

NORTH COAST RESOURCE PARTNERSHIP 2018/19 IRWM Project Application

The North Coast Resource Partnership (NCRP) 2018/19 Project Application Instructions and additional information can be found at the NCRP 2018/19 Project Solicitation webpage (<u>https://northcoastresourcepartnership.org/proposition-1-irwm-round-1-implementation-funding-solicitation/</u>). Please fill out grey text boxes and select all the check boxes that apply to the project. Application responses should be clear, brief and succinct.

Project Applications will be accepted until 5:00 pm, March 8, 2019 March 15, 2019. It is important to save the application file with a distinct file name that references the project name. When the application is complete, please email to kgledhill@westcoastwatershed.com

If you have questions, need additional information or proposal development assistance please contact:

- Katherine Gledhill at kgledhill@westcoastwatershed.com or 707.795.1235
- Tribal Projects: Sherri Norris, NCRP Tribal Coordinator at sherri@cieaweb.org or 510.848.2043

Project Name: Forsythe Creek Floodplain and Riparian Restoration Project

A. ORGANIZATION INFORMATION

- 1. Organization Name: Mendocino County Resource Conservation District
- Contact Name/Title
 Name: Patty Madigan
 Title: Conservation Programs Manager
 Email: patty.madigan@mcrcd.org
 Phone Number (include area code): (707) 462-3664 ext 102
- **3.** Organization Address (City, County, State, Zip Code): 410 Jones Street, Suite C-3, Ukiah, Mendocino County, CA, 95482
- 4. Organization Type

Non-profit organization

____ Public utility

Federally recognized Indian Tribe

California State Indian Tribe listed on the Native American Heritage Commission's California Tribal Consultation List

Mutual water company

Other:

5. Authorized Representative (if different from the contact name)

Name: Joe Scriven Title: Project Manager Email: joe.scriven@mcrcd.org Phone Number (include area code): (707) 462-3664 ext 104

6. Has the organization implemented similar projects in the past? 🖂 yes 🗌 no

Briefly describe these previous projects.

MCRCD has managed stream bed & bank restoration projects in the Russian, Garcia, and Navarro River watersheds that have ranged in length from 30 to 410 lineal feet, including: removal of soil at road fill crossings & streambank laybacks exceeding 5,000 cubic yards; riparian planting projects of up to 600 native trees; and bio-engineering work with brush mattresses, woven willow walls, RSP inter-planting. Currently, MCRCD is managing \$2.4 M in projects for post-fire recovery in Redwood Valley.

- 7. List all projects the organization is submitting to the North Coast Resource Partnership for the 2018/19 Project Solicitation in order of priority. Forsythe Creek Floodplain and Riparian Restoration Project
- 8. Organization Information Notes:

B. ELIGIBILITY

1. North Coast Resource Partnership and North Coast IRWM Objectives

GOAL 1: INTRAREGIONAL COOPERATION & ADAPTIVE MANAGEMENT

Objective 1 - Respect local autonomy and local knowledge in Plan and project development and implementation

Objective 2 - Provide an ongoing framework for inclusive, efficient intraregional cooperation and effective, accountable NCIRWMP project implementation

Objective 3 - Integrate Traditional Ecological Knowledge in collaboration with Tribes to incorporate these practices into North Coast Projects and Plans

GOAL 2: ECONOMIC VITALITY

Objective 4 - Ensure that economically disadvantaged communities are supported and that project implementation enhances the economic vitality of disadvantaged communities by improving built and natural infrastructure systems and promoting adequate housing

Objective 5 - Conserve and improve the economic benefits of North Coast Region working landscapes and natural areas

GOAL 3: ECOSYSTEM CONSERVATION AND ENHANCEMENT

Objective 6 – Conserve, enhance, and restore watersheds and aquatic ecosystems, including functions, habitats, and elements that support biological diversity

Objective 7 - Enhance salmonid populations by conserving, enhancing, and restoring required habitats and watershed processes

GOAL 4: BENEFICIAL USES OF WATER

Objective 8 - Ensure water supply reliability and quality for municipal, domestic, agricultural, Tribal, and recreational uses while minimizing impacts to sensitive resources

Objective 9 - Improve drinking water quality and water related infrastructure to protect public health, with a focus on economically disadvantaged communities

Objective 10 - Protect groundwater resources from over-drafting and contamination

GOAL 5: CLIMATE ADAPTATION & ENERGY INDEPENDENCE

Objective 11 - Address climate change effects, impacts, vulnerabilities, and strategies for local and regional sectors to improve air and water quality and promote public health

Objective 12 - Promote local energy independence, water/ energy use efficiency, GHG emission reduction, and jobs creation

GOAL 6: PUBLIC SAFETY

Objective 13 - Improve flood protection and reduce flood risk in support of public safety

2. Does the project have a minimum 15-year useful life?

🛛 yes 🗌 no

If no, explain how it is consistent with Government Code 16727.

3. Other Eligibility Requirements and Documentation

CALIFORNIA GROUNDWATER MANAGEMENT SUSTAINABILITY COMPLIANCE

- a) Does the project that directly affect groundwater levels or quality?
 - 🗌 yes 🛛 🖂 no
- b) If Yes, will the organization be able to provide compliance documentation outlined in the instructions, to include in the NCRP Regional Project Application should the project be selected as a <u>Priority Project</u>?

	yes		no
--	-----	--	----

CASGEM COMPLIANCE

- a) Does the project overlie a medium or high groundwater basin as prioritized by DWR?
 yes no
- b) If Yes, list the groundwater basin and CASGEM priority: Ukiah Valley Groundwater Basin Medium Priority, Sub-basin #1-052
- c) If Yes, please specify the name of the organization that is the designated monitoring entity: Mendocino County Water Agency

d)	If there is no monitoring entity, please indicate whether the project is wholly located in an
	economically disadvantaged community.

ves	

URBAN WATER MANAGEMENT PLAN

no no

- a) Is the organization required to file an Urban Water Management Plan (UWMP)?
- b) If Yes, list the date the UWMP was approved by DWR:
- c) Is the UWMP in compliance with AB 1420 requirements?
 - 🗌 yes 🗌 no
- d) Does the urban water supplier meet the water meter requirements of CWC 525?
- c) If Yes, will the organization be able to provide compliance documentation outlined in the instructions, to include in the NCRP Regional Project Application should the project be selected as a Priority Project?

	,	
yes		no

AGRICULTURAL WATER MANAGEMENT PLAN

- a) Is the organization or any organization that will receive funding from the project required to file an Agricultural Water Management Plan (AWMP)?
 - 🗌 yes 🛛 🖂 no
- b) If Yes, list date the AWMP was approved by DWR:
- c) Does the agricultural water supplier(s) meet the requirements in CWC Part 2.55 Division 6?
 yes no

SURFACE WATER DIVERSION REPORTS

a) Is the organization required to file surface water diversion reports per the requirements in CWC Part 5.1 Division 2?

🗌 yes 🛛 🖂 no

d) If Yes, will the organization be able to provide SWRCB verification documentation outlined in the instructions, to include in the NCRP Regional Project Application should the project be selected as a Priority Project?

	yes		no
--	-----	--	----

STORM WATER MANAGEMENT PLAN

a) Is the project a stormwater and/or dry weather runoff capture project?

🗌 yes 🔀 no

- b) If yes, does the project benefit a Disadvantaged Community with a population of 20,000 or less?
 yes ____ no
- e) If No, will the organization be able to provide documentation that the project is included in a Stormwater Resource Plan that has been incorporated into the North Coast IRWM Plan, should the project be selected as a Priority Project?

🛛 yes	no
-------	----

C. GENERAL PROJECT INFORMATION

2.

1. Project Name: Forsythe Creek Floodplain and Riparian Restoration Project

Eligible	e Project Type under 2018/19 IRWM Grant Solicitation
	Water reuse and recycling for non-potable reuse and direct and indirect potable reuse
	Water-use efficiency and water conservation
	Local and regional surface and underground water storage, including groundwater aquifer
	cleanup or recharge projects
	Regional water conveyance facilities that improve integration of separate water systems
\boxtimes	Watershed protection, restoration, and management projects, including projects that reduce
	the risk of wildfire or improve water supply reliability
\boxtimes	Stormwater resource management projects to reduce, manage, treat, or capture rainwater or
_	stormwater
\boxtimes	Stormwater resource management projects that provide multiple benefits such as water quality,
	water supply, flood control, or open space
	Decision support tools that evaluate the benefits and costs of multi-benefit stormwater projects
\bowtie	Stormwater resource management projects to implement a stormwater resource plan
	Conjunctive use of surface and groundwater storage facilities
	Decision support tools to model regional water management strategies to account for climate
_	change and other changes in regional demand and supply projections
	Improvement of water quality, including drinking water treatment and distribution,
	groundwater and aquifer remediation, matching water quality to water use, wastewater
_	treatment, water pollution prevention, and management of urban and agricultural runoff
	Regional projects or programs as defined by the IRWM Planning Act (Water Code §10537)
	Other:

3. Project Abstract

In the 1980s, ~500,000 cubic yards of sediment & concrete rubble were placed along Forsythe Creek's north bank, which separated the channel from the floodplain and forced high flows into the south bank, eroding away mature riparian tree, incising the channel & lowering the water table. This project will restore channel access to the floodplain, rebuild the historic secondary channel, enhance native riparian vegetation, reduce velocities, aggrade the channel, & enhance salmonid spawning habitats.

4. Project Description

When a floodplain no longer gets inundated, the ecological benefits it provides are diminished. Spoils placement & levee construction has constricted Forsythe Creek, forcing high flows into the south bank, eroding over 80' of bank and mature riparian trees, and incising the channel. Spawning gravels for salmonids have disappeared, leaving cobbles, and clay parent material with minimal habitat for macroinvertebrates. Surface water does not persist through summer as a result of lowered groundwater & channel incision. This project will restore hydrologic functions of ~1,100' of Forsythe Creek, promote floodplain storage during winter, enhance salmonid spawning & rearing habitat, & restore the riparian forest affected by over 30 years of accelerated erosion.

Removing the north bank levee to reduce channel constriction is top priority. The second includes implementing the design to restore the historic secondary channel, excavating and sloping the bank to allow Forsythe Creek storm flows to expand onto the floodplain. Installation of soil lifts along the south bank will provide suitable substrate to plant native trees, thus jumpstarting riparian restoration on this site. Rock

slope protection to protect the soil lifts is needed, and will be installed immediately after the soil lifts are done. Rock barb deflectors and log structures will provide velocity refuge, gravel sorting, scour, and aquatic habitat. The final tasks include riparian planting and irrigation. Monitoring plantings and irrigation will continue for at least two seasons.

Expected benefits include: Infiltration into the floodplain of 1-3 acre feet per year; extended duration of summer flows; change in timing, velocity, and volume of instream flow; reduced bank erosion, restored riparian, reduced flood damage to properties, enhanced spawning & rearing habitats for salmonids, Pacific lamprey, and foothill yellow-legged frogs, and enhanced Tribal uses of Forsythe Creek for recreation and educational purposes.

5. Specific Project Goals/Objectives

Goal 1: Restore hydrologic function of the Forsythe Creek floodplain Goal 1 Objective: Reconstruct the natural channel cross section by levee and spoils removal Goal 1 Objective: Construct gently sloped secondary channel transition to floodplain for high flow expansion

Goal 1 Objective:

Goal 1 Objective:

Goal 2: Restore and enhance anadromous fish spawning habitat

Goal 2 Objective: Reduce stream velocity to promote gravel accumulation

Goal 2 Objective: Install scour logs and boulder deflectors to promote gravel sorting

Goal 2 Objective: Reconstruct secondary channel to regain spawning habitats

Goal 2 Objective:

Goal 3: Restore and enhance the native riparian community on both banks of Forsythe Creek

Goal 3 Objective: Install and irrigate native trees to promote shade and soil stabilization.

Goal 3 Objective:

Goal 3 Objective:

Additional Goals & Objectives (List)

6. Describe how the project addresses the North Coast Resource Partnership and North Coast IRWM Plan Goals and Objectives selected.

NCRP & IRWM Goal 1, Objective 1: Landowner input was solicited during CEQA Initial Study to describe historic conditions and incorporate local knowledge in project development. MCRCD and Coyote Valley Tribe's Environmental Dept. coordinated on a similar floodplain restoration project immediately upstream of the Tribal property boundary on Forsythe Creek.

Goal 2, Obj. 4: The project site is at the DAC boundary, yet most project workers will be Mendocino County residents who reside in DACs, therefore the economic vitality of their communities will benefit. Restoring this site will promote natural productivity of native plants, salmonids, and wildlife, which also benefits the surrounding human communities.

Goal 3, Obj. 6: Implementing the design will restore hydrologic function, biological diversity, and aquatic productivity. Obj. 7: Floodplain restoration will reduce velocity & improve spawning substrates for runs of Chinook salmon & steelhead.

Continued in item 23.

7. Describe the need for the project.

For over 30 years, this channelized section of Forsythe Creek has been incising & destroying riparian & aquatic habitat. These changes are due to spoils placement that eliminated floodplain access, that will continue to impact riparian & stream habitats and have negative effects downstream. Increases in climate variations, from drought to flood, will trigger episodic sediment delivery, expand riparian destruction, and eliminate aquatic habitats. Costs to implement this project will increase, and degradation of Forsythe Creek's natural resources will continue if this prject is not implemented. The need to change this section of Forsythe Creek from a detrimental impact to a beneficial influence on natural resources will continue to increase each year. Increased infiltration will extend summer surface flows as water seeps back into the channel. Substrate aggradation will improve salmonid & lamprey spawning and rearing habitats. The secondary channel will reduce south bank flood damage.

- 8. List the impaired water bodies (303d listing) that the project benefits: Russian River
- Will this project mitigate an existing or potential Cease and Desist Order or other regulatory compliance enforcement action? yes no
 If so, please describe?
- **10.** Describe the population served by this project.

Redwood Valley is an un-incorporated community of approximately 3,000 people that is an Economically Distressed Area. The project is located in the south west portion of Redwood Valley, which includes residential, rural residential, an elementary school, low income housing, agriculture & open space oak woodlands. The Coyote Valley Band of Pomo Indians Reservation is approximately one mile downstream of the site, who will see a benefit of this project by increased duration of summer surface flow.

- **11.** Does the project provide direct water-related benefits to a project area comprised of Disadvantaged Communities or Economically Distressed Communities?
 - Entirely
 - X Partially
 - 🗌 No

List the Disadvantaged Community(s) (DAC)

This portion of Redwood Valley is considered an Economically Distressed Community.

- 12. Does the project provide direct water-related benefits to a project area comprised of Severely Disadvantaged Communities (SDAC)?
 - Entirely
 - Partially
 - 🛛 No

List the Severely Disadvantaged Community(s)

13. Does the project provide direct water-related benefits to a Tribe or Tribes?

- Entirely
- X Partially
- 🗍 No

List the Tribal Community(s)

Coyote Valley Band of Pomo Indians' Reservation is ~1 mile downstream of the project. They provided a letter of support for this project because the benefits include enhanced natural productivity of salmonids, native plants & wildlife, and potential extension of surface flow during the dry season. If yes, please provide evidence of support from each Tribe listed as receiving these benefits.

14. If the project provides benefits to a DAC, EDA or Tribe, explain the water-related need of the DAC, EDA or Tribe and how the project will address the described need.

The section of Forsythe Creek between the project and Coyote Valley Tribal property has exhibited diminished summer surface flows and extended dry periods in the last ten years. Part of that is attributed to climate fluctuations and the recent 3-year drought, but continued channel incision also represents a significant cause. Channel incision has affected summer surface flow duration, and eliminated spawning and breeding habitats of native fish and amphibians. Improved surface flows through the summer months will help sustain juvenile steelhead trout, lamprey ammocoetes, and other native aquatic species which are important considerations for the Coyote Valley Tribe and other stakeholders. Protecting the 8 parcels from further erosive damage and restoring their riparian forest will end the continued devaluation of their properties.

15. Does the project address and/or adapt to the effects of climate change? Does the project address the climate change vulnerabilities in the North Coast region?
 If yes, please explain.

Forsythe Creek's peak discharges will increase according to climate change forecasts. This project will help reverse the effects of erosive storm flows on the site to benefit infiltration and improve salmonid and aquatic species habitat. Extended drought will be buffered by increased storage in the aquifer, which will prolong surface flow in the dry season. Restored riparian connectivity will also improve habitat for migratory birds & terrestrial species, which are stressed by climate changes.

16. Describe how the project contributes to regional water self-reliance.

Reduction and reversal of the channel incision trend of Forsythe Creek will promote water infiltration into the surrounding floodplain aquifers.

17. Describe how the project benefits salmonids, other endangered/threatened species and sensitive habitats.

Aggradation of gravels, lower velocities, and the restored side-channel will increase spawning habitat for Chinook salmon and steelhead trout. Restoring year around pool habitat will improve juvenile steelhead survival. Breeding habitat for foothill yellow-legged frogs will increase due to lower velocities and increased edge water. Enhanced riparian forests will increase bank stability, channel complexity, and shade, which benefit aquatic habitat, native fish, and amphibians.

18. Describe local and/or political support for this project.

Support has been received from: Coyote Valley Band of Pomo Indians' Tribal Council - benefits to water & salmon. Mendocino County Supervisor Carre Brown, State Senator Mike McGuire, Russian River Confluence, Redwood Valley County Water District, Russian River Watershed Association, All adjacent landowners, Assemblymember Jim Wood, and Congressman Jared Huffman support the multiple benefits provided by this project.

19. List all collaborating partners and agencies and nature of collaboration.

Horizon Water and Environment is the consulting firm that completed the Initial Study, design alternatives, hosted the public scoping sessions, and drafted the Mitigated Negative Declaration. Waterways Consulting is the firm responsible for hydraulic analysis and design to 65% level. Coyote Valley Band of Pomo Indians: A cultural resource monitor will be contracted for the duration of this project, who will also serve as a liaison to the Tribe's Environmental Department. Redwood Valley County Water District: Agreed to provide irrigation water, under contract, to support the riparian plantings for two years.

20. Is this project part or a phase of a larger project? Ves no Are there similar efforts being made by other groups? Ves no If so, please describe?

Expanding this design to the floodplain area immediately upstream of Coyote Valley Tribe's Reservation boundary has been in the discussion phase with the Coyote Valley Tribe's Environmental Department for over five years, and represents the next step in restoring Forsythe Creek after this project is completed. Channel constriction due to levee construction has caused significant damage in several areas of Forsythe Creek, yet no other group is working to address this issue.

21. Describe the kind of notification, outreach and collaboration that has been done with the County(ies) and/or Tribes within the proposed project impact area, including the source and receiving watersheds, if applicable.

Horizon Water and Environment and MCRCD notified all adjacent and nearby landowners, upper Russian River Native American Tribes, the Redwood Valley County Water District, and provided public notice according to CEQA notification guidelines.

22. Describe how the project provides a benefit that meets at least one of the Statewide Priorities as defined in the 2018 IRWM Grant Program Guidelines and Tribal priorities as defined by the NCRP? Make Conservation a California Way of Life: This project provides excellent demonstration/education opportunities, with high visibility and multiple benefits to local and regional stakeholders. MCRCD will publicize/promote this project throughout the county and region to show that floodplain restoration adds water to the aquifer, thus enhancing water supply.

Increase Regional Self-Reliance and Integrated Water Management Across All Levels of Government: Tribal, Local, State, and Federal representatives have demonstrated their support (letters) and the Russian River Storm Water Resource Plan (2018) has ranked this project as #2 on the priority list of over 90 projects.

Protect and Restore Important Ecosystems: Historic secondary channels and floodplains are important hydrologic features and provide multiple habitat benefits for salmonids, lamprey, frogs, turtles, and myriad of other species. This project will restore and protect the floodplain ecosystem. See 23 Notes

23. Project Information Notes:

Item 6 continued

Goal 4, Obj. 8: Reducing stream velocity will promote substrate aggradation in the main channel and infiltration into the floodplain. Water stored in the floodplain and gravel will seep back into Forsythe Creek as the summer progresses, thus providing longer duration of surface flows which benefits downstream communities such as the Coyote Valley Band of Pomo Indians.

Goal 5, Obj. 11: Reclaiming this floodplain begins the reversal of decades of deleterious effects of channelization and incision at this site. This project promotes infiltration, aggradation, habitat diversity, and will prolong the duration of water availability to plants and aquatic species within and along Forsythe Creek.

Goal 6, Obj.13: Flood damage was the trigger for this project, because the south bank landowners had been witnessing erosion and tree loss due to storm events. MCRCD and consulting engineers saw the opportunity to reclaim an historic secondary channel and restore access to the floodplain. Reducing flood impacts will increase and protect riparian buffers and aquatic habitats for years to come.

Item 22 continued

Manage and Prepare for Dry Periods: Substrate aggradation and floodplain infiltration will enhance surface flow duration in Forsythe Creek. This project will move Forsythe Creek towards sustaining year around surface flows, which is important for all life cycles of fish and other aquatic species.

Expand Water Storage Capacity and Improve Groundwater Management: Additional water storage will occur in the aquifer associated with the restored floodplain.

Increase Flood Protection: Restoring the secondary channel and connecting to the historic floodplain will decrease flooding and flood damage to the south bank. Riparian reforestation and streambank protection will protect the 8 parcels from additional flood damage.

Utilize Traditional Ecological Knowledge in coordination with Tribe(s): The project was developed in coordination with input from Coyote Valley Tribe's Environmental Department.

D. PROJECT LOCATION

1. Describe the location of the project

Geographical Information

The project is approximately 8 miles north of Ukiah, west of Highway 101, encompassing 9.3 acres of isolated floodplain and stream channel. The upstream boundary is near the confluence of Seward Creek with Forsythe Creek, and the downstream boundary is near the Uva Drive Bridge.

2. Site Address (if relevant):

8400 Uva Drive, Redwood Valley, CA 95470 - Primary site access

3. Does the applicant have legal access rights, easements, or other access capabilities to the property to implement the project?

Yes If yes, please describe

No If No, please provide a clear and concise narrative with a schedule, to obtain necessary access.

NA If NA, please describe why physical access to a property is not needed.

Landowner access agreements from all parcels adjacent to the project have been secured. All adjacent landowners are in support of this project.

4. Project Location Notes:

The Forsythe Creek floodplain is on the same parcel (16220019) as the Broiler Steakhouse in Redwood Valley, southwest of the restaurant. The center of the project is at 39.2587 N -123.2271 W.

E. PROJECT TASKS, BUDGET AND SCHEDULE

- 1. Projected Project Start Date: 3/15/2020 Anticipated Project End Date: 12/31/23
- 2. Will CEQA be completed within 6 months of Final Award?

State Clearinghouse Number: 2017012048

NA, Project is exempt from CEQA

NA, Not a Project under CEQA

NA, Project benefits entirely to DAC, EDA or Tribe, or is a Tribal local sponsor. [Projects providing a water-related benefit entirely to DACs, EDAs, or Tribes, or projects implemented by Tribes are exempt from this requirement].

No

🛛 Yes

3. Please complete the CEQA Information Table below

Indicate which CEQA steps are currently complete and for those that are not complete, provide the estimated date for completion.

CEQA STEP	COMPLETE? (y/n)	ESTIMATED DATE TO COMPLETE
Initial Study	Yes	
Notice & invitation to consult sent to Tribes per AB52	Yes	
Notice of Preparation	Yes	
Draft EIR/MND/ND	Yes	
Public Review	Yes	
Final EIR/MND/ND	Yes	
Adoption of Final EIR/MND/ND	Yes	
Notice of Determination	Yes	
N/A - not a CEQA Project		

If additional explanation or justification of the timeline is needed or why the project does not require CEQA, please describe.

- 4. Will all permits necessary to begin construction be acquired within 6 months of Final Award?
 - Yes

NA, Project benefits entirely to DAC, EDA, Tribe, or is a Tribal local sponsor

5. PERMIT ACQUISITION PLAN

Type of Permit	Permitting Agency	Date Acquired or Anticipated
LSAA 1602	CA Dept of Fish & Wildlife	9/1/20
SWRCB 401	CA Water Resources Control Bd	9/1/20
ACE 404	Army Corps of Engineers	9/1/20
Section 7 Consultation	NOAA Fisheries	9/1/20
Construction General Permit	County of Mendocino	9/1/20

For permits not acquired: describe actions taken to date and issues that may delay acquisition of permit.

The 65% design plans and Mitigated Negative Declaration are complete and will serve as the basis for permit applications and notifications. Since this project is a restoration of natural stream habitats, we expect no significant delays from regulatory agencies during the review and approval process. No permit applications or notifications have been submitted.

6. Describe the financial need for the project.

The total project cost is estimated at ~\$2.6M, which far exceeds any local resources available. MCRCD has expended over \$150,000 developing the 65% engineered design and CEQA. The County of Mendocino is not in a position to fund restoration projects. This proposal ranked #2 of 95 restoration projects submitted to the Russian River Storm Water Resource Plan (2018) and is supported by Tribal, local, state, and federal leadership.

7. Is the project budget scalable? ves no

Describe how a scaled budget would impact the overall project.

This project can be scaled down by 25% to 50%, postponing lower priority components until more funding is secured. A 25% reduction to \$1,973,508 will allow for levee removal, secondary channel construction, & soil lift installation. A 50% reduction to \$1,315,672 will allow for levee removal & most secondary channel components to be installed. Costs for permitting, administration, monitoring, & water truck will decrease proportionally according to which project components do not get implemented.

8. Describe the basis for the costs used to derive the project budget according to each budget category.

Category a) MCRCD staff costs include salary & fringe benefits to manage this project. Estimated hours are based upon prior experience.

Contractor Compliance & Monitoring Inc. will implement MCRCD's Labor Compliance Program. Their scope of work and cost estimate is attached as MCRCD Forsythe Floodplain CCMI SOW and Budget.pdf.

Horizon Water & Environment staff will complete the Monitoring Plan based upon their estimate of time.

Continued in Item 14.

9. Provide a narrative on cost considerations including alternative project costs.

Three design options were presented to the landowners by Horizon Water & Environment in January 2015. Hydraulic modeling was used determine flood elevations, flow velocities, and habitat benefits associated with construction costs and temporary impacts to riparian habitat for each design. Continued in Item 14.

10. List the sources of non-state matching funds, amounts and indicate their status.

As of January 1, 2015, MCRCD has expended approximately \$150,000 to secure the design and CEQA documentation. No other matching funds have been identified for this project.

11. List the sources and amount of state matching funds.

NA

12. Cost Share Waiver Requested (DAC or EDA)?	🖂 yes	🗌 no
---	-------	------

Cost Share Waiver Justification: Describe what percentage of the proposed project area encompasses a DAC/EDA, how the community meets the definition of a DAC/EDA, and the water-related need of the DAC/EDA that the project addresses. In order to receive a cost share waiver, the applicant must demonstrate that the project will provide benefits that address a water-related need of a DAC/EDA. The project lies within an Economically Distressed Area in Redwood Valley. Redwood Valley meets the definition of an Economically Distressed Area because the population is less than 20,000 people in the rural couny of Mendocino County. Forsythe Creek lies entirely within Redwood Valley. The water-related need in the Forsythe Creek watershed is to eliminate the continued channel incision that lowers surrounding aquifers, reduces surface flows, and negatively affects the stream ecology. In 2017 and 2018 Redwood Valley sustained damage from catastrophic wind driven wild fires, and reevaluation of the DAC classification for this community may be necessary to update these data.

13. Major Tasks, Schedule and Budget for NCRP 2018 IRWM Project Solicitation

Please complete MS Excel table available at <u>https://northcoastresourcepartnership.org/proposition-1-implementation-funding-solicitation/</u>; see instructions for submitting the required excel document with the application materials.

14. Project Tasks, Budget and Schedule Notes:

Item 8 continued.

Category c) Waterways Consulting estimate of \$45,000 to complete the project design was based upon their experience with other projects, and in getting this project's design to the 65% level.

Horizon Water & Environment estimated staff time to complete permit applications, coordination with regulatory representatives, permit fees, annual fees, and permit coordination throughout the project. Horizon's time and cost estimates are based upon experience working with regulatory agencies in northern California on floodplain restoration projects, such as the Napa River Floodplain Project: Oakville to Oak Knoll.

Category d) Horizon and Waterways estimated the time commitment to develop bid documents and complete the bid review process through contract award with MCRCD.

Construction costs of materials are based upon 2018 rates and being delivered to the project site.

Heavy equipment with operators and laborer costs are based upon 2018 CA prevailing wage rates. Construction activities including: mobilization, site preparation, staking, SWPPP, and construction of components were estimated during the 65% design stage by Waterways Consulting and Horizon Water & Environment.

Project signage cost estimate includes materials, bid from local sign shop, and labor to install on site. The Tribal Cultural Monitor cost estimate was provided by the Tribal Historian from the Coyote Valley Band of Pomo Indians.

Item 9 continued.

Construction costs of the options were not calculated, but were presented in relation to the other two projects. Option 1 cost the least, option 2 the most, and option 3 in between. Of the alternatives considered, all landowners agreed that the proposed project results in the best floodplain and habitat benefits for the cost, and therefore most likely to be implemented.

F. PROJECT BENEFITS & JUSTIFICATION

If Yes, provide a description of the impacts to the various regions.

2. Provide a narrative for project justification. Include any other information that supports the justification for this project, including how the project can achieve the claimed level of benefits. List any studies, plans, designs or engineering reports completed for the project. *Please see the instructions for more information about submitting these documents with the final application*. Water Supply: Groundwater infiltration/recharge is estimated at 1 to 3-acre feet per year. Surface water retention will provide improved habitat for salmonids and other aquatic organisms (Horizon Water & Environment, 2016). The Forsythe Creek Watershed Assessment (Bioengineering Associates, 2006) identified loss of floodplain connectivity due to channel incision and placement of spoils as a significant factor, affecting groundwater retention and degrading aquatic habitat. Channelization such as what occurred at the project site prevents channel migration across the floodplain that reduces energy dissipation, thus affecting substrate composition and benthic macroinvertebrate communities (Norman, Cederholm, Lingley, 1998). This site is located in the Ukiah Valley Groundwater Basin which is a medium priority for the state's groundwater management ranking system. The County monitors wells in this subwatershed through a sub-agreement with MCRCD. The Russian River Stormwater Management Plan ranked this project as #2 among a field of more than 90 projects within the Russian River watershed.

Water Quality: The Russian River Integrated Coastal Watershed Management Plan (NCRP, 2012) listed the loss of bedload due to Coyote Dam as another factor influencing channel incision and disconnection from floodplains. While the effects of artificially narrowing this channel in the 1980s were not widely understood, the resulting damages to property, water quality and natural habitats prove that the results of such actions are predictable and preventable. Horizon Water & Environment was contracted by MCRCD based upon their experiences working on flood attenuation projects in the lower Russian River and the Napa River. Their topographic survey and hydraulic modeling show that stream velocities will be reduced significantly, among other benefits, once the historic secondary channel is restored.

Other Ecosystem Service Benefits: These hydrologic and habitat improvements will result in reduced streambank erosion, an enhanced riparian corridor and tree canopy. The resulting habitat improvements will benefit sensitive aquatic organisms, including salmonids, lamprey, and yellow-legged frogs.

Other Benefits: Enhanced Tribal Uses of Forsythe Creek - Added recreational and educational opportunities for Tribal youth in summer.

Property Protection of 8 Parcels - Protecting these parcels from further damage will stabilize their land values and improve safety for those families.

Enhanced Riparian Corridor - Riparian density and diversity will be enhanced, to provide migration corridors and nesting habitat.

Demonstration in Mendocino County - This project will serve as a demonstration of floodplain restoration in Mendocino County. Similar projects have been conducted in the Russian River, and to our knowledge this is the first of its kind in Mendocino County.

3. Does the project address a contaminant listed in AB 1249 (nitrate, arsenic, perchlorate, or hexavalent chromium)? yes no

If yes, provide a description of how the project helps address the contamination.

- 4. Does the project provide safe, clean, affordable, and accessible water adequate for human consumption, cooking, and sanitary purposes consistent with AB 685? ☐ yes imes no If Yes, please describe.
- 5. Does the project employ new or innovative technologies or practices, including decision support tools that support the integration of multiple jurisdictions, including, but not limited to, water supply, flood control, land use, and sanitation? yes no
 If Yes, please describe.

Soil lifts are a means of restoring eroded streambanks with material suitable for revegetation with native species. Although not new, this method is deployed in instances such as in this project where riparian restoration is an important objective. Placing and compacting soil on the bank, and encasing it in filter fabric prevents loss while vegetative root structure gets established. Soil lifts reclaim streambanks that provide the basis for riparian reforestation to occur in the future.

6. For each of the Potential Benefits that the project claims complete the following table to describe an estimate of the benefits expected to result from the proposed project. [See the NCRP Project Application Instructions, Potential Project Benefits Worksheet and background information to help complete the table. The NCRP Project Application, Attachment B includes additional guidance, source materials and examples from North Coast projects.]

Potential Benefits Description	Physical Amt of	Physical Units	Est. Economic Value	Economic
Water Supply	Dellent			Onits
Infiltration of 1-3 AF/yr	1-3	Acre-feet/yr	\$160	\$80/AF
Extended season of surface water				NA
Change in Timing, Velocity and Volume of Instream Flow	1	acre-feet/yr	\$80	\$80/AF
Water Quality				
Reduced bank erosion	100	tons/year	\$550	\$5.5/ton
Riparian forest restoration	3.2	Acre	\$384	\$120/Ac
Flood Damage Reduction	1	year	\$5,000	\$5,000
Other Ecosystem Service Benefits				
Increased salmonid populations	2	fish	\$4,000	\$2000/ fish
Foothill yellow-legged frog breeding habitat	0.92	Acre	\$552	\$600/Ac
Pacific lamprey spawning habitat	0.92	Acre	\$92	\$100/Ac

PROJECT BENEFITS TABLE

Potential Benefits Description	Physical Amt of Benefit	Physical Units	Est. Economic Value per year	Economic Units
Other Benefits				
Enhanced Tribal Uses of Forsythe Creek				NA
Property protection of 8 parcels	0.1	Acre	\$1,000	\$10,000/ Ac
Enhanced Riparian Corridor				NA
Demonstration of Floodplain Restoration in Mendocino County				NA

7. Project Justification & Technical Basis Notes:

The area of foothill yellow-legged frog and Pacific lamprey breeding/spawning habitat is based on the acreage of the secondary channel. The economic unit for foothill yellow-legged frog is based on mitigation credit prices of \$30,000/acre for California red-legged frog, divided by 50 years.

Although not quantifiable in monetary terms, enhanced Tribal uses of Forsythe Creek is an important benefit of the project, most notably with educational and recreational opportunities for Tribal youth.

Habitat destruction at this site over the last 30+ years has the affected natural production of salmonids, frogs, and lampreys. As climatic conditions become more extreme, species at risk of extinction will be less likely to survive unless projects to restore breeding/spawning and rearing habitats and promote infiltration such as this get implemented.

Major Tasks, Schedule and Budget for North Coast Resource Partnership 2018/19 IRWM Project Solicitation

Project Name:	Forsythe Creek Floodplain and Riparian Restoration Project
Organization Name:	Mendocino County Resource Conservation District

Task #	Major Tasks	Task Description	Major Deliverables	Current Stage of	IRWM Task Budget	Non-State Match	Total Task Budget	Start Date	Completion Date
				Completion	J. J				
Α	Category (a): Direct Project Admi	inistration	1	1	r				
1	Administration	In cooperation with the County of Humboldt, sign a sub-grantee agreement for work to be completed on this project. Develop invoices with support documentation. Provide audited financial statements and other deliverables as required.	Invoices, audited financial statements and other deliverables as required	0%	\$150,026.80	\$0.00	\$150,026.80	4/1/20	12/31/23
2	Monitoring Plan	Develop Monitoring Plan to include goals and measurable objectives	Final Monitoring Plan	75%	\$1,770.00	\$0.00	\$1,770.00	4/1/20	6/1/20
3	Labor Compliance Program	Execute service agreement with Labor Compliance Program company	Submission of Labor Compliance Program	0%	\$9,850.00	\$0.00	\$9,850.00	4/1/20	10/1/20
4	Reporting	Develop monthly reports describing work completed, challenges, and strategies for reaching remaining project objectives. Complete annual reports summarizing work, objectives, and challenges to date. Develop Final Report	Monthly, Annual, and Final Reports	0%	\$37,506.70	\$0.00	\$37,506.70	4/1/20	1/31/24
В	Category (b): Land Purchase/Ease	ement		1	0	n .			
1				0%	\$0.00	\$0.00	\$0.00	NA	NA
С	Category (c): Planning/Design/En	ngineering/Environmental Documentation							- 1 1
1	Preliminary Design /Plans	Preliminary design (to 65%) has been completed	65% Plan Set	100%	\$0.00	\$147,000	\$147,000	12/1/15	8/31/16
2	Final Design /Plans	Update 65%. Complete 90%, and 100% submittals of Plans and Specifications. Includes additional hydraulic modeling to support design and permitting.	90%, and 100% submittals of Plans and Specifications.	0%	\$47,280.00	\$0.00	\$47,280.00	4/1/20	7/1/20
3	Environmental Documentation: CEQA *	CEQA documentation has been completed	None	100%	\$0.00	\$2,266.25	\$2,266.25	12/1/15	3/1/17
4	Permit Development *: CWA Section 404	Development of wetland delineation, permit application, 106 Report, Biological Assessments, and Mitigation and Monitoring Plan. Site visit with Army Corps representative.	CWA Section 404 Permit Application Package	0%	\$57,990.00	\$0.00	\$57,990.00	4/1/20	10/1/20
5	Permit Development *: Clean Water Act Section 401 Water Quality Certification/WDRs	Development of permit application package. Site visit with SWRCB representative. \$437 application + 3 years annual fee \$218.	CWA Section 401 Permit application package		\$14,201.00	\$0.00	\$14,201.00	4/1/20	10/1/20
6	Permit Development *: Fish and Game Code 1602- Lakebed & Streambed Alteration Agreement	Development of permit application package. Site visit with CDFW representative. Permit fee: \$5,313.	Lake and Streambed Alteration Agreement application package	0%	\$19,413.00	\$0.00	\$19,413.00	4/1/20	10/1/20
7	County Development Permits	All appropriate permit shall be secured for the project from the Mendocino County Planning Division. Permit fee \$4,000.	Mendocino County Grading Permit	0%	\$7,540.00	\$0.00	\$7,540.00	4/1/20	10/1/20
8	Project Management & Permit Coordination	Permit coordination by Horizon & Waterways with regulatory agencies.	Final Permits	0%	\$15,255.00	\$0.00	\$15,255.00	4/1/20	10/1/20
D	Category (d): Construction/Imple	ementation							
1	Contracting with General Engineering Contractor	Develop bid documents, advertise & conduct pre-bid contractors meeting; evaluate bids & award contract to general engineering contractor.	Summary of Bids and Contract Award	0%	\$9,960.00	\$0.00	\$9,960.00	12/1/20	4/1/21
1	Bid advertising & solicitation, copies, postage	D.1. Construction/Implementation: Contracting with General Engineering Contractor	All equipment delivered to site in clean and operable condition.	0%	\$1,800.00	\$0.00	\$1,800.00	6/1/21	6/15/21
2	Mobilization/ Demobilization - Equipment	Mobilize equipment to and off project site	All equipment delivered to site in clean and operable condition.	0%	\$25,000.00	\$0.00	\$25,000.00	6/1/21	6/15/21
3	Mobilization - Materials	Deliver materials to site. RSP, Filter Fabric, Spill Response Kit, Logs, Erosion Prevention Materials, SWPPP, Logs	All materials purchased for project are delivered in sufficient quantity and quality to proceed.	0%	\$134,000.00	\$0.00	\$134,000.00	6/1/21	10/15/21
4	Site Preparation	SWPPP implementation	Summary of site preparation activities in monthly reports; pre- project site photos	0%	\$30,000.00	\$0.00	\$30,000.00	4/1/21	6/15/21
5	Site Preparation	Dewatering and/or clear water bypass	Photo-documentation in monthly reports	0%	\$68,900.00	\$0.00	\$68,900.00	6/15/21	6/30/21
6	Site Preparation	Clearing and grubbing	Pre/post photo-documentation	0%	\$37,100.00	\$0.00	\$37,100.00	6/15/21	6/30/21
7	Construction Staking	Construction staking & grade checking according to design plans	Photo-documentation in monthly reports	0%	\$18,150.00	\$0.00	\$18,150.00	6/15/21	6/30/21

Project Name:	Forsythe Creek Floodplain and Riparian Restoration Project
Organization Name:	Mendocino County Resource Conservation District

Task	Major Tasks	Task Description	Major Deliverables	Current	IRWM Task	Non-State Match	Total Task Budget	Start Date	Completion
#				Stage of	Budget				Date
8	Environmental Compliance &	Assure project permits are on site ince-construction training conduct pre-	Photo-documentation survey reports & compliance checklists in	Completion	\$64,890,00	\$0.00	\$64,890,00	6/15/21	6/30/21
Ű	Monitoring	project photo-monitoring, address all surveys & monitoring required by CEQA	monthly reports	078	\$04,850.00	Ş0.00	\$04,890.00	0/13/21	0/30/21
		and regulatory agencies throughout project.							
9	Project Signage	Design sign and text for approval. Secure materials.	Installed 4' x 8' project sign.	0%	\$500.00	\$0.00	\$500.00	5/1/21	6/30/21
ALL	Project Construction, Water Truck	D. All Tasks. Project Construction/Implementation: Water truck with operator.	Photo documentation and dust abatement requirements met.	0%	\$100,912.00	\$0.00	\$100,912.00	7/1/21	10/31/21
10	Tribal Cultural Monitoring	A Cultural Monitor from the Coyote Valley Band of Pomo Indians will be present to observe earth moving operations to determine if artifacts of cultural significance get exposed.	Tribal Cultural Monitoring Reports.	0%	\$17,600.00	\$0.00	\$17,600.00	4/1/21	10/31/22
11	Project	Excavate and dismantle levee. Dispose of spoils on site. Recycle concrete	Dismantled levee. Non-native materials removed from site for	0%	\$76,800.00	\$0.00	\$76,800.00	7/1/21	7/16/21
	Construction/Implementation: Levee Excavation	rubble (~850 cu. yds). Stockpile RSP. Excavators, Dozers, Water Truck, Loader, Dump Trucks, Grade Checker.	recycling. RSP stockpile for re-use. Photo-documentation & recycling receipts in monthly reports.						
12	Project Construction/Implementation: Secondary channel excavation	Excavate secondary channel according to design. Materials to be stockpiled, re used, or recycled as appropriate. Excavators, Loaders, Dozers, Water Trucks, Dump Trucks, Grade Checker	 Historic secondary channel restored. Surveyor notes, photo- documentation, recycling receipts in monthly reports. 	0%	\$594,000.00	\$0.00	\$594,000.00	7/19/21	8/6/21
13	Project Construction: Installation of south bank soil lifts	Construct soil lifts according to design. Excavators, loaders, laborers, filter fabric, and approved soil substrate.	550 LF of engineered soil lifts on south bank. Photo-documentation in monthly reports.	0%	\$178,142.20	\$0.00	\$178,142.20	8/9/21	9/3/21
14	Project Construction: Install Rock Slope Protection	Install Rock Slope Protection according to design. Excavators, loaders, rock trucks. 3,000 cyd RSP over 600 LF.	600 LF of RSP on south bank, interplanted with native species according to design.	0%	\$520,000.00	\$0.00	\$520,000.00	9/6/21	9/24/21
15	Project Construction: Install 5 Rock Barb Deflectorss	Install Rock Barbs according to design. Excavator, loader, rock truck, 250 cubic yards boulders.	5 Rock barb deflectors installed. Photo-documentation in monthly reports.	0%	\$83,740.00	\$0.00	\$83,740.00	9/27/21	10/15/21
16	Project Construction: Install 15 Instream Log Features	Install Instream Log Features according to design. Excavator, trucking, redwood logs.	15 installed log structures. Photo-documentation in monthly reports. Log receipts.	0%	\$149,544.80	\$0.00	\$149,544.80	9/27/21	10/15/21
17	Project Construction: Riparian Restoration	Install rooted native trees and irrigation system	Install 5,640 rooted trees and irrigation system. Photo- documentation in monthly reports. Water use data.	0%	\$124,077.00	\$0.00	\$124,077.00	12/1/21	3/31/22
18	Project Close Out & Inspection	Inspect project components and establish that work is complete. Verifying that all project components have been installed and are functioning as specified will be conducted as part of construction inspection and project closeout. Conduct project completion photo monitoring. Prepare record drawings.	As-Built and Stamped Record Drawings; Project completion site photos in monthly reports.	0%	\$4,020.00	\$0.00	\$4,020.00	10/15/22	12/31/22
19	Construction Administration	Complete tasks necessary to administer construction contract. Keep daily records of construction activities, inspection, and progress. Conduct project construction photo-monitoring. Conduct engineering site visits to ensure correct installation of project features.	Construction Management Logs; Completed construction administration tasks documented in monthly progress reports	0%	\$21,475.00	\$0.00	\$21,475.00	4/1/21	11/1/22
20	Project Performance Monitoring	The performance of the project will be monitored in accordance to the Monitoring Plan using the following measurement tools and methods: geomorphic, habitat, vegetation, and photo monitoring	Annual Monitoring Report	0%	\$9,900.00	\$0.00	\$9,900.00	4/1/22	12/31/23
	Total North Coast Resource Pa	artnership 2018/19 IRWM Grant Request			\$2,631,343.50	\$149,266.25	\$2,780,609.75		
	Is Requested Budget scalable by	25%? If yes, indicate scaled totals; if no delete budget amount provide	ed.		\$1,973,507.63	\$149,266.25	\$2,085,457.31		
	Is Requested Budget scalable by	50%? If yes, indicate scaled totals; if no delete budget amount provide	ed.		\$1,315,671.75	\$149,266.25	\$1,390,304.88		

Budget Detail for North Coast Resource Partnership 2018/19 IRWM Project Solicitation

Project Name:

Budget Detail

Organization Name:

Forsythe Creek Floodplain and Riparian Restoration Project Mendocino County Resource Conservation District

Row (a) Direct Project Administration Costs							
Project Management Type	Personnel by Discipline	Number of	Hourly Wage	% of Cost (if	Total Admin		
		Hours		applicable) *	Cost		
Sub grantee Agreement Contracting Departing		420	¢ 402.44		642.277		
Sub-grantee Agreement, contracting, Reporting,	MCRCD Executive Director	120	\$ 103.14		\$12,377		
Contracting, EIF, Permitting, Reporting, Project		1180	\$ 82.77		\$97.669		
Performance Monitoring	MCRCD Project Manager	1100	Ş 02.77		\$57,005		
Contracting, EIF, Permitting, Reporting, Project		480	\$ 94.97		\$45.586		
Performance Monitoring	MCRCD Conservation Program Director						
Riparian Restoration Logistics	MCRCD Native Plant Specialist	240	\$ 84.78		\$20,347		
Accounting & Bookkeeping	MCRCD Business Manager / Fiscal Director	130	\$ 80.21		\$10,427		
Labor Compliance Program, Prevailing Wage and DIR	Contractor Compliance & Monitoring Inc. (CCMI)	77	\$ 85.00		\$6,545		
Reporting	Technician						
Labor Compliance Program, Prevailing Wage and DIR	Contractor Compliance & Monitoring Inc. (CCMI)	15	\$ 95.00		\$1,425		
Reporting	Analyst						
Labor Compliance Program, Prevailing Wage and DIR	Contractor Compliance & Monitoring Inc.	8	\$ 135.00		\$1,080		
Reporting	(CCMI)Manager						
Labor Compliance Program, Prevailing Wage and DIR	Contractor Compliance & Monitoring Inc. (CCMI)	2	\$ 400.00		\$800		
Reporting	Principal						
Monitoring Plan	Horizon Principal (Environmental Consultant)	2	\$ 225.00		\$450		
Monitoring Plan	Horizon Associate (Environmental Consultant)	8	\$ 165.00		\$1,320		
Materials	MCRCD Printing costs & postage	200	\$ 1.00		\$200		
Equipment	MCRCD Mileage reimbursement @ \$.58/mile	1600	\$ 0.58		\$928		
Total					\$199,154		
* What is the percentage based on (including total an	nounts)?	n/a					
* How was the percentage of cost determined?		n/a					

Row (b) Land Purchase/Easement 0

Row (c) Planning/Design/Engineeri	Row (c) Planning/Design/Engineering & Environmental Documentation						
Personnel (Discipline) Major Task Name		Number of	Hourly Wage	Total Cost			
		Hours					
	C.2. Update from 65% to 90% plans & specifications						
Waterways Principal Engineer	and provide to all interested parties for review and	60	\$165	\$9,900			
	comment.						
	C.2. Update from 65% to 90% plans & specifications						
Waterways Senior Engineer	and provide to all interested parties for review and	68	\$135	\$9,180			
	comment.						
	C.2. Develop a set of final design plans & specifications						
Waterways Principal Engineer	ready to put out to bid, that comform to all	10	Ć1CF	ćc coo			
	requirements stipulated by MCRCD and regulatory	40	\$165	\$6,600			
	agencies.						
Waterways Senior Engineer	C.2. Develop a set of final design plans & specifications		\$135				
	ready to put out to bid, that comform to all	100		¢21.000			
	requirements stipulated by MCRCD and regulatory	160		\$21,600			
	agencies.						
	C.4. Permit Development: Army Corps of Engineers:	20	\$225	\$5,850			
Harizon Bringinal	CWA Section 404 Application, wetland delineation, 106						
	Report, biological assessment & site visit. Agency site	20					
	visit(s).						
	C.4. Permit Development: Army Corps of Engineers:						
Herizen Associato	CWA Section 404 Application, wetland delineation, 106	216	¢1.05	ĆEO 140			
Horizon Associate	Report, biological assessment & site visit. Agency site	310	\$105	\$52,140			
	visit(s).						
	C.5. Permit Development: Clean Water Act Section 401						
Horizon Principal	Water Quality Certification/WDRs Application & site	4	\$225	\$900			
	visit.						
	C.5. Permit Development: Clean Water Act Section 401						
Horizon Associate	Water Quality Certification/WDRs Application & site	74	\$165	\$12,210			
	visit.						
Horizon Dringing	C.6. Permit Development: LSAA 1602 Application & site	Δ	¢22E	¢000			
	visit.	4	Ş225	\$900			

Budget Detail for North Coast Resource Partnership 2018/19 IRWM Project Solicitation

Project Name:	Forsythe Creek Floodplain and Riparian Restoration Project
Organization Name:	Mendocino County Resource Conservation District

