FACILITY ADDRESS
14000 HIGHWAY 128
BOONVILLE, CA 95415
MENDOCINO COUNTY

ORIENTATION OF SITE TO STREET

CROSS STREET
Mrs.Harris Lane

**V. SUBSTANCES RELEASED / CONTAMINANT(S) OF CONCERN**

DIESEL

**VI. DISCOVERY/ABATEMENT**

DATE DISCHARGE BEGAN

| DATE DISCOVERED | HOW DISCOVERED | DESCRIPTION |
|---|---|---|
| 9/9/1997 | Other Means | |

| DATE STOPPED | STOP METHOD | DESCRIPTION |
|---|---|---|
| 9/9/1997 | | |

**VII. SOURCE/CAUSE**

SOURCE OF DISCHARGE

CAUSE OF DISCHARGE

DISCHARGE DESCRIPTION

**VIII. CASE TYPE**

CASE TYPE
Aquifer used for drinking water supply

**IX. REMEDIAL ACTION**

| REMEDIAL ACTION | BEGIN DATE | END DATE | DESCRIPTION |
|---|---|---|---|
| Excavation | 5/8/1997 | 5/8/1997 | one 200 gallon gasoline and on 2000 gallon diesel UST |

**X. GENERAL COMMENTS**

Mendocino County Department of Public Works yard site. USTs removed. Groundwater monitoring wells installed. Low level petroleum hydrocarbons identified in groundwater.

**XI. CERTIFICATION**

**I HEREBY CERTIFY THAT THE INFORMATION REPORTED HEREIN IS TRUE AND ACCURATE TO THE BEST OF MY KNOWLEDGE.**

**XII. REGULATORY USE ONLY**

LOCAL AGENCY CASE NUMBER

REGIONAL BOARD CASE NUMBER
1TMC368

## LOCAL AGENCY

| CONTACT NAME | INITIALS | ORGANIZATION_NAME | EMAIL ADDRESS |
|---|---|---|---|
| WAYNE BRILEY | | MENDOCINO COUNTY | brileyw@co.mendocino.ca.us |

ADDRESS
501 LOW GAP ROAD, ROOM 1326
UKIAH, CA 95482

CONTACT DESCRIPTION

| PHONE TYPE | PHONE NUMBER | EXTENSION |
|---|---|---|
| office | (707)-234-6648 | |

## REGIONAL BOARD

| CONTACT NAME | INITIALS | ORGANIZATION_NAME | EMAIL ADDRESS |
|---|---|---|---|
| REGIONAL WATER BOARD SITE CLOSED | ZZZ | NORTH COAST RWQCB (REGION 1) | craig.hunt@waterboards.ca.gov |

ADDRESS
5550 SKYLANE BOULEVARD, SUITE A
SANTA ROSA, CA 95403

CONTACT DESCRIPTION

| PHONE TYPE | PHONE NUMBER | EXTENSION |
|---|---|---|
| MAIN PHONE | (707)-576-2220 | |
| MAIN FAX | (707)-523-0135 | |

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STATE WATER RESOURCES CONTROL BOARD

GEOTRACKER

# CASE SUMMARY

REPORT DATE
12/3/1993

HAZARDOUS MATERIAL INCIDENT REPORT FILED WITH OES?

## I. REPORTED BY -

UNKNOWN

## CREATED BY

UNKNOWN

## III. SITE LOCATION

FACILITY NAME
PARTNERS BUILDING

FACILITY ID

FACILITY ADDRESS
14111 HIGHWAY 128
BOONVILLE, CA 95415
MENDOCINO COUNTY

ORIENTATION OF SITE TO STREET

CROSS STREET

## V. SUBSTANCES RELEASED / CONTAMINANT(S) OF CONCERN

GASOLINE

## VI. DISCOVERY/ABATEMENT

DATE DISCHARGE BEGAN

DATE DISCOVERED
12/3/1993

HOW DISCOVERED
Other Means

DESCRIPTION

DATE STOPPED
12/3/1993

STOP METHOD

DESCRIPTION

## VII. SOURCE/CAUSE

SOURCE OF DISCHARGE

CAUSE OF DISCHARGE

DISCHARGE DESCRIPTION

## VIII. CASE TYPE

CASE TYPE
Well used for drinking water supply

## IX. REMEDIAL ACTION

NO REMEDIAL ACTIONS ENTERED

## X. GENERAL COMMENTS

## XI. CERTIFICATION

**I HEREBY CERTIFY THAT THE INFORMATION REPORTED HEREIN IS TRUE AND ACCURATE TO THE BEST OF MY KNOWLEDGE.**

## XII. REGULATORY USE ONLY

LOCAL AGENCY CASE NUMBER

REGIONAL BOARD CASE NUMBER
1TMC269

### LOCAL AGENCY

| CONTACT NAME | INITIALS | ORGANIZATION_NAME | EMAIL ADDRESS |
|---|---|---|---|
| WAYNE BRILEY | | MENDOCINO COUNTY | brileyw@co.mendocino.ca.us |

