

Russian River-Cotati Intertie Pipeline Seismic Hazard Mitigation

at the

Russian River Crossing Project

Initial Study/Mitigated Negative Declaration

Prepared for

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Acronyms and Abbreviations

APN	Assessor’s Parcel Number
asl	above sea level
BMI	benthic macroinvertebrates
BMP	Best Management Practice
CAL FIRE	California Department of Forestry
CARB	California Air Resources Board
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
CNPS	California Native Plant Society
CO	carbon monoxide
CO ₂	carbon dioxide
CO ₂ e	carbon dioxide equivalent
County	County of Sonoma
CRHR	California Register of Historical Resources
CWA	Clean Water Act
dB	decibel
dBA	A-weighted decibel
dbh	diameter at breast height
DOC	California Department of Conservation
DPS	distinct population segment
EB	east-bound
ESA	Endangered Species Act
F & G Code	Fish and Game Code
FEMA	Federal Emergency Management Agency
FMMP	Farmland Mapping and Monitoring Program
ft	feet
GHG	greenhouse gas

HCP	habitat conservation plan
HRA	health risk assessment
IS/MND	Initial Study/Mitigated Negative Declaration
lb	pounds
L _{dn}	day-night (sound) level
L _{eq}	equivalent sound level
L _{max}	maximum sound level
L _{min}	minimum sound level
LOS	level of service
L _{xx}	percentile-exceeded sound level
mi	miles
MMP	Mitigation Monitoring Plan
mph	miles per hour
MT	metric ton
N ₂ O	nitrous oxide
NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission
NB	north-bound
NCCP	Natural Community Conservation Plan
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NO _x	nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
OEHHA	California Office of Environmental Health Hazard Assessment
OHV	off-highway vehicle
OHWM	ordinary high water mark
PGE	Pacific Gas & Electric
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
ppm	parts per million
proposed project	Russian River-Cotati Intertie Pipeline Seismic Hazard Mitigation at the Russian River Crossing Project
RCRA	Resource Conservation and Recovery Act
ROG	reactive organic gases
ROW	Right-of-way
RWQCB	Regional Water Quality Control Board
SARA	Superfund Amendment and Reauthorization Act
SFBAAB	San Francisco Bay Area Air Basin
SPRP	Spill Prevention and Response Plan
SR	State Route
SVP	Society of Vertebrate Paleontology
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TAC	Toxic Air Contaminants
TCP	Traffic Control Plan
TMDL	Total Maximum Daily Load
tpy	tons per year
USEPA	U.S. Environmental Protection Agency

USFWS	U.S. Fish and Wildlife Service
USCS	Unified Soil Classification System
USGS	U.S. Geological Survey
W:D	width to depth ratio
WB	west-bound
WDRs	Waste Discharge Requirements
$\mu\text{g}/\text{m}^3$	micrograms per cubic meter

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Chapter 1 Introduction

The Sonoma County Water Agency (Water Agency) 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 Russian River-Cotati Intertie Pipeline Seismic Hazard Mitigation at the Russian River Crossing Project (proposed project). This document was prepared pursuant to the requirements of the California Environmental Quality Act (CEQA) of 1970 codified as California Public Resources Code Sections 21000 et. seq., the State CEQA Guidelines in the Code of Regulations, Title 14, Division 6, Chapter 3, and the Water Agency's Procedures for the Implementation of CEQA.

1.1 Introduction

The Water Agency owns, operates, and maintains a 48-inch diameter steel water supply pipeline (referred to as the Russian River-Cotati Intertie) that connects the southern and eastern aqueduct transmission lines and crosses the Russian River in Sonoma County (Figure 1 in Chapter 2). The Russian River-Cotati Intertie provides essential water service to approximately 600,000 residents and businesses within the Water Agency's service area in portions of Sonoma and Marin counties. The Russian River-Cotati Intertie conveys water from wells near the Russian River to customers in the Water Agency's service area. Constructed in 1975 through open-cut trenching methods, the pipeline is buried at a relatively shallow depth (approximately 7 feet below ground surface) across the Russian River channel and streambanks, and crosses seismically unstable terrain. Due to the relatively high probability of a major earthquake in the San Francisco Bay Area in the next 25 years (USGS 2003), it was determined that the Russian River-Cotati Intertie is vulnerable to potential ground deformation, liquefaction and lateral spread of soil around the pipeline. Any damage to the pipelines would result in limiting water supplies for residents and businesses in the Water Agency service area.

1.2 Project Location

The proposed project is located approximately 1,200 feet northeast of the intersection of River Road and Mirabel Avenue near the community of Forestville in unincorporated Sonoma County (Figure 1). The project site encompasses the banks and upland areas on both the north and south sides of the Russian River channel, approximately 0.9 mile downstream (west) from Wohler Road Bridge (project site). As shown in Figure 1, the adjacent land is currently developed with vineyards and unpaved access roads.

1.3 Intent and Scope of this Document

This IS/MND has been prepared in accordance with CEQA, under which the Russian River-Cotati Intertie Pipeline Seismic Hazard Mitigation at the Russian River Crossing Project constitutes a

“project.” The Water Agency, as the lead agency under CEQA, will consider the potential environmental impacts of project activities when it considers whether to approve the 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 project site’s existing conditions and applicable regulatory requirements. This IS/MND also evaluates potential environmental impacts from the proposed project to the following resources:

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

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, the Water Agency 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 project can be sent to:

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1.5 Organization of this Document

This IS/MND document contains the following elements:

Chapter 1, *Introduction*. This chapter provides a brief project introduction, 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 project's purpose and goals, development process, constructed features and elements, project implementation and oversight, avoidance and minimization measures, historical and present land use, conformance with the general plan, 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 Environmental Checklist Form (Checklist) included as Appendix G of the CEQA Guidelines (California Code of Regulations Title, Sections 15000et.seq.). The checklist provides a list of the environmental factors potentially affected by the proposed project based on the environmental impact evaluation; a determination on the proposed project based on the conclusions and recommendations of the environmental evaluation; impact terminology; and a brief environmental setting description for each resource topic and describes the proposed project's potential environmental impacts.

Chapter 4, *List of Preparers*, provides a list of persons involved in preparing this IS/MND

Chapter 5, *References*, provides a bibliography of printed references, web sites, and personal communications used in preparing this IS/MND.

Appendix A 65% Complete Project Designs for the Proposed Project

Appendix B Riparian Habitat Revegetation Plan

Appendix C Mitigation Monitoring Plan (MMP)

Appendix D Air Quality and Greenhouse Gas Emissions Estimates

Appendix E Supporting Information Related to Biological Resources

Appendix F Cultural Resources Survey

Appendix G Noise Impact Calculations

Appendix H Notice of Preparation of Initial Study

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Chapter 2 Project Description

2.1 Project Background

The Sonoma County Water Agency (Water Agency) owns, operates, and maintains a 48-inch diameter steel water supply pipeline (referred to as the Russian River-Cotati Intertie) that provides water from the Water Agency's production facility to southern parts of Sonoma County (**Figure 1**). The Russian River-Cotati Intertie provides essential water service to approximately 600,000 residents and businesses within the Water Agency's service area in portions of Sonoma and Marin counties. The Russian River-Cotati Intertie conveys water from collector wells near the Russian River to customers in the Water Agency's service area. Constructed in 1975 through open-cut trenching methods, the pipeline is buried at a relatively shallow depth (approximately 7 feet below ground surface) across the Russian River channel and streambanks, and crosses seismically unstable terrain.

In 2002, the U.S. Geological Survey-led Working Group on California Earthquake Probabilities determined the probability of a major earthquake in the San Francisco Bay Area in the next 25 years is 62 percent (%), with a 27% chance that one will occur on the Rodger's Creek Fault (USGS 2003). The Rodger's Creek fault is the nearest active fault to the Water Agency's Russian River-Cotati Intertie Pipeline (approximately 9 miles east of the pipeline) (California Department of Conservation 2008). To identify and reduce potential adverse effects of an earthquake in their service area, the Water Agency prepared a Local Hazard Mitigation Plan (LHMP), approved by the Federal Emergency Management Agency (FEMA) on January 23, 2008. The LHMP identifies the Russian River-Cotati Intertie at the Russian River crossing as vulnerable to potential ground deformation, liquefaction, and lateral spread of the soil surrounding the pipeline. The LHMP states that pipeline failure from an earthquake would isolate the Mirabel collector wells from the Russian River-Cotati Intertie Pipeline. As a result, water supplies would be limited for residents and businesses in the Water Agency's service area.

The Water Agency requested hazard mitigation funding from FEMA to conduct seismic upgrades on the pipeline at the Russian River crossing. To comply with federal funding requirements, a National Environmental Policy Act (NEPA) document will be prepared by FEMA. The purpose of this Initial Study/Mitigated Negative Declaration (IS/MND) is to evaluate and fulfill CEQA compliance requirements. FEMA is the lead agency for NEPA compliance and the Water Agency is the lead agency for CEQA compliance.

2.2 Project Objective

The purpose of the proposed project is to reduce potential pipe failure and loss of water supply service resulting from permanent ground deformation caused by a moderate or severe earthquake along the Rodger's Creek. To maintain safe and reliable water service during a seismic event, the proposed project would modify the Russian River-Cotati Intertie to improve its ability to withstand the effects of ground deformation, liquefaction, and lateral spread hazards.

Objectives of the proposed project are to:

- maintain safe and reliable water service to the entire population within Water Agency's service area (over 600,000 people and businesses);
- maintain support for firefighting capability; and
- avoid economic losses to local businesses as a result of pipeline rupture.

2.3 Proposed Project

The proposed project would consist of the following components: (1) abandon and replace sections of the existing underground pipeline on the north and south sides of the Russian River; (2) abandon and replace an underground pipe connection to one of the Mirabel collector wells (referred to as Collector #5); and (3) install supporting components, including one meter vault, approximately three cathodic protection stations and/or corrosion test stations, air valves, and appurtenances.

The proposed project consists of the installation, operation, and maintenance of approximately 1,080 linear feet of two, 48-inch diameter steel pipeline segments, on the north and south sides of the Russian River channel (see **Figure 2**). The new pipeline segments would replace the existing pipeline segments and would be installed parallel to (and within 50 feet of) the existing pipeline and buried 18 to 30 feet deeper than the existing pipeline. The existing pipeline segments would be disconnected, filled with a low strength concrete mixture, and abandoned in place. The northern pipeline segment would be approximately 400 feet long and the southern pipeline segment would be no more than 700 feet long (see Figure 2). The new pipeline segments would tie into the existing 48-inch diameter pipeline that runs beneath the Russian River channel.

In addition, an existing 20-inch diameter pipe connection between Collector #5 and the Russian River-Cotati Intertie would be replaced with a new 328-foot steel pipe (see Figure 2). The existing 20-inch pipeline would be capped, filled with a low strength concrete mixture, and abandoned in place.

Supporting components of the proposed project may include the following (see Figure 2 for locations):

- Installation of a concrete meter vault. The meter vault would be installed adjacent to the existing meter vault, approximately 20 feet west of Collector #5. The concrete meter vault would be approximately 68 square feet (sq. ft.) with a steel plate cover. It would house a 20-inch flow meter and would be installed on the reconfigured pipe connection to Collector #5.
- Installation of cathodic protection stations and/or corrosion test stations. Installation would occur on the northern and southern pipe segments. These stations would allow maintenance personnel to monitor corrosion of the pipelines and ensure they are cathodically protected.
 - For the cathodic protection station, equipment installed would include an anode well, rectifier enclosure, vent piping, underground conduits, and wiring and electrical service. Visible components remaining at each cathodic protection station would

include a pedestal enclosure, vent piping, electrical meter, and an underground valve box. The largest visible component would be the pedestal enclosure above a small concrete pad (approximately 2 feet [ft.] by 2 ft.) used to house a rectifier to send current to the aqueduct and would measure approximately five feet tall, three feet wide, and two feet deep.

- For the corrosion test station, equipment installed would include a post or valve box and underground conduits and wiring. Visible components remaining at each corrosion test station would include a vertical post, measuring approximately 48 inches in height and 6 inches in diameter, or valve box, measuring approximately 12 inches in diameter and installed flush with the surface of the ground. These components would be used to house the corrosion test station.
- Installation of air valves. The air valves would be installed on either side of the butterfly valves to allow air into the pipe when the pipe is evacuated and allow air out of the pipe when the pipe is being filled. The air valves vent would consist of a two to six-inch pipe that would extend above the ground surface.
- Installation of approximately three butterfly valves. The butterfly valves would be installed near pipe junctions. These valves would isolate pipeline segments and minimize the number of system shutdowns.

During project construction, the Russian River-Cotati Intertie would not be able to receive water from the Water Agency's Mirabel Facility, however, the Wohler Facility would continue to provide water to the Cotati Intertie via the Wohler-Forestville pipeline connection located approximately 600 feet south of the project site. Service interruptions are not anticipated during project construction.

2.4 Proposed Project Site

The proposed project is located approximately 1,200 feet northeast of the intersection of River Road and Mirabel Avenue near the community of Forestville in an unincorporated area within Sonoma County (see **Figure 1**). The project site encompasses the banks and upland areas on both sides of the Russian River channel, approximately 0.9 mile downstream (west) from Wohler Road Bridge. The adjacent land is currently developed with vineyards and unpaved access roads. The proposed pipeline would be installed within or adjacent to the Water Agency's fee-owned property that parallels the existing pipeline. The approximate width of the pipeline property is 50 feet. The Water Agency owns and operates its facilities on the north side of the project site which would be used for site access, spoils stockpiling, and staging areas. Areas potentially used for spoils stockpiling and staging would include vineyards, fallow agricultural lands, paved or dirt access roads, and/or disturbed lands with minimal vegetation. On the south side of the Russian River crossing, the Water Agency owns the 50 foot wide property along the pipeline alignment and an access road to the project site.

Construction of the proposed project would affect up to 10.3 acres (448,000 sq. ft.) for work sites, staging areas, and temporary and permanent stockpile locations (**Figure 3**). An approximate 2.5 acre

(108,900 sq. ft.) work area would be established for construction on the north side of the Russian River. On the south side of the Russian River, an approximately 1.9 acre (81,200 sq. ft.) area would be established as the work zone. An additional 4.6 acre (201,300 sq. ft.) area would be needed for temporary spoils stockpiling; and the permanent spoils disposal area would be approximately 1.3 acres (56,700 sq. ft.).

The Water Agency owns the property along the Russian River-Cotati Intertie alignment in addition to the access roads to the project site on the north and south sides of the Russian River. The construction work area on the north side of the Russian River channel would be on Water Agency-owned property within the Mirabel Facility and would include access, staging, and temporary stockpile areas. For the project site on the south side of the Russian River channel, the adjacent property owner is Silverado Sonoma Vineyards, LLC property (see **Table 1**). Subject to the exact alignment of the new pipeline, up to 0.447-acres of land over the new pipeline alignment would be acquired by the Water Agency as permanent right of way.

For the construction period, the Water Agency may secure additional temporary construction easement adjacent to the work site to accommodate the construction work area needed to install the new pipe. In summary, the total construction work area would be up to 150 feet wide along the pipeline alignment; a total of 100 feet of access roads within the vineyard on the south side of the river would be used during project construction. The 150 foot wide construction work area would include the existing Water Agency-owned property over the pipeline, the additional 0.447-acres of additional property for the new pipeline, and 0.944-acres of temporary construction easement area. Temporary staging may also occur on nearby Water Agency-owned property, including the Wohler Facility. The Water Agency's Wohler Facility includes a series of abandoned ponds formerly used for water supply and groundwater infiltration which may be used for equipment staging and spoils disposal.

Table 1. Proposed Project Affected Parcels

Assessor Parcel Number (APN)	Property Owner	Project Component
083-010-049	Water Agency	North side of Russian River; deed in-fee Cotati Intertie property, access, staging, and construction.
110-310-005	Water Agency	North side of Russian River; access, staging, and construction.
110-280-007	Water Agency	North side of Russian River; access, staging, and construction.
083-010-062	Water Agency	South side of Russian River; access, staging, and construction.
083-010-008	Water Agency	South side Russian River; access.
083-010-030	Water Agency	South side Russian River; access.
083-010-057	Silverado Sonoma Vineyards, LLC	South side of Russian River; staging.
083-010-061	Silverado Sonoma Vineyards, LLC	South side of Russian River; staging.
083-010-063	Silverado Sonoma Vineyards, LLC	South side of Russian River; staging.
110-220-003	Water Agency	Equipment Staging and Spoils Disposal site at Wohler Facility.

2.5 Basis for Preferred Project

Location

The Water Agency's Russian River-Cotati Intertie is connected to both the southern and eastern aqueduct transmission lines. This section of the Intertie is located within the "Very High" hazard zone for liquefaction and lateral spread. Modification of the Russian River-Cotati Intertie would lower portions of the pipeline below the top of the gravel layer and would largely eliminate exposure to earthquake-triggered ground displacement. This is a critical location where if the Intertie were to suffer a complete failure in an earthquake, it could potentially result in a reduced level of water service to the entire population served by the Agency - over 600,000 residents and businesses.

Methods

Two construction methods were evaluated for the proposed project. The preferred alternative (proposed project), is open trenching and replacement of the shallower sections of pipe with a deeper pipe constructed below the liquefiable layer. The second alternative construction method is, microtunneling. Microtunneling requires the construction of deep shafts (over 60 feet), pipe jacking (pipes pushed behind the machine), and application of a lubricant to maintain pressure and prevent the deep shafts and the tunnel from collapsing. These pits would be within 20-30 feet of the Water Agency's Collector 5 perforated lateral system. Due to the proximity of the microtunneling pits, there is concern for the potential of operational disruption of Collector 5. Additionally, the deep shafts

would be left in place providing as a potential conduit for contamination to the aquifer. Thus, the second alternative was not chosen due to potential water quality impacts to the aquifer.

No Project Alternative

The No Project alternative would mean that the Russian River Cotati Intertie would not be modified to improve its ability to withstand the effects of an earthquake and the liquefaction and lateral spread hazard resulting from an earthquake along either the San Andreas or Rodger's Creek Fault at the Russian River Crossing.

2.6 Project Implementation

In general, project construction would occur in the following sequence: site clearing, trench construction, pipe installation, and trench backfilling in short segments extending in phases down the length of the pipeline alignment. The existing pipe would be abandoned upon completion of new pipe installation. Site restoration would be conducted last. Construction activities would occur either on one side of the Russian River at a time, or on both sides simultaneously. These project activities are described further in the following sub-sections.

Timing of Work

The duration of project construction would be approximately 16 to 24 months. Ground disturbing construction activities, such as trenching in the riverbanks, would only occur during the low-flow period in the Russian River, between June 15 and October 15. Installation of the pipe and ancillary features would occur in sequence after the trench is shored and secured. Construction activities would occur between 7:00 a.m. and 7:00 p.m. on weekdays. If necessary, construction may occur on some Saturdays between 7:00 a.m. and 7:00 p.m. to minimize service delays and finish the proposed project in a timely manner. The project phases and estimated durations are provided in **Table 2** below.

Table 2. Estimated Construction Schedule

Project Phase	Approximate Construction Duration (months)
First Season	
Mobilization	0.5
Clearing and Grubbing/Site Preparation	0.5
Trenching	2
Pipe Installation (south side of Russian River)	3 (overlaps with trenching)
Backfill/Spoils Disposal	1 (overlaps with pipe installation)
Demobilization and Site Restoration	1
Second Season	
Mobilization	0.5
Clearing and Grubbing/Site Preparation	0.5
Trenching	2
Pipe Installation (north side of Russian River)	3 (overlaps with trenching)
Backfill/Spoils Disposal	1 (overlaps with pipe installation)
Demobilization and Site Restoration	1

Access, Staging, and Construction Areas

Project access, staging, and construction areas are shown in Figure 3. Construction work areas on the north side of the Russian River would be accessed from Westside Road and the Water Agency's private access road that travels south, southeast along the Russian River channel. Access to the south side of the Russian River would be from Wohler Road on the Water Agency's existing access dirt road that traverses west through the vineyard to the Water Agency's property over the existing pipeline.

Staging areas for equipment storage, spoils stockpiling, work office, contractor parking, etc. would be established on Water Agency property, as shown in Figure 3, and within temporary construction easement areas. Two staging areas are proposed: a northern area (approximately 0.7 acre [30,500 sq. ft.]) near the Water Agency's Collector #5, and a southern area (approximately 0.4 acre [15,400 sq. ft.]) on unpaved access roads adjacent to the vineyards. No staging areas would be located in wetland habitat.

Prior to construction, the proposed staging and work areas would be cleared of vegetation. On the south side of the Russian River, vineyard plantings, irrigation systems, trellis systems, and other features of the vineyards outside of the Water Agency's property and the temporary construction easements would be protected in-place during construction.

Construction Personnel and Equipment

Up to approximately twenty (20) workers would be onsite during the construction period. Contractor equipment could include a construction office and equipment trailers; and fuel pumps and fuel

storage tanks, if necessary. Mobile construction equipment used for construction of the proposed project would depend on the selected contractor's planned operations, but may include the following types of equipment:

- trenching equipment
- excavators
- excavator or crane
- scrapers
- bulldozers
- graders
- rollers
- compactors
- vibratory roller
- conveyors
- water trucks
- off-road hauling trucks
- concrete delivery trucks
- sonic pile driver
- front-end loaders
- boom truck
- pickup trucks
- air compressors
- generators
- hydraulic and pneumatic drills
- welding equipment
- pumps and piping
- communications and safety equipment
- miscellaneous equipment customary to the mechanical and electrical crafts, and vehicles used to deliver equipment and materials

Approximately 50 construction equipment deliveries would occur during the project initiation phase.

Open Trenches

Following vegetation removal, including trees and shrubs, and grubbing of the topsoil, excavation of trenches would commence for the new pipeline alignment. Trenches on both the north and south sides of the Russian River would be excavated and constructed to similar specifications. Construction methods for the trenches would either be shored to the entire depth of the excavation allowing a 10 foot wide trench to lay the pipe in, or may be opened to full depth without shoring by sloping and benching at a 2:1 slope to reach the final depth. The total depth of the trench would be up to 45 feet below the ground surface, but would vary depending on the elevation of the existing grade.

Trenches would be excavated in short sections at a time using an excavator, with excavated topsoil and soils sidecast and stockpiled adjacent to the trench. Construction fencing would be placed around the trench to prevent entry overnight. Pipe installation would occur as described in the next section. Following pipe installation, the stockpiled soils would be used to backfill the trench. Disposal of excess spoils are discussed in the *Spoils Management* subsection below.

Pipe Installation

While the existing Russian River-Cotati Intertie is approximately seven feet below ground surface, the new pipeline segments would be installed up to 45 feet below ground surface, roughly at the same elevation of the existing pipeline crossing under the Russian River (see Figure 2). Both the northern and southern pipeline segments would tie into the existing Russian River-Cotati Intertie crossing at the Russian River. The pipe segments would be installed within the open-trench constructed as

described above. Pipe segments may be placed on a low strength concrete mixture buttress. Pipe segments would be lowered one at a time into the trenches and welded to adjacent segments.

Connections between the new pipeline segments and the existing Russian River-Cotati Intertie would be made at four separate locations, two on the northern segment and two on the southern segment. There would be two additional connections between the Collector #5 segment and the northern segment. Connecting the new pipelines to the existing would be achieved by installing angled pipe fittings between the two pipelines. These connections would be installed within open trenches.

Following the horizontal connection between the new and old pipelines, the existing pipeline would be cut, a section would be removed and the remaining section would be capped, filled with a low strength concrete mixture, and abandoned in-place. In general, the new pipelines would be encompassed by 12- to 18-inches of backfill material, that may be a low strength concrete mixture or gravel, as the trench is backfilled.

Additional features installed with the pipes would be covered and secured to prevent tampering.

Groundwater Management

Groundwater is expected to be encountered during trench construction. A dewatering plan would be developed and implemented by the contractor, and approved by applicable regulatory agencies and by the Water Agency. The dewatering plan would describe the types and locations of dewatering facilities, including water exclusion techniques e.g. sheet piles, grouting, and water bags installed along the riverbank. The plan will also include groundwater flow and design calculations required to substantiate the dewatering plan. The dewatering plan would be prepared and signed by a certified hydrogeologist or professional engineer licensed in the state of California. Prior to any excavation below the groundwater level, a dewatering system would be installed and may be operated continuously (24 hours per day). Pumps, piping, drains, and other dewatering equipment would be used for the collection and disposal of groundwater removed from work areas. Because of the permeability of the gravels in the work area and the depth of excavation, dewatering from within the work area would likely require multiple pumping points, using temporary wells or “well points.” Additional sheet piling may be necessary within the isolated area to cut off infiltrating groundwater. Due to the flexibility of installing grout under fixed facilities, jet grouting would be applied around the existing pipe to prevent groundwater intrusion and to stabilize the trench walls. Water from dewatering operations would be discharged in accordance with state, federal, and local water quality standards. The discharge water may be sent to adjacent infiltration ponds within the Mirabel Facility on the north side of the project site through an existing four-inch pipe that traverses the project site. For the south side of the project site, the discharge water would either irrigate the vineyards (with owner’s permission), be infiltrated onsite, tie into the existing 4-inch pipe for discharge to the Mirabel ponds, or discharged to the river downstream from the project site. If discharged to the river, the water would be filtered to remove suspended sediment in compliance with regulatory permit conditions prior to returning it to the river downstream of the project. Once construction is complete, dewatering wells would be abandoned in accordance with local regulations.

Cofferdams

For work near the banks of the Russian River, temporary cofferdams or flow exclusion structures would be constructed surrounding the work areas. The material used would likely be steel sheet piles with grouting (for sections around and below the existing pipes), but may also include sand bags and water bags (rubber bladders) (see **Figure 4**, which shows water bags in use). Whatever material is utilized, the temporary flow exclusion structure would only isolate a small portion of the streambank and would allow continued fish passage around the work area; fish and aquatic life would be excluded from the work area isolated by the exclusion structure. The isolated water would be pumped out of the construction zone and filtered to remove suspended sediment before being discharged in one or more of the following methods: returned to the river channel downstream from the work site, pumped to the Mirabel Facility infiltration ponds, used for irrigation, and/or infiltrated onsite. The water isolated within the flow exclusion structure would be pumped down to a manageable level and if necessary, fish relocation efforts would be conducted as necessary. Fish would be removed using a combination of seines and backpack electrofishers (whichever is most appropriate.) All fish as practical would be removed from the isolated area. Relocated fish would be released back into the river at a downstream location with habitat similar to the removal sites.

Spoils Management

Up to 40,000 cubic yards of spoils would be generated from trench construction. The proposed project would excavate and separately store the top six inches of topsoil that would be replaced after pipe installation. The additional spoils would be sidecast (in 50-350 foot sections at a time) as the trench is constructed, then backfilled in the trenches after pipeline installation. The majority of spoils would be compacted back into the trench. However, approximately 300 cubic yards of spoils may require permanent disposal offsite. The Water Agency's Mirabel Facility would serve as a permanent and temporary stockpiling area for spoils generated on the north side of the Russian River (Figure 3). Excess spoils not reused for trench backfill on the south side of the Russian River would be transported to a permanent existing spoil disposal area within the Water Agency's Wohler Facility for disposal (location shown in Figure 3).

Site Restoration

After construction activities are complete, the Water Agency or its contractor would implement a site revegetation plan. The plan would require replacement of topsoil that was removed during excavation activities, revegetation of disturbed areas with native species, and replacement of vineyards on the south side of the river. Restoration measures in proximity to the river bank would include re-establishing preconstruction contours and drainage patterns, and installing erosion and sedimentation controls, such as hydroseeding with native grass to minimize post-construction erosion. Revegetation of existing riparian habitat disturbed within the work areas would occur as prescribed by the Agency's Riparian Habitat Revegetation Plan. This plan is included in **Appendix B** and details the riparian habitat species list and planting plan, and maintenance and monitoring efforts.

Best Management Practices

Project construction would include a range of environmental commitments, otherwise known as best management practices (BMPs), to avoid adverse effects on people and the environment. BMPs are developed to address anticipated effects from various construction activities and would be implemented pre-construction, during construction, and post-construction, as specified in **Table 3**. These practices and procedures are intended to protect the environment by avoiding potential environmental impacts.

Table 3. Best Management Practices to be Implemented for the Proposed Project

Number	Title	BMP Description
BMP-1	General Impact Avoidance and Minimization- Work Window	<p>A. All ground-disturbing maintenance activities occurring in the channel (i.e., from top-of-bank to top-of-bank) will take place during the low-flow period, between June 15 and October 15. Exceptions may be made for this project with advance approval of RWQCB, CDFG, NMFS, and/or USFWS as appropriate.</p> <p>B. Once the first significant rainfall occurs, all in-channel equipment and/or diversion structures shall be removed. Exposed soils in upland areas will be stabilized via hydroseeding or with erosion control fabric/blankets. Alternatively, runoff may be contained by creating swales and berms shutting off the construction site from the River. Significant rainfall is defined as 0.5 inch of rain in a 24-hour period.</p>
BMP-2	Minimize the Area of Disturbance	<p>A. To minimize impacts to natural resources, soil disturbance will be kept to the minimum footprint necessary to complete the project.</p> <p>B. The contractor shall install temporary construction fencing to protect trees and vegetation at the project site that will not be disturbed.</p> <p>C. During construction and as necessary, the contractor shall provide and maintain fences, barriers, signs, lighted barricades, red lights, watchmen and other safety devices adjacent to and on the project site to prevent accidents and damage to property, the environment, and the public.</p>
BMP-3	Erosion and Sediment Control Measures	<p>A. All soils disturbed or exposed during construction activities shall be seeded and stabilized using erosion control fabric or hydromulch.</p> <p>B. Erosion control fabrics shall 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.</p> <p>C. Erosion control measures shall be installed according to manufacturer’s specifications.</p> <p>D. Appropriate measures include, but are not limited to, the following:</p> <ul style="list-style-type: none"> – Silt Fences – Straw Bale Barriers – Brush or Rock Filters – Storm Drain Inlet Protection – Sediment Traps – Sediment Basins – Erosion Control Blankets and Mats – Straw wattles – Soil Stabilization (i.e., tackified straw with seed, jute or geotextile blankets, broad cast and hydroseeding, etc.)

Number	Title	BMP Description
		<p>E. All temporary construction-related erosion control methods (e.g., silt fences) shall be removed at the completion of construction, or as directed by an erosion control specialist.</p>
BMP-4	Dust Management Controls & Air Quality Protection	<p>A. All disturbed areas, including storage piles, which are not being actively used for construction purposes, shall be effectively stabilized for dust emissions, using water or a chemical stabilizer/suppressant, or by covering with a tarp or other suitable cover or a vegetative ground cover.</p> <p>B. All on-site unpaved roads and off-site unpaved access roads shall be effectively stabilized for dust emissions by using water or a chemical stabilizer/suppressant.</p> <p>C. All land-clearing, grubbing, scraping, excavation, leveling, grading, cut-and-fill, and demolition activities shall be effectively controlled for fugitive dust emissions by applications of water or by presoaking.</p> <p>D. When materials are transported off-site, all material shall be covered or effectively wetted to limit visible dust emissions, and at least 6 inches of freeboard space from the top of the container shall be maintained.</p> <p>E. All construction-related operations shall limit or expeditiously remove the accumulation of mud or dirt from adjacent public streets at the end of each workday. Note that the use of dry rotary brushes is expressly prohibited except where preceded or accompanied by sufficient wetting to limit the visible dust emissions. The use of blower devices is expressly forbidden.</p> <p>F. Following the addition of materials to, or the removal of materials from, the surface of outdoor storage piles, the piles shall be effectively stabilized of fugitive dust emissions through treatment with sufficient water or a chemical stabilizer/ suppressant.</p> <p>G. Dirt tracked out shall be removed immediately when it extends 50 or more feet from the site, and also shall be removed at the end of each workday.</p>
BMP-5	Staging and Stockpiling of Materials	<p>A. To the extent feasible, staging shall occur in disturbed areas that are already compacted and only support ruderal vegetation.</p> <p>B. Stockpiling of materials, including portable equipment, vehicles and supplies (e.g., chemicals), shall be restricted to the designated construction staging areas.</p> <p>C. No runoff from the staging areas shall be allowed to enter water ways without being subjected to adequate filtration (e.g., vegetated buffer, hay wattles or bales, silt screens).</p> <p>D. During the dry season, if stockpiled soils will remain exposed and unworked for more than 7 days then erosion control measures will be utilized. During the wet season, no stockpiled soils will remain exposed, unless surrounded by properly installed and maintained silt fencing or other means of erosion control.</p>
BMP-6	On-Site Hazardous Materials Management	<p>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 shall be maintained by the worksite manager.</p> <p>B. As appropriate, containers shall be properly labeled with a “Hazardous Waste” label and hazardous waste shall be recycled properly or disposed of off-site.</p>

Number	Title	BMP Description
		<ul style="list-style-type: none"> C. Contact of chemicals with precipitation shall 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 shall not contact soil and not be allowed to enter surface waters or the storm drainage system. E. All toxic materials, including waste disposal containers, shall 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. F. All trash that is brought to a project site during construction and maintenance activities (e.g., plastic water bottles, plastic lunch bags, cigarettes) shall be removed from the site daily.
BMP-7	Existing Hazardous Materials	If hazardous materials, such as oil, batteries or paint cans, are encountered at the project site, the Water Agency’s contractor(s) shall carefully remove and dispose of them according to the <i>Spill Prevention and Response Plan</i> (developed by the Contractor and approved by Water Agency).
BMP-8	Spill Prevention and Response	<p>The Water Agency’s contractor(s) shall prevent the accidental release of chemicals, fuels, lubricants, and non-storm drainage water into channels following these measures:</p> <ul style="list-style-type: none"> A. All field personnel shall 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 shall 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 Water Agency). C. Field personnel shall ensure that hazardous materials are properly handled and natural resources are protected by all reasonable means. D. Spill prevention kits shall always be in close proximity when using hazardous materials (e.g., at crew trucks and other logical locations). All field personnel shall be advised of these locations. E. Water Agency staff shall routinely inspect the work site to verify that spill prevention and response measures are properly implemented and maintained. <p><i>Spill Response Measures</i> For small spills on impervious surfaces, absorbent materials shall be used to remove the spill, rather than hosing it down with water. For small spills on pervious surfaces such as soil, the spill shall be excavated and properly disposed rather than burying it. Absorbent materials shall be collected and disposed of properly and promptly.</p>

Number	Title	BMP Description
BMP-9	Vehicle and Equipment Maintenance	<ul style="list-style-type: none"> A. All vehicles and equipment shall be kept clean. Excessive build-up of oil and grease shall not be allowed. B. All equipment used shall be inspected for leaks each day prior to initiation of work. Action shall be taken to prevent or repair leaks, prior to use. C. Incoming equipment shall be checked for leaking oil and fluids. Leaking equipment will not be allowed onsite. D. No equipment servicing shall be done in proximity to water bodies, unless equipment stationed in these locations cannot be readily relocated (i.e., pumps and generators). E. If necessary, all servicing of equipment done at the job site shall be conducted in a designated, protected area to reduce threats to water quality from vehicle fluid spills. Designated areas shall not directly connect to the ground, surface water, or the storm drain system. The service area shall be clearly designated with berms, sandbags, or other barriers. Secondary containment, such as a drain pan, to catch spills or leaks shall be used when removing or changing fluids. Fluids shall be stored in appropriate containers with covers, and properly recycled or disposed of offsite. F. If emergency repairs are required in the field, only those repairs necessary to move equipment to a more secure location shall be conducted in the channel or floodplain. G. Equipment shall be cleaned of any sediment or vegetation before entering the work area to avoid spreading pathogens or exotic/invasive species. H. Vehicle and equipment washing shall occur onsite only as needed to prevent the spread of sediment, pathogens or exotic/invasive species. No runoff from vehicle or equipment washing shall be 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).
BMP-10	Vehicle and Equipment Fueling	<ul style="list-style-type: none"> A. No fueling shall be done in the channel (top-of-bank to top-of-bank) unless equipment stationed in these locations cannot be readily relocated (e.g., pumps and generators). B. For stationary equipment, secondary containment, such as a drain pan or drop cloth, shall be used to prevent accidental spills of fuels from reaching the soil, surface water, or the storm drain system. C. All non-stationary equipment fueling shall be done in staging areas equipped with secondary containment and avoid a direct connection to soil, surface water, or the storm drainage system.
BMP-11	Dewatering Pump/Generator Operations and Maintenance	<p>When needed to assist in trench dewatering, pumps and generators shall be maintained and operated in a manner that minimizes impacts to water quality.</p> <ul style="list-style-type: none"> A. Pumps and generators shall be maintained according to manufacturers' specifications to regulate flows to prevent dryback or washout conditions. B. Pumps shall be operated and monitored daily. C. Pumping generators shall be placed in a temporary containment structure (plastic basin, plastic-lined pit, etc.) designed to contain accidental hydrocarbon (gasoline, diesel, hydraulic fluid) spills.

Number	Title	BMP Description
		<ul style="list-style-type: none"> D. When pumping is necessary to dewater the work site, use of a temporary siltation basin and/or silt bags shall be required to prevent sediment from re-entering the wetted channel. E. Dewatering shall comply with applicable requirements of the RWQCB, North Coast Region. F. No runoff from the construction or staging areas shall be allowed to enter waters of the State without being subjected to adequate filtration (e.g., vegetated buffer, hay wattles or bales, silt screens). The discharge of decant water from any on-site temporary sediment stockpile or storage areas, to waters of the State, including surface waters or surface water drainage courses, outside of the active project site, is prohibited. G. Once river flow is diverted to isolate the work area, water from within the isolated work area shall be pumped out of the construction zone and into the Water Agency’s existing infiltration ponds west of the Russian River.
BMP-12	Biological Resource Protection Impact Avoidance and Minimization During Dewatering	<ul style="list-style-type: none"> A. A species relocation plan (BMP-13) shall be implemented as a reasonable best effort to ensure that native fish and other native aquatic vertebrates and macroinvertebrates are not stranded. B. Instream cofferdams or flow exclusion structures shall only be built from materials such as sheet piles, sandbags, clean gravel, or water bags (rubber bladders) which will cause little or no siltation or turbidity. Visqueen shall be placed over sandbags to minimize water seepage into the maintenance areas. The visqueen shall be firmly anchored to the streambed to minimize water seepage. If necessary, the footing of the dam shall be keyed into the channel bed at an appropriate depth to capture the majority of subsurface flow needed to dewater the streambed. C. If necessary, discharged water shall pass over an energy dissipater to keep erosion of the downstream channel to a minimum. Silt bags shall be equipped to the end of discharge hoses and pipes to filter sediment from discharged water. D. Filtration devices or settling basins shall be provided as necessary to ensure that the turbidity of discharged water 100 feet downstream of the work site is not visibly more turbid than in the channel upstream of the construction site. If increases in turbidity are observed, additional measures shall be implemented such as a larger settling basin or additional filtration. If increases in turbidity persist, turbidity measurements (visual or instrumental) shall be taken on a regular (i.e., at least daily) basis up- and downstream of the cofferdam or flow exclusion enclosure. Data recorded shall be compared against RWQCB Basin Plan water quality standards. If Basin Plan standards are being exceeded based on recorded increases in turbidity between upstream and downstream measurements, additional measures shall be installed and monitored to ensure Basin Plan standards are met. E. When construction is completed, the flow exclusion structure shall be removed as soon as possible. Impounded water shall be released at a reduced velocity to minimize erosion, turbidity, or harm to fish or amphibians downstream. F. The area disturbed by flow bypass mechanisms shall be restored upon completion of the project. This may include, but is not limited to, recontouring the area and planting of riparian vegetation as appropriate.

Number	Title	BMP Description
BMP-13	Fish and Amphibian Species Relocation Plan for Dewatering	<p>A. All fish relocation conducted in the Russian River shall comply with the following conditions. This measure shall also apply to relocation of other special status species aquatic species (i.e., foothill yellow-legged frog and western pond turtle), and native aquatic species that could be relocated.</p> <ul style="list-style-type: none"> – retain a qualified biologist with expertise in anadromous salmonid biology; – the biologist shall be onsite during all dewatering events; – all captured salmonids shall be properly cared for according to NMFS guidelines; – if any salmonids are found dead or injured, the Santa Rosa Area NMFS office shall be contacted immediately; and – NMFS staff or persons designated by NMFS shall be allowed on-site during dewatering activities. <p>B. Prior to and during dewatering activities, native fish, tadpoles, and other vertebrates shall be excluded from the work area by blocking the stream channel above and below the work area with fine-meshed net or screens. The bottom of the screens will be completely secured to the channel bed. Exclusion screening will be placed in areas of low water velocity to minimize fish impingement. Screens will be checked periodically and cleaned of debris to permit free flow of water.</p> <p>C. The most efficient means for capturing fish shall be determined and implemented based on site conditions. Complex stream habitat generally requires the use of electrofishing equipment, whereas in deep pools, fish may be concentrated by pumping-down the pool and then removing the fish by seining or dipnetting. Ample time shall be scheduled to allow for a reasonable fish removal effort to be conducted.</p> <p>D. Ample time will be provided to adequately complete fish relocation efforts (two days minimum) prior to the start of maintenance activities. This provides the biologist an opportunity to return to the work area and perform additional electrofishing passes immediately prior to construction activities.</p> <p>E. All native captured fish shall be allowed to recover from electrofishing before being returned to the stream.</p> <p>F. During dewatering, a qualified biologist shall direct and monitor activities as necessary to net and rescue any additional fish and/or amphibians that may have become stranded during the dewatering process.</p> <p>G. Prior to capturing fish and/or amphibians, the most appropriate release location(s) shall be identified and used. The following issues shall be considered when selecting release site(s):</p> <ul style="list-style-type: none"> – proximity to the project site; – similar water temperature as capture location; – ample habitat availability prior to release of captured fish; – presence of other same species so that relocation of new individuals will not upset the existing prey/predation function; – low potential for relocated individual to transport disease; and – low likelihood of fish reentering work site or becoming impinged on exclusion net or screen.

Number	Title	BMP Description
BMP-14	Work Site Housekeeping	<p>A. The Water Agency’s contractors shall 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. shall be removed to clear the site of vegetation debris. As needed, paved access roads and trails shall be swept and cleared of any residual vegetation or dirt resulting from the maintenance activity. All lunch trash shall be disposed of properly.</p> <p>B. Materials or equipment left on the site overnight shall be stored as inconspicuously as possible, and will be neatly arranged.</p>
BMP-15	Implement Vibration-Reducing Measures	<p>The Water Agency shall implement the following practices during construction activities to minimize vibration-related impacts on local sensitive receptors:</p> <ul style="list-style-type: none"> A. Prohibit use of impact pile driving equipment; B. Ensure proper tuning of vibratory equipment; C. Use vibration damping devices to the extent feasible; D. Limit use of vibratory equipment to daytime hours (7 a.m. to 7 p.m.) on weekdays and Saturdays; E. Operate earth-moving equipment as far away as possible from vibration-sensitive receptors; F. Limit use of vibratory equipment to the extent feasible; and G. Do not overlap the use of the greatest vibratory construction equipment (e.g., vibratory roller and sonic pile driver).

2.7 Project Operation and Maintenance

Once construction is complete, the new pipeline would be flushed, tested, and brought online upon inspections and operational approval from the California Department of Public Health (CDPH.) No vegetation maintenance of the pipeline and associated facilities would be required. Operation of the proposed project would not increase energy use (i.e. require additional pumping).

2.8 Land Use and Conformance with General Plan

Historical and Present Land Use

The Water Agency has owned the subject property since the 1970s and has constructed and operated the Mirabel Collector Wells and ancillary facilities (infiltration ponds, rubber dam and diversion facilities) since that time. Fishing, swimming, and sunbathing have been frequent recreational activities in the project area along the Russian River. Although dedicated and signed public access to the Mirabel Facility is not provided, people frequently utilize the Water Agency's service roads for walking. The Russian River itself is also heavily utilized as a recreational access through the project area.

Conformance with the General Plan

The project area is subject to the land use policies and designations adopted in the Sonoma County General Plan (General Plan). The General Plan designates the project area as Resources and Rural Development (LIA) at a specified density of 20 acres per unit. The proposed project would not alter the Water Agency's existing operations in the Mirabel Facility and surrounding area. The proposed project would not limit or restrict any existing activities that occur in the project area.

2.9 Jurisdictional Permitting Agencies

The following public entities and agencies may require review of the proposed project or have jurisdiction over the project area. In addition, the project must conform to the policies and standards established in the current Sonoma County General Plan, which is relevant to all resource topics analyzed under CEQA.