Horizon Associate	C.6. Permit Development: LSAA 1602 Application & site visit.	80	\$165	\$13,200		
Horizon Principal	C.7. County Development Permits	4	\$225	\$900		
Horizon Associate	C.7. County Development Permits	16	\$165	\$2,640		
	C.8. Project Management & Permit Coordination:					
Horizon Principal	coordination and communication with regulatory	8	\$225	\$1,800		
	agency staff					
	C.8. Project Management & Permit Coordination:					
Horizon Associate	coordination and communication with regulatory	77	\$165	\$12,705		
	agency staff					
Harizon & Waterways	C.8. Project Management & Permit Coordination:	20	¢25	¢7E0		
Horizon & Waterways	Printing, Postage, and Shipping	30	Ş25	\$75U		
Materials and Fauinment	Work Task and Sub-Task (from Work	Number of	Unit Con	Total Cost		
iviateriais and Equipment	Task Table)	Units	Unit Cost	Total Cost		
	C.5. Permit Development: Clean Water Act Section 401					
401 Application fee	Water Quality Certification/WDR. \$437 application.	1	\$1,091	\$1,091		
	\$218 annual fee x 3 years.					
1602 Application for	C.6. Permit Development: Fish and Game Code 1602-	1	¢r 200	ĆF 212		
1602 Application ree	Lakebed & Streambed Alteration Agreement	1	\$5,300	\$5,313		
County Permit fee	C.7. County Development Permit	1	\$4,000	\$4,000		
Total				\$161,679		
	•					

Row (d) Construction/Implementation						
Personnel (Discipline)	Work Task and Sub-Task (from	Number of	Hourly Wage	Total Cost		
	Work Task Table)	Hours				
Waterways Principal Engineer	D.1. Construction/Implementation: Contracting with	2	\$165	\$330		
, , , ,	General Engineering Contractor					
Waterways Senior Engineer	D.1. Construction/Implementation: Contracting with	14	\$135	\$1,890		
	General Engineering Contractor	0				
Horizon Principal	D.1. Construction/Implementation: Contracting with	8	\$225	\$1,800		
	D 1 Construction/Implementation: Contracting with	26				
Horizon Associate	General Engineering Contractor	30	\$165	\$5,940		
Waterways Surveyor	D.7. Construction Staking & Grade Checking	110	\$165	\$18,150		
Horizon Principal	D.8. Environmental Compliance & Monitoring	20	\$225	\$4,500		
Horizon Associate	D.8. Environmental Compliance & Monitoring	366	\$165	\$60,390		
Tribal Cultural Monitor	D.10. Tribal Cultural Monitoring	320	\$55	\$17,600		
Waterways Staff Engineer	D.18. Project Close Out & Inspection	12	\$115	\$1,380		
Waterways Survey crew	D.18. Project Close Out & Inspection	16	\$165	\$2,640		
Waterways Principal Engineer	D.19. Construction Administration	12	\$165	\$1,980		
Waterways Senior Engineer	D.19. Construction Administration	112	\$135	\$15,120		
Horizon & Waterways mileage/lodging/ per diem	D.19. Construction Administration	25	\$175	\$4,375		
Horizon Associate	D.20. Project Performance Monitoring	60	\$165	\$9,900		
	Personnel SUBTOTAL			\$145,995		
Materials and Equipment	Work Task and Sub-Task (from	Number of	Unit Cost			
	Work Task Table)	Units				
Bid advertising & solicitation, copies, postage	D.1. Construction/Implementation: Contracting with	1	\$1.800	\$1.800		
	General Engineering Contractor		1 7	1 /		
General Engineering Contractor	D.2. Mobilization - Equipment	1	\$25,000	\$25,000		
General Engineering Contractor	D.3. Mobilization - Materials	1	\$134,000	\$134,000		
General Engineering Contractor	D.4. Site Preparation - SWPPP implementation	1	\$30,000	\$30,000		
General Engineering Contractor	D.5. Site Preparation - Dewatering and/or Clear Water Bypass	1	\$68,900	\$68,900		
General Engineering Contractor	D.6. Site Preparation - Clearing & Grubbing	1	\$37,100	\$37,100		
	D.9. Project Signage: 4'x8' lumber, posts, hardware,					
General Engineering Contractor	layout & lettering, labor for installation.	1	\$500	\$500		
Conoral Engineering Contractor	D. All Tasks. Project Construction/Implementation:	690	¢140	¢100.013		
General Engineering Contractor	water truck with operator.	080	\$148	\$100,912		

Budget Detail for North Coast Resource Partnership 2018/19 IRWM Project Solicitation

Project Name: Organization Name: Forsythe Creek Floodplain and Riparian Restoration Project Mendocino County Resource Conservation District

General Engineering Contractor		D.11. Construction/Implementation: Levee Excavation. 1,600 cu. yd. On-site disposal, off-site recyling, stockpiling for re-use. Excavators, Loader,	1600	\$48	\$76,800
General Engineering Contractor		D.12. Construction/Implementation: Secondary Channel Excavation. 30,000 cu. yd. On-site disposal, off-site recycling, stockpiling for re-use. Excavators, Loaders, Dump Trucks, Dozer	33000	\$18	\$594,000
D.1 -	D.12 SUBTOTAL				\$1.069.012
					+-//
General Engineering Contractor		D.13. Construction/Implementation: Install south bank soil lifts. 550 linear feet. Excavator, Laborers.	550	\$205	\$112,750
General Engineering Contractor		D.13. Construction/Implementation: Geotextile fabric - coconut blanket C125BN. 42,570 sq. ft. + \$350 delivery	42570	\$2	\$64,205
General Engineering Contractor		D.13. Construction/Implementation: Anchors for Geotextile Fabric - 20 boxes	20	\$59	\$1,187
[D.13 SUBTOTAL				\$178,142
General Engineering Contractor		D.14. Construction/Implementation: 3,250 cyd boulders plus delivery.	3250	\$80	\$260,000
General Engineering Contractor		D.14. Construction/Implementation: Install Rock Slope Protection. Excavators, Loaders.	3,250	\$80	\$260,000
1	D.14 SUBTOTAL				\$520,000
General Engineering Contractor		D.15. Construction/Implementation: Rock Barb Deflectors. 520 cyd boulders plus delivery.	520	\$80	\$41,340
General Engineering Contractor		D.15. Construction/Implementation: Install 5 Rock Barb Deflectors. Excavator, Loader.	5	\$8,480	\$42,400
1	D.15 SUBTOTAL				\$83,740
General Engineering Contractor		D.16. Project Construction/Implementation: Install 15 Log Structures. Excavator and laborers	15	\$4,240	\$63,600
General Engineering Contractor		D.16. Project Construction/Implementation: Logs + delivery.	63	\$1,230	\$77,465
General Engineering Contractor		D.16. Project Construction/Implementation: Anchoring log structures. Anchoring materials.	1	\$8,480	\$8,480
1	D.16 SUBTOTAL				\$149,545
CA Conservation Corps		D.17. Construction/Implementation: Restoration planting & irrigation installation: CCC crew - 15 people for 4 weeks.	2400	\$25	\$60,000
MCRCD		D.17. Construction/Implementation: Restoration planting: Portable toilet & handwashing station for CCC crew	2	\$250	\$500
CA Conservation Corps		D.17. Construction/Implementation: Restoration planting: Post driver rental. 2 @ \$100/day x 8 days	16	\$100	\$1,600
MCRCD		D.17. Construction/Implementation: Restoration planting: 1-gallon potted cottonwood, alder, willow, box elder.	5640	\$8	\$44,838
General Engineering Contractor		D.17. Construction/Implementation: Restoration planting: Irrigation system components for 1,400 lineal feet.	1400	\$4	\$5,565
MCRCD		D.17. Construction/Implementation: Restoration planting. Irrigation water for 2 years. WATER: \$10/month fee (36 months) plus \$5.50 per 1,000 gallons (irrigation will supply plantings at 15 gallons per month each, 5 months per year, from 2022 to 2023)	2	\$2,687	\$5,373
General Engineering Contractor		D.17. Construction/Implementation: Restoration planting: Native grass seed: 3.9 Acres	3.9	\$1,590	\$6,201
I	D.17 SUBTOTAL				\$124,077
Total					2,631,344



SUBJECT: Letter of Support for Forsythe Creek Floodplain Restoration and Riparian Enhancement Project

February 21, 2019

Dear Proposition 1 Grant Reviewer:

Coyote Valley Band of Pomo Indians would like to express our support for the Forsythe Creek Floodplain Restoration and Riparian Enhancement Project, being proposed by the Mendocino County Resource Conservation District (District). The project is located approximately one mile upstream of the Reservation boundary, and we agree that implementation of this project will promote groundwater infiltration, which will prolong surface flow in Forsythe Creek. Enhancing the habitat for spawning Chinook salmon and steelhead trout represents an important step towards restoring those populations, which is a goal we share with many Native American Tribes and other stakeholders.

Our Environmental Department has worked with the District since 2010 on a variety of biological monitoring and riparian restoration projects, and we look forward to future collaborations. A Cultural Monitor from our staff will be hired for the duration of this project to ensure cultural resources are protected, and to serve as a liaison between the District and the Tribal Council.

We believe the actions described in the design will reduce erosion, restore access to the floodplain to promote infiltration, restore the native riparian forest, and provide other benefits to Forsythe Creek that the Coyote Valley Band of Pomo Indians and the natural world rely upon. In addition, this would reduce some of the erosion and siltation that occurs just downstream of the site due to the armoring. This siltation has been damaging spawning habitat on the Reservation and is filling in pools from a previous restoration project. The project proposed by the District will improve habitat and spawning conditions for the entire downstream area to the confluence and potentially beyond. Thank you for your time and consideration.

Respectfully,

Michael Hunter Tribal Chairman, Coyote Valley Band of Pomo Indians

– A SOVEREIGN TRIBAL NATION ----

CARRE BROWN Supervisor First District



Office Phone: (707) 463-4221 Office Fax: (707) 463-7237 Browncj@mendocinocounty.org

COUNTY OF MENDOCINO BOARD OF SUPERVISORS 501 Low Gap Road • Room 1010 Ukiah, California 95482

North Coast Resource Partnership Post Office Box 262 Healdsburg, California 95448

RE: Forsythe Creek Floodplain Restoration and Riparian Enhancement Grant Application

To: NCRP TAC and Policy Committee:

The Forsythe Creek main basin and connecting watershed has been of concern for many years in inland Mendocino County. The Mendocino County Resource Conservation District has indentified a project that will greatly enhance its restoration and is applying for grant funding to financially support this project.

Historically, approximately 500,000 cubic yards of sediment and concrete rubble were placed along Forsythe Creek's north bank, which separated the channel from the floodplain. During high flows the water was pushed into the south bank, eroding away the bank and a mature riparian forest, incising the channel, and lowering the water table. A levee was constructed of concrete rubble and vehicle chassis at the transition between the floodplain and Forsythe Creek to protect the newly placed spoils. This resulted in narrowing the channel on this large stream.

This project will restore channel access to the floodplain by removing the levee and reclaiming the former secondary channel, and constructing a gently sloped bank for high flows to expand onto the floodplain. The south bank will be stabilized with log and boulder structures and replanted with native riparian species to enhance riparian vegetation.

I request this project be funded due to the multiple benefits it will provide for the immediate area, listed species and the downstream environment of the watershed including nearby Coyote Valley Tribal lands.

Sincerely,

arre Brown

Mendocino County First District Supervisor



March 6, 2019

North Coast Resource Partnership P.O. Box 262 Healdsburg, CA 95448

RE: Letter of support for the Forsythe Creek Floodplain Restoration and Riparian Enhancement Project in Redwood Valley

To Whom it May Concern:

I am writing to express my support for the Mendocino County Resource Conservation District's (MCRCD) grant application for their Forsythe Creek Floodplain Restoration and Riparian Enhancement Project to the North Coast Resource Partnership.

In the 1980s, approximately 500,000 cubic yards of sediment and concrete rubble were placed along Forsythe Creek's north bank, which separated the channel from the floodplain. This forced high flows into the south bank, eroding away the bank and a mature riparian forest, incising the channel, and lowering the water table. To protect the newly placed spoils, a levee was constructed of concrete rubble and vehicle chassis at the transition between the floodplain and Forsythe Creek, thus artificially narrowing the channel on this large stream.

This project is vital, as it will restore the hydrologic function of the Forsythe Creek floodplain. The design will reduce stream velocity during high flows, which will prevent further erosion, promote substrate aggradation, and create spawning habitats for Chinook salmon and steelhead trout. Slowed velocities over the floodplain will also increase groundwater infiltration, which will prolong the surface flow in Forsythe Creek in spring and summer. Lastly, the project also benefits wildlife by expanded breeding habitats for foothill yellow-legged frogs and Pacific lamprey, and a restored riparian corridor that is important for birds and mammals.

I urge you to give the Mendocino County Resource Conservation District's application your full consideration. If our office can be of any assistance, please do not hesitate to call us at 916-651-4002.

Warmest Regards,

Mike McGuire Senator

COMMITTEES CHAIR: HEALTH BUDGET JOINT LEGISLATIVE AUDIT WATER, PARKS, AND WILDLIFE

SUBCOMMITTEE BUDGET SUBCOMMITTEE NO. 1 ON HEALTH AND HUMAN SERVICES Assembly California Legislature



JIM WOOD ASSEMBLYMEMBER, SECOND DISTRICT STATE CAPITOL P.O. BOX 942849 SACRAMENTO, CA 94249-0002 (916) 319-2002 FAX (916) 319-2102

DISTRICT OFFICES 200 S SCHOOL STREET, SUITE D UKIAH, CA 95482 (707) 463-5770 FAX (707) 463-5773

> 50 D STREET, SUITE 450 SANTA ROSA, CA 95404 (707) 576-2526 FAX (707) 576-2297

1036 5TH STREET, SUITE D EUREKA, CA 95501 (707) 445-7014 FAX (707) 455-6607

March 14, 2019

North Coast Resource Partnership P.O. Box 262 Healdsburg, CA 95448

RE: The Forsythe Creek Floodplain Restoration and Riparian Enhancement Project

Dear Proposition 1 Grant Review Committee:

I am writing to express my strong support for the Mendocino County Resource Conservation District's (MCRCD) proposal, Forsythe Creek Floodplain Restoration and Riparian Enhancement Project, to the North Coast Resource Partnership for Department of Water Resources funding.

The purpose of this project is to restore the hydrologic function of the Forsythe Creek floodplain at this site. The design will reduce stream velocity during high flows, which will prevent further erosion, promote substrate aggradation, and create spawning habitats for Chinook salmon and steelhead trout. Slowed velocities over the floodplain will also increase groundwater infiltration, which will prolong the surface flow in Forsythe Creek in spring and summer. Additional wildlife benefits include expanded breeding habitats for foothill yellow-legged frogs and Pacific lamprey, and a restored riparian corridor that is important for birds and mammals. Restoring the floodplain will also provide benefits to the local economy of Mendocino County through the participation of local contractors and California Conservation Corps.

Thank you for giving the Mendocino County Resource Conservation District's proposal your full consideration.

Sincerely,

JAM Word

JIM WOOD Assemblymember 2nd District



Wildlife Conservation Board 1416 9th Street, Suite 1266 Sacramento, CA 95814

September 15, 2016

Dear Wildlife Conservation Board:

Please accept this letter of support for the Mendocino Country Resource Conservation District's (MCRCD) proposal for Proposition 1 funds under the Stream Flow Enhancement Program.

Implementation of the Forsythe Creek Floodplain Restoration Project represents a proactive approach in the upper Russian River watershed to address the loss of floodplains and aquatic habitat that continue to affect water and fisheries resources in Mendocino and Sonoma Counties. This project is modeled after the successful Napa River Floodway Project but is on a much smaller scale. The benefits of additional salmonid spawning and rearing habitat, flood attenuation, increased infiltration and extended release throughout summer, and riparian restoration will serve this section of the Russian River well.

Thank you for this opportunity to voice my support for the **Forsythe Creek Floodplain Restoration Project.** We strongly urge the Wildlife Conservation Board to fund this important effort.

Sincerely,

Granville Pool. President, Board of Directors

BOARD OF DIRECTORS

Granville Pool Pamela Ricetti Ken Todd Jeff Basili Marvin Talso



March 12, 2019

Katherine Gledhill North Coast Resource Partnership Kgledhill@westcoastwatershed.com

RE: Forsythe Creek Floodplain Restoration and Riparian Enhancement Project

Dear Ms. Gledhill,

a Flor

I am pleased to submit a letter of support for the Mendocino County Resource Conservation District's proposal, *Forsythe Creek Floodplain Restoration and Riparian Enhancement Project*, to the North Coast Resource Partnership for DWR funding.

The purpose of this project is to restore the hydrologic function of the Forsythe Creek floodplain at the project site. The design will reduce stream velocity during high flows, which will prevent further erosion, promote substrate aggradation, and create spawning habitats for Chinook salmon and steelhead trout. Slowed velocities over the floodplain will also increase groundwater infiltration, which will prolong the surface flow in Forsythe Creek in spring and summer. Additional wildlife benefits include expanded breeding habitats for foothill yellow-legged frogs and Pacific lamprey, as well as a restored riparian corridor that is important for birds and mammals.

Thank you for considering this very important project.

adriane Larayaeae

Adriane Garayalde Russian River Confluence Coordinator



MEMBER AGENCIES

- City of Cloverdale
- City of Cotati
- City of Healdsburg
- City of Rohnert Park
- City of Santa Rosa
- City of Sebastopol
- City of Ukiah
- County of Mendocino
- County of Sonoma
- Sonoma County Water Agency
- Town of Windsor

ANDY RODGERS Executive Director

300 Seminary Avenue Ukiah, CA 95482 (707) 508-3670

cleanwater@rrwatershed.org www.rrwatershed.org March 14, 2019

SENT VIA: EMAIL

North Coast Resource Partnership PO Box 262 Healdsburg, CA 95448

SUBJECT: Letter of support for the Forsythe Creek Floodplain Restoration and Riparian Enhancement Project

Dear Proposition 1 Grant Review Committee:

I write on behalf of the Russian River Watershed Association (RRWA) to express support for the Mendocino County Resource Conservation District's proposal, Forsythe Creek Floodplain Restoration and Riparian Enhancement Project (Project), to the North Coast Resource Partnership for Department of Water Resources funding.

RRWA formed in 2003 and is a coalition of 11 cities, counties, and agencies within the Russian River watershed that work together for clean water, habitat restoration, and watershed enhancement.

The purpose of the Project is to restore the hydrologic function of the Forsythe Creek floodplain. The design will reduce stream velocity during high flows, which will prevent further erosion, promote substrate aggradation, and create spawning habitats for Chinook salmon and steelhead trout. Slowed velocities over the floodplain will also increase groundwater infiltration, which will prolong the surface flow in Forsythe Creek in spring and summer. Additional wildlife benefits include expanded breeding habitats for foothill yellow-legged frogs and Pacific lamprey, and a restored riparian corridor that is important for birds and mammals.

RRWA appreciates the opportunity to advocate for Mendocino County Resource Conservation District's proposal for the Forsythe Creek Floodplain Restoration and Riparian Enhancement Project, and encourages you to consider funding this proposal.

Sincerely,

Andy Rodgers, RRWA Executive Director

JARED HUFFMAN

2ND DISTRICT, CALIFORNIA

COMMITTEE ON NATURAL RESOURCES

WATER, POWER, AND OCEANS – RANKING MEMBER FEDERAL LANDS

COMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE HIGHWAYS AND TRANSIT WATER RESOURCES AND ENVIRONMENT

March 15, 2019

Congress of the United States House of Representatives Mashington, DC 20515–0502 WASHINGTON OFFICE 1406 Longworth House Office Building Washington, DC 20515 Phone: (202) 225–5161 Fax: (202) 225–5163

WEBSITE: huffman.house.gov

North Coast Resource Partnership P.O. Box 262 Healdsburg, CA 95448

Dear Review Committee:

I am writing to express my support for Mendocino County Resource Conservation District's grant application for approximately \$2.3 million from the North Coast Resource Partnership for the Forsythe Creek Floodplain Restoration and Riparian Enhancement project in Redwood Valley.

Due to the approximately 500,000 cubic yards of sediment and concrete rubble that was placed along the north bank of Forsythe Creek in the 1980s, the channel was separated from the floodplain. This caused high flows and erosion of the south bank and mature riparian forest while lowering the water table. To protect the newly placed spoils, a levee was constructed of concrete rubble and vehicle chassis at the transition between the floodplain and Forsythe Creek which artificially narrowed the channel on this large stream.

This project will improve conditions along Forsythe Creek by slowing channel flow and restoring critical riparian habitat. This will be accomplished by stabilizing the south bank with log and boulder structures as well as replanting native riparian species at the site. The restored floodplain will also reduce erosion, providing crucial spawning habitat for salmonids and Pacific lamprey as well as breeding habitat for foothill yellow-legged frogs.

Funding this important project will significantly improve conditions at Forsythe creek by restoring crucial habitats and reducing erosion. Thank you for your serious consideration of this worthy project.

Sincerely,

Member of Congress

SAN RAFAEL 999 FIFTH AVENUE, SUITE 290 SAN RAFAEL, CA 94901 PHONE: (415) 258–9657 FAX: (415) 258–9913 PETALUMA 206 G STREET, #3 PETALUMA, CA 94952 PHONE: (707) 981–8967 FAX: (415) 258–9913 UKIAH 559 Low Gap Road Ukiah, CA 95482 Phone & Fax: (707) 671–7449

PRINTED ON RECYCLED PAPER

FORT BRAGG 430 North Franklin Street P.O. Box 2208 Fort Bragg, CA 95437 Phone: (707) 962–0933 Fax: (707) 962–0905 EUREKA 317 THIRD STREET, SUITE 1 EUREKA, CA 95501 PHONE: (707) 407–3585 FAX: (707) 407–3559

FORSYTHE CREEK FLOODPLAIN AND RIPARIAN RESTORATION PROJECT 65% DESIGN SUBMITTAL E School Wa N Wines PROJECT Oak Park Mobile & RV Park LOCATION PROJECT OCATION

VICINITY MAP

SHEET INDEX

- C1 COVER SHEET C2 SITE PLANS C3 SECTIONS (1 OF 2)
- C3 SECTIONS (2 OF 2) C4 SECTIONS (2 OF 2) C5 ACCESS, STAGING AND DEWATERING PLAN C6 DETAILS C7 NOTES L1 REVEGETATION PLAN

GENERAL NOTES

- TOPOGRAPHIC MAPPING WAS PERFORMED BY: WATERWAYS CONSULTING, INC. 509A SWIFT STREET SANTA CRUZ, CA 95060 1. SURVEY DATES: AUGUST 11, 2014 AND FEBRUARY 24, 2015.
- 2. ELEVATION DATUM: GPS TIES TO NAVD88 USING THE LEICA GEOSYSTEMS SMARTNET GLOBAL NAVIGATION SATELLITE SYSTEM (GNSS) NETWORK.
- 3. BASIS OF BEARINGS: GPS TIES TO NAD83 CALIFORNIA STATE PLANE, ZONE 2 USING THE LEICA GEOSYSTEMS SMARTNET GLOBAL NAVIGATION SATELLITE SYSTEM (GNSS) NETWORK.
- 4. THIS IS NOT A BOUNDARY SURVEY. PROPERTY LINES SHOWN WERE COMPILED FROM GIS INFORMATION. THE LOCATION OF THESE LINES IS SUBJECT TO CHANGE, PENDING THE RESULTS OF A COMPLETE BOUNDARY SURVEY.

AVG.	AVERAGE
CC	CONCRETE
CY	CUBIC YARDS
DIA	DIAMETER
F	FXISTING
ĒG	EXISTING GROUND
ELG.	ELEVATION
	DRAINAGE INI ET
FC	ENISHED ORADE
FG CT	FINISHED GRADE
FI	FELI
INV	INVERT
N	NEW
N.I.S.	NOT TO SCALE
0.C.	ON CENTER
0.D.	RELATIVE COMPACTION
RSP	ROCK SLOPE PROTECTIC
SPK	SPIKE
SQ.FT.	SQUARE FOOT
Т	TREE
T.B.D.	TO BE DETERMINED
TYP	TYPICAL
UNK	UNKNOWN
WSE	WATER SURFACE ELEVAT
YR	YEAR

REE	SPECIES	
4	ALDER	
3	BAY	
2	COTTONWOOD	
)	OAK	
V	WILLOW	

ΈE	SPECIES
	ALDER
	BAY
	COTTONWOOL
	OAK
	WILLOW

TION YEAR

THESE DRAW	INGS PROVIDE	DE
STABILITY ALC	ONG FORSYTHE	С

REGIONAL MAP

SECTION AND DETAIL CONVENTION

SECTION OR DETAIL IDENTIFICATION (NUMBER OR LETTER)

REFERENCE SHEET FROM WHICH DETAIL OR SECTION IS TAKEN.

* CALL BEFORE YOU DIG *

CONTACT UNDERGROUND SERVICE ALERT (USA) PRIOR TO ANY CONSTRUCTION WORK 1-800-227-2600

TOFF	CDECIES
A	
Ê	BAY
C	COTTONWOOD
õ	OAK
Ŵ	WILLOW

E	<u>SPECIES</u> ALDEF BAY	7	

Ν



PROJECT DESCRIPTION

DETAILS TO IMPROVE STREAM AND HABITAT FUNCTION, AND BANK CREEK IN MENDOCINO COUNTY, CALIFORNIA.

 WORK SHALL CONSIST OF:
 EXCAVATION OF A SECONDARY CHANNEL WITH FLOODPLAIN BENCHES; REMOVAL OF ROCK SLOPE PROTECTION ALONG LEFT BANK (LOOKING DOWNSTREAM);
 INSTALLATION OF ROCK SLOPE PROTECTION, ROCK BARBS, AND VEGETATED SOIL LIFTS ALONG THE RIGHT BANK; INSTALLATION OF WOODY DEBRIS STRUCTURES; AND
 REVEGETATION WITH NATIVE SPECIES











<u>−YR ⊻</u>	WATERWAYS CONSULTING INC. 5994 SWIFT ST. 5094 SWIFT ST. 5994 SWIFT ST. 5995 SWIFT
	PRELIMINARY
	PREPARED AT THE REQUEST OF: RESOURCE CONSERVATION DISTRICT MENDOCINO COUNTY
	SECTIONS (1 OF 2)
(E) GROUND	FORSYTHE CREEK FLOODPLAIN AND RIPARIAN RESTORATION PROJECT 65% DESIGN SUBMITTAL
	DESIGNED BY: M.W.W. DRAWN BY: B.R.S. CHECKED BY: M.W.W. DATE: 6/22/17 14-038 BAR IS ONE INCH ON ORIGINAL DRAWING, ADJUST SCALES FOR REDUCED PLOTS 0 11" 3 OF 8







- STABILIZER/SUPPRESANT.

- MANUFACTURERS' SPECIFICATIONS.





2. CONNECTIONS: CONNECTIONS SHALL CONSIST OF LOG/LOG CONNECTIONS AS SHOWN ON DETAIL 1, AND LOG/BOULDER CONNECTIONS, AS SHOWN ON DETAIL 2, THIS SHT. PROVIDE A MINIMUM OF TWO (2) LOG/BOULDER CONNECTIONS PER LOG, OR AS DIRECTED BY THE ENGINEER. TENSION ALL CONNECTIONS PRIOR TO CLAMPING TO REMOVE SLACK AND MINIMIZE MOVEMENT. ALL CONNECTIONS SHALL BE PLACED TO MINIMIZE VISUAL IMPACT.

LOGS: LOGS SHALL BE REDWOOD, FIR, PINE, OAK WITH ROOTWAD ATTACHED, SOUND AND FREE OF SIGNIFICANT DECAY, MEETING THE FOLLOWING CRITERIA:

4. BALLAST BOULDERS: BALLAST BOULDERS WILL BE SUB-ROUNDED TO SUB-ANGULAR WITH A MINIMUM WEIGHT OF 3.5

5. <u>CABLE:</u> ALL CABLE SHALL BE 5/8" GALVANIZED WIRE ROPE WITH A MINIMUM BREAKING STRENGTH OF 25,000 LBS. ALL CABLE TO BE SECURED WITH A MINIMUM OF THREE GALVANIZED WIRE ROPE CLIPS AT EACH END, WITH 4", MIN. SPACING BETWEEN CLAMPS AND 2", MIN. DISTANCE TO CABLE ENDS. CABLE SHALL BE THOROUGHLY CLEANED WITH A SOLUTION OF MURIATIC ACID OR WITH ACETONE TO REMOVE ALL GREASE OR OIL FROM BONDED LENGTH. CABLES SHALL BE TENSIONED PRIOR TO CLAMPING TO REMOVE ALL SLACK FROM CABLE, AFTER EPOXY IS ALLOWED TO SET UP OVERNIGHT

6 HOLE PLACEMENT/PREPARATION: HOLES FOR ANCHORING INTO BOULDERS/ROCK FACE SHALL BE DRILLED WHERE ROCK IS SOUND, WHERE NO FAULTS OR FRACTURES ARE VISIBLE. HOLE DIAMETER SHALL BE NOT MORE THAN 1/8" GREATER THAN THAT OF THE ANCHOR/CABLE. HOLES SHALL BE DRILLED TO ALIGN WITH FINAL ORIENTATION OF TENSILE FORCES IN THE ANCHOR/CABLE, TO MINIMIZE BENDING AT THE ROCK SURFACE. HOLES SHALL BE PROPERLY CLEANED OF ALL DUST AND DEBRIS USING COMPRESSED AIR PRIOR TO INSTALLATION OF CABLE/ANCHOR. THE ENGINEER SHALL INSPECT AND APPROVE ALL HOLES PRIOR TO EPOXY PLACEMENT.

7. <u>EPOXY:</u> FILL THE HOLE APPROXIMATELY 2/3 WITH EPOXY BEFORE INSERTING THE CABLE TO THE BOTTOM OF THE HOLE. ALLOW ADHESIVE TO SET UP OVERNIGHT BEFORE APPLYING TENSION TO CABLE.

ANCHORING ADHESIVE SHALL BE A TWO-COMPONENT 100% SOLIDS EPOXY BASED SYSTEM SUPPLIED IN MANUFACTURER'S STANDARD CARTRIDGE AND DISPENSED THROUGH A STATIC-MIXING NOZZLE SUPPLIED BY THE MANUFACTURER. EPOXY SHALL MEET THE MINIMUM REQUIREMENTS OF ASTM C-881 SPECIFICATION FOR TYPE I, II, IN, AND V, GRADE 3, CLASS B AND C AND MUST DEVELOP MINIMUM 12,650 PSI COMPRESSIVE YIELD STRENGTH AFTER 7 DAY CURE. EPOXY MUST HAVE A HEAT REFLECTION TEMPERATURE OF A MINIMUM 136 DEGREES FAHRENHEIT (58 DEGREES CELSIUS). ADHESIVE SHALL BE EPOXY-THE SET FROM SIMPSON STRONG-THE, DUBLIN, CA, OR APPROVED EQUIVALENT. FILL THE HOLE. TARKE TO ENSURT HIGH BOND STRENGTH, AND AVOID CONTAMINATION. ALLOW ADHESIVE TO SET UP OVERNIGHT BEFORE MERINE CARSINE CARSING CABLE TO THE DOTOM OF THE HOLE.

1. FIBER ROLL SHALL BE 9"Ø STRAW WATTLE, "EARTH SAVER BIODEGRADABLE RICE STRAW WATTLE" OR APPROVED EQUAL

STRAW WATTLE" OR APPROVED EQUAL TRENCHES SHALL BE CONSTRUCTED TO THE DEPTH SHOWN, AND TO A SUFFICIENT WIDTH TO HOLD THE FIBER ROLL. STAKES SHALL BE INSTALLED AT THE ON-CENTER SPACING SHOWN ALONG THE LENGTH OF THE FIBER ROLL AND STOPPED AT 12 INCHES FROM EACH END OF THE ROLLS. STAKES SHALL BE DRIVEN TO BETWEEN TWO AND THREE INCHES ABOVE THE TOP OF THE ROLL. 5. FIBER ROLLS SHALL BE PLACED 10 FEET APART ALONG THE SLOPE FOR SLOPE INCLINATION OF 2H:1V AND STEEPER, AND 15 FEET APART ALONG THE SLOPE FOR SLOPE INCLINATION BETWEEN 2H:1V AND 4H:1V. 4. THE BEDDING AREA FOR THE FIBER ROLL SHALL BE CLEARED OF OBSTRUCTIONS INCLUDING ROCKS, CLODS, AND DEBRIS GREATER THAN ONE INCH IN DIAMETER BEFORE INSTALLATION. 5. FIBER ROLLS SHALL BE INSTALLED APPROXIMATELY PARALLEL TO THE SLOPE

BEFORE INSTALLATION. 5. FIBER ROLLS SHALL BE INSTALLED APPROXIMATELY PARALLEL TO THE SLOPE CONTOUR AND THE TERMINUS OF ROWS SHALL BE ANGLED UP-SLOPE AT 45 DEGREES FOR A DISTANCE OF THREE FEET. WHERE FIBER ROLLS MEET, PROVIDE AN OVERLAP OF TWO FEET, WITH ADJACENT ROLLS TIGHTLY ABUTTING EACH OTHER. 6. FIBER ROLLS SHALL BE INSTALLED PRIOR TO SEEDING WHERE USED WITHOUT SLOPE PROTECTION FABRIC.

7. FIBER ROLL SHALL BE INSTALLED OVER FABRIC (AFTER SEEDING) WHERE SLOPE



GENERAL NOTES

- PREPARED AT THE REQUEST OF: MENDOCINO COUNTY RESOURCE CONSERVATION DISTRICT 410 JONES STREET, SUITE C-3 UKIAH, CALIFORNIA 95482
- 2. ALL CONSTRUCTION AND MATERIALS SHALL CONFORM TO THE 2010 EDITION OF THE STATE OF CALIFORNIA STANDARD SPECIFICATIONS, ISSUED BY THE DEPARTMENT OF TRANSPORTATION (HEREAFTER REFERRED TO AS "STANDARD SPECIFICATIONS")
- THE ENGINEER SHALL BE NOTIFIED AT LEAST 48 HOURS PRIOR TO CONSTRUCTION. THE ENGINEER OR A DESIGNATED REPRESENTATIVE SHALL MONITOR THE CONSTRUCTION PROCESS, AS NECESSARY, TO ENSURE PROPER INSTALLATION PROCEDURES.
- 4. EXISTING UNDERGROUND UTILITY LOCATIONS:
 - A. PRIOR TO BEGINNING WORK, THE CONTRACTOR SHALL CONTACT ALL UTILITIES COMPANIES WITH REGARD TO WORKING OVER, UNDER, OR AROUND EXISTING FACILITIES AND TO OBTAIN INFORMATION REGARDING RESTRICTIONS THAT ARE REQUIRED TO PREVENT DAMAGE TO THE FACILITIES.
 - B. LOCATIONS SHOWN ARE COMPILED FROM INFORMATION SUPPLIED BY THE APPROPRIATE UTILITY AGENCIES AND FROM FIELD MEASUREMENTS TO ABOVE GROUND FEATURES READILY VISIBLE AT THE TIME OF SURVEY. LOCATIONS SHOWN ARE APPROXIMATE. THE CONTRACTOR IS CAUTIONED THAT ONLY ACTUAL EXCAVATION WILL REVEAL THE DIMENSIONS, SIZES, MATERIALS, LOCATIONS, AND DEPTH OF UNDERGROUND UTILITIES.
 - C. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE LOCATION AND/OR PROTECTION OF ALL EXISTING AND PROPOSED PIPING, UTILITES, TRAFFIC SIGNAL EQUIPMENT (BOTH ABOVE GROUND AND BELOW GROUND), STRUCTURES, AND ALL OTHER EXISTING IMPROVEMENTS THROUGHOUT CONSTRUCTION.
 - D. PRIOR TO COMMENCING FABRICATION OR CONSTRUCTION, CONTRACTOR SHALL DISCOVER OR VERIFY THE ACTUAL DIMENSIONS, SIZES, MATERIALS, LOCATIONS, AND ELEVATIONS OF ALL EXISTING UTILITIES AND POTHOLE THOSE AREAS WHERE POTENTIAL CONFLICTS ARE LIKELY OR DATA IS OTHERWISE INCOMPLETE.
 - E. CONTRACTOR SHALL TAKE APPROPRIATE MEASURES TO PROTECT EXISTING UTILITIES DURING CONSTRUCTION OPERATIONS, AND SHALL BE SOLELY RESPONSIBLE FOR THE COST OF REPAIR/REPLACEMENT OF ANY EXISTING UTILITIES DAMAGED DURING CONSTRUCTION. CONTRACTOR TO CALL UNDERGROUND SERVICE ALERT (1-800-642-2444) TO LOCATE ALL UNDERGROUND UTILITY LINES PRIOR TO COMMENCING CONSTRUCTION.
 - F. UPON LEARNING OF THE EXISTENCE AND/OR LOCATIONS OF ANY UNDERGROUND FACILITIES NOT SHOWN OR SHOWN INACCURATELY ON THE PLANS OR NOT PROPERLY MARKED BY THE UTILITY OWNER, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE UTILITY OWNER AND THE CITY BY TELEPHONE AND IN WRITING.
 - G. UTILITY RELOCATIONS REQUIRED FOR THE CONSTRUCTION OF THE PROJECT FACILITIES WILL BE PERFORMED BY THE UTILITY COMPANY, UNLESS OTHERWISE NOTED.
- 5. SHOULD THE CONTRACTOR DISCOVER ANY DISCREPANCIES BETWEEN THE CONDITIONS EXISTING IN THE FIELD AND THE INFORMATION SHOWN ON THESE DRAWINGS, HE SHALL NOTIFY THE ENGINEER PRIOR TO PROCEEDING WITH CONSTRUCTION
- 6. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO BE FULLY INFORMED OF AND TO COMPLY WITH ALL LAWS, ORDINANCES, CODES, REQUIREMENTS AND STANDARDS WHICH IN ANY MANNER AFFECT THE COURSE OF CONSTRUCTION OF THIS PROJECT, THOSE ENGAGED OR EMPLOYED IN THE CONSTRUCTION AND THE MATERIALS USED IN THE CONSTRUCTION.
- 7. ANY TESTS, INSPECTIONS, SPECIAL OR OTHERWISE, THAT ARE REQUIRED BY THE BUILDING CODES, LOCAL BUILDING DEPARTMENTS, OR THESE PLANS, SHALL BE DONE BY AN INDEPENDENT INSPECTION COMPANY. JOB SITE VISITS BY THE ENGINEER DO NOT CONSTITUTE AN OFFICIAL INSPECTION. IT IS THE CONTRACTORS RESPONSIBILITY TO ENSURE THAT THE REQUIRED TESTS AND INSPECTIONS ARE PERFORMED.
- PROJECT SCHEDULE: PRIOR TO COMMENCEMENT OF WORK, CONTRACTOR SHALL PROVIDE ENGINEER A DETAILED 8. CONSTRUCTION SCHEDULE FOR APPROVAL. THE CONTRACTOR SHALL NOT BEGIN ANY CONSTRUCTION WORK UNTIL THE PROJECT SCHEDULE AND WORK PLAN IS APPROVED BY THE ENGINEER. ALL CONSTRUCTION SHALL BE CLOSELY COORDINATED WITH THE ENGINEER SO THAT THE QUALITY OF WORK CAN BE CHECKED FOR APPROVAL. THE CONTRACTOR SHALL PURSUE WORK IN A CONTINUOUS AND DILIGENT MANNER TO ENSURE A TIMELY COMPLETION OF THE PROJECT.
- 9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DESIGN, PERMITTING, INSTALLATION, AND MAINTENANCE OF ANY AND ALL TRAFFIC CONTROL MEASURES DEEMED NECESSARY
- 10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR GENERAL SAFETY DURING CONSTRUCTION, ALL WORK SHALL CONFORM THE CONTRACTOR STRALE BE RESPONSIBLE FOR GENERAL SENERT DONATION ALL WORK STRALE OUN TO PERTINENT SAFETY REGULATIONS AND CODES. THE CONTRACTOR SHALL BE SOLELY AND COMPETELY RESPONSIBLE FOR FURNISHING, INSTALLING, AND MAINTAINING ALL WARNING SIGNS AND DEVICES NECESSARY TO SAFEGUARD THE GENERAL PUBLIC AND THE WORK, AND PROVIDE FOR THE PROPER AND SAFE ROUTING OF VEHICULAR AND PEDESTRIAN TRAFFIC DURING THE PERFORMANCE OF THE WORK. THE CONTRACTOR SHALL BE SOLELY AND COMPLETELY RESPONSIBLE FOR COMPLIANCE WITH ALL APPLICABLE PROVISIONS OF OSHA IN TH CONSTRUCTION PRACTICES FOR ALL EMPLOYEES DIRECTLY ENGAGED IN THE CONSTRUCTION OF THIS PROJECT
- 11. CONSTRUCTION CONTRACTOR AGREES THAT IN ACCORDANCE WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICES. CONSTRUCTION CONTRACTOR MALES THAT IN ACCONDANCE WITH GENERALI ACCEPTED CONSTRUCTION FORTION, CONSTRUCTION CONTRACTOR WILL BE REQUIRED TO ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THE PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY; THAT THIS REQUIREMENT SHALL BE MADE TO APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL PROPERTY: THAT THIS REQUIREMENT SHALL BE MADE TO APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS, AND CONSTRUCTION CONTRACTOR FURTHER AGREES TO DEFEND, INDEMNIFY AND HOLD DESIGN PROFESSIONAL HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT, EXCEPTION LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF DESIGN PROFESSIONAL. NEITHER THE PROFESSIONAL ACTIVITIES OF CONSULTANT NOR THE PRESENCE OF CONSULTANT OR HIS OR HER EMPLOYEES OR SUB-CONSULTANTS AT A CONSTRUCTION SITE SHALL RELIEVE THE CONTRACTOR AND ITS SUBCONTRACTORS OF THEIR RESPONSIBILITIES INCLUDING, BUT NOT LIMITED TO, CONSTRUCTION MEANS, METHODS, SEQUENCE, TECHNIQUES OR PROCEDURES NECESSARY FOR PERFORMING, SUPERINTENDING OR COORDINATING ALL PORTIONS OF THE WORK OF CONSTRUCTION IN ACCORDANCE WITH THE CONTRACT DOCUMENTS AND APPLICABLE HEALTH OR SAFETY REQUIREMENT OR ANY PECULATION OR OR OR STATE LAW. HEALTH OR SAFETY REQUIREMENTS OF ANY REGULATORY AGENCY OR OF STATE LAW.
- 12. THE CONTRACTOR SHALL MAINTAIN A CURRENT, COMPLETE, AND ACCURATE RECORD OF ALL AS-BUILT DEVIATIONS THE CONSTRUCTION AS SHOWN ON THESE DRAWINGS AND SPECIFICATIONS, FOR THE PURPOSE OF PROVIDING THE ENGINEER OF RECORD WITH A BASIS FOR THE PREPARATION OF RECORD DRAWINGS.
- 13. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING THE SITE IN A NEAT AND ORDERLY MANNER ROUGHOUT THE CONSTRUCTION PROCESS. ALL MATERIALS SHALL BE STORED WITHIN APPROVED STAGING AREAS.
- 14. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING AT HIS EXPENSE, ALL REQUIRED PERMITS NOT PREVIOUSLY OBTAINED BY THE OWNER. THE CONTRACTOR SHALL PROVIDE, AT HIS EXPENSE, ALL MATERIALS, LABOR AND EQUIPMENT REQUIRED TO COMPLY WITH ALL APPLICABLE PERMIT CONDITIONS AND REQUIREMENTS.
- 15. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CONSTRUCTION STAKING AND LAYOUT, UNLESS OTHERWISE SPECIFIED.
- 16. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION AND PRESERVATION OF ALL SURVEY MONUMENTS OR PROPERTY CORNERS. DISTURBED MONUMENTS SHALL BE RESTORED BACK TO THEIR ORIGINAL LOCATION AND SHALL BE CERTIFIED BY A REGISTERED CIVIL ENGINEER OR LAND SURVEYOR AT THE EXPENSE OF THE CONTRACTOR.
- 17. TREE SPECIES ARE IDENTIFIED WHEN KNOWN. HOWEVER, FINAL DETERMINATION SHOULD BE MADE BY A QUALIFIED BOTANIST. REFER TO THE LEGEND FOR TREE SPECIES SYMBOLS
- 18. WILLOWS TO BE REMOVED SHALL BE TRIMMED, TRANSPLANTED, AND UTILIZED IN THE REVEGETATION PLAN.
- 19. CONTRACTOR IS REQUIRED TO ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THE PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY; THAT THIS REQUIREMENT SHALL BE MADE TO APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS.

- 20. THE CONTRACTOR SHALL CONFORM TO THE RULES AND REGULATIONS OF THE CONSTRUCTION SAFETY ORDERS OF THE STATE DIVISION OF OCCUPATIONAL SAFETY AND HEALTH PERTAINING TO EXCAVATION AND TRENCHES.
- 21. THE EVENT THAT HUMAN REMAINS AND/OR CULTURAL MATERIALS ARE FOUND, ALL PROJECT-RELATED CONSTRUCTION SHALL CEASE WITHIN A 100-FOOT RADIUS. THE CONTRACTOR SHALL, PURSUANT TO SECTION 7050.5 OF THE HEALTH AND SAFETY CODE, AND SECTION 5097.94 OF THE PUBLIC RESOURCES CODE OF THE STATE OF CALIFORNIA, NOTIFY THE MENDOCINO COUNTY CORONER IMMEDIATELY

EARTHWORK NOTES

ALL GRADING SHALL COMPLY WITH THE RECOMMENDATIONS WITH THE APPLICABLE REQUIREMENTS OF THE MENDOCINO COUNTY GRADING REGULATIONS.

2.	GRADING SUMMARY:		
	TOTAL CUT VOLUME	=	34,000 C
	TOTAL FILL VOLUME	=	2,980 C
	IMPORTED ROCK	=	3,250 C
	OFFHAUL =		29,750 C

THE ABOVE QUANTITIES ARE APPROXIMATE IN-PLACE VOLUMES CALCULATED AS THE DIFFERENCE BETWEEN EXISTING GROUND AND THE PROPOSED FINISH GRADE PREPARED FOR PERMITTING PURPOSES ONLY EXISTING GROUND IS DEFINED BY THE TOPOGRAPHIC CONTOURS AND/OR SPOT ELEVATIONS ON THE PLAN. PROPOSED FINISH GRADE I DEFINED AS THE DESIGN SURFACE ELEVATION OF WORK TO BE CONSTRUCTED. THE QUANTITIES HAVE NOT BEEN FACTORED TO INCLUDE ALLOWANCES FOR BULKING, CLEARING AND GRUBBING, SUBSIDENCE, SHRINKAGE, OVER EXCAVATION, AND RECOMPACTION, UNDERGROUND UTILITY AND SUBSTRUCTURE SPOILS AND CONSTRUCTION METHODS.

THE CONTRACTOR SHALL PERFORM AN INDEPENDENT EARTHWORK ESTIMATE FOR THE PURPOSE OF PREPARING BID PRICES FOR EARTHWORK. THE BID PRICE SHALL INCLUDE COSTS FOR ANY INCESSARY IMPORT AND PLACEMENT OF EARTH MATERIALS OR THE EXPORT AND PROPER DISPOSAL OF EXCESS OR UNSUITABLE EARTH MATERIALS.

- 3 PRIOR TO COMMENCING WORK ALL AREAS TO REMAIN UNDISTURBED SHALL BE ADEQUATELY PROTECTED WITH TEMPORARY FENCING
- 4. DO NOT DISTRURB AREAS OUTSIDE OF THE DESIGNATED LIMITS OF DISTURBANCE, UNLESS AUTHORIZED IN WRITING BY THE ENGINEER. ALL WORK ASSOCIATED WITH RESTORATION AND REVEGETATION OF DISTURBED AREAS OUTSIDE THE DESIGNATED LIMITS OF DISTURBANCE, AS SHOWN ON THE DRAWINGS, SHALL BE BORN SOLELY BY THE
- 5. ALL EXCESS SOILS SHALL BE REMOVED TO AN APPROVED DUMP SITE OR DISPOSED OF ON SITE AT A LOCATION TO ROVED BY THE ENGINEER, IN A MANNER THAT WILL NOT CAUSE EROSIO
- 6. CLEARING AND GRUBBING, SUBGRADE PREPARATION AND EARTHWORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 19 OF THE STANDARD SPECIFICATIONS, THESE DRAWINGS, AND THE TECHNICAL SPECIFICATIONS.
- 7. UNSUITABLE SOIL OR MATERIALS, NOT TO BE INCLUDED IN THE WORK INCLUDE:

 - . ORGANIC MATERIALS SUCH AS PEAT, MULCH, ORGANIC SILT OR SOD. . SOILS CONTAINING EXPANSIVE CLAYS. . MATERIAL CONTAINING EXCESSIVE MOISTURE. . POORLY GRADED COURSE MATERIAL, PARTICLE SIZE IN EXCESS OF 6 INCHES. . MATERIAL WHICH WILL NOT ACHIEVE SPECIFIED DENSITY OR BEARING.
- 8. FINE GRADING ELEVATIONS AND SLOPES NOT SHOWN SHALL BE DETERMINED BY THE CONTRACTOR IN THE FIELD TO OBTAIN DRAINAGE IN THE DIRECTION INDICATED. ALL FINAL GRADING SHALL BE SUBJECT TO APPROVAL OF THI ENGINEER
- THE TOP 6" OF SUBGRADE UNDER ALL PAVED SURFACES SUBJECT TO VEHICULAR USE SHALL BE COMPACTED TO A MINIMUM OF 95% RELATIVE COMPACTION, IN ACCORDANCE WITH ASTM-D1557. ALL OTHER FILL TO BE COMPACTED TO A MINIMUM OF 90% MAXIMUM DENSITY AS DETERMINED BY ASTM-D1557 AND SO CERTIFIED BY TESTS AND REPORTS FROM THE CIVIL ENGINEER IN CHARGE OF THE GRADING CERTIFICATION
- 10. FILL MATERIAL SHALL BE SPREAD IN LIFTS OF APPROXIMATELY 8 INCHES, MOISTENED OR DRIED TO NEAR OPTIMUM NOSTURE CONTENT AND RECOMPACTED. THE MATERIALS FOR ENGINEERED FILL SHALL BE APPROVED BY A REGISTERED CIVIL ENGINEER. ANY IMPORTED MATERIALS MUST BE APPROVED BEFORE BEING BROUGHT TO THE SITE. THE MATERIALS USED SHALL BE FREE OF ORGANIC MATTER AND OTHER DELETERIOUS MATERIALS.
- 11. ALL CONTACT SURFACES BETWEEN ORIGINAL GROUND AND RECOMPACTED FILL SHALL BE EITHER HORIZONTAL OR VERTICAL. ALL ORGANIC MATERIAL SHALL BE REMOVED AND THE REMAINING SURFACE SCARIFIED TO A DEPTH OF AT LEAST 12 INCHES, UNLESS DEEPER EXCAVATION IS REQUIRED BY THE ENGINEER.