ADDRESS
501 LOW GAP ROAD, ROOM 1326
UKIAH, CA 95482

CONTACT DESCRIPTION

| PHONE TYPE | PHONE NUMBER | EXTENSION |
|---|---|---|
| office | (707)-234-6648 | |

**REGIONAL BOARD**

| CONTACT NAME | INITIALS | ORGANIZATION_NAME | EMAIL ADDRESS |
|---|---|---|---|
| REGIONAL WATER BOARD SITE CLOSED | ZZZ | NORTH COAST RWQCB (REGION 1) | craig.hunt@waterboards.ca.gov |

ADDRESS
5550 SKYLANE BOULEVARD, SUITE A
SANTA ROSA, CA 95403

CONTACT DESCRIPTION

| PHONE TYPE | PHONE NUMBER | EXTENSION |
|---|---|---|
| MAIN PHONE | (707)-576-2220 | |
| MAIN FAX | (707)-523-0135 | |

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STATE WATER RESOURCES CONTROL BOARD

GEOTRACKER

# CASE SUMMARY

REPORT DATE
11/9/1998

HAZARDOUS MATERIAL INCIDENT REPORT FILED WITH OES?

## I. REPORTED BY -

UNKNOWN

## CREATED BY

UNKNOWN

## III. SITE LOCATION

FACILITY NAME
REDWOOD DRIVE IN

FACILITY ID

FACILITY ADDRESS
13980 HIGHWAY 128
BOONVILLE, CA 95415
MENDOCINO COUNTY

ORIENTATION OF SITE TO STREET

CROSS STREET

## V. SUBSTANCES RELEASED / CONTAMINANT(S) OF CONCERN

DIESEL

## VI. DISCOVERY/ABATEMENT

DATE DISCHARGE BEGAN

DATE DISCOVERED
11/9/1998

HOW DISCOVERED
Other Means

DESCRIPTION

DATE STOPPED
11/9/1998

STOP METHOD

DESCRIPTION

## VII. SOURCE/CAUSE

SOURCE OF DISCHARGE

CAUSE OF DISCHARGE

DISCHARGE DESCRIPTION

## VIII. CASE TYPE

CASE TYPE
Under Investigation

## IX. REMEDIAL ACTION

NO REMEDIAL ACTIONS ENTERED

## X. GENERAL COMMENTS

## XI. CERTIFICATION

**I HEREBY CERTIFY THAT THE INFORMATION REPORTED HEREIN IS TRUE AND ACCURATE TO THE BEST OF MY KNOWLEDGE.**

## XII. REGULATORY USE ONLY

LOCAL AGENCY CASE NUMBER

REGIONAL BOARD CASE NUMBER
1TMC400

### LOCAL AGENCY

| CONTACT NAME | INITIALS | ORGANIZATION_NAME | EMAIL ADDRESS |
|---|---|---|---|
| WAYNE BRILEY | | MENDOCINO COUNTY | brileyw@co.mendocino.ca.us |

ADDRESS
501 LOW GAP ROAD, ROOM 1326
UKIAH, CA 95482

CONTACT DESCRIPTION

| PHONE TYPE | PHONE NUMBER | EXTENSION |
|---|---|---|
| office | (707)-234-6648 | |

**REGIONAL BOARD**

| CONTACT NAME | INITIALS | ORGANIZATION_NAME | EMAIL ADDRESS |
|---|---|---|---|
| REGIONAL WATER BOARD SITE CLOSED | ZZZ | NORTH COAST RWQCB (REGION 1) | craig.hunt@waterboards.ca.gov |

ADDRESS
5550 SKYLANE BOULEVARD, SUITE A
SANTA ROSA, CA 95403

CONTACT DESCRIPTION

| PHONE TYPE | PHONE NUMBER | EXTENSION |
|---|---|---|
| MAIN PHONE | (707)-576-2220 | |
| MAIN FAX | (707)-523-0135 | |