- United States Army Corps of Engineers (USACE)
- National Marine Fisheries Service (NMFS)
- United States Fish and Wildlife Service (USFWS)
- California Department of Fish and Wildlife (CDFW)
- California Regional Water Quality Control Board, North Coast Region (RWQCB)
- California State Water Resources Control Board (SWRCB)
- Sonoma County Permit and Resources Management Department (PRMD)



**Russian River Crossing
Project Location
Sonoma County, CA**

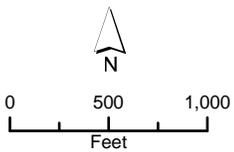
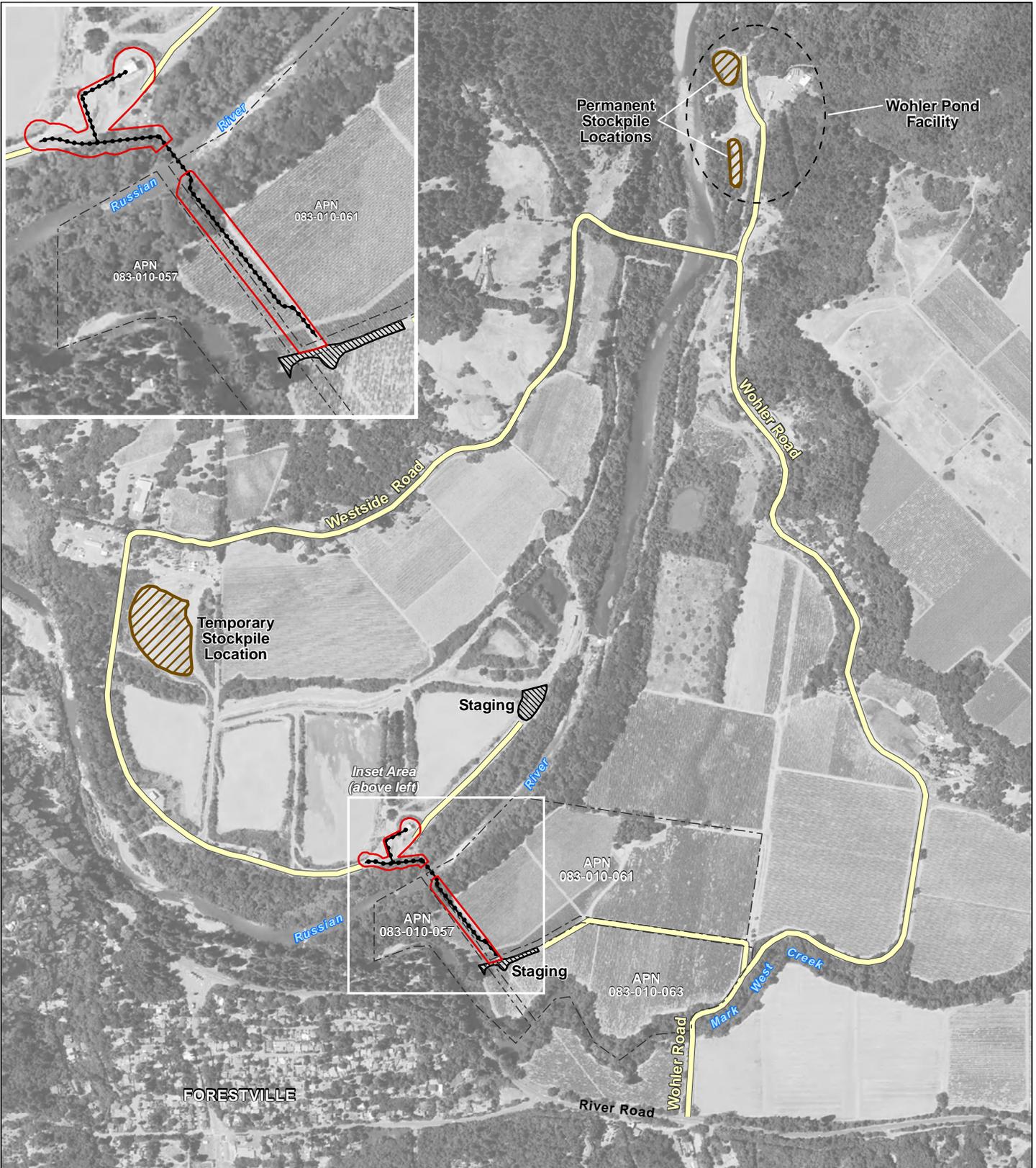
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**Figure
1**



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-  Project Work Site
-  Staging Area
-  Stockpile Location
-  Parcel Boundaries (with APNs)
-  Proposed Pipeline
-  Site Access Routes

Figure 3
Proposed Pipelines, Access, Staging, and Stockpile Areas

Russian River-Cotati Intertie Pipeline Seismic Hazard Mitigation at the Russian River Crossing Project



Source: SCWA 2012

Example of the installation of water-filled bags as a temporary cofferdam.

Figure 4:
Example of a Temporary Water Bag Flow Exclusion Structure

Chapter 3 Environmental Checklist

- | | |
|--|--|
| 1. Project Title | Russian River-Cotati Intertie Pipeline Seismic Hazard Mitigation at the Russian River Crossing Project |
| 2. Lead Agency Name and Address | Sonoma County Water Agency
404 Aviation Boulevard
Santa Rosa, CA 95403-9019 |
| 3. Contact Person, Phone Number and Email | Connie Barton
Senior Environmental Specialist
(707) 547-1905
connie.barton@scwa.ca.gov |
| 4. Project Location and APN | Russian River-Cotati Intertie Pipeline Seismic Hazard Mitigation at the Russian River Crossing Project, approximately 1,080 feet northeast of the intersection of River Road and Mirabel Avenue near the community of Forestville in unincorporated Sonoma County |
| 5. Property Owner | Water Agency: APNs 083-010-049, 110-310-005, 110-280-007, 083-010-062, 083-010-008, 083-010-057, 110-220-003

Silverado Sonoma Vineyards, LLC: APNs 083-010-057, 083-010-061, 083-010-063 |
| 6. General Plan Designation | Resources and Rural Development and Land Intensive Agriculture |
| 7. Zoning | Floodway Combining District (F1), Floodplain Combining District (F2), Riparian Corridor Combining Zone (RC), Valley Oak Habitat Combining District (VOH), Scenic Resources Combining District (SR) |
| 8. Description of Project | See Chapter 2, <i>Project Description</i> . |
| 9. Surrounding Land Uses and Setting | The adjacent land is currently developed with vineyards and unpaved access roads. |
| 10. Other Public Agencies whose Approval or Input May Be Needed | <ul style="list-style-type: none"> ▪ U.S. Army Corps of Engineers-San Francisco District ▪ North Coast Regional Water Quality Control Board ▪ California Department of Fish and Wildlife-Bay Delta Region ▪ U.S. Fish and Wildlife Service ▪ National Marine Fisheries Service ▪ Sonoma County Permit & Resource Management Department |

This chapter of the IS/MND assesses the proposed project's environmental impacts based on the Environmental Checklist Form included as Appendix G of the CEQA Guidelines (California Code of Regulations title 14, section 15000 et seq.). 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 proposed project's environmental impact for each checklist question.

Resources reviewed for relevant information are cited as applicable.

Environmental Factors Potentially Affected

The environmental factors checked below would potentially be affected by the proposed project, as indicated by the checklist on the following pages.

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

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 County Environmental Resource Maps, the other 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 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 project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.
- I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.
- I find that the proposed project MAY have a “potentially significant impact” or “potentially significant unless mitigated” impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.
- I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier 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: _____
Sonoma County Water Agency

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, or if the impact does not apply to the project.
- 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 project impacts. The State CEQA Guidelines (14 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.

Environmental Impact Evaluation

3.1 AESTHETICS. Would the project:				
	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Have a significant adverse effect on a scenic vista?			X	
<p>The proposed project site is located approximately 1,200 feet northeast of the intersection of River Road and Mirabel Avenue, near the community of Forestville in Sonoma County. The project site is located on both sides of the Russian River and its riparian corridor, adjacent to land currently developed with vineyards and unpaved access roads. The project site occurs within a relatively flat valley bordering the Russian River that continues south and east through mountain ranges. Westside Road is at the foothills of Mount Jackson, which is part of the mountain range to the north of the project site. To the south and east of the project vicinity, the valley continues with agricultural and rural development uses. The project site includes vineyards, paved and unpaved roads, and previously disturbed lands with minimal vegetation. Zoning uses for parcels within the project site include a Scenic Resources Combining District, which has a purpose to preserve the visual character and scenic resources of lands in the County of Sonoma (County).</p> <p>Sonoma County does not have designated scenic vistas but has established three types of scenic resources that signify particularly important areas of the County that warrant protection: scenic landscape units, community separators, and scenic corridors (Sonoma County Permit and Resource Management Department 2013). The nearest scenic resource to the project site is the area along River Road, which is both a County-designated scenic landscape unit and County-designated scenic corridor. Specifically, scenic landscape units along the road include all areas south of River Road near its intersection with Wohler Road continuing east to Highway 101 and some areas north of River Road but only between Laguna Road and Highway 101. This area includes a variety of landscapes, such as valleys planted in vineyards, orchard-covered hillsides, and redwood groves adjacent to the Russian River (Sonoma County Permit and Resource Management Department 2013). There are no other designated scenic vistas or scenic resources in the immediate project vicinity or within the project site (Sonoma County Permit and Resource Management Department 2014, Sonoma County Permit and Resource Management Department 2015).</p> <p>Views from vehicles and residences along Westside Road and Wohler Road are similar to those from River Road and include vineyards, vegetated hillsides, and the Russian River riparian corridor. The proposed project’s construction activities, including staging areas and/or temporary spoils disposal areas, may be visible by motorists or residences along River Road, Wohler Road, and/or Westside Road. Potential visual effects on these receptors related to the proposed project’s construction activities, including potential ground-disturbing or vegetation removal activities, would be temporary and limited to the construction period of 16 to 24 months. In addition, vegetation along River Road, Westside Road, and Wohler Road would further limit views of the project site.</p>				

<p>Implementation of BMP-2 (Minimize the Area of Disturbance) and BMP-5 (Staging and Stockpiling of Materials), would reduce the potential for long-term visual impacts by minimizing the potential area of disturbance during construction activities, protecting existing vegetation (including trees) where feasible, implementing erosion-control measures, and staging in previously-disturbed areas. Additionally, the project’s permanent elements would be largely located underground or flush with the ground, with exception to a few features (a pedestal enclosure for the cathodic protection station and a vertical post for a corrosion test station) that would be less than six feet high located on Water Agency property and unlikely to be highly visible due to the roadways’ surrounding vegetation, the short-term views of traveling motorists, and distance from sensitive receptors.</p> <p>As a result of the project’s location in an agricultural area, temporary nature of construction activities, minimal above-ground permanent features, and implementation of BMPs (BMP-2 and BMP-5) described in the <i>Project Description</i>, the proposed project would have a less-than-significant impact on scenic vistas.</p>				
b.	Substantially damage or destroy scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?			X
<p>There are no scenic highways within the project site or surrounding area (California Department of Transportation 2015). The nearest scenic highway is Route 116, approximately 1.5 miles south of the project site and County-designated scenic design features associated with the highway only extend as far north as immediately south of River Road (outside of the project site). Therefore, the proposed project would have no impact on scenic resources within a state scenic highway.</p>				
c.	Substantially degrade the existing visual character or quality of the site and its surroundings?		X	
<p>The existing visual character around the project site is rural, agricultural with views of the riparian corridor along the Russian River, as discussed above in Impact 3.1.a. The majority of construction activities would occur approximately 250 feet away from the nearest sensitive receptors, which are vacationists at the Mirabel RV Park & Campground staying from March to October. The project sites and project-related activities may be visible to motorists and bicyclists using River, Wohler, and Westside roads.</p> <p>The proposed project consists of the installation of underground pipelines that may result in temporary soil disturbance and tree removal, which could potentially affect the existing visual character of the site or its surroundings. However, after construction activities are complete, the proposed project would restore the topography of disturbed areas to their pre-construction conditions, as is feasible. This includes replacing topsoil that was removed, restoring contours and drainage patterns, and revegetating with grass. Although some trees/vegetation may be removed from the Russian River corridor, as previously discussed in Section 2, Spoils Management, the implementation of the Riparian Habitat Revegetation Plan would restore quantity of trees and vegetation removed would not substantially degrade the visual character</p>				

<p>or quality of the site or its surroundings. Furthermore, implementation of BMP-2 (Minimize the Area of Disturbance), BMP-5 (Staging and Stockpiling of Materials), and BMP-14 (Work Site Housekeeping) would reduce the potential for temporary and long-term visual impacts by minimizing the potential area of disturbance during construction activities, protecting existing vegetation (including trees) where feasible, implementing erosion-control measures, staging in previously-disturbed areas, and maintaining the work site in neat and orderly conditions throughout construction and at project completion. Therefore, the proposed project would have a less-than-significant impact on the existing visual character or quality of the site and its surroundings.</p>				
<p>d. Create a new source of significant light or glare that would adversely affect day or nighttime views in the area?</p>			<p>X</p>	
<p>Construction work on the proposed project would generally occur between 7:00am and 7:00pm, Monday through Friday, and may occur during similar daylight hours on Saturdays. Lighting may be required during the construction phase of the project. Dewatering activities may require 24-hour pumping to keep the work area adequately dewatered. If 24-hour pumping is required, an operator would be required on site at all times to maintain the pumping equipment, or available on short notice after receiving a remote alarm. For safety purposes, portable lighting would be brought in to light the work area during nighttime hours. All lighting would be removed at the completion of construction. Localized lighting of the work site would be made available for the safety of employees accessing the site after dark. Because of the limited views of the site from other properties, proposed site lighting is not anticipated to result in any new or significant sources of light or glare. The proposed project is expected to have a less-than-significant impact on the community as a result of light pollution.</p>				

3.2 AGRICULTURAL AND FOREST RESOURCES. Would the project:				
	Potentially Significant Impacts	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?			X	
<p>While the majority of the proposed project is not located in a designated prime farmland, unique farmland, or farmland of statewide importance (Farmland) area but in areas considered “Other Land,” the proposed project’s staging area and/or construction area south of the Russian River may occur within or immediately adjacent to farmland of local importance or prime farmland (California Department of Conservation 2014). These farmland areas within or adjacent to the project site are being used for vineyards. The Other Land designation indicates areas of low density rural developments, and/or brush, timber, wetlands and riparian areas not suitable for livestock grazing.</p> <p>The proposed project’s construction activities and staging may temporarily (0.944-acres TCE) (up to 24 months) affect the use of Farmland as these areas would be cleared of vegetation and would potentially remove topsoil to allow for the pipeline construction. However, as described in Chapter 2, Project Description, prior to construction, vineyard plantings, irrigation systems, trellis systems, and other features of the vineyards outside of the Water Agency’s property and the temporary construction easements would be protected in-place during construction. In addition, following construction, site restoration activities would include restoring disturbed areas to their pre-construction conditions, replacing any removed topsoil, re-establishing preconstruction contours and drainage patterns, and revegetating the disturbed areas to minimize erosion.</p> <p>The proposed project would include acquisition of 0.447-acres of land. Of that acquisition, only 0.359 acre of land is considered prime farmland on parcel APN 083-010-061. The proposed project meets Government Code Section 51292 whereas the project location is not based on a consideration of the lower cost of acquiring land in an agricultural preserve and there is no other land within or outside the preserve on which it is reasonably feasible to locate the public improvement. The proposed project would represent less than one percent loss of prime soils on the 40.31-acre parcel. Considering the size of the parcel and the amount of preserve land remaining, the conversion would not affect the economic viability of the parcel. Therefore, this marginal loss would have a less than significant effect on agricultural land productivity and it would not conflict with agricultural operations to a significant extent. Therefore, this impact would be less than significant.</p>				

<p>b. Conflict with existing zoning for agricultural use, or a Williamson Act contract?</p>			<p>X</p>	
<p>Parcels within the project site are designated as Floodway Combining District (F1), Floodplain Combining District (F2), Riparian Corridor Combining Zone (RC), Valley Oak Habitat Combining District (VOH), Scenic Resources Combining District (SR) (Sonoma County Permit and Resource Management Department 2015a, 2015b, 2015c). All of these zoning designations allow for agricultural use (Sonoma County 2015). There are Williamson Act contract lands immediately south of the Russian River within and adjacent to the project site (Sonoma County Permit and Resource Management Department 2015d).</p> <p>The proposed project’s construction activities may temporarily affect agricultural uses (vineyards) south of the Russian River within the approximately 1.86 acre work zone. As described in Impact 3.2.a above, the majority of potential disruptions to agricultural uses within these construction areas would be temporary (limited to the potential 24-month construction period). Furthermore, vineyard plantings, irrigation systems, trellis systems, and other features of the vineyards outside of the Water Agency’s property and the temporary construction easements would be protected in-place during construction.</p> <p>The proposed project would represent less than one percent loss of prime soils on the 40.31-acre parcel. Considering the size of the parcel and the amount of preserve land remaining, the conversion would not affect the economic viability of the parcel. Therefore, this marginal loss would have a less than significant effect on agricultural land productivity and it would not conflict with existing zoning for agricultural operations to a significant extent. Therefore, the proposed project would have a less-than-significant impact.</p>				
<p>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))?</p>				<p>X</p>
<p>The 12.8-acre project site is not designated as forest land or timberland; it is designated as Resources and Rural Development and Land Intensive Agriculture (Sonoma County 2012). However, the Resources and Rural Development land use allows for the management of lands and forests for commercial production and harvesting of trees and timber management activities. In addition, the zoned uses at the project site generally allow for at least minor timberland conversions or timber operations. Although the proposed project may include tree removal, it would not conflict with any existing zoning for forestland or timberland uses, and would allow for the potential future use of forest or timber production in areas outside of the Water Agency’s permanent easement. Therefore, the proposed project would have no impact.</p>				

<p>d. Result in the loss of forest land or conversion of forest land to non-forest use?</p>				<p>X</p>
<p>The proposed project lies within land currently developed with vineyards, unpaved access roads, and the Russian River riparian corridor. Although the proposed project may result in the removal of riparian vegetation (trees and shrubs), it would not result in the loss of forest land or conversion of forest land to non-forest use. No impact would occur.</p>				
<p>e. Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?</p>			<p>X</p>	
<p>The proposed project would be located adjacent to and within farmland areas but not within forestland areas. Temporary construction-related disturbances and acquisition of farmland described above in Impact 3.2.a, would result in a negligible change and would not affect the economic viability of the parcel. Furthermore, the proposed project would not result in growth inducing or cumulative impacts to the loss of farmland. Operation of the proposed project would require similar maintenance activities to those currently being performed. The proposed project’s replacement of this section of the Russian River-Cotati Intertie Pipeline is to provide seismic upgrades and reduce the potential of pipe failure resulting from permanent ground deformation caused by a moderate or severe earthquake and would not result in growth inducing impacts. Therefore, this impact would be less than significant.</p>				

3.3 AIR QUALITY. Would the project:				
	Potentially Significant Impacts	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Conflict with or obstruct implementation of the applicable air quality plan?				X
<p>The proposed project is located in the North Coast Air Basin within the jurisdiction of the Northern Sonoma County Air Pollution Control District (NSCAPCD). The North Coast Air Basin includes the counties of Del Norte, Trinity, Humboldt, Mendocino, and the northern region of Sonoma County. The NSCAPCD has jurisdiction over the northern and coastal regions of Sonoma County, including multiple communities (Forestville and nine others) and the cities of Healdsburg and Cloverdale (NSCAPCD 2015). The NSCAPCD is the regulatory agency responsible for assuring that national and state ambient air quality standards are attained and maintained in the Sonoma County region of the North Coast Air Basin.</p> <p>The proposed project would not conflict with or impair implementation of applicable air quality plans established by the NSCAPCD or local general plans. Since northern Sonoma County is in attainment for all criteria pollutants, there are no applicable NSCAPCD-prepared air quality plans (Pers. Comm. M. Palmer 2015). The Sonoma County General Plan’s Open Space & Resource Conservation Element includes an Air Resources section with a goal to preserve and maintain good air quality and provide for an air quality standard that will protect human health and preclude crop, plant, and property damage in accordance with the requirements of the Federal and State Clean Air Acts. Specific objectives related to this goal include minimize air pollution and greenhouse gas emissions, and encourage reduced motor vehicle use as a means of reducing resultant air pollution. Implementation of the proposed project’s BMP-4 (Dust Management Controls & Air Quality Protection) would minimize the potential for dust-related air quality pollutants. In addition, the proposed project would not generate new operational-related worker trips and would minimize construction-related vehicle use by positioning staging areas and the temporary stockpile areas relatively close to the project’s construction site. Therefore, the proposed project would not conflict with an applicable air quality plan and would have no impact.</p>				
b. Violate any air quality standard or contribute significantly to an existing or projected air quality violation?			X	
<p>As described in Impact 3.3a, the Northern Sonoma County region of the North Coast Air Basin is in attainment for all state and federal criteria air pollutant standards (USEPA 2015, CARB 2015, Pers. Comm. M. Palmer 2015). In addition, the NSCAPCD has not developed CEQA significance thresholds because the region is in attainment and the Northern Sonoma county emissions are relatively low since this region is largely undeveloped.</p> <p>The emissions associated with construction activities for the proposed project are shown in Table 4, below. These emissions were estimated using the Sacramento Air Quality Management</p>				

District’s Road Construction Emissions Model, Version 7.1.5.1, which estimates emissions from linear construction projects (such as road improvements). The proposed project is a pipeline replacement project, which primarily has linear construction activities. While exact equipment is not known, typical equipment used for pipeline projects was used in emission estimates considering the project’s estimated 20 workers, and the equipment was generally limited to less than 20 pieces of mobile, hand-held construction equipment, or stationary equipment. The modeling result details are provided in **Appendix D**. It was assumed that there would largely be three phases of construction that combined the specific phases identified in the Project Description’s Table 2: (1) mobilization, clearing, grubbing/site preparation; (2) trenching, pipeline installation, and backfill/spoils disposal; and (3) demobilization/site restoration. Construction phase duration and construction equipment use assumptions are provided in Appendix D. It was assumed that the project would take 24 months beginning in May 2016. The number of sediment hauling trips was estimated to be 1 round trip per day (over an assumed 4 month period) to dispose of approximately 300 cubic yards at the Wohler Facility with a conservative one-way trip length of 1.25 mile. The emissions included 20 roundtrips for worker commutes and assumed a trip length of 40 miles round trip, which is the modeling default.

Since the project is a replacement to existing piping, it would not be anticipated that any new emissions would occur during operation. The existing emissions are associated with workers driving to the site for any periodic maintenance. Therefore, no emission estimates were assumed for project operation.

Table 4. Criteria Pollutant Emissions Model Results

Pollutant	Average Daily Emissions (pounds per day)	Annual Emissions (tons)
ROG	10.1	2.0
NO _x	83.1	16.1
CO	49.8	10.0
PM ₁₀ (Exhaust)	4.8	0.9
PM _{2.5} (Exhaust)	4.4	0.8

Source: Road Construction Emissions Model, Version 7.5.1 Output

Notes: Due to requirements for low sulfur fuel use, sulfur dioxide (SO₂) emissions are considered *de minimis* and were not calculated.

To control fugitive dust emissions of PM₁₀ and PM_{2.5}, the NSCAPCD recommends implementation of basic construction measures. These measures are included in BMP-4 (Dust Management Controls & Air Quality Protection), presented in Chapter 2 (Table 3). In addition, BMP-2 (Minimize the Area of Disturbance) would further reduce the potential PM-related impacts by minimizing the area of ground-disturbance. No further measures would need to be implemented since the air basin is in attainment and the project construction and operation emissions are considered “de minimis” by the NSCAPCD (Pers. Comm. Palmer 2015). Therefore, no significance thresholds would be violated and the proposed project would have a **less-than-significant impact**.

<p>c. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?</p>			<p>X</p>	
<p>As indicated above, the NSCAPCD’s jurisdictional area within the North Coast Air Basin is in attainment for all criteria pollutants. However, as described above, the project would result in the emission of PM₁₀ and PM_{2.5}. The inclusion of BMP-4 (Dust Management Controls & Air Quality Protection) and BMP-2 (Minimize the Area of Disturbance) mentioned above would ensure that temporary construction-related emissions of particulates, would not be considered cumulatively considerable. Thus, the proposed project would have a less-than-significant impact.</p>				
<p>d. Expose sensitive receptors to substantial pollutant concentrations?</p>			<p>X</p>	
<p>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. Furthermore, construction-related impacts would be greatest adjacent to the construction site and the impacts would decrease rapidly with distance. Concentrations of mobile-source DPM emissions are typically reduced by 70 percent at a distance of approximately 500 feet (CARB 2005). The majority of construction activities would occur in the two proposed project work areas shown in Figure 3. The nearest project work area to sensitive receptors would be the southern work area, which is across Mark West Creek approximately 250 feet east of people staying from March to October at the Mirabel RV Park & Campground, and approximately 292 feet northeast from the nearest residence. The closest school is approximately 0.8 mile away and the nearest health facility is approximately 1.5 miles away. There are multiple residences located along the project’s proposed spoils disposal hauling routes on Westside and Wohler roads. However, hauling activities are not anticipated to result in a substantial amount of emissions due to the limited number of trucks and small amount of spoils disposal. Sediment disposal hauling on Westside Road and Wohler Road would only involve tractor and material hauling trucks in the vicinity of the neighboring residences, and thus emissions would not be as high as within the main proposed project work or staging areas. Given the short project duration and limited number of diesel equipment involved with the proposed project construction activities, the potential impacts related to exposing TACs to sensitive receptors would be less than significant.</p>				

<p>e. Create objectionable odors affecting a significant number of people?</p>			<p>X</p>	
<p>Project construction activities would not result in the generation of permanent or long-term objectionable odors. Odors associated with the intermittent operation of gasoline and diesel-powered equipment might be detected by nearby sensitive receptors, but these odors would be of short duration and would not affect a substantial number of people. Soil or sediment excavated may contain organic material that is decaying that may create an objectionable odor. The intensity of the odor perceived by a receptor depends on the distance of the receptor from the temporary and permanent spoils stockpiling areas and the amount and quality of the exposed soil material. The nearest sensitive receptor to either a temporary or permanent stockpile location would be approximately 420 feet northeast from the proposed project’s temporary stockpile location, and approximately 250 feet from the nearest (southern) staging area. Given that the majority of spoils would be temporarily sidecast as trenches are constructed and then compacted back into the trench as backfill, the quantity of spoils stored at any given time at a stockpile location or adjacent to a trench would not be such that it would present a significant odor source. The proposed project would not result in the generation of permanent or long-term objectionable odors during project operation. Therefore, any odors that could be produced would be temporary and this impact would be less than significant.</p>				

3.4 BIOLOGICAL RESOURCES. Would the project:				
	Potentially Significant Impacts	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?		X		
<p>Environmental Setting</p> <p>A reconnaissance-level biological survey and wetland assessment were conducted on August 31, 2015 by Horizon staff ecologist Kevin Fisher and botanist Sarah Gordon. A list of all plant species observed was recorded (Appendix E). Taxonomy and nomenclature follows The Jepson Manual, Vascular Plants of California (Baldwin et al. 2012), updated with current names from the Jepson eflora (Jepson Flora Project 2015). Habitat descriptions were recorded and vegetation alliances, as defined in <i>A Manual of California Vegetation</i> (Sawyer et al. 2009), were identified when applicable. Vegetation communities and disturbed areas that did not fit membership rules for the alliances in <i>A Manual of California Vegetation</i> were recorded as “not previously defined” (NPD).</p> <p>List of Surveyed Sites:</p> <ul style="list-style-type: none"> ▪ Russian River south bank ▪ Russian River north bank ▪ Vineyard area ▪ Staging areas ▪ Temporary stockpile location ▪ Permanent stockpile locations (1-north, 2-south) <p>Five habitat types were observed within the surveyed areas. These are described below.</p> <p>Riparian Forest and Woodland</p> <p>In the vicinity of the project site, riparian woodland along the Russian River is dominated by a naturalized species of the California black walnut (<i>Juglans</i> sp.); box elder (<i>Acer negundo</i>); Fremont’s cottonwood (<i>Populus fremontii</i>) and willow (<i>Salix</i> spp.) are a common component within the canopy and mid-story. The understory is dense and dominated by greater periwinkle (<i>Vinca major</i>) and California blackberry (<i>Rubus ursinus</i>); mugwort (<i>Artemisia douglasiana</i>), poison oak (<i>Toxicodendron diversilobum</i>), beardless wildrye grass (<i>Elymus triticoides</i>) and Himalayan blackberry (<i>Rubus armeniacus</i>) are also common.</p> <p>Much of the proposed work area on the south side of the Russian River shows evidence of past disturbance, presumably associated with installation and/or maintenance of the existing</p>				

pipeline. Woody vegetation in the understory is sparse, the dominant vegetation cover in the understory is comprised of weedy herbaceous species such as wild radish (*Raphanus sativus*), poison hemlock (*Conium maculatum*) and Italian ryegrass (*Festuca perennis*). The tree canopy is diverse, dominated by box elder and walnut, with scattered willow and Fremont's cottonwood. Below the ordinary high water mark on the very steep north facing bank, the walnut tree cover decreases and box elder and mugwort increase down to the edge of the baseflow channel. Only well-established trees and shrubs are found on the lower portions of the steep bank below the ordinary high water mark; this area supports minimal small shrub and herbaceous vegetation. The understory outside of the previously disturbed area is dominated by greater periwinkle, beardless wildrye grass and California blackberry; mugwort, poison oak and Himalayan blackberry are also common. Most trees are in the 12-18 diameter at breast height (dbh) range, with a few scattered large cottonwoods on the periphery.

The proposed work area on the north side of the Russian River also shows evidence of past disturbance. The riparian forest is recovering within the alignment area, but plant species diversity is low, containing mainly sandbar willow (*Salix exigua*), wild grape (*Vitis* sp.), mugwort and beardless wildrye. There are few mature trees within the proposed work area; riparian forest to either side contains walnut, box elder, willows and Fremont's cottonwood.

Agricultural Fields (Vineyards)

Agricultural lands at the project site are cultivated as vineyards; the areas between vines and along ranch roads contain weedy herbaceous species such as Bermuda grass (*Cynodon dactylon*), bindweed (*Convolvulus arvensis*), bristly ox-tongue (*Helminthotheca echoides*), and English plantain (*Plantago lanceolata*).

Wohler Facility - Former Infiltration Ponds

These areas are former infiltration ponds which would become overtopped during flood events. On September 24, 2008, National Marine Fisheries Service (NMFS) issued a Biological Opinion (BO) for Water Supply, Flood Control Operations, and Channel Maintenance conducted by the U.S. Army Corps of Engineers, the Sonoma County Water Agency, and the Mendocino County Russian River Flood Control and Water Conservation Improvement District in the Russian River watershed. Reasonable and Prudent Measure (RPM) 6 in the BO required that measures be undertaken to prevent harm and mortality to salmonids listed as threatened or endangered under the state and federal Endangered Species Acts from diversion operations and maintenance activities at the Wohler Facility. As part of the RPM's Terms and Conditions (Item C), the Water Agency was required to decommission or modify the infiltration ponds (originally built to assist with water supply operations) on the east side of the Russian River at the Wohler Facility to prevent fish entrapment in the ponds during flood events.

The completed project consisted of decommissioning the off-channel Wohler Infiltration Ponds 1 and 2 by removal of two manual valves each located adjacent to the ponds and grading each pond at a slope of 1 percent (%) towards the river. A 1% slope allows the ponds to fill with water during flood events but also allows them to drain at the same rate as the receding river.

In addition, the Water Agency performs periodic maintenance of each pond. The grade is checked by Water Agency staff and is re-graded as necessary in order to maintain the appropriate drainage.

The vegetation cover within the former ponds is sparse, averaging 30% cover, and is a mixture of hydrophytic species (native and non-native) that dominate during the wet season. In the dry

season non-native upland species germinate after depressions dry out. Common hydrophytic species are nutsedge (*Cyperus eragrostis*), fat hen (*Atriplex prostrata*), curly dock (*Rumex crispus*), rough cocklebur (*Xanthium strumarium*), perennial pepperweed (*Lepidium latifolium*), mugwort and Italian ryegrass. Late season species include fluellin (*Kickxia elatine*) and flax-leaved horseweed (*Erigeron bonariensis*). The steep side berms support mixed willow and Himalayan blackberry thickets, as well as weedy grasses and forbs.

Ruderal Grassland

The proposed temporary stockpile area is dominated by Bermuda grass. Other species common in this disturbed area include yellow star thistle (*Centaurea solstitialis*), Italian thistle (*Carduus pycnocephalus*) and bird's foot trefoil (*Lotus corniculatus*). This area contains large patches of bare ground; vegetated areas were mowed at the time of survey.

Roads and Disturbed/Developed Areas

The staging areas and other portions of the pipeline alignment would occur along vineyard or Water Agency access roads, graveled parking, maintenance areas or pump stations. Common plant species within these areas include Bermuda grass and Italian ryegrass, forb species such as poison hemlock and field mustard (*Hirschfeldia incana*), and woody species, including coyote brush (*Baccharis pilularis*) and small coast live oak (*Quercus agrifolia*) trees.

Impact Evaluation Methods

For the purposes of this assessment, special-status species refers to plants, fish, and wildlife that meet one or more of the following criteria:

- Species that are listed as threatened or endangered under the federal Endangered Species Act (50 CFR 17.12 for listed plants, 50 CFR 17.11 for listed animals), or are designated as candidates for possible future listing under the ESA (76 FR 66370);
- Species that are listed or proposed for listing by the State of California as threatened or endangered under CESA (14 CCR 670.5);
- Plants listed as rare under the California Native Plant Protection Act of 1977 (Fish & Game Code, § 1900 et seq.);
- California Rare Plant Rank (CRPR) List 1 and 2 species;
- Species that meet the definitions of rare or endangered under CEQA (CEQA Guidelines, § 15380); and
- Animals fully protected in California (Fish & Game Code, § 3511 [birds], 4700 [mammals], and 5050 [reptiles and amphibians]).

Special-status species with the potential to occur at the proposed project site were identified through a review of the following resources:

- USFWS Information for Planning and Conservation (IPaC) Trust Resources Report for the proposed project Area (USFWS 2015; Appendix E).
- California Natural Diversity Database (CNDDB) Inventory of Rare and Endangered Plants of California query for the Camp Meeker U.S. Geological Survey (USGS) quadrangle within the immediately adjacent quadrangles including: Bodega Head, Cazadero, Duncans Mills, Guerneville, Healdsburg, Sebastopol, Two Rock, and Valley Ford (CNDDB 2015; Appendix E)

The potential for special-status species to occur in the vicinity of the study area was evaluated according to the following criteria:

- **None:** indicates that 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:** indicates situations where suitable habitat or key habitat elements may be present but may be of poor quality or isolated from the nearest extant occurrences. Habitat suitability refers to factors such as elevation, soil chemistry and type, vegetation communities, microhabitats, and degraded/significantly altered habitats.
- **Possible:** indicates the presence of suitable habitat or key habitat elements that potentially support the species.
- **Present:** indicates the species was either observed directly or its presence was confirmed by diagnostic signs (i.e. tracks, scat, burrows, carcasses, castings, prey remains, etc.) during field investigations or in previous studies in the area.

Tables E-1 and E-2 of Appendix E list special-status species that are known to occur in the vicinity of the project site and describes the potential for these species to occur in the project site. **Figure E-1** shows the CNDDDB records of special-status plants within 5-mile radius of the study area. **Figure E-2** shows the CNDDDB records of special-status fish and wildlife and designated critical habitat within 5-mile radius of the study area.

Impact Analysis

Effects on Special-Status Plants

The riparian habitat (Riparian Forest and Woodland), agriculture fields, and disturbed / developed habitat at the proposed project site do not provide suitable habitat for special-status plants. The Wohler Facility exhibits extremely marginal habitat for 13 special-status plant species associated with freshwater marsh habitat and due to the lack of year-round wetland hydrology and absence of typical marsh vegetation, these special-status plants are not expected to occur at the project site (Table E-1 in Appendix E). Ruderal grassland provides extremely marginal habitat for congested-head hayfield tarweed (*Hemizonia congesta* ssp. *congesta*) and marsh microseris (*Microseris paludosa*). The reconnaissance field survey was conducted within the bloom window for congested-head hayfield tarweed and no plants were observed during the survey. Based on the assessment of habitat conditions, proposed project activities would not likely result in direct or indirect impacts to special-status plant species.

Effects on Special-Status Invertebrates

California freshwater shrimp (CFS) are found in low elevation, low gradient, freshwater, perennial streams in Marin, Napa, and Sonoma counties. Winter habitat includes shallow margins of stream pools containing undercut banks and exposed living fine-root material that provide shelter and refuge from high water velocities associated with storm events. Summer habitat includes submerged leafy branches. It is believed both winter and summer habitat components need to be found in close proximity in order for this species to persist for prolonged periods (USFWS 2011). CFS occur in tributaries to the Russian River, but are not known to occur on the mainstem. The hydrology and streamflow conditions at the project site are not suitable for CFS. No other special-status invertebrates are likely to occur at the project site because suitable habitat is not present or the project site is not within the species' documented range. No impact would occur.

Effects on Special-Status Fish

The Russian River supports populations of three species listed under the Endangered Species Act as well as four species of special concern (**Table 5**). Three species listed under the Endangered Species Act occur in the project area: Central California Coast (CCC) coho salmon, Central California Coast (CCC) steelhead, and California Coastal Chinook salmon. This section of the Russian River is designated critical habitat for CCC steelhead and California Coastal Chinook salmon. Species of special concern include Pacific lamprey, Russian River tule perch, hardhead, and California roach. The four species of special concern reside in the project area year-around, while the three listed species primarily use this section of the river as a migration corridor.

Table 5. Special-status Fish Species in the Project Area

Common Name	Scientific name	Regulatory status
Chinook salmon, California Coastal ESU	<i>Oncorhynchus tshawytscha</i>	Federally Threatened
Coho salmon, central California coast ESU	<i>O. kisutch</i>	Federally Endangered
Steelhead, central California coast DPS	<i>O. mykiss</i>	Federally Threatened
Pacific lamprey	<i>Entosphenus tridentatus</i>	Species of Special Concern
Russian River tule perch	<i>Hysterocarpus traski</i>	Species of Special Concern
Hardhead	<i>Mylopharodon conocephalus</i>	Species of Special Concern

Juvenile and adult CCC coho salmon migrations occur in the spring and fall/winter, respectively. Adults migrate to spawning grounds in Russian River tributaries in October through December. Juvenile CCC coho rear in tributaries for 1 to 2 years. Smolts emigrate to the ocean primarily in April and May, with declining numbers captured through June (Martini-Lamb and Manning 2014).

Juvenile CCC steelhead emigrate through this portion of the river primarily March through mid-June, and adults migrate primarily from December through March. Although juvenile steelhead primarily rear in tributaries, they do occupy portions of the mainstem Russian River. Rearing of juvenile CCC steelhead does occur in this section of the river, albeit at very low levels (SCWA 2005, SCWA 2012). Thus, CCC steelhead may be present year-round at the project site.

Juvenile Chinook salmon emigrate through this portion of the river primarily March through June, and adults migrate September through December (primarily late October through mid-November). Juvenile Chinook salmon emigration is essentially completed by the end of June; however, it is possible for juvenile Chinook to be present in very low numbers in the early summer (SCWA 2012).

The proposed project could potentially impact special-status fish adversely through: (1) generation of underwater noise and vibration (i.e., hydroacoustic impacts) associated with installation of coffer dams and dewatering equipment; (2) increased suspended sediment during installation and removal of the coffer dams; (3) potential leaking or spill of chemical contaminants or hazardous material (gasoline, oil, grease, concrete) into the water from use of heavy equipment adjacent to water; (4) injury, stress, or mortality to fish if relocation is necessary; and (5) disturbance to the riparian corridor of the Russian River.

The proposed project would temporarily impact approximately 200 linear feet (100 feet on the north side, 100 feet on the south side) of the river bank. The proposed project description includes implementation of Best Management Practices (BMPs) including BMP-6 (On-Site Hazardous Materials Management), BMP-8 (Spill Prevention and Response), BMP-9 (Vehicle and Equipment Maintenance), BMP-10 (Vehicle and Equipment Fueling), BMP-12 (Biological Resource Protection Impact Avoidance and Minimization during Dewatering) and BMP-13 (Fish and Amphibian Species Relocation Plan for Dewatering) to avoid adverse impacts to fish and other aquatic species. Once the coffer dams are inserted to isolate the work area, groundwater encountered within the isolated work area would be pumped out of the construction area and filtered to remove turbidity and suspended sediment before pumped to the Mirabel Facility (BMP-11 Dewatering Pump/Generator Operations and Maintenance). Implementation of BMP-15 (Implement Vibration-Reducing Measures) would avoid hydroacoustic exposure impacts on fish and aquatic species by prohibiting use of impact pile drivers and limiting use of vibratory equipment. Because the proposed project would incorporate the above mentioned BMPs, potential impacts to special-status aquatic species and their habitat and the riparian habitat associated with the Russian River due to construction and maintenance related activities would be avoided.

In addition, **Mitigation Measure BIO-1 (In-Water Work Period)** is proposed to further avoid and reduce construction-related impacts to special-status fish species by avoiding the peak migration periods of listed salmonids. Implementation of this mitigation measure would reduce potential construction related impacts to **less than significant**.

Mitigation Measure BIO-1: In-Water Work Period

Work below Ordinary High Water of the Russian River shall be limited to the period from June 15 to September 15 to reduce adverse effects on special-status fish migration. Work conducted within the riparian zone shall be limited to the period from April 15 to October 15.

Effects on Special-Status Reptiles and Amphibians

Special-status reptiles and amphibians known to occur in the vicinity of the project site are listed in Table E-2 of Appendix E. Species with the potential to occur at the project site are discussed below.

Western pond turtle (WPT) (*Actinemys [=Emys] marmorata*) is a California species of special concern and is uncommon to common in suitable aquatic habitats throughout California, west of the Sierra-Cascade crest and is mainly absent from desert regions (CDFG 2000). WPT is known to occur along the Russian River and has a high potential to occur at the project site. Western pond turtles are likely to utilize the aquatic habitats at the project site 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 (Ashton et al. 1997). The project site generally provides only marginal nesting habitat for this species because the streambanks are very steep. However, construction activities on the margins of the river channel could result in potential adverse impacts to WPT, if present. Further, pipe installation trenches would be up to 45 feet deep and would be left open overnight. WPT turtles could become trapped in the trench and potentially harmed if not removed prior to the start of construction activities within the trench. Implementation of **Mitigation Measure BIO-2a (Environmental Awareness Training)**, **Mitigation Measure BIO-2b (Construct and Maintain Wildlife Exclusion Fencing)**, and **Mitigation Measure BIO-3 (Avoid or Minimize Impacts on Western Pond Turtle)** would reduce potential impacts on WPT to **less than significant**.

Mitigation Measure BIO-2a: Environmental Awareness Training

Environmental awareness training shall be implemented to inform all construction personnel of their responsibilities regarding sensitive biological resources that may be present within the project area. The training shall comply with the following measures:

- The training shall be developed by a qualified biologist familiar with the sensitive biological resources that are known or have the potential to occur in the 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.
- The training shall provide educational information on the special-status 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.

Mitigation Measure BIO-2b: Construct and Maintain Wildlife Exclusion Fencing

Prior to the initiation of ground-disturbing activities, exclusion fencing shall be erected along the perimeter of excavation areas. Fencing shall be constructed of woven geotextile fabric and be a minimum of two feet high and buried in the soil a minimum of six inches deep. Exclusion fencing shall be inspected by a designated monitor on a daily basis and maintained throughout the duration of the construction.

Mitigation Measure BIO-3: Avoid or Minimize Impacts on Western Pond Turtle

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). Daily preconstruction surveys of all open trenches shall also be conducted by a trained worker each morning, prior to the start of construction activities within open trenches. A qualified biologist will be on call during construction and if WPT are found, work in the trenches shall not commence until authorized by the qualified biologist. If western pond turtles or their nests are observed during preconstruction or daily surveys, the following measures shall be implemented.

- 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. If nest avoidance is infeasible, eggs will be collected by a qualified biologist. Eggs will be incubated and hatched at a qualified facility, such as Sonoma State University Biology Department or Oakland Zoo. Hatchlings will be released in the project area once construction is complete.

Foothill yellow-legged frog (FYLF) (*Rana boylei*) is a California species of special concern (CNDDDB 2015). FYLF is one of the few obligate stream breeding ranid frogs in the U.S. The Russian River at the project site does not provide suitable breeding habitat for this species. Limiting factors for FYLF at the project site include large fluctuation of river stage and discharge during the breeding season (typically March through June), high fine sediment loads, and presence of native and non-native predators. Some nearby tributaries of the Russian River provide breeding habitat for this species.

While breeding of FYLF is not likely to occur at the project site, juveniles and adult could disperse through aquatic and streamside habitat. If this species were to occur at the project site, construction activities such as vegetation removal, excavation, and dewatering could result in potentially significant impacts. Further, pipe installation trenches would be up to 45 feet deep and would be left open overnight. FYLFs could become trapped in the trench and potentially harmed if not removed prior to the start of construction activities within the trench.

Several mitigation measures are proposed to avoid or reduce potential impacts to FYLF.

Mitigation Measure BIO-2a (Environmental Awareness Training) would require construction personnel to attend a training session that will provide basic information regarding habitat and identification of FYLF. **Mitigation Measure BIO-2b (Construct and Maintain Wildlife Exclusion Fencing)** would prevent entrapment within the trench. **Mitigation Measure BIO-4 (Avoid or Minimize Impacts on Foothill Yellow-legged Frog)** includes pre-construction surveys for FYLF. Implementation of these mitigation measures would reduce this impact to less than significant.

Mitigation Measure BIO-4: Avoid or Minimize Impacts on Foothill Yellow-legged Frog

Prior to commencing construction, a qualified biologist shall conduct one daytime survey for FYLF and other amphibians. The survey shall be conducted no more than 48 hours preceding the onset of construction. If no FYLF are found within the activity area during the pre-activity survey, the work may proceed.

Daily preconstruction surveys of all open trenches shall also be conducted by a trained worker each morning, prior to the start of construction activities within open trenches. A qualified biologist will be on call during the construction work and if FYLF are found, work in the trenches shall not commence until authorized by the qualified biologist.

- If FYLF of 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 shall be implemented. FYLF 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 frogs are moved, the qualified biologist shall possess a valid permit from CDFW authorizing the handling of FYLF.

Effects on Birds including Special-Status Species

Several special-status bird species have a moderate to high potential for occurring in the project area. They include: loggerhead shrike (*Lanius ludovicianus*), olive-sided flycatcher (*Contopus cooperi*), peregrine falcon (*Falco peregrinus anatum*), white-tailed kite (*Elanus leucurus*), yellow warbler (*Dendroica petechial brewsteri*), and yellow-breasted chat (*Icteria virens*). In addition to the special status of these species, most birds as well as their nests and eggs are protected under both the Migratory Bird Treaty Act (MBTA) and Fish and Game Code (Section 35043.5, 1992).

Birds in the project area could be impacted during construction activities through vegetation clearing as well as noise and other human disturbance. Different species would be impacted in different ways and to different degrees.

Birds that forage along the Russian River, but do not nest in the area, would be minimally impacted by construction activities because the total area that would be under construction would be small compared to the extent of foraging habitat available to them. Of the special-status species considered potentially present in the project area, foraging species could include merlin and peregrine falcon. For these species, impacts due to construction of the proposed project would be less than significant because disturbed areas would be revegetated with native plants and trees following construction activities.

Avian species that nest in the project area could be impacted through the temporary loss of nesting habitat and through direct impacts to the nest, either by accidental damage during vegetation clearing or through noise and human activity near the nest. Of the special-status species considered potentially present in the project area, nesting species may include: olive-sided flycatcher, white-tailed kite, yellow warbler, and yellow-breasted chat. For these species, thorough pre-construction nesting bird surveys would be required.

Short-term impacts to birds due to construction activities would be reduced to less than significant with the implementation of **Mitigation Measure BIO-5 (Pre-construction Nesting Bird Survey and Minimization Measures)**.

Mitigation Measure BIO-5: Pre-construction Nesting Bird Survey and Minimization Measures

The Water Agency shall conduct a pre-construction nesting bird survey within 500 feet of the project footprint. The pre-construction survey shall:

- Be conducted by a qualified biologist no more than one week prior to commencement of construction activities or maintenance that could impact nesting birds. The biologist shall have familiarity with special-status species of the area and experience with conducting nesting bird surveys.
- If no nesting birds are encountered, no further mitigation would be required for at least two weeks, unless additional measures are required by regulatory permit conditions obtained for the proposed project.
- Additional pre-construction surveys, specifically for nesting birds, shall be conducted such that no more than two weeks will have lapsed between the survey and construction or maintenance activities.
- If a nesting bird is encountered, the location shall be documented and avoidance and minimization measures shall be prepared by the qualified Water Agency biologist, or

consulting biologist in coordination with the Water Agency, and appropriate resource agencies. A no-work buffer shall be established around active bird nests in coordination with the CDFW. Nests will be monitored weekly during construction activities.