EROSION CONTROL NOTES

- 1. THE EROSION CONTROL PLAN SHOWN IS INTENDED FOR THE SUMMER CONSTRUCTION SEASON (APRIL 15TH TO OCTOBER 15TH). IF THE DRAINAGE FEATURES SHOWN ON THESE DRAWINGS ARE NOT COMPLETED AND DISTURBED AREAS STABILIZED BY OCTOBER 1ST, CONSULT THE ENGINEER FOR ADDITIONAL RAINY SEASON EROSION CONTROL MEASURES.
- 2. ALL WORK SHALL COMPLY WITH AN APPROVED STORM WATER POLLUTION PREVENTION PLAN, TO BE PREPARED AND IMPLEMENTED BY THE CONTRACTOR, IN COMPLIANCE WITH THE REQUIREMENTS OF THE STATE WATER RESOURCES CONTROL BOARD (SWRCB) NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) GENERAL PERMIT FOR STORM WATER DISCHARGES ASSOCIATED WITH CONSTRUCTION AND LAND DISTURBANCE ACTIVITIES, WATER QUALITY ORDER NO. 2009-0009-DWQ, GENERAL PERMIT NO. CASO00002, ADOPTED SEPTEMBER 2, 2009, (HEREAFTER CONSTRUCTION GENERAL PERMIT (CGP)
- 3. CONTRACTOR SHALL NOT BEGIN SITE DISTURBING ACTIVITIES UNTIL THE SWPPP HAS BEEN APPROVED BY THE COUNTY, UPLOADED TO SMARTS AND A WASTE DISCHARGE IDENTIFICATION (WDID) NUMBER RECEIVED.
- 4. IMPLEMENTATION OF SWPPP MEASURES SHALL BE THE FIRST ORDER OF BUSINESS UPON SITE MOBILIZATION.
- 5. PRIOR TO COMMENCING WORK, AREAS TO REMAIN UNDISTURBED SHALL BE PROTECTED WITH ESA FENCING, AS SHOWN ON THE DRAWINGS. ADDITIONAL FENCING MAY BE REQUIRED AT THE DIRECTION OF THE ENGINEER.
- CONTRACTOR SHALL UTILIZE ONLY THE APPROVED HAUL ROADS AND ACCESS POINTS (AS SHOWN ON THE DRAWINGS) FOR TRANSPORT OF MATERIALS AND EQUIPMENT.
- BETWEEN OCTOBER 15 AND APRIL 15, EXPOSED SOIL SHALL BE PROTECTED FROM EROSION AT ALL TIMES. DURING CONSTRUCTION, SUCH PROTECTION MAY CONSIST OF MULCHING AND/OR PLANTING OF NATIVE VEGETATION OF ADEQUATE DENSITY. BEFORE COMPLETION OF THE PROJECT, ANY EXPOSED SOIL ON DISTURBED SLOPES SHALL BE PERMANENTLY PROTECTED FROM EROSION.
- 8. A STANDBY CREW FOR EMERGENCY WORK SHALL BE AVAILABLE AT ALL TIMES DURING THE RAINY SEASON (OCTOBER 15 THROUGH APRIL 15). NECESSARY MATERIALS SHALL BE AVAILABLE AND STOCKPILED AT CONVENIENT LOCATIONS TO FACILITATE RAPID CONSTRUCTION OF TEMPORARY DEVICES.
- 9. CONSTRUCT TEMPORARY EROSION CONTROL MEASURES AS SHOWN ON THIS PLAN AND/OR AS DIRECTED BY THE ENGINEER TO CONTROL DRAINAGE WHICH HAS BEEN AFFECTED BY GRADING AND/OR TRENCHING OPERATIONS.
- 10. THE CONTRACTOR SHALL INCORPORATE ADEQUATE DRAINAGE PROCEDURES DURING THE CONSTRUCTION PROCESS TO ELIMINATE EXCESSIVE PONDING AND EROSION.
- 11. CONSTRUCT AND MAINTAIN EROSION CONTROL MEASURES TO PREVENT THE DISCHARGE OF EARTHEN MATERIALS TO THE CREEK FROM DISTURBED AREAS UNDER CONSTRUCTION AND FROM COMPLETED CONSTRUCTION AREAS.
- 12. INSTALL ALL PROTECTIVE DEVICES AT THE END OF EACH WORK DAY WHEN THE FIVE-DAY RAIN PROBABILITY EQUALS INVITAL ALL FROTEOTIVE DEVICES AT THE END OF EACH WORK DAY WHEN THE FIVE-DAY RAIN PROB. OR EXCEEDS 50 PERCENT AS DETERMINED FROM THE NATIONAL WEATHER SERVICE FORECAST OFFICE: WWW.SRH.NOAA.GOV.

- AND THE BASIN PUMPED DRY.
- 15. THE CONTRACTOR IS RESPONSIBLE TO KEEP IN FORCE ALL EROSION CONTROL DEVICES AND TO MODIFY THOSE DEVICES AS SITE PROGRESS DICTATES.

- REQUIRES ANY SUBSTANTIAL REVISIONS

DIVERSION NOTES

- GENERA 1.1.
- 1.3. 1.4.
- ACCORDANCE WITH SECTION 2. 1.5.

EISH REMOVAL

3. DIVERSION SYSTEM

- 33 THE ENGINEER IN THE FIELD. 3.4.
- TEMPORARY EROSION CONTROL B.M.P.'S

4 DEWATERING OF CONSTRUCTION AREAS

- 4.2.
- 4.3. CONTRACTOR SHALL SUPPLY ALL NECESSARY PUMPS, PIPING, FILTERS, SHORING, AND OTHER TOOLS AND MATERIALS NECESSARY FOR DEWATERING.

13. AFTER A RAINSTORM, ALL SILT AND DEBRIS SHALL BE REMOVED FROM CHECK BERMS AND SEDIMENTATION BASIN

14. THE EROSION CONTROL DEVICES ON THIS PLAN ARE A SCHEMATIC REPRESENTATION OF WHAT MAY BE REQUIRED. EROSION CONTROL DEVICES MAY BE RELOCATED, DELETED, OR ADDITIONAL ITEMS MAY BE REQUIRED DEPENDING ON THE ACTUAL SOIL CONDITIONS ENCOUNTERED, AT THE DISCRETION OF THE ENGINEER.

16. THE CONTRACTOR SHALL MONITOR THE EROSION CONTROL DEVICES DURING STORMS AND MODIFY THEM IN ORDER TO PREVENT PROGRESS OF ANY ONGOING EROSION.

17. THE CONTRACTOR IS RESPONSIBLE FOR CLEANING ANY EROSION OR DEBRIS SPILLING ONTO A PUBLIC STREET.

18. THE CONTRACTOR SHALL CONTACT THE ENGINEER IN THE EVENT THAT THE EROSION CONTROL PLAN AS DESIGNED

19. CONTRACTOR SHALL BE FAMILIAR WITH THE CONDITIONS OF APPROVAL OF ALL REQUIRED PROJECT PERMITS AND SHALL IMPLEMENT ALL REQUIRED BMP'S PRIOR TO COMMENCING GRADING OPERATIONS.

A WATER DIVERSION SYSTEM SHALL BE INSTALLED TO DEWATER THE PROJECT SITE TO FACILITATE IN-STREAM CONSTRUCTION AND TO REDUCE THE POTENTIAL IMPACTS TO WATER QUALITY DOWNSTREAM OF THE PROJECT

1.2. THE PROPOSED DIVERSION STRUCTURE SHALL CONSIST OF A SEALED SAND BAG DAM AND A GRAVITY FLOW PIPELINE. NO OTHER DIVERSION METHOD SHALL BE USED WITHOUT AUTHORIZATION OF THE ENGINEER. IF ANOTHER DIVERSION METHOD IS PREFERRED BY THE CONTRACTOR, THE CONTRACTOR SHALL SUBMIT A PLAN TO THE ENGINEER FOR APPROVAL, DETAILING THE DESIRED DIVERSION METHOD. THE CONTRACTOR SHALL CONFIRM THAT A FAVORABLE LONG TERM WEATHER FORECAST (1 WEEK MIN.) IS DBSERVED PRIOR TO PLACEMENT OF DIVERSION STRUCTURE. PRIOR TO PLACEMENT OF DIVERSION STRUCTURE, FISH SHALL BE REMOVED FROM THE PROJECT REACH, IN

DIVERSION CONSTRUCTION SHALL NORMALLY BEGIN IN THE DOWNSTREAM AREA AND CONTINUE IN AN UPSTREAM DIRECTION. THE FLOW SHALL BE DIVERTED ONLY WHEN THE DIVERSION CONSTRUCTION IS COMPLETE. FOLLOWING ENGINEER'S APPROVAL OF THE COMPLETED WORK, DIVERSION SHALL BE REMOVED IMMEDIATELY, IN AN UPSTREAM

FISH SHALL BE REMOVED FROM THE PROJECT SITE BY A QUALIFIED FISHERIES BIOLOGIST, LICENSED FOR SUCH ACTIVITIES BY THE NATIONAL MARINE FISHERIES SERVICE AND THE CALIFORNIA DEPARTMENT OF FISH AND GAME. 2.2. BLOCK NETS SHALL BE PROVIDED AND INSTALLED BY THE FISHERIES BIOLOGIST. BLOCK NETS SHALL BE MAINTAINED BY THE CONTRACTOR BOTH UPSTREAM AND DOWNSTREAM OF THE WORK AREA, THROUGHOUT THE PERIOD OF CONSTRUCTION. MAINTENANCE INCLUDES PERIODIC REMOVAL OF ACCUMULATED DEBRIS, AS NECESSARY TO ENSURE FUNCTION. BLOCK NETS SHALL BE REMOVED BY THE FISHERIES BIOLOGIST AFTER THE DIVERSION IS REMOVED AND THE IN CHANNEL WORK AREA IS RE-WATERED.

THE CONTRACTOR SHALL INSTALL A TEMPORARY SEALED SANDBAG DAM TO CAPTURE AND DIVERT STREAM FLOW UPSTREAM OF THE PROJECT SITE. THE DAM AND METHOD OF SEALING SHALL BE PLACED AT AN APPROPRIATE DEPTH TO CAPTURE SUBSURFACE STREAM FLOW, AS NEEDED TO DEWATER THE STREAMBED. THE CONTRACTOR SHALL MAINTAIN THE DIVERSION DAM DURING THE COURSE OF CONSTRUCTION WORK. THE DIVERSION STRUCTURE SHALL BE CONSTRUCTED AS SHOWN ON DETAIL 1, SHT. C5, OR AS DIRECTED BY

IN THE EVENT OF A SIGNIFICANT STORM, THE CONTRACTOR SHALL BE PREPARED TO TAKE NECESSARY MEASURES TO INSURE SAFE PASSAGE OF STORM WATER FLOW THROUGH THE PROJECT AREA, WITHOUT DAMAGE TO EXISTING STRUCTURES, OR INTRODUCTION OF EXCESSIVE SEDIMENT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL

ANY DEWATERING OF CONSTRUCTION AREAS ANY DEWATERING ACTIVITIES WHICH MAY BE REQUIRED FOR CONSTRUCTION PURPOSES SHALL BE CONDUCTED IN A MANNER WHICH DOES NOT RESULT IN AN EXCEEDANCE OF ANY WATER QUALITY REQUIREMENTS ESTABLISHED BY THE CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD.

DISCHARGE OF WATER FROM THE DEWATERED CONSTRUCTION SITE, EITHER BY GRAVITY OR PUMPING, SHALL BE PERFORMED IN A MANNER TO PREVENT EXCESSIVE TURBIDITY FROM ENTERING THE RECEIVING WATERWAYS AND TO PREVENT SCOUR AND EROSION OUTSIDE OF THE CONSTRUCTION SITE. PUMPED WATER SHOULD BE PRE-FILTERED WITH SAND/GRAVEL PACK AROUND SUMPS FOR SUBSURFACE FLOWS AND A SILT FENCE OR HAY BALES AROUND PUMPS FOR SURFACE FLOW. PUMPED WATER SHALL BE DISCHARGED INTO ISOLATED LOCAL DEPRESSIONS, FILTER BAGS, SETTLING (BAKER) TANKS, OR TEMPORARY SEDIMENT BASINS, AS NECESSARY TO MEET WATER QUALITY REQUIREMENTS. WHERE WATER TO BE DISCHARGED INTO THE CREEK WILL CREATE EXCESSIVE TURBIDITY, THE WATER SHALL BE ROUTED THROUGH A SEDIMENT INTERCEPTOR OR OTHER FACILITIES TO REMOVE SEDIMENT FROM WATER.




FORSYTHE CREEK FLOODPLAIN RESTORATION AND STREAMBANK STABILIZATION PROJECT

CONCEPT LEVEL SUBMITTAL





REGIONAL MAP

PROJECT DESCRIPTION

SHEET INDEX

C1	COVER SHEET
C2	ALTERNATIVE 1 SITE PLAN
C3	ALTERNATIVE 2 SITE PLAN
C4	ALTERNATIVE 3 SITE PLAN
C5	TYPICAL SECTIONS
C6	TYPICAL SECTION

GENERAL NOTES

- TOPOGRAPHIC MAPPING WAS PERFORMED BY: WATERWAYS CONSULTING INC. 509A SWIFT STREET SANTA CRUZ, CA 95060 SURVEY DATE: AUGUST 11, 2014.
- 2. ELEVATION DATUM: AN ASSUMED ELEVATION OF 1000.00' WAS ESTABLISHED AT SURVEY CONTROL POINT #1 (2"X24", REBAR) SHOWN ON SHT. C2.
- 3. BASIS OF BEARINGS: BASIS OF BEARINGS BETWEEN POINTS #1 AND #2 IS NO0'00'00"E, AS SHOWN ON SHT. C2.
- 4. THIS IS NOT A BOUNDARY SURVEY. PROPERTY LINES SHOWN WERE COMPILED FROM GIS INFORMATION. THE LOCATION OF THESE LINES IS SUBJECT TO CHANGE, PENDING THE RESULTS OF A COMPLETE BOUNDARY SURVEY.

ABBREVIATIONS

AVG.	AVERAGE
CC	CONCRETE
CY	CUBIC YARDS
DIA	DIAMETER
F	EXISTING
ĒG	EXISTING GROUND
ELEV	
DLLLV.	DRAINAGE INLET
50	ENICLED ODADE
FG	FINISHED GRADE
FI	FEEI
INV	INVERT
N	NEW
N.T.S.	NOT TO SCALE
0.C.	ON CENTER
0.D.	RELATIVE COMPACTION
RSP	ROCK SLOPE PROTECTION
SPK	SPIKE
SQ.FT.	SQUARE FOOT
Т	TREE
TBD	TO BE DETERMINED
TYP	TYPICAL
UNK	LINKNOWN
WSF	WATER SURFACE ELEVATION
VP	VEAD SUNTAGE ELEVATION
115	LLAD

IREE	SPECIES
4	ALDER
3	BAY
2	COTTONWOOD
2	OAK
N	WILLOW

SECT	TION	AND	DE

SECTION OR DETAIL IDENTIFICATION (NUMBER OR LETTER)

REFERENCE SHEET FROM WHICH DETAIL OR SECTION IS TAKEN.



N

THESE DRAWINGS PROVIDE CONCEPT LEVEL DETAILS FOR THREE ALTERNATIVES TO IMPROVE HABITAT AND STREAM FUNCTION ALONG FORSYTHE CREEK IN MENDOCINO COUNTY, CALIFORNIA.

ETAIL CONVENTION



REFERENCE SHEET ON WHICH SECTION OR DETAIL IS SHOWN.











(E) GROUND	PRFI IMINARY WATERWAYS	CONSULTING INC.	VOT FOR CONSTRUCTION SANTACRUZ, CA 95060 PH: (831)421-9291 / FAX: (888)819-6877 WWW: WATWAYS. COM
۹N			MENDOCINO, COUNTY
		TYPICAL SECTIONS	
PLAIN BENCHING ALTERNATIVES	FORSYTHE CREEK	RESTORATION CONCEPT	ALIENNAIIVES
	DESIGNE DRAWN CHECKEI DATE: JOB NO. BAR IS ORIGIN ADJUST REDL 0	D BY: BY: D BY: : ONE IN: AL DRA SCALES JCED PL	M.W.W. B.R.S. M.W.W. /14/15 14-038 CH ON WING, 5 FOR OTS 11" 5 OF 6



WATERWAYS	CONSULTING INC.	509A SWIFT ST. SANTA CRUZ, CA 95060 PH:(831)421-9291 // FAX:(888)819-6847 WWW.WATWAYS.COM
		NOT FOR CONSTRUCTION
PREPARED AT THE REQUEST OF:	NATURAL RESOURCE	CONSERVATION DISTRICT MENDOCINO, COUNTY
		SECTION
	RESTORATION CONCEPT	ALTERNATIVES
DESIGN DRAWN CHECK DATE: JOB N BAR I: ORIG ADJUJ REL 0 E	IED BY: BY: ED BY: O.: S ONE SINAL D ST SCA DUCED	M.W.W. B.R.S. M.W.W. 1/14/15 14-038 INCH ON RAWING, LES FOR PLOTS 1" 6 OF

 1004
 1000
 996
 992
 988
 984
 980
976

 1004
 1000
 996
 992
 988
 984
 980
976

 1004
 1000
 996
 992
 988
 984
 980
 976

FORSYTHE CREEK FLOODPLAIN RESTORATION AND STREAMBANK STABILIZATION

Purpose: Floodplain restoration and streambank stabilization to improve habitat and protect property.



Photo 1. Erosion on the south bank of Forsythe Creek

Project Goals and Treatment Approaches

Forsythe Creek provides important habitat for steelhead and Chinook salmon. Portions of the creek corridor upstream of Uva Drive have experienced severe erosion and floodplain loss. The Mendocino County Resource Conservation District (RCD) is working with Horizon Water and Environment and Waterways Consulting to develop strategies to reduce erosion and enhance stream and floodplain functions to protect property and benefit salmon.

The project has dual goals of protecting creek adjacent landowners from losing more property due to eroding streambanks and to also enhance habitat along the creek and the floodplain north of the channel. These two goals and their general treatments are described further below.

Streambank Stabilization

The south bank of Forsythe Creek in the project reach is unstable in several locations (Photo 1). Streambank erosion has resulted in property loss for several decades. Erosion had historically been addressed with placement of old car bodies and large rock in some locations. These treatments no longer function to control erosion.

The proposed approach to address streambank erosion includes placing rock, soil, and vegetation to strengthen and stabilize the eroding streambank. Large rock will be placed at the toe of the slope. Near the top of the bank, the rock would transition to soil lifts wrapped in durable erosion control fabric (See Figure 1 and Sheet C5 in attached plans). The streambank treatments would also include rock "barbs" that would extend into the channel to direct erosive flows away from the south bank. The rock toe treatment and barbs would have large trees embedded into the rock matrix. The trees would provide cover habitat for salmon and also act to redirect streamflow away from the bank. Native riparian vegetation would be planted in the voids of the rock and in the soil lifts.

The conceptual plan shows streambank stabilization covering approximately 410 linear feet of the south streambank. The extent and locations of treatments are still under development and are subject to landowner review input. The conceptual plan includes placing approximately 2,500 cubic yards (CY) of rock for bank protection and 600 CY of rock for barbs. Approximately 7,600 square feet of soil lifts would be constructed.



Figure 1. Conceptual cross-section of streambank stabilization treatment

Floodplain Restoration

Past land use practices, such as gravel mining along the mainstem of the Russian River, have caused Forsythe Creek to downcut (incise) in the project area. Long-time residents in the area recall the creek bed at a higher elevation in the past, with a much shallower depth between the streambanks and the channel bed than the current condition. The channel incision has disconnected the creek from its former floodplain on the north bank. Placement of fill from the widening of Highway 101 made conditions worse by elevating the floodplain even higher away from the creek bed. Forsythe Creek today, with its deeper and narrow channel results in relatively higher flow velocities and erosive power during larger storm events. This condition is bad for salmon attempting to spawn, or migrate up and downstream. It also results in streambank erosion.

Three Conceptual Alternatives

Based on the project goals and conceptual treatment approaches described above, the RCD developed 3 alternatives to restore and stabilize Forsythe Creek:

- Alternative 1: Streambank Stabilization with Floodplain Nodes
- Alternative 2: Streambank Stabilization with Full Floodplain Restoration
- Alternative 3: Streambank Stabilization with High Flow Secondary Channel

Alternative 1 - Floodplain Nodes

Under this alternative, the active floodplain north of the channel would be re-established by excavating "nodes" or embayments in select locations along the project reach (See Sheet C2 in attached plans). These nodes would provide high flow refuge for salmon, expand the floodplain and riparian area, and reduce flow velocities in the channel. The conceptual design for this alternative attempts to preserve as many large existing trees and riparian habitat as possible, but it still would require removal of numerous mature trees. Constructing the floodplain nodes would require excavating approximately 26,000 CY to restore approximately 2.9 acres of floodplain.



Photo 2. Example of a floodplain node on the Napa River near Oakville. Note the restored floodplain on the right side of the photo.

Alternative 2 – Floodplain Bench Restoration

This alternative would reestablish a wide floodplain bench along the entire north bank (See Figure 2 and Sheet C3 in attached plans). The restored floodplain bench would provide salmon habitat and off-channel refuge under a wide range of flow conditions. Because the channel width would be wider than for Alternative 1, this alternative would also reduce flow velocities and erosion in the channel likely to a greater degree than Alternative 1. This alternative would preserve much of the riparian vegetation immediately adjacent to the creek, but would remove most of the vegetation on the upper portions of the north bank. Constructing this alternative would require excavating approximately 66,930 CY to restore approximately 5.0 acres of floodplain.



Figure 2. Conceptual cross-section for Alternative 2

Alternative 3 – Floodplain Secondary Channel

This alternative would construct a secondary channel on the floodplain of the north bank to convey streamflow during larger storm events (See Sheet C4 in attached plans). Most of the secondary channel would be dry following storm events. This alternative would create off-channel habitat that may be used by salmon. Its



Photo 3. Example of a secondary channel on the Napa River near Oakville.

primary functions would be to expand riparian habitat and reduce flow velocities and erosion in the main channel. This alternative would preserve much of the riparian vegetation immediately adjacent to the creek. Removal of existing riparian habitat would only be necessary at transitions back to the main channel. This alternative includes a variant (Alternative 3A), which includes an additional branch of the high flow channel in the downstream portion of the project reach. Alternative 3 would require excavating 41,210 approximately CY to restore approximately 3.2 acres of channel/floodplain. Alternative 3A would excavate and additional 25,000 CY to create an additional 1.3 acres of

channel/floodplain.

Summary and Next Steps

This information sheet describes project goals, treatments, and conceptual alternatives to stabilize streambanks and restore floodplain on Forsythe Creek. Table 1 summarizes these alternatives and provides a comparison of some key benefits and constraints. The RCD is seeking input from property owners regarding their interest in participating in the project, their preferred alternative, and suggestions for improving the project. It is anticipated that a preferred alternative will be selected based on input from landowners, along with other concerns such as cost and environmental impacts/benefits.

Component/Parameter	Alternative 1: Stabilization	Alternative 2: Stabilization	Alternative 3: Stabilization
	with Habitat Nodes	with Floodplain	with High Flow Channel
		Restoration	
Rock Slope Protection (CY)	2,480	2,480	2,480
Rock Barbs (CY)	600	600	600
Soil Lifts (ft ²)	7,600	7,600	7,600
Soil Excavation (CY)	26,230	66,930	41,210
			(66,210 for Alt 3A)
Floodplain/Channel	2.9	5.0	3.2
Restoration (acres)			(4.5 for Alt 3A)
Temporary Impact to	Moderate	High	Low
Riparian			
Long-term Salmon Habitat	Moderate	High	Low
Benefits			
Reduction in Channel	Moderate	High	Moderate
Velocity/Erosion			
Relative Cost	Low	High	Moderate to High

Table 1. Summary of Alternatives and Relative Comparison of Benefits and Constraints.

Forsythe Creek Floodplain & Riparian Restoration Project			
Waterways Consulting Cost Estimates			
Compliance Document, Permit or Approval	Cost	Notes & Assumptions	
Engineering Design	\$45,000	Update 65%. Complete 90%, and 100% submittals of Plans and Specifications. Includes additional hydraulic modeling to support design and permitting.	
CWA Section 404	\$45,000	Includes wetland delineation, permit application, 106 Report, and Habitat Mitigation and Monitoring Plan.	
ESA Section 7 & EFH Consultation	\$15,000	Preparation of Biological Assessments	
Clean Water Act Section 401 Water Quality Certification/WDRs	\$13,000	Permit application package	
Fish and Game Code 1602- Lakebed & Streambed Alteration Agreement	\$14,000	Permit application package	
Project Management & Permit Coordination	\$18,000	Assumes RCD and Horizon would share responsibility for permit coordination with regulatory agencies.	
Total	\$150,000		
1. Cost estimate is based on 2018 Northern California environmental consulting industry rates. Permit filing fees are not included			



CONTRACTOR COMPLIANCE & MONITORING, INC.

www.ccmilcp.com

635 MARINERS ISLAND BLVD, SUITE 200, SAN MATEO CA 94404 - P 650-522-4403 - F 650-522-4402

March 11, 2019

Joe Scriven Mendocino County RCD joe.scriven@mcrcd.org

Re: Labor Compliance Services for Floodplain Restoration in Redwood Valley

Dear Mr. Scriven,

Thank you for requesting a quote for labor compliance services for the above referenced project. You indicated the project cost was approximately $2 \min(15) = 0$ Corober 15, 2021. The project requires the payment of California prevailing wages and is located in Mendocino County. No federal funding.

Only California prevailing wage will apply and no onsite interviews are required.

Any work not covered in the scope of work or which exceeds the 5-month project duration or if the project costs increases by 5% of more, CCMI will be entitled to additional compensation:
Technician: \$85 per hour
Analyst: \$95 per hour
Manager: \$135 per hour
Principal: \$400 per hour (Wilder only)
Travel expenses will be paid at cost for any additional meetings requested by the client.
NTE \$9,850.00

Let me know if you have any additional questions. Please note that Contractor Compliance and Monitoring Inc. is a certified DBE (CUCP) business. We look forward to having the opportunity to work with you again.

Sincerely,

aborah E. A. Wilder

Deborah E.G. Wilder, President

Scope of Work

Contractor Compliance and Monitoring, Inc. has been in operation since 2002 and an approved Third Party Administrator of LCPs since February 2003¹. We have represented or provided service to over 100 public agencies and scores of contractors. CCMI's entire staff has significant expertise in the field of prevailing wage, certified payroll and apprenticeship requirements. Listed below are the services which CCMI will be providing on a California Public Works project (no federal funding and no Prop 84):

- 1. Provide LCP compliance under the requirements of the California Labor Code.
- 2. Conduct a Preconstruction Conference meeting and provide training and information on LCP requirements including providing handout materials for all contractors and subcontractors. (via conference call or webinar)
- 3. Provide a phone line and e-mail contact where contractors and subcontractors can contact CCMI for clarification on prevailing wage, certified payrolls, apprenticeship and compliance issues.
- 4. License check and confirmation with California Contractor's State License Board of current and active license status, as well as worker's compensation coverage of all contractors and all listed subcontractors. Verification that all contractors are a "registered public works contractor".
- 5. Review and comparison of work classification with California prevailing wage classification to ensure the contractor is paying the correct prevailing wage rate.
- Monitoring of all Apprenticeship Requirements. Collection and review of all DAS-140 and DAS-142 forms. Review of applicable apprenticeship ratios employed, correct wages paid, training contributions (CAC2 forms).
- 7. Monthly audit of certified payrolls forms. This includes obtaining the applicable prevailing wage determinations for each project. Certified Payrolls are generally delivered by the Contractor to CCMI for review and audit. Auditing the payrolls incudes: checking proper trade classifications, checking for overtime, weekend, holiday or shift work, checking for ** increases, reviewing fringe benefit contribution and verifying that amortization is correct (when used) and review of training contributions made. When appropriate, travel and subsistence is also reviewed
- 8. Additional detailed audit and/or investigations of contractors through review of cancelled checks, time cards, and related records (as needed).
- 9. Monthly report to the Client regarding compliance of contractors and subcontractors audited. To the extent that a contractor is either not in compliance and/or additional paperwork is needed for review, the Client is contacted by CCMI.
- 10. Communication of potential violations to the Client with recommended action. In the event that potential paperwork or compliance issues with a contractor cannot be resolved quickly, the Client will be notified of this potential problem and a recommendation will be made to the Client to retain a certain portion of the scheduled progress payment until the issue is resolved or other

¹ The California Department of Industrial Relations discontinued approving Third Party LCPs in 2011.

action will be discussed with the Client always maintaining the authority whether to withhold funds or take other corrective action.

- 11. Communications with Contractors. CCMI will work with all contractors and subcontractors with the goal of amicable agreement on resolving issues related to violations, penalties and compliance. All meeting and calls with contractors will be documented in the project folder maintained by CCMI.
- 12. Third Party Requests for documents. A project with a high profile oftentimes draws the attention of certain local watchdog groups who frequently request copies of certified payrolls and related "Public Documents". CCMI will provide the appropriate redacted copies of certified payroll and related LCP documentation to any third party who makes an appropriate request.
- 13. Issuing of all final close of project reports to client.

Forsythe Creek Floodplain Restoration Project

Initial Study/Mitigated Negative Declaration

Prepared for

Mendocino County Resource Conservation District 410 Jones Street, Suite C-3 Ukiah, CA 95482

Prepared by

Horizon Water and Environment 180 Grand Avenue, Suite 1405 Oakland, CA 94612

January 2017

Horizon Water and Environment. 2017. *Forsythe Creek Floodplain Restoration Project, Initial Study/Mitigated Negative Declaration.* Prepared for Mendocino County Resource Conservation District. Oakland, CA. (HWE 14.014)

Table of Contents

Chapter 1	Introduction	
1.1	Introduction and Purpose	
1.2	Project Location	
1.3	Intent and Scope of this Document	
1.4	Public Involvement Process	
1.5	Organization of this Document	
1.6	Impact Terminology	
Chapter 2	Project Description	2-1
2.1	Background and Setting	2-1
2.2	Project Area	
2.3	Project Elements	
2.4	Project Implementation	2-8
2.5	Required Permits and Approvals	
Chapter 3	Environmental Checklist	
3.1	Aesthetics	
3.2	Agricultural Resources	
3.3	Air Quality	
3.4	Biological Resources	
3.5	Cultural Resources	
3.6	Geology and Soils	
3.7	Greenhouse Gas Emissions	
3.8	Hazards and Hazardous Materials	
3.9	Hydrology and Water Quality	
3.10	Land Use and Planning	
3.11	Mineral Resources	
3.12	Noise	
3.13	Population and Housing	
3.14	Public Services	
3.15	Recreation	
3.16	Transportation/Traffic	

i

3.17	Utilities and Service Systems	
3.18	Mandatory Findings of Significance	
Chapter 4	Environmental Factors Potentially Affected	4-1
Chapter 5	Determination	5-1
Chapter 6	List of Preparers	6-1
Chapter 7	References	7-1

List of Appendices

Appendix A Air Quality and GHG Emissions Model Results	
Appendix B Biological Resources Supporting Materials	
Table 2-1 Summary of Construction Materials and Quantities for the Proposed Project	2-10
Table 2-2 Permit and Regulatory Requirements Applicable to the Proposed Project	2-12
Table 2-3 Proposed Project BMPs	2-14
Table 3.3-1 MCAQMD Recommended CEQA Thresholds	3-11
Table 3.3-2 Air Quality Modeling Results	3-13
Table 3.4-1 Trees to be Removed	3-25
Table 3.5-1 Native American Consultation	3-33
Table 3.12-1 Construction Equipment and Vibration Distances	3-57
Table 3.17-1 Native American Consultation for AB52 compliance	3-70

List of Figures

Figure 1-1	Proposed Project Regional Location	1-2
Figure 1-2	Proposed Project Detailed Location	1-3
Figure 2-1	Site Plan	2-5
Figure 2-2	Bank Stabilization Plan	2-6
Figure 2-3	Vegetation Plan	2-7
Figure 2-4	Access, Staging and Dewatering Plan	2-8
Figure 3-1	Special Status Species	.3-24

List of Acronyms

ATCM	Airborne Toxic Control Measures
BMP	Best Management Practice
Caltrans	California Department of Transportation
CARB	California Air Resources Board
CCR	California Code of Regulations
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CESA	California Endangered Species Act
CH ₄	methane
CNDDB	California Natural Diversity Database
CO	carbon monoxide
CO_2	carbon dioxide
CO ₂ e	carbon dioxide equivalent
County	Mendocino County
CRLF	California red-legged frog
CRPR	California Rare Plant Rank
CWA	Clean Water Act
CY	cubic vard
dB	decibel
dBA	A-weighted decibel
DOC	California Department of Conservation
DPM	diesel particulate matter
F&G Code	Fish and Game Code
FEMA	Federal Emergency Management Agency
FMMP	Farmland Mapping and Monitoring Program
ft	feet
FYLF	foothill vellow-legged frog
GHG	greenhouse gas
НАР	hazardous air pollutant
НСР	habitat conservation plan
IS/MND	Initial Study Mitigated Negative Declaration
lb	pounds
L _{dn}	dav-night (sound) level
Lea	equivalent sound level
Lmay	maximum sound level
MCAOMD	Mendocino County Air Quality Management District
mi	miles
mm	millimeter
mph	miles per hour
MT	metric ton
N ₂ O	nitrous oxide
NAAOS	National Ambient Air Quality Standards
NCAB	North Coast Air Basin
NCCP	Natural Community Conservation Plan

NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NOA	naturally occurring asbestos
NOx	nitrogen oxides
NRCS	USDA Department of Agriculture Natural Conservation Service
NRLF	northern red-legged frog
OEHHA	California Office of Environmental Health Hazard Assessment
OHWM	Ordinary High Water Mark
PM	particulate matter
PM ₁₀	particulate matter less than 10 microns in diameter
PM _{2.5}	particulate matter less than 2.5 microns in diameter
ppb	parts per billion
ppm	parts per million
Proposed Project	Forsythe Creek Floodplain Restoration and Streambank Stabilization
RCRA	Resource Conservation and Recovery Act
RCD	Mendocino County Resource Conservation District
RWQCB	Regional Water Quality Control Board
RSP	rock slope protection
SARA	Superfund Amendment and Reauthorization Act
SPRP	Spill Prevention and Response Plan
SWHA	Swainson's hawk
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TAC	Toxic Air Contaminants
TMDL	Total Maximum Daily Load
USACE	U. S. Army Corps of Engineers
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
WPT	western pond turtle
yr	year

Chapter 1 Introduction

Mendocino County Resource Conservation District (RCD) has prepared this Initial Study/Mitigated Negative Declaration (IS/MND) to provide the public, responsible agencies, and trustee agencies with information about the potential environmental effects of the proposed Forsythe Creek Floodplain Restoration Project (Proposed Project or Project). This document was prepared pursuant to the requirements of the California Environmental Quality Act (CEQA) of 1970 (as amended) and the State CEQA Guidelines (14 California Code of Regulations 15000 et seq.).

1.1 Introduction and Purpose

The RCD proposes to conduct floodplain restoration activities along Forsythe Creek. Forsythe Creek, a major tributary to the Russian River, provides important habitat for California Coastal Chinook salmon (*Oncorhynchus tshawytscha*) and the Central California Coast steelhead (*O. mykiss*). Portions of the creek corridor have experienced severe erosion and floodplain impacts. The purpose and goals of the Proposed Project are to:

- Restore hydrologic functions of the Forsythe Creek floodplain in the Project Area;
- Enhance the ecologic functions of the Forsythe Creek floodplain and channel in the Project Area with a focus toward salmonid habitat;
- Slow or reduce the active erosion processes affecting the southern bank of Forsythe Creek in the Project Area, including stabilizing streambanks that are undergoing severe erosion;
- Expand and enhance riparian canopy cover to moderate water temperature and improve instream habitat; and
- Maintain existing flood protection and potentially improve floodplain storage.

1.2 Project Location

The Proposed Project is located in an unincorporated portion Mendocino County slightly west of Redwood Valley, and just west of Highway 101, about eight miles north of Ukiah (**Figures 1-1 and 1-2**). The Proposed Project would occur on private property. Property ownership is detailed in **Figure 1-2**.





1.3 Intent and Scope of this Document

This IS/MND has been prepared in accordance with CEQA, under which the Forsythe Creek Floodplain Restoration Project constitutes a "project." The RCD, as the lead agency under CEQA, will consider the potential environmental impacts of Proposed Project activities when it considers whether to approve the Proposed Project. This IS/MND is an informational document to be used in the local planning and decision-making process. The IS/MND does not recommend approval or denial of the Proposed Project.

The IS/MND describes the Proposed Project and its environmental setting, including the Proposed Project Area's existing conditions and applicable regulatory requirements. This IS/MND also evaluates potential environmental impacts from the Proposed Project to the following resources:

- Aesthetics
 Land Use and Planning
- Agricultural and Forestry Resources
- Air Quality
- Biological Resources
 Population and Housing
- Cultural Resource
- Geology, Soils, and Seismicity
- Greenhouse Gas Emissions
- Hazards and Hazardous Materials
- Utilities and Service Systems

Transportation and Traffic

Mineral Resources

Public Services

Recreation

Noise

Hydrology and Water Quality

The Proposed Project incorporates measures to ensure there would be no significant adverse impacts on the environment.

1.4 Public Involvement Process

Public disclosure and dialogue are priorities under CEQA. Accordingly, CEQA requires a period during the IS/MND process when interested stakeholders, interested public agencies, or the general public can provide comments on the impacts of the Proposed Project. Pursuant to Sections 15073.5 and 15105[b] of the CEQA Guidelines, RCD is now circulating this document for a 30-day public and agency review. All comments received prior to 5:00 p.m. on the date identified for closure of the public comment period in the Notice of Intent will be considered.

Input, questions, or comments on this Proposed Project can be sent to:

Joe Scriven, Fisheries Biologist/Project Manager Mendocino County Resource Conservation District 410 Jones St. Ste. C-3, Ukiah, CA 95482 707-462-3664 ex. 104 joe.scriven@mcrcd.org

1.5 Organization of this Document

This IS/MND document contains the following elements:

Chapter 1, *Introduction*. This chapter provides a brief introduction to the Proposed Project, describes the purpose and objectives of the Proposed Project, summarizes the scope and contents of the IS/MND, provides contact information for commenting on the document, and describes impact terminology used in this document.

Chapter 2, *Project Description*. This chapter summarizes the Proposed Project, including descriptions of the design elements; implementation; avoidance and minimization measures; and related permits and approvals.

Chapter 3, *Environmental Checklist*. This chapter presents the environmental checklist used to evaluate the Proposed Project's potential environmental effects. The checklist is based on the information provided in Appendix G of the CEQA guidelines. This chapter includes a brief environmental setting description for each resource topic and describes the Proposed Project's anticipated environmental impacts.

Chapter 4, *Environmental Factors Potentially Affected*. This chapter lists the environmental factors potentially affected by the proposed Project based on the environmental impact evaluation.

Chapter 5, *Determination*. This chapter contains a determination on the Project based on conclusions and recommendations of the environmental evaluation.

Chapter 6, *Preparers*, provides a list of persons involved in preparing this IS/MND.

Chapter 7, *References*, provides a bibliography of printed references, web sites, and personal communications used in preparing this IS/MND.

Appendix A Air Quality and GHG Emissions Model Results

Appendix B Biological Resources Supporting Materials

1.6 Impact Terminology

This IS/MND uses the following terminology to describe environmental effects of the Proposed Project:

• A finding of *no impact* is made when the analysis concludes that the Proposed Project would not affect the particular environmental resource or issue.

- An impact is considered *less than significant* if the analysis concludes that there would be no substantial adverse change in the environment and that no mitigation is needed.
- An impact is considered *significant* if it results in a substantial adverse change in the physical conditions of the environment. Significant impacts are identified by using specific significance criteria as a basis of evaluation. Mitigation measures are identified to reduce these potential effects on the environment.
- This IS/MND identifies particular mitigation measures that are intended to lessen Proposed Project impacts. The CEQA Guidelines [Section 14 of the California Code of Regulations (CCR) 15370] define mitigation as:
 - avoiding the impact altogether by not taking a certain action or parts of an action;
 - minimizing impacts by limiting the degree or magnitude of the action and its implementation;
 - rectifying the impact by repairing, rehabilitating, or restoring the impacted environment;
 - reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action; and
 - compensating for the impact by replacing or providing substitute resources or environments.

Chapter 2 Project Description

2.1 Background and Setting

Streamflow in the Project Area is highly variable year to year depending on recent hydrologic conditions. Upstream of the Project Area, in the headwaters of the Russian River watershed, Forsythe Creek is typically a perennial stream. In the Project Area, Forsythe Creek generally flows more seasonally. The creek typically has measurable flow through the winter and early spring months. In drier years the creek may dry out in the Project Area to just seasonal pools by the late summer and fall. In wetter years, the creek may remain perennial in the Project Area.

Past gravel mining along the mainstem of the Russian River, along with other regional land use practices, lowered the base elevation of the river. This bed lowering in the main stem Russian River, in turn caused Forsythe Creek to downcut (incise) its bed to meet the lower Russian River elevation. This stream bed lowering (incision) of Forsythe Creek is observed at the Project Area (DWR 1984). Long-time residents in the area recall a shallower and wider creek in the past compared to the current channel bed which is much deeper below its streambanks. This channel incision at Forsythe Creek has disconnected the creek from its former floodplain on the north bank (Figure 1-2). Furthermore, placement of fill from the widening of Highway 101 in the 1980s elevated the northern floodplain even higher and separated it more from the creek bed.

Currently, Forsythe Creek, with its deeper and narrower channel, contains higher flow velocities with erosive power within its streambanks. Flows no longer spread to the northern floodplain during larger storm events. This lack of flow connection between the active channel and its adjacent floodplain (sometimes referred to as channel disconnection) prevents development of a more full or complete aquatic or riverine habitat for salmonids. When stream channels and floodplains are connected with occasional high flows inundating the adjacent floodplain, a more complete suite of habitat functions are provided for salmonids including off-channel refuge areas (refugia) where flows are gentler.

The history of channel incision and floodplain disconnection in the Project Area has also resulted in in severe streambank erosion on the south bank of Forsythe Creek. Up to 50 feet of streambank have been lost in recent years along the southern streambank at the Project Area, causing loss of property and increasing the flood risk to local landowners. Streambank erosion has also resulted in reducing riparian habitat; the loss of spawning and rearing habitat for salmonids; and impaired water quality for many important beneficial uses. Past erosion control practices, including placing old car bodies along the southern streambank, have not alleviated the erosion problem and has left considerable debris in the channel.

To address these declining conditions for salmonids, eroding streambanks, and to improve water quality, the RCD proposes to restore the floodplain along Forsythe Creek and stabilize streambanks on the south side of the creek. The floodplain restoration and streambank treatments will include instream habitat features to provide cover habitat for salmonids and structural features along the

south streambank to reduce erosion. Native riparian vegetation will be planted throughout the treatment area. Details of the Project elements are provided in Section 2.3 of this chapter.

2.2 Project Area

The total Project Area is approximately 9.3 acres. The Proposed Project would be constructed on private property. The RCD would develop long term access agreements for the construction and maintenance period.

Temporary construction access agreements would also be secured for equipment staging areas. These sites are discussed in Section 2.4.

2.3 Project Elements

Figure 2-1 provides an overview of the Proposed Project. The main components of the Proposed Project include floodplain restoration, streambank stabilization, instream habitat features, and revegetation. The details of these elements are described below.

Floodplain Restoration

As described in Section 2.1, the floodplain in the vicinity of the Proposed Project was elevated by placement of fill from a Highway 101 widening project in the 1980s. This, along with channel incision, disconnected Forsythe Creek from its floodplain. Floodplain restoration aims to increase the frequency of Forsythe Creek inundating its adjacent floodplain areas. Floodplain restoration will enhance the physical processes that sustain aquatic habitat while increasing the growth and recruitment of riparian tree species vital to the stream ecosystem.

The proposed floodplain restoration includes constructing a secondary channel (or high flow channel) on the left (north) bank of Forsythe Creek in an area where spoils were placed during the widening of Highway 101. The secondary channel is designed to activate (receive flow) during higher flows that are expected to occur every year (annual) or every other year (biennial). The secondary channel will connect to the main Forsythe Creek channel at its upstream and downstream ends. Instream habitat structures would be incorporated into the floodplain restoration/secondary channel. The anticipated benefits of floodplain restoration include a larger channel area which would increase gravel deposition and riffle pool habitat in the main channel. The secondary channel would improve passage, spawning, and rearing conditions for Chinook salmon and steelhead by reducing peak velocities by up to 2 feet per second during the 2 and 10-year storm events. Floodplain restoration would also provide off-channel refugia for salmonids during high flow events. Construction of the secondary channel would restore 3.2 acres of floodplain that was impacted by placement of spoils from widening of Highway 101.

Approximately 34,000 cubic yards (CY) of fill would be removed for construction of the secondary channel. Approximately 4,250 CY would be reused on site, and 29,750 CY would be placed in a vacant upland area north of the new channel on the Fernandes property (Figure 2-1). Constructing the secondary channel will preserve much of the existing riparian vegetation immediately adjacent to the creek. Removal of existing riparian habitat would only be necessary at transitions with the main channel. Approximately 25 trees greater than 12 inches diameter at breast height (DBH) would be removed for construction of the secondary channel. The majority of the secondary channel can most

likely be constructed without dewatering of the main channel of Forsythe Creek. Dewatering may be necessary at transitions with the main channel.

Streambank Stabilization

One of the principal objectives of the Proposed Project is to reduce or lessen ongoing streambank erosion, property loss, flooding risk, and subsequent sediment loading along Forsythe Creek. Streambank stabilization would include vegetated rock slope protection (RSP) as well as biotechnical stabilization methods. Biotechnical stabilization measures include vegetated soil lifts planted with cuttings from native woody riparian vegetation (i.e., alder (*Alnus* sp.), willow (*Salix* spp.).

The streambank stabilization elements will help support the objectives of the Total Maximum Daily Load (TMDL) for sediment on the Russian River (NCRWQCB 2004) by reducing the delivery of fine sediment to Forsythe Creek and the Russian River by as much as 5,000 tons.

Streambank stabilization on the south bank of Forsythe Creek would include installing RSP, rock barbs, and vegetated soil lifts (**Figure 2-2**). Hydraulic analysis conducted during the restoration planning and design process indicated that erosive forces on the south bank are very strong, and thus preclude the use of only biotechnical stabilization. Some RSP is needed to protect the toe of the slope from further erosion. The RSP transitions to soil lifts higher on the bank where erosive forces are less. Bank protection would extend for approximately 600 linear feet along the bank. Approximately 3,760 CY of rock would be used for RSP rock barbs. Approximately 8,800 ft² of soils lifts would be installed. Project implementation would also remove the remaining car bodies which were previously placed along the channel. Approximately three trees greater than 12 inches DBH would be removed for construction of streambank stabilization.

Habitat Features

The Proposed Project would include installing instream features to provide habitat improvements and initiate geomorphic processes that would help support and sustain habitat over the longer-term. Complex channels with more variable topography, including channel constrictions (pools) and expansions (riffles) support a wider diversity of habitats for aquatic organisms. Large wood influences the spatial pattern of scour and deposition to create a diversity of depths and velocities that support a wider range of aquatic habitats. These structures would initiate scour, deposition, and sediment segregation to promote channel complexity. A secondary objective of these structures is to increase near-term habitat for juvenile salmonids. The proposed structures would provide immediate increases in available complex habitat for salmonids.

Log habitat structures would be in installed in the secondary and main channels (Figure 2-1). The proposed structures would consist of logs with the root wad attached, with lengths of 25-40 feet and diameters of 18-30 inches. These structures would be strategically placed along the channel to initiate scour and deposition patterns.

Revegetation

Upon project completion, erosion control measures would be applied and the Project Area would be revegetated with native plant species as shown on **Figure 2-3**. The lower riparian zone (below the

estimated 2-year water elevation¹) would be planted primarily with willows (*Salix laevigata* and *S. lasiandra*), with white alder (*Alnus rhombifolia*). The upper riparian zone (above the estimated 2-year water elevation) would be revegetated with a mixed riparian forest, including trees such as Fremont cottonwood (*Populus fremontii*), oaks (*Quercus lobata* and *Q. agrifolia*), and Oregon ash (*Fraxinus latifolia*) and common riparian understory species such as Santa Barbara sedge (*Carex barbarae*) and California rose (*Rosa californica*). Both zones would be hydroseeded with a mix of common herbaceous native plant species, including several grasses. Live willow stakes will also be installed in the RSP and fabric wrapped soil lifts.

Plant Establishment, Maintenance, and Monitoring

A temporary irrigation system would be installed to support the establishment of trees and shrubs. The irrigation system would operate from temporary above ground storage tanks. Water would be delivered to the site in the dry season to supply the irrigation system. The system would be operated for 2 to 5 years, depending on plant needs and climate conditions. Periodic vegetation maintenance (i.e., weeding) and monitoring would take place in addition to irrigation. Monitoring would be conducted as required by permits and approvals by resource agencies.

¹ The estimated 2-year water elevation is the flow level that is estimated to have a 50% likelihood of occurring in any given year based on the record of past flow events.





WATERWAYS CONSULTING INC. Sola Swift ST. BH:(63)1221-939.J/ FAX:(68)519-6647 WWW.WATWAYS.COM
PRELIMINARY NOT FOR CONSTRUCTION
PREPARED AT THE REQUEST OF: RESOURCE CONSERVATION DISTRICT MENDOCINO COUNTY
SECTIONS (1 OF 2)
FORSTHE CREEK FORSTHE CREEK FORSTHE CREEK FLOODPPLAIN RESTORATION BESIGNED BA. PROJECT 65% DESIGN SUBMITTAL 65% DESIGN SUBMITTAL
BAR IS ONE INCH ON ORIGINAL DRAWING, ADJUST SCALES FOR REDUCED PLOTS 0 1" Figure 2-2



2.4 Project Implementation

Construction Equipment

Equipment used for floodplain restoration and bank stabilization would range from large mechanized equipment for mass grading to hand tools for detail work on vegetated soil lifts. Inchannel equipment may include a small Bobcat®, excavators, skid-steer, or walk-behind powershovels. Sediment removed from the channel or floodplain would be placed in dump trucks and transported to the adjacent upland stockpile/disposal area. Rock would be imported using similar dump trucks.

Construction Schedule and Work Sequence

The Proposed Project would be constructed in one or two phases over one or two construction seasons, depending on funding availability. Construction activities could occur April 1 through November 15, but work within the existing Forsythe Creek channel would be limited to June 1 to October 30 to avoid peak salmonid spawning and migration periods. Revegetation could occur at any time and is not confined to these work periods.

A detailed construction sequence or phasing plan has not yet been developed, but the anticipated sequence of work for the Proposed Project includes:

Construction Phase 1

- 1. Mobilization
- 2. Installation of Best Management Practices (BMPs) (see Table 2-3)
- 3. Site clearing and grubbing
- 4. Stream diversion/dewatering (if required)
- 5. Secondary channel excavation and grading; RSP removal, north side; and soil disposal and grading
- 6. Woody debris structure installation
- 7. Remove diversion/dewatering (if used)
- 8. Revegetation
- 9. Demobilization/Winterization

Construction Phase 2

- 1. Remobilization
- 2. Stream diversion/dewatering
- 3. Installation of RSP, rock barbs, and woody debris structures
- 4. Installation of soil lifts and willow cuttings
- 5. Remove diversion/dewatering
- 6. Final site cleanup
- 7. Construction complete

Construction Methods and Materials

Project construction would follow Caltrans standard construction specifications, as issued by the Office of Construction Contract Standards, available online at: http://www.dot.ca.gov/hq/esc/oe/construction_standards.html)

Table 2-1 lists anticipated construction materials for the Proposed Project.