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# Appendix G:
# Construction Noise Memo Robinson Creek Bridge Replacement Project

# Construction Noise Memorandum

To: Melissa Murphy
Gallaway Enterprises, Inc.
117 Meyers Street, Suite 120
Chico, CA 95928

Date: September 24, 2020

From: Dario Gotchet
Bollard Acoustical Consultants, Inc.
3551 Bankhead Road
Loomis, CA 95650

**Subject: Robinson Creek Bridge Replacement Project – Mendocino County, California**

Pursuant to your request, Bollard Acoustical Consultants, Inc. (BAC) has assessed potential construction noise-related impacts for the Robinson Creek Bridge Replacement Project (project). This analysis was conducted to ensure that the construction related noise levels do not exceed the applicable Caltrans noise standards.

**Criteria for Acceptable Noise Exposure**

The Caltrans Specifications with respect to construction noise are provided below:

> *Section 14-8.02, Noise Control, of Caltrans standard specifications provides information that can be considered in determining whether construction would result in adverse noise impacts. The specification states:*
>
> - *Do not exceed 86 dBA at 50 feet from the job site activities from 9 p.m. to 6 a.m.*
> - *Equip an internal combustion engine with the manufacturer-recommended muffler. Do not operate an internal combustion engine on the job site without the appropriate muffler.*

**Existing Ambient Noise Environment within the Project Vicinity**

The existing ambient noise environment in the immediate project vicinity is defined primarily by traffic on Lambert Lane, and by distant traffic on State Route 128 (SR 128). To generally quantify the existing ambient noise environment within the project vicinity, BAC conducted long-term (48-hour) noise level measurements from September 16-17, 2020. The noise survey location is shown on Attachment A, identified as site LT-1. Photographs of the noise level survey location are provided in Attachment B.

A Larson-Davis Laboratories (LDL) 820 precision integrating sound level meter was used to complete the noise level measurement survey. The meter was calibrated immediately before and after use with an LDL Model CAL200 acoustical calibrator to ensure the accuracy of the measurements. The equipment used meets all pertinent specifications of the American National Standards Institute for Type 1 sound level meters (ANSI S1.4).

The results of the long-term ambient noise survey at site LT-1 are shown numerically and graphically in Attachments C and D (respectively) and are summarized below in Table 1.

The equipment used meets all pertinent specifications of the American National Standards Institute for Type 1 sound level meters (ANSI S1.4). The noise level measurement results are summarized below in Table 1. The measurement results indicate that ambient conditions in the immediate project vicinity are typical for semi-rural areas affected by local roadway noise.

**Table 1**
**Summary of Ambient Noise Level Measurement Results – September 16-17, 2020[1]**

| Location[2] | Date | Average Measured Daytime Noise Levels, dB | | | |
|---|---|---|---|---|---|
| | | $L_{eq}$ | $L_{50}$ | $L_{90}$ | $L_{max}$ |
| LT-1 | 9/16/20 | 52 | 48 | 44 | 70 |
| | 9/17/20 | 54 | 49 | 45 | 73 |

[1] Detailed summaries of the long-term noise monitoring results are provided in Attachments C and D.
[2] Long-term ambient noise monitoring location is identified on Figure 1.
*Source: Bollard Acoustical Consultants, Inc. (2020)*

## Evaluation of Construction Noise Generation

The Federal Highway Administration (FHWA) Roadway Construction Noise Model (RCNM) was utilized to model the various project equipment noise levels at the nearest noise-sensitive locations. The proposed project area and limits of construction are shown in Attachment A. According to Gallaway Enterprises, construction activities will occur in the sequence described in Table 2. The sequence dependent project equipment modeling is shown in Table 3. The RCNM results are provided in Table 4.

**Table 2**
**Construction Sequence Description**

| Sequence # | Sequence Summary |
|---|---|
| 1 | Clearing / grubbing |
| 2 | Existing bridge demolition |
| 3 | Grading and stream improvements |
| 4 | Downstream RSP placement |
| 5 | Installation of CIDH abutment piles |
| 6 | Construction of superstructure |
| 7 | RSP placement around new bridge |
| 8 | Final site stabilization and tree planting |

*Source: Gallaway Enterprises Inc.*

**Table 3**
**Anticipated Construction Equipment and Operation Sequencing of the Project[1]**

| # | Construction Equipment[1] | Construction Sequence Number | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| 1 | Pickup truck | X | X | X | X | X | X | X | X |
| 2 | Excavator | X | X | X | X | | | X | X |
| 3 | Dozer | X | X | X | X | | | | |
| 4 | Crane | | | | | X | X | | |
| 5 | Dump truck | X | X | X | X | | | X | |
| 6 | Paver | | | | | | X | | |
| 7 | Concrete mixer truck | | | | | X | X | | |
| 8 | Concrete pump truck | | | | | X | X | | |
| 9 | Drill rig truck | | | | | X | | | |

[1] Construction equipment list and sequencing / phasing provided by Gallaway Enterprises, Inc.