Mammals

No structures suitable for bat roosting were observed at the project site. However, large trees at the project site with cavities or exfoliating bark provide potentially suitable habitat for special-status bat species including western red bat (*Lasiurus blossevillii*) and pallid bat (*Antrozous pallidus*). Adjacent vineyards provide high quality foraging habitat for these species.

Short-term impacts to pallid bats due to construction activities would be reduced to less than significant with the implementation of **Mitigation Measure BIO-6a (Avoid or Minimize Impacts on Bats)** would require pre-construction surveys for bat roost sites and prescribes methods to minimize impacts to active roosts during construction. **Mitigation Measure BIO-6b (Replace Special-Status Bat Roost Sites)** establishes protocols to mitigate for unavoidable impacts to special-status bat roosts. With the implementation of this mitigation measure, impacts to special-status mammals would be reduced to **less than significant**.

Mitigation Measure BIO-6a: Avoid Direct Mortality of Bats Roosting in Trees

Not more than six months prior to the onset of work activities, a qualified bat biologist will survey the project site to identify suitable roost sites. If evidence is observed, or if potential roost sites are present in areas where evidence of bat use might not be detectable (such as a tree cavity), an evening survey and/or nocturnal acoustic survey shall be used to determine if the bat colony is active and to identify the specific location of the bat colony.

To avoid impacts to bats, removal of trees that may serve as potential roost sites shall occur between March 1 and April 15 or between August 31 and October 15, unless a focused survey conducted by a qualified bat biologist determines that no bats are present in tree(s) to be removed. 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 shall be as follows:

Step 1: Small branches and small limbs containing no cavity, crevice, or exfoliating bark shall be removed with chainsaws under field supervision by a qualified bat biologist.

Step 2: The remainder of the tree shall be removed within the following 48 hours. The disturbance caused by chainsaw noise and vibration, coupled with the physical alteration, would cause colonial bat species to abandon the roost tree after nightly emergence for foraging. Removing the tree the next day would prevent re-habituation and re-occupation of the altered tree.

Mitigation Measure BIO-6b: Replace Special-Status Bat Roost Sites

If bat roosts cannot be avoided or it is determined that construction activities or site development may cause roost abandonment, such activities may not commence until roost sites have been replaced. To replace tree roosts, elevated bat houses shall be

<p>installed outside of, but near, the construction area. Placement and height will be determined by a qualified bat biologist in consultation with CDFW.</p>				
<p>b. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?</p>		<p>X</p>		
<p>The Riparian Forest and Woodland along the Russian River is considered riparian habitat and a sensitive natural community (CDFG 2010).</p> <p>The proposed project falls within the jurisdiction of <i>Sonoma County General Plan 2020</i>, which considers riparian woodlands and forests, as well as wetlands, sensitive natural communities. Several goals and objectives are relevant, including the following:</p> <ul style="list-style-type: none"> • <i>Objective OSRC-7.1: Identify and protect native vegetation and wildlife, particularly occurrences of special-status species, wetlands, sensitive natural communities, woodlands, and areas of essential habitat connectivity.</i> • <i>GOAL OSRC-8: Protect and enhance Riparian Corridors and functions along streams, balancing the need for agricultural production, urban development, timber and mining operations, and other land uses with the preservation of riparian vegetation, protection of water resources, flood control, bank stabilization, and other riparian functions and values.</i> <p>The proposed project would be consistent with Goal OSRC-8 described above because the project specifications include implementation of BMP-1 (General Impact Avoidance and Minimization–Work Window) and BMP-2 (Minimize the Area of Disturbance). These BMPs would minimize impacts on riparian habitat.</p> <p>The total footprint of potential ground disturbance within the riparian habitat would be up to approximately 0.87 acres, total. This includes up to 0.49 acres on the north side of the Russian River, in the western portion of the work boundary and 0.38 acres on the south side of the Russian River in the western portion of the work boundary. As described in the following Mitigation Measure BIO-7 (Implement a Riparian Habitat Revegetation Plan) (Appendix B), the project site would be revegetated with a range of native riparian species including a variety of trees, shrubs, herbaceous perennials, and upland graminoids. The Water Agency will also encourage natural recruitment of native riparian plants to the project area.</p> <p>Implementation of Mitigation Measure BIO-7 (Implement a Riparian Habitat Revegetation Plan) would reduce potential impacts to less than significant by requiring replanting of riparian habitat and vegetation with appropriate native species at a 1.1 to 1 ratio for a total of 0.96 acre area.</p> <p>With implementation of Mitigation Measure BIO-7 the on-site Riparian Habitat Revegetation Plan (Appendix B), and allowing for natural recruitment of native species to the area, residual impacts to riparian habitat would be less than significant.</p>				

Mitigation Measure BIO-7: Implement a Riparian Habitat Revegetation Plan

Sites where construction activities result in exposed soil will be stabilized to prevent erosion. For each of these sites, the Water Agency will implement a revegetation plan to mitigate the loss of riparian vegetation.

- Plant species selected for revegetation is based upon surveys of riparian habitat along the Russian River upstream and downstream of the project site.
- Planting requirements in the revegetation plan is based upon species composition and density recommendations associated with the overall habitat enhancement design for the project.
- If soil moisture is deficient, new vegetation will be supplied with supplemental water until vegetation is firmly established.
- Revegetation shall be monitored for five years in order to assess survival until 75 percent survival/cover is achieved.
- If invasive plant species colonize the area, action shall be taken to control their spread; options include hand and mechanical removal and replanting with native species.
- The Water Agency will provide annual reports that include photo-points, survival rates, and site summaries that will be submitted to appropriate regulatory agencies.

All project BMPs listed in Table 3 and Mitigation Measures BIO-1 through BIO-6b will be implemented as appropriate for the restoration actions. No removal of native trees or filling of wetlands or waters of the U.S. shall occur. With implementation of the BMPs and Mitigation Measures, no significant impacts are anticipated from implementation of riparian planting activities.

c. Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?			X	
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For work proposed within the Russian River below ordinary high water, the Water Agency will apply for Nation Wide Permit from the U.S. Army Corps of Engineers (Corps) under Section 404 of the Clean Water Act, a Water Quality Certification from the North Coast Regional Water Quality Control Board under Section 401 of the Clean Water Act, and a Streambed Alteration Agreement from the California Department of Fish and Wildlife under Section 1602 of the California Fish and Game Code.

The proposed project would require work and fill material within Corps jurisdictional areas; however, the majority of fill would be temporary in nature (i.e., temporary cofferdams and trench that would be backfilled). The permanent fill material associated with the proposed

project would not be anticipated to result in any net reduction of Corps of Engineers' jurisdictional area. No additional mitigation measures are proposed for impacts to wetlands and riparian resources since the proposed project is primarily within the footprint of the Water Agency's existing facilities and no above ground structures will be built within these areas. No substantial adverse effects to wetlands or other waters of the United States are anticipated to result from the proposed project.

The Water Agency was required to decommission or modify the infiltration ponds (originally built to assist with water supply operations) at the Wohler Facility to prevent fish entrapment in the ponds during flood events. The Water Agency obtained federal and state permits to decommission and modify the Wohler Ponds (File No. 1999-24721N) and (WDID No. 1B10082WNSO). The modification included filling and regrading to maintain a 1% slope to allow the ponds to drain at the same rate as the receding river after storm events. These actions were previously evaluated under CEQA by the Water Agency. A Notice of Exemption was filed by the Water Agency. No substantial adverse impacts to wetlands or other waters of the United States would occur as a result from the proposed project. This impact would be **less than significant**.

d. Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident migratory wildlife corridors, or impede the use of native wildlife nursery sites?

X

The Russian River is an important migratory corridor for salmonids and other native fishes. Construction-related impacts to fish movement would be minimized with implementation of Mitigation Measure BIO-1. Riparian habitat adjacent to the river provides important movement corridors and nursery sites for a broad range of native wildlife species. Several mitigation measures including Mitigation Measures BIO-2b, BIO-3, BIO-4, BIO-5a and BIO-6b would be implemented to minimize potential impacts to wildlife breeding and movement. Mitigation Measure BIO-7 (Implement a Riparian Habitat Revegetation Plan) (Appendix B) would minimize potential long-term disturbance to the riparian corridor as the project area will be completely replanted. With the implementation of the BMPs listed above, impacts on the movement of any native resident or migratory fish or wildlife species or with established native resident migratory wildlife corridors, or impede the use of native wildlife nursery sites would be **less than significant**.

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

X

Section Sec. 26-88-010 (m) of the Sonoma County Zoning Code details the provisions of the County's Tree Protection Ordinance. Trees protected under the ordinance include Coast Live Oak (*Quercus agrifolia*), Redwood (*Sequoia sempervirens*), Valley Oak (*Quercus lobata*), California Bay (*Umbellularia californica*), that are nine inches dbh, or greater. The proposed project would not result in a loss greater than 50% of arboreal values for the entire site. In addition, the project includes Mitigation Measure BIO-7 (Implement a Riparian Habitat Revegetation Plan) that

<p>includes re-plantings of native riparian trees and plants (Appendix B). The proposed project would not conflict with any local policies or ordinances protecting biological resources. Further, the proposed project is consistent with the County’s Tree Protection Ordinance and therefore would have no impact.</p>				
<p>f. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, other approved local, regional, or State habitat conservation plan?</p>				<p>X</p>
<p>The proposed project would not be located within an adopted Habitat Conservation Plan, Natural Conservation Community Plan, or other approved local, regional, or State habitat conservation plan. Therefore, it would be expected to have no impact on provisions of these plans.</p>				

3.5 CULTURAL RESOURCES. Would the project:				
	Potentially Significant Impacts	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5?		X		
<p>State Laws, Regulations, and Policies</p> <p>CEQA and CEQA Guidelines</p> <p>Section 21083.2 of CEQA requires that the lead agency determine whether a project may have a significant effect on unique archaeological resources. A unique archaeological resource is defined in CEQA as an archaeological artifact, object, or site about which it can be clearly demonstrated that there is a high probability that it:</p> <ul style="list-style-type: none"> ▪ Contains information needed to answer important scientific research questions, and there is demonstrable public interest in that information; ▪ Has a special or particular quality, such as being the oldest of its type or the best available example of its type; or ▪ Is directly associated with a scientifically recognized important prehistoric or historic event or person. <p>Although not specifically inclusive of paleontological resources, these criteria may also help to define “a unique paleontological resource or site.”</p> <p>Measures to avoid, conserve, preserve, or mitigate significant effects on these resources are also provided under CEQA § 21083.2.</p> <p>Assembly Bill (AB) 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 CEQA § 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.</p> <p>Defined in § 21074(a) of the Public Resources Code, TCRs are:</p> <ol style="list-style-type: none"> (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: (2) Included or determined to be eligible for inclusion in the California Register of Historical Resources; or <ol style="list-style-type: none"> a. Included in a local register of historical resources as defined in subdivision (k) of Section 5020.1. 				

- 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 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.

TCRs are further defined under § 21074 as follows:

- (3) 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
- (4) 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 with 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 § 21080.3.2, or according to § 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.

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. 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. Historical resources are those that are:

- listed in, or determined to be eligible for listing in, the California Register of Historical Resources (CRHR) (Public Resources Code §5024.1[k]);
- included in a local register of historic resources (Public Resources Code §5020.1) or identified as significant in an historic resource survey meeting the requirements of Public Resources Code §5024.1(g); or
- determined by a lead agency to be historically significant.

CEQA Guidelines § 15064.5 also prescribes the processes and procedures found under Health and Safety Code § 7050.5 and Public Resources Code § 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.

CEQA Guidelines § 15126.4 provides further guidance about minimizing effects to historical resources through the application of mitigation measures. Mitigation measures must be legally binding and fully enforceable.

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 also addressed in Public Resources Code § 5097.5, “Archaeological, Paleontological, and Historical Sites.” This statute defines as a

misdemeanor any unauthorized disturbance or removal of a fossil site or remains on public land and specifies that state agencies may undertake surveys, excavations, or other operations as necessary on state lands to preserve or record paleontological resources. This statute would apply to any construction or other related project impacts that would occur on state-owned or state-managed lands.

California Register of Historical Resources

Public Resources Code § 5024.1 establishes the CRHR. The CRHR lists all California properties considered to be significant historical resources. The CRHR includes all properties listed as or determined to be eligible for listing in the National Register of Historic Places (NRHP), including properties evaluated under Section 106 of the National Historic Preservation Act. The criteria for listing are similar to those of the NRHP. Criteria for listing in the CRHR include resources that:

- Are associated with the events that have made a significant contribution to the broad patterns of California's history and cultural heritage;
- Are associated with the lives of persons important in our past;
- Embody the distinctive characteristics of a type, period, region, or method of construction, or represent the work of an important creative individual, or possess high artistic values; or
- Have yielded, or may be likely to yield, information important in prehistory or history.

The regulations set forth the criteria for eligibility as well as guidelines for assessing historical integrity and resources that have special considerations.

Cultural Resources Studies

Cultural resources include prehistoric archaeological sites; historic-era archaeological sites; TCRs; and historic buildings, structures, landscapes, districts, and linear features.

An archival resource investigation was conducted for the project site, including examination of library and project files at Tom Origer & Associates and review of maps, records, and other materials on file at the Northwest Information Center (NWIC), Sonoma State University, Rohnert Park, CA. Current listings of properties on the National Register of Historic Places, California Historical Landmarks, California Register of Historical Resources, and California Points of Historical Interest from the Office of Historic Preservation were reviewed.

Review of the NWIC base maps found that the study area had not been surveyed previously. One survey was conducted previously within a mile from the study area; however, no cultural resources were found. Review of federal, state, and local listings found no recognized historic properties or on the parcel (OHP 2012).

Review of historical maps found that there were no historical buildings or features, or tribal cultural resources, in the study area (GLO 1857; Thompson 1877, USACE 1922; USGS 1942, 1954).

A letter was sent to the State of California's Native American Heritage Commission (NAHC) on August 21, 2015 requesting information from their sacred lands files and the names of Native American individuals and groups that would be appropriate to contact regarding this project. On August 21, 2015, letters were also sent to the local Native American groups provided by the NAHC (Federated Indians of Graton Rancheria, Stewarts Point Rancheria, and Suki Waters). As of September 21, 2015, no responses have been received.

Tribal Cultural Resources (TCRs)

No TCRs were identified by the local Native American community.

A field survey of the project site was conducted on September 3, 2015. The entire study area was examined intensively by walking in transects less than ten meters apart. Ground visibility was very good. One auger boring was made on each side of the river to examine subsurface soils. Auger borings extended down to 120 centimeters. The survey did not identify any cultural resources at the project site.

Analysis

No historical resources, as defined in § 15064.5 of the CEQA Guidelines, and no TCRs were identified within the project site. Although a survey was conducted and no historical resources were identified, historical remains may be buried with no surface manifestation. Excavation activities for the proposed project could uncover buried historical materials. Historic remains expected in the general area commonly include items of ceramic, glass, and metal. Features that might be present include structure remains (e.g., cabins or their foundations) and pits containing historic artifacts.

Should previously undiscovered historical resources be found, implementation of **Mitigation Measure CUL-1** would ensure that impacts on CRHR-eligible historical 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 eligibility, and implementing appropriate mitigation measures, as necessary. Implementation of Mitigation Measure CUL-1 would reduce impacts related to accidental discovery of historical resources to a level that is **less than significant with mitigation**.

Mitigation Measure CUL-1: Stop Work if Historical Resources are Discovered During Project Activities, Evaluate all Identified Historical Resources for Eligibility for Inclusion in the California Register of Historical Resources, and Implement Appropriate Mitigation Measures for Eligible Resources

Prior to initiation of ground-disturbing activities, the Water Agency shall arrange for construction crews to receive training about the kinds of cultural materials that could be present at the project site and the protocols to be followed should any such materials be uncovered during construction. Training shall be conducted by an archaeologist who meets the U.S. Secretary of Interior's professional standards (48 CFR Parts 44738-44739 and Appendix A to 36 CFR 61)¹. Training may be required during different phases of construction to educate new construction personnel.

If buried historic remains are encountered, all soil-disturbing work in that area and within 100 feet of the find shall be halted until a qualified archaeologist completes a significance evaluation of the find(s) pursuant to Section 106 of the National Historic Preservation Act (36CFR60.4). If any of the resources meets the eligibility criteria identified in Public Resources Code § 5024.1 or CEQA § 21083.2(g), mitigation measures shall be developed and implemented in accordance with CEQA Guidelines § 15126.4(b) before construction resumes.

¹ 48 CFR Parts 44738-44739 and Appendix A to 36 CFR 61. Available: http://www.nps.gov/history/local-law/arch_stnds_9.htm

<p>Historic remains expected in the general area commonly include items of ceramic, glass, and metal. Features that might be present include structure remains (e.g., cabins or their foundations) and pits containing historic artifacts.</p> <p>For resources eligible for listing in the California Register of Historical Resources that would be rendered ineligible by the effects of project construction, additional mitigation measures shall be implemented. Mitigation measures for historic remains 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 historic remains 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.</p>				
<p>b. Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?</p>		<p>X</p>		
<p>No archaeological resources, as defined in § 15064.5 of the CEQA Guidelines, have been identified within the project site. Although an archaeological survey was conducted and no archaeological resources were identified, archaeological remains may be buried with no surface manifestation. Excavation activities for the proposed project could uncover buried archaeological materials. Prehistoric archaeological site indicators expected within the general area include: chipped chert and obsidian tools and tool manufacture waste flakes; grinding and hammering implements resembling fist-size river tumbled stones; and locally darkened soil that generally contains abundant archaeological specimens. Historic remains expected in the general area commonly include items of ceramic, glass, and metal. Features that might be present include structure remains (e.g., cabins or their foundations) and pits containing historic artifacts.</p> <p>If archaeological remains are accidentally discovered that are determined eligible for listing in the CRHR, or determined to be a TCR, 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 Measure CUL-2 would ensure that impacts on CRHR-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 eligibility, and implementing appropriate mitigation measures, as necessary. Implementation of Mitigation Measure CUL-2 would reduce impacts related to accidental discovery of archaeological resources to a level that is less than significant with mitigation.</p> <p style="text-align: center;">Mitigation Measure CUL-2: Stop Work if Cultural Resources are Discovered During Project Activities, Evaluate all Identified Cultural Resources for Eligibility for Inclusion in the California Register of Historical Resources, and Implement Appropriate Mitigation Measures for Eligible Resources</p> <p>Prior to initiation of ground-disturbing activities, the Water Agency shall arrange for construction crews to receive training about the kinds of archaeological materials that could be present at the project site and the protocols to be followed should any such</p>				

materials be uncovered during construction. Training shall be conducted by an archaeologist who meets the U.S. Secretary of Interior’s professional standards (48 CFR Parts 44738-44739 and Appendix A to 36 CFR 61). Training may be required during different phases of construction to educate new construction personnel.

If any cultural resources are encountered, all soil-disturbing work in that area and within 100 feet of the find shall be halted until a qualified archaeologist who meets the U.S. Secretary of Interior’s professional standards (48 CFR Parts 44738-44739 and Appendix A to 36 CFR 61) completes a significance evaluation of the find(s) pursuant to Section 106 of the National Historic Preservation Act (36CFR60.4). If any of the resources meets the eligibility criteria identified in Public Resources Code § 5024.1 or CEQA § 21083.2(g), mitigation measures shall be developed and implemented in accordance with CEQA Guidelines § 15126.4(b) before construction resumes.

Prehistoric archaeological site indicators expected within the general area include: chipped chert and obsidian tools and tool manufacture waste flakes; grinding and hammering implements resembling fist-sized river-tumbled stones; and locally darkened soil that generally contains abundant archaeological specimens.

For resources or a tribal cultural resource (TCR) eligible for listing in the California Register of Historical Resources that would be rendered ineligible by the effects of project construction, additional mitigation measures shall 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. Native American consultation is required if an archaeological site is determined to be a TCR. 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?		X		
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No paleontological resources were identified within the project site. As with archaeological remains, paleontological resources may be buried with no surface manifestation. The accidental discovery of significant paleontological resources that could be destroyed as a result of construction of the proposed project would be considered a significant impact. Should previously undiscovered paleontological resources be found, implementation of **Mitigation Measure CUL-3** would reduce impacts to a less-than-significant level by immediately halting work if materials are discovered, evaluating the significance of the find, and implementing appropriate mitigation measures, as necessary. The impact related to accidental uncovering of paleontological resources is **less than significant with mitigation**.

Mitigation Measure CUL-3: Stop Work if Paleontological Resources are Discovered During Project Activities, Evaluate all Identified Resources for Eligibility for Inclusion in the California Register of Historical Resources, and Implement Appropriate Mitigation Measures for Eligible Resources

Prior to initiation of ground-disturbing activities, the Water Agency shall arrange for construction crews to receive training about the kinds of paleontological materials that

could be present at the project site and the protocols to be followed should any such materials be uncovered during construction. Training shall be conducted by a professional paleontologist meeting the professional standards established by the Society of Vertebrate Paleontology (Society of Vertebrate Paleontology 2010). Training may be required during different phases of construction to educate new construction personnel.

Paleontological resources include fossil remains, as well as fossil localities and rock or soil formations that have produced fossil material. Fossils are the remains or traces of prehistoric animals and plants. Fossils are important scientific and educational resources because of their use in (1) documenting the presence and evolutionary history of particular groups of now-extinct organisms; (2) reconstructing the environments in which these organisms lived; and (3) determining the relative ages of the strata in which they occur, as well as the relative ages of the geologic events that resulted in the deposition of the sediments that formed these strata and in their subsequent deformation.

If any items of paleontological interest are encountered, all soil-disturbing work in that area and within 100 feet of the find shall be halted until a qualified paleontologist meeting the professional standards established by the Society of Vertebrate Paleontology (Society of Vertebrate Paleontology 2010) evaluates the site.

If it is determined by the qualified paleontologist that the proposed project could damage a unique paleontological resource, as defined in the CEQA Guidelines, mitigation shall be implemented in accordance with PRC§ 21083.2 and § 15126.4 of the CEQA Guidelines. If avoidance is not feasible, the paleontologist shall develop and implement a treatment plan consistent with the methods recommended by the Society of Vertebrate Paleontology (SVP 2010). Work shall not be resumed until recommendations received from the qualified paleontologist are implemented.

d. Disturb any human remains, including those interred outside of formal cemeteries?		X		
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No evidence of human remains was observed within the project site. Human remains are not known to exist in or near the project site; however human remains may be buried with no surface manifestation. Excavations associated with project construction have the potential to uncover such remains, if they are present. Impacts on accidentally discovered human remains would be considered a significant impact. Implementation of **Mitigation Measure CUL-4** would ensure that the proposed project would not result in any substantial adverse effects on human remains uncovered during the course of construction by requiring that, if human remains are uncovered, work must be halted and the County Coroner must be contacted. Adherence to these procedures and provisions of the California Health and Safety Code would reduce potential impacts on human remains to a level that is **less than significant with mitigation**.

Mitigation Measure CUL-4: Stop Work if Human Remains are Discovered During Project Activities and Implement Applicable Provisions of the California Health and Safety Code

If human remains are discovered during the proposed project’s construction activities, the requirements of California Health and Human Safety Code § 7050.5 shall be followed. Potentially damaging excavation shall halt in the project site, with a minimum radius of

100 feet, and the 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 (California Health and Safety Code § 7050.5[b]). If the Coroner determines that the remains are those of a Native American, he or she must contact NAHC by phone within 24 hours of making that determination (California Health and Safety Code § 7050[c]). Pursuant to the provisions of Public Resources Code § 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 Water Agency 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. Would the project:				
	Potentially Significant Impacts	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving the following:				
i. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other significant evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42 and the County Geotechnical Hazards Synthesis Map.			X	
<p>Due to its tectonic setting, the project area is prone to a high level of seismic activity. The risk of loss, injury, or death involving the rupture of an earthquake fault is greatest in dense population areas. The proposed project site is located approximately 9 miles away from the Rodgers Creek Fault Zone, which is the nearest fault considered to be active (California Geological Survey 2010). An unnamed inactive fault also underlies Forestville and, while closer to the proposed project site than the Rodgers Creek fault, would not be anticipated to rupture due to its inactive status. Furthermore, the proposed project would not include the development of habitable structures and includes seismic design considerations. Therefore, potential impacts related to earthquake fault rupture would be less than significant.</p>				
ii. Strong seismic ground shaking?			X	
<p>Strong seismic ground shaking at the project site could result from an earthquake along the Rodgers Creek Fault, an Alquist-Priolo Earthquake Fault Zone located approximately 9 miles east of the proposed project site (Sonoma County 2011). An inactive, unnamed fault underlies Forestville, and, while closer to the proposed project site than the Rodgers Creek fault, would not be anticipated to generate strong seismic ground shaking due to its inactive status. The risk of loss, injury, or death involving strong seismic ground shaking is greatest in dense population areas. As stated above, the proposed project does not involve habitable structures that would be subject to major structural damage or could create a public health hazard. In addition, the proposed project would enhance the ability of the Water Agency’s facilities to withstand strong seismic ground shaking. Therefore, potential impacts related to strong seismic ground shaking would be less than significant.</p>				

iii. Seismic-related ground failure, including liquefaction?			X	
<p>The proposed project is located within seismic zones that are determined to have very high susceptibility to liquefaction (Sonoma County 2011). The purpose of the proposed project is to address seismic-related issues, including liquefaction, which would minimize the potential for the Water Agency’s pipeline to be affected by liquefaction. Therefore, the potential impacts related to seismic-related ground failure would be less than significant.</p>				
iv. Landslides?			X	
<p>The proposed project site is located in a region categorized as “few landslides” (USGS 1997). These are areas that contain few, if any, large mapped landslides. Locally, they contain scattered small landslides and questionably identified larger landslides (USGS 1997).</p> <p>The proposed project site and surrounding area is categorized as “flat land” and is not known for landslides (USGS 1997). These are areas of gentle slope at low elevation that have little or no potential for the formation of slumps, translational slides, or earth flows except along stream banks and terrace margins (USGS 1997).</p> <p>While the proposed project’s construction work area includes the Russian River’s banks, which could potentially be prone to translational slides or earth flows, the proposed project’s site restoration activities would ensure that potential for the proposed project to cause or be affected by a potential landslide would not be significant. Therefore, this impact would be less than significant.</p>				
b. Result in substantial soil erosion or the loss of topsoil?			X	
<p>The proposed project’s construction activities would include ground disturbing activities, such as site clearing and trench construction, which could potentially result in soil erosion during or following the project’s 16 to 24 month construction period. However, the proposed project would also include trench backfilling and site restoration activities that would restore disturbed areas to their pre-construction conditions, including replacing topsoil that was removed during excavation activities, re-establishing preconstruction contours and drainage patterns, and installing erosion and sedimentation controls (reseeding with grasses). In addition, implementation of BMP-1 (General Impact Avoidance and Minimization-Work Window), BMP-2 (Minimize the Area of Disturbance), BMP-3 (Erosion and Sediment Control Measures), and BMP-5 (Staging and Stockpiling of Materials) would further reduce any impacts associated with erosion by reducing the area of ground-disturbing activities, minimizing erosion from stockpiles, and performing ground-disturbance activities in the Russian River channel during the low-flow period. As a result, with implementation of these BMPs and restoration measures, this impact would be less than significant.</p>				

<p>c. Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?</p>			<p>X</p>	
<p>Soils underlying the project site include alluvium deposits (California Geologic Survey 1982). More specifically, the project includes the following soils (NRCS 1972, NRCS 2015):</p> <ul style="list-style-type: none"> ▪ <i>Project Work Site: YmB:</i> Yolo Sandy loam, 0 to 2 percent slopes. Alluvium derived from sedimentary rock. This type of soil is well drained with low expansivity. ▪ <i>Project Work Site: AdA:</i> Alluvial Land, Sandy: Gravelly sand to very coarse sand. Somewhat excessively drained with low expansivity. ▪ <i>Temporary Stockpile Location: ZaB:</i> Zamora silty clay loam, 2 to 5 percent slopes. Well drained silty clay loam with high expansivity. ▪ <i>Permanent Stockpile Locations: RnA:</i> Riverwash. Sandy and gravelly alluvium. Excessively drained. Low expansivity. <p>The topography of the project site is generally level, with the exception of the Russian River channel. As previously stated in response to question 3.6a, the proposed project’s design considers potential geologic hazards such as subsidence and liquefaction. In addition, the proposed project does not involve habitable structures that would be subject to major structural damage or could create a public health hazard. In addition, the proposed project is primarily limited to below ground level physical changes including pipeline installation, and sediment removal, disposal and reuse. Therefore, the potential impacts related to on- or off-site landslide, lateral spreading, subsidence, severe erosion, liquefaction or collapse would be less than significant.</p>				
<p>d. Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating significant risks to life or property?</p>			<p>X</p>	
<p>The soils within the project site are considered to contain less than 50% clay with mostly low shrink-swell (expansive) potential (NRCS 1972). The temporary stock piles areas overlie high shrink-swell potential soils. Spoils temporarily stockpiled would be relocated either to backfill the trenches or permanently deposited at the Wohler Facility. As stated in response to questions 3.6a and 3.6c, the proposed project would not involve habitable structures that would be subject to major structural damage or could create a public health hazard. The proposed project would not create significant risks to life or property. This impact would be less than significant.</p>				

<p>e. Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?</p>				<p>X</p>
<p>Septic tanks or alternative wastewater disposal systems would not be installed as part of the proposed project. No impacts are expected to occur as a result of the proposed project.</p>				

3.7 GREENHOUSE GAS EMISSIONS. Would the project:				
	Potentially Significant Impacts	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Generate greenhouse gas, either directly or indirectly, that may have a significant impact on the environment?			X	
<p>Construction equipment, including generators, for the proposed project would emit greenhouse gases (GHG). Because the NSCAPCD has not established GHG significance thresholds, the greenhouse gas emissions (GHG) criteria used by other local air districts [Bay Area Air Quality Management District (BAAQMD) and the Sacramento Metropolitan Air Quality Management District (SMAQMD)] were reviewed. The SMAQMD has established a significance threshold for construction- and operational-related GHG emissions from land development and construction projects of 1,100 metric tons of carbon dioxide equivalent (CO₂e)/year where any project emissions meeting or exceeding this “bright line” threshold would be considered potentially significant. In 2010, the BAAQMD adopted similar GHG thresholds (a 1,100 metric tons of CO₂e per year significance threshold) but, at this time, these thresholds are not recommended for use due to pending lawsuits (BAAQMD 2015).</p> <p>The emissions associated with project construction activities are approximately 1,754 metric tons of CO₂e total and 877 per metric tons of CO₂e per year. These emissions were estimated using the SMAQMD’s Roadway Construction Emissions Model (RoadMod). While exact equipment is not known, typical equipment used for pipeline projects was used in emission estimates considering 20 workers and limited to less than 20 pieces of construction equipment. Construction phase duration and construction equipment use assumptions are provided in Appendix D. It was assumed that the project would take 24 months beginning in May 2016. The number of sediment hauling trips was estimated to be 1 round trip per day, over a 4-month period, to dispose of up to 300 cubic yards at the Wohler Facility with a conservative one-way trip length of 1.25 miles. The emissions included 20 roundtrips for worker commutes and assumed a trip length of 40 miles round trip.</p> <p>The emissions would result in 877 metric tons of CO₂e emissions per year during the 24 months of construction activities, which is below the SMAQMD threshold of 1,100 metric tons per year. Thus, the proposed project’s construction emissions are not a large one-time contributor of GHG emissions.</p> <p>Operation of the proposed project would not result in a substantial change from the Water Agency’s existing energy use for operation of its water distribution system. There would be no change in the number of Water Agency employees or maintenance-related vehicle trips by Agency personnel. Thus, the proposed project’s operation would not alter the GHG emissions associated with the existing operation of the Water Agency’s distribution system.</p> <p>The proposed project would not create new permanent source of GHG emissions, and would therefore not conflict with any plans or policies adopted to reduce GHG emissions. The construction emissions associated with the project are below significance thresholds and</p>				

operational emissions would have no change from current operation. Therefore, impacts related to generation of GHG emissions would be less than significant .				
b. Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?			X	
<p>The State has implemented Assembly Bill (AB) 32 to reduce GHG emissions. The proposed project does not pose any conflict with the most recent list of CARB’s early action strategies. The First Update to the Climate Change Scoping Plan (CARB 2014) mentions water as a key focus area and calls for effective regional integrated planning that maximizes efficiency and conservation efforts in the water sector, and calls for measures that reduce GHG emissions and maintain water supply reliability. The proposed project is consistent with the water focus area in the Scoping Plan Update in that this project would maintain the structural and functional integrity of the Russian River-Cotati Intertie. The proposed project would not be required to report emissions to CARB. Therefore, the emissions generated by the proposed project would not be expected to have a substantial impact on global climate change. The proposed project would be consistent with the measures outlined in the Sonoma County General Plan and the Sonoma County Community Climate Action Plan (Climate Protection Campaign 2008). In particular these plans encouraged efficiency related to pumping operations for water. The proposed project would have no effect on the Water Agency’s existing pumping operations. For the above-described reasons, the proposed project would not conflict with AB 32 or local plans. Therefore, this impact is considered less than significant.</p>				

3.8 HAZARDS AND HAZARDOUS MATERIALS. Would the project:				
	Potentially Significant Impacts	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?			X	
<p>During construction, the proposed project would require the use of certain hazardous materials such as fuels and oils when operating construction equipment. During routine transport and use of equipment, small amounts of fuels and oils could be released. Implementation of BMP-6 (On-Site Hazardous Materials Management), BMP-7 (Existing Hazardous Materials), BMP-8 (Spill Prevention and Response), BMP-9 (Vehicle and Equipment Maintenance) and BMP-10 (Vehicle and Equipment Fueling) would require employment of measures for the safe handling, storage, and disposal of chemicals used during the construction phase. With implementation of these BMPs, the impact to the public or environment through the routine transport and use of hazardous materials would be less than significant.</p>				
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?			X	
<p>As discussed above, project construction would require the use of certain hazardous materials such as fuels and oils. Accidental release of these materials into the environment could adversely affect soil, surface waters, or groundwater quality and subsequently create a hazard to the public. Implementation of BMPs listed in response to question 3.8a, above, require employment of BMPs for the safe handling, storage, and disposal of chemicals used during the construction process. With implementation of these BMPs, the impact to the public or environment through the routine transport and use of hazardous materials would be less than significant.</p>				
c. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?				X
<p>The proposed project would not located within one-quarter mile of an existing or proposed school. The nearest school, El Molino High School, is located approximately 0.8 mile south of the proposed project site. There are no plans for any new schools in the Forestville Union School District or the Western Sonoma County Union High School District (Pers. Comm. Hughes 2015, Pers. Comm. Lamb 2015). The proposed project is expected to have no impact on an existing or proposed school should hazardous materials be released.</p>				

<p>d. Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?</p>				<p>X</p>
<p>The proposed project site is not included on a list of hazardous materials sites pursuant to Government Code Section 65962.5. The closest known active sites are Peter Pan Cleaners and Ecodyne Pond, greater than 4 miles northeast of the project site (California Department of Toxic Substance Control 2015). Thus, the proposed project’s ground-disturbing activities would not create a significant hazard to the public or the environment; therefore there would be no impact.</p>				
<p>e. For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, result in a safety hazard for people residing or working at the project site?</p>				<p>X</p>
<p>The project site is approximately 3.5 miles west of the Charles M. Schulz-Sonoma County Airport. The proposed project’s permanent features are largely below the ground surface and would not pose a safety hazard to airport use. The proposed project is expected to have no impact on people residing or working at the project site with respect to airport compatibility.</p>				
<p>f. For a project within the vicinity of a private airstrip, result in a safety hazard for people residing or working at the project site?</p>				<p>X</p>
<p>As described above in response to question 3.8e, the proposed project would not be located within the vicinity of an active private airstrip. The nearest private airstrip is approximately 7 miles from the project site (TollFreeAirline 2015). In addition, the proposed project’s permanent features are largely below the ground surface and would not pose a safety hazard to airport use. The proposed project is expected to have no impact on people residing or working at the project site with respect to airport compatibility.</p>				
<p>g. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?</p>				<p>X</p>
<p>Construction-related employee vehicle trips and truck trips for the proposed project would slightly increase traffic on River Road, Wohler Road, and Westside Road over the duration of the construction period. Construction-related vehicles would be temporary and only a limited</p>				

<p>number (approximately 21 total round trips per day) of employee vehicles and trucks would travel to and from the project site. Staging areas would be located on Water Agency property. Project staging would not affect any public use roads and access to the project site for fire and emergency response vehicles would be maintained at all times. The proposed project would not involve any roadway construction activities. Additional truck traffic related to the proposed project's use of the Wohler Facility as a permanent spoils disposal area would not result in traffic delays on Wohler Road or Westside Road. The proposed project would not impact on an adopted emergency response plan or emergency evacuation plan; therefore there would be no impact.</p>				
<p>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?</p>			<p>X</p>	
<p>The proposed project site is primarily located within a designated "non-very high" local wildfire hazard severity responsibility area and within the jurisdiction of the Forestville Fire Protection District (Sonoma County 2011, California Department of Fire and Forestry 2008). The permanent disposal sites are located within a designated "moderate" state wildfire hazard severity responsibility area (California Department of Fire and Forestry 2007).</p> <p>The proposed project's construction equipment within or near vegetated areas could potentially present an ignition source and fire hazard. However, the proposed project would be required to comply with the Public Resources Code (Sections 4442, 4428, 4427, and 4431) requirements for construction activities at sites with forest-, brush-, or grass-covered land, and vegetation would be cleared within the project site for construction activities, which would minimize the proposed project's potential to expose people or structures to a significant risk of wildland fires. In addition, the proposed project would not involve habitable structures. Therefore, this impact would be less than significant.</p>				

3.9 HYDROLOGY AND WATER QUALITY. Would the project:				
	Potentially Significant Impacts	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Violate any water quality standards or waste discharge requirements?			X	
<p>Construction activities associated with the proposed project could temporarily increase suspended and settleable material that may affect water quality, through disturbance of soils, potential existing contaminants in soil, dewatering activities, and potential accidental release of chemicals. Construction activities that could pose a water quality threat are discussed below.</p> <p>Ground-Disturbing Activities</p> <p>The proposed project’s construction activities would include ground disturbing activities, such as site clearing, methods to dewater the work area, and trench construction, which could potentially result in soil erosion and transport to surface waters, Russian River, downstream of the work area during construction. However, ground disturbing construction activities, such as trenching in the riverbanks, would only occur during the low-flow period in the Russian River, between June 15 to October 15, when there is little risk for sediment erosion and transport due to rainfall.</p> <p>After site clearing is complete, the installation of sheet piles, sand bags, and/or water bags to a discrete portion of the river bank would be installed to isolate the work area from the active channel. In addition, pumps would be required to keep water out of the work area as trenching and excavating activities continue to remove the existing pipeline (details are described under Dewatering Activities below).</p> <p>Trench backfilling and site restoration activities would restore disturbed areas that were removed during excavation activities. The river bank would be re-established to preconstruction contours and drainage patterns. Installation of erosion and sedimentation controls (reseeding with grasses) would be incorporated into project specifications to stabilize soil and prevent erosion in areas where construction activities result in exposed soil. The implementation of BMP-1, BMP-2, BMP-3, and BMP-5 would adequately prevent against erosion and sediment transport during and after project construction by reducing the area of ground-disturbing activities, minimizing erosion from stockpiles, and performing ground-disturbance activities near the Russian River channel during the low-flow period.</p> <p>Additionally, since the proposed project’s total area of disturbance is greater than one acre, the Water Agency’s contractor would need to obtain coverage under the Non-Point Discharge Elimination System (NPDES) Construction General Permit (SWRCB Order No. 2009-0009-DWQ) from the State Water Resources Control Board (SWRCB). By complying with NPDES permit conditions and by implementing BMPs described in the <i>Project Description</i>, potential impacts on water quality due to ground-disturbing activities would be less than significant.</p>				

Sediment Handling and Disposal

Sediment removed during trench construction would be temporarily stored adjacent to the trench, at the temporary staging area within the Water Agency's Mirabel Facility, or at the Wohler Facility. The majority of the excavated spoils (up to 40,000 cubic yards) would be backfilled in the trenches after pipeline installation while the remainder (up to 300 cubic yards) would be permanently disposed at the Mirabel Facility and at the Wohler Facility. Placement of fill on land is regulated by the RWQCB as a "discharge" under the Porter-Cologne Water Quality Control Act. The Water Agency would be subject to permit requirements for beneficial reuse of excavated sediment from the Russian River and surrounding construction area and would not proceed with the project until gaining approval from the RWQCB. To ensure that sediment excavation, handling, and disposal activities would not harm water quality, the Water Agency would implement BMPs (BMP-2, BMP-3, BMP-5, BMP-7) that minimize the area of ground disturbance and potential quantity of excavated sediments, prevent mobilization of sediment during and after sediment removal work, and proper disposal of hazardous materials (if any encountered) to minimize adverse effects on water quality. Sediment handling and disposal activities would result in a less-than-significant impact.

Dewatering Activities

Construction activities in the river bank would be conducted during the summer dry season (June 15 through October 15) when surface and groundwater levels are the lowest. As excavating activities continue, it is anticipated that water would be encountered within the project work areas along the river banks. Therefore, dewatering of the discrete portion of the river bank would be required. As described in Chapter 2, *Project Description*, the proposed project's isolation methods would involve installation of cofferdams constructed of sheet piles or flow exclusion structures (i.e., sand bags and/or water bags) at the upstream and downstream ends of the work areas. Per BMP-11 (Dewatering Pump/Generator Operations and Maintenance), the isolated water would be pumped out of the construction zone and filtered to remove suspended sediment before being discharged in one or more of the following methods: pumped to the Mirabel Facility infiltration site, used for irrigation, and/or infiltrated onsite. The Russian River channel would not be dewatered; only the isolated areas surrounding the work sites along the river bank would be dewatered. The isolated work area would allow for continued fish passage through the Russian River channel and around the work areas.

A slight temporary increase in turbidity of the river immediately below the site would occur as the temporary cofferdams or flow exclusion areas are installed and removed. Work would be performed under the terms of a water quality certification issued by the California North Coast Regional Water Quality Control Board. Anticipated turbidity increases during construction would be of short duration and minor in nature. In addition, implementation of BMP-1, BMP-3, BMP-11, and BMP-12 listed in Table 3 would further minimize impacts on water quality by prescribing measures to ensure sediment would not be transported unnecessarily during dewatering, flow bypass, and flow restoration, and require dewatering discharges in accordance with state, federal, and local water quality standards. These measures would sufficiently protect the Russian River from dewatering-related pollutants. This impact would be less than significant.

Accidental Release of Hazardous Materials

Project construction would involve use of heavy machinery within channel banks of the Russian River. Fuel and lubricants such as oil and grease would be used in construction equipment and vehicles. During construction activities, equipment and worker vehicles would be stored and

refueled at staging areas equipped with secondary containment. Nonetheless, potential impacts on water quality could result from accidental releases of fuels, lubricants, hydraulic fluids, or other chemicals associated with operating construction equipment. Compliance with the NPDES Construction General Permit conditions described above, and implementation of BMP-6, BMP-7, BMP-8, BMP-9, BMP-10, and BMP-12 would prevent accidental releases from occurring, and potential adverse effects on water quality during construction would be less than significant.

In summary, implementation of BMPs and compliance with the terms of the water quality certification issued by the California North Coast Regional Water Quality Control Board and the NPDES Construction General Permit conditions would ensure stated impacts would not occur. Therefore, this impact would be **less than significant**.

b. Substantially deplete groundwater supplies or interfere significantly 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 which would not support existing land uses or planned uses for which permits have been granted)?

X

The proposed project would not utilize groundwater supplies or involve any action that would permanently change the volume of groundwater aquifers or the groundwater table elevation in the proposed project vicinity. Dewatering activities for the proposed project would involve the use of cofferdams to isolate construction work areas within the banks of the Russian River and discharge of dewatered flows using one or more potential methods detailed in Chapter 2, *Project Description*. These dewatering activities and use of sheet piles to restrict groundwater into work areas would be temporary and would not substantially or permanently alter groundwater flow patterns or levels in the areas surrounding the construction sites. Furthermore, these activities would not be anticipated to affect groundwater quality because water from dewatering operations would be discharged in accordance with state, federal, and local water quality standards. In addition, the proposed project would not construct impermeable features that would prevent groundwater recharge. No groundwater supplies would be used during the project's construction or operation. Therefore, **no impact** to groundwater supplies would be associated with the proposed project.

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- or off-site?