Description	Unit	Quantity
Secondary Channel		
Excavation (total)	СҮ	34,000
On-site Soil Reuse (in Vegetated Soil Lifts)	СҮ	4,250
Upland Stockpile/Disposal	CY	29,750
Streambank Stabilization		
Excavation (Site Preparation)	CY	3,300
Rock (total import)	CY	3,760
Vegetated Soil Lifts	ft²	8,800
Habitat Features		
Logs (onsite salvage or import)	Number	20-30
Rock	СҮ	110

Table 2-1. Summary of Construction Materials and Quantities for the Proposed Project

Source: Waterways Consulting Inc. 2016

Dewatering, Water Diversion, and Fish Relocation

Dewatering and temporary diversion of the Forsythe Creek would be required for Project construction. It is anticipated that dewatering would be needed for construction of the streambank stabilization, and potentially when upstream and downstream ends of the secondary channel are connected to the main channel. The dewatering and flow bypass system would collect all of the creek flow from upstream of the Project Area and deliver it back to the creek downstream of the Project Area. The anticipated length of channel dewatering is approximately 1,500 linear feet.

Details regarding design, construction, implementation and deconstruction of dewatering are described below and shown in **Figure 2-4**. The contractor will be required to submit a dewatering plan which will be subject to review and approval by the Regional Water Quality Control Board (RWQCB), California Department of Fish and Wildlife (CDFW), and National Marine Fisheries Service (NMFS).


- STABILIZER/SUPPRESANT.

- MANUFACTURERS' SPECIFICATIONS.

- PORTION OF THE STAGING AREA.



A diversion structure would be installed at the upstream limit of the diversion zone. The diversion structure would be of sufficient height to allow for 12 inches of freeboard and would run from bank to bank in the existing channel. The standard diversion structure would consist of sand bags wrapped with 10 mm polysheeting, and would include a gravity flow pipeline. The type of materials used for the diversion structure would depend upon the conditions encountered. Diversion construction would generally begin in the downstream area and continue in an upstream direction. The flow would be diverted only once the diversion construction is complete. Filtration devices or settling basins would be provided as necessary to ensure that the turbidity of discharged water is not visibly more turbid than in the channel upstream of the Project Area. If increases in turbidity are observed, additional measures would be implemented such as a larger settling basin or additional filtration. If necessary, discharged water would pass through an energy dissipater to prevent erosion of the downstream channel. All relevant BMPs in Table 2-3 would be implemented to protect water quality and aquatic organisms. Prior to placement of the diversion structure, fish would be excluded and relocated from the Project Area (see **Mitigation Measure BIO-1**).

When construction is completed, the flow diversion structure would be removed as soon as possible. Impounded water would be released gradually to minimize erosion, turbidity, or harm to downstream habitat. The area disturbed by flow bypass mechanisms would be restored at the completion of the project. This may include, but is not limited to, recontouring the area and planting of riparian vegetation.

Construction Staging Areas

Proposed construction staging areas would include the Fernandes property (Figures 1-2 and 2-4) north of the creek, adjacent to the Project site. The staging area is an unpaved area which is currently used for soil stockpiling unrelated to the Proposed Project.

Best Management Practices

Proposed Project construction would include implementation of a range of BMPs to avoid and minimize adverse effects on people and the environment. BMPs are developed to address anticipated effects on particular types of resources from various construction activities. BMPs are implemented pre-construction, during construction, and post-construction as specified. The BMPs for the Proposed Project are included at the end of this chapter in **Table 2-3**.

2.5 Required Permits and Approvals

The permits and regulatory compliance requirements for the Proposed Project are listed in **Table 2**-**2** according to regulatory agency. In addition to the requirements summarized below, the Proposed Project must conform to the policies and standards established in the current Mendocino County General Plan, which is relevant to all resource topics analyzed under CEQA.

Regulatory Agency	Law/ Regulation	Purpose	Permit/Authorization Type
U.S. Army Corps of Engineers – San Francisco District	Clean Water Act (CWA) Section 404	Regulates placement of dredged and fill materials into waters of the United States.	Individual Permit
North Coast Regional Water Quality Control	CWA Section 401	Water quality certification for placement of materials into waters of the United States.	401 Water Quality Certification is required for federal permits
Board	CWA Section 402	National Pollutant Discharge Elimination System (NPDES) program regulates stormwater and construction discharges.	NPDES General Construction Permit notification prior to Proposed Project construction.
	Porter-Cologne Water Quality Control Act	Regulates discharges of materials to land and protection of beneficial uses of waters of the State.	Waste Discharge Requirements
CDFW – Northern Region	Fish and Game Code (F&G Code) Section 1600	Applies to activities that will substantially modify a river, steam or lake. The Agreement includes reasonable conditions necessary to protect those resources.	Notification of Streambed Alteration (1602 permit)
	California Endangered Species Act (CESA) (F&G Code Section 2081[b])	CESA compliance: Issuance of incidental take agreements	CESA compliance will be completed as applicable
U.S. Fish and Wildlife Service (USFWS)/ NMFS	Endangered Species Act (ESA)	U. S. Army Corps of Engineers (USACE) must consult with USFWS and NMFS if threatened or endangered species may be affected by the Proposed Project.	Biological Opinions issued
State Historic Preservation Officer (SHPO)	National Historic Preservation Act (NHPA) Section 106	USACE must consult with State Historic Preservation Officer if historic properties or prehistoric archaeological sites may be affected by the Proposed Project.	SHPO Consultation
County of Mendocino	County Code	Grading requires a County Grading Permit.	County Grading Permit

Fable 2-2. Permit and Regulatory	Requirements Applicable	to the Proposed Project
----------------------------------	-------------------------	-------------------------

Mendocino County Resource Conservation District Forsythe Creek Floodplain Restoration Project

Regulatory Agency	Law/ Regulation	Purpose	Permit/Authorization Type
	Federal Code of Regulations – Title 44 Emergency Management and Assistance	The Proposed Project may affect the hydraulic characteristics of a flooding source and thus result in the modification of the existing regulatory floodway, the effective Base Flood Elevations, or the Special Flood Hazard Area.	No-Rise Certification. If required, the County will file a Conditional Letter of Map Revision issued by the Federal Emergency Management Agency (FEMA)

Table 2-3. Proposed Project BMPs

Number	Title	BMP Description
General BMPs These BMPs will b BMPs are impleme	e implemented by l ented prior to and c	RCD and its Contractors, as appropriate, for all activities associated with the Proposed Project. The majority of these during construction.
BMP-1	Work Windows	 A. Ground-disturbing activities will occur between April 1 and November 15. B. All in-stream activities (defined as work below ordinary high water) will take place between June 1 and October 30. C. Vegetation maintenance outside of the main channel may occur year round, except when wheeled or tracked equipment needs to access a project site by crossing a creek, ponded area, or secondary channel.
BMP-2	Minimize the Area of Disturbance	To minimize impacts to natural resources, soil disturbance will be kept to the minimum footprint necessary to complete project construction.
BMP-3	Erosion and Sediment Control Measures	 A. All soils disturbed or exposed during construction activities will be seeded and stabilized using erosion control fabric or hydromulch. The channel bed and areas below the Ordinary High Water Mark (OHWM) are exempt from this BMP. B. Erosion control fabrics will consist of natural fibers that will biodegrade over time. No plastic or other non-porous material will be used as part of a permanent erosion control approach. Plastic sheeting may be used to temporarily protect a slope from runoff.
		 C. Erosion control measures will be installed according to manufacturer's specifications. D. Appropriate measures include, but are not limited to, the following: Silt Fences Straw Bale Barriers Erosion Control Blankets and Mats Soil Stabilization (i.e., tackified straw with seed, jute blankets, broad cast and hydroseeding, etc.) All temporary construction-related erosion control methods (e.g., silt fences) shall be removed at the completion of each construction as directed by a certified erosion control specialist

Number	Title	BMP Description
BMP-4	Dewatering Measures	 A. Implement dewatering measures identified in the Figure 2-4. B. The contractor will be required to submit a dewatering plan which will be subject to review and approval by the RWQCB, CDFW, and NMFS.
BMP-5	On-Site Hazardous Materials Management	 A. An inventory of all hazardous materials used (and/or expected to be used) at the worksite and the end products that are produced (and/or expected to be produced) after their use will be maintained by the worksite manager. B. As appropriate, containers will be properly labeled with a "Hazardous Waste" label and hazardous waste will be properly recycled or disposed of off-site. C. Contact of chemicals with precipitation will be minimized by storing chemicals in watertight containers or in a storage shed (completely enclosed), with appropriate secondary containment to prevent any spillage or leakage. D. Petroleum products, chemicals, cement, fuels, lubricants, and non-storm drainage water or water contaminated with the aforementioned materials will not contact soil and not be allowed to enter surface waters or the storm drainage system. E. All toxic materials, including waste disposal containers, will be covered when they are not in use, and located as far away as possible from a direct connection to the storm drainage system or surface water.
BMP-6	Existing Hazardous Materials	If hazardous materials, such as oil, batteries or paint cans, are encountered at the Project Area, the RCD will carefully remove and dispose of them according to the <i>Spill Prevention and Response Plan</i> (see measure BMP-7). RCD staff will wear proper protective gear and store the waste in appropriate hazardous waste containers until it can be disposed at a hazardous waste facility.
BMP-7	Spill Prevention and Response	 The RCD will prevent the accidental release of chemicals, fuels, lubricants, and non-storm drainage water into channels following these measures: A. All field personnel will be appropriately trained in spill prevention, hazardous material control, and cleanup of accidental spills. B. Equipment and materials for cleanup of spills will be available on site and spills and leaks will be cleaned up immediately and disposed of according to guidelines stated in the <i>Spill Prevention and Response Plan</i> (developed by the Contractor and approved by the RCD). C. Field personnel will ensure that hazardous materials are properly handled and natural resources are protected by all reasonable means.

Number	Title	BMP Description
		D. Spill prevention kits will always be in close proximity when using hazardous materials (e.g., at crew trucks and other logical locations). All field personnel will be advised of these locations.
		E. RCD staff will routinely inspect the work site to verify that spill prevention and response measures are properly implemented and maintained.
		Spill Response Measures:
		A. For small spills on impervious surfaces, absorbent materials will be used to remove the spill, rather than hosing it down with water. For small spills on pervious surfaces such as soil, the spill will be excavated and properly disposed rather than burying it. Absorbent materials will be collected and disposed of properly and promptly.
BMP-8	Vehicle and	A. All vehicles and equipment will be kept clean. Excessive build-up of oil and grease will not be accepted.
	Equipment Maintenance	B. All equipment used for in-channel work will be inspected for leaks each day prior to initiation of work. Action will be taken to prevent or repair leaks, prior to use.
		C. Incoming equipment will be checked for leaking oil and fluids. Leaking equipment will not be allowed onsite.
		D. No heavy equipment will operate in a live stream.
		E. No equipment servicing will be done in the channel or immediate floodplain, unless equipment stationed in these locations cannot be readily relocated (i.e., pumps and generators).
		F. If necessary, all servicing of equipment done at the job site will be conducted in a designated, protected area to reduce threats to water quality from vehicle fluid spills. Designated areas will not directly connect to the ground, surface water, or the storm drain system. The service area will be clearly designated with berms, sandbags, or other barriers. Secondary containment, such as a drain pan, to catch spills or leaks will be used when removing or changing fluids. Fluids will be stored in appropriate containers with covers, and properly recycled or disposed of offsite.
		G. If emergency repairs are required in the field, only those repairs necessary to move equipment to a more secure location will be conducted in the channel or floodplain.
		 Equipment will be cleaned of any sediment or vegetation before entering the work area to avoid spreading pathogens or exotic/invasive species.
		I. Vehicle and equipment washing can occur onsite only as needed to prevent the spread of sediment, pathogens or exotic/invasive species. No runoff from vehicle or equipment washing is allowed to enter water bodies, including channels and storm drains, without being subjected to adequate filtration (e.g., vegetated buffers, hay wattles or bales, and silt screens).

Number	Title	BMP Description
BMP-9	Dust Management	Per Regulation 1, Rule 1-430 of the Mendocino County Air Quality Management District (MCAQMD), the RCD will implement the following BMPS for Fugitive Dust Control and air quality protection:
	Controls & Air	A. All visibly dry disturbed soil and road surfaces shall be watered to minimize fugitive dust emissions.
	Protection	B. All unpaved areas shall have a posted speed limit of 10 mph.
		C. Earth or other material tracked onto neighboring paved roads shall be removed promptly.
		D. Approved chemical soil stabilizers shall be applied to exposed earth surfaces in inactive construction areas and exposed stock piles (i.e. sand, gravel, dirt).
		E. Dust generating activities shall be limited during periods of high winds (over 15 mph).
		F. Access of unauthorized vehicles onto the construction site during non-working hours shall be prevented.
		G. A daily log shall be kept of fugitive dust control activities.
BMP-10	Public Safety	The RCD will implement public safety measures during construction as follows:
	Measures	A. Signs will be posted at job sites warning the public of construction work and to exercise caution.
		B. If needed, a lane will be temporarily closed to allow for trucks to pull into and out of access points to the work site.
		C. When necessary, RCD or contracted staff will provide traffic control and site security.
BMP-11	Minimize Noise	The RCD will implement practices that minimize disturbances to residences.
	Disturbances to Residential Areas	 With the exception of emergencies, work will be conducted between the hours of 7:00 a.m. and 7:00 p.m. Construction activities in residential areas will not occur on Sundays or County observed holidays except during emergencies, or with approval by the local jurisdiction and advance notification of surrounding residents.
		B. Advanced notification will be provided one week prior to the start of construction to properties that have residences within 500 ft of a proposed construction site where heavy equipment will be used.
		C. Powered equipment (vehicles, heavy equipment, and hand equipment such as chainsaws) will be equipped with adequate mufflers.
		D. Excessive idling of vehicles will be prohibited beyond 5 minutes.
		E. Non-power hand tools will be maximized and noisy equipment will be minimized to the extent feasible
		F. Noise complaints will be responded to within 48 hours of receipt, and the RCD will make a good faith effort to resolve a noise sensitivity issue by constructing noise attenuation shielding or by another acceptable method, where appropriate.

Number	Title	BMP Description
BMP-12	Work Site Housekeeping	A. RCD employees and contractors will maintain the work site in neat and orderly conditions on a daily basis, and will leave the site in a neat, clean, and orderly condition when work is complete. Slash, sawdust, cuttings, etc. will be removed to clear the site of vegetation debris. As needed, paved access roads and trails will be swept and cleared of any residual vegetation or dirt resulting from the construction activity. All lunch trash will be properly disposed of.
		B. Materials or equipment left on the site overnight will be stored as inconspicuously as possible, and will be neatly arranged.
		C. All trash that is brought to a project site during construction and maintenance activities (e.g., plastic water bottles, plastic lunch bags, cigarettes) will be removed from the site daily.
BMP-13	Site Preparation	A. Prior to the start of work, the contractor will locate and mark all active subsurface utilities in the general vicinity of the site. The contractor will protect all utilities that are to remain in and surrounding the site during onsite excavation and construction activities.
		B. The site will then be cleared and grubbed of surface and subsurface deleterious matter including vegetation, aggregate road-base material and abandoned utilities. These materials will be removed from the site or stockpiled for reuse if suitable. Depressions resulting from the removal of underground obstructions (including tree stumps and root balls) that extend below the proposed finished grades will be cleared and the depressions backfilled with suitable material.
BMP-14	Fill Materials	Temporary fill materials and stockpiled material will be placed in a manner such that they are not subject to erosion.

Chapter 3 Environmental Checklist

1.	Proposed Project Title	Forsythe Creek Floodplain Restoration Project
2.	Lead Agency Name and Address	Mendocino County Resource Conservation District 410 Jones Street, Suite C-3, Ukiah, CA 95482
3.	Contact Person, Phone Number and Email	Joe Scriven Fisheries Biologist/Project Manager 707-462-3664 ex. 104 joe.scriven@mcrcd.org
4.	Proposed Project Location and APN	Forsythe Creek, west of the Uva Drive bridge, approximately 0.25 mile southwest of the West Road exit off Highway 101 in Redwood Valley, approximately 8 miles north of Ukiah in unincorporated Mendocino County.
5.	Property Owner	APN 162-200-01, 162-200-03, 162-200-04, 162-200-05, 162-200-06, 162-200-13, and 162-200-19
6.	General Plan Designation	Range Land, Suburban Residential, Rural Residential
7.	Zoning	Rangeland (RL), Suburban Residential (SR), Rural Residential (RR1)
8.	Description of Proposed Project	See Proposed Project Description
9.	Surrounding Land Uses and Setting	Agriculture, rural residential, commercial, transit

- 10. Other Public Agencies whose Approval or Input May Be Needed
- California Department of Fish and Wildlife
- California Department of Transportation
- California State Historic Preservation Office
- National Marine Fisheries Service
- Regional Water Quality Control Board (North Coast Region)
- United States Army Corps of Engineers
- United States Fish and Wildlife Service

This chapter of the IS/MND assesses the proposed Project's environmental impacts based on the environmental checklist provided in Appendix G of the state's CEQA Guidelines. The environmental resources and potential environmental impacts of the proposed Project are described in the individual subsections below. Each section (3.1 through 3.18) provides a brief overview of existing environmental conditions for each resource topic to help the reader understand the conditions that could be affected by the proposed Project. In addition, each section includes a discussion of the rationale used to determine the significance level of the Project's environmental impact for each checklist question.

Resources reviewed for relevant information are cited as applicable.

3.1 Aesthetics

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than- Significant Impact	No Impact
Wo	ould the Proposed Project:				
a.	Have a substantial adverse effect on a scenic vista?				\boxtimes
b.	Substantially damage scenic resources, including but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?				
C.	Substantially degrade the existing visual character or quality of the site and its surroundings?			\boxtimes	
d.	Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?				

Environmental Setting

Visual Character

The Proposed Project is surrounded by low density, rural residential development, vineyards, and open space. A restaurant is located along Uva Drive, north of the Proposed Project. State Route 20/Highway 101 are approximately 0.25 mile west of the Project site. The Proposed Project is on the western edge of Redwood Valley, near where topography transitions to mountainous terrain. Forsythe Creek and its adjacent riparian corridor dominate the physical environment in the Project Area, along with the vacant field to the north of the creek. The field is currently used for soil stockpiling. Several residences are in close proximity to the Proposed Project, immediately to the south of Forsythe Creek.

Scenic Highways

No roads within Mendocino County have been designated Scenic Highways by the State of California. Although the section of State Route 20/Highway 101 which passes near the Proposed Project is eligible to be a State Scenic Highway, it has not been officially designated at this time (Caltrans 2016).

Viewer Groups

All of the land on both sides of the Proposed Project is privately-owned. Viewer groups may include motorists and bicyclists traveling on Uva Drive. These viewers may include persons who live or work in the area, tourists, or people traveling to nearby recreation destinations. Several single-family residential homes and one commercial building located near the Project site have a direct view of at least a portion of the Project Area. For viewers who experience the Project Area from a close perspective (i.e., residents), viewer sensitivity can be moderately high because they are more likely

to value the natural environment, appreciate the visual experience, and be more sensitive to changes in views or incompatible elements. Groups who view the Proposed Project reach from a distance or for short duration (i.e., motorists and bicyclists) experience more moderate viewer sensitivity because they are generally not highly focused on details of the creek. Rather, the vegetated features of the creek appear as a backdrop to the overall visual surroundings.

Discussion of Checklist Responses

a. Adverse Effects on a Scenic Vista — *No Impact*

The Project Area does not contain any specifically designated scenic vistas. Consequently, there would be no impact and no mitigation is required.

b. Damage to Scenic Resources along a Scenic Corridor — *No Impact*

The Project Area is not along a state scenic highways, and is not visible from any state scenic highways. Consequently, there would be no impact and no mitigation is required.

c. Changes to Existing Visual Character or Quality — *Less than Significant*

Short-term Effects

Proposed Project construction would result in some visual disruption related to vegetation and tree removal, earthwork, and staging, including equipment parking, stockpiles of materials, etc. Vegetation removal would be restricted to the minimum required to allow earthwork to proceed, and earthwork would be restricted to the minimum necessary to construct the Proposed Project. As the area designated for stockpiling is currently used for that purpose, there will be no change in visual character regarding stockpiling. Sensitive viewer groups potentially affected by project construction would include nearby residents, patrons and workers at the nearby steakhouse, motorists and potentially, bicyclists.

Immediately post-construction, restored areas would still appear somewhat "unfinished" until vegetation fully re-establishes. However, the disturbed appearance associated with construction would not persist, and revegetation in riparian areas would use fast-growing native species such as willows. As a result, creekside work areas are expected to recover to a point where they are no longer conspicuous within about 5 years following construction. Exposed rock on the south bank placed for bank protection will have a less than significant impact, as it will be partially revegetated by planting of willow poles. Because of their comparatively short duration and the limited extent of disturbance at any given time, short-term post-construction (3-5 years) visual impacts of earthwork and riparian restoration are expected to be less than significant.

Long-term Effects

Over the long-term (after approximately 3-5 years), the appearance of the restored riparian corridor and creek channel are expected to be relatively natural, and as such, consistent both with adjacent creek reaches and the overall views in Redwood Valley. Lasting changes in the appearance of the riparian corridor as a result of maintenance would include slight alterations in channel appearance as a result of bank stabilization, as well as a broader riparian area. Shading along the south bank would also be increased. The revegetated areas are likely to be visually appealing. Removal of the car bodies currently in the creek channel would permanently improve the visual character of the site. Thus, long-term effects on visual character are expected to be beneficial.

d. New Sources of Light or Glare – *No Impact*

The Proposed Project does not include any facilities that would require new or modified sources of lighting, and Proposed Project construction would use natural materials and thus would not introduce new or substantially modified sources of glare. Proposed Project construction would be conducted during daylight hours only, thus no nighttime lighting would be needed. Consequently, there would be no impact and no mitigation is required.

3.2 Agricultural Resources

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than- Significant Impact	No Impact
In res age Eva pre an agu im sigg ref De the For Leg me Bo	determining whether impacts to agricultural sources are significant environmental effects, lead encies may refer to the California Agricultural Land aluation and Site Assessment Model (1997) epared by the California Dept. of Conservation as optional model to use in assessing impacts on riculture and farmland. In determining whether pacts to forest resources, including timberland, are nificant environmental effects, lead agencies may er to information compiled by the California partment of Forestry and Fire Protection regarding e state's inventory of forest land, including the rest and Range Assessment Project and the Forest gacy Assessment project; and forest carbon easurement methodology provided in Forest otocols adopted by the California Air Resources ard. Would the Proposed Project:				
a.	Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program (FMMP) of the California Resources Agency, to nonagricultural use?				
b.	Conflict with existing zoning for agricultural use, or a Williamson Act contract?				\boxtimes
C.	Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?				
d.	Result in the loss of forest land or conversion of forest land to non-forest use?				\boxtimes

3.2 Agricultural Resources

e. Involve other changes in the existing environment that, because of their location or nature, could result in a conversion of Farmland to a non-agricultural use or conversion of forest			
e. Involve other changes in the existing environment that, because of their location or nature, could result in a conversion of Farmland to a non-agricultural use or conversion of forest		Less-than- Significant No Impact Impa	o act
land to non-forest use?	e.]

Environmental Setting

According to the Department of Conservation (DOC) records for 2010, there were 486,665 acres of agricultural lands in Mendocino County under a Williamson Act Contract (DOC 2015a). A portion of a property in the Project Area on the west side of the Project (APN 162-200-01, Fetzer property) is under a Non-Prime Agricultural Land Williamson Contract (DOC 2012).

According to DOC's 2012 Important Farmland Map for Mendocino County, a portion of the property on the western edge of the Proposed Project, south of the Project Area (APN 162-200-01) is classified as Unique Farmland (DOC 2015b). A portion of the parcel proposed for stockpiling/disposal of soil (APN 162-200-19, Fernandes Property) is classified as grazing land (DOC 2015b).

Discussion of Checklist Responses

a. Conversion of Important Farmland — *No Impact*

A portion of the property on the western edge of the Proposed Project, south of the Project Area is classified as Unique Farmland. However, the bounds of the Proposed Project are outside of the area designated as Unique Farmland. The Proposed Project will not cause any conversion of important farmland to non-agricultural use.

b. Conflict with Existing Zoning or Williamson Act— No Impact

The Proposed Project would not conflict with any existing zoning for agricultural use. While the property on the western edge of the Proposed Project is under a Williamson Act contract, the Proposed Project will not have any impacts to agricultural use of this land.

c. Conflict with Forest Land or Timberland Zoning— *No Impact*

The Project Area is not zoned for timberland or forest land uses. Therefore, the project would not conflict with such uses, and no impact would occur.

d. Conversion of Forest Land—*No Impact*

There is no commercial forest land in the Project Area, and the Proposed Project will not affect any forest land. Therefore, the project would not conflict with such uses, and no impact would occur.

e. Other Changes That Could Convert Farmland or Forest—*No Impact*

A portion of the parcel where soil would be stockpiled (APN 162-200-19) is currently classified as grazing land by DOC (DOC 2015b). However, this portion of the parcel is currently used for soil stockpiling, and is not currently used for grazing or any other agricultural use. Thus, the Proposed Project would not result in the conversion of agricultural or forest land.

3.3 Air Quality

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than- Significant Impact	No Impact
Wł by pol the Pro	nen available, the significance criteria established the applicable air quality management or air llution control district may be relied upon to make e following determinations. Would the Proposed oject:				
a.	Conflict with or obstruct implementation of the applicable air quality plan?				\boxtimes
b.	Violate any air quality standard or contribute substantially to an existing or Proposed Projected air quality violation?			\boxtimes	
C.	Result in a cumulatively considerable net increase of any criteria pollutant for which the Proposed Project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?				
d.	Expose sensitive receptors to substantial pollutant concentrations?			\boxtimes	
e.	Create objectionable odors affecting a substantial number of people?			\boxtimes	

Regulatory Setting

The Clean Air Act is implemented by the U.S. Environmental Protection Agency (USEPA) and sets ambient air limits, the National Ambient Air Quality Standards (NAAQS), for six criteria pollutants: particulate matter of aerodynamic radius of 10 micrometers or less (PM₁₀), particulate matter of aerodynamic radius of 2.5 micrometers or less (PM_{2.5}), carbon monoxide (CO), nitrogen dioxide (NO₂), ground-level ozone, and lead. Of these criteria pollutants, particulate matter and ground-level ozone pose the greatest threat to human health. The California Air Resources Board (CARB) sets standards for criteria pollutants that are more stringent than NAAQS, and includes the following additional contaminants: visibility reducing particles, hydrogen sulfide, sulfates, and vinyl chloride. The Proposed Project is located within the North Coast Air Basin (NCAB). The Mendocino County Air Quality Management District (MCAQMD) manages air quality within the NCAB for attainment and permitting purposes.

Mendocino County is in attainment for all federal and state ambient air quality standards, except for the state's PM₁₀ standard (CARB 2015, USEPA 2016). To address the PM₁₀ nonattainment designation,

the MCAQMD has adopted a Particulate Matter Attainment Plan (MCAQMD 2005a) that provides information on PM levels, its effects on the public, and recommends control measures for PM. In addition to the PM Attainment Plan and its recommended control measures, the MCAQMD requires compliance with its Regulation 1, Rule 1-430 to ensure construction projects include mitigation measures to reduce fugitive dust emissions. In addition to the PM control requirements described above, Mendocino County requires that projects greater than 1 acre obtain a grading permit, which would also contain measures to minimize fugitive dust.

USEPA and CARB regulate various stationary sources, area sources, and mobile sources. USEPA has regulations involving performance standards for specific sources that may release toxic air contaminants (TACs), known as hazardous air pollutants (HAPs) at the federal level. In addition, USEPA has regulations involving emission criteria for off-road sources such as emergency generators, construction equipment, and vehicles. CARB is responsible for setting emission standards for vehicles sold in California and for other emission sources, such as consumer products and certain off-road equipment. CARB also establishes passenger vehicle fuel specifications. Airborne Toxic Control Measures (ATCMs), including the following relevant measures, are implemented to address sources of TACs:

- ATCM for Diesel Particulate Matter from Portable Engines Rated at 50 Horsepower and Greater
- ATCM to Limit Diesel-Fueled Commercial Motor Vehicle Idling
- ATCM to Reduce Particulate Emissions from Diesel-Fueled Engines Standards for Nonvehicular Diesel Fuel
- Asbestos ATCM for Construction, Grading, Quarrying and Surface Mining Operations

Environmental Setting

The MCAQMD generally defines a sensitive receptor as a facility or land use that houses or attracts members of the population that are particularly sensitive to the effects of air pollutants, such as children, the elderly, and people with illnesses. Examples of sensitive receptors include schools, hospitals, convalescent facilities, and residential areas. The closest school is Deep Valley Christian School located approximately 700 feet northeast of the Project site. Eagle Peak Middle School is approximately 0.7 miles from the Proposed Project, on the opposite side of Highway 101. There are no hospitals, or assisted living facilities within 1 mile of the Project Area. A California Medical Foundation physician's office is located approximately 2,800 feet northeast of the project site. The remaining sensitive receptors in the Proposed Project vicinity are limited to single-family residences located at various distances away with the closest residence located approximately 70 feet from the Project site.

Methodology

Construction-related emissions were estimated using the Road Construction Emissions Model (Model) (Version 7.1.4, developed by Sacramento Metropolitan Air Quality Management District). The Model estimates emissions from Project construction activities, including: soil hauling, on-road worker commute vehicle trips, water truck use, grubbing and vegetation removal, grading and excavation, and use of various types of off-road construction equipment.

The Model utilizes CARB's EMFAC2011, CARB's official model for estimating emissions from on-road cars and trucks, and the OFFROAD2007 and OFFROAD2011 models, which calculate emissions from off-road construction equipment. The Model estimates the peak daily emissions and the total project emissions of ROG (Reactive Organic Gases), CO, NOx, PM₁₀, and PM_{2.5} throughout construction. Average daily emissions were calculated using the total project construction emissions and the total project duration of 7 months.

Model inputs include construction equipment use, haul distance, and commuter distance values as described in general in the Project Description, and shown in detail in Appendix A (Air Quality and GHG Emissions Model Results). Complete model inputs and results are shown in Appendix A.

The project emission estimates were then compared to the MCAQMD's recommended CEQA thresholds (MCAQMD 2010) and the MCAQMD's Indirect Source Rule's average daily emission thresholds (Rule 1-130, i2), which are summarized in Table 3.3-1 below, and have been determined to be appropriate significance thresholds by the RCD.

Significance	Pollutant					
Threshold	ROG	NOX	со	PM10	PM2.5	
Average Daily Emissions (lb/day) ¹	180	42	690	80	N/A	
Total Construction Emissions (tons/year) ²	40	40	125	N/A	N/A	

Table 3.3-1. MCAQMD Recommended CEQA Thresholds

¹ The average daily emissions threshold is based on the MCAQMD's Indirect Source Rule (Regulation 1, Rule 1-130(i)(1).

² The total construction emissions threshold is based on the MCAQMD's Advisory regarding District Interim CEQA Criteria and GHG Pollutant Thresholds (MCAQMD 2013).

Discussion of Checklist Responses

a. Conflicts with or Obstructs Implementation of the Applicable Air Quality Plan — *No Impact*

A Proposed Project is deemed inconsistent with air quality plans if it would result in population and/or employment growth that exceeds growth estimates included in the applicable air quality plan, which, in turn, would generate emissions not accounted for in the applicable air quality plan emissions budget. Therefore, projects need to be evaluated to determine whether they would generate population and employment growth and, if so, whether that growth would exceed the growth rates included in the relevant air plans.

The Proposed Project would not involve the construction of any residential, commercial, or industrial structures that would generate population and/or employment growth (see related discussion in Section 3.13, *Population and Housing*). In addition, the Proposed Project includes BMP-9, Dust Management Controls & Air Quality, which would further minimize the Proposed Project's potential

to conflict with the PM Attainment Plan. Because the Proposed Project would not generate growth, there would be no impact related to inconsistency with air quality planning. No mitigation is required.

b. Violates any Air Quality Standard or Contributes Substantially to an Existing or Proposed Projected Air Quality Violation — *Less than Significant*

During construction of the Proposed Project, the combustion of fossil fuels for operation of construction equipment, sediment/material hauling, and worker trips would result in construction-related criteria air pollutant emissions. In addition, construction activities would generate fugitive dust from grading and excavation activities. The Proposed Project's criteria air pollutant emissions during construction are shown in Table 3.3-2. Operational criteria air pollutant emissions would be generated by periodic maintenance-related vehicle trips to the site. Maintenance-related emissions were not quantified and would not be likely to exceed the applicable thresholds.

The MCAQMD has established mass emission thresholds. As shown in Table 3.3-2, the estimated construction-related emissions associated with the Proposed Project would be less than these mass emissions significance thresholds. Construction emissions, in particular fugitive dust emissions, would also be controlled by implementation of BMP-9, Dust Management Controls & Air Quality. In addition, the combined work period would be approximately equal to one year for the 2 phases and the Proposed Project would comply with CARB's off-road engine standards. By implementing construction best management practices, the Proposed Project's impacts would be less than significant. No mitigation is required.

	Pollutant				
	ROG	NOX	со	PM10	PM2.5
Project Average Daily Emissions (Ibs/day) ¹	4.2	45.6	22.5	5.4	3.4
Average Daily Emissions Threshold (lb/day) ²	54	54		82	54
Exceed Threshold?	N	Ν	N	Ν	Ν
Project Total Emissions (tons/year) ³	0.5	5.6	2.7	0.7	0.3
Total Construction Emissions Threshold (tons/year) ⁴	40	40	125	N/A	N/A
Exceed Threshold?	N	N	N	N	N

Table 3.3-2. Air Quality Modeling Results

¹ These average daily emissions are based on a 7-month construction period and estimated from the total emissions for a 6-day work period as calculated/described in footnote 3 below.

² The average daily emissions threshold is based on the MCAQMD's Adopted Air Quality CEQA Thresholds of Significance (MCAQMD 2010).

³ The project's total emissions (tons/year) are for an assumed potential 6-day/week construction activities over the 7 month construction period. These emissions were estimated by modifying the estimated tons/construction period from Roadmod, which is based on a 5-day work week, to include an additional 28 days of emissions caused by having a 6-day work week.

⁴ The total construction emissions threshold is based on the MCAQMD's Advisory regarding District Interim CEQA Criteria and GHG Pollutant Thresholds (MCAQMD 2013).

c. Cumulatively Considerable Net Increase of Any Criteria Pollutant for Which the Proposed Project Region is a Nonattainment Area — *No Impact*

As described above, the project site is in a region that is designated in non-attainment for the state PM_{10} ambient air quality standard. However, the region is in attainment or unclassified for all other federal and state standards for the criteria pollutants. In addition, as described in item 3.3.3(a) above, emissions related to construction and maintenance of the Proposed Project are not anticipated to violate an air quality standard or make a substantial contribution to existing air pollution. Therefore, the Proposed Project would have no impact.

d. Expose Sensitive Receptors to Substantial Pollutant Concentrations — *Less than* Significant

Construction-related activities could result in the generation of toxic air contaminants (TACs), specifically diesel particulate matter (DPM), from off-road equipment exhaust emissions. Due to the variable nature of construction activity, the generation of TAC emissions in most cases would be temporary, especially considering the short amount of time such equipment is typically operated within an influential distance of sensitive receptors. The assessment of cancer risk and chronic non-cancer health impacts is typically based on a 70-year exposure period, and there is considerable uncertainty in trying to evaluate the cancer risk from projects that will only last a small fraction of a lifetime (OEHHA 2015).

The Proposed Project construction activities would also result in local emissions of fugitive dust. MCAQMD's Regulation 1, Rule 1-430 requires mitigation measures to reduce fugitive dust emissions. These measures are incorporated as BMP-9 and would ensure that fugitive dust emissions from the Proposed Project would not be substantial.

The Project site is located in an area that is likely to contain naturally occurring asbestos (NOA) (MCAQMD 2005b). Thus, the Proposed Project's grading and excavation activities could potentially disturb NOA and result in a potentially significant impact on sensitive receptors. The RCD or its contractor will fully comply with the requirements of CARB's 2002-07-29 Asbestos ATCM for Construction, Grading, Quarrying, and Surface Mining Operations by preparing and implementing an asbestos dust mitigation plan. The plan must be submitted to and approved by the MCAQMD before the start of any construction or grading activity. In addition, the RCD or its contractor will implement provisions identified in the asbestos dust mitigation plan before and throughout the duration of the Proposed Project's construction and grading activities. The asbestos dust mitigation plan will specify dust mitigation practices which are sufficient to ensure that no equipment or operation emits dust that is visible crossing the property line, and be prepared/implemented in full compliance with Section (e) of CARB's Asbestos ATCM for Construction operations. Implementation of these requirements would reduce potential impact to less than significant by implementing recommended protective measures to minimize the potential for NOA to affect sensitive receptors or construction workers. Therefore, the Proposed Project's effect on nearby sensitive receptors due to constructionrelated air pollutant emissions would be less than significant. There would be no impact on sensitive receptors from the proposed maintenance activities.

e. Create Objectionable Odors — Less than Significant

Diesel exhaust from construction activities may generate temporary odors while construction of the Proposed Project is underway. Once construction activities have been completed, these odors would cease. Maintenance activities would also generate temporary odors, but the odors would be short-lived and would occur intermittently throughout the Proposed Project reach. Impacts related to potential generation of objectionable odors are thus expected to be less than significant. No mitigation is required.

3.4 Biological Resources

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than- Significant Impact	No Impact
Wo	ould the Proposed Project:				
a.	Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by CDFW or USFWS?				
b.	Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by CDFW or USFWS?				
c.	Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the CWA (including but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?				
d.	Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?				
e.	Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?				
f.	Conflict with the provisions of an adopted Habitat Conservation Plan (HCP); Natural Community Conservation Plan; or other approved local, regional, or state HCP?				

Environmental Setting

Forsythe Creek in the Project Area is deeply incised (approximately 12-18 feet below the adjacent top of bank/floodplain). The north bank of the creek channel is composed of native soil, fill, and an area of buried RSP. The north bank and floodplain support a relatively narrow strip of mid-seral riparian forest dominated by Fremont cottonwood (*Populus fremontii*) in the canopy and non-native Himalayan blackberry (*Rubus armeniacus*) in the understory. Other canopy species include willows (*Salix* spp.), interior live oak (*Quercus wislizeni*), and California bay (*Umbellularia californica*). Understory species include coyote brush (*Baccharis piluaris*), willow (*Salix* spp.), mulefat (*Baccharis*)

salicifolia), and wild grape (*Vitis* sp.). Invasive plant species in the Project Area include tree of heaven (*Ailanthus altissima*), poison hemlock (*Conium maculatum*), and periwinkle (*Vinca major*).

Streambank erosion is severe along the south bank. The over-steepened channel bank and an exposed clay layer along the toe of the south bank prevent riparian vegetation from establishing. Woody vegetation (primarily willow and alder saplings have colonized gravel bars and sand deposits within and adjacent to the active channel.

During the summer, aquatic habitat is limited due to minimal surface and subsurface flow. Water may be present only in warm and isolated shallow pools. Stream shade canopy is relatively low. Instream cover complexity is very low and only one piece of large woody debris was observed in the entire 2,300-foot long reconnaissance reach upstream of Uva Road Bridge. When there is greater than six inches of flow in the creek, pools would comprise an estimated 20–25% of the stream length. Chinook spawning gravel habitat is present, but more stable in the reach upstream of the Flores property where the channel bed was not downcut to bedrock. Highly confined winter runoff flows in the incised reach within and downstream of the Flores property have scoured the channel bed to bedrock.

The vacant field north of the creek is predominately disturbed grassland dominated by ruderal species. Scattered coyote brush shrubs are also found in in this area. A small, shallow ponded depression was observed in the field during a January 2016 site visit. Ponding in this area may be the result of compacted soils from placement of spoils from widening of Highway 101.

Discussion of Checklist Responses

a. Substantial Adverse Effect, Either Directly or Through Habitat Modifications, on Any Species Identified As A Candidate, Sensitive, or Special-Status Species — Less than Significant with Mitigation

For the purposes of this assessment, special-status species are those that are listed as rare, species of concern, candidate, threatened or endangered by the USFWS, NMFS, or CDFW². Special-status plant and animal species with the potential to occur in the Project Area were identified through a review of the following resources:

- USFWS Species List (USFWS 2016, Appendix B)
- California Natural Diversity Database (CNDDB) Query within a 9 quad area around the area for the Redwood Valley USGS quadrangle (CDFW 2016, Appendix B)
- California Native Plant Society Rare Plant Inventory Database Query within a 9-quadrangle area for the Redwood Valley USGS quadrangle for California Rare Plant Rank 1A, 1B, 2B species (CNPS 2016)
- Botanical Survey for the Forsythe Creek Floodplain Restoration Project, Mendocino County, California (K. Heise, 2016, Appendix B)

² Includes California Rare Plant Rank (CRPR) List 1 and 2 species.

Forsythe Creek Watershed Assessment & Priorities for Action (Gardiner and Perala 2006)

Appendix B lists the species known to occur within the vicinity of the Project Area. **Figure 3-1** shows CNDDB occurrences of special status species within five miles of the Proposed Project. The potential for special-status species to occur in areas affected by Proposed Project activities was evaluated according to the following criteria:

- **None:** the area contains a complete lack of suitable habitat, the local range for the species is restricted, and/or the species is extirpated in this region.
- **Not expected**: suitable habitat or key habitat elements might be present but might be of poor quality or isolated from the nearest extant occurrences, and/or the species is not known to occur in the area.
- **Possible**: presence of suitable habitat or key habitat elements that potentially support the species.
- **Present**: the species was either observed directly or its presence was confirmed by field investigations or in previous studies in the area.

A discussion of the Proposed Project's potential effects on special-status species and the resultant level of impacts are provided below.

Plants

Special-status plant species known to occur in the vicinity of the Project Area are listed in Appendix B. Of the 24 plant species known to occur in the vicinity, 17 are considered to have no potential to occur in the Project Area. These species are either associated with habitats that do not occur in the Project Area (e.g., chaparral, serpentine, vernal pools) or the Project Area is outside the species' documented range. Seven species are not expected to occur, as the site contains only marginal habitat for these species (Appendix B). There are CNDDB occurrences for three rare plant species (Baker's navarretia [Navarretia leucocephala ssp. bakeri], Burke's goldfields [Lasthenia burkei], and Raiche's manzanita [Arctostaphylos stanfordiana ssp. raichei]) within five miles of the Proposed Project (Figure 3-1).

Rare plant surveys were conducted in the Project Area in 2016 by Kerry Heise Botanical Consulting. A report that details the methods and results of the survey is provided in Appendix B. No rare plants were observed during the surveys. Colonization of the Project Area by a rare plant species is considered unlikely. No impacts to special-status plant species are expected to occur and therefore, no mitigation is required.

Invertebrates

No special-status invertebrates are known to occur in the vicinity of the Project area, thus no impacts are expected to occur to special-status invertebrates and therefore, no mitigation is required.

Fish

Steelhead and Chinook salmon are known to occur in the Forsythe Creek watershed (Gardiner and Perala 2006). All life stages of Pacific lamprey (*Entosphenus tridentatus*) may also use the Project

Area as habitat. Construction activities involved with the Proposed Project, such as temporary dewatering, removing riparian vegetation, and placing RSP on the river banks could result in temporary and permanent impacts to special-status fish species and their habitat.

The Proposed Project incorporates several measures to minimize potential short-term adverse impacts on special-status fish species, including avoiding the spawning season for salmonid species and determining the best means to bypass flow through the work area to minimize disturbance to the channel and avoid direct mortality of special-status fish (BMP-1 through BMP-4). In accordance with **Mitigation Measure BIO-1**, a qualified biologist would also be present to ensure that fish are not stranded during channel dewatering activities and if necessary, relocate individuals in areas slated for construction. With these measures in place, construction-related impacts to special-status fish species would be reduced to a less-than-significant level.

In the long-term, the Proposed Project is anticipated to have beneficial effects on steelhead and Chinook salmon because spawning and rearing habitat for these species would be improved.

Mitigation Measure BIO-1: Protection of Fish and Other Aquatic Species during Channel Dewatering

Before the work area is dewatered (as identified in Table 2-3, BMP-4) or instream construction activities commence, the following measures will be implemented:

- A. Channel dewatering is restricted to: June 1 to October 30.
- B. All pumps used to divert live stream flow, outside the dewatered work area, will be screened and maintained throughout the construction period to comply with NMFS' Fish Screening Criteria for Anadromous Salmonids (NMFS 2008). Pump intakes will be covered by 3/32-inch mesh and placed inside housing with sufficient area to prevent impingement of fish. Pump intakes will be checked periodically to ensure impingement is not occurring.
- C. The channel will be blocked by placing fine-meshed nets or screens above and below the work area to prevent fish from entering the work area. To minimize entanglement, mesh diameter will not exceed 1/8 inch. The bottom edge of the net or screen will be secured to the channel bed to prevent fish from passing under the screen. Exclusion screening will be placed in low velocity areas to minimize impingement. Screens will be checked periodically and cleaned of debris to permit free flow of water.
- D. Fish Protection Measures:
 - i. Fish relocation activities must be performed only by qualified fisheries biologists (as approved by USFWS and CDFW) with experience with fish capture and handling. The RCD shall ensure that all biologists working on this Project be qualified to conduct fish collections in a manner which minimizes all potential risks to salmonids. 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 (NMFS 2000)

- ii. A qualified biologist shall monitor the construction site during placement and removal of channel diversions, cofferdams to ensure that any harm or loss of salmonids is minimized and documented. The biologist shall be on site during all dewatering events to ensure that all listed species are captured, handled, and relocated safely.
- iii. Captured fish shall be handled with extreme care and kept in water to the maximum extent possible during relocation activities. All captured fish shall be kept in cool, shaded, aerated water protected from excessive noise, jostling, or overcrowding any time they are not in the stream and fish shall not be removed from this water except when released. To avoid predation, the biologist shall have at least two containers and segregate young-of-year fish from larger age-classes and other potential aquatic predators. Captured salmonids will be relocated, as soon as possible, to a suitable instream location in which habitat conditions are present to allow for survival of transported fish and fish already present.
- iv. If any salmonids are found dead or injured, the biologist shall contact the NOAA Fisheries North Central Coast Office. The purpose of the contact is to review the activities resulting in take and to determine if additional protective measures are required. All salmonid mortalities shall be retained, placed in an appropriatelysized sealable plastic bag, labeled with the date and location of collection, fork length measured, and be frozen as soon as possible. Frozen samples shall be retained by the biologist until specific instructions are provided by NOAA Fisheries. The biologist may not transfer biological samples to anyone other than the NOAA Fisheries North Central Coast Office without obtaining prior written approval from the North Central Coast Office, Supervisor of the Protected Resources Division. Any such transfer will be subject to such conditions as NOAA Fisheries deems appropriate.
- v. The RCD shall provide a written report to NOAA Fisheries by January 15, following completion of the respective construction season. The report shall contain, at a minimum, a description of the location from which fish were removed and the release site including photographs; the date and time of the relocation effort; a description of the equipment and methods used to collect, hold, and transport salmonids; if an electroshocker was used for fish collection, a copy of the logbook must be included; the number of fish relocated by species; the number of fish injured or killed by species; and a brief narrative of the circumstances surrounding ESA listed fish injuries or mortalities.
- E. All temporary fill, cofferdams, pumps, pipes and sheet plastic will be removed from the stream upon Project completion.

Reptiles and Amphibians

Special-status reptiles and amphibians known to occur in the vicinity of the Project Area are listed in Appendix B. Species with the potential to occur in the Project Area are discussed below.

Western pond turtle (WPT) (*Emys marmorata* [= *Actinemys marmorata*]) may utilize the aquatic habitats in the Project Area for foraging, basking, and mating. Female WPT tend to seek out open areas with sparse, low vegetation (annual grasses and herbs), low slope angle, and dry hard soil for nest sites (USFS 2007). Construction activities in the creek channel and banks could result in adverse impacts to WPT, if present.

Implementation of **Mitigation Measure BIO-2** would reduce the potential for impacts to WPT. If WPT nests are found, a 100-ft buffer will be established around the location of the nests until the young have left the nest, as determined by a qualified biologist. While nests are often difficult to find, the surveys would minimize the potential for nest sites to be disturbed. With this measure in place, impacts would be reduced to the extent feasible and are expected to be less than significant. In the long-term, the Proposed Project is not expected to have substantial negative or beneficial effects to WPT because Proposed Project activities are not anticipated to substantially improve habitat for this species. Logs installed in the channel may provide suitable basking sites for WPT.

Foothill yellow-legged frog (FYLF) (*Rana boylii*) is one of the few obligate stream breeding ranid frogs in the United States. Foothill yellow-legged frog breeding season may commence from mid-March through May, depending on water conditions, and usually lasts approximately 2 weeks (Morey 2008). Forsythe Creek in the Project Area provides marginally suitable breeding habitat for this species. Limiting factors for FYLF in the Project Area include potentially high velocities and stage fluctuations during the breeding season, high sediment loads, and limited aquatic habitat in the dry season. FYLF have not been documented in Forsythe Creek. The closest recorded CNDDB occurrence was in 2000 along Hensley Creek, approximately 3 miles south of the Project Area. FYLF have been observed in lower Forsythe Creek on property owned by the Coyote Valley Band of Pomo Indians (J. Scriven, personal observation). Foothill yellow-legged frogs are likely to occur in the Project Area seasonally, but have not been observed there during summer months. However, if this species were to occur, construction activities such as vegetation removal, grading and dewatering could result in adverse impacts to this species. Implementation of **Mitigation Measure BIO-2** would reduce any potential impacts to a less than significant level. In the long-term, the Proposed Project is not expected to have substantial negative or beneficial effects to FYLF.

The Project Area is within a narrow zone of Mendocino County where the ranges of California redlegged frog (CRLF) (*Rana draytonii*) (state-listed as threatened) and northern red-legged frog (NRLF) (*Rana aurora*) (state species of concern) overlap (Shaffer et al. 2004). There are no observations in the CNDDB database for these species in the Project vicinity (Figure 3-1). The last observation of CRLF in the Mendocino County portion of the Russian River was in the early 1950s in Hopland (D. Acomb, Personal Communication). The aquatic habitat in the Project Area provides only marginally suitable breeding habitat for these species. The breeding season is typically November through March. Forsythe Creek is not likely to support breeding because of high velocities and stage fluctuations during the breeding season. However, if these species were to occur, construction activities such as vegetation removal, grading and dewatering could result in adverse impacts to this species. Implementation of **Mitigation Measure BIO-2** would reduce any potential impacts to a less than significant level.

The CNDDB reports occurrences of red-bellied newt (*Taricha rivularis*) west of the Project Area. This species breeds in streams typically between February to May, with peak activity occurring in March (CaliforniaHerps 2016). Construction activities such as vegetation removal, grading and dewatering could result in adverse impacts to this species. Implementation of **Mitigation Measure BIO-2** would reduce any potential impacts to a less than significant level.