*Source: Bollard Acoustical Consultants, Inc. (2020)*

**Table 4**
**Summary of Predicted Construction Equipment Noise Levels**

| Construction Sequence Number | Predicted Maximum Noise Levels at Receiver Locations, $L_{max}$[1] (dBA) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 1 | 78 | 72 | 69 | 63 | 68 | 70 | 73 | 75 | 77 |
| 2 | 78 | 72 | 69 | 63 | 68 | 70 | 73 | 75 | 77 |
| 3 | 78 | 72 | 69 | 63 | 68 | 70 | 73 | 75 | 77 |
| 4 | 78 | 72 | 69 | 63 | 68 | 70 | 73 | 75 | 77 |
| 5 | 77 | 77 | 71 | 67 | 73 | 75 | 76 | 75 | 81 |
| 6 | 77 | 77 | 71 | 67 | 73 | 75 | 76 | 75 | 81 |
| 7 | 77 | 72 | 69 | 63 | 68 | 70 | 72 | 75 | 77 |
| 8 | 77 | 70 | 68 | 61 | 66 | 69 | 72 | 75 | 76 |

[1] Receiver locations are shown on Attachment A.

*Source: Bollard Acoustical Consultants, Inc. (2020)*

Pursuant to Section 14-8.02 of Caltrans standard specifications, construction activities shall not exceed 86 dBA at 50 feet from the job site during the hours of 9:00 p.m. to 6:00 a.m. Section 14-8.02 further states that the operation of internal combustion engines without manufacturer recommended mufflers on the job site is restricted.

According to Gallaway Enterprises, the project proposes construction activities from sunrise to sunset (Monday through Saturday), and does not propose work during the hours of 9:00 p.m. to 6:00 a.m. As a result, noise levels associated with project construction equipment would not exceed 86 dB $L_{max}$ at 50 feet during the hours of 9:00 p.m. to 6:00 a.m. However, should the operation of internal combustion engines without appropriate mufflers occur on the job site, the project would not be in compliance with the Caltrans specification. Therefore, it is recommended that all project-related internal combustion engines are equipped with the appropriate mufflers as recommended by the manufacturer. Provided that all construction activities within the project area occur from sunrise to sunset (as proposed), and that project equipment is equipped with appropriate mufflers, the project would satisfy the applicable Caltrans standard specifications.

The Table 4 data indicate that conservative estimates of project construction noise would be elevated when compared with measured daytime maximum noise levels in the immediate project vicinity. Because project construction activities would result in short-term periods of elevated ambient noise levels in the immediate project vicinity, and because engineering techniques may not be practical in addressing noise attenuation for some equipment types, the following noise abatement measures should be incorporated into project construction operations in order to reduce the potential for adverse reaction at nearby residential receivers:

- Project construction activities should occur during daytime hours only (as proposed).
- All noise-producing equipment and vehicles using internal combustion engines shall be equipped with manufacturers-recommended mufflers (pursuant to Section 14-8.02 of Caltrans standard specifications).

- Nearby residences shall be notified of construction schedules so that arrangements can be made (if desired) to limit their exposure to short-term increases in ambient noise levels.

Provided that the project implements the above recommended measures, adverse construction noise impacts are not expected for this project.

Please contact me at (916) 663-0500 or dariog@bacnoise.com if you have any comments or questions regarding this memorandum.