X

The proposed project would require short-term construction related disturbance to the channel bank of the Russian River. No work within the wetted channel would be anticipated. The proposed construction activities would occur during the dry season and, all disturbed ground surfaces would be hydroseeded to minimize erosion once construction is complete, as stated in

<p>Chapter 2, <i>Project Description</i>. Construction activities would include the implementation of BMP-3 (Erosion and Sediment Control Measures) for erosion control such as silt fencing, erosion control fabrics, mulching, wattles, hydroseeding, and revegetation to stabilize soils and prevent erosion in areas where construction activities result in exposed soil.</p> <p>Upon completion of construction, all disturbed surfaces would be graded to preconstruction contours and drainage patterns. In addition, the proposed project’s features would largely be underground and would not permanently alter the drainage patterns of the construction site. For these reasons, the impact related to alteration of the project site’s drainage pattern would be less than significant.</p>				
<p>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- or off-site?</p>				<p>X</p>
<p>The proposed project would not result in the addition of any impervious surface within the river bank. Once constructed, the proposed project’s features would be underground and would not permanently alter the drainage patterns of the project site as described in the Impact 3.9.c discussion above. Therefore, the proposed project would not substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site. There would be no impact.</p>				
<p>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?</p>				<p>X</p>
<p>The proposed project would not 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. The proposed project’s limited permanent aboveground impermeable surfaces (i.e., a cathode protection station and valve box) would be negligible compared to the existing conditions and would not create runoff water that would exceed any stormwater systems or result in substantial polluted runoff. Therefore, no impact would occur.</p>				
<p>f. Otherwise substantially degrade water quality?</p>			<p>X</p>	
<p>For the reasons described in response to question 3.9a, above, impacts on surface water quality would be less than significant. Similarly, as described in response to question 3.9b, project construction would not affect groundwater supplies or involve any activity that would substantially affect groundwater quality. Therefore, potential impacts on water quality would be less than significant.</p>				

<p>g. Place housing with a 100-year flood hazard area s mapped on a federal Flood Hazard Boundary or Flood Insurance Rater Map or other flood hazard delineation map?</p>				<p>X</p>
<p>The proposed project would not construct any housing. Therefore, no impact related to placement of housing within a 100-year flood hazard area would occur.</p>				
<p>h. Place within a 100-year flood hazard area structures which would impede or redirect flood flows?</p>			<p>X</p>	
<p>The proposed project would involve construction activities in the Russian River bank. However, trenching in the riverbank would occur during the low-flow summer months and the riverbank would be restored to its existing conditions following the in-channel activities. In addition, the majority of the proposed project’s features are underground and would not impede or redirect flood flows. The minimal aboveground features (described in Impact 3.9.e above) would have relatively small diameters (less than four feet) and do not include any structures or buildings. Therefore, the proposed project would result in a less than-significant-impact on impeding or redirecting flood flows by placing structures within a 100-year hazard area.</p>				
<p>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?</p>			<p>X</p>	
<p>As stated above, the proposed project does not contain habitable structures and would not require any change in operation- and maintenance-related worker trips to the project site. The proposed project site is located within a dam inundation zone (Sonoma County 2011). During the proposed project’s construction and operations, workers would potentially be at risk of inundation by a dam failure; however, this risk would not be greater than the existing risk to the site and the surrounding Russian River area. Additionally, installing the new pipelines at a greater depth below the Russian River compared to the existing pipeline, the proposed project would reduce the potential risk of channel bed erosion exposing the pipelines. The new pipelines will be located at a depth well beyond the erosion potential for the Russian River. Thus, there would be a less-than-significant impact due to the proposed project.</p>				
<p>j. Inundation by seiche, tsunami, or mudflow?</p>				<p>X</p>
<p>The project site is upstream and outside of any tsunami inundation areas (Sonoma County 2011). A seiche could potentially occur in the Russian River, the Mirabel Facility infiltration ponds, or the Wohler Facility ponds. The project site is located in a relatively flat area that is a low risk for mudflows (Sonoma County 2011). Since the proposed project does not contain habitable structures and the proposed project primarily involves construction of a replacement pipeline, should inundation by a tsunami, seiche or mudflow occur at the project site, there would be no significant risk of loss, injury or death as a result of the project. Therefore, there would be no impact on people or structures due to inundation by tsunami, seiche or mudflow.</p>				

3.10 LAND USE AND PLANNING. Would the project:				
	Potentially Significant Impacts	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Physically divide an established community?				X
<p>The proposed project includes reducing the potential Russian River-Cotati Intertie pipe failure risk through pipeline upgrades and installing an underground pipeline. Two land use designations are within the project area. Resources and Rural Development Land and Land Intensive Agriculture Land (Sonoma County Permit and Resource Management Department 2012a). Construction activities would largely occur within Water Agency property (Resources and Rural Development). There are no habitable structures or communities on the project site. The vineyards located south of the Russian River (within the temporary construction and staging areas) and the undeveloped land north of the Russian River (within the staging, construction, and stockpiling areas) would be disrupted during construction activities. However, the project does not propose any physical elements that would restrict access within an established community. The proposed project would also not change the existing use of these properties. Therefore, there would be no impact to any division of an established community.</p>				
b. Conflict with any applicable land use plan, policy or regulation of an agency with jurisdiction over the project (including, but not limited to, the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?				X
<p>The land uses of the staging and temporary stockpile areas are designated as Resources and Rural Development in the Sonoma County General Plan. The pipeline installation, staging and permanent stockpile locations are located on areas designated as Land Intensive Agriculture (Sonoma County Permit and Resource Management Department 2012).</p> <p>The County’s General Plan includes policies that support protecting land capable of use for agricultural purposes (i.e., animal husbandry and the production of food) and protecting natural resources. Designated resources and rural development areas allow for limited residential development, while protecting the use of timberlands for timber production, protecting natural resources including fish and wildlife habitat, and protecting lands needed for geothermal resource production (Sonoma County Permit and Resource Management Department 2014). Implementation of the proposed project’s BMPs, in particular, BMP-1, BMP-2, BMP-3, BMP-8, BMP-11, BMP-12, BMP-13, and BMP-14 would ensure that the project minimizes impacts on natural resources, including water quality, and wildlife species. In addition, BMP-2, BMP-3,</p>				

<p>BMP-4, and BMP-5 would minimize potential effects on agriculture (local vineyards) during and following construction activities. The project site is not included in a coastal zone and not subject to a local coastal program’s planning policies or requirements (Sonoma County Permit and Resource Management Department 2001). The project does not involve habitable structures, would not result in changes to land use, and the proposed project proposes only below grade level changes. Therefore, the project would not result in any conflicts with applicable land use plans, policies or regulations; thus there would be no impact.</p>				
<p>c. Conflict with any applicable habitat conservation plan or natural community conservation plan?</p>				<p>X</p>
<p>As discussed in Section 3.4, <i>Biological Resources</i>, the proposed project would not be under the jurisdiction of an adopted habitat conservation plan or natural community conservation plan. Therefore, the project would not conflict with these plans and have no impact.</p>				

3.11 MINERAL RESOURCES. Would the project:				
	Potentially Significant Impacts	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Result in the loss of availability of a known mineral resource that would be of value to the region or the residents of the State?				X
<p>The Sonoma County Aggregate Resources Management Plan (Sonoma County 2010) identifies an area upstream of the project site along the Russian River that is suitable for mineral resource extraction activities. The “middle terrace” area along the Russian River extends from approximately river mile 30 near the intersection of Limerick Lane and Highway 101 downstream approximately 6 river miles to Lake Benoit in the Riverfront Regional Park, which is approximately 3,900 feet northeast from the proposed project’s permanent disposal areas (Wohler Facility). There is no known mineral resource that would be of value regionally or statewide within the project site (California Department of Conservation 2005, Sonoma County 2010). Consequently, the proposed project would have no impact with respect to mineral resources.</p>				
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?				X
<p>There is no known locally important mineral resource recovery site at the project site (California Department of Conservation 2005, Sonoma County Permit and Resource Management Department 2015). Consequently, the proposed project would have no impact with respect to mineral resources.</p>				

3.12 NOISE. Would the project result in:																			
	Potentially Significant Impacts	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact															
a. Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?				X															
<p>The Noise Element of the <i>Sonoma County General Plan 2020</i> establishes the following goal, objectives, and policies to reduce existing and future operational noise impacts and conflicts (Sonoma County Permit and Resource Management Department 2012a) which are pertinent to the proposed project:</p> <p>Goal NE-1: Protect people from the adverse effects of exposure to excessive noise and to achieve an environment in which people and land uses may function without impairment from noise.</p> <ul style="list-style-type: none"> ▪ Objective NE-1.2: Develop and implement measures to avoid exposure of people to excessive noise levels. ▪ Objective NE-1.3: Protect the present noise environment and prevent intrusion of new noise sources which would substantially alter the noise environment. ▪ Policy NE-1.c: Control non-transportation related noise from new projects. The total noise level resulting from new sources shall not exceed the standards in Table NE-2 [presented below as Table 6] as measured at the exterior property line of any adjacent noise sensitive land use. ▪ Reduce the applicable standards in Table NE-2 by five decibels for A-weighted sound levels (dBA) for simple tone noises, noises consisting primarily of speech or music, or for recurring impulsive noises, such as impact pile drivers and dog barking at kennels; <p>Table 6. Maximum Allowable Exterior Noise Exposures For Non-Transportation Noise Sources</p> <table border="1"> <thead> <tr> <th>Hourly Noise Metric^a, dBA</th> <th>Daytime (7 a.m. to 10 p.m.)</th> <th>Nighttime (10 p.m. to 7 a.m.)</th> </tr> </thead> <tbody> <tr> <td>L50 (30 minutes in any hour)</td> <td>50</td> <td>45</td> </tr> <tr> <td>L25 (15 minutes in any hour)</td> <td>55</td> <td>50</td> </tr> <tr> <td>L08 (5 minutes in any hour)</td> <td>60</td> <td>55</td> </tr> <tr> <td>L02 (1 minute in any hour)</td> <td>65</td> <td>60</td> </tr> </tbody> </table> <p>^a The sound level exceeded n% of the time in any hour. For example, the L50 is the value exceeded 50% of the time or 30 minutes in any hour; this is the median noise level. The L02 is the sound level exceeded 1 minute in any hour.</p> <p><i>Source:</i> Sonoma County Permit and Resource Management Department 2012a.</p>					Hourly Noise Metric ^a , dBA	Daytime (7 a.m. to 10 p.m.)	Nighttime (10 p.m. to 7 a.m.)	L50 (30 minutes in any hour)	50	45	L25 (15 minutes in any hour)	55	50	L08 (5 minutes in any hour)	60	55	L02 (1 minute in any hour)	65	60
Hourly Noise Metric ^a , dBA	Daytime (7 a.m. to 10 p.m.)	Nighttime (10 p.m. to 7 a.m.)																	
L50 (30 minutes in any hour)	50	45																	
L25 (15 minutes in any hour)	55	50																	
L08 (5 minutes in any hour)	60	55																	
L02 (1 minute in any hour)	65	60																	

The Sonoma County General Plan 2020 Noise Element only addresses operational noise and does not specifically address intermittent or short-term construction and maintenance noise and currently there is no adopted noise ordinance in the County of Sonoma Municipal Code. The Sonoma County General Plan calls for the County to adopt a noise ordinance that would include noise performance standards. However, a noise ordinance has not been adopted to date.

The State of California has promulgated the California Noise Insulation Standards.² These standards set forth an interior standard Day-Night Average Sound Level (DNL)³ of 45 dBA for habitable spaces. These standards may be applied to residences located near construction activities or stationary noise sources as a method of examining potentially intrusive noise.

There are no federal noise standards that directly regulate environmental noise or vibration related to construction, maintenance or operation of the proposed project. With regard to noise exposure and the workplace, Office of Environmental Health and Safety regulations safeguard the hearing of workers exposed to occupational noise.

However, the Federal Transit Administration (FTA) publication, *Transit Noise and Vibration Noise Impact Assessment* (2006), provides guidance on transit noise and vibration impact assessment and discusses ways of reducing excessive noise and vibration caused by mass transit projects. The assessment contains criteria that identify thresholds for noise and vibration impacts from transit systems. These noise impact criteria are based on the change in ambient noise exposure. L_{dn} is used to characterize residential areas, and a maximum one-hour operational L_{eq} is used to characterize other noise sensitive areas, such as schools, parks, and outdoor amphitheaters.

The proposed project would not result in any new permanent sources of noise. There would only be temporary noise generated during construction. In the absence of local regulatory significance thresholds for noise from construction equipment, it is appropriate to use the FTA's noise criteria.

FTA's *Transit Noise and Vibration Impact Assessment* (FTA 2006), which recommends that residential noise levels in one hour are limited to 90 dBA during the day time. A-weighted sound levels are sounds that only reflect potential noises heard by humans and, as such, have been filtered to reduce the strength of very low and very high-frequency sounds. As discussed in part d below, the construction noise levels at the nearest residential receptor is less than this recommended threshold for temporary construction noise. Therefore, given that there are no applicable General Plan or County ordinances related to temporary construction noise and there will be no operational noise, there will be no generation of noise levels in excess of standards established by local general plans or noise ordinances, or applicable standards of other agencies; thus **no impact**.

² *California Code of Regulations*, Title 24, Part 2, Appendix Chapters 12 and 12A (known as Building Standards Administrative Code, California Building Code).

³ The Day-Night Average Sound Level (L_{dn} or D_{NL}) is the average noise level over a 24-hour period. Noise between the hours of 10 p.m. and 7 a.m. is artificially increased by 10 dB. This noise is weighted to take into account the decrease in community background noise of 10 dB during this period. The Federal Aviation Authority has established this measure as a community noise exposure metric to aid airport noise analyses under Federal Aviation Regulation Part 150.

b. Exposure of persons to or generation of excessive ground-borne vibration or ground-borne noise levels?			X	
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Vibration and ground-borne noise levels were estimated by following methods described in the Federal Transportation Administration (FTA) *Transit Noise and Vibration Impact Assessment* (FTA 2006) to determine the peak particle velocity (PPV) that would potentially impact (damage) buildings and the vibration noise level (vibration decibels or VdB) that would potentially cause human annoyance from ground-borne vibration. Construction equipment causes vibrations that spread through the ground and diminish in strength with distance (FTA 2006). PPV and vibration noise levels for construction equipment to be used during the proposed project's construction are shown in **Table 7**.

Table 7. Standard Peak Particle Velocity (PPV) and Vibration Levels for Proposed Project's Potential Construction Equipment

Equipment (or equivalent)	PPV at 25 ft (inches per second)	Vibration Level (L _v) at 25 ft (VdB)	Vibration Level (L _v) at 290 ft (VdB)
Pile Driver (sonic)	0.170	93	61
Vibratory Roller	0.210	94	62
Large bulldozer	0.089	87	55
Loaded trucks	0.076	86	54
Jackhammer	0.035	79	47
Small bulldozer	0.003	58	26

The vibration threshold for buildings occurs at a PPV of 0.12 (inch/second) for buildings extremely susceptible to vibration damage, which represents the lowest (most sensitive) threshold. Although the perceptibility threshold is about 65 VdB, human response to vibration is not usually significant unless the vibration exceeds 70 VdB.

It was assumed that the greatest vibratory equipment on the project site would have similar vibration sound levels as a vibratory roller. The Mirabel RV and Campground and the nearest residences would be approximately 292 feet and 613 feet, respectively, from the proposed project site. For impacts to buildings, the sensitive receptors, both at Mirabel RV and Campground and nearest residences, would be outside of the PPV building vibration threshold (i.e., too far from the project site). For impacts to humans, operation of equipment such as a sonic pile driver, vibratory roller, a large bulldozer, or a jackhammer within 292 feet are unlikely to result in VdB levels greater than 70 (see Table 6). Therefore, construction equipment vibration levels are not anticipated to significantly exceed criteria thresholds for damage to structures or annoyance to people in the project area. In addition, the proposed project would implement BMP-15 (Implement Vibration-Reducing Measures) to further reduce vibrational impacts to buildings and human annoyance. Vibration impacts would be **less than significant**.

<p>c. A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?</p>				<p>X</p>
<p>There would be no permanent increase in ambient noise levels in the project vicinity since the proposed project would not result in new permanent noise sources. Therefore, no impact would occur.</p>				
<p>d. A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?</p>			<p>X</p>	
<p>The FTA has established guidance on noise and vibration impact assessments for construction equipment (FTA 2006). To roughly estimate anticipated construction noise levels at nearby sensitive receptor locations, the FTA recommends that the noisiest two pieces of equipment be used in these noise estimations along with the following assumptions:</p> <ul style="list-style-type: none"> ▪ full power operation for a full one hour, ▪ there are no obstructions to the noise travel paths, ▪ typical noise levels from construction equipment are used, and ▪ all pieces of equipment operate at the center of the project site. <p>Using these simplifying assumptions, the noise levels at specific distances can be obtained using the following equation:</p> $L_{eq}(equip) = EL_{50ft} - 20\log_{10}(D/50)$ <p>Where:</p> <p>L_{eq} (equip) = the noise emission level at the receiver at distance D over 1 hour. EL_{50ft} = noise emission level of a particular piece of equipment at reference distance of 50 feet. D = the distance from the receiver to the piece of equipment in feet.</p> <p>In order to add the two noisiest pieces of equipment together, the following equation applies:</p> $L_{total} = 10 \log_{10}(10^{\frac{L_1}{10}} + 10^{\frac{L_2}{10}})$ <p>Where:</p> <p>L_{total} = The noise emission level of two pieces of equipment combined L_1 = The noise emission level of equipment type 1 L_2 = The noise emission level of equipment type 2</p> <p>Based on reference guides, typical noise levels for the equipment used in the proposed project were used to estimate the noise levels at the nearest sensitive receptors (FTA 2006). The values used for the reference noise level at 50 feet are shown in Table 8, below.</p>				

Table 8. Noise Levels for Construction Equipment

Equipment Type	Noise Level at 50 feet (dBA)
Pile Driver (sonic)	96
Scraper	89
Crane, mobile	83
Roller	74
Pneumatic Tool	85
Pump	76
Tractor	84
Excavator	85
Front-end Loader	85
Truck	88
<i>Source: FTA 2006</i>	

A substantial temporary or periodic short-term increase in ambient noise level standards associated with construction noise, such as would occur under the proposed project, is not addressed in Noise Element of *Sonoma County General Plan 2020* and the County of Sonoma does not have an adopted noise ordinance. For the purposes of this Initial Study, it is appropriate to use the numerical criterion identified in the FTA’s *Transit Noise and Vibration Impact Assessment* (FTA 2006). Temporary impacts during construction activities under the proposed project would be considered significant if they would substantially interfere with sensitive land uses, such as residences and businesses. Substantial interference could result from a combination of factors, including: exposing sensitive receptors to the generation of substantial (i.e., equal to or greater than 90 dBA in the daytime and equal to or greater than 80 dBA at nighttime for residence and 100 dBA in the daytime and at nighttime for commercial and industrial) noise levels at sensitive receptor locations; and/or conducting construction activities that would affect noise-sensitive uses during the nighttime.

Using the equations above and the two noisiest pieces of equipment (a sonic pile driver and a scraper), the noise levels at the nearest receptor measured from the center of the project work area (i.e., the Mirabel RV & Campground, approximately 292 feet away) would be 81.5 dBA. Results of noise calculations conducted as described above are provided in **Appendix G**. Construction noise at this level (approximately 81.5 dBA) would be substantially greater than existing noise levels at nearby sensitive receptor locations. However, construction would be short-term and intermittent. The use of diesel powered construction equipment would be temporary and episodic, for a limited period of time.

As described above, since neither the General Plan nor the County have any applicable standards established for temporary construction noises, an applicable numerical construction noise criterion was taken from the FTA Noise and Vibration Impact Assessment (FTA 2006), which recommends that residential noise levels in one hour are limited to 90 dBA during the day time. The construction noise levels at the nearest residential receptor would be less than this recommended threshold for temporary construction noise. For these reasons, the temporary increases in ambient noise levels would be **less than significant**.

<p>e. For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working at the project site to excessive noise levels?</p>				<p>X</p>
<p>The proposed project site is not in the vicinity of a public airport. The nearest public use airport is the Charles M. Schulz Sonoma County Airport, which is approximately 3.5 miles east of the proposed project (Sonoma County Permit and Resource Management Department 2012b). Therefore, no impact would occur.</p>				
<p>f. For a project within the vicinity of a private airstrip, would the project expose people residing or working at the project site to excessive noise levels?</p>				<p>X</p>
<p>The proposed project site is not in the vicinity of a private airstrip. The nearest private airstrip is approximately 7 miles from the project site (TollFreeAirline 2015). Therefore, no impact would occur.</p>				

3.13 POPULATION AND HOUSING. Would the project:				
	Potentially Significant Impacts	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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)?				X
<p>The proposed project does not involve construction of new homes or businesses in the area, new road extensions, or other new or expanded infrastructure into undeveloped areas. The proposed project would modify the Russian River-Cotati Intertie pipeline in order to maintain safe and reliable water service during a seismic event. The pipeline replacement would not expand the capacity of the pipeline. Approximately 20 construction workers would be temporarily employed at the project site throughout the proposed project’s construction period. These jobs would likely be filled by the local work force. No new long-term employment opportunities or substantial population growth would result from construction or operational activities. For these reasons, the project would not induce population growth and no impact would occur.</p>				
b. Displace substantial numbers of existing housing units, necessitating the construction of replacement housing elsewhere?				X
<p>The proposed project would occur on agricultural and undeveloped lands. The proposed project’s construction and operational activities would not displace existing housing. Therefore, there would be no impact.</p>				
c. Displace a substantial number of people, necessitating the construction of replacement housing elsewhere?				X
<p>The proposed project would occur on agricultural and undeveloped lands. The proposed project’s construction and operational activities would not displace any people. Therefore, there would be no impact.</p>				

3.14 PUBLIC SERVICES. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered government facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:				
	Potentially Significant Impacts	Significant Unless Mitigated	Less Than Significant Impact	No Impact
a. Fire protection?				X
b. Police protection?				X
c. Schools?				X
d. Parks?				X
e. Other public facilities or utilities				X
<p>The Forestville Fire Protection District provides fire protection services to the community of Forestville. A fire station is located approximately 1.5 miles south of the project site (Sonoma County 2011).</p> <p>The project site is also served by the Sonoma County Sheriff’s Office. The nearest Sonoma County Sheriff’s Office is the Guerneville Substation at 16255 Church Street, approximately 8 miles west of the project site.</p> <p>The proposed project site is located within the jurisdiction of the Forestville Union School District. For discussion regarding nearby recreational facilities and parks, refer to Section 3.15, <i>Recreation</i>, below.</p> <p>As described in Section 3.13, <i>Population and Housing</i>, above, the proposed project would not result in direct or indirect population growth. Since construction activities would be temporary and involve no more than 20 workers, project construction would not be expected to significantly affect the Forestville Fire Protection District or the County Sheriff’s ability to maintain acceptable service ratios, response times, or performance objectives. Therefore, the proposed project would have no impact on demand related to fire and police services.</p> <p>Further, the proposed project would not induce growth that requires additional or altered schools, parks or other public facilities to maintain service rations or performance objectives due to such demands. Therefore, no impact would occur on schools, parks, or other facilities.</p>				

3.15 RECREATION. Would the project:				
	Potentially Significant Impacts	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Increase the use of existing neighborhood or regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?				X
<p>The proposed project and staging area are located approximately 250 feet east of Mirabel Park, which is a campground facility. The proposed project is separated from Mirabel Park by the Mark West Creek. There are no recreational facilities within the proposed project site; although the Russian River is used for recreational purposes such as canoeing. The proposed project would involve a limited number of construction workers (20) over the potential 24-month construction period and would not expand the capacity of the Russian River-Cotati Intertie pipeline. Although construction activities would include the use of cofferdams and temporary dewatering of relatively small portions of the construction area along the Russian River banks during construction activities, these activities would not prevent the use of the Russian River for recreational purposes. For these reasons, the proposed project would not induce population growth that would result in an increase in use of nearby parks such as the Mirabel Park Campground. Therefore, the proposed project would have no impact on nearby parks or recreational facilities.</p>				
b. Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?				X
<p>As described in Impact discussions 3.13a and 3.15a, the proposed project would not result in direct or indirect population growth during or following construction. Since construction activities would be temporary and would involve no more than 20 workers, project construction would not be expected to require the construction or expansion of recreational facilities. The proposed project does not include any recreational facilities nor would it affect any existing recreational facilities. Therefore, the project would have no impact.</p>				

3.16 TRANSPORTATION/TRAFFIC. Would the project:				
	Potentially Significant Impacts	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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?		X	
<p>Construction of the proposed project would generate additional vehicle trips associated with construction workers, construction equipment and material-related deliveries, and spoils disposal.</p> <p>The proposed project is located approximately 6.8 miles east of Highway 101, 1.5 miles north of the Highway 116/Mirabel Road intersection, and approximately 1,000 feet north of the River Road/Wohler Road intersection. Construction vehicles would travel west from Highway 101 or north from Highway 116 to connect to River Road. Access to the project location would be from River Road to Wohler Road and then via Westside Road or via Water Agency-owned private roads (as shown in Figure 3 in Chapter 2, <i>Project Description</i>). The southern project site would be accessed via Wohler Road to an existing private Water Agency-owned road that travels west through the Silverado Sonoma Vineyards, LLC-owned property. Access to the project site north of the Russian River and the permanent stockpile locations would include the use of Wohler Road, Wohler Bridge, Westside Road and/or Water Agency-owned private roads (Figure 3).</p> <p>Sonoma County has designated River Road and Westside Road as a Rural Principal Arterial and a Rural Major Collector roadway, respectively (Sonoma County Permit and Resource Management Department 2010a). Wohler Road does not have a county roadway classification (Sonoma County Permit and Resource Management Department 2010a). River Road, Westside Road, and Wohler Road are two-lane roads. Wohler Bridge is a historic, narrow, one-lane bridge and, as a result, requires eastbound traffic to yield to westbound traffic. These roadways have an existing and projected level of service (LOS) of C or better, during both the morning and afternoon peak traffic periods, which indicates adequate traffic flow and no substantial congestion (Sonoma County Permit and Resource Management Department 2010b).</p> <p>Table 9 provides measured average and peak traffic volumes for roads and highways near the project site. The River Road/Fulton intersection, between Highway 101 and the project site, has peak traffic volumes similar to those at the Mirabel Road intersection shown in Table 9.</p>				

Table 9. Peak Hour and Daily Average Traffic Trips for Roads/Highways near Project Site

Road/Intersection	Peak Hour Traffic Volumes	Average Daily Traffic Volumes
River Road (at Mirabel Road, 0.6 mile from River Road/Wohler Road)	1,100 (a.m.) 1,360 (p.m.)	15,300
Westside Road (at Felta Road, 5 miles from Wohler Road)	200 (a.m.) 260 (p.m.)	2,700
Highway 116 (Mirabel Road)	*	5,200
* No data <i>Source:</i> Sonoma County Permit and Resource Management Department 2010b, Caltrans 2014		

The nearest public transit service is the Sonoma County Transit bus, which travels along River Road (Sonoma County Permit and Resource Management Department 2010c). The Sonoma County Transit’s bus stops in the project vicinity include the intersections of River Road with Mirabel Road and with Trenton-Healdsburg Road (Sonoma County Transit 2015).

Westside Road, Wohler Road, and River Road are not currently designated as Class I, II or III Bikeways. There are currently no striping or separated bikeway paths on these roads (Pers. Comm. Manalastas 2015). Planned work for Wohler Road and Westside Road includes signals and striping to support a Class III designation for these roads. River Road is planned to be classified as a Class II Bikeway with a designated bike lane, painting, signage and cleared vegetation. In general, Class I bikeways provide a paved path for the exclusive use of non-motorized transportation. Class II bikeways are commonly known as “bike lanes” but with specific width and geometric standards while Class III bikeways may also be bike lanes but do not have to adhere to specific standards like Class II bikeways.

Project construction would temporarily increase traffic volumes on River Road, Wohler Road, Westside Road, and private roads on Water Agency land. Traffic would primarily increase from construction worker trips and the hauling of sediment to the permanent disposal sites using Wohler Road, and private Water Agency roads. For the south side of the proposed project, excess sediments/spoils from construction activities would be transported on Wohler Road from the project site to the permanent stockpile locations at the Water Agency’s Wohler Facility. For the north side of the proposed project, transportation of permanent and temporary sediment from construction activities would remain within the Mirabel Facility. The expected increase in traffic would take place between the hours of 7:00 a.m. to 7:00 p.m., Monday through Friday and on weekends as necessary. The estimated increase in trips along these roads would be approximately 21 round trips per day, based upon an estimated 20 construction workers and 1 potential daily spoils disposal-related trips for the proposed project. In addition, the proposed project would result in approximately 50 construction equipment delivery trips, which would be anticipated to have negligible effects on the performance of the local highways (Highway 101 or 116) and River Road. This increase in daily traffic during project construction represents less than a one percent change over Westside Road’s annual average daily traffic volume of 2,700.

Apart from spoils-related storage and disposal trips, the proposed project does not include construction activities on roadways, pedestrian paths, or bike paths. Construction vehicles traveling to and from the project site and stockpile or staging locations may cause short-term delays on Wohler Road, Westside Road and the Wohler Bridge. These delays would not be

anticipated to substantially conflict with the performance of these roadways since the roadways have limited congestion and are already meeting their established level of service.

The Sonoma County General Plan’s Circulation and Transit Element (2010b), the Comprehensive Transportation Plan for Sonoma County (Sonoma County Transportation Authority (SCTA) 2009), and the SCTA Countywide Bicycle and Pedestrian Master Plan (SCTA 2014) have traffic-related objectives and policies. However, only the Sonoma County General Plan has objectives or policies related to effectiveness of the circulation system that would be directly related to the proposed project. The Sonoma County General Plan has an objective (CT-2.7) to use traffic demand management measures to reduce peak period congestion, and General Plan Policy CT-3n which requires:

Use the following criteria to determine consistency of public and private projects with the Bikeways Plan:

- i. Development of lands traversed or adjoined by an existing or future Class I bikeway shall not preclude establishment of the bikeway, nor conflict with use and operation of the bikeway or adversely affect long term maintenance and safety of the facility.
- ii. Construction, widening, or maintenance of roads with designated bikeways meets the design and maintenance standards for the appropriate class of bikeway as specified by the Bikeways Plan.

The proposed project would not construct, maintain, or widen any roads with designated bikeways. In addition, the proposed project would not preclude establishment of a Class I bikeway, nor conflict with use and operation of the bikeway or adversely affect long term maintenance and safety of the facility. As a result, the project would have a **less than significant** impact on traffic around the proposed project site.

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?			X	
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Based on the estimates described in response to question 3.16a, above, the proposed project would not result in a substantial increase in traffic during construction activities and would not cause an exceedance of any level of service standard. Refer to the response to question 3.16e, below for discussion regarding effects on emergency access. Local residents and business owners could potentially notice an increase in neighborhood traffic during the 16 to 24 month construction period. However, this increase would be temporary and short in duration. The proposed project would not be expected to substantially disrupt automobile traffic, local or regional mass transit, or non-motorized travel and relevant components of the circulation system. For these reasons, the proposed project would have a **less-than-significant** impact with respect to conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, or congestion management program.

<p>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?</p>				<p>X</p>
<p>The nearest public use airport is the Charles M. Schulz Sonoma County Airport and is approximately 3.5 miles east of the proposed project (Sonoma County Permit and Resource Management Department 2012c). The proposed project site is not included in the approach protection plan area (Sonoma County Permit and Resource Management Department 2012d). Project construction activities would not cause a change in area population, such that air traffic levels would change, or otherwise create safety risks that would require a change in air traffic patterns as the construction work is related to underground pipelines. As such, the proposed project would have no impact on air traffic patterns.</p>				
<p>d. Substantially increase hazards to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?</p>			<p>X</p>	
<p>The proposed project is related to underground pipelines primarily within Water Agency property or on private access roads, and would not permanently change road design features or increase hazards to roadways. Additional truck traffic related to the proposed project’s use of the Wohler Facility as a temporary and/or permanent spoils disposal area would potentially contribute to temporary traffic delays on Wohler Road near the one-lane Wohler Bridge crossing. The proposed project would not affect or alter the design of any public roadways and would not significantly alter the private access roads used to access the project site. Therefore, this impact would be less than significant.</p>				
<p>e. Result in inadequate emergency access?</p>			<p>X</p>	
<p>The Forestville Fire Protection District provides fire protection services to the community of Forestville. A fire station is located approximately 1.5 miles south of the project site at Mirabel Road and Hwy 116. The staging, temporary and permanent stockpile areas are located on the Water Agency’s property, on access roads that are used primarily by the Water Agency or, on the south side of the Russian River, also by Silverado Sonoma Vineyards. Construction vehicles would be used up to 1 time per day over a 4 month period to transport stockpiled soils. The proposed project’s limited number of construction-related hauling trips and location of its construction areas would allow for adequate emergency response access and minimize potential traffic-related hazards from the proposed project’s construction activities. As a result, this impact would be less than significant.</p>				

<p>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?</p>			<p>X</p>	
<p>The proposed project would not result in long-term changes to public transit, bicycle, or pedestrian facilities. However, there may be temporary decreases in performance and safety of public transit and bicycle facilities due to construction activities. There may be minor delays along Wohler Road, Wohler Bridge, and Westside Road due to entering and exiting of construction vehicles. Implementation of BMP-4 (Dust Management Controls & Air Quality Protection) would ensure that the roadway is kept clear of debris. As described in Impact 3.16.a, there would be no conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities that would decrease the performance or safety of such facilities. Therefore this impact would be less than significant.</p>				

3.17 UTILITIES AND SERVICE SYSTEMS. Would the project:				
	Potentially Significant Impacts	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?				X
The proposed project does not include any uses, features, or facilities that would generate additional wastewater demands nor would it require the construction of new water or wastewater treatment facilities or expansion of such facilities. As such, the proposed project would not exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board; therefore, no impact would occur.				
b. Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?				X
For the reasons described above in response to question 3.17a., no impact would occur.				
c. Require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?				X
Upon completion, the proposed project would be underground and would not require or result in construction of new stormwater drainage facilities or require expansion of such facilities. No impact would occur.				
d. Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?				X
The proposed project would not change existing water supply entitlements; the proposed project would have no impact on existing water supplies. The proposed project would ensure that existing entitlements and resources are available during a substantial earthquake event, a beneficial impact. The project would not result in new or expanded entitlements; therefore no impact would occur.				

<p>e. Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?</p>				<p>X</p>
<p>As previously described above in 3.17a, the proposed project would not generate any wastewater demands and would therefore have no impact on local wastewater treatment capacity.</p>				
<p>f. Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?</p>				<p>X</p>
<p>As described in Chapter 2, <i>Project Description</i>, the proposed project involves the excavation of up to approximately 40,000 cubic yards of spoils from trench construction. However, the majority of these spoils would be sidecast as the trench is constructed and backfilled in the trenches after pipeline installation such that approximately 300 cubic yards may require permanent disposal. Any unused spoils would be disposed of at the Wohler Facility or the Mirabel Facility. The permanent spoils disposal site is in Water Agency-owned property. The project would not result in deliveries of waste material to a landfill. The project would comply with applicable local, state, and federal solid waste regulations. As such, there would be no impact on landfill capacity.</p>				
<p>g. Comply with federal, state, and local statutes and regulations related to solid waste?</p>				<p>X</p>
<p>For the reasons discussed above in 3.17a, the proposed project would be in compliance with solid waste regulations and would be no impact.</p>				
<p>h. Encourage activities that resulted in the use of substantial amounts of fuel or energy, or used these resources in a wasteful manner?</p>			<p>X</p>	
<p>The proposed project would not use substantial amounts of fuel or energy, or use these resources in a wasteful manner. Portable generators, fuel, and existing power supplies at the project site would be used for project construction. However, the amount of energy and fuel needed for project construction would not be substantial or used in a wasteful manner. Operation of the proposed project would not require additional power sources, such as for pumping, as the pipeline would operate under existing Water Agency pumps, and their operation would not change after the pipeline is installed. This impact would be less than significant.</p>				

3.18 MANDATORY FINDINGS OF SIGNIFICANCE.				
	Potentially Significant Impacts	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a.	Does the 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, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?		X	
<p>As discussed throughout this Initial Study checklist, potential impacts were identified for biological resources and cultural resources. With implementation of mitigation measures identified in this IS/MND (see Mitigation Measures BIO-1 through BIO-7, CUL-1 through CUL-4), the proposed project does not have the potential to substantially reduce the habitat of fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory. With implementation of the aforementioned mitigation measures, this impact would be less than significant.</p>				
b.	Does the project have impacts that are individually limited, but cumulatively considerable? (“Cumulatively considerable” means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)			X
<p>Past, present, and reasonably foreseeable future projects that may have the potential to combine with the impacts of the proposed are described below. The analysis in this chapter uses the “list” approach described in the State CEQA Guidelines California Code of Regulations title 14, section</p>				

15130(b)(1)(A)) for identifying and evaluating potential cumulative impacts. As recommended in the CEQA Guidelines Section 15130(b)(2), the factors considered in determining whether to include a related project included the nature of each environmental resource being examined (i.e., whether the project has the potential to affect the same resources as the proposed project), the location of the project and its type. Additionally, the list of projects considers the timing and duration of project implementation and resulting impacts.

The following criteria were used to determine whether a past, present, or foreseeable future project would be included in this cumulative impact analysis. Potential related projects are: (a) located within the vicinity of the proposed project and in combination with the proposed project may affect the same environmental resources; (b) in operation or completed within the same timeframe of the proposed project; and (c) under active consideration.

The identified potential related projects are in various stages of planning and development and include projects that have been constructed, are currently being constructed, have been recently approved, or are pending approval as of the publication of this IS/MND. The analysis focuses on those projects that, when combined with the proposed project, could contribute to cumulative impacts.

The potential for project-generated impacts to contribute to a significant cumulative impact would arise if the impacts are located within the same geographic area. This geographic area may vary depending upon the environmental resource. The geographic scope of cumulative impacts analysis could be based on the natural boundaries and physical conditions relevant to the resource affected, or jurisdictional boundaries. The geographic scope of cumulative effects often extends beyond the scope of the direct impacts, but not beyond the scope of the indirect impacts of the proposed project. The geographic scope for each resource category is described in **Table 10**.

Table 10 defines the geographic scope that was used in the impact analysis for applicable resource areas.

Table 10. Geographic Scope for Resources with Potential Cumulative Impacts

Resource	Scope
Air Quality	North Coast Air Basin
Biological Resources	Migratory fish and bird nesting sites at the project site and surrounding area
Greenhouse Gas Emissions	Global
Hydrology and Water Quality	Russian River Watershed (approximately 2 miles upstream or downstream from the proposed project)
Noise and Vibrations	Project site and surrounding areas exposed to noise and vibrations generated at the project site

The list of projects (**Table 11**) was developed from the Water Agency’s list of current and planned projects and reviewing CEQAnet, an online database of CEQA documents (including proposed projects).

Table 11. List of Past, Presently Known, and Reasonably Foreseeable Future Projects that May Cumulatively Affect Resources of Concern for the Proposed Project	
Project Title	Brief Description
Russian River-Cotati Intertie Pipeline Seismic Hazard Mitigation at the Mark West Creek Crossing Project	<p>The project would abandon and replace a section of the Russian River Cotati Intertie as it crosses through Mark West Creek, which is a tributary to the Russian River. Environmental analysis has not been completed for this project. It is anticipated that the Russian River-Cotati Intertie would continue to provide water service via the Wohler-Forestville pipeline connection during the project construction.</p> <p><i>Potential Project Issues:</i> Agricultural Land, Archaeologic-Historic, Biological Resources</p>
Mirabel Fish Ladder and Fish Screen Replacement Project	<p>The project consists of replacing existing screening for water intake pumps, replacing an existing fish ladder, enhancing fisheries monitoring activities, and improving educational opportunities. The new facilities would extend approximately 40 feet farther upstream and approximately 100 feet farther downstream than the existing facilities. The project’s IS/MND was approved and certified on 1/29/2013 by the Water Agency Board of Directors. Less than significant impacts with the implementation of mitigation were identified in the IS/MND.</p> <p><i>Project Issues:</i> Biological Resources</p>
Wohler Road Bridge over the Russian River Seismic Retrofit	<p>The existing Wohler Road Bridge over the Russian River will be seismically retrofitted to prevent bridge collapse during a strong earthquake. Work includes replacement of the existing bridge bearings with seismic isolation bearings, abutment and foundation retrofit, pier retrofit, expansion joint retrofit and deck replacement. Construction of the retrofit will require temporary vegetation removal and a temporary work pad in the Russian River. The project’s IS/MND was approved and certified on 11/24/2014 by the Sonoma County Board of Supervisors. Less than significant impacts with the implementation of mitigation were identified in the IS/MND.</p> <p><i>Project Issues:</i> Air Quality, Archaeologic-Historic, Biological Resources Noise, Public Services, Recreation/Parks, Toxic/Hazardous, Traffic/Circulation, Water Quality</p>
Westside Facility (9703 Wohler Road)	<p>This project consists of construction of a water education building at 9703 Wohler Road near the unincorporated town of Forestville. The project includes construction of a new driveway entrance and parking area. This project site is in close proximity to the Wohler Facility ponds. This project was completed 2015. The project’s IS/ND was approved and certified on 12/10/2013 by the Water Agency Board of Directors. Less than significant impacts identified in the IS/ND included the following resources:</p> <p>Air Quality, Biological, Cultural, Geology and Soils, Greenhouse Gas Emissions, Hazards and Hazardous Materials, Hydrology and Water Quality, Noise, Population and Housing, Transportation/Traffic, Utilities and Service Systems</p>

<p>National Marine Fisheries Service Russian River Biological Opinion – Fish protection and enhancement projects</p>	<p>The Russian River Biological Opinion is a federally mandated 15-year blueprint to protect endangered fish. A series of restoration projects and facility improvements required by the Russian River Biological Opinion designed specifically to reduce adverse impacts of the Water Agency’s operations to protect Endangered Species Act-listed fish populations. Projects include:</p> <ul style="list-style-type: none"> ▪ Reducing summertime flows in the river and Dry Creek ▪ Enhancing six miles of habitat in Dry Creek ▪ Creating a freshwater lagoon in the estuary during the summer months ▪ Monitoring both habitat and fish in Dry Creek, the estuary, and the river ▪ Eliminating impediments to fish spawning or improving habitat in several streams ▪ Improving the existing coho broodstock program <p><i>Potential Project Issues:</i> Air Quality, Archaeologic-Historic, Biological Resources, Flood Plain/Flooding, Noise, Public Services, Soil Erosion/Compaction/Grading, Toxic/Hazardous, Water Quality, Wetland/Riparian, Cumulative Effects</p>															
<p>A reasonable analysis of a project’s contribution to cumulative impacts is required when (1) a cumulative impact may be significant, and (2) the project’s contribution to the cumulative impact may be cumulatively considerable. Table 12 lists topic areas for which there are no cumulative impacts.</p>																
<p>Table 12. Resource Topics Dismissed from Further Consideration in the Analysis of Cumulative Impacts</p>																
<table border="1"> <thead> <tr> <th>Resource Topic</th> <th>Cumulatively Significant Impacts</th> <th>Proposed Project’s Contribution</th> </tr> </thead> <tbody> <tr> <td>Aesthetics</td> <td>None identified.</td> <td>No analysis required.</td> </tr> <tr> <td>Agricultural Resources</td> <td>None identified.</td> <td>No analysis required.</td> </tr> <tr> <td>Air Quality</td> <td>The NSCAPCD’s jurisdictional area within the North Coast Air Basin is in attainment for all criteria pollutants, thus the project-level emissions would not be considered cumulatively considerable.</td> <td>No analysis required.</td> </tr> <tr> <td>Cultural Resources</td> <td>Throughout California, the Native American cultural legacy, including culturally important sites and traditional cultural practices, has been substantially affected by land management practices and urbanization over the past century and a half. While the County General Plans and various jurisdictions contain policies regarding preservation of important cultural resources, ongoing development could lead to the cumulative loss of significant historic, archeological, or paleontological resources. However, these other projects would be required to implement mitigation measures similar to those included in this document in the event that any historic, archaeological, paleontological resources or human remains are encountered</td> <td>No analysis required.</td> </tr> </tbody> </table>		Resource Topic	Cumulatively Significant Impacts	Proposed Project’s Contribution	Aesthetics	None identified.	No analysis required.	Agricultural Resources	None identified.	No analysis required.	Air Quality	The NSCAPCD’s jurisdictional area within the North Coast Air Basin is in attainment for all criteria pollutants, thus the project-level emissions would not be considered cumulatively considerable.	No analysis required.	Cultural Resources	Throughout California, the Native American cultural legacy, including culturally important sites and traditional cultural practices, has been substantially affected by land management practices and urbanization over the past century and a half. While the County General Plans and various jurisdictions contain policies regarding preservation of important cultural resources, ongoing development could lead to the cumulative loss of significant historic, archeological, or paleontological resources. However, these other projects would be required to implement mitigation measures similar to those included in this document in the event that any historic, archaeological, paleontological resources or human remains are encountered	No analysis required.
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	during construction. Thus, the proposed project’s effects would not be considered cumulatively considerable.	
Geology, Soils, and Seismicity	None identified.	No analysis required.
Hazards and Hazardous Materials	None identified.	No analysis required.
Land Use and Planning	None identified.	No analysis required.
Mineral Resources	None identified.	No analysis required.
Population and Housing	None identified.	No analysis required.
Public Services	None identified.	No analysis required.
Recreation	None identified.	No analysis required.
Transportation/Traffic	Future increased growth in traffic volumes in the County could affect load and capacity of the street system. However, no information has been found during preparation of this Initial Study to suggest that this impact would be cumulatively significant.	No analysis required.
Utilities and Service Systems	None identified.	No analysis required.

Table 13 summarizes cumulatively significant impacts and identifies the proposed project’s contribution. Additional analysis is provided below the table for those impacts that are cumulatively significant and to which the proposed project may make a considerable contribution.

Table 13. Summary of Cumulative Significant Impacts and Proposed Project’s Contribution

Resource Topic	Cumulatively Significant Impacts	Proposed Project’s Contribution
Biological Resources	Past and present actions have significantly impacted a number of species and habitat at the project site. Over the past 150 years, various land use practices the North Coast have resulted in the loss of forest and riparian habitat, wetlands, and other sensitive natural communities.	Construction activities have the potential to impact special-status species, and could result in temporary impacts to fisheries habitat and Riparian Forest and Woodland habitat. <i>Further analysis provided below.</i>
Greenhouse Gas Emissions	Anthropogenic emissions of GHGs are widely accepted in the scientific community as contributing to global warming..	Vehicle and equipment use would result in emissions of GHGs. However, because such emissions would be below a bright line threshold, the proposed project would not make a considerable contribution to cumulative impacts related to GHG emissions. <i>Further analysis is provided below.</i>

Hydrology and Water Quality	CWA § 303[d] lists the entire Russian River watershed as impaired by sediment and temperature.	The proposed project would involve ground disturbance along the banks of the river, and vegetation removal. These actions may contribute to sediment and temperature water quality impairments. <i>Further analysis is provided below.</i>
Noise	Reasonably foreseeable construction projects could combine in the same place and time and create a significant cumulative noise impact on sensitive receptors.	Sensitive receptors would be in close proximity to both the proposed project and other reasonably foreseeable construction projects. Therefore, the proposed project would have the potential to contribute to a cumulatively significant noise impact. <i>Further analysis is provided below.</i>
<p>The following sections provide a detailed analysis of the proposed project’s contribution to existing significant cumulative impacts. As identified in Table 13, the following resource issues are discussed: biological resources, greenhouse gas emissions, hydrology and water quality, and noise.</p> <p>Biological Resources: Impacts to Special-Status Species and <u>Riparian Habitat and Associated Wildlife</u> –Less than Significant with Mitigation</p> <p><u>Fisheries and Aquatic Habitat</u>– Numerous factors have contributed to the decline of native fishes in the Russian River drainage including, but not limited to, dam construction, conversion of aquatic and riparian habitat to agriculture, logging, instream mining, water diversions, and the introduction of nonnative species. These activities have substantially changed aquatic habitat functions along the Russian River. Coho and Chinook salmon and steelhead have experienced significant declines and their continued existence is imperiled. Several restoration projects have been planned or completed to help restore fish populations and improve habitat conditions.</p> <p>The proposed project would reduce impacts to native fish with seasonal restrictions on the in-water work window and riparian habitat (Mitigation Measure BIO-1). With this measure in place, direct effects on sensitive fish species would be small or unlikely. Impacts to aquatic habitat would be small and temporary in nature. Impacts to adjacent riparian habitat are not expected to result in measurable direct or indirect impacts to sensitive fish. Thus, the proposed project’s contribution to cumulative impacts related to impact to special-status fish including coho and Chinook salmon or steelhead would not be cumulatively considerable. No cumulative impact.</p> <p><u>Riparian Habitat and Associated Wildlife</u> – Historically, the Russian River supported wide expanses of riparian woodlands. Past anthropogenic activity, especially dam construction and conversion to farmland and developed land use, have substantially limited the spatial extent of the riparian habitat. The loss of riparian habitat has resulting in substantial declines of wildlife species that depend on these habitats for various aspects of their life history including reproduction.</p> <p>The proposed project would reduce the potential for impacts to riparian habitat and associated wildlife by implementing various mitigation measures. These measures will substantially reduce the potential for direct impacts to wildlife. Mitigation Measure BIO-7, the proposed project’s Riparian Habitat Revegetation Plan would facilitate the recovery of the</p>		

riparian corridor such that there would not be a gap in the continuity of the habitat. With these measures in place, the proposed project's contribution to cumulative impacts related to the loss of riparian habitat or adverse impacts to wildlife would not be cumulatively considerable. **No cumulative impact.**

Greenhouse Gas Emissions: Impacts due to Emissions of GHGs—Less than Significant

GHG emissions contribute, on a cumulative basis, to the significant adverse environmental impacts of global climate change. Climate change impacts may include an increase in extreme heat days, higher concentrations of air pollutants, sea level rise, impacts to water supply and water quality, public health impacts, impacts to ecosystems, impacts to agriculture, and other environmental impacts. No single project could generate enough GHG emissions to noticeably change the global average temperature. The combination of GHG emissions from past, present, and future projects contribute substantially to the phenomenon of global climate change and its associated environmental impacts.