Mitigation Measure BIO-2: Protection of Special-Status Amphibian and Reptile Species

- Prior to the start of construction activities, a qualified biologist familiar with the A. sensitive biological resources that are known or have the potential to occur in the area will conduct a training session for all construction personnel. The training shall provide educational information on the special-status species, including special status amphibians and reptile species, that are known or have potential to occur in the area, how to identify the species, as well as other sensitive biological resources (e.g., sensitive natural communities, federal and state jurisdictional waters). The training shall also review the required mitigation measures to avoid impacts on the sensitive resources, and penalties for noncompliance with biological mitigation requirements. Training will include a description of, their habitats and behavior, and proper procedures for staff if any individuals are detected within the Project Area. The training shall be completed by all construction personnel before any work occurs at the project sites, including construction equipment and vehicle mobilization. If new personnel are added to the proposed project, the Contractor shall ensure that new personnel receive training before they start working. The Contractor shall document staff training efforts.
- Preconstruction surveys for western pond turtle shall be conducted by a qualified B. biologist 48 hours before the start of construction activities where suitable habitat exists (i.e., riparian areas, freshwater emergent wetlands, and adjacent undisturbed uplands). Western pond turtles found within the construction area shall be allowed to leave on their own volition or shall be relocated by the qualified biologist out of harm's way to suitable habitat immediately upstream or downstream of the project site. If turtles are moved, the qualified biologist shall possess a valid permit from CDFW authorizing the handling of turtles. Although unlikely, if an active WPT nest is identified in the work area during preconstruction surveys, the nest will be avoided to the extent feasible. Avoidance shall consist of a buffer area that protects the nest and direct access to the river for hatchlings dispersing from the nest. The extent of the buffer area will be determined in coordination with CDFW. Buffers will be clearly marked with temporary fencing. Construction will not be allowed to commence in the exclusion area until hatchlings have emerged from the nest or the nest is deemed inactive by a qualified biologist.
- C. Prior to commencing construction, a qualified biologist shall conduct one daytime survey for special-status amphibians including all lifestages of FYLF, CRLF/NRLF, and red-bellied newt. The survey shall be conducted no more than 48 hours preceding the onset of construction. If no special-status amphibians are found within the activity area during the pre-activity survey, the work may proceed. If any life stage (egg, tadpole, or adult) are found within the activity area during a pre-construction survey or during project activities, the following measures will be implemented:
 - Adults shall be allowed to leave the work area on their own volition or may be relocated by the qualified biologist out of harm's way to suitable habitat immediately upstream or downstream of the project site. If adults are moved, the

qualified biologist shall possess a valid permit from CDFW authorizing the handling of the species.

- If early life stages (i.e., eggs or tadpoles) are detected, no work buffers shall be established around the habitat and the organisms will be monitored until they are able to leave the work area on their own volition or can be relocated by the qualified biologist out of harm's way.
- Daily preconstruction surveys of the work area shall also be conducted by a trained worker each morning, prior to the start of construction. A qualified biologist will be on call during the construction work and if special-status amphibians are found, work shall not commence until authorized by the qualified biologist.

Birds

Special-status bird species known to occur in the vicinity of the Project Area are listed in Appendix B. Species with the potential to occur in the Project Area are discussed below.

Yellow-breasted Chat (*Icteria virens*) and Yellow Warbler (*Setophaga petechia*) are passerine birds with similar habitat requirements. They are both present in California during the summer. They nest in riparian thickets (often willows), which are present in the Project Area. Although the closest CNDDB occurrences of these species are approximately 14 miles from the Project Area, there have been recent eBird sightings much closer, including one in Redwood Valley for Yellow-breasted Chat and Lake Mendocino for Yellow Warbler (eBird 2016). If these species were to occur in the Project Area, construction activities such as vegetation removal could result in adverse impacts to these species. Implementation of **Mitigation Measure BIO-3** would reduce any potential impacts to these species to a less than significant level.

White-tailed Kite (*Elanus leucurus*) is a state Fully Protected species. Suitable nesting and foraging habitat is present in the Project Area. If present, temporary construction-related activity could generate noise and visual distractions that could disturb nesting and potentially cause failure of a nest, which would be considered a significant impact.

Implementation of **Mitigation Measure BIO-3**, which includes pre-construction surveys for nesting raptors, would reduce potential impacts to White-tailed Kite. In the event that an active nest is found during surveys, a no work buffer will be established around the nest until the young have fledged or the nest becomes inactive. With the implementation of these measures, impacts to White-tailed Kite would be reduced to a less than significant level.

Mitigation Measure BIO-3: Minimize Impacts to Nesting Birds via Site Assessments, Surveys, and Avoidance Measures

- A. If vegetation clearing or ground disturbing activities commence between February 15 and August 31, a qualified biologist will conduct a nesting birds within 2 weeks prior to starting work. If a lapse in Project-related work of 2 weeks or longer occurs, another focused survey will be conducted before Project work can be initiated. Surveys will cover a minimum of a 0.25-mile radius around the construction area.
- B. If nesting birds are found, a buffer will be established around the nest and maintained until the young have fledged. Appropriate buffer widths are 0.25 miles for White-tailed

Kite, 300 feet for non-listed raptors and special-status passerines, and 100 feet nonlisted passerines. A qualified biologist may identify an alternative buffer based on a site specific-evaluation and in consultation with CDFW. Work will not commence within the buffer until fledglings are fully mobile and no longer reliant upon the nest or parental care for survival.

Mammals

There is a CNDDB occurrence of Townsend's big-eared bat (*Corynorhinus townsendii*) approximately 2.75 miles northeast of the Project Area, but this species is unlikely to occur in the Project Area and the Proposed Project would not impact suitable roosting habitat for Townsend's big-eared bat. Pallid bat (*Antrozous pallidus*), and obligate tree bats, such as western red bat (*Lasiurus blossevillii*) and hoary bats (*Lasiurus spp.*), may utilize hollow trees as roosts or maternal colonies. Removal of trees with an active maternity colony or roost of special-status bat species would be considered a significant impact. Implementation of **Mitigation Measure BIO-4** would reduce any potential impacts to a less than significant level.

Mitigation Measure BIO-4: Protection of Bat Colonies

The following measures shall be implemented to minimize impacts on individual colonial bats using trees for temporary roosts, and obligate tree bats, such as western red bat and hoary bats:

- Prior to removal of trees a qualified biologist shall assess trees to be removed for potential bat habitat. If the biologist determines that no bats are present in tree(s), then they may be removed.
- For trees that provide potential bat habitat, tree removal shall occur between March 1 and April 15 or between August 31 and October 15 to avoid the bat maternity season and winter torpor period, unless a focused survey determines that bats are not roosting in the tree(s).
- A two-stage tree removal process over two consecutive days shall be implemented for trees that may support colonial roosts (i.e., trees with cavities, crevices, or exfoliating bark) unless a focused survey conducted by a qualified bat biologist determines that no bats are present in tree(s) to be removed. The two-stage tree removal process is as follows:
 - <u>Step 1:</u> small branches and small limbs containing no cavity, crevice or exfoliating bark are removed with chainsaws under field supervision by a qualified bat biologist.
 - <u>Step 2:</u> the remainder of the tree is to be removed the following day. The disturbance caused by chainsaw noise and vibration, coupled with the physical alteration, has the effect of causing colonial bat species to abandon the roost tree after nightly emergence for foraging. Removing the tree the next day prevents re-habituation and re-occupation of the altered tree.





Chinook Salmon

---- Steelhead, Central California Coast

Sources: California Dept. of Fish & Wildlife, California Natural Diversity Database, December 2016 update. NOAA 2005.



Forsythe Creek Floodplain Restoration and Streambank Stabilization Project

Figure 3-1

Critical Habitat and CNDDB Occurrences of Special Status Species in the Vicinity of the Project Area

b. Have a Substantial Adverse Effect on Riparian Habitat or Other Sensitive Natural Community — *Less than Significant*

Sensitive natural communities that would be affected by the Proposed Project include wetland and riparian habitats. Wetlands are addressed separately in section (c) below. The riparian corridor currently exhibits mid-seral habitat dominated by native trees (cottonwood and willow) and non-native Himalayan blackberry. The *Populus fremontii* (Fremont cottonwood forest) Alliance present in the Project Area is considered a sensitive natural community by CDFW (CDFG 2010).

The Proposed Project would temporarily disturb approximately 1.2 acres of riparian habitat from grading and vegetation clearing in the Project Area. A portion of this area includes Fremont cottonwood forest. Impacts would largely occur on the north bank of Forsythe Creek, with some impacts to the limited riparian vegetation on the south bank. The transitions of the secondary channel to the mainstem have been located to minimize impacts to high quality riparian habitat.

Approximately 25 native trees of 12 inches or greater DBH would be removed during Project construction, as listed in **Table 3.4-1**. The locations of the affected trees are shown in Figure 2-1.

Common Name	Scientific Name	Inches DBH
White alder	Alnus rhombifolia	18
		12
	Umbellularia californica	14
California hou		16
California bay		16
		19
		22
		12
	Populus fremontii	12
		13
		14
		14
Fremont		15
cottonwood		15
		15
		15
		16
		17
		18

Table 3.4-1. Trees to be Removed

Common Name	Scientific Name	Inches DBH
		18
		28
	Quercus spp.	15
oak		18
		30
willow	<i>Salix</i> sp.	24

The Proposed Project would restore floodplain functions and create approximately 3.2 acres of riparian habitat. Initially, this area would function as early-seral riparian scrub, which is underrepresented along Forsythe Creek and was likely historically more prevalent prior to channel incision. This area would provide important habitat for riparian obligate passerine species such as Yellow Warbler. Over time, the riparian habitat would mature and provide shade to the channel, expand nesting habitat for a broad range of birds, and enhance habitat for other wildlife.

Impacts associated with removal of riparian vegetation during construction would result in shortterm loss of functions and values of riparian habitat, such as reduction in shade and bird nesting habitat. These impacts would be minimized by revegetating impacted areas following grading (Figure 2-3). In addition, the construction contractor would be required to follow the erosion control and sediment control guidelines specified in the BMPs (Table 2-3). Therefore, short-term impacts to riparian habitat are considered less than significant. In the long term, the Proposed Project would have beneficial impacts on riparian habitat and sensitive natural communities including Fremont cottonwood forest.

c. Substantial Adverse Effects on Federally Protected Wetlands — *Less than Significant*

The Proposed Project would result in excavation and placement of fill in jurisdictional waters of the U.S. and removal of vegetation within areas that are potentially jurisdictional wetlands. A wetland delineation has not yet been completed for the site. A compacted, seasonally ponded area that is a potential wetland would be impacted by secondary channel construction. Waters would be impacted by placement of fill (RSP for bank stabilization) as well as by temporary impacts of grading where the secondary channel connects to the main channel. The RSP will be planted to restore riparian corridor functioning of the channel banks. Bank stabilization will minimize sedimentation into the creek, and improve water quality.

Proposed Project activities are not expected to result in loss of waters or wetlands, although there would be a small amount of type conversion, as some of the seasonally ponded wetland would be converted to riparian wetland. Overall, the Proposed Project is anticipated to create one to two acres of waters of the U.S., as well as improving functions and values of existing wetlands. Thus, the Proposed Project's effects to wetlands and waters of the U.S. are considered beneficial.

d. Substantial Interference With Wildlife Movement, Established Wildlife Corridors, or the Use of Native Wildlife Nursery Sites — *Less than Significant with Mitigation*

The Project area has not been identified as an Essential Connectivity Corridor or a Natural Landscape Block (Spencer et al. 2010). However, Forsythe Creek acts as a corridor for riparian species as well as for anadromous fish species. The Proposed Project would incorporate measures to avoid or minimize adverse effects to movement and reproduction of fish and wildlife resources during construction. Specifically, the Proposed Project incorporates seasonal restrictions (Table 2-3, BMP-1) on most activities to avoid sensitive migration and breeding times. For activities that do occur during the breeding season for migratory species, pre-construction surveys are required to identify nest sites and subsequently minimize disturbance to active nests or breeding sites (Mitigation Measures BIO-3 and BIO-4).

Dusky-footed woodrats (*Neotoma fuscipes*) are common in California (Brylski 2008). The current taxonomy recognizes 11 subspecies within the species' range, which extends from northern Oregon to northern Baja California (Matocq 2002). The subspecies that occurs in the Project Area belongs to the northern California and Oregon group of subspecies (*N. fuscipes fuscipes*), which is not designated as a species of special concern by the CDFW. However, Fish and Game Code § 4150 affords protection to nongame mammals, and under CEQA substantial interference with native wildlife breeding could be considered a significant impact. Woodrats build houses constructed primarily of sticks. Construction activities such as grading could potentially impact woodrat houses/nests, if present in the Project Area. Implementation of **Mitigation Measure BIO-5** would reduce these impacts to a less than significant level.

These measures would reduce movement-related impacts to wildlife to a level that is considered less than significant. In the long term, the Proposed Project will likely beneficially impact anadromous fish passage by improving in-channel conditions and improve habitat conditions for species such as the dusky-footed woodrat.

Mitigation Measure BIO-5: Implement a Dusky-footed Woodrat Relocation Measure

If a dusky-footed woodrat house(s) are encountered, a qualified biologist shall dismantle and relocate the house material. No less than 10 days prior to the beginning of construction a qualified biologist shall deconstruct the house with hand tools. Materials from the house shall be dispersed into adjacent suitable habitat that is outside of the work area. During the deconstruction process the biologist shall attempt to assess if there are juveniles in the house. If immobile juveniles are observed, the deconstruction process shall be discontinued until a time when the biologist believes the juveniles will be fully mobile. A 50-foot wide no-disturbance buffer will be established around the house until the juveniles are mobile. The house may be dismantled once the biologist has determined that adverse effects on the juveniles would not occur. All disturbances to woodrat houses will be documented in a construction monitoring report and submitted to CDFW.

e. Conflicts With Local Policies or Ordinances Protecting Biological Resources — No Impact

The Project Area is located entirely within the unincorporated portion of Mendocino County. Land use planning in unincorporated areas of Mendocino County is governed by the Mendocino County
General Plan (Mendocino County 2009). A number of General Plan goals and policies specifically address the need to protect and preserve riparian and instream habitat values, to support fish populations, particularly native anadromous fish species such as Chinook salmon and steelhead. These include:

- Policy RM-89: Conserve and enhance watercourses to protect habitat, fisheries, soils, and water quality.
- Policy RM-90: Conserve and enhance streamside (riparian) vegetation through development design and standards.
- Policy RM-91: Stream restoration and maintenance programs shall conserve riparian vegetation and the floodwater carrying capacity of river and stream channels.
- Policy RM-92: Whenever possible, use riparian vegetation in conjunction with natural or appropriate structural materials to achieve a natural appearance.
- Policy RM-93: Encourage public agencies and private property owners to protect fishery habitat and participate in fishery enhancement projects (including removal of barriers to fish passage) for coastal and inland waterways of Mendocino County.

The Proposed Project is consistent with these policies and ordinances protecting biological resources. No mitigation is required.

f. Conflict With the Provisions of an Adopted HCP, Natural Community Conservation Plan — *No Impact*

The Project Area is not subject to any adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan. Consequently, there would be no impact related to potential conflicts with the provisions of any such plan, and no mitigation is required.

3.5 Cultural Resources

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than- Significant Impact	No Impact
Wo	ould the Proposed Project:				
a.	Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5 of the State CEQA Guidelines?				\boxtimes
b.	Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5 of the State CEQA Guidelines?				
c.	Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?				
d.	Disturb any human remains, including those interred outside of formal cemeteries?				

Regulatory Setting

The Proposed Project will require a Clean Water Act Section 404 permit from the U.S. Army Corps of Engineers. As a result, the project constitutes a federal undertaking as defined by 54 U.S. Code (USC) Section 300101 of the National Historic Preservation Act (NHPA) and mandates compliance with 54 USC Section 306108, commonly known as Section 106 of the NHPA and its implementing regulations, found in 36 Code of Federal Regulations (CFR) Section 800, as amended in 2001. To comply with Section 106, the project proponent must "take into account the effect of the undertaking on any district, site, building, structure, or object that is included in or eligible for inclusion in the National Register."

The Project must also comply with the CEQA Guidelines. Section 21083.2 of the California Public Resources Code (PRC) requires that the lead agency determine whether a project may have a significant effect on unique archaeological resources. Furthermore, Section 15064.5 of the CEQA Guidelines notes that "a project with an effect that may cause a substantial adverse change in the significance of an historical resource is a project that may have a significant effect on the environment." Substantial adverse changes include physical changes to the historical resource or to its immediate surroundings, such that the significance of the historical resource would be materially impaired. CEQA lead agencies are expected to identify potentially feasible measures to mitigate significant adverse changes in the significance of a historical resource before they approve such projects.

The lead agency having jurisdiction over a project is also responsible to ensure that paleontological resources are protected in compliance with CEQA and other applicable statutes. Paleontological and historical resource management is addressed in PRC Section 5097.5, "Archaeological, Paleontological, and Historical Sites."

CEQA Guidelines Section 15064.5 prescribes the processes and procedures found under Health and Safety Code Section 7050.5 and PRC Section 5097.95 for addressing the existence of, or probable likelihood of, Native American human remains, as well as the unexpected discovery of any human remains within the project site. This includes consultation with the appropriate Native American tribes.

The Mendocino County General Plan (2009) identifies one goal for the protection of cultural resources under the Development Element. This goal, DE-6, is "Protection and preservation of the county's significant historical, archaeological and cultural resources." Several policies (DE-111 through DE-116) have been established to support this goal, which includes paleontological resources. The policies encourage protection of cultural and paleontological resources. Cultural resource studies are required for county-approved projects "where it is determined that cultural resources may occur;" paleontological studies are required for county-approved projects at the discretion of the county. The policies include provisions for the suspension of work if archaeological or paleontological resources are identified during construction activities, and the evaluation of those resources.

Perhaps more significant than the General Plan, is Mendocino County's Archaeological Ordinance (Title 22, Chapter 22.12) (Mendocino County 2016), which was originally adopted in 1976 and was the first county ordinance to address archaeological resources after the passage of CEQA. In addition to recognizing the importance of protecting the County's archaeological resources, the ordinance established an Archaeological Commission that includes a diverse range of citizenship, including a representative from the Native American community and a professional archaeologist. The ordinance also details the treatment of archaeological resources.

Environmental Setting

Prehistory

Over half a century of archaeological investigations in the North Coast Ranges has revealed a record of hunter-gatherer occupation spanning 12,000 years. The cultural chronology of this area is best described as part of the overall cultural chronology for the central North Coast Ranges. A number of cultural chronologies have been developed for this region (cf. Basgall 1982; Fredrickson 1974; Fredrickson and White 1988; Hildebrandt and Hayes 1984; Jones and Hayes 1993; Layton 1990; Meighan 1955; White and King 1993; White 2002).

In his 1974 doctoral dissertation David A. Fredrickson proposed five chronological periods and related cultural patterns. The Paleo-Indian Period (10,000 to 6000 BC) is represented as a hunting adaptation characterized by large fluted projectile points. The Lower Archaic Period (6000 to 2000 BC) is distinguished by an emphasis on plant exploitation as evidenced by high frequencies of milling tools. The Middle Archaic (3000-1000 BC) is characterized by the introduction of mortar and pestle technology and the assumed exploitation of acorns. The Upper Archaic Period (1000 BC to AD 100) is represented growing social complexity marked by status differentiation, complex trade networks,

and the development of "group oriented religious activities" (Fredrickson 1974:48). The Emergent Period (AD 500 to Historic times) is marked by the use/introduction of bow and arrow technology, expansion of exchange relations, and the establishment of clearly defined territorial systems.

Ethnography

Distributed over the lands of Mendocino, Lake, and Sonoma counties are many independent bands of Pomo Indians. The Project Area is within the territory formally occupied by the Masut band of Pomo. The boundaries of various bands were recognized and hunting rights were respected; seldom was there trouble with neighbors (Stewart 1943:39). There was no private ownership of dams, trees bushes, or pinole fields. Families tended to help one another. An aboriginal trail existed along Forsythe Creek, which connected Redwood Valley with the coast. The Kacha and Masut bands shared the trail to the coast with others allowing passage through their homelands. Nearby bands including the Kacha, Mitom, Masut, and Ukiah tribes were invited and attended dances and ceremonies, which helped assure friendly relationships (Stewart 1943:39). Salmon were speared at the falls of *Ka-dida*, where the Kacha shared fishing rights with the Masut (Kniffen 1939:373-380).

Samuel Barrett's (1908) *The Ethnography of the Pomo and Neighboring Tribes* describes the nearest ethnographic site *Mas'ut* (Barrett 1908:144) in the following:

"...on the western affluent of Russian river at a point about three miles northwest of the town of Calpella. Some informants claim that this site is located on the west bank and some that it is on the east bank of the stream, and from all that can be leaned it seems that both statements are correct, for it appears that both banks of this stream were inhabited at different times, The more recently occupied site was on the west bank, or rather in what is now the western part of the stream bed, as the river has shifted toward the west and has washed nearly all of this site away. Upon abandoning this site these people went to tco'metcadila, just south of Calpella. The people of this village are probably referred to as ... Masu-ta-kaya, one of the bands which made a treaty with Colonel McKee at Feliz Ranch near Hopland. The same people were also mentioned by McKee as Maj-su-ta-ki-as".

Site CA-MEN-2812 may represent the village of *Mas'ut* after it was moved to the north bank of Forsythe Creek.

History

The formation of the Mexican republic in 1822 marked the first broad invasion into Pomo lands. In 1845, the 35,000-acre Rancho Yokayo Land Grant was established by Mexican Governor Pio Pico (Palmer 1880:211). This grant was named after the local tribes that called themselves *Yokayo*, meaning "people of the South or Deep Valley". Cayetano Juarez, a native Californian and captain of the militia filed claimant to Rancho Yokayo (Palmer 1880:475; Gudde 1998:406). The town of Ukiah was established in the Rancho Yokayo by 1856, followed by Calpella in 1857 (Gudde 1998:406; Hoover et al. 1966:196-7; Palmer 1880:443-444).

Problems quickly develop between Anglo setters and local Indians involving a struggled over territory and competition over food between livestock and people. In 1855, two Indian reservations were established in Mendocino County for the purpose of "collecting, removing and subsisting" local

tribes. The Mendocino Reservation was established on the coast near Fort Bragg and the Nome Cult Farm in Round Valley. Mr. Thomas Henley, was placed in charge by the Office of Indian Affairs. Numerous reports document of the abhorrent conditions of the reservation system, rampant disease, sexual abuse, kidnapping of Indian children and murder. Scandal and corruption plagued the reservation resulting in allegations of misappropriation of funds. In 1859, the Secretary of the Interior wrote "The management of Indian affairs in California has been embarrassed with a great variety of difficulties... and has proven a failure" Mr. Henley was removed from office in 1861.

The tribes of Redwood Valley and nearby drainages were removed to Round Valley around 1864 (Barrett 1908; Gifford and Kroeber 1937:123; Stewart 1943:30). Although the Mendocino Reservation were officially discontinued in 1866 (Winn 1986) many individuals originating from the Calpella and Redwood Valley areas remained in Round Valley. By 1880, most of the surviving tribal members left Round Valley and moved back to the general homelands where they found work on local farms and ranches, or moved to the Pinoleville Rancheria or other rancherias along the Russian River (Barrett 1908:49-51; Stewart 1943:30).

Cultural Resources Studies

Archival Research

On May 9, 2016, Mr. Alex DeGeorgey, archaeologist with ALTA Archaeological Consulting (ALTA), conducted a records search (File Number 15-1643) at the Northwest Information Center (NWIC) located on the campus of Sonoma State University. The purpose of the records search was to determine if the Project area had previously been surveyed for cultural resources, and to identify any previously recorded cultural resources in or within one-half mile of the project site. Sources consulted included archaeological site and survey base maps, survey reports, site records, historic General Land Office (GLO) maps, the National Register of Historic Places, California Historical Landmarks, California Register of Historical Resources, and the California Points of Historical Interest as updated by the Office of Historic Preservation History Property Directory (OHP 07-2012).

A review of archaeological site and survey maps reveal that 12 cultural resources studies have been previously performed within a one-half mile radius of the current Project Area. No previous studies have been conducted within the Project Area. Less than approximately 10 percent of the areas surrounding the Project Area have been previously surveyed for cultural resources.

Two prehistoric cultural resources are documented within the one-half mile records search radius (Attachment A Map 1). Site CA-Men-1344 consists of a prehistoric midden with obsidian and fire affected rock (Branscomb 1977). This prehistoric resource is located at the south side of the intersection of Bel Arbes Drive and Uva Drive. The site is situated about 700 feet south of the Project Area. Site CA-Men-2812 is a prehistoric midden site with obsidian flakes and fire affected rock (Thompson 1993). The site is located on a high terrace on the east bank of Forsythe Creek approximately 550 feet west-southwest of the intersection of Uva Drive and terra Verde Court. The site is situated about 900 feet west of the Project Area.

A review of the data maintained by the University of California Museum of Paleontology indicated that 193 fossil locations have been recorded in Mendocino County (UCMP 2016). A vast majority of the fossils are invertebrates from the Tertiary, Cretaceous, and Quaternary periods, most of which were observed in deposits along or near the coast.

Native American Consultation

The Native American Heritage Commission (NAHC) was contacted in writing on April 28, 2016 to review the Sacred Lands Files for any resources present within the Project area and to request the contact information for the Native American groups in the area. A response letter from the NAHC, dated May 13, 2016, stated that the Sacred Lands File indicated that no significant Native American resources are currently known in the vicinity of the Proposed Project. The NAHC identified five individuals that may have cultural concerns within the Project Area. On May 16, 2016, letters requesting information about the Project area were sent to the individuals listed in Table 3.5-1.

Table 3.5-1. N	ative American	Consultation
----------------	----------------	--------------

Contact	Tribe	Letter Date
Ms. Debra Ramirez, Chairperson	Redwood Valley Rancheria of Pomo Indians	05/16/16
Ms. Merlene Sanchez, Chairperson	Guidiville Band of Pomo Indians	05/16/16
Mr. Michael Hunter, Chairperson	Coyote Valley Band of Pomo Indians	05/16/16
Ms. Leona Williams, Chairperson	Pinoleville Pomo Nation	05/16/16
Mr. Salvador Rosales, Chairperson	Potter Valley Tribe	05/16/16

To date, no responses have been received from those contacted.

Archaeological Survey and Results

ALTA staff archaeologists, Alex DeGeorgey and Alex Coburn, conducted a field survey of the project on May 12 and 26, 2016 (DeGeorgey 2016). Mr. Joe Scriven, from the RCD, was present during the field survey to allow access to private parcels, indicate the Project Area(s), and address questions about the project. Survey reconnaissance consisted of an intensive survey of the entire area and nearby surroundings. Aerial photos, construction drawings, and parcel maps were used to correctly identify the Project Area. The project was surveyed with transects no greater than 20 meter intervals. Ground surface visibility was poor, less than 5%, throughout the Project Area due to low lying grasses. Long-handled hoes were used to periodically scrape the ground surface to inspect sediments for evidence of cultural materials. A total of 22.9 acres of land were surveyed for cultural resources.

Disturbances were noted within the Project Area as a result of historic and modern activities. Extensive amounts of imported fill material are present on the parcel north of Forsythe Creek. Sediments were observed ranging from 3 to 10 feet high above the original floodplain landform. The original landform within this zone is almost completely obscured by imported sediments. Parcels located on the south side of Forsythe Creek area are within a residential subdivision. Forsythe Creek is actively eroding the southern stream bank. Recently exposed soil profiles were examined to understand geomorphic processes and to identify subsurface or buried cultural resources.

No cultural materials were discovered as a result of the field survey.

Discussion of Checklist Responses

a. Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5 of the State CEQA Guidelines - *No Impact*

No historical resources, as defined in § 15064.5 of the CEQA Guidelines were identified within the Project study area. Similarly, no historic properties, as defined under 36CFR800.16(a)(l)(1-2) were identified. As a result, the Proposed Project would not cause a substantial adverse change to a historical resource/historic property and there would be no impact.

Historical resources/historic properties that are archaeological in nature may be accidentally discovered during project construction and are discussed further in item b, below.

b. Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5 of the State CEQA Guidelines - *Less than Significant with Mitigation*

No archaeological resources were identified within the Project area during the archaeological survey (DeGeorgey 2016), therefore there would be no impact to known archaeological resources pursuant to Section 15064.5 of the State CEQA Guidelines.

Work associated within the Proposed Project area would result in excavation along Forsythe Creek and its floodplain in order to construct a secondary stream channel. The majority of the excavation will be in fill material placed in the flood plain during the 1980s as part of the Highway 101 improvement project north of Redwood Valley, The fill material is expected to be 8 to 12 feet deep, and the maximum excavation to create the secondary flood plain will be up to about 14 feet deep in some areas. As a result, some original ground, up to 6 feet, could be disturbed and the potential to discover items of cultural significance exists. Prehistoric materials most likely would include obsidian and chert flaked stone tools (e.g., projectile points, knives, and choppers), tool-making debris, or milling equipment such as mortars and pestles. Historic-era materials that might be uncovered include cut (square) or wire nails, tin cans, glass fragments, or ceramic debris.

If archaeological remains are accidentally discovered that are determined eligible for listing in the CRHR/NRHP, and Proposed Project activities would affect them in a way that would render them ineligible for such listing, a significant impact would result. Should previously undiscovered archaeological resources be found, implementation of Mitigation Measures CR-1 and CR-2 would ensure that impacts on CRHR/NRHP-eligible archaeological sites accidentally uncovered during construction are reduced to a less-than-significant level by immediately halting work if materials are discovered, evaluating the finds for CRHR/NRHP eligibility, and implementing appropriate mitigation measures, as necessary. Implementation of Mitigation Measures CR-1 and CR-2 would reduce impacts related to accidental discovery of significant archaeological resources to a level that is less than significant with mitigation.

Mitigation Measure CR-1: Conduct Archaeological Sensitivity Training and Construction Monitoring.

Prior to initiation of ground-disturbing activities, construction crews to receive training about the kinds of archaeological materials that could be present within the project site and the protocols to be followed should any such materials be uncovered during construction. Training will be conducted by an archaeologist who meets the U.S. Secretary of Interior's professional standards.

A qualified Native American monitor from the Coyote Band of Pomo Indians will be retained to monitor all ground disturbing activities associated with the Project. If any prehistoric or historic-era features, or human remains, are exposed during construction, the monitor will have the authority to stop work in the vicinity of the finds and implement Mitigation Measure CR-2.

Mitigation Measure CR-2: Immediately halt construction if cultural resources are discovered, evaluate all identified cultural resources for eligibility for inclusion in the NRHP/CRHR, and implement appropriate mitigation measures for eligible resources.

If any cultural resources, such as structural features, unusual amounts of bone or shell, flaked or ground stone artifacts, historic-era artifacts, human remains, or architectural remains, are encountered during any project construction activities, work shall be suspended immediately at the location of the find and within a radius of at least 50 feet and the lead agency will be contacted.

All cultural resources accidentally uncovered during construction within the Project site shall be evaluated for eligibility for inclusion in the NRHP/CRHR. Resource evaluations will be conducted by individuals who meet the U.S. Secretary of the Interior's professional standards in archaeology, history, or architectural history, as appropriate. If any of the resources meet the eligibility criteria identified in Public Resources Code § 5024.1 or CEQA § 21083.2(g), mitigation measures will be developed and implemented in accordance with CEQA Guidelines § 15126.4(b) before construction resumes.

For resources eligible for listing in the NRHP/CRHR that would be rendered ineligible by the effects of project construction, additional mitigation measures will be implemented. Mitigation measures for archaeological resources may include (but are not limited to) avoidance; incorporation of sites within parks, greenspace, or other open space; capping the site; deeding the site into a permanent conservation easement; or data recovery excavation. Mitigation measures for archaeological resources shall be developed in consultation with responsible agencies and, as appropriate, interested parties such as Native American tribes. Implementation of the approved mitigation would be required before resuming any construction activities with potential to affect identified eligible resources at the site.

c. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature - *No Impact*

Paleontological resources include fossil remains, as well as fossil localities and rock or soil formations that have produced fossil material. Recent alluvial deposits, such as those found at the Project site, are not prone to containing paleontological remains. Therefore, there Proposed Project will have no impact on paleontological resources.

d. Disturb any human remains, including those interred outside of formal cemeteries - *Less than Significant Impact with Mitigation*

No human remains were identified at the Proposed Project site as a result of background research or the field survey (DeGeorgey 2016). However, due to proposed construction into the original creek banks, and the known locations of Native American archaeological sites along Forsythe Creek, the potential for human remains to be uncovered cannot be entirely discounted. Implementation of **Mitigation Measure CR-3** would reduce impacts on any human remains discovered during construction to a level that is less than significant.

Mitigation Measure CR-3: Halt Construction Immediately if Human Remains Are Discovered and Implement Applicable Provisions of the California Health and Safety Code.

If human remains are discovered during construction activities, the requirements of Section 7050.5 of the California Health and Safety Code shall be followed. Potentially damaging excavation shall halt on the Proposed Project site within a minimum radius of 100 feet of the remains and the Mendocino County Coroner shall be notified. The Coroner is required to examine all discoveries of human remains within 48 hours of receiving notice of a discovery on private or state lands (Health and Safety Code Section 7050.5[b]). If the Coroner determines that the remains are those of a Native American, he or she must contact the NAHC by phone within 24 hours of making that determination (Health and Safety Code Section 7050[c]). In accordance with the provisions of PRC Section 5097.98, the NAHC shall identify a Most Likely Descendent (MLD). The MLD designated by the NAHC shall have at least 48 hours to inspect the site and propose treatment and disposition of the remains and any associated grave goods. The RCD or its designee shall work with the MLD to ensure that the remains are removed to a protected location and treated with dignity and respect.

3.6 Geology and Soils

			Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than- Significant Impact	No Impact
Wo	ould	the Proposed Project:				
a.	Exy sul los	pose people or structures to potential bstantial adverse effects, including the risk of s, injury, or death involving:				
	1.	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.				
	2.	Strong seismic ground shaking?				\square
	3.	Seismic-related ground failure, including liquefaction?				\boxtimes
	4.	Landslides?				\square
b.	Re top	sult in substantial soil erosion or the loss of osoil?			\boxtimes	
c.	Be un res res	located on a geologic unit or soil that is stable or that would become unstable as a sult of the Proposed Project and potentially sult in an on-site or off-site landslide, lateral reading, subsidence, liquefaction, or collapse?				
d.	Be 18 cre	located on expansive soil, as defined in Table -1-B of the Uniform Building Code (1994), eating substantial risks to life or property?				\boxtimes
e.	Ha use dis ava	ve soils incapable of adequately supporting the e of septic tanks or alternative waste water sposal systems in areas where sewers are not ailable for the disposal of waste water?				

Environmental Setting

Mendocino County is located in the Coast Ranges geomorphic province, which is bounded on the west by the Pacific Ocean and on the east by the Great Valley geomorphic province. The physical structure

of Mendocino County is generally described as having a series of northwest-southeast trending mountain ranges and intervening valleys. The mountain ranges include steep rugged terrain and ridgelines that separate the ranges into separate watersheds.

Nearby Faults and Seismicity

The Maacama fault lies approximately 0.5 miles to the west of the Project Area (DOC 1983). This fault is capable of producing a 7.25 magnitude earthquake (Mualchin 1996).

Tsunami and Seiche Risk

Due to the Proposed Project's location 30 miles away from the Pacific Ocean, tsunamis pose no risk to the Project Area. There would be no risk for seiche because the Proposed Project would be within and adjacent to a creek channel that would not create a standing wave during a seismic event.

Soils

The Project Area includes soils classified as alluvium (Qal) and river terrace deposits (Qt) (Jennings and Strand 1960). As mentioned previously, fill material was placed on the northern floodplain during widening of Highway 101 in the 1980s.

Landslides

Active and dormant landslides are found throughout Mendocino County dependent on geologic, soil, and hydrologic conditions. Some slides reflect structural mass movement conditions found along slopes with diminished shear strength. In the Project Area, localized erosion occurs along the banks of Forsythe Creek. While these streambank features may cause local erosion and are problematic for immediate landowners they are not considered as a high risk regional geologic hazard compared to larger hillslope mass movements.

Discussion of Checklist Responses

a. Exposure of People or Structures to Adverse Effects Involving:

1. Rupture of Known Earthquake Fault — *No Impact*

The Proposed Project is not within an Alquist-Priolo Earthquake Zone, however the Maacama fault is approximately 0.5 miles west of the Project Area. The Proposed Project would not involve the construction of residential housing or other types of buildings and would not affect population growth. As such, the Proposed Project would not expose people or structures to risk of injury or death from rupture of an active fault.

2. Strong Seismic Groundshaking – *No Impact*

The Project Area is located in a seismically active area, and can be expected to experience strong earthquake groundshaking during the lifetime of the Proposed Project. As described in the previous response, the Proposed Project would not involve construction of new housing or other buildings. As such, the potential for the Proposed Project would change the risks associated with strong seismic groundshaking relative to the baseline. Therefore, there is no impact.

3. Seismically Induced Ground Failure — *No Impact*

The Proposed Project would be located on alluvial soils, which generally amplify groundshaking and are potentially susceptible to liquefaction. As described in the previous response, the Proposed Project would not involve construction of housing or other buildings. The Proposed Project would change the risks associated with seismically induced ground failure relative to the baseline. Therefore, there is no impact.

4. Landslides, Including Seismically Induced Landslides — *No Impact*

There are no landslides mapped in the Project Area (DOC 2016), although a detailed landslide inventory has not been conducted in the area. The Proposed Project would not change the risks associated with landslides relative to the baseline. Therefore, there is no impact.

b. Result in Substantial Soil Erosion or Loss of Topsoil — Less than Significant

Construction activities, including clearing and grubbing, excavation, and staging/stockpiling would have the potential to contribute to erosion during the construction period and in the near term period following construction. To limit the potential for erosion and loss of topsoil, the Proposed Project would implement BMP-2 and BMP-3 described in Table 2-3. BMP-3, in particular, would require that all soils disturbed or exposed during construction activities be seeded and stabilized using erosion control fabric or hydromulch. As the Proposed Project would impact greater than one acre, a Storm Water Pollution Prevention Plan (SWPPP) would be prepared and implemented in accordance with the State Water Board's Construction General Permit Order 2009-0009-DWQ, as amended. Implementation of the SWPPP would reduce potential erosion and loss of topsoil.

Given implementation of the above measures, the potential for substantial soil erosion and loss of topsoil from the Proposed Project is less than significant. In the long term, the Proposed Project is anticipated to reduce soil erosion by stabilizing streambanks.

c. Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the Proposed Project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse — *No Impact*

The Project Area is generally located on alluvium soils, which are potentially unstable and subject to liquefaction. The Proposed Project would not increase the potential for off-site landslide, lateral spreading, subsidence, liquefaction, or collapse of land relative to the baseline. Therefore, there is no impact.

d. Location on Expansive Soil – *No Impact*

Soils is the Project Area are Talmage gravelly sandy loam, 0–2% slopes (NRCS 2016). Shrink-swell potential is unknown but is inferred to be low as this soil is dominated by sand and gravel (USDA 1991), whereas shrink-swell behavior correlates with the presence of particular clay minerals in the fine sediment fraction. Therefore, there is no impact.

e. Support of Septic Tanks or Alternative Waste Water Disposal Systems — No Impact

The Proposed Project does not include any uses, features, or facilities that would generate wastewater; it does not propose to construct any septic or wastewater disposal systems. Consequently, there would be no impact related to waste water disposal systems.

3.7 Greenhouse Gas Emissions

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than- Significant Impact	No Impact
Would the Proposed Project:					
a.	Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?			\boxtimes	
b.	Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?			\square	

Regulatory Setting

This section describes the federal, state, and local regulations related to greenhouse gas (GHG) emissions and climate change. At the federal level, the USEPA has developed regulations to reduce GHG emissions from motor vehicles and has developed permitting requirements for large stationary emitters of GHGs. On April 1, 2010, USEPA and the National Highway Traffic Safety Administration established a program to reduce GHG emissions and improve fuel economy standards for new model year 2012-2016 cars and light trucks. On August 9, 2011, USEPA and the NHTSA announced standards to reduce GHG emissions and improve fuel efficiency for heavy-duty trucks and buses.

California has recently enacted a number of policies and plans to address GHG emissions and climate change. In 2006, AB 32, the Global Warming Solutions Act was passed, which set the overall goals for reducing California's GHG emissions to 1990 levels by 2020. Executive Orders S-3-05 and B-16-2012 further extend this goal to 80 percent below 1990 levels by 2050. In April 2015, Governor Brown issued EO B-30-15 which established a GHG reduction target of 40 percent below 1990 levels by 2030. CARB has completed rulemakings to implement several GHG emission reduction regulations, and continues to investigate the feasibility of implementing additional GHG emission reduction regulations. CARB approved the First Update to the AB 32 Scoping Plan on May 22, 2014 (CARB 2014). This update defines climate change priorities for the next five years and also sets the groundwork to reach long-term goals set forth in EOs S-3-05 and B-16-2012. The update also highlights California's progress toward meeting the near-term 2020 GHG emission reduction goals and evaluates how to align the State's longer term GHG reduction strategies with other state policy priorities for water, waste, natural resources, clean energy, transportation, and land use.

The MCAQMD has not adopted any GHG emission reduction plans or climate action plans (MCAQMD 2013).

Environmental Setting

Climate change is caused, in part, from accumulation in the atmosphere of GHGs, which are produced primarily by the burning of fossil fuels for energy. Because GHGs (carbon dioxide $[CO_2]$, CH₄, and NO₂) persist and mix in the atmosphere, emissions anywhere in the world affect the climate everywhere

in the world. GHG emissions are typically reported in terms of carbon dioxide equivalents (CO_2e) which converts all GHGs to an equivalent basis taking into account their global warming potential compared to CO_2 .

In 2013, total California GHG emissions were 459.3 million MTCO₂e (CARB 2015). This represents a reduction in total GHG emissions from 2012, which had the first emissions increase since 2007. The 2012 increase was driven primarily by strong economic growth in the state, the unexpected closure of the San Onofre Nuclear Generating Station, and drought conditions that limited in-state hydropower generation. Although GHG emissions reached a peak in 2004, overall GHG emissions have decreased by 2.0 percent since 2000. In 2013, the transportation sector of the California economy was the largest source of emissions, accounting for approximately 37 percent of the total emissions. On-road vehicles accounted for more than 90 percent of emissions in the transportation sector.

Due to its primarily rural land uses, the Mendocino County population's GHG emission contributions are small in total compared to other counties with more urban land uses (Mendocino County 2009). However, GHG emissions per capita for the County are greater since the distances traveled are generally higher than more urban counties (Mendocino County 2009). A GHG emission inventory has not yet been prepared for Mendocino County.

Discussion of Checklist Responses

a. Generation of Greenhouse Gas Emissions — *Less than Significant*

The Proposed Project would result in direct emissions of GHGs during construction and maintenance, and would also have an indirect impact on carbon sequestration rates from minor changes in vegetation cover in riparian areas of Forsythe Creek. Construction-related GHG emissions would result from the combustion of fossil-fueled construction equipment, material hauling, and worker trips. The minor indirect changes in vegetation would result in a negligible one-time change in sequestration-related GHG emissions. Estimated GHG emissions resulting from the Proposed Project's construction activities would be approximately 678 metric tons of carbon dioxide equivalent (CO₂e) per year. While the MCAQMD does not have an established threshold for GHG emissions (MCAQMD 2013), several air districts in California have proposed "bright line" thresholds for projects, under which they are not anticipated to result in a significant impact to global climate change or impede the goals of AB 32. The Bay Area Air Quality Management District (BAAQMD), the Sacramento Metropolitan Air Quality Management District (SMAQMD), and the San Luis Obispo County Air Pollution Control District have adopted thresholds of 1,100 MTCO₂e, 1,100 MTCO₂e, and 1,150 MTCO₂e, respectively (SMAQMD 2014, San Luis Obispo County Air Pollution Control District 2012). The SMAQMD threshold was developed with the goal of complying with AB 32, and based upon a review of the California Air Pollution Control Officers Association's (CAPCOA's) guidance for threshold development and other agency's significance thresholds. In addition, the SMAQMD evaluated representative projects in the Sacramento Valley air basin. As detailed in SMAQMD's "Justification for Greenhouse Gas Emissions Thresholds of Significance" document (SMAQMD 2014), implementation of CAPCOA's guidance on threshold development would ensure compliance with AB 32 by setting a threshold at a level such that 90 percent of proposed projects would be reviewed to assess the need for additional GHG reduction mitigation measures. The SMAOMD's threshold of 1,100 MTCO₂e was determined to require the review of over 95 percent of proposed land development projects, which complies with CAPCOA's guidance (of 90 percent project review) and AB 32's GHG

reduction goals. The Proposed Project's construction emissions would be less than the brightline threshold and not result in a significant impact.

Periodic vehicle trips associated with the Proposed Project's maintenance activities would not provide a long-term or significant source of GHG emissions.

As described above, there are no applicable local climate action plans or GHG emission reduction plans. However, other policies or plans applicable to the Proposed Project would include AB 32, CARB's early action strategies, and the First Update to the AB 32 Scoping Plan. The Proposed Project would not conflict with these plans and/or policies. In addition, the Proposed Project would reduce its construction-related GHG emissions by minimizing powered equipment use (BMP-11, Minimize Noise Disturbances to Residential Areas), and minimizing hauling distances for sediment disposal activities. The Proposed Project would not be required to report emissions to CARB. Therefore, emissions generated by the Proposed Project would not be expected to have a substantial contribution to the ongoing impact on global climate change. For these reasons and those detailed in Impact 3.7.3(a) above, the Proposed Project would not conflict with AB 32 and the local general plans. Therefore, this impact would be less than significant.

b. Conflict With Plans or Policies to Reduce Greenhouse Gas Emissions — *Less* than Significant

See discussion at "a" above.

3.8 Hazards and Hazardous Materials

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than- Significant Impact	No Impact
Wo	ould the Proposed Project:				
a.	Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?			\boxtimes	
b.	Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?				
c.	Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?				
d.	Be located on a site that 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?				
e.	For a Proposed Project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, would the Proposed Project result in a safety hazard for people residing or working in the Proposed Project Area?				
f.	For a Proposed Project within the vicinity of a private airstrip, would the Proposed Project result in a safety hazard for people residing or working in the Proposed Project Area?				
g.	Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?			\boxtimes	
h.	Expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?				

Environmental Setting

Contaminated Sites

According to the State Water Regional Control Board's (SWRCB) GeoTracker database, there are 563 sites in Mendocino County within the North Coast RWQCB's jurisdiction which have been or have the potential to be contaminated with hazardous waste. Of these, 421 sites have been remediated and are considered closed. The remaining 142 sites are considered open (i.e., still active) and currently being remediated or remain in need of remediation. (State Water Resources Control Board 2016). Hazardous substances and contaminated sites are regulated under federal and state laws, including the Resource Conservation and Recovery Act (RCRA), Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), and the Superfund Amendment and Reauthorization Act (SARA). The majority of these laws are administered and enforced by state agencies such as the California Department of Toxic Substances Control at the EnviroStor database maintained by the California Department of Toxic Substances Control at <u>http://www.envirostor.dtsc.ca.gov</u> and at the SWRCB's GeoTracker database at <u>http://geotracker.waterboards.ca.gov/</u>.

Airports

The closest airport is the Ukiah Regional Airport located south in Ukiah (approximately 9 miles from the Project Area).

Wildland Fire Hazards

Mendocino County has a high wildland fire potential with its long, dry summers, steep, hilly terrain, and fire-adapted vegetation. The fire hazard map in the Mendocino Multi-Hazard Mitigation Plan (URS 2014) shows the area around Redwood Valley floor ranked as low or moderate fire hazard risk, while the adjacent hillslopes are ranked as high to very high fire hazard risk.

Discussion of Checklist Responses

a. Creation of Hazard Through Transport, Use or Disposal of Hazardous Materials — Less than Significant

Proposed Project construction (e.g. channel grading, installation of rock barbs, etc.) is not expected to create a hazard to the public through the use of hazardous materials. Hazardous materials present at the construction site would include substances such as fuels, oils, and lubricants needed to operate construction equipment. As described in Chapter 2, Table 2-3, the selected contractor would be required to prepare and implement a SWPPP. The SWPPP would include provisions for appropriate handling of any hazardous materials used in the Project Area. BMP-5 through BMP-8 include specific provisions that would minimize the potential for, and effects from, spills occurring during Proposed Project construction. BMP-7 and would require the preparation of a Spill Prevention and Response Plan (SPRP). The SPRP will describe transport, storage, and disposal procedures; construction site housekeeping practices; and monitoring and spill response protocols. RCD will be responsible for ensuring that the BMPs for water quality protection, hazardous materials control measures, and the SPRP are appropriately implemented by all contractors. With these procedures in place, potential impacts related to the transport, use, and disposal of hazardous materials associated with Proposed Project construction and maintenance are expected to be less than significant, and no mitigation is required.

b. Creation of Hazard Through Reasonably Foreseeable Upset and Accident Conditions Involving the Release of Hazardous Materials — *Less than Significant*

See discussion at "a" above.

c. Generation of Hazardous Emissions/Use of Hazardous Materials Within 0.25 Miles of Schools — *Less than Significant*

One school is located within 0.25 miles of the Project Area, the Deep Valley Christian School. The school is located north of the Project Area, on the opposite side of Uva Drive. As described above, hazardous materials present at the construction site would include substances such as fuels, oils, and lubricants needed to operate construction equipment. Because Proposed Project activities would comply with all applicable regulations regarding the hazardous waste transport, handling, and use, impacts related to emissions and use of hazardous materials in proximity to schools would be less than significant. No mitigation is required.

d. Location on Listed Toxic Site, and Related Impacts — *Less than Significant*

No hazardous waste or hazardous substance sites are known to occur within the Project Area. However, the Project Area may have areas of previously unknown contamination. Proposed Project construction activities thus could encounter unknown contamination. As described in Table 2-2, BMP-6 and BMP-7, in the event that contamination or hazardous materials are encountered during construction (as evident by indicators such as chemical odors or oily sheens), all construction activities in the area of the find will stop and the proponent will conduct appropriate hazardous materials investigations to identify and delineate the extent and nature of the contamination. If cleanup or remediation is required, the RCD will ensure that any hazardous waste materials removed during construction are handled, transported, and disposed of according to federal, state, and local requirements. With these procedures in place, impacts related to the discovery of unknown hazardous waste or hazardous substance sites within the Project Area are expected to be less than significant, and no mitigation is required.

e. Hazards in the Vicinity of a Public Airstrip — *No Impact*

The Project Area is not located within 2 miles of any public or private airport or airstrip. The closest airport, the Ukiah Municipal Airport, is located approximately 9 miles from the Project Area. Consequently, the Proposed Project would not conflict with any airport land use plan or operation of nearby airports, and would not pose any airport-related safety hazard to people working in the Project Area. Therefore, there would be no impact, and no mitigation is required.

f. Hazards in the Vicinity of a Private Airstrip — *No Impact*

See discussion at "e" above.

g. Interference with Emergency Response or Evacuation Plan — Less than Significant

The Proposed Project would not interfere with any existing emergency response or evacuation plan. No mitigation is required.

h. Exposure of People or Structures to Risk of Wildland Fires — *Less than* Significant

The Project Area is located in a region identified as having a low to moderate fire risk hazard (URS 2014). The use of some types of construction equipment, including equipment with internal combustion engine and gasoline-powered hand tools, could pose a risk of wildfire ignition. However, the construction contractor would be required to comply with existing legal requirements under the California Public Resources Code to minimize wildfire risk during construction. With these measures in place, impacts related to increased wildfire risks associated with Proposed Project construction are expected to be less than significant. No mitigation is required.