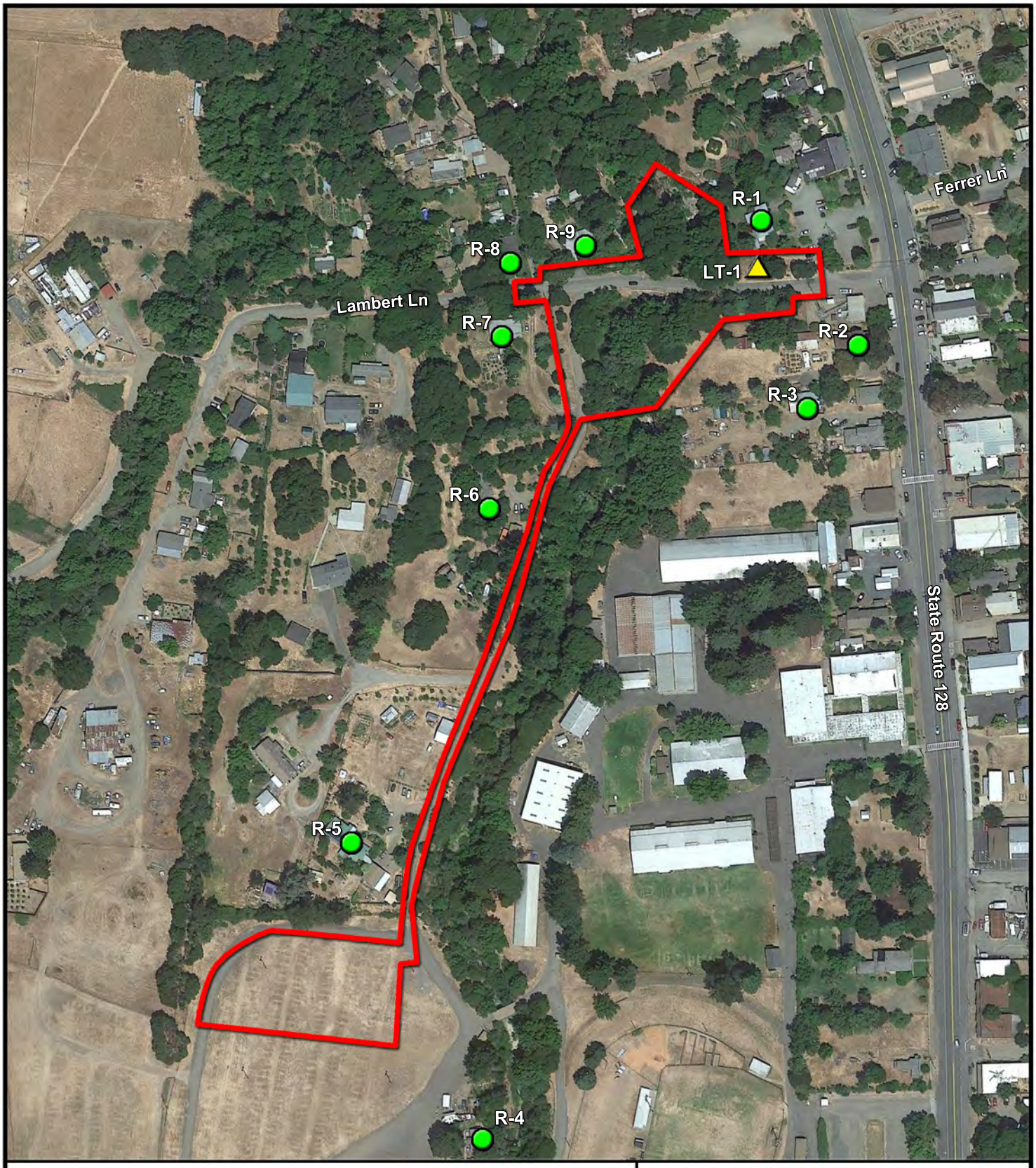
Sincerely,

Bollard Acoustical Consultants, Inc.



Dario Gotchet
Senior Consultant

Attachments




***Legend***

- Project Boundary (Approximate)
- Noise-Sensitive Receiver Locations (Residences)
- Long-Term Noise Measurement Location

N

Scale (feet)

0 75 150

Robinson Creek Bridge Replacement
Mendocino County, California

Project Area

Attachment A

BOLLARD Acoustical










***Legend***

- A Existing Lambert Lane Robinson Creek Bridge
- B Long-term Noise Measurement Location Facing Existing Robinson Creek Bridge
- C Close-up of Noise Measurement Equipment