The proposed project would require the use of construction equipment that emits GHGs and thus may have some potential to contribute to climate change. The proposed project would require the use of fossil-fueled equipment, energy, and water and generation of solid waste. All of these operational activities emit GHGs and thus may have some potential to contribute to climate change. As described in Section 3.7, "Greenhouse Gas Emissions," project-related emissions would be below a bright-line threshold of 1,100 MTCO_{2e}. Because GHG emissions are by nature a cumulative problem, the mass emissions threshold for GHG emissions also serves as the cumulative emissions threshold. Because the proposed project would result in GHG emissions at a level that is less than the threshold, the proposed project's contribution to cumulative impacts related to GHG emissions would not be cumulatively considerable. **No cumulative impact.**

Hydrology and Water Quality: Impacts on Water Quality-Impaired Water Bodies—Less than Significant

Clean Water Act section 303(d) requires states to identify waters within its boundaries not meeting water quality standards (impaired waters) and the water quality parameter (i.e., pollutant) not being met (referred to as the 303(d) List). This list is updated every five years by the Regional Water Quality Control Boards. The North Coast RWQCB has listed the entire Russian River watershed as impaired by sedimentation/siltation and temperature.

The proposed project would require the removal of riparian vegetation and ground disturbance on both river banks. These activities could result in contributions of sediment to the river due to sediment outside the work zone from rainfall events. Since the proposed project's total area of disturbance is greater than one acre, the Water Agency's contractor would need to obtain coverage under the Non-Point Discharge Elimination System (NPDES) Construction General Permit (SWRCB Order No. 2009-0009-DWQ) from the SWRCB. By complying with NPDES permit conditions and by implementing BMPs described in the *Project Description*, potential sediment-related impacts on water quality due to ground-disturbing activities would be less than significant.

The proposed project would require removal of trees and other vegetation in the riparian zone of the Russian River channel. In narrow stream channels and channels with steep banks, riparian

vegetation provides shade over the water, which assists in reducing and moderating water temperatures especially during warm summer days.

The river channel at the project site is approximately 120 feet across. The existing trees and riparian vegetation at the project site provide some shading over the channel, but not likely enough to substantially reduce or moderate water temperatures due to the wide channel width. The proposed removal of riparian vegetation for the project would temporarily create an open, unshaded section of river bank approximately 50 feet wide. The Riparian Habitat Revegetation Plan will re-plant riparian vegetation over the new pipeline. The Water Agency will also allow natural recruitment of trees and shrubs. This break in shading over the channel is temporary and would not substantially alter water temperatures; the project would not result in a measureable increase or decrease in water temperatures. This impact would be less than significant.

The proposed project’s contribution to cumulative impacts related to sedimentation and elevated water temperature in the Russian River watershed would not be cumulatively considerable. **No cumulative impact.**

Vibration: Effects on Combined Vibration from Construction Projects—Less than Significant

The temporary vibrations associated with construction of the proposed project when combined with reasonably foreseeable nearby projects (Mark West Creek Intertie Pipeline, Mirabel Fish Ladder and Fish Screen Replacement Project and the Wohler Road Bridge over the Russian River Seismic Retrofit Project) would not contribute to cumulative short-term adverse impacts associated with construction vibration activities, or construction vibration associated with maintenance activities and therefore are not cumulatively considerable. However, the proposed project would implement BMP-15 (Implement Vibration-Reducing Measures) to reduce construction-related vibrations by limiting construction equipment types, requiring the use of vibration dampening devices, adjusting the timing of vibratory equipment so equipment use does not overlap, and restricting the use of vibratory equipment to daytime hours. . The proposed project’s contribution to vibration impacts related to construction activities would not be cumulatively considerable. **No cumulative impact.**

c. Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?			X	
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Based on the analysis provided in the above resource sections, with the implementation of mitigation measures, the proposed project would result in less-than-significant effects for the biological and cultural resources and does not have environmental effects that would cause substantial adverse effects on human beings. This impact is **less than significant.**

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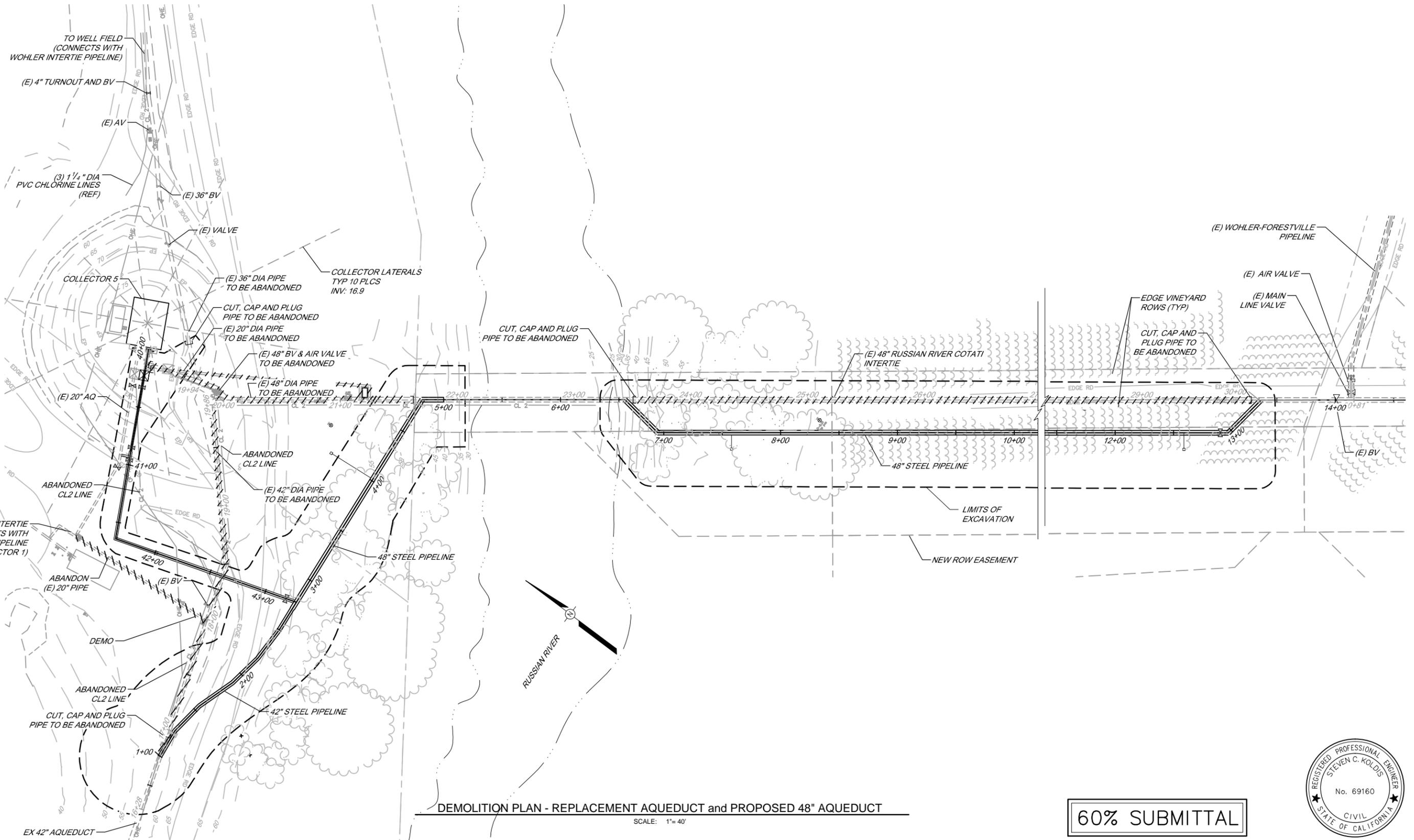
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3.17 Utilities and Service Systems

None.

Appendix A

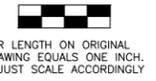
65% Complete Designs for the Proposed Project



DEMOLITION PLAN - REPLACEMENT AQUEDUCT and PROPOSED 48" AQUEDUCT

SCALE: 1" = 40'

60% SUBMITTAL

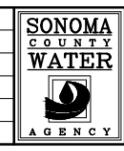


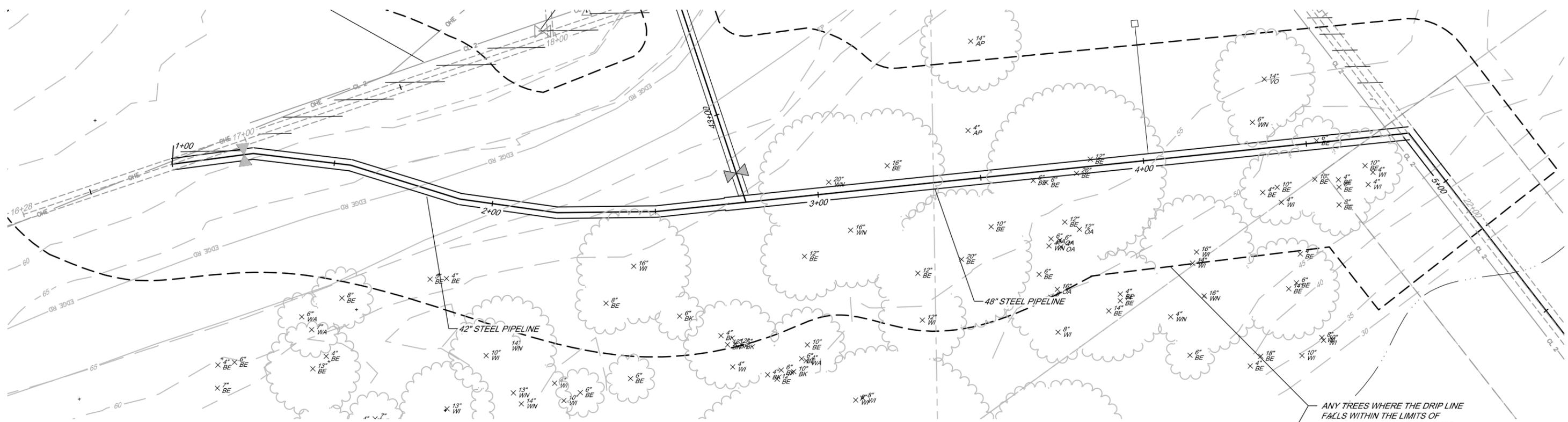
BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH. ADJUST SCALE ACCORDINGLY

PRELIMINARY			
SUBJECT TO REVISION			
NO.	DATE	REVISION	BY

SCALE: SHOWN	DATE: 12/22/2015
DRAWN: SMP	
REVIEWED:	

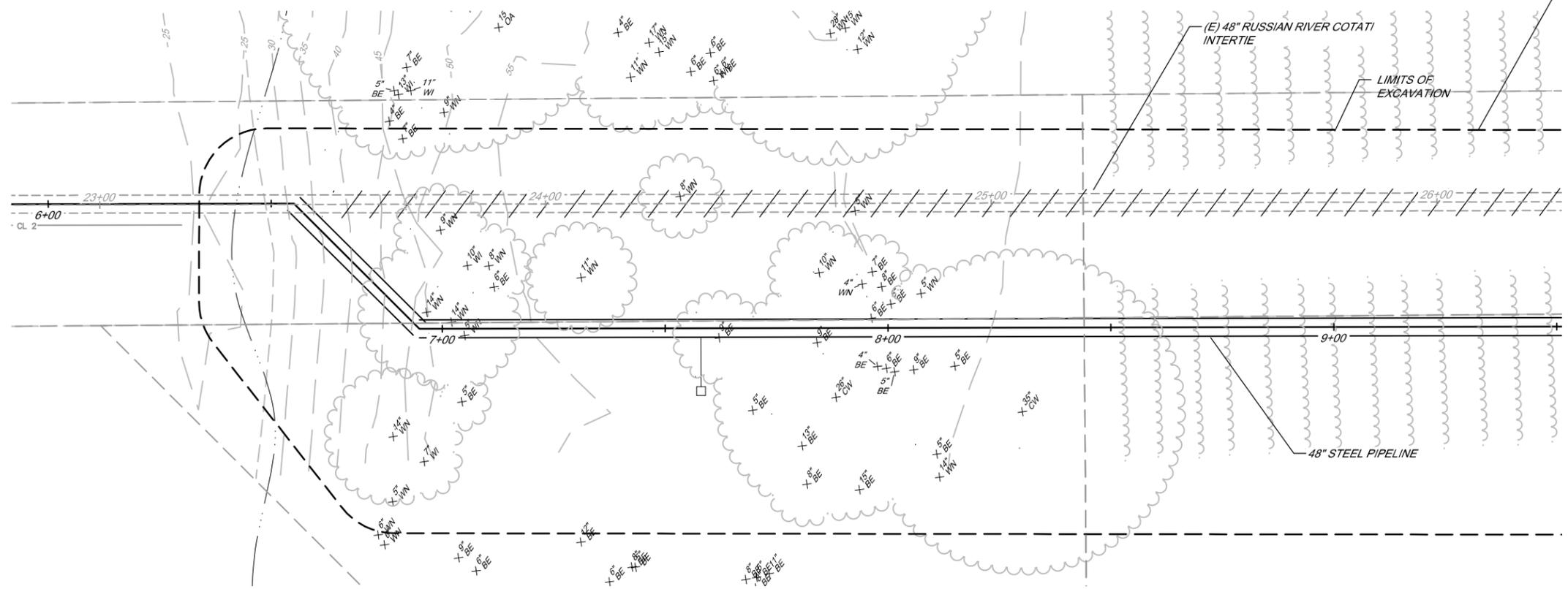
RUSSIAN RIVER COTATI INTERTIE SEISMIC HAZARD MITIGATION AT THE RUSSIAN RIVER CROSSING	
DEMOLITION PLAN	
FILE NAME: 7523_Civil.dwg	DRAWING NUMBER: C-1
CONTRACT NUMBER: ??	SHEET 4 OF 26





TREE REMOVAL PLAN - STATION 1+00 TO STA 5+00

SCALE: NOT TO SCALE



TREE REMOVAL PLAN - STA 6+00 TO STA 9+00

SCALE: NOT TO SCALE

ANY TREES WHERE THE DRIP LINE FALLS WITHIN THE LIMITS OF EXCAVATION WILL BE REMOVED

TREE SYMBOL KEY

10" = DIA OF TREE, AND SPECIE OF TREE (SEE BELOW)

- TREE SPECIES**
- AC ACACIA
 - AP APPLE
 - BE BOX ELDER
 - BK BUCKEYE
 - BL BAY LAUREL
 - CW COTTONWOOD
 - EB ELDERBERRY
 - LO COAST LIVE OAK
 - MA MAPLE
 - OA OREGON ASH
 - VO VALLEY OAK
 - WA WHITE ALDER
 - WI WILLOW
 - WN WALNUT

60% SUBMITTAL



<p style="text-align: center;">PRELIMINARY SUBJECT TO REVISION</p>		NO.	DATE	REVISION	BY

SONOMA COUNTY WATER AGENCY

SCALE: SHOWN DATE: 12/22/2015

DRAWN: SMP

REVIEWED:

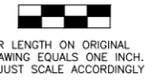
RUSSIAN RIVER COTATI INTERTIE SEISMIC HAZARD MITIGATION AT THE RUSSIAN RIVER CROSSING

TREE REMOVAL

FILE NAME: 7523_Civil.dwg CONTRACT NUMBER: ??

DRAWING NUMBER: C-2 SHEET 5 OF 26

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BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH. ADJUST SCALE ACCORDINGLY

TO WELL FIELD
(CONNECTS WITH
WOHLER INTERTIE PIPELINE)

(E) 4" TURNOUT AND BV

(E) AV

(3) 1 1/2" DIA
PVC CHLORINE LINES
(REF)

(E) 36" BV

(E) VALVE

COLLECTOR 5

COLLECTOR LATERALS
TYP 10 PLCS
INV: 16.9

(E) 20" AQ

19+94

19+86

20+00

21+00

22+00

23+00

24+00

25+00

26+00

27+00

28+00

29+00

30+00

14+00+81

11+00

12+00

13+00

14+00

15+00

16+00

17+00

18+00

19+00

20+00

21+00

22+00

23+00

24+00

25+00

26+00

27+00

28+00

29+00

30+00

12+00

13+00

TO WOHLER INTERTIE
(CONNECTS WITH
WELL FIELD PIPELINE
AND COLLECTOR 1)

(E) BV

42+00

43+00

44+00

45+00

46+00

47+00

48+00

49+00

50+00

51+00

52+00

53+00

54+00

55+00

56+00

57+00

58+00

59+00

60+00

42" STEEL PIPELINE

48" STEEL PIPELINE

48" STEEL PIPELINE

(E) 48" RUSSIAN RIVER COTATI
INTERTIE

LIMITS OF
EXCAVATION

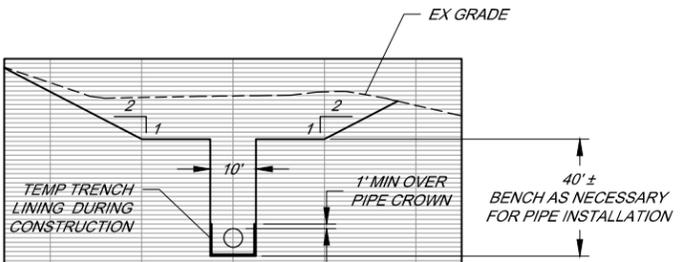
EDGE VINEYARD
ROWS (TYP)

(E) AIR VALVE

(E) MAIN
LINE VALVE

(E) WOHLER-FORESTVILLE
PIPELINE

(E) BV



TYPICAL EXCAVATION SECTION A
NOT TO SCALE

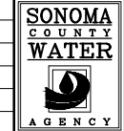
TEMPORARY EXCAVATION PLAN - REPLACEMENT AQUEDUCT and PROPOSED 48" AQUEDUCT

SCALE: 1" = 40'

60% SUBMITTAL

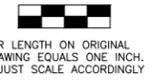


NO.		DATE		REVISION		BY	



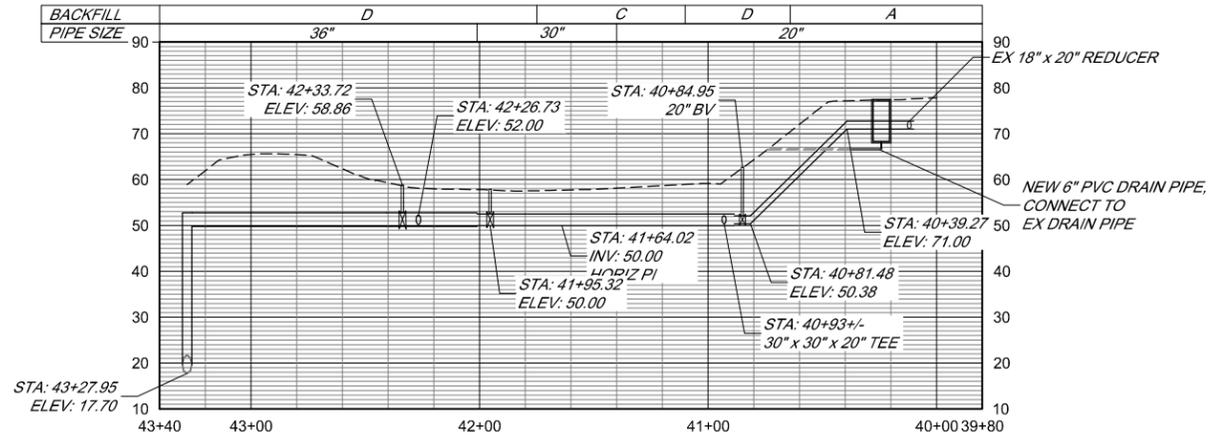
SCALE:	SHOWN	DATE:	12/22/2015
DRAWN:	SMP	REVIEWED:	

RUSSIAN RIVER COTATI INTERTIE SEISMIC HAZARD MITIGATION AT THE RUSSIAN RIVER CROSSING	
TEMPORARY EXCAVATION PLAN	
FILE NAME: 7523_Civil.dwg	DRAWING NUMBER: C-3
CONTRACT NUMBER: ??	SHEET 6 OF 26

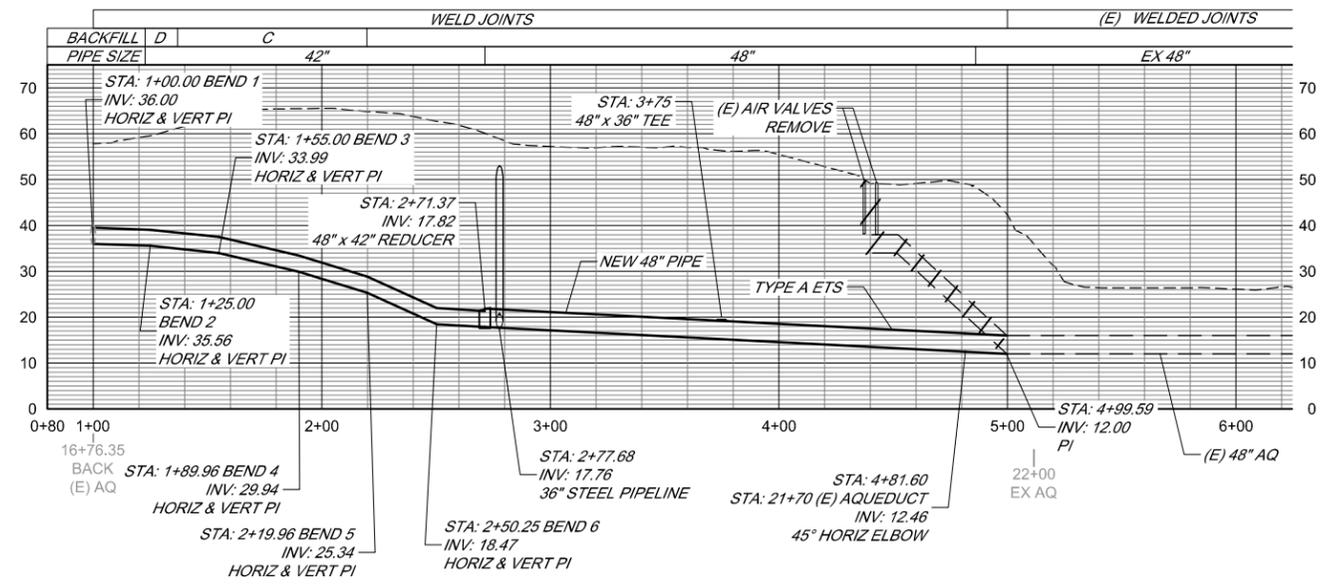


BAR LENGTH ON ORIGINAL
DRAWING EQUALS ONE INCH.
ADJUST SCALE ACCORDINGLY.

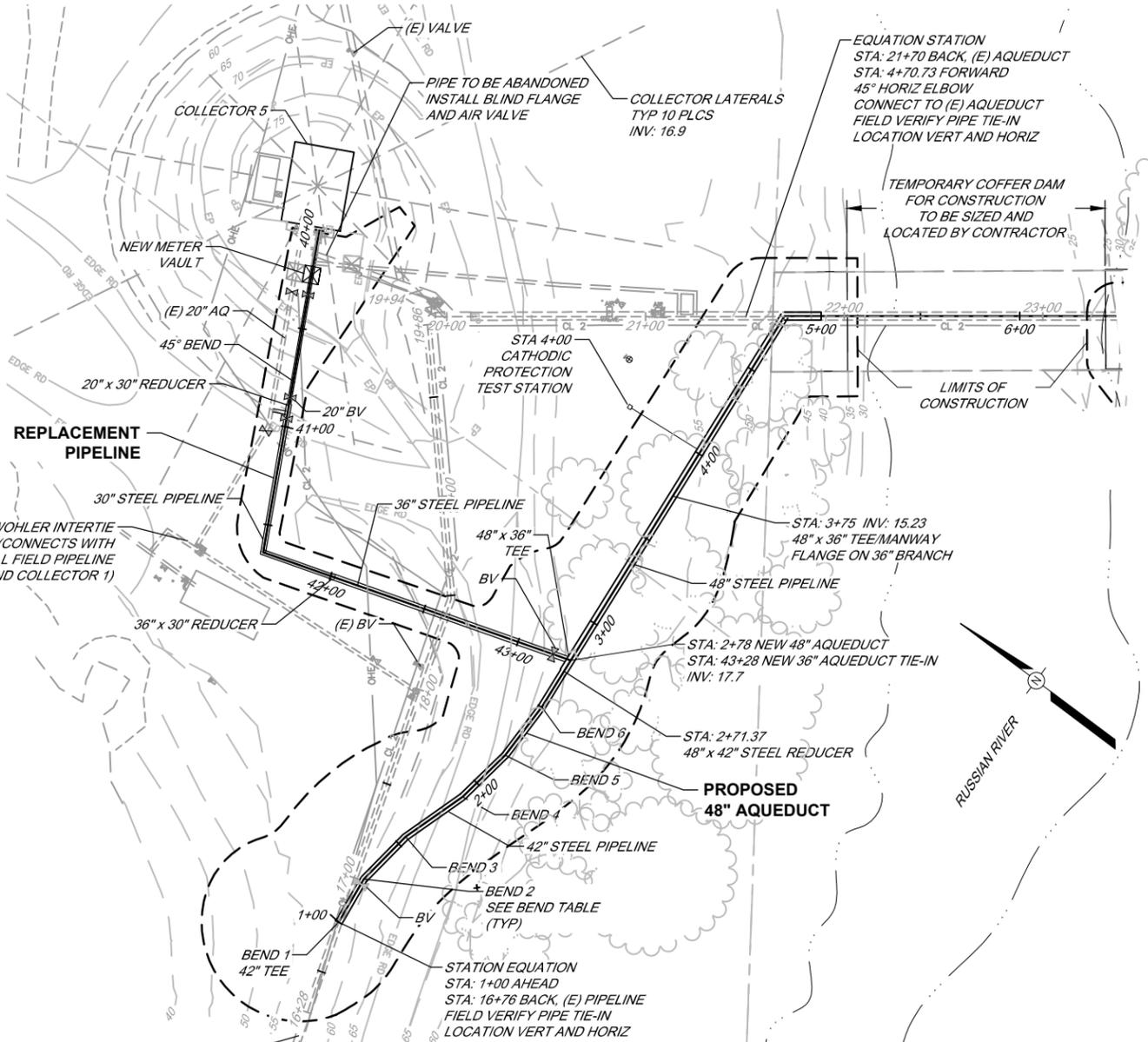
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PROFILE - REPLACEMENT PIPELINE
SCALE: HORIZ: 1" = 40'
VERT: 1" = 20'



PROFILE - PROPOSED 48" AQUEDUCT
SCALE: HORIZ: 1" = 40'
VERT: 1" = 20'



PLAN - REPLACEMENT AQUEDUCT and PROPOSED 48" AQUEDUCT
SCALE: 1" = 40'

SHUTDOWN NOTES

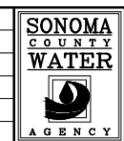
- UPSTREAM VALVES LOCATED AT STA: XX+XX, STA: XX+XX
- DOWNSTREAM VALVE LOCATED AT STA: 30+81

PIPE SYSTEM TABLE		
SYSTEM	BEGIN STA	END STA
1	1+00	3+50
2	3+50	4+82
3	6+50	12+00
4	12+00	13+20
5	40+00	42+50
6	42+50	43+27

BEND TABLE			
BEND ID	STA	HORIZONTAL BEND	VERTICAL BEND
1	1+00	11.1°	-1°
2	1+25	14.5°	-2°
3	1+55	10.6°	-3.6°
4	1+89.96	-9.3°	-2.1°
5	2+19.96	-9.3°	-4°
6	2+50.25	-3.6°	-12°

60% SUBMITTAL

**PRELIMINARY
SUBJECT TO REVISION**



SCALE: SHOWN DATE: 12/22/2015
DRAWN: SMP
REVIEWED:

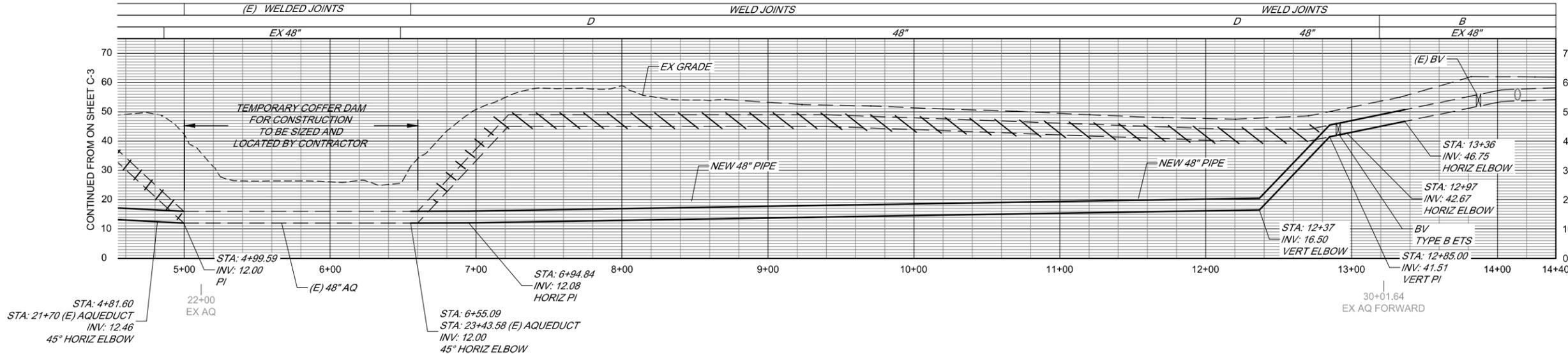
RUSSIAN RIVER COTATI INTERTIE SEISMIC HAZARD MITIGATION AT THE RUSSIAN RIVER CROSSING
PLAN AND PROFILE NEW 48" AQUEDUCT STA 1+00 TO STA 6+00 +/- AND COLLECTOR REPLACEMENT PIPELINE
FILE NAME: 7523_Civil.dwg CONTRACT NUMBER: ??
DRAWING NUMBER: C-4 SHEET 7 OF 26



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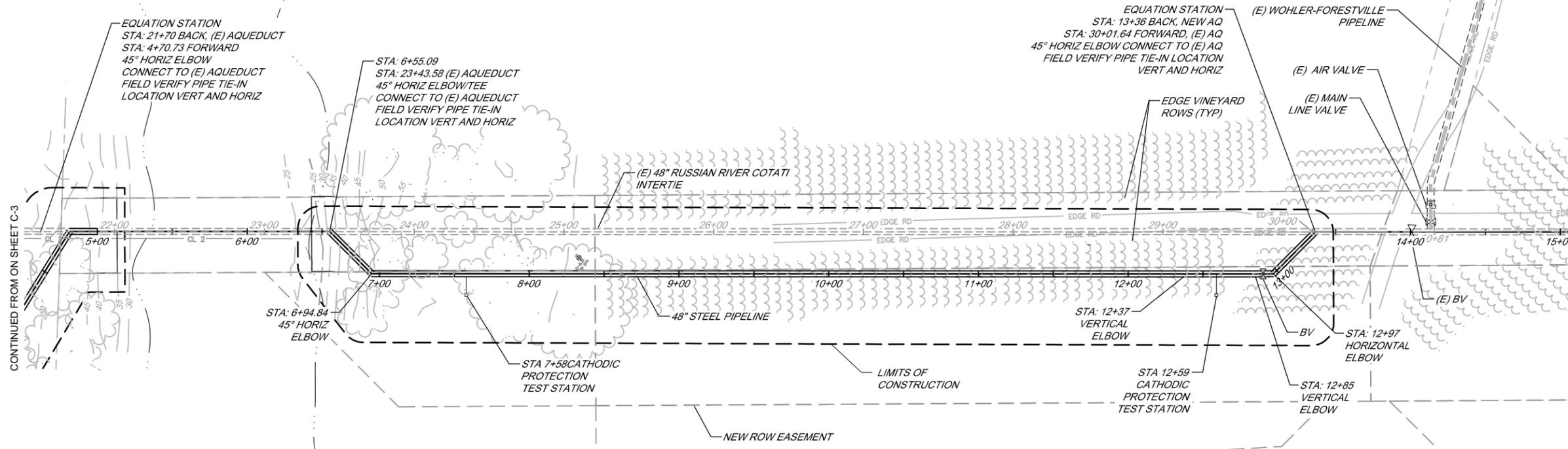
BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH. ADJUST SCALE ACCORDINGLY

NO.	DATE	REVISION	BY



PROFILE - PROPOSED 48" PIPELINE

SCALE: HORIZ: 1" = 40'
VERT: 1" = 20'

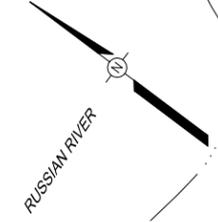


PLAN - PROPOSED 48" AQUEDUCT

SCALE: 1" = 40'

\\SD-DATA\Pro\water_transmission\pipelines\tr-cotati\inter\7523_CotatiAQ_Liquefac\7523_Civil

BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH. ADJUST SCALE ACCORDINGLY



60% SUBMITTAL



<p style="text-align: center; font-size: 24pt; font-weight: bold;">PRELIMINARY</p> <p style="text-align: center; font-weight: bold;">SUBJECT TO REVISION</p>			SCALE: SHOWN	DATE: 12/22/2015	<p style="text-align: center;">RUSSIAN RIVER COTATI INTERTIE SEISMIC HAZARD MITIGATION AT THE RUSSIAN RIVER CROSSING</p> <p style="text-align: center;">PLAN AND PROFILE NEW 48" AQUEDUCT</p> <p style="text-align: center;">STA 6+00 +/- TO STA 42+88</p>		
			DRAWN: SMP	REVIEWED:			
NO.	DATE	REVISION	BY	CONTRACT NUMBER: ??			

Appendix B

Riparian Habitat Revegetation Plan

Russian River-Cotati Intertie Pipeline Seismic Hazard Mitigation at the Russian River Crossing Pipeline Project

Onsite Mitigation and Riparian Habitat Restoration Plan

Updated January 11, 2016

I. Executive Summary

The Russian River Crossing Pipeline Project (pipeline project) will impact 0.87 acres of riparian habitat along the banks of the Russian River main stem. The revegetation plan detailed herein will restore and enhance this affected area, plus an additional 0.10 acres of adjacent riparian habitat following completion of the pipeline project. The revegetation effort will:

- Provide onsite mitigation at a 1.1:1 ratio (area restored: area disturbed) by planting 0.97 acres of riparian habitat (42,253 square feet) with native plant species.
- Install approximately 850 native riparian tree, shrub and understory container plants and apply a native erosion control seed mix.

II. Revegetation Plan Objectives

This plan provides onsite mitigation for impacts incurred to riparian habitat during implementation of the Russian River Crossing Pipeline Project at a 1.1:1 ratio (area restored: area disturbed). Replanting trees will help to offset the pipeline project's removal of mature canopy specimens. The fast-growing riparian species as well as the sub-canopy shrub and understory grasses and herbaceous perennials installed will help replace the lost carbon sequestration and habitat complexity/function provided by removed vegetation. Finally, the additional 0.10 acres of adjacent riparian habitat enhanced with supplemental native plantings will provide a "temporal buffer" while the replacement species within the immediate pipeline project area establish and mature. Currently, the area identified for supplemental plantings (as shown in Figure 1: Overview Map of Russian River Pipeline Project Revegetation Area) largely lacks mature canopy and sub-canopy species, and is dominated by a mix of ruderal perennial grasses and forbs. This area will benefit from the addition of native tree, shrub and grass species that increase the vegetative diversity structural complexity.

III. Planting Plan and Implementation Strategy

Native trees with a diameter-at-breast-height (DBH) greater than/equal to four inches will be replaced at a 2:1 ratio (trees planted: trees removed). Preconstruction surveys conducted by Water Agency and project consultant staff determined that approximately 117 trees require removal ahead of project implementation, the species and quantities of which are summarized below in Table 1.1. Replacements will include the tree species extracted as well as a mix of appropriate sub-canopy species (large woody shrubs) to help ensure structural complexity and diversity within the restored habitat area. Canopy and sub-canopy species will be installed throughout the revegetation areas (as shown in the map provided as Attachment 1), on 10-30 foot centers.

Table 1.1 Native Trees with a DBH greater than/equal to four inches requiring removal.

Tree		Number to be Removed*		
Scientific Name	Common Name	Caisson Zone	Vineyard Zone	Total
<i>Acer negundo</i>	Box elder	37	24	61
<i>Aesculus californica</i>	Buckeye	8	0	8
<i>Alnus rhombifolia</i>	White alder	5	0	5
<i>Fraxinus latifolia</i>	Oregon ash	1	0	1
<i>Juglans hindsii</i>	Walnut	3	8	11
<i>Populus fremontii</i>	Cottonwood	5	2	7
<i>Salix ssp.</i>	Willow	23	1	24
Total		82	35	117

*As determined during pre-construction surveys. Water Agency staff will be present during project implementation to confirm the exact number of trees removed and quantities replanted will be adjusted accordingly to ensure a 2:1 replacement ratio (trees planted: trees removed).

Understory (herbaceous perennial and graminoid) species have been selected based on suitability for the project site and reflect those growing within the adjacent Russian River riparian habitat. Understory plant densities are based on the total planting area in square feet. Understory species container plantings will be placed strategically in groups to mimic natural distribution patterns over approximately twenty percent of the area available for planting. Placement for all plant types will be based on species wetland/upland affinity and specific site conditions. Plant species and quantities to be installed are detailed below in Table 1.2. In addition to container plantings, all areas of exposed/disturbed soil will be hydroseeded with the seed mix indicated in Table 1.3.

Table 1.2 Russian River Crossing Pipeline Project mitigation planting palette.

Scientific Name	Common Name	Size	Quantity to be installed
<i>Canopy and Sub-Canopy Species</i>			
<i>Acer negundo</i>	Box elder	5 gal	60
<i>Aesculus californica</i>	Buckeye	5 gal	15
<i>Alnus rhombifolia</i>	white alder	5 gal	5
<i>Baccharis pilularis</i>	Coyote brush	1-5 gal	30
<i>Calycanthus occidentalis</i>	Western spicebush	1-5 gal	30
<i>Fraxinus latifolia</i>	Oregon ash	5 gal	5
<i>Juglans hindsii</i>	California black walnut	5 gal	10
<i>Physocarpus capitatus</i>	Pacific ninebark	1 gal	20
<i>Populus fremontii</i>	Fremont cottonwood	1-5 gal	10
<i>Salix sp.</i>	Native willow sp.	cuttings	20
<i>Sambucus mexicana</i>	Blue elderberry	1-5 gal	30
Subtotal			235
<i>Understory Species</i>			
<i>Artemisia douglasiana</i>	Mugwort	1 gal	100

Scientific Name	Common Name	Size	Quantity to be installed
<i>Baccharis douglasii</i>	marsh baccharis	1 gal	50
<i>Carex barbarae</i>	Santa Barbara sedge	1 gal	150
<i>Festuca rubra</i>	red fescue	1 gal	50
<i>Juncus patens</i>	common rush	1 gal	50
<i>Leymus triticoides</i>	creeping wild rye	1 gal	230
<i>Rosa californica</i>	California wild rose	1 gal	50
<i>Rubus ursinus</i>	California blackberry	1 gal	50
<i>Symphoricarpos albus laevigatus</i>	Snowberry	1 gal	100
<i>Vitus californica</i>	California wild grape	1 gal	20
Subtotal			850
TOTAL PLANTS			1,085

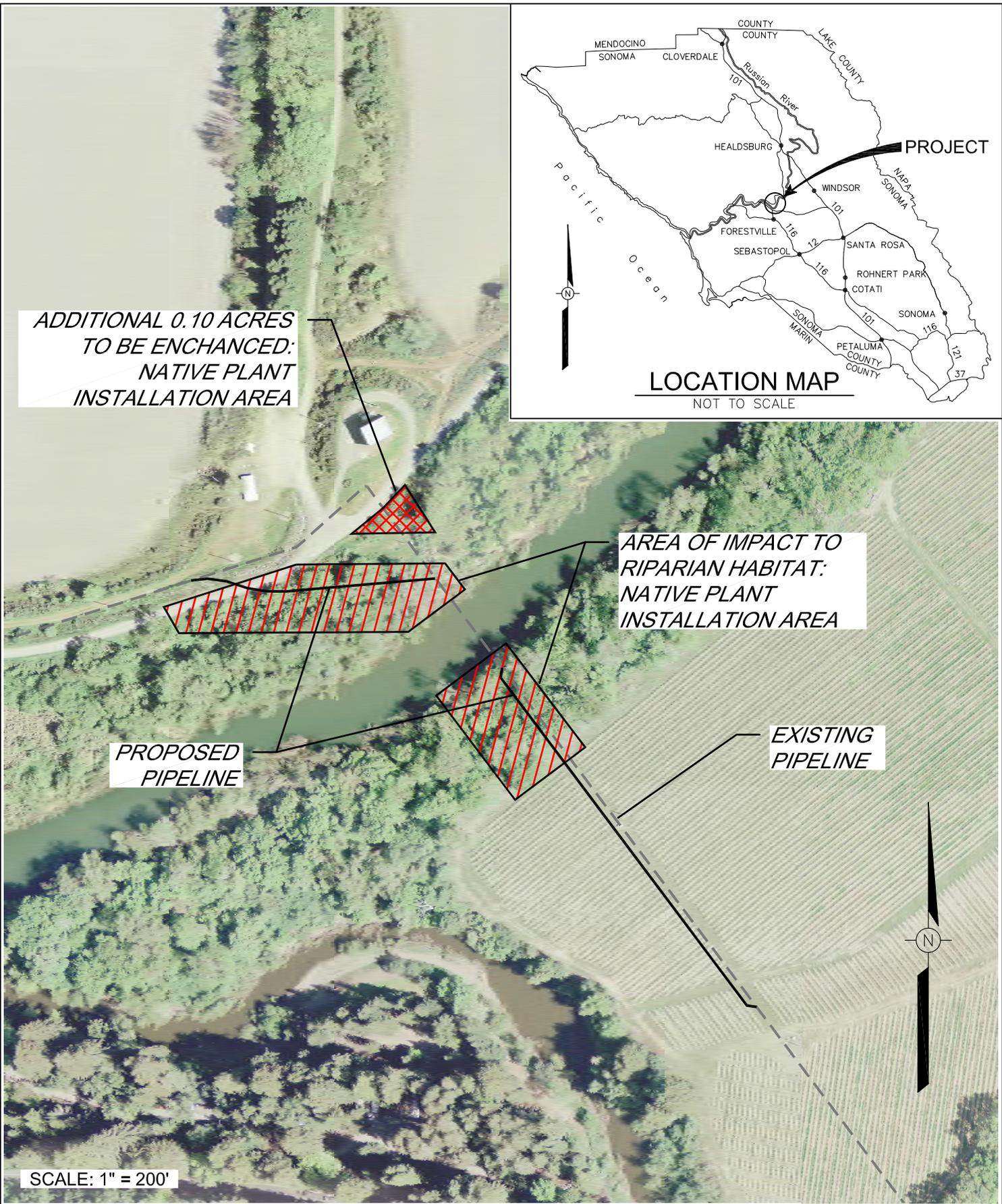
Table 1.2 Russian River Crossing Pipeline Project mitigation native hydroseed mix.

Scientific Name	Common Name	Application Rate
Le Ballister's "Hold Fast Native Blend"		
<i>Bromus carinatus</i>	California Bromegrass	30lbs/acre
<i>Elymus glaucus</i>	Blue wild rye	
<i>Vulpia microstachys</i>	Three Weeks Fescue	
<i>Eschscholzia californica</i>	California poppy	
<i>Lupinus succulentus</i>	Arroyo blue lupine	
<i>Leymus triticoides</i>	Creeping wild ryre	5lbs/acre

IV. Mitigation Monitoring

Annual plant survival monitoring will take place in the fall (September-November) for 5 years following installation to assess revegetation success. Success criteria for canopy and sub-canopy species (trees and shrubs) will be 75 percent survival. Due to the rhizomatous growth habit of the native understory (herbaceous perennial and graminoid) species to be installed, a qualitative success criteria will be applied to capture the degree of survival, spread, and naturalization. Replanting and maintenance/watering will occur as needed to achieve the success criteria goals. Annual results including photo-points, survival rates, and overall site characterization descriptions will be reported to appropriate regulatory agencies.