3.9 Hydrology and Water Quality

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than- Significant Impact	No Impact
Wo	ould the Proposed Project:				
a.	Violate any water quality standards or waste discharge requirements?			\boxtimes	
b.	Substantially deplete groundwater supplies or interfere substantially with groundwater recharge, such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level that would not support existing land uses or planned uses for which permits have been granted)?				
C.	Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation on site or off site?				
d.	Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on-site or off-site?				
e.	Create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?			\boxtimes	
f.	Otherwise substantially degrade water quality?			\boxtimes	
g.	Place housing within a 100-year flood hazard area, as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?				
h.	Place within a 100-year flood hazard area structures that would impede or redirect flood flows?			\boxtimes	

i.	Expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam?		\boxtimes	
j.	Contribute to inundation by seiche, tsunami, or mudflow?			\boxtimes

Setting

Water quality and hydrologic functions are protected by the Federal Clean Water Act, California's Porter-Cologne Water Quality Control Act, and the Groundwater Management Act. The County General Plan also contains a number of goals, policies, and action items for water resources protection and management.

Climate and Precipitation

Mendocino County has a Mediterranean climate with distinct wet and dry seasons. The majority of the precipitation occurs between October and May and can vary significantly from year to year. Average annual precipitation in Ukiah, near the Project Area is 37.26 in/yr (WRRC 2013).

Surface Water Hydrology and Quality

The Forsythe Creek watershed upstream of the project site covers approximately 47 square miles (USGS 2014). The maximum elevation in the watershed is 3338 feet, and the minimum elevation is 704 (USGS 2014). The creek in the Project Area is seasonal, drying to isolated pools in the summer.

Groundwater Hydrology and Quality

In the past, property owners in the vicinity of the Project Area used shallow groundwater wells. Since the incision of Forsythe Creek, deeper wells have been required to reach groundwater.

Discussion of Checklist Responses

a. Violation of Water Quality Standards or Waste Discharge Requirements — Less than Significant

Construction

Ground-disturbing construction activities that would occur in-channel could cause soil erosion and sedimentation, and reduce water quality in Forsythe Creek. These activities would include removing the existing riparian vegetation and excavation. Additionally, hazardous materials (e.g., gasoline, oils, grease, lubricants) from construction equipment could be accidently released during construction (refer to Section 3.8 for more detailed discussion). Accidental discharge of these materials to adjacent surface waters could adversely impact water quality, endanger aquatic life, and/or result in a violation of water quality standards.

Potential impacts on water quality during Proposed Project construction would be addressed by the construction BMPs incorporated into the Proposed Project (Table 2-3, BMP-2 through BMP-8) which include provisions to avoid and/or minimize work in the active/wetted stream channel, control

erosion and sedimentation, as well as a SPRP to avoid, and if necessary, clean up accidental releases of hazardous materials. As the Proposed Project would impact greater than one acre, a SWPPP would be prepared and implemented in accordance with the State Water Board's Construction General Permit Order 2009-0009-DWQ, as amended. Implementation of the SWPPP would reduce potential impacts to water quality. As the Proposed Project proponent, the RCD would be responsible for ensuring compliance with all conditions of these commitments.

Out-of-channel construction activities such as vegetation removal could result in some erosion and increase sedimentation through runoff into adjacent surface waterways. However, the BMPs mentioned previously, which include utilizing existing access, staging in previously disturbed areas, and erosion control measures, would avoid and minimize the potential impacts to water quality.

For both in-channel and out-of-channel areas, during the period following construction, before vegetation is fully established, there is some potential for erosion and potential increases in sediment loading to Forsythe Creek. However, all Proposed Project features would be seeded (hydroseeded), and various erosion control features installed in erosion-prone areas, to prevent erosion and sedimentation. In the long term, the Proposed Project would reduce erosion and sediment loading in the creek by stabilizing severely eroding streambanks.

With implementation of the Proposed Project's BMPs, required SWPPP, and revegetation plan, adverse construction-related effects on water quality would be avoided and minimized to the extent that no violation of water quality standards or waste discharge requirements is anticipated. Impacts are considered less than significant, and no mitigation is required.

b. Effects on Groundwater Supply or Recharge — *No Impact*

The Proposed project does not draw from groundwater resources, and will not adversely impact these resources. Construction of the secondary channel/floodplain enhancements may increase local groundwater recharge, which would be a beneficial impact.

c. Alteration of Existing Drainage Patterns — *Less than Significant*

See discussion at "a" above.

d. Runoff and Flooding Impacts Related to Alteration of Existing Drainage Patterns — Less than Significant

Stormwater Drainage

The Proposed Project would not increase impervious surfaces. RSP would be added to the south bank of Forsythe Creek. This bank is underlain by weathered bedrock. Addition of RSP on the steep right bank would not impact infiltration compared to existing conditions. There are no impacts to storm runoff, and no mitigation is required.

Increased Flood Hazards

Restoring floodplain by constructing the secondary channel is anticipated to reduce the overall flood risk in the Project Area and reduce potential for damage to adjacent residences. Preliminary hydraulic modeling performed for the conceptual design indicates that the 100-year flood water

surface elevation is reduced through most of the Project Area, and does not increase in any location. Therefore, effects related to flood hazards are expected to be beneficial, and no mitigation is required.

e. Runoff Impacts Related to Capacity of Existing or Planned Stormwater Drainage Systems — Less than Significant

See discussion at "d" above.

f. Other Degradation of Water Quality — Less than Significant

See discussion at "a" above.

g. Placement of Housing within 100-Year Flood Hazard Area — No Impact

Proposed Project does not involve the construction of residences. Therefore, there are no impacts.

h. Placement of Structures within 100-Year Flood Hazard Area — Less than Significant

See discussion at "d" above.

i. Exposure of People or Structures to Increased Flooding Hazards — Less than Significant

See discussion at "d" above.

j. Potential to Contribute to Seiche, Tsunami, and Mudflow Hazards — *No Impact*

The Project Area is located inland, approximately 30 miles from the Pacific Ocean, and does not border any large water bodies. Consequently, there is no risk of seiche or tsunami and there would be no impact related to increase of any such risk as a result of the Proposed Project. The Project Area is located on the valley floor approximately 0.25 miles away from the nearest hillslope area, so is unlikely to be affected by, or to increase the potential for, mudflows. Therefore, no impact related to increase of mudflow risks is anticipated. No mitigation is required.

3.10 Land Use and Planning

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than- Significant Impact	No Impact
Wo	ould the Proposed Project:				
a.	Physically divide an established community?				\square
b.	Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the Proposed Project (including a general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?				
c.	Conflict with any applicable habitat conservation plan or natural community conservation plan?				\boxtimes

Setting

The Project Area is located entirely within the unincorporated portion of Mendocino County and, like much of the unincorporated County, is rural in character. Land use planning in unincorporated areas of Mendocino County is governed by the Mendocino County General Plan (Mendocino County 2009). Land within the Project Area is designated Range Land, Suburban Residential, Rural Residential and zoned SR (Suburban Residential), RL (Rangeland), RR1 (Rural Residential: Variable Density Zone). In terms of land ownership, the Proposed Project would be located on private parcels.

Discussion of Checklist Responses

a. Divide an Established Community — No Impact

The Proposed Project would take place in a suburban/rural area. Construction activities would not create any permanent divisions in an established community. Therefore, no impact would occur. The Proposed Project would provide a benefit to nearby residents by reducing erosion which has caused property loss.

b. Conflicts with Land Use Plans or Policies — *No Impact*

The Proposed Project would not involve construction of multi-family homes, industrial or commercial buildings or other facilities inconsistent with the Range Land, Suburban Residential, Rural Residential designation and Rangeland (RL), Suburban Residential (SR), Rural Residential (RR1) zoning districts. As mentioned previously, the Proposed Project is consistent with policies and ordinances protecting biological resources. No impact would occur.

c. Conflicts with Habitat Conservation Plans — *No Impact*

The Project Area is not covered by any HCP or NCCP. Thus, there would be no impact related to conflict with an adopted or proposed conservation plan, and no mitigation is required.

3.11 Mineral Resources

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than- Significant Impact	No Impact
Would the Proposed Project:					
a.	Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?			\square	
b.	Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?				

Discussion of Checklist Responses

a. Loss of Availability of Regionally Important Mineral Resources — Less than Significant

There are no mines located within the boundaries of the Project Area. The Russian River, its floodplain and tributaries have long been a source of aggregate materials to support the construction of regional infrastructure. Forsythe Creek and its adjacent floodplain potentially contain commercially viable deposits of sand and gravel that could be mined in the future. The Proposed Project would occupy an area floodplain that would be used for ecosystem restoration. Presumably this area would no longer be available for mining. Given the relatively small extent of the Proposed Project, and that a large amount of fill has already been placed on the floodplain, the Proposed Project would have a less than significant impact to the loss of availability of important mineral resources.

b. Loss of Availability of Locally Important Mineral Resources — *No Impact*

See discussion at "a" above.

3.12 Noise

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than- Significant Impact	No Impact
Wo	ould the Proposed Project result in:				
a.	Exposure of persons to or generation of noise levels in excess of standards established in a local general plan or noise ordinance or applicable standards of other agencies?				
b.	Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?			\boxtimes	
c.	A substantial permanent increase in ambient noise levels in the Proposed Project vicinity above levels existing without the Proposed Project?				
d.	A substantial temporary or periodic increase in ambient noise levels in the Proposed Project vicinity above levels existing without the Proposed Project?				
e.	For a Proposed Project located within an airport land use plan area, or, where such a plan has not been adopted, within 2 miles of a public airport or public-use airport, would the Proposed Project expose people residing or working in the Proposed Project Area to excessive noise levels?				
f.	For a Proposed Project within the vicinity of a private airstrip, would the Proposed Project expose people residing or working in the Proposed Project Area to excessive noise levels?				

Noise Concepts and Terminology

Noise can be defined as unwanted sound. Sound is characterized by various parameters that include the rate of oscillation of sound waves (frequency), the speed of propagation, and the pressure level or energy content (amplitude). In particular, the sound pressure level is the most common descriptor used to characterize the loudness of an ambient sound level, or sound intensity. The decibel (dB) scale is used to quantify sound intensity. Because sound pressure can vary enormously within the range of human hearing, a logarithmic scale is used to keep sound intensity numbers at a convenient and manageable level. The human ear is not equally sensitive to all frequencies in the entire spectrum, so noise measurements are weighted more heavily for frequencies to which humans are sensitive in a process called "A-weighting," written "dBA." The term *noise sensitive land uses*, also referred to in this section as *sensitive receptors* include residences, schools, hospitals, or other similar locations where excess noise would negatively affect normal functions.

Regulatory Setting

The Federal Transit Administration (FTA) Guidelines for Construction Vibration in *Transit Noise and Vibration Impact Assessment* state that for evaluating daytime construction noise impacts in outdoor areas, a noise threshold of 90 dBA L_{eq} should be used for residential areas (FTA 2006).

For construction vibration impacts, the FTA guidelines use an annoyance threshold of 80 VdB for infrequent events (fewer than 30 vibration events per day) and a damage threshold of 0.3 inch per second (in/sec) PPV for engineered concrete and masonry structures and 0.12 in/sec PPV for buildings extremely susceptible to vibration damage (FTA 2006).

The Mendocino County Planning and Building Services have developed exterior noise limit standards, which are levels not to be exceeded more than 30 minutes in any hour. These noise limit standards vary by land use category and are detailed in the County's Inland Zoning Code, Division I of Title 20, Appendix C. For one and two family residential land uses in a rural/suburban setting, the daytime noise standard (7am to 10 pm) is 50 dBA. The nighttime noise standard (10pm to 7am) for this same rural/suburban residential receptor is 40 dBA.

Environmental Setting

The Project Area is within and surrounded by designated range, suburban residential, and rural residential lands. With respect to groups that could be exposed to noise generated by the Proposed Project, residential and educational uses are located near the site, as well as a restaurant. Residential sensitive receptors are located to the south, north, and east of the Project site at varying distances, with the closest residence located approximately 200 feet south of the center of the project site. The closest school is Deep Valley Christian School, approximately 700 feet northeast of the stockpile area. Eagle Peak Middle School is approximately 0.7 miles from the Proposed Project, on the opposite side of Highway 101. There are no hospitals, or assisted living facilities within 1 mile of the Project Area. A California Medical Foundation physician's office is located approximately 2,800 feet northeast of the project site.

The major noise sources in the County include roadway traffic and aircraft. Near the Project Area, ambient noise conditions vary greatly based on local land uses but would be influenced by noise from local vehicular traffic (Uva Drive, Highway 101), and residential activities (e.g., landscape maintenance, car doors closing, dogs barking, etc.).

Discussion of Checklist Responses

a. Exposure to Noise Levels in Excess of Standards — Less Than Significant Impact

The Proposed Project would generate noises associated with construction activities. Following construction, maintenance-related noise sources would include periodic vehicle traffic for maintenance of revegetation areas. Noise from operation of construction equipment could affect sensitive receptors (e.g., residences) in the Project vicinity. However, construction activities would be temporary (total of 7 months over one or two construction seasons) and be limited to the daytime

hours. In addition, BMP-11, Minimize Noise Disturbances to Residential Areas, would further reduce the Proposed Project's potential for adverse noise-related impacts. Therefore, this impact would be less than significant.

b. Exposure to Excessive Groundborne Vibration or Noise — Less than Significant

Vibration thresholds for buildings occur at a PPV of 0.12 in/sec for buildings extremely susceptible to vibration damage; the human perception threshold is at 65 VdB. Vibration and ground-borne noise levels were estimated following methods described in the FTA Noise and Vibration Impact Assessment (FTA 2006) to determine the PPV that could affect buildings and the VdB for annoyance. The analysis assumed that the equipment with the greatest vibration potential would have vibration sound levels similar to those of a loaded bulldozer. Table 3.12-1, below, shows relevant parameters for the loaded bulldozer and distance to sensitive receptors to be below vibration thresholds.

Table 3.12-1. Construction Equipment and Vibration Distances

Equipment	PPV at 25 feet	Distance to PPV of 0.12 in/sec	Noise Vibration Level at 25 feet	Distance to Noise Vibration of 65 VdB
Loaded Bulldozer	0.089	20	87	135

The nearest sensitive receptors (residences) would be approximately 200 feet from the middle of the Proposed Project's Area and therefore would not be located within the building or human annoyance vibration threshold distances. Therefore, this impact would be less than significant.

c. Permanent Substantial Increase in Ambient Noise Levels — *No Impact*

The Proposed Project would involve periodic maintenance activities over a 2 to 5 year period following the completion of construction activities. Apart from these infrequent vehicle-related noise sources, the Proposed Project would not involve the use or installation of any noise-generating equipment. Therefore, the Proposed Project would not result in a permanent substantial increase in ambient noise levels and there would be no impact.

d. Substantial Temporary Increases in Ambient Noise Levels — Less than Significant

As discussed under item 3.12.4(a) above, the Proposed Project would result in temporary increases in ambient noise levels during the proposed daytime construction activities. Temporary construction-related noise increases above ambient levels may be relevant if they are above 65 dBA (human annoyance threshold), which occurs for any sensitive receptors within roughly 870 feet of the project site. However, BMP-11, Minimize Noise Disturbances to Residential Areas, would reduce the impact of both temporary and periodic noise levels during construction activities. This impact would be less than significant.

e. Exposure to Excessive Noise Levels within Airport Land Use Plan Area or Vicinity of Public Airstrip — *No Impact*

The Proposed Project is not located within an airport land use plan area or within 2 miles of any public airport or private airport or airstrip. Therefore, there would be no impact related to airport noise exposure, and no mitigation is required.

f. Exposure to Excessive Noise Levels within Vicinity of Private Airstrip — *No Impact*

See discussion at "e" above.

3.13 Population and Housing

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than- Significant Impact	No Impact
Would the Proposed Project:					
a.	Induce substantial 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)?				
b.	Displace a substantial number of existing housing units, necessitating the construction of replacement housing elsewhere?				
C.	Displace a substantial number of people, necessitating the construction of replacement housing elsewhere?				

Setting

The Proposed Project would be located in unincorporated Mendocino County, North of Ukiah and west of Redwood Valley. The population in Mendocino County was estimated to be 87,869 in 2014 (U.S. Census Bureau 2016). There are several single-family housing units in the vicinity of the Proposed Project, but none within the boundary of the Project Area.

Discussion of Checklist Responses

a. Induce Population Growth — *No Impact*

The Proposed Project is not expected to induce population growth in the Project Area, either directly or indirectly. The Proposed Project would not involve construction of any residential housing or industrial or commercial facilities, which could create jobs or attract people. Construction of the Proposed Project would employ a small number of persons, but the Proposed Project would not generate sufficient short-term employment opportunities to attract a temporary worker population to the area. The Proposed Project would not create any long-term employment opportunities as no additional RCD staff would be required to maintain the Proposed Project features. Furthermore, the Proposed Project would not extend roads or other infrastructure. As such, the Proposed Project would not be expected to increase the local population.

b. Displace Housing – *No Impact*

The Proposed Project would not involve the displacement of housing units or people. No residences would be affected by the Proposed Project. No people would be displaced by the Proposed Project and replacement housing would not be constructed elsewhere.

c. Displace Population — *No Impact*

See discussion at "b" above.

3.14 Public Services

			Potentially Significant	Less than Significant with Mitigation	Less-than- Significant	No
			Impact	Incorporated	Impact	Impact
Would the Proposed Project:						
a.	Res ass alte phy cor env acc per pul	sult in substantial adverse physical impacts sociated with the provision of new or physically ered governmental facilities, or need for new or ysically altered governmental facilities, the nstruction of which could cause significant vironmental impacts, in order to maintain ceptable service ratios, response times, or other rformance objectives for any of the following blic services:				
	1.	Fire protection?				\boxtimes
	2.	Police protection?				\square
	3.	Schools?				\square
	4.	Parks?				\bowtie
	5.	Other public facilities?				\boxtimes

Discussion of Checklist Responses

a. Provision of Public Services — *No Impact*

The Proposed Project would not increase population in the Project Area (see related discussion in Section 3.13, *Population and Housing*), nor would it alter the distribution of population in the Project Area, either temporarily or permanently. Thus, it would not increase the demand for fire protection, police services, schools, or parks over either the short or long term, nor have an impact on these public services.

3.15 Recreation

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than- Significant Impact	No Impact
Would the Proposed Project:					
a.	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?				
b.	Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?				

Setting

There are no public parks or recreational areas within the Project Area.

Discussion of Checklist Responses

a. Increase Use of Existing Parks or Recreational Facilities — No Impact

As discussed in Section 3.13, *Population and Housing*, the Proposed Project is not anticipated to result in population growth or generate increased demand for recreational facilities. Construction of the Proposed Project also would not necessitate the closure of any parks. As such, the Proposed Project would not be expected to increase the use of any existing parks or recreational facilities.

b. Creation of New or Altered Recreational Facilities — *No Impact*

The Proposed Project does not include recreational facilities and would not require the construction of any such facilities. The Proposed Project would be limited to riparian restoration, streambank stabilization, and associated activities.

3.16 Transportation/Traffic

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than- Significant Impact	No Impact
Would the Proposed Project:					
a.	Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?				
b.	Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?				
c.	Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?				
d.	Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?				
e.	Result in inadequate emergency access?			\boxtimes	
f.	Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?				

Regulatory Setting

Traffic and transportation planning in unincorporated areas of Mendocino County is guided by the County General Plan, which includes overall goals for traffic and transportation (Mendocino County 2008).
Environmental Setting

State Highways in Mendocino include 1, 20, 128, 162, 175, 222, 253, 271 and U.S Highway 101. The County road system provides access to unincorporated areas of the County, including the Proposed Project. Most commuters in the County travel by automobile (Mendocino County 2008).

Public Transit Services

Within the County, the Mendocino Transit Authority (MTA) provides intra-and inter-city fixed route services. The MTA also provides paratransit services.

Discussion of Checklist Responses

a. Conflict with Circulation Plan — *Less than Significant*

Construction would generate four types of vehicle traffic: mobilization and demobilization of heavy construction equipment, construction worker commuting, delivery of materials and supplies, and inspections and maintenance by the RCD and their contractors.

Heavy Equipment Deliveries and Material Hauling

Construction equipment would be staged onsite, meaning that once delivered, equipment would remain onsite until construction has been completed. Transportation of equipment to (mobilization) and from (demobilization) the Project Area and movement of equipment between designated work sites would add a small number of additional trips. Additional trips would be generated by delivery of materials and supplies which would likely occur several times per week, up to 20 round trips per day (40 individual trips).

Construction Worker Trip Generation

As described in Chapter 2, Proposed Project construction is expected to take place over a period of 7 months, possibly over a period of 2 years. It is estimated that 12 or fewer workers would be onsite during construction. Over the construction period, it is estimated that construction worker vehicles would add no more than 12 round trips, or 24 individual trips, to area roadways each day.

Inspection and Maintenance

Proposed Project inspection and maintenance activities would generate limited amounts of traffic, and most activities would not require the mobilization and demobilization of supplies or equipment. Thus, the added volume of traffic generated on area roadways by routine inspection and maintenance is expected to be very small relative to roadway capacity and existing traffic volume.

Summary

Up to approximately 64 individual daily trips would be generated during construction from a combination of construction worker commute vehicles, mobilization and demobilization of heavy construction equipment, and delivery of materials and supplies. This represents a small proportion of daily traffic volume capacity on roadway segments in the Proposed Project vicinity. Thus the impact to the effectiveness of the circulation system would be less than significant, and there would be no conflicts with any plan, ordinance or policy. No mitigation is required.

b. Conflict with Congestion Management Program — *No Impact*

There is no applicable congestion management program for the area surrounding the Proposed Project, thus there is no conflict with any congestion management program.

c. Change in Air Traffic Patterns — No Impact

There are no airports in the immediate Proposed Project vicinity, and the Proposed Project does not include any features related to airports or air traffic. There would be no impact on air traffic or airport service, and no mitigation is required.

d. Increased Hazards Due to Design Features — *No Impact*

The Proposed Project would not introduce unsafe design features or incompatible uses into the area. Therefore, there would be no long-term impacts on roadway or intersection safety as a result of the Proposed Project.

e. Inadequate Emergency Access — Less than Significant

Although there may be a small, temporary increase in local traffic due to the Proposed Project, this is anticipated to have less than significant impacts on emergency access within the Project vicinity. There would be no permanent impacts to emergency access due to the Proposed Project.

f. Conflict with Alternative Transportation Policies — *No Impact*

West Road and School Way, across Highway 101 from the Project Area, have been identified as priority bikeway projects in the Short Range Implementation Plan portion of the Mendocino County Regional Bikeway Plan (Dow & Associates 2012). A bikeway improvement project has also been identified for Uva Drive in the vicinity of the Proposed Project, although this is considered a lower priority project compared to the West Road and School Way improvements (Dow & Associates 2012). The Proposed Project would have no effect on these future bikeway projects.

3.17 Tribal Cultural Resources

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than- Significant Impact	No Impact
Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:				
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				
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				

Regulatory Setting

Assembly Bill 52, which was approved in September 2014 and which went into effect on July 1, 2015, requires that State lead agencies consult with a California Native American tribe that is traditionally and culturally affiliated with the geographic area of a proposed project, if so requested by the tribe. The bill, chaptered in State CEQA Guidelines Section 21084.2, also specifies that a project with an effect that may cause a substantial adverse change in the significance of a Tribal Cultural Resource (TCR) is a project that may have a significant effect on the environment.

Defined in Section 21074(a, b, and c) of the Pub. Res. Code, TCRs are:

- (A.1) Sites, features, places, cultural landscapes, sacred places and objects with cultural value to a California Native American tribe that are either of the following:
 - a. Included or determined to be eligible for inclusion in the California Register of Historical Resources (CRHR); or
 - b. Included in a local register of historical resources as defined in subdivision (k) of Section 5020.1.
- (A.2) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Section 5024.1. In applying the criteria set forth in subdivision (c) of Section 5024.1 for the purposes of this paragraph, the lead agency shall consider the significance of the resource to a California Native American tribe.
- (B) A cultural landscape that meets the criteria of subdivision (a) is a TCR to the extent that the landscape is geographically defined in terms of the size and scope of the landscape; and
- (C) A historical resource described in Section 21084.1, a unique archaeological resource as defined in subdivision (g) of Section 21083.2, or a "nonunique archaeological resource" as defined in subdivision (h) of Section 21083.2 may also be a tribal cultural resource if it conforms to the criteria of subdivision (a).

Mitigation measures for TCRs must be developed in consultation with the affected California Native American tribe pursuant to newly chaptered Section 21080.3.2, or according to Section 21084.3. Section 21084.3 identifies mitigation measures that include avoidance and preservation of TCRs and treating TCRs with culturally appropriate dignity, taking into account the tribal cultural values and meaning of the resource.

Federal law does not address TCRs, as these resources are defined in the California Public Resources Code (Pub. Res. Code). However, similar resources, called Traditional Cultural Properties (TCPs), fall under the purview of Section 106 of the National Historic Preservation Act, which was referenced in Section 3.5 Cultural Resources. TCPs are locations of cultural value that are historic properties. A place of cultural value is eligible as a TCP "because of its association with cultural practices or beliefs

08/05/2016

of a living community that (a) are rooted in that community's history, and (b) are important in maintaining the continuing cultural identity of the community" (Parker and King 1990, rev. 1998). A TCP must be a tangible property, meaning that it must be a place with a referenced location, and it must have been continually a part of the community's cultural practices and beliefs for the past 50 years or more. Unlike TCRs, TCPs can be associated with communities other than Native American tribes, although the resources are usually associated with tribes. By definition, TCPs are historic properties; that is, they are eligible for listing in the National Register of Historic Places. Therefore, as historic properties, TCPs must be treated according to the implementing regulations found under Title 36 of the Code of Federal Regulations (CFR) Section 800, as amended in 2001.

The Mendocino County General Plan (2009) does not specifically discuss TCRs, but Policy De-111 encourages collaboration with Native American tribes for the identification and protection of significant cultural resources.

Setting

As noted in Section 3.5, Cultural Resources, the Project Area is in the native homeland of the Matsut band of Pomo. Today, two federally recognized Pomo tribes reside in close proximity to the Project site. These include the Coyote Valley Band of Pomo Indians, who hold lands approximately 1.1 miles from the Project Area, and the Redwood Valley Band of Pomo Indians, which has a rancheria approximately 2.1 miles away.

Forsythe Creek was traditionally used by local Pomo tribes, as attested by the presence of a known trail along the creek and the presence of recorded archaeological sites along the creek banks. Native people have relied upon the annual runs of steelhead and Chinook salmon in Forsythe Creek for generations. Although the Project Area is not recorded as a fishing site, it may have been traversed to access prime fishing areas. The presence of sedge and willow along the stream channel may have been valuable sites for collection of root materials to construct baskets and other traditional items. The existing stands of willow and sedges in the Proposed Project are not currently used by tribal members (DeGeorgey 2016).

Native American Consultation

Pursuant to PRC 21080.3.1(d), the RCD notified local tribes with a traditional and cultural affiliation with the area about the Proposed Project via letter, on August 5, 2016.

Table 3.17-1. Native American C	onsultation for ABS2 compliance	
Contact	Tribe	Letter Date
Ms. Debra Ramirez, Chairperson	Redwood Valley Rancheria of Pomo Indians	08/05/2016
Ms. Merlene Sanchez, Chairperson	Guidiville Band of Pomo Indians	08/05/2016
Mr. Michael Hunter, Chairperson	Coyote Valley Band of Pomo Indians	08/05/2016
Ms. Leona Williams, Chairperson	Pinoleville Pomo Nation	08/05/2016
Mr. Salvador Rosales, Chairperson	Potter Valley Tribe	08/05/2016
Mr. Michael Fitzgerral, Chairperson	Sherwood Valley Rancheria of Pomo	08/05/2016

Table 3.17-1. Native American Consultation for AB52 compliance

Ms. Harriet L. Stanley-Rhoades

Noyo River Indian Community

Responses were received from the Coyote Valley Band of Pomo Indians and the Pinoleville Pomo Nation. Both respondents stated that there are no known culturally significant sites associated with the Project Area, but indicated their interest in any cultural sites that might be discovered. The Tribal Historian from Coyote Valley formally requested that a monitor from the Coyote Valley Band of Pomo Indians be present during ground-disturbing construction, to which the RCD agreed. Pinoleville Pomo Nation's Tribal Historic Preservation Officer requested notification in the event that cultural artifacts or human remains are discovered, to which the RCD agreed. No other responses from Native American Tribes were received regarding the RCD's written request for comments or consultations.

Discussion of Checklist Responses

a. Cause a substantial adverse change in the significance of a tribal cultural resource listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources - *No Impact*

No TCRs listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources are known to exist within the Project area. As a result, the Proposed Project will have no impact on TCRs listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources.

b. Cause a substantial adverse change in the significance of a tribal cultural resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant – *Less than Significant with Mitigation*

The RCD contacted tribes with a traditional and cultural affiliation with the Project Area pursuant to PRC 21080.3.1(d). TCRs were not identified within the Project Area by any of those contacted.

However, as discussed in Section 3.5, not all cultural resources that are archaeological in nature are visible on the ground surface, and there is the potential for uncovering previously unknown cultural remains, including human burials, during Project construction. Such remains may be determined to be a TCR after evaluation. If Project activities would affect the resource in a way that would damage its cultural value as a TCR, a significant impact would result. Should previously undiscovered archaeological resources, including human burials, be found, implementation of **Mitigation Measures CR-1, CR-2, CR-3, and TCR-1** would ensure that impacts on TCRs accidentally uncovered during construction are reduced to a less-than-significant level by immediately halting work if materials are discovered, evaluating the finds for NRHP/CRHR eligibility as well as TCR significance, and implementing appropriate mitigation measures, as necessary, in consultation with the Coyote Valley Band of Pomo Indians and Pinoleville Pomo Nation. These two tribes are traditionally and culturally affiliated with the Project area and requested notification if cultural remains are unearthed. Implementation of Mitigation Measure CR-1, CR-2, CR-3, and TCR-1 would reduce impacts related to accidental discovery of significant archaeological resources that are TCRs to a level that is less than significant with mitigation.

Mitigation Measure TCR-1: Consult with tribes with a traditional and cultural affiliation with the Project area should Native American archaeological materials be discovered during Project construction.

If any prehistoric or historic-era Native American archaeological remains are discovered during the course of project construction, in addition to complying with Mitigation Measures CR-1, CR-2 and CR-3, the RCD will consult with the Coyote Valley Band of Pomo Indians and Pinoleville Pomo Nation, who have a traditional and cultural affiliation with the Project area, regarding the status of the discovered resources as a TCR. If the tribe(s) consider the resource to be a TCR and the RCD agrees, the RCD will consult with the tribe about mitigation measures pursuant to PRC Section 21080.3.2.

3.18 Utilities and Service Systems

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than- Significant Impact	No Impact
Wo	ould the Proposed Project:				
a.	Exceed wastewater treatment requirements of the applicable RWQCB?			\boxtimes	
b.	Require or result in the construction of new water or wastewater treatment facilities or an expansion of existing facilities, the construction of which could cause significant environmental effects?				
C.	Require or result in the construction of new stormwater drainage facilities or an expansion of existing facilities, the construction of which could cause significant environmental effects?				
d.	Have sufficient water supplies available to serve the Proposed Project from existing entitlements and resources, or are new or expanded entitlements needed?				
e.	Result in a determination by the wastewater treatment provider which serves or may serve the Proposed Project that it has adequate capacity to serve the Proposed Project's Proposed Projected demand in addition to the provider's existing commitments?				
f.	Be served by a landfill with insufficient permitted capacity to accommodate the Proposed Project's solid waste disposal needs?				
g.	Comply with federal, state, and local statutes and regulations related to solid waste?				\square

Setting

Water Supply, Wastewater Disposal, and Sanitary Sewers

The Proposed Project would not affect water or wastewater demands or capacity needs. As such, these public facilities are not discussed in this setting section. There are no known utilities in the Project Area, but per BMP-13, the contractor will locate and mark any utilities in the Project Area prior to commencing construction.

Stormwater Drainage

The Project Area is not served by County storm drain infrastructure. Information on stormwater drainage in the Project Area is provided in Section 3.9, *Hydrology and Water Quality*.

Solid Waste Disposal

Existing Conditions

Mendocino County solid waste is disposal is conducted at transfer stations throughout the County (Mendocino County 2009). Solid waste generated by the Proposed Project would likely be taken to the Ukiah Transfer Facility and Recycling Center (approximately 12 miles away from the Proposed Project). There are no landfills operating in Mendocino County, thus solid waste is sent from transfer stations to the Potrero Hills Landfill, located in Suisun City, Solano County, CA (Mendocino County 2009). The facility is estimated to have capacity until 2077 (Hicks, pers. comm., 2016).

Discussion of Checklist Responses

a. Wastewater Treatment Requirements — *Less than Significant*

The Proposed Project would not increase population in the Project Area (see related discussion in Section 3.13, *Population and Housing*), nor would it alter the distribution of population in the Project Area, either temporarily or permanently. The Proposed Project would not alter land use in a way that would increase wastewater generation and would not have the potential to exceed wastewater treatment requirements.

The Proposed Project would not involve the construction of any structures or facilities that would require permanent additional water supplies. Revegetation will require a temporary irrigation system which will be supplied by water truck deliveries. The Proposed Project would not increase population or alter the distribution of population in the Proposed Project such that additional water supplies would be required. The Proposed Project also would not expand agriculture and thus would not require additional agricultural water supply.

b. New/Expanded Water or Wastewater Treatment Facilities — Less than Significant

See discussion at "a" above.

c. Stormwater — *No Impact*

The Proposed Project would not increase the amount of impervious surface in the area and would thus not increase generation of stormwater, as described in Section 3.9, *Hydrology and Water Quality*.

There would be no impact on City or County storm water facilities, and no new or expanded stormwater facilities would be required.

d. Water Supplies — *Less than Significant*

See discussion at "a" above.

e. Wastewater Treatment Capacity – Less than Significant

See discussion at "a" above.

f. Solid Waste Disposal — *No Impact*

The Proposed Project would generate solid waste during construction. The car bodies removed from the channel would require disposal, likely at the Ukiah Transfer Station and Recycling Center. They may be recycled or landfilled. If the car bodies are not recycled, they would likely be sent to the Potrero Hills Landfill. Excavated materials not reused in the Proposed Project would be stockpiled onsite for later uses outside the scope of this Project. The Proposed Project would not require any solid waste disposal after the construction period. Waste disposal for the Proposed Project would comply with federal, state, and local statutes related to solid waste.

g. Compliance with Statutes and Regulations Related to Solid Waste - No Impact

See discussion at "f" above.

3.19 Mandatory Findings of Significance

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than- Significant Impact	No Impact
a.	Does the Proposed Project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, 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?				
b.	Does the Proposed Project have impacts that are individually limited but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a Proposed Project are considerable when viewed in connection with the effects of past Proposed Projects, the effects of other current Proposed Projects, and the effects of probable future Proposed Projects.)				
C.	Does the Proposed Project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?			\square	

Discussion of Checklist Responses

a. Effects on Environmental Quality, Fish or Wildlife, and Historic Resources – *Less than Significant with Mitigation*

Wildlife Habitat and Populations; Rare and Endangered Species

Over the short term, construction would have some potential for adverse impacts on fish and wildlife resources and the quality of habitat in the Project Area, through impacts on water quality, removal of vegetation, and construction-related disturbance, as discussed in Section 3.4, *Biological Resources*. However, with the implementation of BMPs and Mitigation Measures BIO-1 through BIO-5, all of these impacts would be reduced to less than significant.

California History and Prehistory

Placement of several thousand cubic yards atop the natural floodplain in the 1980s has eroded the south bank riparian corridor and likely any existing artifacts of historical significance. Construction

of the secondary channel may expose culturally significant artifacts along the north bank. The presence of a cultural monitor during construction provides a mechanism for identification and protection of any cultural artifacts or human remains that may be discovered. Note that the responding Tribes and the archaeological report (DeGeorgey 2016) did not identify any reported or anecdotal Native American sites associated with the Project Area.

b. Cumulative Impacts — *Less than Significant*

A cumulative impact refers to the combined effect of "two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts" (CEQA Guidelines Section 15355). As defined by the State of California, cumulative impacts reflect "the change in the environment which results from the incremental impact of the Proposed Project when added to other closely related past, present, and reasonably foreseeable probable future Proposed Projects. Cumulative impacts can result from individually minor but collectively significant Proposed Projects taking place over a period of time" (CEQA Guidelines Section 15355[b]).

The Proposed Project's primary effects on the environment are related to biological resources and water quality. Long-term effects on other resource topics considered in this document (e.g., transportation, air quality, GHG, noise) are considered to be insignificant from a cumulative standpoint.

Based on review of the County Planning and Building Services website (Mendocino County 2016) and CEQANet (OPR 2016), projects in the general area include:

- Forsythe Creek Bridge on Reeves Canyon Road Replacement Project in 2017 (approximately 2.25 miles from the Proposed Project)
- Reeves Canyon Road Bridge on Mill Creek in 2012 (approximately 3.7 miles from the Proposed Project)
- Stream Bank Repair Project on Reeves Canyon Road, Affecting Mill Creek in 2014 (Russian River Watershed) (>2.25 miles from the Proposed Project)

The respective bridge replacements and bank repair projects are located upstream of the Proposed Project. If construction of the Proposed Project were to overlap in duration with the bridge projects or the stream bank repair project, construction-related impacts could result in cumulative impacts to biological resources (including sensitive species and natural communities) and water quality in Forsythe Creek. Specifically, these projects could have potential adverse effects on fish and wildlife, including temporarily decreasing water quality and adversely affecting habitats. Temporary adverse effects caused by the Proposed Project would be minimized by implementing the BMPs listed in Table 2-3, as well as the mitigation measures listed in Section 3.4. Implementation of BMP-1 would greatly minimize potential adverse effects to salmonids by restricting work to periods when these species are not likely to be present in Forsythe Creek, and mitigation measure BIO-1 would protect fish during channel dewatering. Mitigation measures BIO-2 and BIO-3 would minimize the potential for adverse impacts to reptiles, amphibians, and birds. While the Proposed Project may result in temporary adverse effects on sensitive habitats and associated wildlife species, the contribution would be relatively small and short in duration and is therefore not cumulatively considerable.

During construction, the Proposed Project would incorporate numerous measures to protect water quality including BMPs 2, 3, 5, 7 and 8. Temporary adverse effects to water quality would not be elevated to a level that is significant, even when other nearby projects are considered.

Although the projects listed above may result in temporary adverse effects to the environment, all are expected to result in long-term improvements compared to current conditions. In addition, the overall contribution of the Proposed Project to fish, wildlife, and water quality would be beneficial. For example, the <u>2015 Recovery Plan for Central California Coast Steelhead</u> lists destruction or modification of habitat as a principle threat to the recovery of the species (NMFS 2015), and Chinook salmon face similar threats. The Proposed Project is consistent with the restoration and threat reduction recommendations NMFS has identified for steelhead (NMFS 2015), and would have a beneficial long term effects on this species, as well as Chinook salmon. The Proposed Project would increase the amount of riparian forest, resulting in a beneficial impact to this sensitive natural resource. Over the long term, the Proposed Project would help to reduce channel incision and bank erosion and thus is expected to reduce sediment input to Forsythe Creek, resulting in long term improvements to water quality. For the reasons outlined above, the Proposed Project's contribution would not be cumulatively considerable (less than significant).

c. Effects on Human Beings — Less than Significant

All of the potentially adverse effects identified in this initial study would be avoided or reduced by BMPs incorporated into the Proposed Project, or would be mitigated to a less than significant level by implementation of measures identified in this document. No substantial adverse effect on human beings would result.

Chapter 4 Environmental Factors Potentially Affected

The environmental factors checked below would potentially be affected by this Proposed Project, as indicated by the checklist on the preceding pages.

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

Chapter 5 Determination

The conclusions and recommendations contained herein are professional opinions derived in accordance with current standards of professional practice. They are based on a review of the sources of information listed in the file, and the comments received, conversations with knowledgeable individuals; the preparer's personal knowledge of the area; and, where necessary, a visit to the site. For further information, see the environmental background information contained in the permanent file on this Proposed Project.

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 Proposed Project have been made by or agreed to by the Proposed Project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.
- I find that the Proposed Project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.
- I find that the Proposed Project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.
- I find that although the Proposed Project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) 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, nothing further is required.

Signature

Date

Name:

Mendocino County Resource Conservation District

Chapter 6 List of Preparers

Mendocino County Resource Conservation District

Patty Madigan	Conservation Programs Manger
Joseph Scriven	Fisheries Biologist

Horizon Water and Environment

Ken Schwarz, Ph.D.	Principal-in-Charge
Kevin Fisher	Director, Ecological Services
Megan Giglini	Senior Associate
Robin Hunter	Analyst

Chapter 7 References

2.0 Proposed Project Description

- Department of Water Resources (DWR). 1984. Upper Russian River Gravel and Erosion Study. February.
- North Coast Regional Water Quality Control Board. 2004. Total Maximum Daily Load Implementation Policy Statement for Sediment Impaired Receiving Waters in the North Coast Region. November.
- National Marine Fisheries Service (NMFS). 2000. Guidelines for Electrofishing Waters Containing Salmonids Listed Under the Endangered Species Act. June. Available: http://www.westcoast.fisheries.noaa.gov/publications/reference_documents/esa_refs/sect ion4d/electro2000.pdf

3.0 Environmental Checklist

3.1 Aesthetics

3.2 Agricultural Resources

- California Department of Conservation (DOC). 2012. Mendocino County Williamson Act FY 2010/2011. Accessed January 20, 2016. Available: <u>ftp://ftp.consrv.ca.gov/pub/dlrp/wa/mendocino so 10 11 WA.pdf</u>.
- ---. 2015a. California Land Conservation (Williamson) Act Status 2014 Status Report. Williamson Act Program, California Department of Conservation. March 2015. Available: http://www.conservation.ca.gov/dlrp/lca/stats_reports/Documents/2014%20LCA%20Sta tus%20Report_March_2015.pdf. Accessed: January 5. 2016.
- ---. 2015b. Mendocino County Important Farmland 2012 as Mapped by FMMP. Available: ftp://ftp.consrv.ca.gov/pub/dlrp/FMMP/pdf/2012/men12_so.pdf. Accessed January 20, 2016.
- California Department of Transportation (CalTrans). 2016. Officially designated state scenic highways. California scenic highway mapping system. Available: http://www.dot.ca.gov/hq/LandArch/16_livability/scenic_highways/index.htm. Accessed March 3, 2016.

3.3 Air Quality

- California Air Resources Board. 2015. Summaries of Historical Area Designations for State Standards. Accessed: March 2015 <u>http://www.arb.ca.gov/desig/changes.htm#summaries</u>.
- Mendocino County Air Quality Management District (MCAQMD). 2005a. Particulate Matter Attainment Plan. January.
- ---. 2005b. Areas that May Contain Naturally Occurring Asbestos. May.
- ---. 2010. New MCAQMD Interim CEQA Criteria and GHG Pollutant Thresholds. June.
- ---. 2013. District Interim CEQA Criteria and GHG Pollutant Thresholds Advisory. December.
- Office of Environmental Health Hazard Assessment (OEHHA). 2015. Air Toxics Hot Spots Program Risk Assessment Guidelines Guidance Manual for Preparation of Health Risk Assessments. February.
- U.S Environmental Protection Agency (USEPA). 2016. California Nonattainment/Maintenance Status for Each County by Year for All Criteria Pollutants. Available: https://www3.epa.gov/airquality/greenbook/anayo_ca.html. Accessed March 8, 2016.

3.4 Biological Resources

- California Department of Fish and Game. 2010. List of Vegetation Alliances and Associations (or Natural Communities List).
- California Department of Fish and Wildlife (CDFW). 2016. California Natural Diversity Database (CNDDB). Biogeographic Data Branch. Sacramento, California. December 2016 update.
- CaliforniaHerps. 2016. Red-bellied Newt Taricha rivularis. Avaialbe: <u>http://www.californiaherps.com/salamanders/pages/t.rivularis.html</u>. Accessed: December 22, 2016.
- California Native Plant Society (CNPS). 2016. (online edition, v8-02).
- eBird. 2016. eBird: An online database of bird distribution and abundance [web application]. eBird, Ithaca, New York. Available: <u>http://www.ebird.org</u>. Accessed: January 21, 2016.
- Brylski, P. 2008. Dusky Footed Woodrat, Neotoma fuscipes. *In*, California Wildlife Habitat Relationships System. California Department of Fish and Wildlife.
- Gardiner, J.L and C. Perala. 2006. Forsythe Creek Watershed Assessment and Priorities for Action. Prepared for Bioengineering Associates. January.
- Heise, K. 2016. Botanical Survey for the Forsythe Creek Floodplain Restoration Project, Mendocino County, California.

- Matocq, M.D. 2002, Morphological and molecular analysis of a contact zone in the *Neotoma fuscipes* species complex. Journal of Mammalogy 83: 866-883.
- Morey, S. 2008. Foothill yellow-legged frog, *Rana boylii*. *In*, California Wildlife Habitat Relationships System. California Department of Fish and Wildlife.
- Morey, S. and H. Basey. 2008. Northern red-legged frog, *Rana aurora*. *In*, California Wildlife Habitat Relationships System. California Department of Fish and Wildlife.
- National Marine Fisheries Service (NMFS). 2000. Guidelines for Electrofishing Waters Containing Salmonids Listed Under the Endangered Species Act. June.
- ---. 2008. Pump Intake Screen Criteria for Water Drafting.
- Shaffer H.B., G.M. Fellers, S.R. Voss, J.C. Oliver, and G.B. Pauly. 2004. Species boundaries, phylogeography and conservation genetics of the red-legged frog (*Rana aurora/draytonii*) complex. Mol Ecol. 2004 Sep;13(9):2667-77.
- Spencer, W.D., P. Beier, K. Penrod, K. Winters, C. Paulman, H. Rustigian-Romsos, J. Strittholt, M. Parisi, and A. Pettler. 2010. Natural Landscape Blocks - California Essential Habitat Connectivity [ds621] and Essential Connectivity Areas - California Essential Habitat Connectivity [ds623]. California Department of Fish and Wildlife. Biogeographic Information and Observation System (BIOS). Accessed January 6, 2016 from <u>http://bios.dfg.ca.gov</u>
- U.S. Forest Service (USFS). 2007. Western Pond Turtle: Species Fact Sheet.
- U.S. Fish and Wildlife Service (USFWS). 2016. Official Species List for the Project Area. Generated on December 19, 2016 at: https://ecos.fws.gov/ipac/project/5MWRPJJOWRBF3GKURLKHNO23MI

3.5 Cultural Resources

DeGeorgey, A. 2016. Archaeological Survey Report for the Forsythe Creek Floodplain Restoration and Streambank Stabilization Project, Mendocino County, California.

3.6 Geology and Soils

California Department of Conservation (DOC). 1983. Special Zones Official Maps. July 1, 1983. ---. 2016. Landslide Inventory. Available <u>http://maps.conservation.ca.gov/cgs/lsi/</u>. Accessed March 10, 2016.DOC. *See* California Department of Conservation.

- Jennings, C.W. and R.G. Strand. 1960. Geologic map of California: Ukiah sheet. California Division of Mines and Geology, scale 1:250,000. Available at: <u>http://www.quake.ca.gov/gmaps/GAM/ukiah/ukiah.html</u>
- Mualchin, L. 1996. A Technical Report to Accompany the Caltrans California Seismic Hazard Map 1996. California Department of Transportation, Engineering Service Center, Office of Earthquake Engineering, Sacramento, California. July.

Natural Resources Conservation Service (NRCS). 2016. Web Soil Survey. Available at <u>http://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm</u>. Accessed January 11, 2016.

3.7 Greenhouse Gas Emissions

- California Air Resources Board (CARB). 2014 First Update to the Climate Change Scoping Plan, Building on the Framework. May.
- ---. 2015. California Greenhouse Gas Inventory for 2000-2013 by Category as Defined in the 2008 Scoping Plan. Accessed: January 18, 2016; <u>http://www.arb.ca.gov/cc/inventory/data/data.htm</u>.
- Mendocino County. 2009. General Plan, Chapter 4: Resource Management Element. Accessed: March 10, 2016; <u>http://www.co.mendocino.ca.us/planning/plans/planGeneralTOC.htm</u>.
- Mendocino County Air Quality Management District (MCAQMD). 2013. District Interim CEQA Criteria and GHG Pollutant Thresholds Advisory. December.
- Sacramento Metropolitan Air Quality Management District (SMAQMD). 2014. Justification for Greenhouse Gas Emissions Thresholds of Significance. September. Available at: <u>http://www.airquality.org/climatechange/CEQAclimatechange.shtml</u>. Accessed January 18, 2016.
- San Luis Obispo County Air Pollution Control District. 2012. Greenhouse Gas Thresholds and Supporting Evidence. Available at: http://www.slocleanair.org/business/landuseceqa.php. Accessed January 25, 2016.

3.8 Hazardous Materials

State Water Resources Control Board. 2016. GeoTracker database of regulated cleanup facilities. Available at: <u>http://geotracker.waterboards.ca.gov.</u> Accessed January 19, 2016.

URS. 2014. Mendocino County Multi-Hazard Mitigation Plan. May.

3.9 Hydrology and Water Quality

United States Geological Survey (USGS). 2014. California StreamStats. Basin Report.

Western Regional Climate Center (WRCC). 2013. Climate Summary for Ukiah, California (049122). Available at: http://www.wrcc.dri.edu. Accessed January 19, 2016.

3.10 Land Use and Planning

Mendocino County. 2009. Mendocino County General Plan. Adopted August, 2009. Available online at: <u>https://www.co.mendocino.ca.us/planning/plans/planGeneralTOC.htm</u>

3.11 Mineral Resources

3.12 Noise

Federal Highway Administration 2006. Roadway Construction Noise Model http://www.fhwa.dot.gov/environment/noise/construction_noise/rcnm/rcnm.pdf

National Institute of Safety and Health. 2008. Noise Meter. Available: http://www.cdc.gov/niosh/topics/noise/noisemeter_html/hp0.html

3.13 Population and Housing

U.S. Census Bureau. 2016. State and County Quickfacts – Mendocino County, California. Available: <u>http://quickfacts.census.gov/qfd/states/06/06045.html</u> Accessed January, 14 2016.