# Robinson Creek Bridge Replacement
Mendocino County, California

Photographs of Long-Term
Noise Survey Location

Attachment B

BOLLARD Acoustical

# Attachment C-1
# Ambient Noise Monitoring Results - Site LT-1
# Robinson Creek Bridge Replacement - Mendocino County
# Wednesday, September 16, 2020

| Hour | Leq | Lmax | L50 | L90 |
|---|---|---|---|---|
| 12:00 AM | 44 | 63 | 41 | 40 |
| 1:00 AM | 48 | 74 | 44 | 39 |
| 2:00 AM | 43 | 62 | 40 | 39 |
| 3:00 AM | 44 | 62 | 35 | 33 |
| 4:00 AM | 45 | 64 | 35 | 33 |
| 5:00 AM | 46 | 63 | 36 | 32 |
| 6:00 AM | 56 | 83 | 45 | 39 |
| 7:00 AM | 52 | 69 | 45 | 36 |
| 8:00 AM | 52 | 67 | 47 | 42 |
| 9:00 AM | 52 | 68 | 48 | 42 |
| 10:00 AM | 54 | 75 | 49 | 44 |
| 11:00 AM | 51 | 65 | 48 | 44 |
| 12:00 PM | 52 | 72 | 48 | 45 |
| 1:00 PM | 53 | 72 | 49 | 46 |
| 2:00 PM | 54 | 69 | 51 | 47 |
| 3:00 PM | 55 | 73 | 52 | 48 |
| 4:00 PM | 54 | 73 | 51 | 48 |
| 5:00 PM | 53 | 68 | 51 | 47 |
| 6:00 PM | 51 | 65 | 48 | 44 |
| 7:00 PM | 51 | 71 | 47 | 44 |
| 8:00 PM | 50 | 72 | 47 | 45 |
| 9:00 PM | 49 | 65 | 46 | 45 |
| 10:00 PM | 48 | 66 | 46 | 45 |
| 11:00 PM | 45 | 62 | 44 | 41 |

| | Statistical Summary | | | | | |
|---|---|---|---|---|---|---|
| | Daytime (7 a.m. - 10 p.m.) | | | Nighttime (10 p.m. - 7 a.m.) | | |
| | High | Low | Average | High | Low | Average |
| Leq (Average) | 55 | 49 | 52 | 56 | 43 | 49 |
| Lmax (Maximum) | 75 | 65 | 70 | 83 | 62 | 67 |
| L50 (Median) | 52 | 45 | 48 | 46 | 35 | 41 |
| L90 (Background) | 48 | 36 | 44 | 45 | 32 | 38 |

| | |
|---|---|
| Computed DNL, dB | 56 |
| % Daytime Energy | 78% |
| % Nighttime Energy | 22% |

| | |
|---|---|
| GPS Coordinates | 39° 0'31.39"N |
| | 123°22'4.57"W |

BOLLARD
Acoustical Consultants

# Attachment C-2
# Ambient Noise Monitoring Results - Site LT-1
# Robinson Creek Bridge Replacement - Mendocino County
# Thursday, September 17, 2020

| Hour | Leq | Lmax | L50 | L90 |
|---|---|---|---|---|
| 12:00 AM | 45 | 65 | 44 | 42 |
| 1:00 AM | 44 | 63 | 43 | 40 |
| 2:00 AM | 45 | 61 | 44 | 40 |
| 3:00 AM | 44 | 58 | 43 | 40 |
| 4:00 AM | 46 | 64 | 41 | 38 |
| 5:00 AM | 48 | 63 | 43 | 32 |
| 6:00 AM | 52 | 73 | 43 | 34 |
| 7:00 AM | 60 | 83 | 49 | 42 |
| 8:00 AM | 52 | 65 | 47 | 40 |
| 9:00 AM | 53 | 71 | 49 | 43 |
| 10:00 AM | 54 | 76 | 49 | 44 |
| 11:00 AM | 54 | 74 | 51 | 46 |
| 12:00 PM | 53 | 76 | 49 | 45 |
| 1:00 PM | 56 | 83 | 50 | 46 |
| 2:00 PM | 55 | 77 | 53 | 49 |
| 3:00 PM | 55 | 74 | 52 | 49 |
| 4:00 PM | 53 | 67 | 51 | 47 |
| 5:00 PM | 53 | 74 | 50 | 45 |
| 6:00 PM | 52 | 69 | 48 | 44 |
| 7:00 PM | 52 | 67 | 49 | 45 |
| 8:00 PM | 49 | 71 | 46 | 43 |
| 9:00 PM | 49 | 69 | 45 | 44 |
| 10:00 PM | 51 | 81 | 42 | 41 |
| 11:00 PM | 44 | 66 | 43 | 37 |