\\SD-DATA\Proj\water transmission\pipelines\rr-cotati\inter\7523_CotatiAQ_Liquefac\7523 Mitigation Planting Plan Map.dwg



**RUSSIAN RIVER-COTATI INTERTIE PIPELINE
MITIGATION AND PLANTING PLAN MAP**

**FIGURE
1**

Appendix C

Mitigation Monitoring Plan

Appendix C Mitigation Monitoring Plan

In compliance with Section 21081.6 of the California Environmental Quality Act, the Sonoma County Water Agency (Water Agency) has prepared this Mitigation Monitoring Plan (MMP) for the Russian River-Cotati Intertie Pipeline Seismic Hazard Mitigation at the Russian River Crossing Project. All mitigation measures proposed in the Russian River-Cotati Intertie Pipeline Seismic Hazard Mitigation at the Russian River Crossing Project Initial Study and Mitigated Negative Declaration (IS/Mitigated Negative Declaration) have been included in the MMP. Each mitigation measure and the method of monitoring or verifying the completion of the measure are described in the MMP.

Various Water Agency departments/staff members responsible for monitoring or verification of project mitigation measures and their general areas of responsibility are as follows:

The **Project Engineer** is responsible for project design.

The **Technical Writing Section** is responsible for preparation of project specifications.

The **Construction Inspection Section** is responsible for enforcement of the provisions of the project specifications during the construction period.

The **Environmental Resources Section** is responsible for preparation of the MMP, for informing the various departments of their mitigation responsibilities, for distribution of the appropriate reporting forms, for maintenance of the Database that tracks the status of mitigation measures, and for logging and evaluating the effectiveness of the mitigation measures. The Environmental Resources Section is also responsible for implementing and monitoring of some of the mitigation measures.

The **Right-of-Way Section** is responsible for coordinating with private property owners for acquisition of property or temporary and/or permanent easements; and for coordinating any issues concerning property rights with property owners.

The **Operations and Maintenance Division** is responsible for implementation of mitigation measures during the operation and maintenance phase of the project.

The **Water Agency's Board of Directors** approves and adopts the MMP and approves the project specifications.

The following is a description of the project's mitigation measures and the required monitoring/verification. Mitigation measure numbers correspond to the numbers presented in the Initial Study Environmental Checklist.

BIOLOGICAL RESOURCES

Mitigation Measure BIO-1: In-Water Work Period

Work below Ordinary High Water of the Russian River shall be limited to the period from June 15 to September 15 to reduce adverse effects on special-status fish migration. Work conducted within the riparian zone shall be limited to the period from April 15 to October 15.

<input checked="" type="checkbox"/> Project Engineer	<input checked="" type="checkbox"/> Technical Writing
<input checked="" type="checkbox"/> Construction Inspection	<input type="checkbox"/> Right-of-Way
<input checked="" type="checkbox"/> Environmental Resources	<input type="checkbox"/> Operations and Maintenance

Monitoring: The mitigation measure will be considered effective when the project specifications have included the above provisions and when construction is completed in compliance with the project specifications. Monitoring will terminate upon completion of construction.

Mitigation Measure BIO-2a: Environmental Awareness Training

Environmental awareness training shall be implemented to inform all construction personnel of their responsibilities regarding sensitive biological resources that may be present within the project area. The training shall comply with the following measures:

- The training shall be developed by a qualified biologist familiar with the sensitive biological resources that are known or have the potential to occur in the 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.
- The training shall provide educational information on the special-status 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.

<input type="checkbox"/> Project Engineer	<input checked="" type="checkbox"/> Technical Writing
<input checked="" type="checkbox"/> Construction Inspection	<input type="checkbox"/> Right-of-Way
<input checked="" type="checkbox"/> Environmental Resources	<input type="checkbox"/> Operations and Maintenance

Monitoring: The mitigation measure will be considered effective when the project specifications have included the above provisions and when construction is completed in compliance with the project specifications. Monitoring will terminate upon completion of construction.

Mitigation Measure BIO-2b: Construct and Maintain Wildlife Exclusion Fencing

Prior to the initiation of ground-disturbing activities, exclusion fencing shall be erected along the perimeter of excavation areas. Fencing shall be constructed of woven geotextile fabric and be a minimum of two feet high and buried in the soil a minimum of six inches deep. Exclusion fencing shall be inspected by a designated monitor on a daily basis and maintained throughout the duration of the construction.

<input checked="" type="checkbox"/> Project Engineer	<input type="checkbox"/> Technical Writing
<input checked="" type="checkbox"/> Construction Inspection	<input type="checkbox"/> Right-of-Way
<input checked="" type="checkbox"/> Environmental Resources	<input type="checkbox"/> Operations and Maintenance

Monitoring: The mitigation measure will be considered effective when exclusion fencing has been installed and target species have been successfully removed from the project site. Monitoring will terminate upon completion of construction.

Mitigation Measure BIO-3: Avoid or Minimize Impacts on Western Pond Turtle

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). Daily preconstruction surveys of all open trenches shall also be conducted by a trained worker each morning, prior to the start of construction activities within open trenches. A qualified biologist will be on call during construction and if WPT are found, work in the trenches shall not commence until authorized by the qualified biologist. If western pond turtles or their nests are observed during preconstruction or daily surveys, the following measures shall be implemented.

- 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. If nest avoidance is infeasible, eggs will be collected by a qualified biologist. Eggs will be incubated and hatched at a qualified facility, such as Sonoma State University Biology Department or Oakland Zoo. Hatchlings will be released in the project area once construction is complete.

<input checked="" type="checkbox"/> Project Engineer	<input type="checkbox"/> Technical Writing
<input checked="" type="checkbox"/> Construction Inspection	<input type="checkbox"/> Right-of-Way
<input checked="" type="checkbox"/> Environmental Resources	<input type="checkbox"/> Operations and Maintenance

Monitoring: The mitigation measure will be considered effective when pre-construction surveys have been completed and target species have been successfully removed from the project site. Monitoring will terminate upon completion of construction.

Mitigation Measure BIO-4: Avoid or Minimize Impacts on Foothill Yellow-legged Frog

Prior to commencing construction, a qualified biologist shall conduct one daytime survey for FYLF and other amphibians. The survey shall be conducted no more than 48 hours preceding the onset of construction. If no FYLF are found within the activity area during the pre-activity survey, the work may proceed.

Daily preconstruction surveys of all open trenches shall also be conducted by a trained worker each morning, prior to the start of construction activities within open trenches. A qualified biologist will be on call during the construction work and if FYLF are found, work in the trenches shall not commence until authorized by the qualified biologist.

- If FYLF of 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 shall be implemented. FYLF 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 frogs are moved, the qualified biologist shall possess a valid permit from CDFW authorizing the handling of FYLF.

<u> X </u> Project Engineer	<u> </u> Technical Writing
<u> X </u> Construction Inspection	<u> </u> Right-of-Way
<u> X </u> Environmental Resources	<u> </u> Operations and Maintenance

Monitoring: The mitigation measure will be considered effective when pre-construction and daily surveys have been completed and target species have been successfully removed from the project site. Monitoring will terminate upon completion of construction.

Mitigation Measure BIO-5: Pre-construction Nesting Bird Survey and Minimization Measures

The Water Agency shall conduct a pre-construction nesting bird survey within 500 feet of the project footprint. The pre-construction survey shall:

- Be conducted by a qualified biologist no more than one week prior to commencement of construction activities or maintenance that could impact nesting birds. The biologist shall have familiarity with special-status species of the area and experience with conducting nesting bird surveys.
- If no nesting birds are encountered, no further mitigation would be required for at least two weeks, unless additional measures are required by regulatory permit conditions obtained for the proposed project.
- Additional pre-construction surveys, specifically for nesting birds, shall be conducted such that no more than two weeks will have lapsed between the survey and construction or maintenance activities.
- If a nesting bird is encountered, the location shall be documented and avoidance and minimization measures shall be prepared by the qualified Water Agency biologist, or consulting biologist in coordination with the Water Agency, and appropriate resource agencies. A no-work buffer shall be established around active bird nests in coordination with the CDFW. Nests will be monitored weekly during construction activities.

<u>X</u>	Project Engineer	___	Technical Writing
<u>X</u>	Construction Inspection	___	Right-of-Way
<u>X</u>	Environmental Resources	___	Operations and Maintenance

Monitoring: The mitigation measure will be considered effective when pre-construction surveys have been completed and protection measures have been implemented to protect nests, and/or when disturbance or destruction of nests have been avoided. Monitoring will terminate upon completion of construction.

Mitigation Measure BIO-6a: Avoid Direct Mortality of Bats Roosting in Trees

Not more than six months prior to the onset of work activities, a qualified bat biologist will survey the project site to identify suitable roost sites. If evidence is observed, or if potential roost sites are present in areas where evidence of bat use might not be detectable (such as a tree cavity), an evening survey and/or nocturnal acoustic survey shall be used to determine if the bat colony is active and to identify the specific location of the bat colony.

To avoid impacts to bats, removal of trees that may serve as potential roost sites shall occur between March 1 and April 15 or between August 31 and October 15, unless a focused survey conducted by a qualified bat biologist determines that no bats are present in tree(s) to be removed. 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 shall be as follows:

Step 1: Small branches and small limbs containing no cavity, crevice, or exfoliating bark shall be removed with chainsaws under field supervision by a qualified bat biologist.

Step 2: The remainder of the tree shall be removed within the following 48 hours. The disturbance caused by chainsaw noise and vibration, coupled with the physical alteration, would cause colonial bat species to abandon the roost tree after nightly emergence for foraging. Removing the tree the next day would prevent re-habituation and re-occupation of the altered tree.

<u>X</u>	Project Engineer	___	Technical Writing
<u>X</u>	Construction Inspection	___	Right-of-Way
<u>X</u>	Environmental Resources	___	Operations and Maintenance

Monitoring: The mitigation measure will be considered effective when pre-construction surveys have been completed and protection measures have been implemented to protect roost sites, and/or when disturbance or destruction of roost sites have been avoided. Monitoring will terminate upon completion of construction.

Mitigation Measure BIO-6b: Replace Special-Status Bat Roost Sites

If bat roosts cannot be avoided or it is determined that construction activities or site development may cause roost abandonment, such activities may not commence until roost sites have been replaced. To replace tree roosts, elevated bat houses shall be installed outside of, but near, the construction area. Placement and height will be determined by a qualified bat biologist in consultation with CDFW.

<u> X </u> Project Engineer	<u> </u> Technical Writing
<u> X </u> Construction Inspection	<u> </u> Right-of-Way
<u> X </u> Environmental Resources	<u> </u> Operations and Maintenance

Monitoring: The mitigation measure will be considered effective when pre-construction surveys have been completed and protection measures have been implemented to replace roost sites, and/or when disturbance or destruction of roost sites have been avoided. Monitoring will terminate upon completion of construction.

Mitigation Measure BIO-7: Implement a Riparian Habitat Revegetation Plan

Sites where construction activities result in exposed soil will be stabilized to prevent erosion. For each of these sites, the Water Agency will implement a revegetation plan to mitigate the loss of riparian vegetation.

- Plant species selected for revegetation is based upon surveys of riparian habitat along the Russian River upstream and downstream of the project site.
- Planting requirements in the revegetation plan is based upon species composition and density recommendations associated with the overall habitat enhancement design for the project.
- If soil moisture is deficient, new vegetation will be supplied with supplemental water until vegetation is firmly established.
- Revegetation shall be monitored for five years in order to assess survival until 75 percent survival/cover is achieved.
- If invasive plant species colonize the area, action shall be taken to control their spread; options include hand and mechanical removal and replanting with native species.
- The Water Agency will provide annual reports that include photo-points, survival rates, and site summaries that will be submitted to appropriate regulatory agencies.

<u> X </u> Project Engineer	<u> </u> Technical Writing
<u> X </u> Construction Inspection	<u> X </u> Right-of-Way
<u> X </u> Environmental Resources	<u> </u> Operations and Maintenance

Monitoring: The mitigation measure will be considered effective when the revegetation plan has been designed and implemented. Annual monitoring will terminate 5 years after installation of plants.

CULTURAL RESOURCES

Mitigation Measure CUL-1: Stop Work if Historical Resources are Discovered During Project Activities, Evaluate all Identified Historical Resources for Eligibility for Inclusion in the California Register of Historical Resources, and Implement Appropriate Mitigation Measures for Eligible Resources

Prior to initiation of ground-disturbing activities, the Water Agency shall arrange for construction crews to receive training about the kinds of cultural materials that could be present at the project site and the protocols to be followed should any such materials be uncovered during construction. Training shall be conducted by an archaeologist who meets the U.S. Secretary of Interior’s professional standards (48 CFR Parts 44738-44739 and Appendix A to 36 CFR 61)⁴. Training may be required during different phases of construction to educate new construction personnel.

If buried historic remains are encountered, all soil-disturbing work in that area and within 100 feet of the find shall be halted until a qualified archaeologist completes a significance evaluation of the find(s) pursuant to Section 106 of the National Historic Preservation Act (36CFR60.4). If any of the resources meets the eligibility criteria identified in Public Resources Code § 5024.1 or CEQA § 21083.2(g), mitigation measures shall be developed and implemented in accordance with CEQA Guidelines § 15126.4(b) before construction resumes.

Historic remains expected in the general area commonly include items of ceramic, glass, and metal. Features that might be present include structure remains (e.g., cabins or their foundations) and pits containing historic artifacts.

For resources eligible for listing in the California Register of Historical Resources that would be rendered ineligible by the effects of project construction, additional mitigation measures shall be implemented. Mitigation measures for historic remains 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 historic remains 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.

- | | |
|---|---|
| <input checked="" type="checkbox"/> Project Engineer | <input checked="" type="checkbox"/> Technical Writing |
| <input checked="" type="checkbox"/> Construction Inspection | <input type="checkbox"/> Right-of-Way |
| <input type="checkbox"/> Environmental Resources | <input type="checkbox"/> Operations and Maintenance |

Monitoring: The mitigation measure will be considered effective if the contractor identifies a potential historical resource site and construction is halted at the site until an evaluation of the site’s significance can be made. Monitoring will terminate upon completion of construction.

⁴ 48 CFR Parts 44738-44739 and Appendix A to 36 CFR 61. Available: http://www.nps.gov/history/local-law/arch_stnds_9.htm

Mitigation Measure CUL-2: Stop Work if Cultural Resources are Discovered During Project Activities, Evaluate all Identified Cultural Resources for Eligibility for Inclusion in the California Register of Historical Resources, and Implement Appropriate Mitigation Measures for Eligible Resources.

Prior to initiation of ground-disturbing activities, the Water Agency shall arrange for construction crews to receive training about the kinds of archaeological materials that could be present at the project site and the protocols to be followed should any such materials be uncovered during construction. Training shall be conducted by an archaeologist who meets the U.S. Secretary of Interior’s professional standards (48 CFR Parts 44738-44739 and Appendix A to 36 CFR 61). Training may be required during different phases of construction to educate new construction personnel.

If any cultural resources are encountered, all soil-disturbing work in that area and within 100 feet of the find shall be halted until a qualified archaeologist who meets the U.S. Secretary of Interior’s professional standards (48 CFR Parts 44738-44739 and Appendix A to 36 CFR 61) completes a significance evaluation of the find(s) pursuant to Section 106 of the National Historic Preservation Act (36CFR60.4). If any of the resources meets the eligibility criteria identified in Public Resources Code § 5024.1 or CEQA § 21083.2(g), mitigation measures shall be developed and implemented in accordance with CEQA Guidelines § 15126.4(b) before construction resumes.

Prehistoric archaeological site indicators expected within the general area include: chipped chert and obsidian tools and tool manufacture waste flakes; grinding and hammering implements resembling fist-sized river-tumbled stones; and locally darkened soil that generally contains abundant archaeological specimens.

For resources or a tribal cultural resource (TCR) eligible for listing in the California Register of Historical Resources that would be rendered ineligible by the effects of project construction, additional mitigation measures shall 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. Native American consultation is required if an archaeological site is determined to be a TCR. Implementation of the approved mitigation would be required before resuming any construction activities with potential to affect identified eligible resources at the site.

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|---|---|
| <input checked="" type="checkbox"/> Project Engineer | <input checked="" type="checkbox"/> Technical Writing |
| <input checked="" type="checkbox"/> Construction Inspection | <input type="checkbox"/> Right-of-Way |
| <input type="checkbox"/> Environmental Resources | <input type="checkbox"/> Operations and Maintenance |

Monitoring: The mitigation measure will be considered effective if the contractor identifies a potential cultural resource site and construction is halted at the site until an evaluation of the site’s significance can be made. Monitoring will terminate upon completion of construction.

Mitigation Measure CUL-3: Stop Work if Paleontological Resources are Discovered During Project Activities, Evaluate all Identified Resources for Eligibility for Inclusion in the California Register of Historical Resources, and Implement Appropriate Mitigation Measures for Eligible Resources.

Prior to initiation of ground-disturbing activities, the Water Agency shall arrange for construction crews to receive training about the kinds of paleontological materials that could be present at the project site and the protocols to be followed should any such materials be uncovered during construction. Training shall be conducted by a professional paleontologist meeting the professional standards established by the Society of Vertebrate Paleontology (Society of Vertebrate Paleontology 2010). Training may be required during different phases of construction to educate new construction personnel.

Paleontological resources include fossil remains, as well as fossil localities and rock or soil formations that have produced fossil material. Fossils are the remains or traces of prehistoric animals and plants. Fossils are important scientific and educational resources because of their use in (1) documenting the presence and evolutionary history of particular groups of now-extinct organisms; (2) reconstructing the environments in which these organisms lived; and (3) determining the relative ages of the strata in which they occur, as well as the relative ages of the geologic events that resulted in the deposition of the sediments that formed these strata and in their subsequent deformation.

If any items of paleontological interest are encountered, all soil-disturbing work in that area and within 100 feet of the find shall be halted until a qualified paleontologist meeting the professional standards established by the Society of Vertebrate Paleontology (Society of Vertebrate Paleontology 2010) evaluates the site.

If it is determined by the qualified paleontologist that the proposed project could damage a unique paleontological resource, as defined in the CEQA Guidelines, mitigation shall be implemented in accordance with PRC§ 21083.2 and § 15126.4 of the CEQA Guidelines. If avoidance is not feasible, the paleontologist shall develop and implement a treatment plan consistent with the methods recommended by the Society of Vertebrate Paleontology (SVP 2010). Work shall not be resumed until recommendations received from the qualified paleontologist are implemented.

- | | |
|---|---|
| <input checked="" type="checkbox"/> Project Engineer | <input checked="" type="checkbox"/> Technical Writing |
| <input checked="" type="checkbox"/> Construction Inspection | <input type="checkbox"/> Right-of-Way |
| <input type="checkbox"/> Environmental Resources | <input type="checkbox"/> Operations and Maintenance |

Monitoring: The mitigation measure will be considered effective if the contractor identifies a potential paleontological resource site and construction is halted at the site until an evaluation of the site’s significance can be made. Monitoring will terminate upon completion of construction.

Mitigation Measure CUL-4: Stop Work if Human Remains are Discovered During Project Activities and Implement Applicable Provisions of the California Health and Safety Code.

If human remains are discovered during the proposed project’s construction activities, the requirements of California Health and Human Safety Code § 7050.5 shall be followed. Potentially damaging excavation shall halt in the project site, with a minimum radius of 100 feet, and the 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 (California Health and Safety Code § 7050.5[b]). If the Coroner determines that the remains are those of a Native American, he or she must contact NAHC by phone within 24 hours of making that determination (California Health and Safety Code § 7050[c]). Pursuant to the provisions of Public Resources Code § 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 Water Agency shall work with the MLD to ensure that the remains are removed to a protected location and treated with dignity and respect.

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|---|---|
| <input checked="" type="checkbox"/> Project Engineer | <input checked="" type="checkbox"/> Technical Writing |
| <input checked="" type="checkbox"/> Construction Inspection | <input type="checkbox"/> Right-of-Way |
| <input type="checkbox"/> Environmental Resources | <input type="checkbox"/> Operations and Maintenance |

Monitoring: The mitigation measure will be considered effective if the contractor identifies human remains and construction is halted at the site until an evaluation of the site’s significance can be made. Monitoring will terminate upon completion of construction.

Appendix D

Air Quality and Greenhouse Gas
Emissions Estimates

Road Construction Emissions Model, Version 7.1.5.1

Emission Estimates for -> SCWA-Russian River Pipe				Total	Exhaust	Fugitive Dust	Total	Exhaust	Fugitive Dust	CO2 (lbs/day)
Project Phases (English Units)	ROG (lbs/day)	CO (lbs/day)	NOx (lbs/day)	PM10 (lbs/day)	PM10 (lbs/day)	PM10 (lbs/day)	PM2.5 (lbs/day)	PM2.5 (lbs/day)	PM2.5 (lbs/day)	
Grubbing/Land Clearing	-	-	-	-	-	-	-	-	-	-
Grading/Excavation	1.8	12.1	16.4	50.8	0.8	50.0	11.1	0.7	10.4	2,495.2
Drainage/Utilities/Sub-Grade	10.1	49.8	83.1	54.8	4.8	50.0	14.8	4.4	10.4	9,644.4
Paving	2.3	14.9	18.2	1.2	1.2	-	1.1	1.1	-	2,864.6
Maximum (pounds/day)	10.1	49.8	83.1	54.8	4.8	50.0	14.8	4.4	10.4	9,644.4
Total (tons/construction project)	2.0	10.0	16.1	10.8	0.9	9.9	2.9	0.8	2.1	1,933.2

Notes: Project Start Year -> 2016
 Project Length (months) -> 24
 Total Project Area (acres) -> 10
 Maximum Area Disturbed/Day (acres) -> 5
 Total Soil Imported/Exported (yd³/day)-> 4

PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.

Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns 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.

Emission Estimates for -> SCWA-Russian River Pipe				Total	Exhaust	Fugitive Dust	Total	Exhaust	Fugitive Dust	CO2 (kgs/day)
Project Phases (Metric Units)	ROG (kgs/day)	CO (kgs/day)	NOx (kgs/day)	PM10 (kgs/day)	PM10 (kgs/day)	PM10 (kgs/day)	PM2.5 (kgs/day)	PM2.5 (kgs/day)	PM2.5 (kgs/day)	
Grubbing/Land Clearing	-	-	-	-	-	-	-	-	-	-
Grading/Excavation	0.8	5.5	7.5	23.1	0.4	22.7	5.0	0.3	4.7	1,134.2
Drainage/Utilities/Sub-Grade	4.6	22.6	37.8	24.9	2.2	22.7	6.7	2.0	4.7	4,383.8
Paving	1.1	6.8	8.3	0.5	0.5	-	0.5	0.5	-	1,302.1
Maximum (kilograms/day)	4.6	22.6	37.8	24.9	2.2	22.7	6.7	2.0	4.7	4,383.8
Total (megagrams/construction project)	1.8	9.0	14.6	9.8	0.8	9.0	2.6	0.8	1.9	1,753.5

Notes: Project Start Year -> 2016
 Project Length (months) -> 24
 Total Project Area (hectares) -> 4
 Maximum Area Disturbed/Day (hectares) -> 2
 Total Soil Imported/Exported (meters³/day)-> 3

PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.

Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns 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.

**Road Construction Emissions Model
Data Entry Worksheet**

Version 7.1.5.1



Note: Required data input sections have a yellow background.
Optional data input sections have a blue background. Only areas with a yellow or blue background can be modified. Program defaults have a white background.
The user is required to enter information in cells C10 through C25.

Input Type

Project Name	SCWA-Russian River Pipe	
Construction Start Year	2016	Enter a Year between 2009 and 2025 (inclusive)
Project Type	1	1 New Road Construction 2 Road Widening 3 Bridge/Overpass Construction
Project Construction Time	24.00	months
Predominant Soil/Site Type: Enter 1, 2, or 3	1	1. Sand Gravel 2. Weathered Rock-Earth 3. Blasted Rock
Project Length	0.23	miles
Total Project Area	10.28	acres
Maximum Area Disturbed/Day	5.00	acres
Water Trucks Used?	1	1. Yes 2. No
Soil Imported	0.00	yd ³ /day
Soil Exported	3.75	yd ³ /day
Average Truck Capacity	20	yd ³ (assume 20 if unknown)

To begin a new project, click this button to clear data previously entered. This button will only work if you opted not to disable macros when loading this spreadsheet.

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.

Construction Periods	User Override of	Program
	Construction Months	Calculated Months
Grubbing/Land Clearing	0.00	2.40
Grading/Excavation	4.00	9.60
Drainage/Utilities/Sub-Grade	16.00	8.40
Paving	4.00	3.60
Totals	24.00	24.00

2005	%	2006	%	2007	%
0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00

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					
		Soil Hauling Defaults	Default Values				
User Input							
Miles/round trip		2.50	30				
Round trips/day		0.20	0				
Vehicle miles traveled/day (calculated)				0.5			
Hauling Emissions		ROG	NOx	CO	PM10	PM2.5	CO2
Emission rate (grams/mile)		0.16	8.25	0.70	0.17	0.10	1679.86
Emission rate (grams/trip)		0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day		0.00	0.01	0.00	0.00	0.00	1.85
Tons per construction period		0.00	0.00	0.00	0.00	0.00	0.08

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

Worker Commute Emissions		User Override of Worker					
		Commute Default Values	Default Values				
Miles/ one-way trip			20				
One-way trips/day			2				
No. of employees: Grubbing/Land Clearing		20.00	4				
No. of employees: Grading/Excavation		20.00	16				
No. of employees: Drainage/Utilities/Sub-Grade		20.00	14				
No. of employees: Paving		20.00	10				
		ROG	NOx	CO	PM10	PM2.5	CO2
Emission rate - Grubbing/Land Clearing (grams/mile)		0.000	0.000	0.000	0.000	0.000	0.000
Emission rate - Grading/Excavation (grams/mile)		0.147	0.194	1.744	0.047	0.020	443.650
Emission rate - Draining/Utilities/Sub-Grade (gr/mile)		0.140	0.183	1.649	0.047	0.020	443.708
Emission rate - Paving (grams/mile)		0.133	0.172	1.555	0.047	0.020	443.765
Emission rate - Grubbing/Land Clearing (grams/trip)		0.000	0.000	0.000	0.000	0.000	0.000
Emission rate - Grading/Excavation (grams/trip)		0.505	0.323	4.200	0.004	0.003	95.592
Emission rate - Draining/Utilities/Sub-Grade (gr/trip)		0.481	0.305	3.990	0.004	0.003	95.618
Emission rate - Paving (grams/trip)		0.457	0.287	3.779	0.004	0.003	95.644
Pounds per day - Grubbing/Land Clearing		0.000	0.000	0.000	0.000	0.000	0.000
Tons per const. Period - Grub/Land Clear		0.000	0.000	0.000	0.000	0.000	0.000
Pounds per day - Grading/Excavation		0.304	0.371	3.443	0.083	0.035	790.185
Tons per const. Period - Grading/Excavation		0.013	0.016	0.151	0.004	0.002	34.768
Pounds per day - Drainage/Utilities/Sub-Grade		0.289	0.350	3.258	0.083	0.035	790.288
Tons per const. Period - Drain/Util/Sub-Grade		0.051	0.062	0.573	0.015	0.006	139.091
Pounds per day - Paving		0.274	0.329	3.073	0.083	0.035	790.392
Tons per const. Period - Paving		0.012	0.014	0.135	0.004	0.002	34.777
tons per construction period		0.076	0.092	0.860	0.022	0.009	208.636

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

Water Truck Emissions	User Override of	Program Estimate of	User Override of Truck	Default Values			
	Default # Water Trucks	Number of Water Trucks	Miles Traveled/Day	Miles Traveled/Day			
Grubbing/Land Clearing - Exhaust	1.00	1		40			
Grading/Excavation - Exhaust	1.00	1		40			
Drainage/Utilities/Subgrade	1.00	1		40			
	ROG	NOx	CO	PM10	PM2.5	CO2	
Emission rate - Grubbing/Land Clearing (grams/mile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Emission rate - Grading/Excavation (grams/mile)	0.16	8.25	0.70	0.17	0.10	1679.86	
Emission rate - Draining/Utilities/Sub-Grade (gr/mile)	0.15	7.84	0.68	0.16	0.09	1666.21	
Pounds per day - Grubbing/Land Clearing	0.00	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	0.00
Pound per day - Grading/Excavation	0.01	0.73	0.06	0.01	0.01	148.00	
Tons per const. Period - Grading/Excavation	0.00	0.03	0.00	0.00	0.00	6.51	
Pound per day - Drainage/Utilities/Subgrade	0.01	0.69	0.06	0.01	0.01	146.80	
Tons per const. Period - Drainage/Utilities/Subgrade	0.00	0.12	0.01	0.00	0.00	25.84	

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

Fugitive Dust	User Override of Max	Default	PM10	PM10	PM2.5	PM2.5
	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		5	50.0	5.3	10.4	1.1
Fugitive Dust - Drainage/Utilities/Subgrade		5	50.0	4.6	10.4	1.0

Off-Road Equipment Emissions

Grubbing/Land Clearing		Default	ROG	CO	NOx	PM10	PM2.5	CO2
Override of Default Number of Vehicles	Number of Vehicles	Type	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
	<i>Program-estimate</i>							
		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
	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
	1	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
	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
		Grubbing/Land Clearing	tons per phase	0.0	0.0	0.0	0.0	0.0

Grading/Excavation		Default	ROG	CO	NOx	PM10	PM2.5	CO2
Override of Default Number of Vehicles	Number of Vehicles	Type	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
	<i>Program-estimate</i>							
		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
	0	Cranes	0.00	0.00	0.00	0.00	0.00	0.00
1.00	1	Crawler Tractors	0.74	4.47	9.52	0.37	0.34	824.89
		Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00
1.00	3	Excavators	0.41	2.79	4.47	0.22	0.20	572.86
		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
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
		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
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
1.00	1	Signal Boards	0.36	1.36	1.32	0.10	0.09	157.43
		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	2	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
	Grading/Excavation	pounds per day	1.5	8.6	15.3	0.7	0.6	1555.2
	Grading	tons per phase	0.1	0.4	0.7	0.0	0.0	68.4

Drainage/Utilities/Subgrade Override of Default Number of Vehicles	Default Number of Vehicles <i>Program-estimate</i>		ROG	CO	NOx	PM10	PM2.5	CO2
			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
2.00	1	Air Compressors	1.32	6.83	8.51	0.70	0.64	1015.89
		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
2.00		Excavators	0.79	5.58	8.52	0.42	0.39	1145.61
		Forklifts	0.00	0.00	0.00	0.00	0.00	0.00
	1	Generator Sets	0.49	2.98	3.76	0.26	0.24	487.07
1.00	1	Graders	1.03	3.48	10.01	0.56	0.52	670.13
		Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00
1.00		Off-Highway Trucks	0.95	4.29	10.39	0.39	0.36	1417.96
1.00		Other Construction Equipment	0.67	3.60	7.11	0.37	0.34	654.06
		Other General Industrial Equipment	0.00	0.00	0.00	0.00	0.00	0.00
1.00		Other Material Handling Equipment	0.56	3.17	5.64	0.30	0.28	608.60
		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
2.00	1	Plate Compactors	0.08	0.42	0.50	0.02	0.02	68.90
		Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00
2.00	1	Pumps	0.84	4.92	6.20	0.45	0.41	792.28
		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
1.00		Rubber Tired Dozers	1.26	4.42	13.38	0.62	0.57	944.17
		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
	1	Signal Boards	0.34	1.35	1.30	0.09	0.08	157.43
		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
1.00	2	Tractors/Loaders/Backhoes	0.35	1.57	3.16	0.24	0.22	335.72
		Trenchers	0.00	0.00	0.00	0.00	0.00	0.00
2.00		Welders	1.09	3.91	3.57	0.28	0.26	409.48
	Drainage	pounds per day	9.8	46.5	82.0	4.7	4.3	8707.3
	Drainage	tons per phase	1.7	8.2	14.4	0.8	0.8	1532.5

Paving	Default		ROG	CO	NOx	PM10	PM2.5	CO2
	Override of Default Number of Vehicles	Number of Vehicles <i>Program-estimate</i>						
		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
1.00		Cement and Mortar Mixers	0.07	0.35	0.42	0.02	0.02	57.88
		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
1.00	1	Pavers	0.37	2.84	4.01	0.20	0.18	481.97
1.00	1	Paving Equipment	0.29	2.69	3.18	0.16	0.15	426.45
		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	3	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
		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
	1	Signal Boards	0.32	1.33	1.27	0.08	0.08	157.43
		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
2.00	2	Tractors/Loaders/Backhoes	0.67	3.14	6.11	0.46	0.42	671.04
		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	2.0	11.9	17.9	1.1	1.0	2074.2
	Paving	tons per phase	0.1	0.5	0.8	0.0	0.0	91.3
Total Emissions all Phases (tons per construction period) =>			1.9	9.1	15.9	0.9	0.8	1692.2

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

Equipment	Default Values Horsepower	Default Values 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

0

END OF DATA ENTRY SHEET

Appendix E

Supporting Information Related to
Biological Resources

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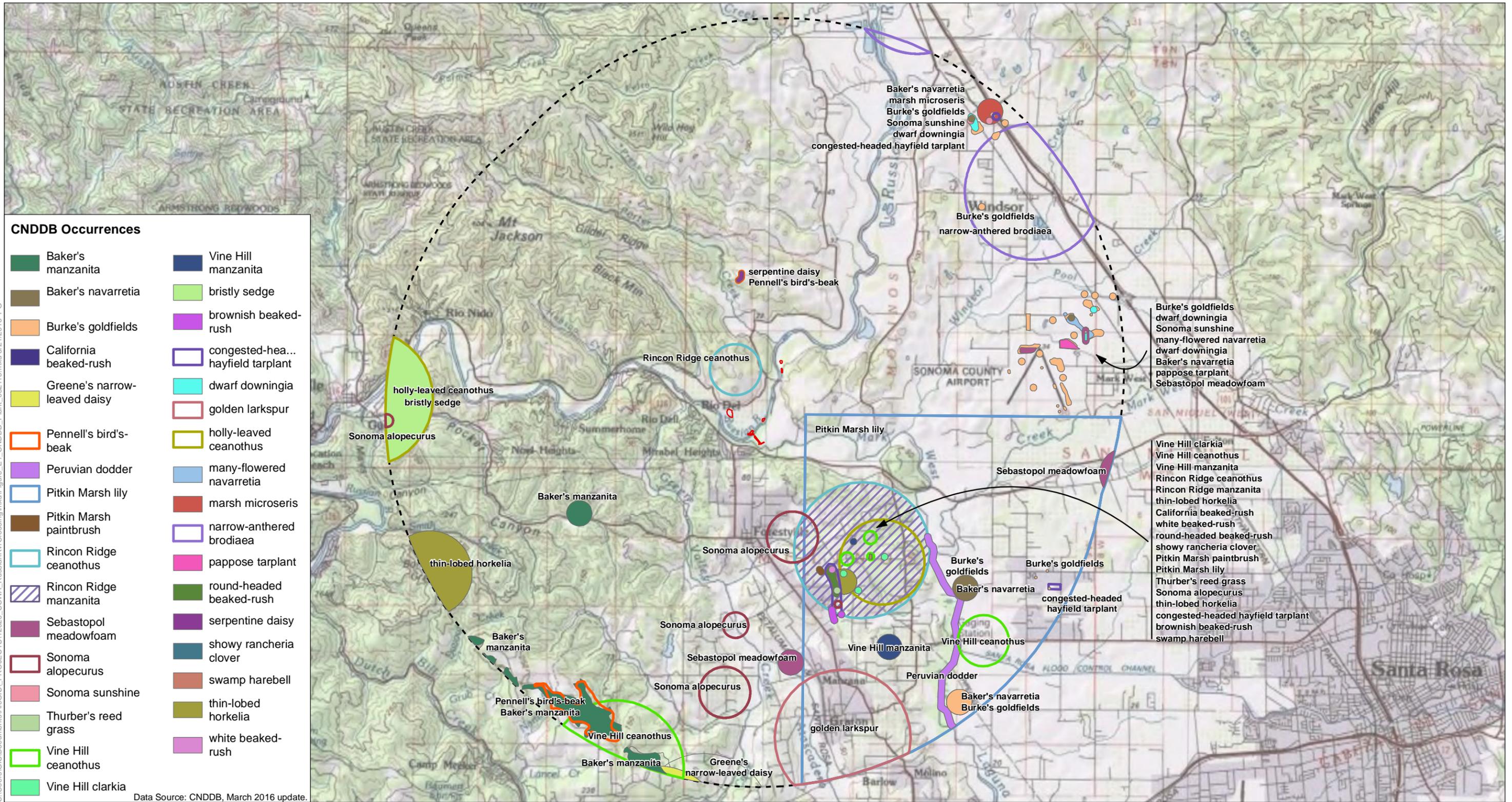


Figure E-1
Special Status Plant Occurrences
in the Project Vicinity

Table E-1. Special-Status Plants Known to Occur in the Vicinity of the Project Area

Scientific Name	Common Name	Federal Status	State Status	Rare Plant Rank	Habitat	Micro Habitat	Potential to Occur in Project Area
<i>Abronia umbellata</i> var. <i>breviflora</i>	pink sand-verbena	None	None	1B.1	Coastal dunes and coastal strand.	Foredunes and interdunes with sparse cover. <i>A. umb. breviflora</i> is usually the plant closest to the ocean. 0-10 m.	None. The Project Area lacks suitable habitat and hydrologic conditions; isolated from nearest extant occurrence near Two Rock.
<i>Agrostis blasdalei</i>	Blasdale's bent grass	None	None	1B.2	Coastal dunes, coastal bluff scrub, coastal prairie. Includes <i>Agrostis blasdalei</i> var. <i>marinensis</i> , which was formerly a state-listed Rare taxon; delisted in 2008.	Sandy or gravelly soil close to rocks; often in nutrient-poor soil with sparse vegetation. 5-150 m.	None. The Project Area lacks suitable habitat and hydrologic conditions.
<i>Allium peninsulare</i> var. <i>franciscanum</i>	Franciscan onion	None	None	1B.2	Cismontane woodland, valley and foothill grassland.	Clay soils; often on serpentine. dry hillsides. 50-300 m.	None. The Project Area lacks suitable habitat and is outside of extant range.
<i>Alopecurus aequalis</i> var. <i>sonomensis</i>	Sonoma alopecurus	Endangered	None	1B.1	Freshwater marshes and swamps, riparian scrub.	Wet areas, marshes, and riparian banks with other wetland species. 5-360 m.	None. The Project Area lacks suitable habitat and is outside of species known range.
<i>Amorpha californica</i> var. <i>napensis</i>	Napa false indigo	None	None	1B.2	Broadleafed upland forest, chaparral, cismontane woodland.	Openings in forest or woodland or in chaparral. 120-2000 m	None. The Project Area lacks suitable habitat and mesic alkaline soils.
<i>Arctostaphylos bakeri</i> ssp. <i>bakeri</i>	Baker's manzanita	None	Rare	1B.1	Broadleafed upland forest, chaparral. Entire species State-listed Rare.	Often on serpentine. This is the State-listed Rare taxon, also known as <i>A. bakeri</i> in Title 14. 75-230m.	None. The Project Area lacks suitable habitat and soils.
<i>Arctostaphylos bakeri</i> ssp. <i>sublaevis</i>	The Cedars manzanita	None	Rare	1B.2	Chaparral, closed-cone coniferous forest.	in serpentine chaparral and Sargent cypress woodland; typically in canyons and on slopes. 185-760 m.	None. The Project Area lacks suitable habitat and soils.
<i>Arctostaphylos densiflora</i>	Vine Hill manzanita	None	Endangered	1B.1	Chaparral.	Acid marine sand. 50-120 m.	None. The Project Area lacks suitable habitat and soils.
<i>Arctostaphylos stanfordiana</i> ssp. <i>decumbens</i>	Rincon Ridge manzanita	None	None	1B.1	Chaparral.	Highly restricted endemic to red rhyolites in Sonoma County. 75-310m.	None. The Project Area lacks suitable habitat and soils.
<i>Blennosperma bakeri</i>	Sonoma sunshine	Endangered	Endangered	1B.1	Vernal pools, valley and foothill grassland.	Vernal pools and swales. 10-110 m.	None. The Project Area lacks suitable habitat and soils.
<i>Brodiaea leptandra</i>	narrow-anthered brodiaea	None	None	1B.2	Broadleafed upland forest, chaparral, cismontane woodland, lower montane coniferous forest, valley and foothill grassland.	Volcanic substrates. 110-915 m.	None. The Project Area lacks suitable habitat and is outside of species known range.
<i>Calamagrostis crassiglumis</i>	Thurber's reed grass	None	None	2B.1	Coastal scrub, freshwater marsh.	Usually in marshy swales surrounded by grassland or coastal scrub. 10-45m.	None. The Project Area lacks suitable habitat; known occurrences are restricted to coastal locations.
<i>Calochortus raichei</i>	The Cedars fairy-lantern	None	None	1B.2	Closed-cone coniferous forest, chaparral.	On serpentine. Usually on shaded slopes, but also on barrens and talus. 200-490 m.	None. The Project Area lacks suitable habitat; mesic, alkaline soils are not present.
<i>Calystegia purpurata</i> ssp. <i>saxicola</i>	coastal bluff morning-glory	None	None	1B.2	Coastal dunes, coastal scrub, coastal bluff scrub, north coast coniferous forest.	10-105 m.	None. The Project Area lacks suitable habitat; no serpentine soils present.
<i>Campanula californica</i>	swamp harebell	None	None	1B.2	Bogs and fens, closed-cone coniferous forest, coastal prairie, meadows and seeps, freshwater marsh, north coast coniferous forest.	Bogs and marshes in a variety of habitats; uncommon where it occurs. 1-405 m.	None. The Project Area lacks suitable habitat; suitable soils are not present.

Table E-1. Special-Status Plants Known to Occur in the Vicinity of the Project Area

Scientific Name	Common Name	Federal Status	State Status	Rare PlantRank	Habitat	Micro Habitat	Potential to Occur in Project Area
<i>Carex comosa</i>	bristly sedge	None	None	2B.1	Marshes and swamps.	Lake margins, wet places; site below sea level is on a Delta island. -5-1005m.	None. The Project Area lacks suitable habitat.
<i>Castilleja uliginosa</i>	Pitkin Marsh paintbrush	None	Endangered	1A	Freshwater marsh.	Last known remaining plant died in 1987; was known from overgrown freshwater marsh. 60 m.	None. The Project Area lacks suitable habitat.
<i>Ceanothus confusus</i>	Rincon Ridge ceanothus	None	None	1B.1	Closed-cone coniferous forest, chaparral, cismontane woodland.	Known from volcanic or serpentine soils, dry shrubby slopes. 75-1065 m.	None. The Project Area lacks suitable habitat.
<i>Ceanothus foliosus var. vineatus</i>	Vine Hill ceanothus	None	None	1B.1	Chaparral.	Sandy, acidic soil in chaparral. 45-305 m.	None. The Project Area lacks suitable habitat.
<i>Ceanothus purpureus</i>	holly-leaved ceanothus	None	None	1B.2	Chaparral.	Rocky, volcanic slopes. 120-640m.	None. The Project Area lacks suitable habitat.
<i>Centromadia parryi ssp. parryi</i>	pappose tarplant	None	None	1B.2	Coastal prairie, meadows and seeps, coastal salt marsh, valley and foothill grassland.	Vernally mesic, often alkaline sites. 2-420m.	None. The Project Area lacks suitable habitat.
<i>Chlorogalum pomeridianum var. minus</i>	dwarf soaproot	None	None	1B.2	Chaparral.	Serpentine. 305-1000 m.	None. The Project Area lacks suitable habitat.
<i>Chloropyron maritimum ssp. palustre</i>	Point Reyes salty bird's-beak	None	None	1B.2	Coastal salt marsh.	Usually in coastal salt marsh with Salicornia, Distichlis, Jaumea, Spartina, etc. 0-10 m.	None. The Project Area lacks suitable habitat.
<i>Chorizanthe cuspidata var. cuspidata</i>	San Francisco Bay spineflower	None	None	1B.2	Coastal bluff scrub, coastal dunes, coastal prairie, coastal scrub.	Closely related to C. pungens. Sandy soil on terraces and slopes. 3-215 m.	None. The Project Area lacks suitable habitat.
<i>Chorizanthe cuspidata var. villosa</i>	woolly-headed spineflower	None	None	1B.2	Coastal scrub, coastal dunes, coastal prairie.	Sandy places near the beach. 3-60 m.	None. The Project Area lacks suitable habitat.
<i>Chorizanthe valida</i>	Sonoma spineflower	Endangered	Endangered	1B.1	Coastal prairie.	Sandy soil. 10-50 m.	None. The Project Area lacks suitable habitat.
<i>Cirsium andrewsii</i>	Franciscan thistle	None	None	1B.2	Coastal bluff scrub, broadleaved upland forest, coastal scrub, coastal prairie.	Sometimes serpentine seeps. 0-150 m.	None. The Project Area lacks suitable habitat.
<i>Clarkia imbricata</i>	Vine Hill clarkia	Endangered	Endangered	1B.1	Chaparral, valley and foothill grassland.	Acidic, sandy soil. 50-75 m.	None. The Project Area lacks suitable habitat.
<i>Cordylanthus tenuis ssp. capillaris</i>	Pennell's bird's-beak	Endangered	Rare	1B.2	Closed-cone coniferous forest, chaparral.	In open or disturbed areas on serpentine within forest or chaparral. 60-245 m.	None. The Project Area lacks suitable habitat.
<i>Cuscuta obtusiflora var. glandulosa</i>	Peruvian dodder	None	None	2B.2	Marshes and swamps (freshwater).	Freshwater marsh. 15-280 m.	None. The Project Area lacks suitable habitat.
<i>Cuscuta pacifica var. papillata</i>	Mendocino dodder	None	None	1B.2	Coastal dunes.	Interdune depressions. Annual parasitic vine observed on Gnaphalium, Silene and Lupinus. 0-50 m.	None. The Project Area lacks suitable habitat.
<i>Delphinium bakeri</i>	Baker's larkspur	Endangered	Endangered	1B.1	Broadleaved upland forest, coastal scrub, grasslands.	Only site occurs on NW-facing slope, on decomposed shale. Historically known from grassy areas along fencelines too. 80-305 m.	None. The Project Area lacks suitable habitat.
<i>Delphinium luteum</i>	golden larkspur	Endangered	Rare	1B.1	Chaparral, coastal prairie, coastal scrub.	North-facing rocky slopes. 0-100 m.	None. The Project Area lacks suitable habitat.