3.14 Public Services

3.15 Recreation

3.16 Traffic and Transportation

Dow & Associates. 2012. Mendocino County Regional Bikeway Plan. Prepared for Mendocino Council of Governments. June. Available at: <u>http://www.mendocinocog.org/pdf/Bikeway%20Plan/Final_2012_Bike_Plan.pdf</u>

Mendocino County. 2009. Mendocino County General Plan. Adopted August, 2009. Available online at: <u>https://www.co.mendocino.ca.us/planning/plans/planGeneralTOC.htm</u>

3.17 Utilities and Service Systems

Mendocino County. 2009. Mendocino County General Plan. Adopted August, 2009. Available online at: <u>https://www.co.mendocino.ca.us/planning/plans/planGeneralTOC.htm</u>

Hicks, Natalie, Office Manager, Potrero Hills Landfill. 2016. Personal communication with Robin Hunter of Horizon Water and Environment via telephone regarding the capacity of the Potrero Hills Landfill. February 9.

3.18 Mandatory Findings of Significance

- Mendocino County. 2016. Projects and Environmental Impact Reports. Available: <u>http://www.co.mendocino.ca.us/planning/projects.htm</u>. Accessed March 9, 2016.
- National Marine Fisheries Service (NMFS). 2015. Volume IV: Central California Coast Steelhead. Coastal Multispecies Plan. Public Draft. October.
- Office of Planning and Research (OPR). 2016. CEQANet Database Query. Available: <u>http://www.ceqanet.ca.gov/ProjectList.asp</u>. Accessed March 9, 2016.

Appendix A Air Quality and GHG Emissions Model Results

Emission Estimates for ->	Forsythe	Creek		Total	Exhaust	Fugitive Dust	Total	Exhaust	Fugitive Dust
Project Phases (English Units)	ROG	СО	NOx	PM10	PM10	PM10	PM2.5	PM2.5	PM2.5
Total (tons/construction project)	0.4	2.3	4.6	0.5	0.2	0.3	0.2	0.2	0.1
Total (assumes 6 days/week)	0.5	2.7	5.6	0.7	0.3	0.4	0.3	0.2	0.1
Total days of construction	244	April 1 -	Novemb	er 30					
Conversion tons to lbs	2000	pounds							
Average Daily (Ibs/day) - 5 day work									
weeks	3.52	18.77	38.00	4.46	1.84	2.84	2.01	1.62	0.59
Average Daily (lbs/day) - 6 day work									
weeks	4.22	22.52	45.59	5.35	2.20	3.41	2.42	1.95	0.71

Number of total actual days ofconstruction (5-day work week, 7 months,assume 4 weeks per month)140Number of total actual days ofconstruction (6-day work week, 7 months,assume 4 weeks per month)168

Road Construction Emissions M	lodel	Version 7.1.4	
Data Entry Worksheet			SACRAMENTO METROPOLITAN
Note: Required data input sections have a yellow b	ackground.		
Optional data input sections have a blue backgroun	d. Only areas with a		
yellow or blue background can be modified. Program	m defaults have a white backg	round.	ALP OUALITY
The user is required to enter information in cells C1	0 through C25.		MANAGEMENT DISTRICT
Input Type			
Project Name	Forsythe Creek		
Construction Start Year	2017	Enter a Year between 2009 and 2025 (inclusive)	
Project Type		1 New Road Construction	
	2	2 Road Widening	To begin a new project, click this button to clear
		3 Bridge/Overpass Construction	data previously entered. This button will only
Project Construction Time	7.0	months	work if you opted not to disable macros when loading this spreadsheet
Predominant Soil/Site Type: Enter 1, 2, or 3		1. Sand Gravel	
	2	2. Weathered Rock-Earth	
		3. Blasted Rock	
Project Length	0.28	miles	
Total Project Area	9.3	acres	
Maximum Area Disturbed/Day	1.0	acres	
Water Trucks Used?	1	1. Yes 2. No	
Soil Imported	17.9	yd³/day	
Soil Exported	177.6	yd³/day	
Average Truck Capacity	10.0	yd ³ (assume 20 if unknown)	

The remaining sections of this sheet contain areas that can be modified by the user, although those modifications are optional.

Note: The program's estimates of construction period phase length can be overridden in cells C34 through C37.

	User Override of	Program Calculated							
Construction Periods	Construction Months	Months	200	5	%	2006	%	2007	%
Grubbing/Land Clearing	0.00	0.70	0.0	0	0.00	0.00	0.00	0.00	
irading/Excavation	7.00	3.15	0.0	0	0.00	0.00	0.00	0.00	
rainage/Utilities/Sub-Grade	0.00	2.10	0.0	0	0.00	0.00	0.00	0.00	
aving	0.00	1.05	0.0	0	0.00	0.00	0.00	0.00	
otals	7.00	7.00							

NOTE: soil hauling emissions are included in the Grading/Excavation Construction Period Phase, therefore the Construction Period for Grading/Excavation cannot be zero if hauling is part of the project.

Hauling emission default values can be overridden in cells C45 through C46.

Soil Hauling Emissions	User Override of						
User Input	Soil Hauling Defaults	Default Values					
Miles/round trip	30.00	30	1				
Round trips/day	20.00	20	1				
Vehicle miles traveled/day (calculated)			600				
Hauling Emissions	ROG	NOx	CO	PM10	PM2.5	CO2	
Emission rate (grams/mile)	0.15	7.43	0.65	0.16	0.09	1652.56	
Emission rate (grams/trip)	0.00	0.00	0.00	0.00	0.00	0.00	
Pounds per day	0.2	9.8	0.9	0.2	0.1	2184.0	
Tons per contruction period	0.01	0.76	0.07	0.02	0.01	168.17	

Worker commute default values can be overridden in cells C60 through C65.

	User Override of Worker		-			
Worker Commute Emissions		Default Values				
		Default values		7	т	т
Miles/ one-way trip	20.00	20				
One-way trips/day	2.00	2		ļ	-	-
No. of employees: Grubbing/Land Clearing	0.00	5				
No. of employees: Grading/Excavation	12.00	20				
No. of employees: Drainage/Utilities/Sub-Grade	0.00	14				
No. of employees: Paving	0.00	10				
				-	-	-
	ROG	NO	y	۲ ۰۰۰ ۲۰	CO PM10	CO PM10 PM2.5
Emission rate - Grubbing/Land Clearing (grams/mile)	0.000	0.0	0	0.000	0.000 0.000	0.000 0.000 0.000
Emission rate - Grading/Excavation (grams/mile)	0.133	0.1	2	1.555	1.555 0.047	1.555 0.047 0.020
Emission rate - Draining/Utilities/Sub-Grade (gr/mile)	0.000	0.0	0	0.000	0.000 0.000	0.000 0.000 0.000
Emission rate - Paving (grams/mile)	0.000	0.0	0	0.000	0.000 0.000	0.000 0.000 0.000
Emission rate - Grubbing/Land Clearing (grams/trip)	0.000	0.0	0	0.000	0.000 0.000	0.000 0.000 0.000
Emission rate - Grading/Excavation (grams/trip)	0.457	0.2	7	3.779	3.779 0.004	3.779 0.004 0.003
Emission rate - Draining/Utilities/Sub-Grade (gr/trip)	0.000	0.0	0	0.000	0.000 0.000	0.000 0.000 0.000
Emission rate - Paving (grams/trip)	0.000	0.0	0	0.000	0.000 0.000	0.000 0.000 0.000
Pounds per day - Grubbing/Land Clearing	0.000	0.0	0	0.000	0.000 0.000	0.000 0.000 0.000
Tons per const. Period - Grub/Land Clear	0.000	0.0	c	0.000	0,000 0,000	
Pounds per day - Grading/Excavation	0.188	0.2	3	2 044	2 044 0 050	2 044 0 050 0 021
Tons per const. Period - Grading/Excavation	0.015	0.0	6	0.157	0.157 0.004	0.157 0.004 0.002
Pounds per day - Drainage/Litilities/Sub-Grado	0.013	0.0	0 0	0.000	0.000 0.000	
Tons per const. Period - Drain// Itil/Sub-Grade	0.000	0.0	0 0	0.000	0.000 0.000	
Poundo por dov. Poving	0.000	0.0	0	0.000	0.000 0.000	
Tana par const Deried Deving	0.000	0.0	0	0.000	0.000 0.000	
tons per const. Period - Paving	0.000	0.0	U o	0.000	0.000 0.000	
tons per construction period	0.015	0.0	6	0.157	0.157 0.004	0.157 0.004 0.002

Water truck default values can be overriden in cells C91 through C93 and E91 through E93.

Water Truck Emissions	User Override of Default # Water Trucks	Program Estimate of Number of Water Trucks	User Override of Truck Miles Traveled/Day	Default Values Miles Traveled/Day			
Grubbing/Land Clearing - Exhaust	0.00	1		40			
Grading/Excavation - Exhaust		1		40			
Drainage/Utilities/Subgrade	0.00	1		40			
	ROG	NOx	со	PM10	PM2.5	CO2	
Emission rate - Grubbing/Land Clearing (grams/mile)	0.00	0.00	0.00	0.00	0.00	0.00	
Emission rate - Grading/Excavation (grams/mile)	0.15	7.43	0.65	0.16	0.09	1652.56	
Emission rate - Draining/Utilities/Sub-Grade (gr/mile)	0.00	0.00	0.00	0.00	0.00	0.00	
Pounds per day - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	
Tons per const. Period - Grub/Land Clear	0.00	0.00	0.00	0.00	0.00	0.00	
Pound per day - Grading/Excavation	0.01	0.65	0.06	0.01	0.01	145.60	
Tons per const. Period - Grading/Excavation	0.00	0.05	0.00	0.00	0.00	11.21	
Pound per day - Drainage/Utilities/Subgrade	0.00	0.00	0.00	0.00	0.00	0.00	
Tons per const. Period - Drainage/Utilities/Subgrade	0.00	0.00	0.00	0.00	0.00	0.00	

Fugitive dust default values can be overridden in cells C110 through C112.

Eugitivo Dust	User Override of Max	Default	PM10	PM10	PM2.5	PM2.5
Fugitive Dust	Acreage Disturbed/Day	Maximum Acreage/Day	pounds/day	tons/per period	pounds/day	tons/per period
Fugitive Dust - Grubbing/Land Clearing		0	0.0	0.0	0.0	0.0
Fugitive Dust - Grading/Excavation		1	10.0	0.3	2.1	0.1
Fugitive Dust - Drainage/Utilities/Subgrade		0	0.0	0.0	0.0	0.0

Off-Road Equipment Emissions								
	Defeult							
Grubbing/Land Clearing	Delault Number of Vehicles		POG	00	NOv	PM10	DM2.5	CO2
Override of Default Number of Vehicles	Program-ostimato	Type	pounds/day	nounde/day				200
	i rogram-estimate	Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00
		Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00
		Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00
		Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00
		Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00
		Cranes	0.00	0.00	0.00	0.00	0.00	0.00
0.00	1	Crawler Tractors	0.00	0.00	0.00	0.00	0.00	0.00
		Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00
0.00	2	Excavators	0.00	0.00	0.00	0.00	0.00	0.00
		Forklifts	0.00	0.00	0.00	0.00	0.00	0.00
		Generator Sets	0.00	0.00	0.00	0.00	0.00	0.00
		Graders	0.00	0.00	0.00	0.00	0.00	0.00
		Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00
		Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00
		Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Other General Industrial Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Other Material Handling Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Pavers	0.00	0.00	0.00	0.00	0.00	0.00
		Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00
		Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00
		Pumps	0.00	0.00	0.00	0.00	0.00	0.00
		Rollers	0.00	0.00	0.00	0.00	0.00	0.00
		Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00
		Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00
		Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00
		Scrapers	0.00	0.00	0.00	0.00	0.00	0.00
0.00	1	Signal Boards	0.00	0.00	0.00	0.00	0.00	0.00
		Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00
		Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00
		Tractors/Loaders/Backhoes	0.00	0.00	0.00	0.00	0.00	0.00
		Trenchers	0.00	0.00	0.00	0.00	0.00	0.00
		Welders	0.00	0.00	0.00	0.00	0.00	0.00
	Grubbing/Land Clearing	pounds per day	0.0	0.0	0.0	0.0	0.0	0.0
	Grubbing/Land Clearing	tons per phase	0.0	0.0	0.0	0.0	0.0	0.0

	Default							
Grading/Excavation	Number of Vehicles		ROG	CO	NOx	PM10	PM2.5	CO2
Override of Default Number of Vehicles	Program-estimate	Туре	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
1.00		Aerial Lifts	0.05	0.86	0.81	0.03	0.03	178.61
		Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00
		Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00
		Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00
		Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00
	0	Cranes	0.00	0.00	0.00	0.00	0.00	0.00
0.00	1	Crawler Tractors	0.00	0.00	0.00	0.00	0.00	0.00
0.00		Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00
2.00	3	Excavators	0.76	5.58	8.10	0.40	0.37	1145.50
		Forklifts	0.00	0.00	0.00	0.00	0.00	0.00
1.00		Generator Sets	0.47	2.97	3.65	0.25	0.23	487.07
0.00	2	Graders	0.00	0.00	0.00	0.00	0.00	0.00
0.00		Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00
3.00		Off-Highway Trucks	2.75	12.87	29.64	1.10	1.01	4251.78
		Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Other General Industrial Equipment	0.00	0.00	0.00	0.00	0.00	0.00
0.00		Other Material Handling Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Pavers	0.00	0.00	0.00	0.00	0.00	0.00
		Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00
0.00		Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00
		Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00
		Pumps	0.00	0.00	0.00	0.00	0.00	0.00
1.00	2	Rollers	0.32	1.51	2.88	0.21	0.19	279.45
		Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00
0.00		Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00
0.00	1	Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00
0.00	2	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00
0.00	1	Signal Boards	0.00	0.00	0.00	0.00	0.00	0.00
1.00		Skid Steer Loaders	0.11	1.41	1.39	0.07	0.07	220.74
		Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00
1.00	4	Tractors/Loaders/Backhoes	0.33	1.57	3.06	0.23	0.21	335.52
		Trenchers	0.00	0.00	0.00	0.00	0.00	0.00
0.00		Welders	0.00	0.00	0.00	0.00	0.00	0.00
	Grading/Excavation	pounds per day	4.8	26.8	49.5	2.3	2.1	6898.7
	Grading	tons per phase	0.4	2.1	3.8	0.2	0.2	531.2

	Default							
Drainage/Utilities/Subgrade	Number of Vehicles		ROG	CO	NOx	PM10	PM2.5	CO2
Override of Default Number of Vehicles	Program-estimate		pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
		Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00
0.00	1	Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00
		Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00
		Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00
		Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00
		Cranes	0.00	0.00	0.00	0.00	0.00	0.00
		Crawler Tractors	0.00	0.00	0.00	0.00	0.00	0.00
		Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Excavators	0.00	0.00	0.00	0.00	0.00	0.00
		Forklifts	0.00	0.00	0.00	0.00	0.00	0.00
0.00	1	Generator Sets	0.00	0.00	0.00	0.00	0.00	0.00
0.00	1	Graders	0.00	0.00	0.00	0.00	0.00	0.00
		Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00
		Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00
		Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Other General Industrial Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Other Material Handling Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Pavers	0.00	0.00	0.00	0.00	0.00	0.00
		Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00
0.00	1	Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00
		Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00
0.00	1	Pumps	0.00	0.00	0.00	0.00	0.00	0.00
		Rollers	0.00	0.00	0.00	0.00	0.00	0.00
0.00	1	Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00
		Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00
		Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00
0.00	1	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00
0.00	1	Signal Boards	0.00	0.00	0.00	0.00	0.00	0.00
		Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00
		Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00
0.00	3	Tractors/Loaders/Backhoes	0.00	0.00	0.00	0.00	0.00	0.00
		Trenchers	0.00	0.00	0.00	0.00	0.00	0.00
		Welders	0.00	0.00	0.00	0.00	0.00	0.00
	Drainage	pounds per day	0.0	0.0	0.0	0.0	0.0	0.0
	Drainage	tons per phase	0.0	0.0	0.0	0.0	0.0	0.0

	Default							
Paving	Number of Vehicles		ROG	CO	NOx	PM10	PM2.5	CO2
Override of Default Number of Vehicles	Program-estimate	Туре	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
		Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00
		Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00
		Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00
		Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00
		Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00
		Cranes	0.00	0.00	0.00	0.00	0.00	0.00
		Crawler Tractors	0.00	0.00	0.00	0.00	0.00	0.00
		Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Excavators	0.00	0.00	0.00	0.00	0.00	0.00
		Forklifts	0.00	0.00	0.00	0.00	0.00	0.00
		Generator Sets	0.00	0.00	0.00	0.00	0.00	0.00
		Graders	0.00	0.00	0.00	0.00	0.00	0.00
		Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00
		Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00
		Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Other General Industrial Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Other Material Handling Equipment	0.00	0.00	0.00	0.00	0.00	0.00
0.00	1	Pavers	0.00	0.00	0.00	0.00	0.00	0.00
0.00	1	Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00
		Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00
		Pumps	0.00	0.00	0.00	0.00	0.00	0.00
0.00	2	Rollers	0.00	0.00	0.00	0.00	0.00	0.00
		Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00
		Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00
		Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00
		Scrapers	0.00	0.00	0.00	0.00	0.00	0.00
0.00	1	Signal Boards	0.00	0.00	0.00	0.00	0.00	0.00
		Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00
		Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00
0.00	3	Tractors/Loaders/Backhoes	0.00	0.00	0.00	0.00	0.00	0.00
		Trenchers	0.00	0.00	0.00	0.00	0.00	0.00
		Welders	0.00	0.00	0.00	0.00	0.00	0.00
	Paving	pounds per day	0.0	0.0	0.0	0.0	0.0	0.0
	Paving	tons per phase	0.0	0.0	0.0	0.0	0.0	0.0
Total Emissions all Phases (tons per construction p	period) =>		0.4	2.1	3.8	0.2	0.2	531.2

Equipment default values for horsepower and hours/day can be overridden in cells C289 through C322 and E289 through E322.

	Default Values	Default Values
Equipment	Horsepower	Hours/day
Aerial Lifts	63	8
Air Compressors	106	8
Bore/Drill Rigs	206	8
Cement and Mortar Mixers	10	8
Concrete/Industrial Saws	64	8
Cranes	226	8
Crawler Tractors	208	8
Crushing/Proc. Equipment	142	8
Excavators	163	8
Forklifts	89	8
Generator Sets	66	8
Graders	175	8
Off-Highway Tractors	123	8
Off-Highway Trucks	400	8
Other Construction Equipment	172	8
Other General Industrial Equipment	88	8
Other Material Handling Equipment	167	8
Pavers	126	8
Paving Equipment	131	8
Plate Compactors	8	8
Pressure Washers	26	8
Pumps	53	8
Rollers	81	8
Rough Terrain Forklifts	100	8
Rubber Tired Dozers	255	8
Rubber Tired Loaders	200	8
Scrapers	362	8
Signal Boards	20	8
Skid Steer Loaders	65	8
Surfacing Equipment	254	8
Sweepers/Scrubbers	64	8
Tractors/Loaders/Backhoes	98	8
Trenchers	81	8
Welders	45	8

END OF DATA ENTRY SHEET

0

Road Construction Emissions Model, Version 7.1.4

En	nission Estimates for -> F	Forsythe Creek			Total	Exhaust	Fugitive Dust	Total	Exhaust	Fugitive Dust	
Project Phases (Er	nglish Units)	ROG (Ibs/day)	CO (Ibs/day)	NOx (lbs/day)	PM10 (lbs/day)	PM10 (Ibs/day)	PM10 (Ibs/day)	PM2.5 (Ibs/day)	PM2.5 (lbs/day)	PM2.5 (Ibs/day)	CO2 (Ibs/day)
Grubbing/Land Cle	earing	-	-	-	-	-	-	-	-	-	-
Grading/Excavatio	n	5.2	29.7	60.2	12.6	2.6	10.0	4.3	2.3	2.1	9,707.6
Drainage/Utilities/S	Sub-Grade	-	-	-	-	-	-	-	-	-	-
Paving		-	-	-	-	-	-	-	-	-	-
Maximum (pounds	/day)	5.2	29.7	60.2	12.6	2.6	10.0	4.3	2.3	2.1	9,707.6
Total (tons/constru	uction project)	0.4	2.3	4.6	0.5	0.2	0.3	0.2	0.2	0.1	747.5
Notes:	Project Start Year ->	2017									
	Project Length (months) ->	7									
	Total Project Area (acres) ->	9									
Maximum	Area Disturbed/Day (acres) ->	1									
Total Soi	I Imported/Exported (yd ³ /day)->	196									
PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.											
Total PM10 emissio	otal PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns H and I. Total PM2.5 emissions shown in Column J are the sum of exhaust and fugitive dust emissions shown in columns K and L.										

Appendix B Biological Resources Supporting Materials

Name	Federal/ State/ CRPR Status	Habitat	Potential for Occurrence in the Project Area
Plants			
grass alisma (Alisma gramineum)	-/-/ 2B.2	Marshes and swamps. Freshwater marsh. 125-1735 meters. Blooms June through August.	None. Suitable habitat is not present in the Project Area.
Raiche's manzanita (Arctostaphylos stanfordiana ssp. raichei)	-/-/ 1B.1	Chaparral, lower montane coniferous forest. Rocky, serpentine sites. Slopes and ridges. 400-1070 meters. Blooms February through April.	None. Suitable habitat is not present in the Project Area.
watershield (Brasenia schreberi)	-/-/ 2B.3	Freshwater marshes and swamps. Aquatic from water bodies both natural and artificial in California. 30-2200 meters. Blooms June through September.	None. Suitable habitat is not present in the Project Area.
bristly sedge (Carex comosa)	-/-/ 2B.1	Marshes and swamps, coastal prairie, valley and foothill grassland. Lake margins, wet places; site below sea level is on a Delta island5-1620 meters. Blooms May though September.	None. Suitable habitat is not present in the Project Area.
deep-scarred cryptantha (Cryptantha excavata)	-/-/ 1B.3	Cismontane woodland. Sandy, gravelly, dry streambanks. 100-500 meters. Blooms April through May.	None. Suitable habitat is not present in the Project Area.
Jepson's dodder (<i>Cuscuta jepsonii</i>)	-/-/ 1B.2	North coast coniferous forest. Streamsides. 1200-2300 meters. Blooms July though September.	None. Suitable habitat is not present in the Project Area.
minute pocket moss (Fissidens pauperculus)	-/-/1B.2	Moss growing on damp soil along the coast. In dry streambeds and on stream banks. 10-1024 m. North coast coniferous forest. Redwood.	None. Suitable habitat is not present in the Project Area.
Roderick's fritillary (Fritillaria roderickii)	-/SE/ 1B.1	Coastal bluff scrub, coastal prairie, valley and foothill grassland. Grassy slopes, mesas. 15-610 meters. Blooms March through May.	Not expected. Potentially suitable habitat is present in the Project Area. However, this species is only known from approximately 7 populations (CDFG 2005), none of which are in the Redwood Valley quadrangle.
Pacific gilia (Gilia capitata ssp. pacifica)	-/-/ 1B.2	Coastal bluff scrub, chaparral, coastal prairie, valley and foothill grassland. 5- 1330 meters. Blooms April through August.	Not expected. Potentially suitable habitat is present in the Project Area, but the Jepson treatment for this species does not include the

			Inner North Coast Ranges floristic province, where the project is located.
Toren's grimmia (Grimmia torenii)	-/-/ 1B.3	Cismontane woodland, lower montane coniferous forest, chaparral. Openings, rocky, boulder and rock walls, carbonate, volcanic. 325-1160 meters.	None. Suitable habitat is not present in the Project Area.
congested-headed hayfield tarplant (Hemizonia congesta ssp. congesta)	-/-/ 1B.2	Valley and foothill grassland. Grassy valleys and hills, often in fallow fields; sometimes along roadsides. 20-560 meters.	Not expected . Marginally suitable habitat is available at the Project Area
glandular western flax (Hesperolinon adenophyllum)	-/-/ 1B.2	Chaparral, cismontane woodland, valley and foothill grassland. Serpentine soils; generally found in serpentine chaparral. 150-1315 meters. Blooms April through November.	None. Suitable habitat is not present in the Project Area.
Burke's goldfields (Lasthenia burkei)	FE/SE/ 1B.1	Vernal pools, meadows and seeps. Most often in vernal pools and swales. 15-600 meters. Blooms April through June.	None. Suitable habitat is not present in the Project Area.
Contra Costa goldfields (<i>Lasthenia conjugens</i>)	FE/-/1B.1	Valley and foothill grassland, vernal pools, alkaline playas, cismontane woodland. Vernal pools, swales, low depressions, in open grassy areas. 1-470 meters. Blooms March through June.	None. Suitable habitat is not present in the Project Area.
Baker's meadowfoam (<i>Limnanthes bakeri</i>)	-/SR/ 1B.1	Freshwater marsh, valley and foothill grassland, meadows and seeps, vernal pools. Seasonally moist or saturated sites within grassland; also in swales, roadside ditches & margins of marshy areas. 175- 910 meters. Blooms April through May.	Not expected . Marginally suitable habitat is available at the Project Area. This species is known from about 20 occurrences, and is not known from the Redwood Valley USGS quadrangle.
Baker's navarretia (Navarretia leucocephala ssp. bakeri)	-/-/ 1B.1	Cismontane woodland, meadows and seeps, vernal pools, valley and foothill grassland, lower montane coniferous forest. Vernal pools and swales; adobe or alkaline soils. 5-1740 meters. Blooms April through July.	None. Suitable habitat is not present in the Project Area.

white-flowered rein orchid (<i>Piperia candida</i>)	-/-/ 1B.2	North coast coniferous forest, lower montane coniferous forest, broadleafed upland forest. Sometimes on serpentine. Forest duff, mossy banks, rock outcrops & muskeg. 30-1310 meters. Blooms March through September.	None. Suitable habitat is not present in the Project Area.
Mayacamas popcornflower (Plagiobothrys lithocaryus)	-/-/ 1A	Chaparral, cismontane woodland, valley and foothill grassland. Moist sites. 300-450 meters. Blooms April through May.	None. Suitable habitat is not present in the Project Area.
North Coast semaphore grass (Pleuropogon hooverianus)	-/ST/ 1B.1	Broadleafed upland forest, meadows and seeps, north coast coniferous forest. Wet grassy, usually shady areas, sometimes freshwater marsh; associated with forest environments. 45-1160 meters. Blooms April through June.	None. Suitable habitat is not present in the Project Area.
Nuttall's ribbon-leaved pondweed (<i>Potamogeton epihydrus</i>)	-/-/ 2B.2	Marshes and swamps. Shallow water, ponds, lakes, streams, irrigation ditches. 370-2170 meters. Blooms June through September.	None. The Project Area is outside the elevation range for this species.
great burnet (Sanguisorba officinalis)	-/-/ 2B.2	Bogs and fens, meadows and seeps, broadleafed upland forest, marshes and swamps, north coast coniferous forest, riparian forest. Rocky serpentine seepage areas and along stream 5-1400 meters. Blooms July though October.	Not expected. Marginally suitable habitat is available at the Project Area. This species is considered a broad endemic/strong indicator for serpentine soils (Calflora 2016), which are not present in the Project Area.
Hoffman's bristly jewelflower (<i>Streptanthus glandulosus</i> ssp. hoffmanii)	-/-/ 1B.3	Chaparral, cismontane woodland, valley and foothill grassland. Moist, steep rocky banks, in serpentine and non-serpentine soil. 60-765 meters. Blooms March through July.	Not expected. Marginally suitable habitat is available at the Project Area.
cylindrical trichodon (<i>Trichodon cylindricus</i>)	-/-/ 2B.2	Broadleafed upland forest, upper montane coniferous forest. Moss growing in openings on sandy or clay soils on roadsides, stream banks, trails or in fields. 50-1500 meters.	None. Suitable habitat is not present in the Project Area.

showy Indian clover (<i>Trifolium amoenum</i>)	FE/-/1B.1	Valley and foothill grassland, coastal bluff scrub. Sometimes on serpentine soil, open sunny sites, swales. Most recently cited on roadside and eroding cliff face. 5-310 meters.	Not expected. Marginally suitable habitat is present in the Project Area.
Fish			
Chinook Salmon (Oncorhynchus tshawytscha)	FE/-	Federal listing refers to wild spawned, coastal, spring & fall runs between Redwood Cr, Humboldt Co & Russian River, Sonoma Co	Present. This species is present in the Forsythe Creek watershed
Central California Coast Steelhead (<i>Oncorhynchus mykiss</i>)	FT/-	From Russian River, south to Soquel Cr & to, but not including, Pajaro River. Also San Francisco & San Pablo Bay basins.	Present. This species is present in the Forsythe Creek watershed
Pacific Lamprey (Entosphenus tridentatus)	-/SSC	Found in Pacific Coast streams north of San Luis Obispo Co., however regular runs in Santa Clara River. Size of runs is declining. Swift-current gravel-bottomed areas for spawning with water temps between 12- 18°C. Ammocoetes need soft sand or mud.	Possible. Ammocoetes of this species were historically documented in this watershed.
Amphibians and Reptiles			
western pond turtle (Emys marmorata [= Actinemys marmorata])	-/SSC	A thoroughly aquatic turtle of ponds, marshes, rivers, streams & irrigation ditches, usually with aquatic vegetation, below 6000 feet elevation. Need basking sites and suitable (sandy banks or grassy open fields) upland habitat up to 0.5 km from water for egg-laying.	Possible. Low to moderately suitable habitat is present in the Project Area.
northern red-legged frog (Rana aurora)	-/SSC	Humid forests, woodlands, grasslands, & streamsides in northwestern California, usually near dense riparian cover. Generally near permanent water, but can be found far from water, in damp woods and meadows, during non-breeding season.	Possible. Potentially suitable habitat is present in the Project Area. However, potentially high predation pressure and seasonal water regime could limit this species.
foothill yellow-legged frog (<i>Rana boylii</i>)	-/SSC	Partly-shaded, shallow streams & riffles with a rocky substrate in a variety of habitats. Need at least some cobble-sized substrate for egg-laying. Need at least 15 weeks to attain metamorphosis.	Possible. Potentially suitable habitat is present in the Project Area. However, potentially high predation pressure and seasonal water regime could limit this species.
---	---------	---	--
California Red-legged Frog (<i>Rana draytonii</i>)	FT/ SSC	Lowlands & foothills in or near permanent sources of deep water with dense, shrubby or emergent riparian vegetation. Requires 11-20 weeks of permanent water for larval development. Must have access to estivation habitat.	Not expected. Potentially suitable habitat is present in the Project Area. However, this species is generally found south of the Project Area.
Red-bellied newt (Taricha rivularis)	-/SSC	Coastal drainages from Humboldt County south to Sonoma County, inland to Lake County. Lives in terrestrial habitats, juveniles generally underground, adults active at surface in moist environments. Will migrate over 1 km to breed, typically in streams with moderate flow and clean rocky substrate	Possible. Potentially suitable habitat is present in the Project Area. However, potentially high seasonal water regime could limit breeding.
Birds			
Northern Goshawk (<i>Accipiter gentilis</i>)	-/SSC	Within, and in vicinity of, coniferous forest. Uses old nests, and maintains alternate sites. Usually nests on north slopes, near water. Red fir, lodgepole pine, Jeffrey pine, and aspens are typical nest trees.	None. Suitable habitat is not present in the Project Area.
Tricolored Blackbird (<i>Agelaius tricolor</i>)	-/SSC	Highly colonial species, most numerous in Central Valley & vicinity. Largely endemic to California. Requires open water, protected nesting substrate, & foraging area with insect prey within a few km of the colony.	None. Suitable habitat is not present in the Project Area.

Marbled Murrelet (<i>Brachyramphus</i> marmoratus)	FT/SE	Feeds near-shore; nests inland along coast from Eureka to Oregon border & from Half Moon Bay to Santa Cruz. Nests in old- growth redwood-dominated forests, up to six miles inland, often in Douglas-fir.	None. Suitable habitat is not present in the Project Area.
Western Snowy Plover (Charadrius alexandrinus nivosus)	FT/SSC	Sandy beaches, salt pond levees & shores of large alkali lakes. Needs sandy, gravelly or friable soils for nesting.	None. Suitable habitat is not present in the Project Area.
Yellow-billed Cuckoo (Coccyzus americanus)	FT/SE	Riparian forest nester, along the broad, lower flood-bottoms of larger river systems. Nests in riparian jungles of willow, often mixed with cottonwoods, w/ lower story of blackberry, nettles, or wild grape.	Not expected. Potentially suitable habitat is present in the Project Area, but this species is generally found in larger river systems.
White-tailed Kite (<i>Elanus leucurus</i>)	-/SP	Rolling foothills and valley margins with scattered oaks & river bottomlands or marshes next to deciduous woodland. Open grasslands, meadows, or marshes for foraging close to isolated, dense-topped trees for nesting and perching.	Possible. Potentially suitable habitat is present in the Project Area.
Bald Eagle (Haliaeetus leucocephalus)	FD/SE/SP	Ocean shore, lake margins, & rivers for both nesting & wintering. Most nests within 1 mi of water. Nests in large, old- growth, or dominant live tree w/open branches, especially ponderosa pine. Roosts communally in winter.	Not expected. Species may occur as an occasional visitor, but suitable nesting and roosting habitat is not present.
Yellow-Breasted Chat (<i>Icteria virens</i>)	-/SSC	Summer resident; inhabits riparian thickets of willow & other brushy tangles near watercourses. Nests in low, dense riparian, consisting of willow, blackberry, wild grape; forages and nests within 10 feet of ground.	Possible. Suitable habitat is present in the Project Area.

Yellow Warbler (Setophaga petechia)	-/SSC	Riparian plant associations in close proximity to water. Also nests in montane shrubbery in open conifer forests in Cascades and Sierra Nevada. Frequently found nesting and foraging in willow shrubs and thickets, and in other riparian plants including cottonwoods, sycamores, ash, and alders.	Possible. Potentially suitable habitat is present in the Project Area.
Northern Spotted Owl (<i>Strix occidentalis caurina</i>)	FT/SC/SSC	Old-growth forests or mixed stands of old- growth & mature trees. Occasionally in younger forests w/patches of big trees High, multistory canopy dominated by big trees, many trees w/cavities or broken tops, woody debris & space under canopy.	None. Suitable habitat is not present in the Project Area.
Mammals			
pallid bat (Antrozous pallidus)	-/SSC	Deserts, grasslands, shrublands, woodlands & forests. Most common in open, dry habitats with rocky areas for roosting. Roosts must protect bats from high temperatures. Very sensitive to disturbance of roosting sites.	Not expected. The Project Area provides marginally suitable habitat.
Sonoma tree vole (Arborimus pomo)	-/SSC	North coast fog belt from Oregon border to Somona Co. In Douglas-fir, redwood & montane hardwood-conifer forests. Feeds almost exclusively on Douglas-fir needles. Will occasionaly take needles of grand fir, hemlock or spruce.	None. Suitable habitat is not present in the Project Area.
Townsend's big-eared bat (Corynorhinus townsendii)	-/SC/SSC	Throughout California in a wide variety of habitats. Most common in mesic sites. Roosts in the open, hanging from walls & ceilings. Roosting sites limiting. Extremely sensitive to human disturbance.	Not expected. A 1969 CNDDB occurrence of this species is about 2.75 miles northeast of the Project Area. However, roosting habitat is not present in the Project Area.

Humboldt marten (Martes caurina humboldtensis)	-/SSC	Occurs only in the coastal redwood zone from the Oregon border south to Sonoma County. Associated with late-successional coniferous forests, prefer forests with low, overhead cover.	None. Suitable habitat is not present in the Project Area.
fisher - West Coast DPS (Pekania pennanti)	FC/SC/SSSC	Intermediate to large-tree stages of coniferous forests & deciduous-riparian areas with high percent canopy closure. Uses cavities, snags, logs & rocky areas for cover & denning. Needs large areas of mature, dense forest.	None. Suitable habitat is not present in the Project Area.
Key to Status Abbreviations:			

Federally Endangered (FE); Federally Threatened (FT); Federal Candidate (FC); Federally Delisted (FD); State Endangered (SE); State Threatened (ST); State Delisted (SD); State Candidate (SC); State Rare (SR); State Fully Protected (SP); California Species of Special Concern (SSC)

References:

Calflora. 2016. Berkeley, California: The Calflora Database [a non-profit organization]. Available at: http://www.calflora.org/ Accessed March 4 2016. California Department of Fish and Game (CDFG). 2005. The Status of Rare, Threatened, and Endangered Plants and Animals of California 2000-2004.

Botanical Survey for the Forsythe Creek Floodplain Restoration Project Mendocino County, California



Submitted to:

Mendocino County Resource Conservation District 410 Jones Street, Suite C-3 Ukiah, CA 95482

> Submitted by: Kerry Heise Botanical Consulting 453 Mendocino Dr. Ukiah, CA 95482

> > July 28, 2016

Table of Contents

Introduction and Pre-survey Protocols	3
Methods	4
Site Description	5
Vegetation California Annual Grassland Coyote Brush Scrub Fremont Cottonwood Forest Mixed Willow Thicket Gravel / Sandbars Intermittent Pools White root sedge Seeps Chaparral Scrub Beardless wildrye/California rose/mugwort	
Invasive Species	10
Results	12
Recommendations	12
References	13
Appendix A: Rare Plant Query	14
Appendix B: Vascular Plants of Forsythe Creek Study Area	16
Appendix C: Non-vascular Plants of Forsythe Creek Study Area	24
Figure 1: Aerial image of study area with habitat features	27

INTRODUCTION

The purpose of this study is to determine if rare or endangered plants or plant communities occur within the boundary of the Forsythe Creek study area and if so, recommend alternative strategies to avoid them. Additionally, other impacts that can negatively impact these resources, such as grading and exotic weed establishment are identified and recommendations made. The foundation for such a study is a floristic inventory which is conducted within the boundary of the study area and consists of documenting all vascular and non-vascular plant taxa - described species, subspecies, and varieties encountered during field surveys.

Additionally, the report outlines the legal basis for rare plant protection, rare plant ranking, and protocols for conducting rare plant surveys. The physical and biological features of the study area are described, which includes a biological sketch of plant communities and habitat features. Lastly, invasive plants which have the potential to displace native species and communities are addressed.

CEQA Requirements Regarding Rare Plants

The California Department of Fish and Wildlife (CDFW) has jurisdiction over the conservation, protection and management of native plants and habitat necessary to maintain biologically sustainable populations. CDFW as the trustee agency under The California Environmental Quality Act (CEQA) makes protocols regarding potential negative impacts to those resources held in trust for the people of California. Botanical surveys provide information used to determine the potential environmental effects of proposed projects on all special status plants and natural communities as required by law [ie. CEQA, the California Endangered Species Act (CESA), and the federal Endangered Species Act (ESA)].

Special status plants include all plant species that are protected under ESA, CESA and the California Native Plant Protection Act and plants that meet the definition of rare and endangered under CEQA. CEQA provides protection not only for State-listed plant species, but also for any species, which can be shown to meet the criteria for State listing. CDFW recognizes that California Rare Plant Ranks (CRPR) 1A (presumed extinct in California), 1B (Rare or endangered in California and elsewhere), and 2A (Presumed extirpated or extinct in California, but not elsewhere), and 2B (Rare, threatened, or endangered in California but not elsewhere) of the California Native Plant Society (CNPS) *Inventory of Rare and Endangered Plants* consist of plants that, in a majority of cases, would qualify for listing, and it is mandatory that they be addressed in environmental documents related to development, resource extraction, and restoration projects.

Although few of the plants of CRPR 3 (plants about which more information is needed, a review list) and CRPR 4 (plants of limited distribution, a watch list) are eligible for state listing, many of them are significant locally and therefore the CDFW recommends but does not require those species be evaluated for consideration in preparation of CEQA documents. However, these species are more likely to become rarer over time from habitat loss and the associated impacts of climate, so it is important to consider these plants during preliminary investigations and field surveys.

Additionally CDFW and the CNPS considers any plant or community with local as well as ecological and biological significance to be worthy of protection and warrant consideration as a special status plant species or community. A locally significant species is one that is not rare from a statewide perspective but is rare or uncommon in a local context such as within a county or region or is so designated by local or regional plans or policies (Lepig and White 2006).

Pre-Survey Investigations

Laying the groundwork of a successful and effective plant survey involves conducting preliminary investigations of the habitats and blooming times of special status plant species known to occur or with the potential to occur within a large buffer area surrounding the Forsythe Creek study area. The California Department of Fish and Wildlife (CDFW) and the California Native Plant Society (CNPS) recommend that the buffer be a minimum of 9 USGS quadrangles with the survey area located in the central quad. Rare species, by their nature, often show patchy and sometimes disjunct patterns of rarity across relatively large ranges. This is partly due to large scale habitat fragmentation, along with narrow habitat specificity, and limited survey access. A list of potential rare plants helps investigators focus or concentrate their efforts on locations and site characteristics of a core of locally occurring rare species, however it is recognized that rare or even restricted species are commonly found outside their known ranges and habitat preferences and therefore surveys should not focus primarily on these species or the habitats they are found in, but instead be floristic in nature, accounting for all species across all habitats present within the study area.

These investigations consisted of two stages: First, an initial query was conducted from the most recent CNPS Inventory of Rare and Endangered Plants, the On-line 8th Edition, and the California Natural Diversity Database (CNDDB) for a large buffer surrounding the Forsythe Creek study area as described above. A list was developed of all rare plants with California Rare Plant Ranks (previously known as CNPS Lists) of 1A, 1B, 2A, 2B, 3, and 4 with current threat rankings for each taxon across all natural communities within Mendocino County.

Additionally the following sources were investigated to better familiarize us with these potentially occurring rare species. Potential habitat and vegetation types within the survey area were identified in: A Manual of California Vegetation (Sawyer et al, 2009). Sensitive species habitat information was investigated in the Inventory of Rare and Endangered Plants of California, the CNPS on-line 8th edition of the Inventory, and the Consortium of California Herbaria, and CNDDB. Current taxonomic status of rare species follows the 2nd edition Jepson Manual (Baldwin et al. 2012) and the Jepson Flora Project (eds.) [2016] *Jepson eFlora*, http://ucjeps.berkeley.edu/IJM.html.

Survey Methodology

Field surveys were conducted May 13, 19, 25, 31, June 13, and July 22, 27 of 2016. The field surveys were floristic in nature and included all vascular and non-vascular plants encountered within the Forsythe Creek study area. Generally, plant phenology dates for potentially occurring rare species are used to determine the timing and frequency of surveys. Then, site visits are conducted early spring to late summer, a period broad enough to include known blooming and fruiting times of potentially occurring rare species, but also encompassing the blooming period of early annuals, wetland plants, and late blooming herbaceous perennial species – roughly April

through July. Because of contractual limitations the earliest survey could not be conducted until mid May, which, due in part to a wet spring, was sufficient for field identification of early blooming species. The level of effort required per given area and habitat was dependent upon the vegetation and its overall diversity and structural complexity.

Site Description

The Forsythe Creek study area is located approximately 8 miles north of Ukiah, just west of Hwy. 101. The area surveyed included the riparian corridor and adjacent upper terraces along Forsythe Creek from the Seward Creek confluence downstream to the Uva Drive Bridge, as well as the large disturbed field between Forsyth Creek and Uva Drive (Fig. 1). The Forsythe Creek riparian corridor occupies a narrow strip bounded by agricultural and residential development, which are largely responsible for the current confinement of the stream channel. Additionally a rock levee along the northern edge of the riparian corridor has effectively cut off the historic floodplain. As a result heavy winter and spring runoff, confined into a narrow channel have severely scoured the south bank causing extensive property damage. Except for a short lobe of woody riparian vegetation near the Uva Drive Bridge the width of the corridor is approximately $50m \pm 5m$ throughout the length of the study site. In general the vegetation is widest along the north side of the creek but thin areas and occasional gravel bars give the corridor a patchy appearance.

Climatically, the site is within the North Coast Ranges (NCoR) subregion of Northwestern California, and straddles two districts: the Inner North Coast Ranges District which is characterized by low rainfall and hot, dry summers, as well as by chaparral and pine/oak woodland and the Outer North Coast Ranges District, lying to the west and characterized by



moderate to heavy rainfall as well as by redwood, mixed-evergreen, and mixedhardwood forests (Baldwin et al. 2012). The North Coast Ranges Subregion comprises most of Humboldt, Mendocino, Lake, Sonoma, and Napa counties. Barbour and Major (1988) and Sawyer et al. (2009) describe these forest vegetation types and their associated species in detail.

VEGETATION

Within the study site the vegetation and species diversity are distributed across a lowgradient intermittent tributary stream of the Russian River and an adjacent open field that characterize the general topography. With average annual rainfall of about 38 inches the natural vegetation of this area has been shaped by both manmade and natural disturbance, along with intermittent periods of flood and drought.

California Mediterranean Annual Grassland

The open field north of the creek was cleared and put into agricultural production long ago but likely supported mixed oak woodland and chaparral similar to existing stands to the west. Currently the area is dominated by exotic grasses in varying combinations from mixed species to single dominant stands. Common species include Italian rye (*Festuca perennis*), slender wild oats (*Avena barbata*), big quaking grass (*Briza maxima*), ripgut brome (*Bromus diandrus*), medusahead (*Elymus caput-medusae*), hedgehog dogtail (*Cynosurus echinatus*), Harding grass (*Phalaris aquatica*), and hare barley (*Hordeum murinum* subsp. *leporinum*). Common exotic herbaceous perennials include winter vetch (*Vicia villosa* var. *varia*), hairy vetch (*V. villosa* var. *villosa*), wild radish (*Raphanus sativus*), English plantain (*Plantago lanceolatum*), chicory (*Chichorium intybus*), and yellow star-thistle (*Centarea solstitialis*).

The most common native herbaceous perennials that occur in the field are Spanish clover (*Acmispon americanus*), California centaury (*Zeltnera venusta*), and common tarweed (*Madia elegans*); other native species include dwarf toad rush (*Juncus bufonius var. occidentalis*), harvest brodiaea (*Brodiaea elegans*), autumn willow herb (*Epilobium brachycarpum*), bittercress (*Cardamine oligosperma*), variable leaf collomia (*Collomia heterophylla*), and miniature lupine (*Lupinus bicolor*).

The California annual grassland is one of the more difficult vegetation types to analyze and study due to the extreme variation in species composition and abundance within and between years and the influence of multiple environmental factors. Some of these factors such as soil type, aspect, water and sunlight availability, and level of disturbance change dramatically within individual grassland patches, thereby influencing habitat conditions and species composition.

Coyote brush - Baccharis pilularis Scrub

An area of dense coyote brush occurs at the south end of the field above the levee along with native and non-native wetland species indicating remnant floodplain habitat. These include saplings of Fremont's cottonwood (*Populus fremontii*), tall flatsedge (*Cyperus eragrostis*), Mediterranean barley (*Hordeum marinum* subsp. *gussoneanum*), pennyroyal (*Mentha pulegium*), hyssop loosestrife (*Lythrum hyssopifolia*), and dense boisduvalia (*Epilobium densiflorum*). Moving further from the creek conditions become dryer and the coyote brush thins out and is shorter in habit. Understory plants here include smooth cat's ear (*Hypocharis glabra*), Spanish clover (*Acmispon americanus*), California centaury (*Zeltnera venusta*), English plantain (*Plantago lanceolata*), soft brome (*Bromus hordeaceus*), and silver European hairgrass (*Aira caryophyllea*).

Riparian Corridor

Fremont cottonwood Forest

Fremont cottonwood (*Populus fremontii*) occurs throughout the riparian corridor, and generally the tallest tree occupying mid and upper stream terraces within the study area. It is largely the dominant species in the tree layer, however stands vary from simple to mixed tree canopies, with different combinations of understory shrubs.

Co-dominants in the tree layer are patchy but can include white alder (*Alnus rhombifolia*), treesize red willow (*Salix laevigata*), valley oak (*Quercus lobata*), Shreve oak (*Q. parvula* var. *shrevei*), and to a lesser extent Pacific bay (*Umbellularia californica*) and Oregon ash (*Fraxinus latifolia*). Common understory shrubs include several species of willow including arroyo willow (*Salix lasiolepis*), narrow-leaf willow (*S. exigua* var. *hindsiana*), shrub-sized red willow (*S. lavevigata*), mulefat (*Baccharis salicifolia* subsp. *salicifolia*), California rose (*Rosa californica*), and California grape (*Vitis californica*). Himalyan blackberry (*Rubus armeniacus*) is the dominant understory shrub in some places extending from mid to upper stream terraces. Common herbaceous perennial species include mugwort (*Artemisia douglasiana*), blue wild rye (*Elymus glaucus*), tall fescue (*Festuca arundinacea*), sneezeweed (*Helenium puberulum*), white sweet clover (*Melilotus albus*), and poison hemlock (*Conium maculatum*).

Populus fremontii Forest Alliance - Fremont cottonwood forest

Associations along Forsythe Creek Study Area

Populus fremontii-Salix exigua Populus fremontii-Vitis californica Populus fremontii-Salix laevigata Populus fremontii-Salix laevigata/Salix lasiolepis-Baccharis salicifolia

Membership rules: *Populus fremontii* > 50% relative cover in the tree layer though other investigators have classified this alliance with *P. fremontii* >30% when willow species (*Salix* spp.) are co-dominant (Sawyer et al. 2009).

Fremont cottonwood forest is widespread in the state; in Mendocino County it occurs mostly in the dryer eastern half along low-gradient rivers and both perennial and seasonal intermittent streams. Smith et al. 2009 describe this vegetation type with *Populus fremontii* dominant or co-dominant in the tree canopy along with a variety of trees and tree-like shrubs.



Salix Spp. Provisional Shrubland Alliance - Mixed willow thickets (undescribed)

This vegetation alliance occurs along a wide section of cobbled side channel along the south side of Forsythe Creek. Excluding open cobble/gravel bars the vegetation is formed by a dense cover of red willow (Salix laevigata), arroyo willow (S. lasiolepis), narrowleaf willow (S. exigua var. hindsii), Mulefat (Baccharis salicifolia subsp. salicifolia), and Fremont cottonwood (Populus fremontii). Photo: K. Heise, June 13, 2016

In this willow-dominated vegetation alliance three or more *Salix* species co-dominate and are > 50% relative cover in the shrub or tree canopy. Associated species include coyote brush (*Baccharis pilularis*), Oregon ash (*Fraxinus latifolia*), Himalayan blackberry (*Rubus armeniacus*), California wild grape (*Vitis californica*), white sweet clover (*Melilotus albus*), Jerusalum oak (*Dysphania botrys*), and mugwort (*Artemisia douglasiana*). The shrub canopy is very dense and the resulting shade and dense duff layer discourages establishment of weedy annual grasses and herbaceous dicots.

Gravel/Sand Bars

In places where the floodplain is wide gravel and/or sand bars have developed along main channel margins and side channels. Common plants include-



Mulefat (*Baccharis salicifolia* subsp. *salicifolia*), a native evergreen shrub with shiny willow-like leaves is common along cobbled floodplain throughout the study area. The plants flower from April through early May. Photo: K. Heise, May 13, 2016.

Shrubs:

Red willow (*Salix lavevigata*), narrow-leaf willow (*S. exigua* var. *hindsiana*), arroyo willow (*S. lasiolepis*), mulefat (*Baccharis salicifolia* subsp. *salicifolia*), coyote brush (*B. pilularis*), and California grape (*Vitis californica*).