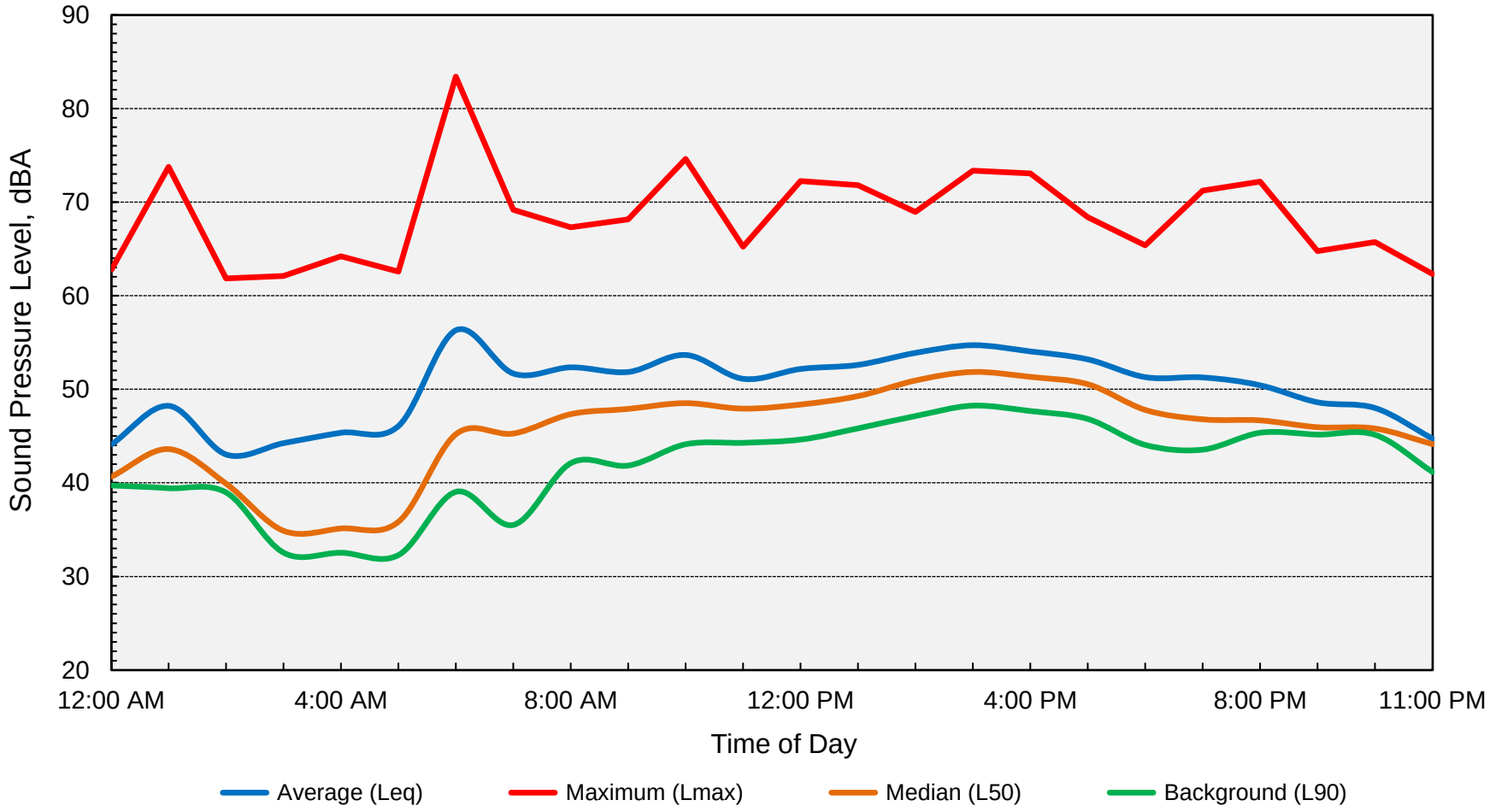
| | Statistical Summary | | | | | |
|---|---|---|---|---|---|---|
| | Daytime (7 a.m. - 10 p.m.) | | | Nighttime (10 p.m. - 7 a.m.) | | |
| | High | Low | Average | High | Low | Average |
| Leq (Average) | 60 | 49 | 54 | 52 | 44 | 48 |
| Lmax (Maximum) | 83 | 65 | 73 | 81 | 58 | 66 |
| L50 (Median) | 53 | 45 | 49 | 44 | 41 | 43 |
| L90 (Background) | 49 | 40 | 45 | 42 | 32 | 38 |

| | |
|---|---|
| Computed DNL, dB | 56 |
| % Daytime Energy | 88% |
| % Nighttime Energy | 12% |