Table E-1. Special-Status Plants Known to Occur in the Vicinity of the Project Area

Scientific Name	Common Name	Federal Status	State Status	Rare Plant Rank	Habitat	Micro Habitat	Potential to Occur in Project Area
<i>Dirca occidentalis</i>	western leatherwood	None	None	1B.2	Broadleaved upland forest, chaparral, closed-cone coniferous forest, cismontane woodland, north coast coniferous forest, riparian forest, riparian woodland.	On brushy slopes, mesic sites; mostly in mixed evergreen & foothill woodland communities. 25-425 m.	None. The Project Area lacks suitable habitat.
<i>Downingia pusilla</i>	dwarf downingia	None	None	2B.2	Valley and foothill grassland (mesic sites), vernal pools.	Vernal lake and pool margins with a variety of associates. In several types of vernal pools. 1-445 m.	None. The Project Area lacks suitable habitat.
<i>Erigeron greenei</i>	Greene's narrow-leaved daisy	None	None	1B.2	Chaparral.	Serpentine and volcanic substrates, generally in shrubby vegetation. 80-1005 m.	None. The Project Area lacks suitable habitat.
<i>Erigeron serpentinus</i>	serpentine daisy	None	None	1B.3	Chaparral.	Serpentine seeps. 60-670 m.	None. The Project Area lacks suitable habitat.
<i>Eriogonum cedrorum</i>	The Cedars buckwheat	None	None	1B.3	Closed-cone coniferous forest.	Serpentine. Barren rock and talus steep slopes. 365-550 m.	None. The Project Area lacks suitable habitat.
<i>Erysimum concinnum</i>	bluff wallflower	None	None	1B.2	Coastal dunes, coastal bluff scrub, coastal prairie.	More or less a coastal generalist within coastal habitat types. 0-185 m.	None. The Project Area lacks suitable habitat.
<i>Fritillaria liliacea</i>	fragrant fritillary	None	None	1B.2	Coastal scrub, valley and foothill grassland, coastal prairie.	Often on serpentine; various soils reported though usually clay, in grassland. 3-410m.	None. The Project Area lacks suitable habitat.
<i>Gilia capitata ssp. chamissonis</i>	blue coast gilia	None	None	1B.1	Coastal dunes, coastal scrub.	3-200 m.	None. The Project Area lacks suitable habitat.
<i>Gilia capitata ssp. pacifica</i>	Pacific gilia	None	None	1B.2	Coastal bluff scrub, chaparral, coastal prairie, valley and foothill grassland.	5-1330 m.	None. The Project Area lacks suitable habitat.
<i>Gilia capitata ssp. tomentosa</i>	woolly-headed gilia	None	None	1B.1	Coastal bluff scrub, valley and foothill grassland.	Rocky outcrops on the coast, serpentine. 10-220 m.	None. The Project Area lacks suitable habitat.
<i>Gilia millefoliata</i>	dark-eyed gilia	None	None	1B.2	Coastal dunes.	2-30 m.	None. The Project Area lacks suitable habitat.
<i>Hemizonia congesta ssp. congesta</i>	congested-headed hayfield tarplant	None	None	1B.2	Valley and foothill grassland.	Grassy valleys and hills, often in fallow fields; sometimes along roadsides. 20-560 m.	None. The Project Area lacks suitable habitat.
<i>Hesperovax sparsiflora var. brevifolia</i>	short-leaved evax	None	None	1B.2	Coastal bluff scrub, coastal dunes, coastal prairie.	Sandy bluffs and flats. 0-215 m.	None. The Project Area lacks suitable habitat.
<i>Horkelia marinensis</i>	Point Reyes horkelia	None	None	1B.2	Coastal dunes, coastal prairie, coastal scrub.	Sandy flats and dunes near coast; in grassland or scrub plant communities. 5-30m.	None. The Project Area lacks suitable habitat.
<i>Horkelia tenuiloba</i>	thin-lobed horkelia	None	None	1B.2	Broadleaved upland forest, chaparral, valley and foothill grassland.	Sandy soils; mesic openings. 50-500 m.	None. The Project Area lacks suitable habitat.
<i>Lasthenia burkei</i>	Burke's goldfields	Endangered	Endangered	1B.1	Vernal pools, meadows and seeps.	Most often in vernal pools and swales. 15-600 m.	None. The Project Area lacks suitable habitat.
<i>Lasthenia californica ssp. bakeri</i>	Baker's goldfields	None	None	1B.2	Closed-cone coniferous forest, coastal scrub, meadows and seeps, marshes and swamps.	Openings. 60-520 m.	None. The Project Area lacks suitable habitat.
<i>Lasthenia californica ssp. macrantha</i>	perennial goldfields	None	None	1B.2	Coastal bluff scrub, coastal dunes, coastal scrub.	5-520 m.	None. The Project Area lacks suitable habitat.

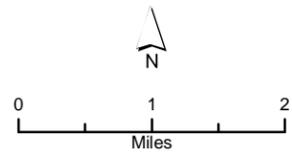
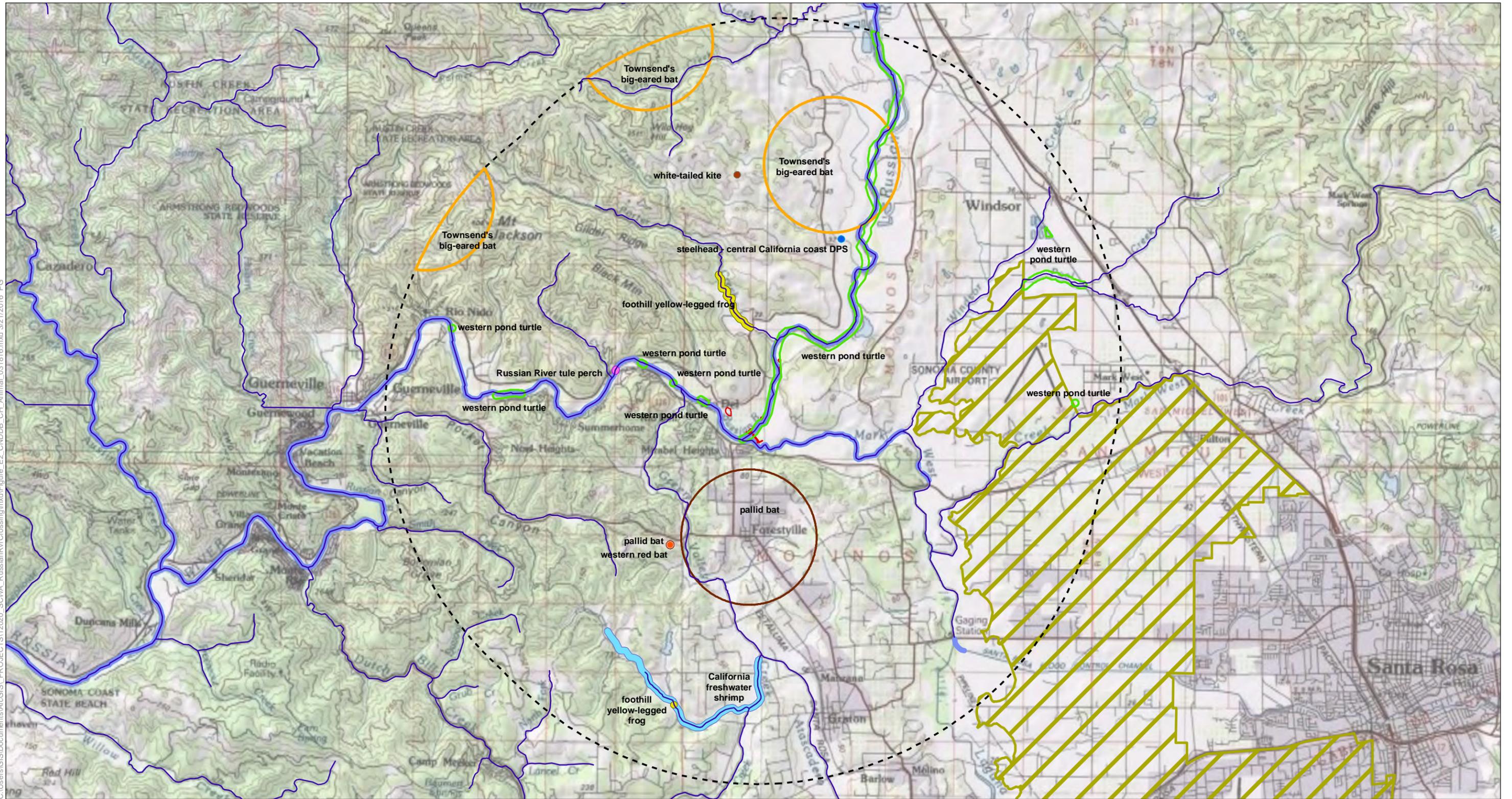
Table E-1. Special-Status Plants Known to Occur in the Vicinity of the Project Area

Scientific Name	Common Name	Federal Status	State Status	Rare Plant Rank	Habitat	Micro Habitat	Potential to Occur in Project Area
<i>Lasthenia conjugens</i>	Contra Costa goldfields	Endangered	None	1B.1	Valley and foothill grasslands, vernal pools, alkaline playas, cismontane woodland.	Vernal pools, swales, low depressions, in open grassy areas. 1-470 m.	None. The Project Area lacks suitable habitat.
<i>Legenere limosa</i>	legenere	None	None	1B.1	Vernal pools.	In beds of vernal pools. 1-880 m.	None. The Project Area lacks suitable habitat.
<i>Leptosiphon jepsonii</i>	Jepson's leptosiphon	None	None	1B.2	Chaparral, cismontane woodland.	Open to partially shaded grassy slopes. on volcanics or the periphery of serpentine substrates. 100-500m.	None. The Project Area lacks suitable habitat.
<i>Leptosiphon rosaceus</i>	rose leptosiphon	None	None	1B.1	Coastal bluff scrub.	0-100 m.	None. The Project Area lacks suitable habitat.
<i>Lessingia arachnoidea</i>	Crystal Springs lessingia	None	None	1B.2	Coastal sage scrub, valley and foothill grassland, cismontane woodland.	Grassy slopes on serpentine; sometimes on roadsides. 60-200 m.	None. The Project Area lacks suitable habitat.
<i>Lilium pardalinum ssp. pitkinense</i>	Pitkin Marsh lily	Endangered	Endangered	1B.1	Cismontane woodland, meadows and seeps, freshwater marsh.	Saturated, sandy soils with grasses and shrubs. 35-65 m.	None. The Project Area lacks suitable habitat.
<i>Limnanthes vinculans</i>	Sebastopol meadowfoam	Endangered	Endangered	1B.1	Mesic meadows, vernal pools, valley and foothill grassland.	Swales, wet meadows and marshy areas in valley oak savanna; on poorly drained soils of clays and sandy loam. 15-305 m.	None. The Project Area lacks suitable habitat.
<i>Lupinus tidestromii</i>	Tidestrom's lupine	Endangered	Endangered	1B.1	Coastal dunes.	Partially stabilized dunes, immediately near the ocean. 0-100 m.	None. The Project Area lacks suitable habitat.
<i>Microseris paludosa</i>	marsh microseris	None	None	1B.2	Closed-cone coniferous forest, cismontane woodland, coastal scrub, valley and foothill grassland.	5-300 m.	None. The Project Area lacks suitable habitat.
<i>Navarretia leucocephala ssp. bakeri</i>	Baker's navarretia	None	None	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 m.	None. The Project Area lacks suitable habitat.
<i>Navarretia leucocephala ssp. pliantha</i>	many-flowered navarretia	Endangered	Endangered	1B.2	Vernal pools.	Volcanic ash flow vernal pools. 30-950 m.	None. The Project Area lacks suitable habitat.
<i>Piperia candida</i>	white-flowered rein orchid	None	None	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 m.	None. The Project Area lacks suitable habitat.
<i>Pleuropogon hooverianus</i>	North Coast semaphore grass	None	Threatened	1B.1	Broadleafed upland forest, meadows and seeps, North Coast coniferous forest.	Wet grassy, usually shady areas, sometimes freshwater marsh; associated with forest environments. 10-1150 m.	None. The Project Area lacks suitable habitat.
<i>Polemonium carneum</i>	Oregon polemonium	None	None	2B.2	Coastal prairie, coastal scrub, lower montane coniferous forest.	0-1830 m.	None. The Project Area lacks suitable habitat.
<i>Potentilla uliginosa</i>	Cunningham Marsh cinquefoil	None	None	1A	Freshwater marshes and swamps.	Found in permanent, oligotrophic wetlands .30-40 m.	Not Expected. Marginal habitat is present within the ponded wetland; CNDDDB occurrences are restricted to vernal pool habitat on the Santa Rosa Plain.

Table E-1. Special-Status Plants Known to Occur in the Vicinity of the Project Area

Scientific Name	Common Name	Federal Status	State Status	Rare PlantRank	Habitat	Micro Habitat	Potential to Occur in Project Area
<i>Rhynchospora alba</i>	white beaked-rush	None	None	2B.2	Bogs and fens, meadows and seeps, marshes and swamps.	Freshwater marshes and sphagnum bogs. 60-2040 m.	Not Expected. The ponded wetland provides marginal habitat; the only CNDDDB record is from 1946.
<i>Rhynchospora californica</i>	California beaked-rush	None	None	1B.1	Bogs and fens, marshes and swamps, lower montane coniferous forest, meadows and seeps.	Freshwater seeps and open marshy areas. 45-1010 m.	Not Expected. The ponded wetland provides very marginal habitat.
<i>Rhynchospora capitellata</i>	brownish beaked-rush	None	None	2B.2	Lower montane coniferous forest, meadows and seeps, marshes and swamps, upper montane coniferous forest.	Mesic sites. 45-2000 m.	Not Expected. The Project Area contains marginal habitat with the ponded wetland; Project Area outside the species distribution.
<i>Rhynchospora globularis</i>	round-headed beaked-rush	None	None	2B.1	Marshes and swamps.	Freshwater marsh. 45-60 m.	Not Expected. The Project Area contains marginal habitat within ponded wetland and the only nearby CNDDDB occurrence is from 1939.
<i>Sidalcea calycosa ssp. rhizomata</i>	Point Reyes checkerbloom	None	None	1B.2	Marshes and swamps.	Freshwater marshes near the coast. 3-75 m.	Not Expected. The Project Area contains marginal habitat within ponded wetland; species presumed to be extinct.
<i>Sidalcea malviflora ssp. purpurea</i>	purple-stemmed checkerbloom	None	None	1B.2	Broadleafed upland forest, coastal prairie.	15-85 m.	Not Expected. The Project Area contains marginal habitat within the ponded wetland.
<i>Streptanthus glandulosus ssp. hoffmanii</i>	Hoffman's bristly jewelflower	None	None	1B.3	Chaparral, cismontane woodland, valley and foothill grassland.	Moist, steep rocky banks, in serpentine and non-serpentine soil. 60-765 m.	Not Expected. The Project Area contains marginal habitat and CNDDDB occurrences are restricted to coastal quads.
<i>Streptanthus morrisonii ssp. hirtiflorus</i>	Dorr's Cabin jewelflower	None	None	1B.2	Chaparral and closed-cone coniferous forest.	On the serpentine barrens at the head of Austin Creek. 185-820 m.	None. The Project Area lacks suitable habitat.
<i>Streptanthus morrisonii ssp. morrisonii</i>	Morrison's jewelflower	None	None	1B.2	Chaparral.	Serpentine outcrops in the Austin Creek area.	None. The Project Area lacks suitable habitat.
<i>Trifolium amoenum</i>	showy rancheria clover	Endangered	None	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. 5-415 m.	None. The Project Area lacks suitable habitat.
<i>Trifolium buckwestiorum</i>	Santa Cruz clover	None	None	1B.1	Coastal prairie, broadleafed upland forest, cismontane woodland.	Moist grassland. Gravelly margins. 105-610 m.	None. The Project Area lacks suitable habitat.
<i>Trifolium hydrophilum</i>	saline clover	None	None	1B.2	Marshes and swamps, valley and foothill grassland, vernal pools.	Mesic, alkaline sites. 0-300 m.	Not Expected. The Project Area supports marginal habitat within the ponded wetland; only CNDDDB occurrence from Pitkin Marsh.
<i>Triphysaria floribunda</i>	San Francisco owl's-clover	None	None	1B.2	Coastal prairie, coastal scrub, valley and foothill grassland.	On serpentine and nonserpentine substrate (such as at Pt. Reyes). 10-160 m.	Not Expected. The temporary stockpile location includes marginal, degraded habitat; reconnaissance survey occurred during appropriate bloom time and no plants observed.
<i>Viburnum ellipticum</i>	oval-leaved viburnum	None	None	2B.3	Chaparral, cismontane woodland, lower montane coniferous forest.	215-1400 m.	Not Expected. The Project Area contains marginal habitat and is outside of documented range.

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CNDDDB Occurrences

- California freshwater shrimp
- Russian River tule perch
- Townsend's big-eared bat
- foothill yellow-legged frog
- pallid bat
- steelhead - central California coast DPS
- western pond turtle
- western red bat
- white-tailed kite

Data Source: CNDDDB, March 2016 Update,

Critical Habitat

- California tiger salamander (Sonoma)
- Central Coast Chinook salmon
- Central California Coast steelhead

Data Source: NMFS Critical Habitat 2005

- Project Sites (Construction, Staging, Spoils)
- 5-mile Project Sites Radius

**Figure E-2
Special Status Animal
Occurrences and Critical Habitat
in the Project Vicinity**

Russian River-Cotati Intertie
Pipeline Seismic Hazard Mitigation
at the Russian River Crossing Project

Table E-2. Special-Status Fish and Wildlife Species Known to Occur in the Vicinity of the Project Area

Scientific Name	Common Name	Federal Status	State Status	Habitat	Micro Habitat	Potential to Occur in Project Area
Invertebrates						
<i>Syncaris pacifica</i>	California freshwater shrimp	Endangered	Endangered	Endemic to Marin, Napa, & Sonoma counties. Found in low elevation, low gradient streams where riparian cover is moderate to heavy.	Shallow pools away from main streamflow. Winter: undercut banks w/exposed roots. Summer: leafy branches touching water.	Not Expected. Species is known to occur in close proximity to the Project Area, but the mainstem Russian River does not provide suitable habitat.
<i>Callophrys mossii bayensis</i>	San Bruno elfin butterfly	Endangered	None	Coastal, mountainous areas with grassy ground cover, mainly in the vicinity of San Bruno Mountain, San Mateo County.	Colonies are located on steep, north-facing slopes within the fog belt. Larval host plant is <i>Sedum spathulifolium</i> .	None. The Project Area is outside the species' range.
<i>Speyeria zerene myrtleae</i>	Myrtle's silverspot butterfly	Endangered	None	Restricted to the foggy, coastal dunes/hills of the Point Reyes peninsula; extirpated from coastal San Mateo County.	Larval foodplant thought to be <i>Viola adunca</i> .	None. The Project Area is outside the species' range.
Fish						
<i>Eucyclogobius newberryi</i>	tidewater goby	Endangered	Species of Special Concern	Brackish water habitats along the Calif coast from Agua Hedionda Lagoon, San Diego Co. to the mouth of the Smith River.	Found in shallow lagoons and lower stream reaches, they need fairly still but not stagnant water & high oxygen levels.	None. The Project Area lacks suitable habitat.
<i>Hysterothorax traski pamo</i>	Russian River tule perch	None	Species of Special Concern	Low elevation streams of the Russian River system.	Requires clear, flowing water with abundant cover. They also require deep (> 1 m) pool habitat.	Present. Species is known to inhabit this portion of the Russian River (SCWA 2012).
<i>Lavinia symmetricus navarroensis</i>	Navarro roach	None	Species of Special Concern	Habitat generalists. Found in warm intermittent streams as well as cold, well-aerated streams.	Not specified	None. The Project Area is outside the subspecies' range.
<i>Lavinia symmetricus parvipinnis</i>	Gualala roach	None	Species of Special Concern	Found only in the Gualala River.	Not specified	None. The Project Area is outside the subspecies' range.
<i>Oncorhynchus kisutch</i>	coho salmon - central California coast ESU	Endangered	Endangered	Federal listing = pops between Punta Gorda & San Lorenzo River. State listing = pops south of Punta Gorda.	Require beds of loose, silt-free, coarse gravel for spawning. Also need cover, cool water & sufficient dissolved oxygen.	Present. Juvenile and adult migrations occur in the spring and fall/winter, respectively.
<i>Oncorhynchus mykiss tshawytscha</i>	steelhead - central California coast DPS	Threatened	None	From Russian River, south to Soquel Cr & to, but not including, Pajaro River. Also San Francisco & San Pablo Bay basins.	Not specified	Present. Juvenile and adult migrations occur in the spring and fall/winter, respectively.
<i>Oncorhynchus tshawytscha</i>	Chinook Salmon, California Coastal ESU	Threatened	None	Federal listing refers to wild spawned, coastal, spring & fall runs between Redwood Cr, Humboldt Co & Russian River, Sonoma Co	Not specified	Present. Juvenile and adult migrations occur in the spring and fall/winter, respectively.
<i>Spirinchus thaleichthys</i>	longfin smelt	Candidate	Threatened	Euryhaline, nektonic & anadromous. Found in open waters of estuaries, mostly in middle or bottom of water column.	Prefer salinities of 15-30 ppt, but can be found in completely freshwater to almost pure seawater.	None. The Project Area is outside the subspecies' range.
<i>Thaleichthys pacificus</i>	eulachon	Threatened	Species of Special Concern	Found in Klamath River, Mad River, Redwood Creek & in small numbers in Smith River & Humboldt Bay tributaries.	Spawn in lower reaches of coastal rivers w/ moderate water velocities & bottom of pea-sized gravel, sand & woody debris	Not expected. There are reports of the species occurring in the Russian River, but there distribution would likely be limited to areas downstream of the Project Area.
Amphibians and Reptiles						
<i>Actinemys [=Emys] marmorata</i>	western pond turtle	None	Species of Special Concern	A thoroughly aquatic turtle of ponds, marshes, rivers, streams & irrigation ditches, usually with aquatic vegetation, below 6000 ft 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. Suitable habitat is present and species is known to occur in the vicinity of the Project Area.
<i>Ambystoma californiense</i>	California tiger salamander	Threatened	Threatened	Central Valley DPS federally listed as threatened. Santa Barbara & Sonoma counties DPS federally listed as endangered.	Need underground refuges, especially ground squirrel burrows, & vernal pools or other seasonal water sources for breeding.	Not Expected. The Project Area lacks suitable breeding and upland habitat.
<i>Rana boylei</i>	foothill yellow-legged frog	None	Species of Special Concern	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. Suitable breeding habitat is present in nearby streams, but not in Russian River. Non-breeding habitat is present in the Project Area.
<i>Rana draytonii</i>	California red-legged frog	Threatened	Species of Special Concern	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. The Project Area lacks suitable breeding. Non-breeding habitat is present, but there are no records of the species in the vicinity of the Project Area.

Table E-2. Special-Status Fish and Wildlife Species Known to Occur in the Vicinity of the Project Area

Scientific Name	Common Name	Federal Status	State Status	Habitat	Micro Habitat	Potential to Occur in Project Area
Birds						
<i>Agelaius tricolor</i>	tricolored blackbird	None	Emergency Listing Status	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.	Not expected. The Project Area lacks suitable breeding habitat. Non-breeding individuals could occur.
<i>Athene cunicularia</i>	burrowing owl	None	Species of Special Concern	Open, dry annual or perennial grasslands, deserts & scrublands characterized by low-growing vegetation.	Subterranean nester, dependent upon burrowing mammals, most notably, the California ground squirrel.	None. The Project Area lacks suitable habitat.
<i>Buteo swainsoni</i> ¹	Swainson's hawk	None	Threatened	Breeds in grasslands with with scattered trees, juniper-sage flats, riparian areas, savannahs, & agricultural or ranch lands with groves or lines of trees.	Requires adjacent suitable foraging areas such as grasslands, or alfalfa or grain fields supporting rodent populations.	Possible. The Project Area provides potentially suitable breeding habitat and the species has been observed in the vicinity during the breeding season (ebird.org 2015).
<i>Brachyramphus marmoratus</i>	Marbled Murrelet	Threatened	Endangered	Lower montane coniferous forest, Oldgrowth Redwood	Nests in old-growth redwood-dominated forests, up to six miles inland, often in Douglas-fir.	None. The Project Area lacks suitable habitat.
<i>Charadrius alexandrinus nivosus</i>	western snowy plover	Threatened	Species of Special Concern	Sandy beaches, salt pond levees & shores of large alkali lakes.	Needs sandy, gravelly or friable soils for nesting.	None. The Project Area lacks suitable habitat.
<i>Coccyzus americanus occidentalis</i>	western yellow-billed cuckoo	Threatened	Endangered	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. The Project Area provides marginally suitable breeding habitat. No recent observation of the species in the vicinity of the Project Area.
<i>Cypseloides niger</i>	black swift	None	Species of Special Concern	Coastal belt of Santa Cruz & Monterey Co; central & southern Sierra Nevada; San Bernardino & San Jacinto Mountains.	Breeds in small colonies on cliffs behind or adjacent to waterfalls in deep canyons and sea-bluffs above the surf; forages widely	None. The Project Area lacks suitable habitat.
<i>Elanus leucurus</i>	white-tailed kite	None	Fully Protected	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. The Project Area provides potentially suitable breeding habitat.
<i>Fratercula cirrhata</i>	tufted puffin	None	Species of Special Concern	Open-ocean bird; nests along the coast on islands, islets, or (rarely) mainland cliffs.	Requires sod or earth into which the birds can burrow, on island cliffs or grassy island slopes.	None. The Project Area lacks suitable habitat.
<i>Icteria virens</i> ¹	yellow-breasted chat	None	Species of Special Concern	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 ft of ground.	Possible. The Project Area provides potentially suitable breeding habitat and the species has been observed in the vicinity during the breeding season (ebird.org 2015).
<i>Riparia riparia</i>	bank swallow	None	Threatened	Colonial nester; nests primarily in riparian and other lowland habitats west of the desert.	Requires vertical banks/cliffs with fine-textured/sandy soils near streams, rivers, lakes, ocean to dig nesting hole.	None. The Project Area lacks suitable habitat.
<i>Setophaga petechia</i> ¹	yellow warbler	None	Species of Special Concern	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. The Project Area provides potentially suitable breeding habitat.
<i>Strix occidentalis caurina</i>	Northern Spotted Owl	Threatened	Candidate Threatened	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. The Project Area lacks suitable habitat.

Table E-2. Special-Status Fish and Wildlife Species Known to Occur in the Vicinity of the Project Area

Scientific Name	Common Name	Federal Status	State Status	Habitat	Micro Habitat	Potential to Occur in Project Area
Mammals						
<i>Antrozous pallidus</i>	pallid bat	None	Species of Special Concern	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.	Possible. Some trees in the Project Area may provide suitable roost sites.
<i>Arborimus pomo</i>	Sonoma tree vole	None	Species of Special Concern	North coast fog belt from Oregon border to Sonoma Co. In Douglas-fir, redwood & montane hardwood-conifer forests.	Feeds almost exclusively on Douglas-fir needles. Will occasionally take needles of grand fir, hemlock or spruce.	None. The Project Area lacks suitable habitat.
<i>Corynorhinus townsendii</i>	Townsend's big-eared bat	None	Candidate Threatened	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. The Project Area lacks typical habitat components.
<i>Lasiurus blossevillii</i>	western red bat	None	Species of Special Concern	Roosts primarily in trees, 2-40 ft above ground, from sea level up through mixed conifer forests.	Prefers habitat edges & mosaics with trees that are protected from above & open below with open areas for foraging.	Possible. Some trees in the Project Area may provide suitable roost sites.
<i>Taxidea taxus</i>	American badger	None	Species of Special Concern	Most abundant in drier open stages of most shrub, forest, and herbaceous habitats, with friable soils.	Needs sufficient food, friable soils & open, uncultivated ground. Preys on burrowing rodents. Digs burrows.	Not expected. The Project Area lacks typical habitat components.

1. Species was not included in CNDDB query but was added to list of species known to occur in the vicinity of the project area based on other resources (eBird.org 2015).

Plant Species Observed in the Project Area (August 31, 2015)

Scientific Name	Common Name	Nativity	Family	Agriculture	Disturbed/Dveloped	Ruderal Field	Seasonally Flooded Depressions	Riparian Corridor
<i>Acer negundo</i>	box elder	Native	Sapindaceae				x	x
<i>Artemisia douglasiana</i>	mugwort	Native	Asteraceae				x	x
<i>Arundo donax</i>	giant reed	Exotic	Poaceae					x
<i>Atriplex prostrata</i>	fat hen	Exotic	Chenopodiaceae				x	
<i>Avena sp.</i>	wild oat	Exotic	Poaceae	x	x	x		
<i>Baccharis pilularis</i>	coyote brush	Native	Asteraceae		x			
<i>Brassica nigra</i>	black mustard	Exotic	Brassicaceae					x
<i>Bromus carinatus</i>	California brome	Native	Poaceae	x				
<i>Carduus pycnocephalus</i>	italian thistle	Exotic	Asteraceae			x		
<i>Centaurea solstitialis</i>	yellow star thistle	Exotic	Asteraceae			x		
<i>Cichorium intybus</i>	chicory	Exotic	Asteraceae	x				
<i>Cirsium vulgare</i>	bull thistle	Exotic	Asteraceae					x
<i>Conium maculatum</i>	poison hemlock	Exotic	Apiaceae		x	x		x
<i>Convolvulus arvensis</i>	field bindweed	Exotic	Convolvulaceae	x	x	x	x	
<i>Cornus sericea ssp. sericea</i>	American dogwood	Native	Cornaceae					x
<i>Crypsis schoenoides</i>	swamp grass	Exotic	Poaceae				x	
<i>Cynodon dactylon</i>	Bermuda grass	Exotic	Poaceae	x	x		x	
<i>Cyperus eragrostis</i>	tall flatsedge	Native	Cyperaceae				x	
<i>Deschampsia elongata</i>	slender hairgrass	Native	Poaceae					x
<i>Elymus triticoides</i>	beardless wildrye	Native	Poaceae				x	x
<i>Erigeron bonariensis</i>	flax-leaved horseweed	Exotic	Asteraceae				x	x
<i>Festuca perennis</i>	Italian ryegrass	Exotic	Poaceae		x	x	x	x
<i>Foeniculum vulgare</i>	fennel	Exotic	Apiaceae				x	
<i>Galium aparine</i>	bedstraw	Native	Rubiaceae					x
<i>Hedera helix</i>	English ivy	Exotic	Araliaceae					x
<i>Helminthotheca echioides</i>	bristly ox-tongue	Exotic	Asteraceae	x	x	x		
<i>Hirschfeldia incana</i>	wild mustard	Exotic	Brassicaceae	x	x		x	
<i>Hordeum brachyantherum</i>	meadow barley	Native	Poaceae				x	
<i>Hordeum sp.</i>	barley	Exotic	Poaceae	x			x	
<i>Juglans hindsii</i>	California black walnut	Native	Juglandaceae					x

Plant Species Observed in the Project Area (August 31, 2015)

Scientific Name	Common Name	Nativity	Family	Agriculture	Disturbed/Dveloped	Ruderal Field	Seasonally Flooded Depressions	Riparian Corridor
Juncus bufonius	toad rush	Native	Juncaceae				x	
Juncus patens	common rush	Native	Juncaceae					x
Kickxia elatine	fluellin	Exotic	Plantaginaceae	x	x		x	
Lactuca saligna	willowleaf lettuce	Exotic	Asteraceae					x
Lactuca serriola	prickly wild lettuce	Exotic	Asteraceae		x		x	x
Lepidium latifolium	broadleaf pepperweed	Exotic	Brassicaceae				x	
Lotus corniculatus	bird's-foot trefoil	Exotic	FABACEAE			x		
Malus domestica	Gravenstein apple	Exotic	Rosaceae		x			
Malva sp.	-	Exotic	Malvaceae	x				
Melilotus albus	white sweetclover	Exotic	Fabaceae					x
Mentha pulegium	pennyroyal	Exotic	Lamiaceae			x		
Phyla nodiflora	turkey tangle fogfriut	Native	Verbenaceae				x	
Plantago lanceolata	English plantain	Exotic	Plantaginaceae	x	x			
Polygonum aviculare ssp. depressum	prostrate knotweed	Exotic	Polygonaceae	x	x		x	
Polypogon monspeliensis	rabbit's foot grass	Exotic	Poaceae				x	x
Populus fremontii	Fremont's cottonwood	Native	Salicaceae					x
Pseudognaphalium luteoalbum	Jersey cudweed	Exotic	Asteraceae				x	
Quercus agrifolia	coast live oak	Native	Fagaceae		x			
Quercus lobata	valley oak	Native	Fagaceae					x
Raphanus sativus	wild radish	Exotic	Brassicaceae					x
Rosa sp.	rose		Rosaceae					x
Rubus armeniacus	Himalayan blackberry	Exotic	Rosaceae				x	x
Rubus ursinus	California blackberry	Native	Rosaceae				x	x
Rumex conglomeratus	clustered dock	Exotic	Polygonaceae					x
Rumex crispus	curly dock	Exotic	Polygonaceae				x	
Rumex pulcher	fiddle dock	Exotic	Polygonaceae				x	
Salix exigua	sandbar willow	Native	Salicaceae				x	x
Salix laevigata	red willow	Native	Salicaceae					x
Salix lasiandra var. lasiandra	Pacific willow	Native	Salicaceae				x	x

Plant Species Observed in the Project Area (August 31, 2015)

Scientific Name	Common Name	Nativity	Family	Agriculture	Disturbed/D eveloped	Ruderal Field	Seasonally Flooded Depressions	Riparian Corridor
Solidago sp.	goldenrod	Native	Asteraceae				x	
Sonchus asper	spiny sowthistle	Exotic	Asteraceae				x	
Spergularia sp.	sand spurrey	-	Caryophyllaceae				x	
Stachys ajugoides	hedge nettle	Native	Lamiaceae					x
Stipa miliaceae	smilo grass	Exotic	Poaceae					x
Taraxacum officinale	dandelion	Exotic	Asteraceae	x	x			
Torilis arvensis	field hedge parsley	Exotic	Apiaceae					x
Toxicodendron diversilobum	poison oak	Native	Anacardiaceae					x
Urtica dioica ssp. gracilis	stinging nettle	Native	Urticaceae					x
Vinca major	greater periwinkle	Exotic	Apocynaceae					x
Vitis sp.	wild grape	-	Vitaceae	x				x
Xanthium strumarium	rough cocklebur	Native	Asteraceae				x	



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Query Criteria: Quad is (Bodega Head (3812331) or Camp Meeker (3812248) or Cazadero (3812351) or Duncans Mills (3812341) or Guerneville (3812258) or Healdsburg (3812257) or Sebastopol (3812247) or Two Rock (3812237) or Valley Ford (3812238))

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
<i>Abronia umbellata</i> var. <i>breviflora</i> pink sand-verbena	PDNYC010N4	None	None	G4G5T2	S1	1B.1
<i>Agelaius tricolor</i> tricolored blackbird	ABPBXB0020	None	None	G2G3	S1S2	SSC
<i>Agrostis blasdalei</i> Blasdale's bent grass	PMPOA04060	None	None	G2	S2	1B.2
<i>Allium peninsulare</i> var. <i>franciscanum</i> Franciscan onion	PMLIL021R1	None	None	G5T1	S1	1B.2
<i>Alopecurus aequalis</i> var. <i>sonomensis</i> Sonoma alopecurus	PMPOA07012	Endangered	None	G5T1	S1	1B.1
<i>Ambystoma californiense</i> California tiger salamander	AAAAA01180	Threatened	Threatened	G2G3	S2S3	SSC
<i>Amorpha californica</i> var. <i>napensis</i> Napa false indigo	PDFAB08012	None	None	G4T2	S2	1B.2
<i>Andrena blennospermatis</i> Blennosperma vernal pool andrenid bee	IIHYM35030	None	None	G2	S2	
<i>Antrozous pallidus</i> pallid bat	AMACC10010	None	None	G5	S3	SSC
<i>Arborimus pomo</i> Sonoma tree vole	AMAFF23030	None	None	G3	S3	SSC
<i>Arctostaphylos bakeri</i> ssp. <i>bakeri</i> Baker's manzanita	PDERI04221	None	Rare	G2T1	S1	1B.1
<i>Arctostaphylos bakeri</i> ssp. <i>sublaevis</i> The Cedars manzanita	PDERI04222	None	Rare	G2T2	S2	1B.2
<i>Arctostaphylos densiflora</i> Vine Hill manzanita	PDERI040C0	None	Endangered	G1	S1	1B.1
<i>Arctostaphylos stanfordiana</i> ssp. <i>decumbens</i> Rincon Ridge manzanita	PDERI041G4	None	None	G3T1	S1	1B.1
<i>Ardea herodias</i> great blue heron	ABNGA04010	None	None	G5	S4	
<i>Athene cunicularia</i> burrowing owl	ABNSB10010	None	None	G4	S3	SSC
<i>Blennosperma bakeri</i> Sonoma sunshine	PDAST1A010	Endangered	Endangered	G1	S1	1B.1
<i>Bombus caliginosus</i> obscure bumble bee	IIHYM24380	None	None	G4?	S1S2	
<i>Bombus occidentalis</i> western bumble bee	IIHYM24250	None	None	G2G3	S1	



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<i>Brodiaea leptandra</i> narrow-anthered brodiaea	PMLIL0C022	None	None	G3?	S3?	1B.2
<i>Calamagrostis crassiglumis</i> Thurber's reed grass	PMPOA17070	None	None	G3Q	S2?	2B.1
<i>Callophrys mossii bayensis</i> San Bruno elfin butterfly	IILEPE2202	Endangered	None	G4T1	S1	
<i>Calochortus raichei</i> The Cedars fairy-lantern	PMLIL0D1L0	None	None	G2	S2	1B.2
<i>Calystegia purpurata ssp. saxicola</i> coastal bluff morning-glory	PDCON040D2	None	None	G4T2T3	S2S3	1B.2
<i>Campanula californica</i> swamp harebell	PDCAM02060	None	None	G3	S3	1B.2
<i>Carex comosa</i> bristly sedge	PMCYP032Y0	None	None	G5	S2	2B.1
<i>Castilleja uliginosa</i> Pitkin Marsh paintbrush	PDSCR0D380	None	Endangered	GXQ	SX	1A
<i>Ceanothus confusus</i> Rincon Ridge ceanothus	PDRHA04220	None	None	G1	S1	1B.1
<i>Ceanothus foliosus var. vineatus</i> Vine Hill ceanothus	PDRHA040D6	None	None	G3T1	S1	1B.1
<i>Ceanothus purpureus</i> holly-leaved ceanothus	PDRHA04160	None	None	G2	S2	1B.2
<i>Centromadia parryi ssp. parryi</i> pappose tarplant	PDAST4R0P2	None	None	G3T2	S2	1B.2
<i>Cerorhinca monocerata</i> rhinoceros auklet	ABNNN11010	None	None	G5	S3	WL
<i>Charadrius alexandrinus nivosus</i> western snowy plover	ABNNB03031	Threatened	None	G3T3	S2	SSC
<i>Chlorogalum pomeridianum var. minus</i> dwarf soaproot	PMLIL0G042	None	None	G5T2T3	S2S3	1B.2
<i>Chloropyron maritimum ssp. palustre</i> Point Reyes salty bird's-beak	PDSCR0J0C3	None	None	G4?T2	S2	1B.2
<i>Chorizanthe cuspidata var. cuspidata</i> San Francisco Bay spineflower	PDPGN04081	None	None	G2T1	S1	1B.2
<i>Chorizanthe cuspidata var. villosa</i> woolly-headed spineflower	PDPGN04082	None	None	G2T2	S2	1B.2
<i>Chorizanthe valida</i> Sonoma spineflower	PDPGN040V0	Endangered	Endangered	G1	S1	1B.1
<i>Cirsium andrewsii</i> Franciscan thistle	PDAST2E050	None	None	G3	S3	1B.2
<i>Clarkia imbricata</i> Vine Hill clarkia	PDONA050K0	Endangered	Endangered	G1	S1	1B.1



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Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Coastal and Valley Freshwater Marsh Coastal and Valley Freshwater Marsh	CTT52410CA	None	None	G3	S2.1	
Coastal Brackish Marsh Coastal Brackish Marsh	CTT52200CA	None	None	G2	S2.1	
Coastal Terrace Prairie Coastal Terrace Prairie	CTT41100CA	None	None	G2	S2.1	
Coccyzus americanus occidentalis western yellow-billed cuckoo	ABNRB02022	Threatened	Endangered	G5T2T3	S1	
Coelus globosus globose dune beetle	IICOL4A010	None	None	G1G2	S1S2	
Cordylanthus tenuis ssp. capillaris Pennell's bird's-beak	PDSCR0J0S2	Endangered	Rare	G4G5T1	S1	1B.2
Corynorhinus townsendii Townsend's big-eared bat	AMACC08010	None	Candidate Threatened	G3G4	S2	SSC
Cuscuta obtusiflora var. glandulosa Peruvian dodder	PDCUS01111	None	None	G5T4T5	SH	2B.2
Cuscuta pacifica var. papillata Mendocino dodder	PDCUS011A2	None	None	G5T1	S1	1B.2
Cypseloides niger black swift	ABNUA01010	None	None	G4	S2	SSC
Danaus plexippus pop. 1 monarch - California overwintering population	IILEPP2012	None	None	G4T2T3	S2S3	
Delphinium bakeri Baker's larkspur	PDRAN0B050	Endangered	Endangered	G1	S1	1B.1
Delphinium luteum golden larkspur	PDRAN0B0Z0	Endangered	Rare	G1	S1	1B.1
Dicamptodon ensatus California giant salamander	AAAAH01020	None	None	G3	S2S3	
Dirca occidentalis western leatherwood	PDTHY03010	None	None	G2	S2	1B.2
Downingia pusilla dwarf downingia	PDCAM060C0	None	None	GU	S2	2B.2
Dubiraphia giulianii Giuliani's dubiraphian riffle beetle	IICOL5A020	None	None	G1G3	S1S3	
Elanus leucurus white-tailed kite	ABNKC06010	None	None	G5	S3S4	FP
Emys marmorata western pond turtle	ARAAD02030	None	None	G3G4	S3	SSC
Erigeron greenei Greene's narrow-leaved daisy	PDAST3M5G0	None	None	G2	S2	1B.2
Erigeron serpentinus serpentine daisy	PDAST3M5M0	None	None	G2	S2	1B.3



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<i>Eriogonum cedrorum</i> The Cedars buckwheat	PDPGN087A0	None	None	G1	S1	1B.3
<i>Erysimum concinnum</i> bluff wallflower	PDBRA160E3	None	None	G3	S3	1B.2
<i>Eucyclogobius newberryi</i> tidewater goby	AFCQN04010	Endangered	None	G3	S3	SSC
<i>Fissidens pauperculus</i> minute pocket moss	NBMUS2W0U0	None	None	G3?	S2	1B.2
<i>Fratercula cirrhata</i> tufted puffin	ABNNN12010	None	None	G5	S1S2	SSC
<i>Fritillaria liliacea</i> fragrant fritillary	PMLIL0V0C0	None	None	G2	S2	1B.2
<i>Gilia capitata ssp. chamissonis</i> blue coast gilia	PDPLM040B3	None	None	G5T2	S2	1B.1
<i>Gilia capitata ssp. pacifica</i> Pacific gilia	PDPLM040B6	None	None	G5T3T4	S2	1B.2
<i>Gilia capitata ssp. tomentosa</i> woolly-headed gilia	PDPLM040B9	None	None	G5T2	S2	1B.1
<i>Gilia millefoliata</i> dark-eyed gilia	PDPLM04130	None	None	G2	S2	1B.2
<i>Hemizonia congesta ssp. congesta</i> congested-headed hayfield tarplant	PDAST4R065	None	None	G5T1T2	S1S2	1B.2
<i>Hesperevax sparsiflora var. brevifolia</i> short-leaved evax	PDASTE5011	None	None	G4T3	S2	1B.2
<i>Horkelia marinensis</i> Point Reyes horkelia	PDROS0W0B0	None	None	G2	S2	1B.2
<i>Horkelia tenuiloba</i> thin-lobed horkelia	PDROS0W0E0	None	None	G2	S2	1B.2
<i>Hysteroecarpus traski pomo</i> Russian River tule perch	AFCQK02011	None	None	G5T4	S4	SSC
<i>Kopsiopsis hookeri</i> small groundcone	PDORO01010	None	None	G4G5	S1S2	2B.3
<i>Lasiurus blossevillii</i> western red bat	AMACC05060	None	None	G5	S3	SSC
<i>Lasiurus cinereus</i> hoary bat	AMACC05030	None	None	G5	S4	
<i>Lasthenia burkei</i> Burke's goldfields	PDAST5L010	Endangered	Endangered	G1	S1	1B.1
<i>Lasthenia californica ssp. bakeri</i> Baker's goldfields	PDAST5L0C4	None	None	G3TH	SH	1B.2
<i>Lasthenia californica ssp. macrantha</i> perennial goldfields	PDAST5L0C5	None	None	G3T2	S2	1B.2



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Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
<i>Lasthenia conjugens</i> Contra Costa goldfields	PDAST5L040	Endangered	None	G1	S1	1B.1
<i>Lavinia symmetricus navarroensis</i> Navarro roach	AFCJB19023	None	None	G4T1T2	S1S2	SSC
<i>Lavinia symmetricus parvipinnis</i> Gualala roach	AFCJB19025	None	None	G4T1T2	S1S2	SSC
<i>Legenere limosa</i> legenere	PDCAM0C010	None	None	G2	S2	1B.1
<i>Leptosiphon jepsonii</i> Jepson's leptosiphon	PDPLM09140	None	None	G3	S3	1B.2
<i>Leptosiphon rosaceus</i> rose leptosiphon	PDPLM09180	None	None	G1	S1	1B.1
<i>Lessingia arachnoidea</i> Crystal Springs lessingia	PDAST5S0C0	None	None	G2	S2	1B.2
<i>Lichnanthe ursina</i> bumblebee scarab beetle	IICOL67020	None	None	G2	S2	
<i>Lilium pardalinum ssp. pitkinense</i> Pitkin Marsh lily	PMLIL1A0H3	Endangered	Endangered	G5T1	S1	1B.1
<i>Limnanthes vinculans</i> Sebastopol meadowfoam	PDLIM02090	Endangered	Endangered	G1	S1	1B.1
<i>Linderiella occidentalis</i> California linderiella	ICBRA06010	None	None	G2G3	S2S3	
<i>Lupinus tidestromii</i> Tidestrom's lupine	PDFAB2B3Y0	Endangered	Endangered	G1	S1	1B.1
<i>Microseris paludosa</i> marsh microseris	PDAST6E0D0	None	None	G2	S2	1B.2
<i>Myotis evotis</i> long-eared myotis	AMACC01070	None	None	G5	S3	
<i>Myotis thysanodes</i> fringed myotis	AMACC01090	None	None	G4	S3	
<i>Navarretia leucocephala ssp. bakeri</i> Baker's navarretia	PDPLM0C0E1	None	None	G4T2	S2	1B.1
<i>Navarretia leucocephala ssp. plieantha</i> many-flowered navarretia	PDPLM0C0E5	Endangered	Endangered	G4T1	S1	1B.2
Northern Coastal Salt Marsh Northern Coastal Salt Marsh	CTT52110CA	None	None	G3	S3.2	
Northern Hardpan Vernal Pool Northern Hardpan Vernal Pool	CTT44110CA	None	None	G3	S3.1	
Northern Vernal Pool Northern Vernal Pool	CTT44100CA	None	None	G2	S2.1	
<i>Oncorhynchus kisutch</i> coho salmon - central California coast ESU	AFCHA02034	Endangered	Endangered	G4	S2?	