Herbaceous perennials: Fremont cottonwood seedlings (*Populus fremontii*), mugwort (*Artemisia douglasiana*), yellow star thistle (*Centaurea solstitialis*), lambs quarters (*Chenopodium album*), turkey-mullein (*Croton setigerus*), Durango root (*Datisca glomerata*), Jerusalum oak (*Dysphania botrys*), Chilean

wormseed (*Dysphania chilensis*), common horsetail (*Equisetum arvense*), rayless golden aster (*Heterotheca oregana* var. *oregana*), white sweet clover (*Melilotus albus*), penny royal (*Mentha pulegium*), peppermint (*M. xpiperata*), hairy monkey flower (*Mimulus pilosus*), waterpepper (*Persicaria hydropiper*), willow weed (*P. lapathifolia*), English plantain (*Plantago lanceolatum*), curly dock (*Rumex crispus*), hedge mustard (*Sisymbrium officinale*), western vervain (*Verbena lasiostachys* var. *lasiostachys*), and cocklebur (*Xanthium strumarium*).

Grasses, sedges, rushes: slender oat grass (*Avena barbata*), ripgut brome (*Bromus diandrus*), tall flat sedge (*Cyperus eragrostis*), jungle grass (*Echinochloa colona*), tall fescue (*Festuca arundiacea*), jointed rush (*Juncus articulatus*), Dallis grass (*Paspalum dilatatum*), rabbitfoot grass (*Polypogon monspeliensis*), and Smilo grass (*Stipa miliacea*).

Species occupying the active channel include torrent sedge (*Carex nudata*), narrow mannagrass (*Glyceria leptostachya*), and mentioned above, common tule (*Schoenoplectus acutus* var. *occidentalis*), and Uruguayan primrose (*Ludwigia hexapetala*) in slow-moving, deep eddy pools.

Off-Channel Wetlands

Intermittent pools N39.25910, W123.22742 and N39.25907, W123.22849

Wide, shallow depressions with semi-permeable hardpan occur on the south and west sides of the field above the levee and function as vernal pools (Fig. 1). These ponded areas attract waterfowl which likely aid in dispersing seed and other propagules from similar seasonal wetland habitat. Species occupying these areas include pale spikerush (*Eleocharis macrostachya*), pennyroyal (*Mentha pulegium*), hyssop loostrife (*Lythrum hyssopifolium*), smooth boisduvalia (*Epilobium campestre*), dense boisduvalia (*E. densiflorum*), bracted popcorn flower (*Plagiobothrys bracteatus*), and bracted hedge-hyssop (*Gratiola ebracteata*).

White root sedge patch (Carex barbarae) N39.26006, W123.22617

In Mendocino County stands of *C. barbarae* are commonly found along seasonally wet riparian woodlands, margins of perennial ponds, and upper stream terraces. A dense stand occupies a seasonal seep along the property boundary adjacent to Uva Drive between the two gated entries. Large shreve oak (*Quercus parvula* var. *shrevei*), juvenile valley oak (*Q. lobata*), Pacific bay (*Umbellularia californica*), and red willow (*Salix laevigata*) provide partial shade to the site. Associated species include California blackberry (*Rubus ursinus*), poison oak (*Toxicodendron diversilobum*), California rose (*Rosa californica*), and common tarweed (*Madia elegans*). This is adjacent to the "Seep 1" described below.

White root sedge (*C. barbarae*) is a very practical and useful plant in riparian restoration, stream bank stabilization, and erosion control (Stevens 2003). These are hardy plants that establish well under a wide variety of environmental conditions and hydrologic regimes. Mature plants have well-developed deep root systems that are resilient to low-intensity fire and dense stands inhibit establishment of invasive species such as Himalyan blackberry (*Rubus armeniacus*).

Seep 1: N39.26000, W123.22608 Seep 2: N39.25982, W123.22573

This is a long, narrow intermittent seep drainage situated on both sides of the southern entry gate off of Uva Drive. The drainage continues south across the entry for a short distance where a clump red willow (*Salix laevigata*) and narrow leaf willow (*S. exigua* var. *hindsiana*) occur. Associated species include: coyote brush (*Baccharis pilularis*), broad leaf cattail (*Typha latifolia*), tall flat sedge (*Cyperus eragrostis*), dense sedge (*Carex densa*), hyssop loosestrife (*Lythrum hyssopifolium*), curly dock (*Rumex crispus*), Iris-leaved rush (*Juncus xiphioides*), common rush (*J. patens*), tall fescue (*Festuca arundinacea*), California oat grass (*Danthonia californica*), slender hairgrass (*Deschampsia elongata*), and subterranean clover (*Trifolium subterraneum*).

Additional Sites

Chaparral Scrub (Ceanothus / Quercus / Arctostaphylos) N39.25915, W123.22602

Located on the north side of the creek above the levee between *Baccharis* scrub and cottonwood / willow stand is a south-facing stand of chaparral scrub. Associated species include interior live oak (*Quercus wislizeni*), deer brush (*Ceanothus integerrimus*), yerba santa (*Eriodictyon californicum*), common manzanita (*Arctostaphylos manzanita*), coyote brush (*Baccharis pilularis*), and California brome (*Bromus carinatus*).

Elymus triticoides | Rosa californica | Artemisia douglasian a mid-stream terrace N39.25836, W123.22653

This feature comprises a linear mid terrace app. 80m long between edge of the Phillip property and the cottonwood /willow vegetation below. Vegetation here is low and composed of shrubs, herbaceous perennials, and grasses. Common species are largely native including mugwort (*Artemisia douglasiana*), California rose (*Rosa californica*), California grape (*Vitis californica*), beardless wildrye (*Elymus triticoides*), and blue wildrye (*E. glaucus*). Others natives are Spanish clover (*Acmispon americanus*), coyote brush (*Baccharis pilularis*), autumn willow herb (*Epilobium brachycarpum*), modesty (*Sanicula crassicaulis*), poison oak (*Toxicodendron*



diversilobum), and Ithuriel's spear (*Triteleia laxa*). Non-native species on the terrace include Japanese hedge parsley (*Anthriscus caucalis*), ripgut brome (*Bromus diandrus*), Italian thistle (*Carduus pycnocephalus*), wall bedstraw (*Galium parisiense*), hedge mustard (*Sisymbrium officinale*), prickly sow thistle (*Sonchus asper*), and sock destroyer (*Torilis arvensis*).

The notable native grass occurrence here is a good stand of the rhizomatous beardless wildrye (*Elymus triticoides*) which extends across the mid terrace. Beardless wildrye often fails to set seed which presumably is due to the need for the species to be cross-pollinated. Consequently, some stands are functionally infertile and may represent plants of a single clone (Cronquist et al. 1977). The plants observed at Forsythe Creek however had fertile spikelets. Because of its tolerance for both drought and flood this grass is a good choice for stream bank restoration.

Invasive Species with "High" Cal-IPC Rating

These species have severe ecological impacts on physical processes, plant and animal communities, and vegetation structure. Their reproductive biology and other attributes are conducive to moderate to high rates of dispersal and establishment. Most are widely distributed ecologically. Approximately half of the 223 vascular plant species identified in the study area are non-native, due mostly to the large area of disturbed land north of the creek. Several are considered highly invasive by the California Invasive Pest Council (Cal-IPC 2016). These include:

- red brome (Bromus madritensis subsp. rubens): sparse in disturbed field
- yellow-star thistle (Centaurea solstitialis): widespread in disturbed field and gravel bars
- medusahead (Elymus caput-medusae): widespread in disturbed field
- tall fescue (*Festuca arundinacea*): sparse along creek bank
- fennel (*Foeniculum vulgare*): sparse in disturbed field and upper stream terraces under Fremont cottonwood
- French broom (Genista monspessulana): occasional along upper edge of levee
- Uruguayan water primrose (*Ludwigia hexapetala*): confined to 3 sites along creek
- Himalayan blackberry (*Rubus armeniacus*): Widespread and abundant along riparian corridor and edge of field and levee

Uruguayan water primrose (Ludwigia hexapetala) Occurrences

<u>N39.25942</u>° <u>W123.22997</u>° Upper reach with common tule (*Schoenoplectus acutus* var. *occidentalis* under dense canopy of red willow (*Salix laevigata*), narrow leaf willow (*Salix exigua* var. *hindsiana*), Fremont cottonwood (*Populus fremontii*), and California grape (*Vitis californica*). Small occurrence app. 4m in length.

N39.25905° **W123.22930**° Mid reach under partial shade of Fremont cottonwood (*Populus fremontii*). Small occurrence app. 2m in length.

N39.258459° **W123.22662**° Lower reach with arroyo willow (*Salix lasiolepis*), white alder (*Alnus rhombifolia*) and mannagrass (*Glyceria* sp.). Occurrence extends for approx. 30 m along north edge of channel.



Uruguayan water primrose (*Ludwigia hexapetala*) on Forsythe Creek. Potentially a highly invasive aquatic species. Photo: K. Heise, July 12, 2016

One large and two small areas were identified along Forsythe Creek during the botanical survey. These limited occurrences are easily located and could be eradicated with little effort.

Ludwigia hexapetala alters sedimentation and water flow, sequesters nutrients, and creates anaerobic conditions which impact fish survival. Plants forms large, dense mats of vegetation above and below the water surface where roots and vegetative growth trap sediment, block hydraulic flow, and shade soil and water surfaces disturbing natural ecosystem processes. Water

primrose out-competes native aquatic and terrestrial vegetation, lowering species diversity and creating habitat beneficial for disease vectors. Additionally, dense floating canopies can block fish passage and allow standing water and moist conditions to persist year-round creating ideal conditions for mosquitoes, possible West Nile Virus vectors (Cal-IPC 2016).

RESULTS

Total number of vascular taxa recorded throughout the study area = 223 within 60 families (Appendix B). Of these, 110 were non-native taxa comprising 50% of the flora. The three largest families represented at the site include the *Asteraceae* (30), *Fabaceae* (21), and *Poaceae* (33). The non-vascular taxa (Appendix C) were represented as follows: Mosses (25), Liverworts (5), and Lichens (11). No rare or endangered taxa were observed during the botanical survey.

Vegetation Alliance Rarity Ranking

Although the *Populus fremontii* Forest Alliance described earlier is ranked by CNDDB as G4 S3.2 (G4 = greater than 100 viable occurrences; S3.2 = Threatened in California, 21-100 viable occurrences), this ranking is based on a set of criteria for a vegetation type considered "high quality" (Sawyer et al. 2009). These criteria are outlined below:

- 1. lack of invasive exotic species,
- 2. no evidence of human-caused disturbance such as roads or excessive livestock grazing, or high-grade logging,
- 3. evidence of reproduction present (sprouts, seedlings, adult individuals of reproductive age), and
- 4. no significant insect or disease damage, etc.

Because the cottonwood vegetation alliance at the Forsythe Creek study site does not meet 3 of the 4 above criteria (only #3 partially qualifies) it cannot be considered a "high quality" occurrence. Thus the ranking of this association is based on the restricted high quality examples, for which the occurrence at Forsythe does not qualify.

Carex barbarae Herbaceous Alliance – White-root beds G2? S2?

However the white root sedge stand described earlier in this report does qualify as a rare natural community or vegetation type since all criteria are met. A question mark (?) denotes an inexact numeric rank due to insufficient samples over the full expected range of the type, but existing information points to this rank.

RECOMMENDATIONS

Seed Collection

On site material should be considered for riparian restoration, stream bank stabilization, and erosion control. Two species present on the study site, white root sedge (*Carex barbarae*) and beardless wildrye (*Elymus triticoides*) are present in sufficient quantities to justify collecting. Because of its rarity status care should be taken to avoid impacting the *Carex barbarae* site with heavy equipment.

Invasive Species Eradication

Although there are many invasive species to consider, controlling *Ludwigia hexapetala* is perhaps the highest priority. Eliminating the few occurrences documented within the proposed project area will ensure it is not reestablished during and after the construction phase. For other invasive species present the following sources should be consulted for current management protocols (Cal-IPC 2016; DiTomaso and Kyser 2013).

REFERENCES

Baldwin, B.G., D.H. Goldman, D.J. Keil, R. Patterson, T.J. Rosatti, and D.H. Wilken, editors. 2012. The Jepson manual: vascular plants of California, second edition. University of California Press, Berkeley.

Barbour M.G. and Jack Major. 1988. Editors. Terrestrial Vegetation of California. California Native Plant Society, Special Publication Number 9.

Cal-IPC. 2016. California Invasive Plant Counsel. *California Invasive Plant Inventory Database*, <u>http://www.cal-ipc.org/paf/</u>

CDFW & CNDDB 2016. California Department of Fish and Wildlife, Natural Diversity Database. April 2016. Changes to Special Vascular Plants, Bryophytes, and Lichens List. Quarterly publication. 124 pp.

CDFG 2009. Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities. California Department of Fish and Wildlife.

CNPS 2016. Rare Plant Program. Inventory of Rare and Endangered Plants (online edition, v8-02). California Native Plant Society, Sacramento, CA. Website http://www.rareplants.cnps.org [accessed July 27, 2016].

Cronquist, A., A. Holmgren, N. Holmgren, J.L. Reveal, and P. Holmgren. 1977. Intermountain Flora. Vascular Plants of the Intermountain West, U.S.A. Volume 6, The Monocotyledons. Columbia University Press, NY.

DiTomaso, J.M. and G.B. Kyser et al. 2013. Weed Control in Natural Areas in the Western United States. Weed Research and Information Center. University of California. 544pp.

Leppig, G. and J.W. White. 2006. Conservation of peripheral plant populations in California. Madroño 53:264-274.

Sawyer, J.O., T. Keeler-Wolf, and J.M. Evens. 2009. A manual of California vegetation, second edition. California Native Plant Society Press. Sacramento, CA.

Stevens, M.L. 2003. Traditional resource management of white root (*Carex barbarae*) by California Indians: implications for restoration. In California riparian systems: processes and floodplain management, ecology, and restoration. 2001 Riparian Habitat and Floodplains Conference Proceedings. Riparian Habitat Joint Venture, Sacramento, CA.

Appendix A: List of potentially occurring rare and endangered plants from 9-quad query centered on Redwood Valley USGS Quad.

CNPS, Rare Plant Program. 2016. Inventory of Rare and Endangered Plants (online edition, v8-02). California Native Plant Society, Sacramento, CA. Website http://www.rareplants.cnps.org [accessed 12 May 2016].

Scientific Name	Common Name	Family	CRPR	State	Global
Alisma gramineum	grass alisma	Alismataceae	2B.2	S3	G5
Arctostaphylos stanfordiana ssp. raichei	Raiche's manzanita	Ericaceae	1B.1	S2	G3T2
Astragalus breweri	Brewer's milk-vetch	Fabaceae	4.2	S3	G3
Brasenia schreberi	watershield	Cabombaceae	2B.3	S3	G5
Carex comosa	bristly sedge	Cyperaceae	2B.1	S2	G5
Ceanothus gloriosus var. exaltatus	glory brush	Rhamnaceae	4.3	S4	G4T4
Ceanothus pinetorum	Kern ceanothus	Rhamnaceae	4.3	S3	G3
Cryptantha excavata	deep-scarred cryptantha	Boraginaceae	1B.3	S1	G1
Cuscuta jepsonii	Jepson's dodder	Convolvulaceae	1B.2	SH	GH
Cypripedium californicum	California lady's-slipper	Orchidaceae	4.2	S4	G4
Cypripedium montanum	mountain lady's-slipper	Orchidaceae	4.2	S4	G4
Fissidens pauperculus	minute pocket moss	Fissidentaceae	1B.2	S2	G3?
Fritillaria roderickii	Roderick's fritillary	Liliaceae	1B.1	S1	G1Q
Gilia capitata subsp. pacifica	Pacific gilia	Polemoniaceae	1B.2	S2	G5T3
Hemizonia congesta subsp. congesta	congested-headed hayfield tarplant	Asteraceae	1B.2	S1S2	G5T1T2
Hesperolinon adenophyllum	glandular western flax	Linaceae	1B.2	S3	G3
Lasthenia burkei	Burke's goldfields	Asteraceae	1B.1	S1	G1
Limnanthes bakeri	Baker's meadowfoam	Limnanthaceae	1B.1	S1	G1
Navarretia leucocephala subsp. bakeri	Baker's navarretia	Polemoniaceae	1B.1	S2	G4T2
Perideridia gairdneri subsp. gairdneri	Gairdner's yampah	Apiaceae	4.2	S4	G5T4
Piperia candida	white-flowered rein orchid	Orchidaceae	1B.2	S3	G3
Plagiobothrys lithocaryus	Mayacamas popcornflower	Boraginaceae	1A	SH	GH
Pleuropogon californicus var. davyi	Davy's semaphore grass	Poaceae	4.3	S3	G5T3
Pleuropogon hooverianus	North Coast semaphore grass	Poaceae	1B.1	S2	G2
Potamogeton epihydrus	Nuttall's ribbon-leaved pondweed	Potamogetonaceae	2B.2	S2.2?	G5
Ranunculus lobbii	Lobb's aquatic buttercup	Ranunculaceae	4.2	S3	G4

Sanguisorba officinalis	great burnet	Rosaceae	2B.2	S2	G5?
Streptanthus glandulosus subsp. hoffmanii	Hoffman's bristly jewelflower	Brassicaceae	1B.3	S2	G4T2
Trichodon cylindricus	cylindrical trichodon	Ditrichaceae	2B.2	S2	G4
Usnea longissima	Methuselah's beard lichen	Parmeliaceae	4.2	S4	G4
Wyethia longicaulis	Humboldt County wyethia	Asteraceae	4.3	S4	G4

Survey Dates: May 13, 19, 24, 31; June 13; July 12, 27, 2016	
Surveys conducted by Kerry Heise, Linda Macelwee, and Maggie Graham	
Nomenclature and taxonomy follow the Jepson Manual, Higher Plants of California, 2nd e	ed. 2012.
Jepson Flora Project (eds.) 2016. Jepson eFlora, http://ucjeps.berkeley.edu/IJM.html	
Total taxa = 223 in 60 Families; exotics = 110 (50%).	
FamilyScientific NameCommon Name	exotic
FERNS	
Equisetaceae - Horsetail Family	
<i>Equisetum arvense</i> common horsetail	
Pteridaceae - Brake Fern Family	
Adiantum jordanii Calif. maidenhair fern	
GYMNOSPERMS	
Pinaceae - Pine Family	
Pinus radiata Monterey pine	Х
Pseudotsuga menziesii Douglas fir	
MAGNOLIIDS	
Lauraceae - Laurel Family	
Umbellularia californica California bay	
EUDICOTS	
Adoxaceae - Muskroot Family	
Sambucus nigra subsp. caerulea blue elderberry	
Anacardiaceae - Sumac Family	
Toxicodendron diversilobum poison oak	
Apiaceae - Carrot Family	
Anthriscus caucalis bur-chervil	Х
Conium maculatum poison hemlock	Х
<i>Foeniculum vulgare</i> fennel	Х
Osmorhiza berteroi sweet cicley	
Sanicula crassicaulis gamble weed	
Torilis arvensis Japanese Hedge Parsley	Х
Apocynaceae - Dogbane Family	
Vinca major periwinkle	Х
Asteraceae - Aster Family	
Achillea millefolium yarrow	
Agoseris grandiflora grand mountain dandelion	
Anisocarpus madioides (Madia madioides) woodland tarweed	
Artemisia douglasiana mugwort	
Baccharis pilularis Covote brush	
Baccharis salicifolia subsp. salicifolia mule fat	

	Calycadenia fremontii		
	Carduus pycnocephalus	Italian thistle	Х
	Centaurea solstitialis	yellow star-thistle	Х
	Cichorium intybus	chicory	Х
	Cirsium arvense	Canada thistle	Х
	Cirsium vulgare	bull thistle	Х
	Helenium puberulum	sneezeweed	
	Heterotheca oregana var. oregana	rayless golden aster	
	Hypochaeris glabra	smooth cat's ear	Х
	Hypochaeris radicata	rough cat's ear	Х
	Lactuca serriola	prickly lettuce	Х
	Logfia gallica		Х
	Madia elegans	common tarweed	
	Madia gracilis	slender tarweed	
	Matricaria discoidea	pineapple weed	х
	Pseudognaphalium luteoalbum		х
	Psilocarphus brevissimus	wooly heads	
	Senecio vulgaris	common groundsel	Х
	Silybum marianum	milk thistle	Х
	Soliva sessilis		Х
	Sonchus asper	prickly sow thistle	х
	Tolpis barbata		Х
	Tragopogon dubius	yellow salsify	Х
	Xanthium strumarium	cocklebur	
Betulac	e ae - Birch Family		
	Alnus rhombifolia	white alder	
Boragin	aceae - Borage Family		
	Eriodictyon californicum	yerba santa	
	Phacelia heterophylla subsp. virgata		
	Plagiobothrys bracteatus	bracted popcorn flower	
Brassica	aceae - Mustard Family		
	Capsella bursa-pastoris	shephard's purse	Х
	Cardamine californica	mild maids, toothwort	
	Cardamine oligosperma	bittercress	
	Daucus carota	Queen Anne's lace	Х
	Lepidium didymum	lesser swine cress	Х
	Nasturtium officionale	water cress	
	Raphanus sativus	radish	X
	Sisymbrium officinale	hedge mustard	X
Caprifo	liaceae - Honeysuckle Family		
	Symphoricarpos albus var. laevigatus	snowberry	

Caryo	ohyllaceae - Pink Family		
	Cerastium glomeratum	mouse-ear chickweed	Х
	Petrorhagia dubia	hairypink	х
	Spergularia rubra	red sand-spurry	Х
	Stellaria media	common chickweed	Х
Cheno	podiaceae - Goosefoot Family		
	Chenopodium album	lamb's quarters	Х
	Dysphania botrys	Jerusalum oak	Х
	Dysphania chilensis	Chilean wormseed	Х
Convo	vulaceae - Morning Glory Family		
	Convolvulus arvensis	bindweed	Х
Corna	ceae - Dogwood Family		
	Cornus sericea subsp. ocidentalis	western dogwood	
Crassu	laceae - Stonecrop Family		
	Crassula connata	pygmy weed	
Cucur	bitaceae - Gourd Family		
	Marah fabacea	California man-root	
Datisca	aceae - Datisca Family		
	Datisca glomerata	Durango Root	
Ericac	eae - Heath Family		
	Arbutus menziesii	madrone	
	Arctostaphylos manzanita subsp. glaucescens	common manzanita	
Eupho	rbiaceae - Spurge Family		
	Croton setiger	turkey-mullein	
Fabace	eae - Pea Family		
	Acmispon americanus (Lotus purshianus)	Spanish clover	
	Acmispon brachycarpus (Lotus humistratus)		
	Genista monspessulana	French broom	X
	Lathyrus tingitanus	Tangier pea	X
	Lotus corniculatus	birds foot trefoil	X
	Lotus tenuis		X
	Lupinus bicolor		
	Medicago polymorpha	California burclover	Х
	Melilotus albus	white sweet clover	Х
	Melilotus indicus	sour clover	Х
	Trifolium dubium	Shamrock Clover	X
	Trifolium glomeratum	clustered clover	X
	Trifolium hirtum	rose clover	X
	Trifolium incarnatum	crimson clover	X
	Trifolium repens	white clover	x
	Trifolium subterranneun	subterraneum clover	Х

	Vicia lutea	yellow vetch	Х
	Vicia sativa subsp. nigra	narrow-leaf vetch	Х
	Vicia sativa subsp. sativa	spring vetch	Х
	Vicia villosa subsp. varia	winter vetch	Х
	Vicia villosa subsp. villosa	hairy vetch	Х
Fagac	eae - Beech Family		
	Quercus kelloggii	Black Oak	
	Quercus lobata	Valley Oak	
	Quercus parvula var. shrevei	Shreve Oak	
	Quercus wislizeni	interior live oak	
Gentia	anaceae - Gentian Family		
	Zeltnera venusta (Centaurium v.)	California centaury	
Geran	iaceae - Geranium Family		
	Erodium botrys	Broadleaf Filaree	Х
	Erodium cicutarium	Redstemmed Filaree	Х
	Geranium dissectum		Х
Hyper	icaceae - St. John's Wort Family (Clusiaceae)		
	Hypericum perforatum	Klamath Weed	Х
Lamia	ceae - Mint Family		
	Lamium amplexicaule	henbit	Х
	Mentha pulegium	penny royal	х
	Mentha spicata	spearmint	Х
	Mentha xpiperata	peppermint	х
	Stachys ajugoides	hedge nettle	
Linac	eae - Flax Family		
	Linum bienne	wild flax	Х
Lythr	aceae - Loosestrife Family		
	Lythrum hyssopifolia	hyssop loosestrife	Х
Malva	ceae - Mallow Family		
	Modiola caroliniana	modiola	Х
Monti	aceae		
	Calandrinia menziesii	red maids	
Myrsi	naceae - Myrsine Family		
	Lysimachia arvensis (Anagallis a.)	acarlet pimpernel	Х
Oleace	e ae - Olive Family		
	Fraxinus latifolia	Oregon ash	
Onagr	aceae - Evening Primrose Family		
	Epilobium brachycarpum	autumn willow herb	
	Epilobium campestre	willow herb	
	Epilobium ciliatum subsp. ciliatum	Northern willow herb	
	Epilobium densiflorum		

	Epilobium torreyi		
	Ludwigia hexapetala	Uruguayan water primrose	Х
Oxalid	laceae - Oxalis Family		 I
	Oxalis pilosus		·
Papav	eraceae - Poppy Family		
	Eschscholzia californica	California poppy	 I
Phyrm	naceae		
	Mimulus cardinalis	scarlet monkey flower	
	Mimulus guttatus	common monkey flower	
	Mimulus pilosus	hairy monkey flower	
Planta	ginaceae - Plantain Family		
	Gratiola ebracteata	bractless hedge-hyssop	
	Kickxia spuria	round-leaved fluellin	Х
	Plantago coronopus	cut-leaf plantain	Х
	Plantago lanceolata	English plantain	Х
	Plantago major	common plantain	Х
	Veronica anagallis-aquatica	water speedwell	Х
	Veronica arvensis	speedwell	Х
	Veronica peregrina subsp. xalapensis	purslane speedweel	
Polem	oniaceae - Phlox Family		
	Collomia heterophylla	variableleaf collomia	
	Navarretia intertexta		
	Navarretia squarrosa	skunkweed	L
Polygo	naceae - Buckwheat Family		
	Persicaria hydropiper	waterpepper	Х
	Persicaria lapathifolia	willow weed	
	Polygonum avivculare	knotweed	Х
	Rumex conglomeratus	dock	Х
	Rumex crispus	curly dock	Х
Ranun	culaceae - Buttercup Family		
	Ranunculus muricatus	buttercup	Х
	Thalictrum fendleri var. polycarpum	meadowrue	
Rham	naceae - Buckthorn Family		
	Ceanothus integerrimus	deer brush	I
	Ceanothus thyrsiflorus	blueblossum	<u> </u>
Rosac	eae - Rose Family		
	Drymocallis glandulosa subsp. glandulosa	Sticky Cinquefoil	
	Heteromeles arbutifolia	Toyon	
	Prunus sp.	plum	Х
	Rosa californica	California rose	
	Rosa gymnocarpa	wood Rose	1

	Rubus armeniacus	Himalayan Blackberry	Х
	Rubus ursinus	California blackberry	
Rubiac	eae - Madder Family		
	Galium parisiense	Wall Bedstraw	X
Salicac	eae - Willow Family		
	Populus fremontii	Fremont's cottonwood	
	Populus trichocarpa	black cottonwood	
	Salix babylonica	weeping willow	Х
	Salix exigua var. hindsiana	narrow-leaf, Hinds' willow	
	Salix laevigata	red willow	
	Salix lasiandra	Pacific willow	
	Salix lasiolepis	arroyo willow	
	Salix melanopsis	dusky willow	
Simaro	ubaceae - Quassia Family		
	Ailanthus altissima	Tree of Heaven	Х
Sapind	aceae - Soapberry Family		
	Acer macrophyllum	Big Leaf Maple	
	Aesculus californica	California Buckeye	
Scroph	ulariaceae - Figwort Family		
	Verbascum blattaria	moth mullein	Х
Solana	ceae - Nightshade Family		
	Solanum nigrum		X
Verben	aceae - Vervain Family		
	Verbena lasiostachys var. lasiostachys	western vervain	
Vitacea	e - Wild Grape Famlily		
	Vitis californicus	wild grape	
MONO	COTS		
Agavac	eae - Agave Family		
	Chlorogalum pomeridianum var. pomeridianum	soap plant	
Alisma	taceae - Water Plantain Family		
	Alisma lanceolatum	water plantain	х
Cypera	ceae - Sedge Family		
	Carex barbarae	whiteroot sedge	
	Carex densa	dense sedge	
	Carex nudata	torrent Sedge	
	Cyperus eragrostis	tall flat sedge	
	Eleocharis macrostachya	pale spikerush	
	Schoenoplectus acutus var. occidentalis	common tule	
	Scirpus microcarpus	panicled bulrush	
Iridace	ae - Iris Family		
	Sisrynchium bellum	blue-eyed grass	

Junc	aceae - Rush Family		
	Juncus articulatus subsp. articulatus	jointed rush	
	Juncus bolanderi	Bolander's rush	
	Juncus bufonius var. bufonius	toad rush	
	Juncus bufonius var. occidentalis	dwarf Toad Rush	
	Juncus occidentalis	western rush	
	Juncus patens	common rush	
	Juncus tenuis	slender rush	
	Juncus xiphioides	iris-leaved rush	
Poace	eae - Grass Family		
	Agrostis exarata	bent grass	
	Aira caryophyllea	European Hairgrass	Х
	Avena barbata	slender wild oat	Х
	Avena fatua	wild oat	X
	Brachypodium distachyon	false brome	X
	Briza maxima	big quaking grass	Х
	Briza minor	little quaking grass	X
	Bromus carinatus ssp. carinatus	California Broom	
	Bromus diandrus	ripgut broom	X
	Bromus hordeaceus	soft chess	X
	Bromus madritensis subsp. rubens	red brome	X
	Cynodon dactylon	Bermuda grass	X
	Cynosurus echinatus	hedgehog dogtail grass	Х
	Dactylis glomerata	orchard grass	Х
	Danthonia californica	California oat Grass	
	Deschampsia elongata	slender hairgrass	
	Echinochloa colona	jungle grass	Х
	Elymus caput-medusae	Medusa Head	Х
	Elymus glaucus	blue wildrye	
	Elymus triticoides	beardless wildrye	
	Festuca arundinacea	Tall Fescue	Х
	Festuca bromoides	brome fescue	Х
	Festuca perennis (Lolium multiflorum)	Italian Rye	Х
	Gastridium phleoides	nit grass	Х
	Glyceria leptostachya	narrow mannagrass	
	Hordeum marinum ssp. gussoneanum	Mediterranean barley	Х
	Hordeum murinum ssp. leporinum	hare barley	Х
	Melica geyeri	Geyer's melic	
	Paspalum dilatatum	Dallis grass	X
	Phalaris aquatica	harding grass	X
	Poa annua	annual bluegrass	Х

	Polypogon monspeliensis	rabbitfoot grass	Х
	Stipa miliacea	smilo grass	Х
Themid	aceae		
	Brodiaea elegans subsp. elegans	Harvest Brodiaea	
	Dichelostemma capitatum	Blue Dicks	
	Triteleia laxa	Ithuriel's spear	
Typhac	eae - Cattail Family		
	Typha angustifolia	narrow-leaved cattail	
	Typha latifolia	broad-leaved cattail	

Appendix C: Cryptogams of Forsythe Creek Floodplain Restoration Project Area

Survey Dates: May 13, 19, 24, 31; June 13; July 12, 27, 2016
Surveys conducted by Kerry Heise, Linda Macelwee, and Maggie Graham
Nomenclature largely follows:
For Mosses: Norris D.H. and J.R. Shevock. 2004. Contributions toward a bryoflora of California:
I. A Specimen-Based Catalogue of Mosses. Madrono 51(1): 1-131.
For Liverworts: Doyle W.T. and R.E. Stotler. 2006. Contributions toward a bryoflora of California III.
Keys and Annotated Species Catalogue for Liverworts and Hornworts. Madrono 53: 89-197.
For Lichens: Brodo I.M., S.D. Sharnoff, and S. Sharnoff. 2001. Lichens of North America. Yale Univ. Press.

Mosses = 25; Liverworts and Hornworts = 5; macrolichens = 11

MOSSES	Habitat
AULACOMNIACEAE	
Aulacomnium androgynum	on fallen tree in channel
BARTRAMIACEAE	
Philonotis capillaris	moist ground near channel
BRACHYTHECIACEAE	
Homalothecium nuttallii	Quercus bark
Homalothecium pinnatifidum	soil on rock
Isothecium cristatum	on rock, lower reach of creek
Scleropodium obtusifolium	channel
Scleropodium touretii	soil
CRYPHAEACEAE	
Dendroalsia abietina	On Quercus bark
DICRANACEAE	
Dicranella howei	In disturbed field
DITRICHACEAE	
Ceratodon purpureus	soil in disturbed field
Pleuridium acuminatum	soil
FISSIDENTACEAE	
Fissidens crispus	shady soil
Fissidens bryoides	shady moist soil on bank
FUNARIACEAE	
Funaria hygrometrica	disturbed soil
	24

GRIMMIACEAE Grimmia lisae

rock, edge of channel near bridge

LESKEACEAE Claopodium whippleanum

LEUCODONTACEAE Antitrichia californica Pterogonium gracile

MNIACEAE Epipterygium tozeri Pohlia whalenbergii

ORTHOTRICHACEAE Orthotrichum lyellii Zygodon rupestris

POLYTRICHACEAE Polytrichum juniperinum

POTTIACEAE Didymodon vinealis Timmiella crassinervis soil bank, upper stream terrace

on oak and bay on bay

moist soil on stream bank moist soil on stream bank

on alder and oak oak bark

Disturbed ground near edge of levee

disturbed ground in open field shady soil cottonwood forest

LIVERWORTS and HORNWORTS

ANTHOCEROTACEAE Anthoceros sp.	moist soil
FRULLANIACEAE Frullania bolanderi	on alder
MARCHANTIACEAE Marchantia polymorpha	moist soil near creek
PORELLACEAE Porella navicularis	on alder
TARGIONIACEAE Targionia hypophylla	shady soil of stream bank

LICHENS

Caloplaca sp.	on bark		
Cladonia furcata	fallen log		
Cladonia pixidata	on wood		
Evernia prunastri	on oak		
Flavaparmelia flaventior	oak branch		
Normandina puchella	valley oak		
Parmelia sulcata	alder and oak		
Peltigera neopolydactyla	soil upper stream terrace		
Pseudocyphellaria anthraspis	on bark of oak		
Ramalina menziesii	valley and shreve oak		
Usnea arizonica	shreve oak		

Figure 1: Forsythe Creek Floodplain Restoration Study Area

Mediterranean Calif. naturalized ann and per grassland

Blanchard

Ludwigia hexapetala

Legend

.

0

🥖 Baccharis pilularis scrub 🥏 Carex barbarae 🟉 Elymus / Rosa / Artemisia Populus fremontii / Salix spp.

Salix spp. thic ket

gravelbar

vernal pool

Google earth

🥒 chaparral scrub: Ceanothus / Eriodictyon / Arctostapylos

Ludwigia hexapetala

Ludwigia hexapetala

Hernande

ddite

seep

seep 2

ores

27

Mitigation Measure	Mitigation Measure Description	Implementing	Implementation	Verification Sign-off
Title		Party	Timing	(initials and date)
BIO-1: Protection of Fish and Other Aquatic Species during Channel Dewatering	 Before the work area is dewatered (as identified in Table 2-3, BMP-4) or instream construction activities commence, the following measures will be implemented: A. Channel dewatering is restricted to: June 1 to October 30. B. All pumps used to divert live stream flow, outside the dewatered work area, will be screened and maintained throughout the construction period to comply with NMFS' Fish Screening Criteria for Anadromous Salmonids (NMFS 2008). Pump intakes will be covered by 3/32-inch mesh and placed inside housing with sufficient area to prevent impingement of fish. Pump intakes will be checked periodically to ensure impingement is not occurring. C. The channel will be blocked by placing fine-meshed nets or screens above and below the work area to prevent fish from entering the work area. To minimize entanglement, mesh diameter will not exceed 1/8 inch. The bottom edge of the net or screen will be secured to the channel bed to prevent fish from passing under the screen. Exclusion screening will be placed in low velocity areas to minimize impingement. Screens will be checked periodically and cleaned of debris to permit free flow of water. D. Fish Protection Measures: i. Fish relocation activities must be performed only by qualified fisheries biologists (as approved by USFWS and CDFW) with experience with fish capture and handling. The RCD shall ensure that all biologists working on this Project be qualified to conduct fish collections in a manner which minimizes all potential risks to salmonids. Electrofishing, if used, shall be performed by a qualified biologist and conducted 	RCD	During and after construction	Completed: Project Manager:

Mitigation Measure Title	Mitigation Measure Description	Implementing Party	Implementation Timing	Verification Sign-off (initials and date)
	according to the NMFS Guidelines for Electrofishing Waters Containing Salmonids Listed under the Endangered Species Act (NMFS 2000)			
	ii. A qualified biologist shall monitor the construction site during placement and removal of channel diversions, cofferdams to ensure that any harm or loss of salmonids is minimized and documented. The biologist shall be on site during all dewatering events to ensure that all listed species are captured, handled, and relocated safely.			
	 iii. Captured fish shall be handled with extreme care and kept in water to the maximum extent possible during relocation activities. All captured fish shall be kept in cool, shaded, aerated water protected from excessive noise, jostling, or overcrowding any time they are not in the stream and fish shall not be removed from this water except when released. To avoid predation, the biologist shall have at least two containers and segregate young-of-year fish from larger age-classes and other potential aquatic predators. Captured salmonids will be relocated, as soon as possible, to a suitable instream location in which habitat conditions are present to allow for survival of transported fish and fish already present. 			
	iv. If any salmonids are found dead or injured, the biologist shall contact the NOAA Fisheries North Central Coast Office. The purpose of the contact is to review the activities resulting in take and to determine if additional protective measures are required. All salmonid mortalities shall be retained, placed in an appropriately-sized sealable plastic bag, labeled with the date			

Mitigation Measure Title	Mitigation Measure Description	Implementing Party	Implementation Timing	Verification Sign-off (initials and date)
	and location of collection, fork length measured, and be frozen as soon as possible. Frozen samples shall be retained by the biologist until specific instructions are provided by NOAA Fisheries. The biologist may not transfer biological samples to anyone other than the NOAA Fisheries North Central Coast Office without obtaining prior written approval from the North Central Coast Office, Supervisor of the Protected Resources Division. Any such transfer will be subject to such conditions as NOAA Fisheries deems appropriate.			
	v. The RCD shall provide a written report to NOAA Fisheries by January 15, following completion of the respective construction season. The report shall contain, at a minimum, a description of the location from which fish were removed and the release site including photographs; the date and time of the relocation effort; a description of the equipment and methods used to collect, hold, and transport salmonids; if an electroshocker was used for fish collection, a copy of the logbook must be included; the number of fish relocated by species; the number of fish injured or killed by species; and a brief narrative of the circumstances surrounding ESA listed fish injuries or mortalities.			
	E. All temporary fill, cofferdams, pumps, pipes and sheet plastic will be removed from the stream upon Project completion.			
BIO-2: Protection of Special-Status Amphibian and Reptile Species	• Prior to the start of construction activities, a qualified biologist familiar with the sensitive biological resources that are known or have the potential to occur in the area will conduct a training session for all construction personnel. The training shall provide educational information on the special-status species, including special	RCD	Before construction	Completed: Project Manager:

Mitigation Measure	Mitigation Measure Description	Implementing	Implementation	Verification Sign-off
Title		Party	Timing	(initials and date)
	 status amphibians and reptile species, that are known or have potential to occur in the area, how to identify the species, as well as other sensitive biological resources (e.g., sensitive natural communities, federal and state jurisdictional waters). The training shall also review the required mitigation measures to avoid impacts on the sensitive resources, and penalties for noncompliance with biological mitigation requirements. Training will include a description of, their habitats and behavior, and proper procedures for staff if any individuals are detected within the Project Area. The training shall be completed by all construction personnel before any work occurs at the project sites, including construction equipment and vehicle mobilization. If new personnel are added to the proposed project, the Contractor shall ensure that new personnel receive training before they start working. The Contractor shall document staff training efforts. Preconstruction surveys for western pond turtle shall be conducted by a qualified biologist 48 hours before the start of construction activities where suitable habitat exists (i.e., riparian areas, freshwater emergent wetlands, and adjacent undisturbed uplands). Western pond turtles found within the construction area shall be allowed to leave on their own volition or shall be relocated by the qualified biologist out of harm's way to suitable habitat immediately upstream or downstream of the project site. If turtles are moved, the qualified biologist shall possess a valid permit from CDFW authorizing the handling of turtles. Although unlikely, if an active WPT nest is identified in the work area during preconstruction surveys, the nest will be avoided to the extent feasible. Avoidance shall consist of a buffer area that protects the nest and direct access to the river for hatchlings dispersing from the nest. The extent of the buffer area will be determined in coordination with CDFW. Buffers will be clearly marked with temporary fencing. Construction will not			

Mitigation Measure Title	Mitigation Measure Description	Implementing Party	Implementation Timing	Verification Sign-off (initials and date)
	 Prior to commencing construction, a qualified biologist shall conduct one daytime survey for special-status amphibians including all lifestages of FYLF, CRLF/NRLF, and red-bellied newt. The survey shall be conducted no more than 48 hours preceding the onset of construction. If no special-status amphibians are found within the activity area during the pre-activity survey, the work may proceed. If any life stage (egg, tadpole, or adult) are found within the activity area during a pre-construction survey or during project activities, the following measures will be implemented: Adults shall be allowed to leave the work area on their own volition or may be relocated by the qualified biologist out of harm's way to suitable habitat immediately upstream or downstream of the project site. If adults are moved, the qualified biologist shall possess a valid permit from CDFW authorizing the handling of the species. If early life stages (i.e., eggs or tadpoles) are detected, no work buffers shall be established around the habitat and the organisms will be monitored until they are able to leave the work area on their own volition or can be relocated by the qualified biologist out of harm's way. Daily preconstruction surveys of the work area shall also be conducted by a trained worker each morning, prior to the start of construction. A qualified biologist will be on call during the construction work and if special-status amphibians are found, work shall not commence until authorized by the qualified biologist. 			
BIO-3: Minimize Impacts to Nesting Birds via Site Assessments, Surveys, and Avoidance Measures	• If vegetation clearing or ground disturbing activities commence between February 15 and August 31, a qualified biologist will conduct a nesting birds within 2 weeks prior to starting work. If a lapse in Project-related work of 2 weeks or longer occurs, another focused survey will be conducted before Project work can be initiated.	DGS and Project Engineer	During design	Completed: Project Manager
Mitigation Measure Title	Mitigation Measure Description	Implementing Party	Implementation Timing	Verification Sign-off (initials and date)
---	---	-----------------------	--------------------------	--
	 Surveys will cover a minimum of a 0.25-mile radius around the construction area. If nesting birds are found, a buffer will be established around the nest and maintained until the young have fledged. Appropriate buffer widths are 0.25 miles for White-tailed Kite, 300 feet for non-listed raptors and special-status passerines, and 100 feet non-listed passerines. A qualified biologist may identify an alternative buffer based on a site specific-evaluation and in consultation with CDFW. Work will not commence within the buffer until fledglings are fully mobile and no longer reliant upon the nest or parental care for survival. 			
CR-1: Conduct Archaeological Sensitivity Training and Construction Monitoring	Prior to initiation of ground-disturbing activities, construction crews to receive training about the kinds of archaeological materials that could be present within the project site and the protocols to be followed should any such materials be uncovered during construction. Training will be conducted by an archaeologist who meets the U.S. Secretary of Interior's professional standards. A qualified Native American monitor from the Coyote Band of Pomo Indians will be retained to monitor all ground disturbing activities associated with the Project. If any prehistoric or historic-era features, or human remains, are exposed during construction, the monitor will have the authority to stop work in the vicinity of the finds and implement Mitigation Measure CR-2.	RCD	Before construction	Completed: Project Manager

Mitigation Measure	Mitigation Measure Description	Implementing	Implementation	Verification Sign-off
Title		Party	Timing	(initials and date)
CR-2: Immediately halt construction if cultural resources are discovered, evaluate all identified cultural resources for eligibility for inclusion in the NRHP/CRHR, and implement appropriate mitigation measures for eligible resources	If any cultural resources, such as structural features, unusual amounts of bone or shell, flaked or ground stone artifacts, historic-era artifacts, human remains, or architectural remains, are encountered during any project construction activities, work shall be suspended immediately at the location of the find and within a radius of at least 50 feet and the lead agency will be contacted. All cultural resources accidentally uncovered during construction within the Project site shall be evaluated for eligibility for inclusion in the NRHP/CRHR. Resource evaluations will be conducted by individuals who meet the U.S. Secretary of the Interior's professional standards in archaeology, history, or architectural history, as appropriate. If any of the resources meet the eligibility criteria identified in Public Resources Code § 5024.1 or CEQA § 21083.2(g), mitigation measures will be developed and implemented in accordance with CEQA Guidelines § 15126.4(b) before construction resumes. For resources eligible for listing in the NRHP/CRHR that would be rendered ineligible by the effects of project construction, additional mitigation measures will be implemented. Mitigation measures for archaeological resources may include (but are not limited to) avoidance; incorporation of sites within parks, greenspace, or other open space; capping the site; deeding the site into a permanent conservation easement; or data recovery excavation. Mitigation measures for archaeological resources shall be developed in consultation with responsible agencies and, as appropriate, interested parties such as Native American tribes. Implementation of the approved mitigation would be required before resuming any construction activities with potential to affect identified eligible resources at the site.	RCD	During construction	Completed: Project Manager:

Mitigation Measure Title	Mitigation Measure Description	Implementing Party	Implementation Timing	Verification Sign-off (initials and date)
CR-3: Halt Construction Immediately if Human Remains Are Discovered and Implement Applicable Provisions of the California Health and Safety Code	If human remains are discovered during construction activities, the requirements of Section 7050.5 of the California Health and Safety Code shall be followed. Potentially damaging excavation shall halt on the Proposed Project site within a minimum radius of 100 feet of the remains and the Mendocino County Coroner shall be notified. The Coroner is required to examine all discoveries of human remains within 48 hours of receiving notice of a discovery on private or state lands (Health and Safety Code Section 7050.5[b]). If the Coroner determines that the remains are those of a Native American, he or she must contact the NAHC by phone within 24 hours of making that determination (Health and Safety Code Section 7050[c]). In accordance with the provisions of PRC Section 5097.98, the NAHC shall identify a Most Likely Descendent (MLD). The MLD designated by the NAHC shall have at least 48 hours to inspect the site and propose treatment and disposition of the remains and any associated grave goods. The RCD or its designee shall work with the MLD to ensure that the remains are removed to a protected location and treated with dignity and respect.	RCD	During construction	Completed: Project Manager:
TCR-1: Consult with tribes with a traditional and cultural affiliation with the Project area should Native American archaeological materials be discovered during Project construction	If any prehistoric or historic-era Native American archaeological remains are discovered during the course of project construction, in addition to complying with Mitigation Measures CR-1, CR-2 and CR-3, the RCD will consult with the Coyote Valley Band of Pomo Indians and Pinoleville Pomo Nation, who have a traditional and cultural affiliation with the Project area, regarding the status of the discovered resources as a TCR. If the tribe(s) consider the resource to be a TCR and the RCD agrees, the RCD will consult with the tribe about mitigation measures pursuant to PRC Section 21080.3.2.	RCD	During construction	Completed: Project Manager:

Notice of Determination	Appendix D
To: □ Office of Planning and Research U.S. Mail: Street Address: P.O. Box 3044 1400 Tenth St., Rm 1 Sacramento, CA 95812-3044 Sacramento, CA 958 ☑ County Clerk County of: Mendocino Address: 501 Low Gap Road, Room 1020 Ukiah, CA 95482	From: Public Agency: <u>Mendocino County Resource Conse</u> Address: <u>410 Jones Street</u> , <u>Suite C-3</u> Ukiah, CA 95482 13 14 2017-E0009 Recorded at the request of: MENDO CO RESOURCE CONSERVATION DIST 03/27/2017 10:17 AM Fee: <u>\$2266.25</u> Pgs: 1 of 1 OFFICIAL RECORDS Susan M. Ranochak - Clerk-Recorder Mendocino County, CA
SUBJECT: Filing of Notice of Determination in con Resources Code.	npliance with Section 21108 or 21152 of the Public
State Clearinghouse Number (if submitted to State Number (if submitted to St	earinghouse):
Project Title: Forsythe Creek Floodplain Restoration Project	ct
Project Applicant: Mendocino County Resource Conserva	tion District
Project Location (include county): Project is located on F	orsythe Creek beginning 350 feet upstream of the Uva D
Project Description: The project includes floodplain restoration activities along For Russian River, and provides important habitat for California of steelhead. Portions of the creek have experienced severe en the project are to: restore hydrologic functions of the creek fl Creek floodplain and channel with a focus on salmonid habit southern bank of the creek; enhance riparian canopy, and m	orsythe Creek. This creek is a major tributary to the Coastal Chinook salmon and the Central California Coast rosion and floodplain impacts. The purpose and goals of loodplain; enhance the ecologic functions of the Forsythe tat; reduce active erosion processes affecting the maintain existing flood protection and potentially improve
This is to advise that the Mendocino County Resource C (X) Lead Agency or [Conservation District has approved the above Responsible Agency)
described project on <u>March 21, 2017</u> and has mad (date) described project.	le the following determinations regarding the above
 The project [will will will not] have a significant et An Environmental Impact Report was prepared X A Negative Declaration was prepared for this pr Mitigation measures [X were were not] made A mitigation reporting or monitoring plan [X was A statement of Overriding Considerations [was Findings [X were were not] made pursuant to 	ffect on the environment. for this project pursuant to the provisions of CEQA. oject pursuant to the provisions of CEQA. a condition of the approval of the project. was not] adopted for this project. was not] adopted for this project. the provisions of CEQA.
This is to certify that the final EIR with comments and negative Declaration, is available to the General Publ 410 Jones Street, Suite C-3, Ukiah, CA 95482 and http://m	responses and record of project approval, or the lic at: hcrcd.org/

Signature (Public Agency):	Title: EXECUTIVE DIRECTOR
Date: 4/21/17	Date Received for filing at OPR:

Authority cited: Sections 21083, Public Resources Code. Reference Section 21000-21174, Public Resources Code.

Susan M. Ranochak, Clerk-Recorder Mendocino County, CA 501 Low Gap Rd., Room 1020 Ukiah, Ca 95482

Receipt: 17-4328

Product NTDETER2008 #Mite	Name Notice Of Determination #Pages Document # #NegativeDecl gatedNegativeDecl #EIR	Extended \$2,266.25 1 2017-E0009 1 0 0
	ConformedLabels	0
Total Tender (Check) Check#4984 Pard MENDOCOR	ESOURCECONSERVATION	\$2,266.25 \$50.00
By DIST Tender (Check) Check#4985 Paid MENDOCOR By DIST	ESOURCECONSERVATION	\$2,216.25

Thank You!

Mon Mar 27 10:17:08 PDT 2017 michele4