| | |
|---|---|
| GPS Coordinates | 39° 0'31.39"N |
| | 123°22'4.57"W |

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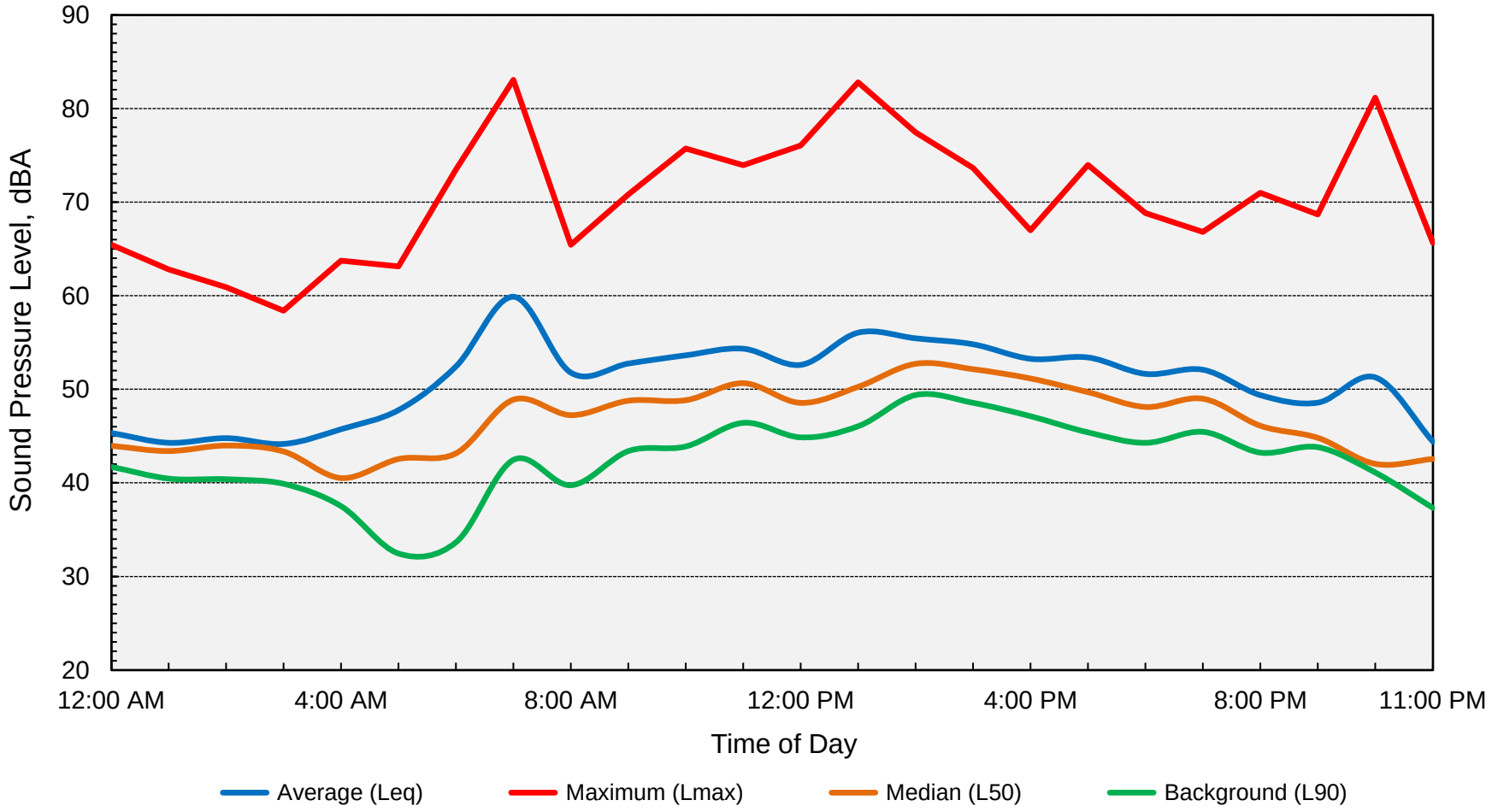
**Attachment D-1**
**Ambient Noise Monitoring Results - Site LT-1**
**Robinson Creek Bridge Replacement - Mendocino County**
**Wednesday, September 16, 2020**




**Computed DNL = 56 dB**

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**Attachment D-2**
**Ambient Noise Monitoring Results - Site LT-1**
**Robinson Creek Bridge Replacement - Mendocino County**
**Thursday, September 17, 2020**




**Computed DNL = 56 dB**

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