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Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
<i>Oncorhynchus mykiss irideus</i> steelhead - central California coast DPS	AFCHA0209G	Threatened	None	G5T2T3Q	S2S3	
<i>Pandion haliaetus</i> osprey	ABNKC01010	None	None	G5	S4	WL
<i>Piperia candida</i> white-flowered rein orchid	PMORC1X050	None	None	G3	S3	1B.2
<i>Pleuropogon hooverianus</i> North Coast semaphore grass	PMPOA4Y070	None	Threatened	G2	S2	1B.1
<i>Polemonium carneum</i> Oregon polemonium	PDPLM0E050	None	None	G3G4	S2	2B.2
<i>Polygonum marinense</i> Marin knotweed	PDPGN0L1C0	None	None	G2Q	S2	3.1
<i>Potentilla uliginosa</i> Cunningham Marsh cinquefoil	PDROS1B4A0	None	None	GH	SH	1A
<i>Rana boylei</i> foothill yellow-legged frog	AAABH01050	None	None	G3	S3	SSC
<i>Rana draytonii</i> California red-legged frog	AAABH01022	Threatened	None	G2G3	S2S3	SSC
<i>Rhynchospora alba</i> white beaked-rush	PMCYP0N010	None	None	G5	S2	2B.2
<i>Rhynchospora californica</i> California beaked-rush	PMCYP0N060	None	None	G1	S1	1B.1
<i>Rhynchospora capitellata</i> brownish beaked-rush	PMCYP0N080	None	None	G5	S1	2B.2
<i>Rhynchospora globularis</i> round-headed beaked-rush	PMCYP0N0W0	None	None	G4	S1	2B.1
<i>Riparia riparia</i> bank swallow	ABPAU08010	None	Threatened	G5	S2	
<i>Sidalcea calycosa ssp. rhizomata</i> Point Reyes checkerbloom	PDMAL11012	None	None	G5T2	S2	1B.2
<i>Sidalcea malviflora ssp. purpurea</i> purple-stemmed checkerbloom	PDMAL110FL	None	None	G5T1	S1	1B.2
<i>Speyeria zerene myrtleae</i> Myrtle's silverspot butterfly	IILEPJ608C	Endangered	None	G5T1	S1	
<i>Spirinchus thaleichthys</i> longfin smelt	AFCHB03010	Candidate	Threatened	G5	S1	SSC
<i>Streptanthus glandulosus ssp. hoffmanii</i> Hoffman's bristly jewelflower	PDBRA2G0J4	None	None	G4T2	S2	1B.3
<i>Streptanthus morrisonii ssp. hirtiflorus</i> Dorr's Cabin jewelflower	PDBRA2G0S2	None	None	G2T1	S1	1B.2
<i>Streptanthus morrisonii ssp. morrisonii</i> Morrison's jewelflower	PDBRA2G0S3	None	None	G2T2	S2	1B.2



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<i>Syncaris pacifica</i> California freshwater shrimp	ICMAL27010	Endangered	Endangered	G1	S1	
<i>Taxidea taxus</i> American badger	AMAJF04010	None	None	G5	S3	SSC
<i>Thaleichthys pacificus</i> eulachon	AFCHB04010	Threatened	None	G5	S3	
<i>Thamnotia vermicularis</i> whiteworm lichen	NLTES43860	None	None	G3G5	S1	2B.1
<i>Trifolium amoenum</i> two-fork clover	PDFAB40040	Endangered	None	G1	S1	1B.1
<i>Trifolium buckwestiorum</i> Santa Cruz clover	PDFAB402W0	None	None	G2	S2	1B.1
<i>Trifolium hydrophilum</i> saline clover	PDFAB400R5	None	None	G2	S2	1B.2
<i>Triphysaria floribunda</i> San Francisco owl's-clover	PDSCR2T010	None	None	G2	S2	1B.2
<i>Triquetrella californica</i> coastal triquetrella	NBMUS7S010	None	None	G2	S2	1B.2
<i>Tryonia imitator</i> mimic tryonia (=California brackishwater snail)	IMGASJ7040	None	None	G2	S2	
<i>Usnea longissima</i> Methuselah's beard lichen	NLLEC5P420	None	None	G4	S4	4.2
<i>Vespericola marinensis</i> Marin hesperian	IMGASA4140	None	None	G2	S2	
<i>Viburnum ellipticum</i> oval-leaved viburnum	PDCPR07080	None	None	G4G5	S3?	2B.3

Record Count: 137

Russian River-Cotati Intertie Pipeline Seismic Hazard Mitigation at the Russian River

IPaC Trust Resources Report

Generated March 21, 2016 12:05 PM MDT, IPaC v3.0.0

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



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- Endangered Species [2](#)
- Migratory Birds [6](#)
- Refuges & Hatcheries [8](#)
- Wetlands [9](#)

U.S. Fish & Wildlife Service

IPaC Trust Resources Report



NAME

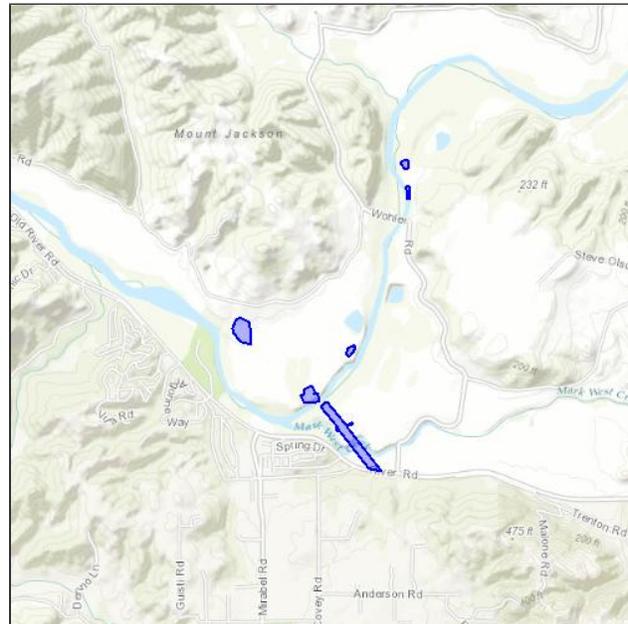
Russian River-Cotati Intertie Pipeline
Seismic Hazard Mitigation at the
Russian River

LOCATION

Sonoma County, California

IPAC LINK

[https://ecos.fws.gov/ipac/project/
7MM2Y-HAG5B-HUJDB-PWU5K-IIF2K4](https://ecos.fws.gov/ipac/project/7MM2Y-HAG5B-HUJDB-PWU5K-IIF2K4)



U.S. Fish & Wildlife Service Contact Information

Trust resources in this location are managed by:

Sacramento Fish And Wildlife Office

Federal Building

2800 Cottage Way, Room W-2605

Sacramento, CA 95825-1846

(916) 414-6600

Endangered Species

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

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

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

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

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

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

Amphibians

California Red-legged Frog *Rana draytonii*

Threatened

CRITICAL HABITAT

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

https://ecos.fws.gov/tess_public/profile/speciesProfile.action?sPCODE=D02D

Birds

Marbled Murrelet *Brachyramphus marmoratus* Threatened

CRITICAL HABITAT

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

https://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B08C

Northern Spotted Owl *Strix occidentalis caurina* Threatened

CRITICAL HABITAT

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

https://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B08B

Yellow-billed Cuckoo *Coccyzus americanus* Threatened

CRITICAL HABITAT

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

https://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B06R

Crustaceans

California Freshwater Shrimp *Syncaris pacifica* Endangered

CRITICAL HABITAT

No critical habitat has been designated for this species.

https://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=K01W

Fishes

Steelhead *Oncorhynchus (=Salmo) mykiss* Threatened

CRITICAL HABITAT

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

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

Flowering Plants

Baker's Larkspur *Delphinium bakeri* Endangered

CRITICAL HABITAT

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

https://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=Q0LZ

Pennell's Bird's-beak *Cordylanthus tenuis* ssp. *capillaris* Endangered

CRITICAL HABITAT

No critical habitat has been designated for this species.

https://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=Q2O8

Sebastopol Meadowfoam *Limnanthes vinculans* Endangered

CRITICAL HABITAT

No critical habitat has been designated for this species.

https://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=Q1Y1

Showy Indian Clover *Trifolium amoenum* Endangered

CRITICAL HABITAT

No critical habitat has been designated for this species.

https://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=Q238

Sonoma Alopecurus *Alopecurus aequalis* var. *sonomensis* Endangered

CRITICAL HABITAT

No critical habitat has been designated for this species.

https://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=Q01E

Yellow Larkspur *Delphinium luteum* Endangered

CRITICAL HABITAT

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

https://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=Q0M2

Insects

Myrtle's Silverspot Butterfly *Speyeria zerene* *myrtleae* Endangered

CRITICAL HABITAT

No critical habitat has been designated for this species.

https://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=I00N

San Bruno Elfin Butterfly *Callophrys mossii* *bayensis* Endangered

CRITICAL HABITAT

No critical habitat has been designated for this species.

https://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=I00Q

Critical Habitats

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

Chinook Salmon Critical Habitat Final designated

https://ecos.fws.gov/tess_public/profile/speciesProfile.action?sPCODE=E06D#crithab

Steelhead Critical Habitat Final designated

https://ecos.fws.gov/tess_public/profile/speciesProfile.action?sPCODE=E08D#crithab

Migratory Birds

Birds are protected by the [Migratory Bird Treaty Act](#) and the [Bald and Golden Eagle Protection Act](#).

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

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

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

Additional information can be found using the following links:

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

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

Allen's Hummingbird <i>Selasphorus sasin</i> Season: Breeding https://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0LI	Bird of conservation concern
Bald Eagle <i>Haliaeetus leucocephalus</i> Year-round https://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B008	Bird of conservation concern
Bell's Sparrow <i>Amphispiza belli</i> Year-round https://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0HE	Bird of conservation concern
Burrowing Owl <i>Athene cunicularia</i> Year-round https://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0NC	Bird of conservation concern

Fox Sparrow <i>Passerella iliaca</i> Season: Wintering	Bird of conservation concern
Lesser Yellowlegs <i>Tringa flavipes</i> Season: Wintering https://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0MD	Bird of conservation concern
Lewis's Woodpecker <i>Melanerpes lewis</i> Season: Wintering https://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0HQ	Bird of conservation concern
Long-billed Curlew <i>Numenius americanus</i> Season: Wintering https://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B06S	Bird of conservation concern
Nuttall's Woodpecker <i>Picoides nuttallii</i> Year-round https://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0HT	Bird of conservation concern
Oak Titmouse <i>Baeolophus inornatus</i> Year-round https://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0MJ	Bird of conservation concern
Olive-sided Flycatcher <i>Contopus cooperi</i> Season: Breeding https://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0AN	Bird of conservation concern
Peregrine Falcon <i>Falco peregrinus</i> Year-round https://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0FU	Bird of conservation concern
Rufous-crowned Sparrow <i>Aimophila ruficeps</i> Year-round https://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0MX	Bird of conservation concern
Short-billed Dowitcher <i>Limnodromus griseus</i> Season: Wintering https://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0JK	Bird of conservation concern
Short-eared Owl <i>Asio flammeus</i> Season: Wintering https://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0HD	Bird of conservation concern
Western Grebe <i>aechmophorus occidentalis</i> Year-round https://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0EA	Bird of conservation concern
Yellow Warbler <i>dendroica petechia</i> ssp. <i>brewsteri</i> Season: Breeding https://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0EN	Bird of conservation concern

Wildlife refuges and fish hatcheries

There are no refuges or fish hatcheries in this location

Wetlands in the National Wetlands Inventory

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

For more information please contact the Regulatory Program of the local [U.S. Army Corps of Engineers District](#).

DATA LIMITATIONS

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

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

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

DATA EXCLUSIONS

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

DATA PRECAUTIONS

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

This location overlaps all or part of the following wetlands:

Riverine

[R2UBH](#)

60.0 acres

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

Appendix F

Cultural Resources Survey

**A Cultural Resources Survey for the
Russian River Crossing Project,
Forestville, Sonoma County, California**

Rachel Hennessy

Thomas M. Origer, M.A./R.P.A.
Registered Professional Archaeologist (#10333)

September 15, 2015



**A Cultural Resources Survey for the
Russian River Crossing Project,
Forestville, Sonoma County, California**

Prepared by:

Rachel Hennessy

Thomas M. Origer, M.A./R.P.A.
Registered Professional Archaeologist (#10333)

Tom Origer & Associates
Post Office Box 1531
Rohnert Park, California 94927
(707) 584-8200

Prepared for:

Connie Barton
Sonoma County Water Agency
404 Aviation Boulevard
Santa Rosa, California 95403

September 15, 2015

ABSTRACT

Tom Origer & Associates conducted a cultural resources survey for the Russian River Crossing Project near Forestville, Sonoma County, California. The project consists of replacing the water pipes on the north and south sides of the Russian River. The project is located approximately 1,700 feet northeast of the intersection of River Road and Mirabel Road. Survey included auguring on both sides of the river. The survey was requested by Connie Barton of the Sonoma County Water Agency.

This study included archival research at the Northwest Information Center, Sonoma State University (NWIC File No. 15-0322), examination of the library and files of Tom Origer & Associates, contact with Native American communities, and field inspection of the project location. Documentation pertaining to this study is on file at the offices of Tom Origer & Associates (File No. 15-074).

Confidentiality Statement: *This report contains information regarding locations of archaeological resources. These resources are vulnerable to vandalism, and are protected by law. To safeguard these resources, this report should not be circulated publicly.*

Synopsis

Project: Russian River Crossing
Location: 1,700 feet northeast of the intersection of River Road and Mirabel Road, Forestville, Sonoma County, California.
Quadrangles: Camp Meeker 7.5' series
Study Type: Intensive Survey
Scope: Intensive survey plus augering
Finds: None

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INTRODUCTION

This report describes a cultural resources survey conducted for the Russian River Crossing Project near Forestville, Sonoma County, California. The study area is in west-central Sonoma County, about 1,700 feet northeast of the intersection of River Road and Mirabel Road (Figure 1). The study was requested by Connie Barton of the Sonoma County Water Agency. This project includes the replacement of a portion of the Russian River - Cotati Intertie maintained by the Sonoma County Water Agency (SCWA).

This project is subject to Section 106 of the National Historic Preservation Act (NHPA) and the California Environmental Quality Act (CEQA). Documentation pertaining to this study is on file at Tom Origer & Associates (File No. 15-074).

REGULATORY CONTEXT

When a project might affect a cultural resource, the project proponent is required to conduct an assessment to determine whether the effect may be one that is significant. Consequently, it is necessary to determine the importance of resources that could be affected. Because this project will have potential permitting from both state and federal agencies, Section 106 of the National Historic Preservation Act and the California Environmental Quality Act will apply to the work.

Under Section 106, when a federal agency is involved in an undertaking, it must take into account the effects of the undertaking on historic properties (36CFR Part 800). Compliance with Section 106 requires that agencies make an effort to identify historic properties that might be affected by a project, and gather information to evaluate their eligibility for inclusion on the National Register of Historic Places (National Register). Pursuant to Section 106, the goals of this study were to: 1) identify all historic resources within the project area; 2) offer a preliminary evaluation of the significance of the identified resources; 3) determine resource vulnerability to adverse impacts that could arise from project activities; and 4) offer recommendations designed to protect historic resource values, as warranted.

The California Environmental Quality Act (CEQA) requires that cultural resources be considered during the environmental review process. This is achieved by an inventory of resources within a study area and by assessing the potential that cultural resources could be affected by development. This cultural resources survey was designed to satisfy environmental issues specified in the CEQA and its guidelines (Title 14 CCR §15064.5) by: (1) identifying all cultural resources within the project area; (2) offering a preliminary significance evaluation of the identified cultural resources; (3) assessing resource vulnerability to effects that could arise from project activities; and (4) offering suggestions designed to protect resource integrity, as warranted.

Resource Definitions

Cultural resources are classified by the State Office of Historic Preservation (OHP) as sites, buildings, structures, objects and districts, and each is described by OHP (1995) as follows.

Site. A site is the location of a significant event, a prehistoric or historic occupation or activity, or a building or structure, whether standing, ruined, or vanished, where the location itself possesses historic, cultural, or archaeological value regardless of the value of any existing structure.

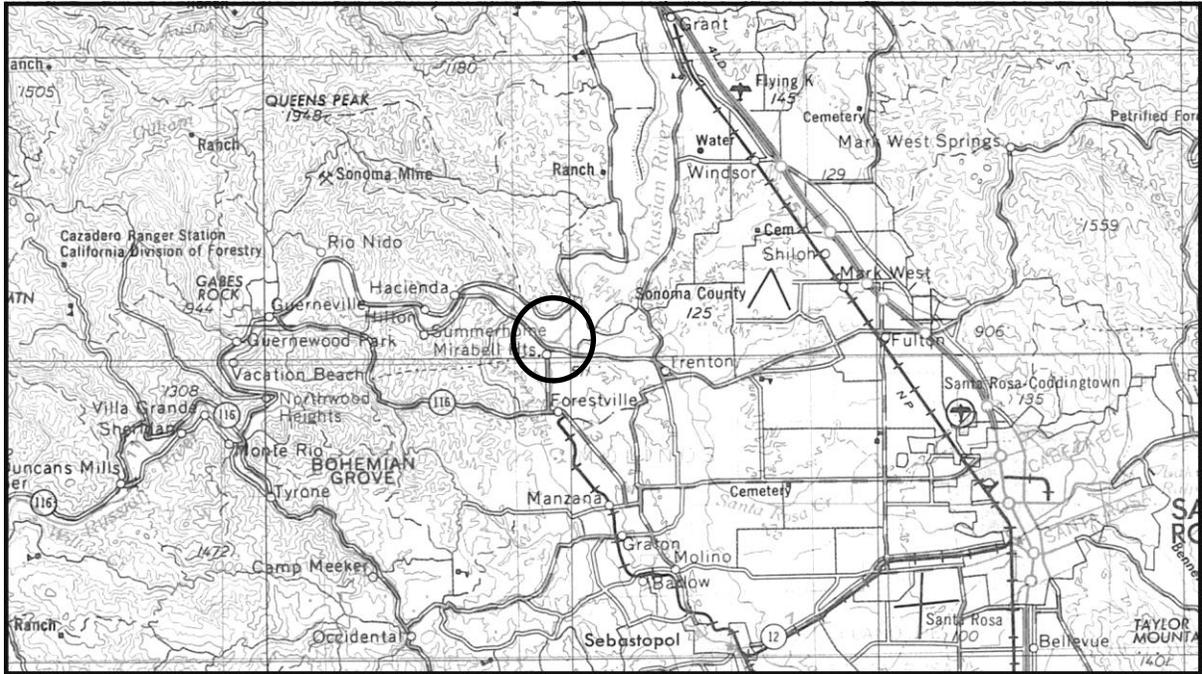


Figure 1. Project vicinity (adapted from the 1970 Santa Rosa 1:250,000-scale USGS map).

Building. A building, such as a house, barn, church, hotel, or similar construction, is created principally to shelter any form of human activity. "Building" may also be used to refer to a historically and functionally related unit, such as a courthouse and jail, or a house and barn.

Structure. The term "structure" is used to distinguish from buildings those functional constructions made usually for purposes other than creating human shelter.

Object. The term "object" is used to distinguish from buildings and structures those constructions that are primarily artistic in nature or are relatively small in scale and simply constructed. Although it may be, by nature or design, movable, an object is associated with a specific setting or environment.

District. A district possesses a significant concentration, linkage, or continuity of sites, buildings, structures, or objects united historically or aesthetically by plan or physical development.

Significance Criteria

Under Section 106, the importance of a historic resource is evaluated in terms of National Register criteria put forth in 36CFR60, as follows:

The quality of significance is present in properties that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and:

- A. That are associated with events that have made a significant contribution to the broad patterns of our history; or

- B. That are associated with the lives of persons significant in our past; or
- C. That embody the distinct characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
- D. That have yielded or may be likely to yield, information important in prehistory or history.

Under CEQA, the importance of a resource is measured in terms of criteria for inclusion on the California Register of Historical Resources (Title 14 CCR, §4852(a)) as listed below. A resource may be important if it meets any one of the criteria below, or if it is already listed on the California Register of Historical Resources or a local register of historical resources.

An important historical resource is one which:

1. Is associated with events that have made a significant contribution to the broad patterns of local or regional history, or the cultural heritage of California or the United States.
2. Is associated with the lives of persons important to local, California, or national history.
3. Embodies the distinctive characteristics of a type, period, region or method of construction, or represents the work of a master or possesses high artistic values.
4. Has yielded, or may be likely to yield, information important to the pre-history or history of the local area, California, or the nation.

In addition to meeting one or more of the above criteria, eligibility for the California Register requires that a resource retains sufficient integrity to convey a sense of its significance or importance. Seven elements are considered key in considering a property's integrity: location, design, setting, materials, workmanship, feeling, and association.

As part of the determination made pursuant to Section 21080.1 of the CEQA, the lead agency shall determine whether the project may have a significant effect on unique archaeological resources. If the lead agency determines that the project may have a significant effect on unique archaeological resources, the environmental impact report shall address the issue of those resources.

A "unique archaeological resource" consists of an archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

1. Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information.
2. Has a special and particular quality such as being the oldest of its type or the best available example of its type.
3. Is directly associated with a scientifically recognized important prehistoric or historic event or person.

The California Office of Historic Preservation (OHP) suggests that all resources over 45 years old be recorded for inclusion in the OHP filing system (OHP 1995:2), although professional judgment is urged in determining whether a resource warrants documentation.

PROJECT SETTING

Study Area Location and Description

The study area is located approximately 1,700 feet northeast of the intersection of River Road and Mirabel Road, near the community of Forestville, as shown on the Camp Meeker, California, 7.5' USGS topographic quadrangle (Figure 2). The project consists of replacing pipelines and installing other various supporting components on both sides of the Russian River.

Soil in the project area is alluvial and sandy land, described as riverwash, consisting of gravel, sand and silt. This type of soil provides gravel for commercial production, construction and road fill. In a cultivated state, this soil generally supports the growth of willow, wild berry vines, woody shrubs, grasses, and sweetclover (Miller 1972:15).

Cultural Setting

Archaeological evidence indicates that human occupation of California began at least 13,000 years ago (Erlandson *et al.* 2007:59). Early occupants appear to have had an economy based largely on hunting, with limited exchange, and social structures based on the extended family unit. Later, milling technology and an inferred acorn economy were introduced. This diversification of economy appears to be coeval with the development of sedentism and population growth and expansion. Sociopolitical complexity and status distinctions based on wealth are also observable in the archaeological record, as evidenced by an increased range and distribution of trade goods (e.g., shell beads, obsidian tool stone), which are possible indicators of both status and increasingly complex exchange systems.

At the time of European settlement, the study area was situated in an area controlled by the Southern Pomo (Barrett 1908; McLendon and Oswalt 1978). The Southern Pomo were hunter-gatherers who lived in rich environments that allowed for dense populations with complex social structures (Barrett 1908; Kroeber 1925). They settled in large, permanent villages about which were distributed seasonal camps and task-specific sites. Primary village sites were occupied continually throughout the year and other sites were visited in order to procure particular resources that were especially abundant or available only during certain seasons. Sites often were situated near fresh water sources and in ecotones where plant life and animal life were diverse and abundant. For more information about the Pomo see Bean and Theodoratus (1978), Kniffen (1939), and Stewart (1943).

STUDY PROCEDURES AND FINDINGS

Native American Contact

A letter was sent to the State of California's Native American Heritage Commission seeking information from their sacred lands files and the names of Native American individuals and groups that would be appropriate to contact regarding this project. Letters were also sent to the local Native American groups (see Appendix A).

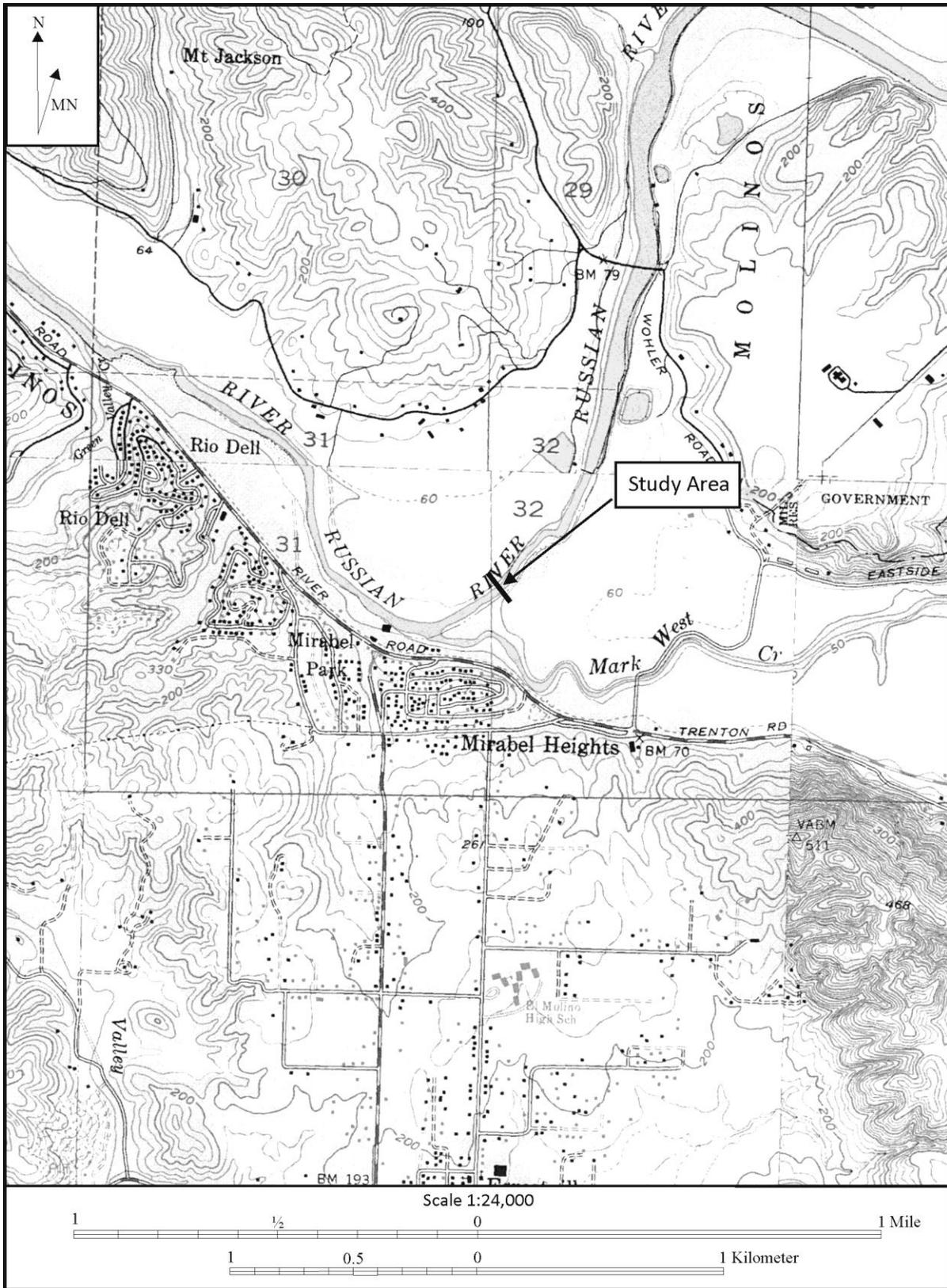


Figure 2. Study location (adapted from the Camp Meeker, Guerneville, Healdsburg, and Sebastopol 7.5' USGS maps dated 1971, 1973, 1980, and 1980, respectively).

Archival Study Procedures

Archival research included examination of the library and project files at Tom Origer & Associates, and a review (NWIC File No. 15-0322) of the archaeological site base maps and records, survey reports, and other materials on file at the Northwest Information Center (NWIC), Sonoma State University, Rohnert Park. Sources of information included but were not limited to the current listings of properties on the National Register of Historic Places (National Register), California Historical Landmarks, California Register of Historical Resources (California Register), and California Points of Historical Interest, as listed in the Office of Historic Preservation's *Historic Property Directory* (OHP 2012).

In addition, ethnographic literature that describes appropriate Native American groups, county histories, and other primary and secondary sources were reviewed. Sources reviewed are listed in the "Materials Consulted" section of this report.

Historical maps were examined to gain insight into the nature and extent of historical development in the general vicinity, and especially within the study area. Maps reviewed ranged from hand-drawn maps of the 1800s (e.g., General Land Office, county maps and atlases) to topographic maps issued by the United States Geological Survey and the United States Army Corps of Engineers during the 20th century.

Archival Study Findings

Review of the NWIC base maps found that the study area had not been surveyed previously. One survey was conducted previously within a mile from the study area; however, no cultural resources were found. Review of federal, state, and local listings found no recognized historic properties on the parcel (OHP 2012).

Review of historical maps found that there were no historical buildings or features in the study area (GLO 1864; Thompson 1877, USACE 1922; USGS 1942, 1954).

Field Survey Procedures

A field survey was completed by the authors on September 3, 2015. The entire study area was examined intensively by walking in transects less than 10 meters apart. Ground visibility was very good. One auger boring was made on each side of the river to examine subsurface soils. Auger borings extended down to 120 centimeters.

Field Survey Findings

No cultural resources were found during the field survey.

RECOMMENDATIONS

No cultural resources were found during the survey.

Accidental Discovery

There is the possibility that buried archaeological deposits could be present, and accidental discovery could occur. There is the slight possibility that buried archaeological materials could be found. If buried materials are encountered, all soil disturbing work should be halted at the location of any discovery until a qualified archaeologist completes a significance evaluation of the find(s) pursuant to Section 106 of the National Historic Preservation Act (36CFR60.4). Prehistoric archaeological site indicators expected within the general area include: chipped chert and obsidian tools and tool manufacture waste flakes; grinding and hammering implements that look like fist-size river tumbled stones; and for some rare sites, locally darkened soil that generally contains abundant archaeological specimens. Historic remains expected in the general area commonly include items of ceramic, glass, and metal. Features that might be present include structure remains (e.g., cabins or their foundations) and pits containing historic artifacts.

In keeping with the CEQA guidelines, if archaeological remains are uncovered, work at the place of discovery should be halted immediately until a qualified archaeologist can evaluate the finds (§15064.5 [f]).

The following actions are promulgated in Public Resources Code 5097.98 and Health and Human Safety Code 7050.5, and pertain to the discovery of human remains. If human remains are encountered, excavation or disturbance of the location must be halted in the vicinity of the find, and the county coroner contacted. If the coroner determines the remains are Native American, the coroner will contact the Native American Heritage Commission. The Native American Heritage Commission will identify the person or persons believed to be most likely descended from the deceased Native American. The most likely descendent makes recommendations regarding the treatment of the remains with appropriate dignity.

SUMMARY

Tom Origer & Associates conducted a cultural resources survey for the Russian River Crossing Project near Forestville, Sonoma County, California. The survey was requested by Connie Barton of the Sonoma County Water Agency. The project is located approximately 1,700 feet northeast of the intersection of River Road and Mirabel Road.

No archaeological resources were found during the survey.

MATERIALS CONSULTED

Barrett, S.

- 1908 *The Ethno-Geography of the Pomo and Neighboring Indians*. University of California Publications in American Archaeology and Ethnology Vol. 6, No. 1. University of California Press, Berkeley.

Bean, L. and D. Theodoratus

- 1978 Western Pomo and Northeast Pomo. In *California*, edited by R. Heizer, pp. 289-305, Handbook of North American Indians, Vol. 8, W. Sturtevant, general editor. Smithsonian Institution, Washington, D.C.

- 2005 *A Cultural Resources Survey for the Farmhouse Inn Expansion Project, Forestville, Sonoma County, California*. Document S-29804 on file at the Northwest Information Center, Sonoma State University, Rohnert Park.

Bowers, A.

- 1867 *Map of Sonoma County, California*. 2nd edition. A. Bowers.

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1942 Sebastopol, California 15' map. Geological Survey, Washington D.C.

1954 Camp Meeker, California 7.5' map. Geological Survey, Washington D.C.

APPENDIX A
Native American Contact

**Native American Contact Efforts
for the Mark West Creek Crossing Project,
Forestville, Sonoma County, California**

Organization	Letters	Results
<u>Native American Heritage Commission</u>	08/21/15	No comments have been received as of the date of this report.
<u>Federated Indians of Graton Rancheria</u>	08/21/15	No comments have been received as of the date of this report.
<ul style="list-style-type: none"> • Greg Sarris • Buffy McQuillen • Peter Nelson 		
<ul style="list-style-type: none"> • Suki Waters 	08/21/15	No comments have been received as of the date of this report.
<u>Stewarts Point Rancheria</u>	08/21/15	No comments have been received as of the date of this report.
<ul style="list-style-type: none"> • Reno Keoni Franklin • Lorin Smith 		

Sacred Lands File & Native American Contacts List Request

NATIVE AMERICAN HERITAGE COMMISSION

1550 Harbor Blvd., Suite 100
West Sacramento, CA 95691
(916) 373-3710
(916) 373-5471 – Fax
nahc@nahc.ca.gov

Information Below is Required for a Sacred Lands File Search

Project: Russian River Crossing
County: Sonoma County

USGS Quadrangles

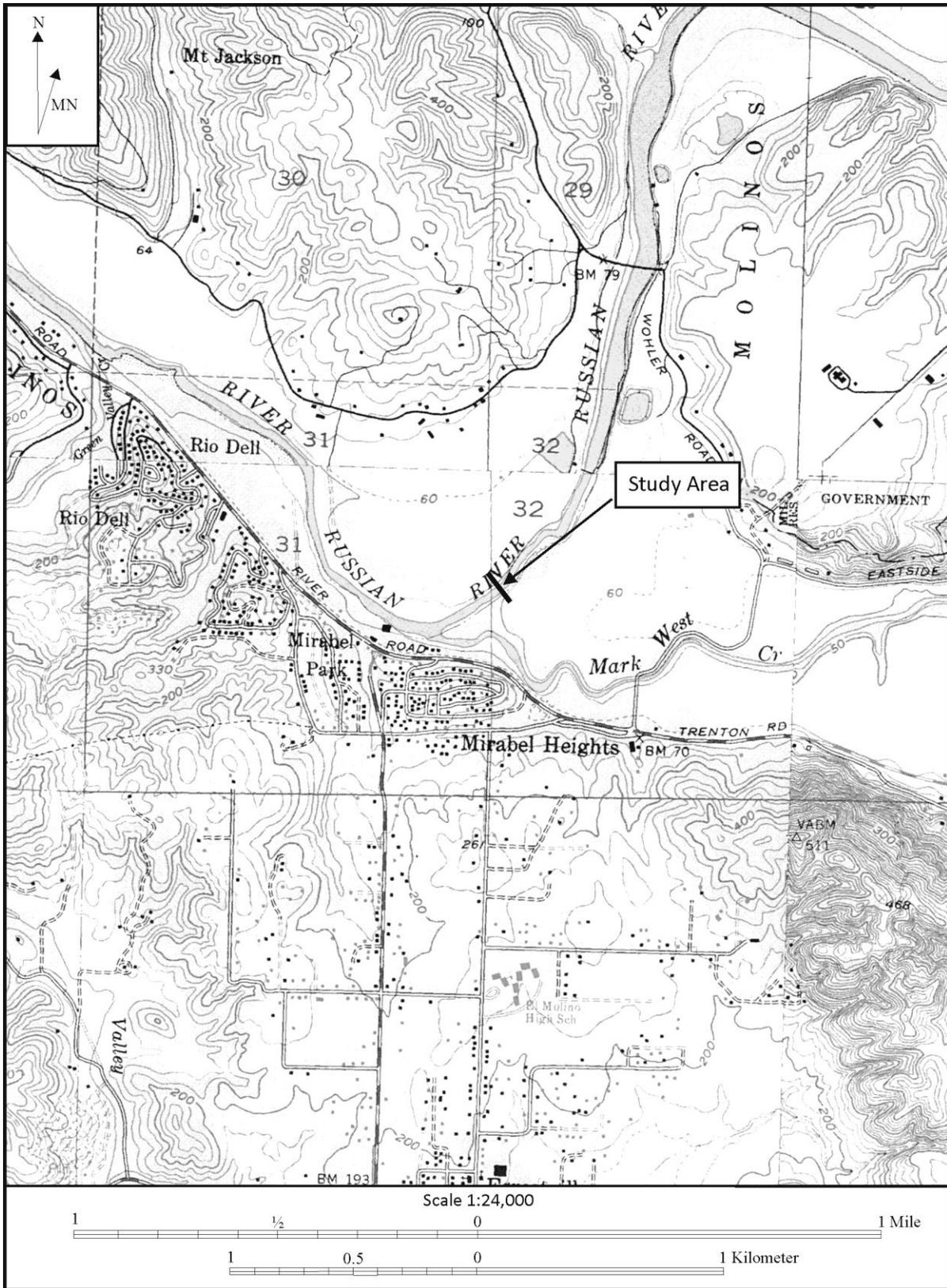
Name: Camp Meeker
Township T8N Range R9W Section(s) 32 MDBM

Date: August 21, 2015
Company/Firm/Agency: Tom Origer & Associates
Contact Person: Rachel Hennessy

Address: PO Box 1531
City: Rohnert Park Zip: 94927
Phone: (707) 584-8200 Fax: (707) 584-8300
Email: rachel@origer.com

Project Description:

The Russian River Crossing project is located 1,200 feet northeast of the intersection of River Road and Mirabel Avenue. The project consists of replacing underground pipe connections and installing supporting components on the north and south sides of the Russian River. This project is proposed by the Sonoma County Water Agency.



Tom Origer & Associates
Archaeology / Historical Research

August 20, 2015

Greg Sarris
Tribal Chairman
Federated Indians of Graton Rancheria
6400 Redwood Drive, Suite 300
Rohnert Park, CA 94928

Re: Russian River Crossing Project, Sonoma County, California

Dear Mr. Sarris:

I write to notify you of a proposed Sonoma County Water Agency project, for which our firm is conducting a cultural resources study. The Russian River Crossing project is located 1,200 feet northeast of the intersection of River Road and Mirabel Avenue. The project consists of replacing underground pipe connections and installing supporting components on the north and south sides of the Russian River.

Enclosed is a portion of the Camp Meeker, California 7.5' USGS map showing the project location.

Sincerely,



Rachel Hennessy
Associate

Tom Origer & Associates

Archaeology / Historical Research

August 20, 2015

Buffy McQuillen
Federated Indians of Graton Rancheria
6400 Redwood Drive, Suite 300
Rohnert Park, CA 94928

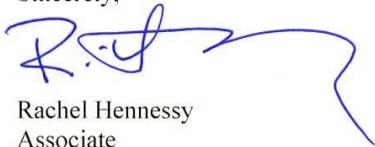
Re: Russian River Crossing Project, Sonoma County, California

Dear Buffy McQuillen:

I write to notify you of a proposed Sonoma County Water Agency project, for which our firm is conducting a cultural resources study. The Russian River Crossing project is located 1,200 feet northeast of the intersection of River Road and Mirabel Avenue. The project consists of replacing underground pipe connections and installing supporting components on the north and south sides of the Russian River.

Enclosed is a portion of the Camp Meeker, California 7.5' USGS map showing the project location.

Sincerely,



Rachel Hennessy
Associate

Tom Origer & Associates

Archaeology / Historical Research

August 20, 2015

Peter Nelson
Federated Indians of Graton Rancheria
6400 Redwood Drive, Suite 300
Rohnert Park, CA 94928

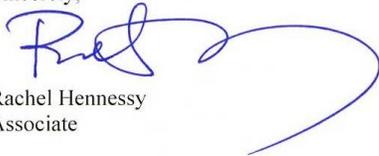
Re: Russian River Crossing Project, Sonoma County, California

Dear Mr. Nelson:

I write to notify you of a proposed Sonoma County Water Agency project, for which our firm is conducting a cultural resources study. The Russian River Crossing project is located 1,200 feet northeast of the intersection of River Road and Mirabel Avenue. The project consists of replacing underground pipe connections and installing supporting components on the north and south sides of the Russian River.

Enclosed is a portion of the Camp Meeker, California 7.5' USGS map showing the project location.

Sincerely,



Rachel Hennessy
Associate

Tom Origer & Associates

Archaeology / Historical Research

August 21, 2015

Suki Waters
P.O. Box 53
Jenner, California 95450

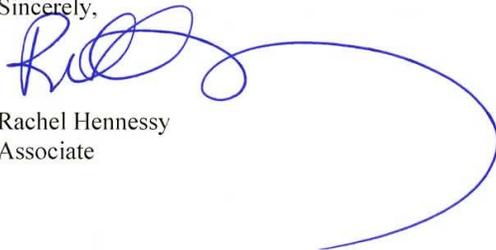
Re: Russian River Crossing Project, Sonoma County, California

Dear Suki Waters:

I write to notify you of a proposed Sonoma County Water Agency project, for which our firm is conducting a cultural resources study. The Russian River Crossing project is located 1,200 feet northeast of the intersection of River Road and Mirabel Avenue. The project consists of replacing underground pipe connections and installing supporting components on the north and south sides of the Russian River.

Enclosed is a portion of the Camp Meeker, California 7.5' USGS map showing the project location.

Sincerely,



Rachel Hennessy
Associate

Tom Origer & Associates
Archaeology / Historical Research

August 21, 2015

Reno Keoni Franklin
Tribal Chairman
Stewarts Point Rancheria
1420 Guerneville Road, Suite 1
Santa Rosa, Ca 95403

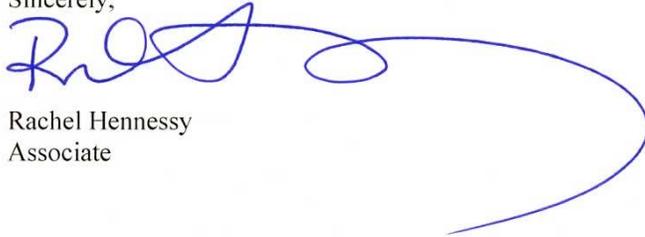
Re: Russian River Crossing Project, Sonoma County, California

Dear Mr. Franklin:

I write to notify you of a proposed Sonoma County Water Agency project, for which our firm is conducting a cultural resources study. The Russian River Crossing project is located 1,200 feet northeast of the intersection of River Road and Mirabel Avenue. The project consists of replacing underground pipe connections and installing supporting components on the north and south sides of the Russian River.

Enclosed is a portion of the Camp Meeker, California 7.5' USGS map showing the project location.

Sincerely,



Rachel Hennessy
Associate

Tom Origer & Associates
Archaeology / Historical Research

August 21, 2015

Lorin Smith
Tribal Historic Preservation Officer
Stewarts Point Rancheria
1420 Guerneville Road, Suite 1
Santa Rosa, Ca 95403

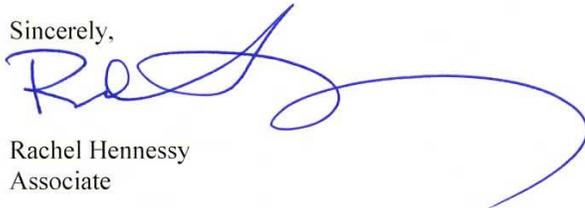
Re: Russian River Crossing Project, Sonoma County, California

Dear Lorin Smith:

I write to notify you of a proposed Sonoma County Water Agency project, for which our firm is conducting a cultural resources study. The Russian River Crossing project is located 1,200 feet northeast of the intersection of River Road and Mirabel Avenue. The project consists of replacing underground pipe connections and installing supporting components on the north and south sides of the Russian River.

Enclosed is a portion of the Camp Meeker, California 7.5' USGS map showing the project location.

Sincerely,



Rachel Hennessy
Associate

Appendix G

Noise Impact Calculations

Noise Calculations for the Russian River-Cotati Intertie Pipeline Seismic Hazard Mitigation at the Russian River Crossing Project

Construction Equipment 1 (Sonic Pile Driver)	96 dBA at 50 feet
Construction Equipment 2 (Scraper)	89 dBA at 50 feet
<i>Combined Noise at 50 feet (Ltotal at 50 feet)</i>	96.8 dBA
<i>Ltotal=10 log(10^L1/10+10^L2/10)</i>	

Table NOI APPX-1: Noise Threshold Limits and Distances from Project Site to those Limits

Noise Threshold	Threshold Level (dBA)	Distance to Threshold from Middle of Project Site (feet)
Daytime Limit (permanent noise sources) - Sonoma County General Plan	55	6,144
Nighttime Limit (permanent noise sources) - Sonoma County General Plan	45	19,430
Daytime Limit (construction sources) -Federal Transportation Administration (FTA 2006)	90	109

Table NOI APPX-3: Nearest Sensitive Receptors and Distances from Middle of Nearest (Southern) Work Area

Sensitive Receptor	Distance (feet)
Mirabel Park Campers	292
Nearest Permanent Residence	613

Table NOI APPX- 4: Vibration Source Levels for Construction Equipment (FTA 2006)

	PPV at 25 feet	LV25
Pile Driver (sonic) (typical levels)	0.17	93
Vibratory roller	0.21	94

Vibration Calculations for Other Vibration-Causing Equipment:

Use of a Sonic Pile Driver (typical):	
PPV=PPVref * (25/d)^1.5	32 feet
Lvd=Lvref-30log(D/25)	214 feet

Table NOI APPX-2: Summary Table of Distances to Project Site and Corresponding Noise Levels

Distance (feet) from Middle of Nearest Project Area to Sensitive Receptors	Noise level (dBA) from Project Construction Activities	Noise Level Equation: Leq = EL50-20*log(D/50); where EL50 = Ltotal at 50 feet
50		96.8
100		90.8
292		81.5 Mirabel Campground
300		81.2
500		76.8
613		75.0 Nearest Residence
750		73.3
800		72.7
1000		70.8
1500		67.2
1750		65.9
2000		64.7
2500		62.8
3000		61.2
5000		56.8

Table NOI APPX-5: Vibration Calculations with Equations for Loudest Equipment (Vibratory Roller)

Threshold	Distance to Threshold from Middle of Project Site (feet)
Building Threshold (PPV)=PPVref * (25/d)^1.5	36
Human Annoyance Threshold (Lvd)=Lvref-30log(D/25)	158
<i>where PPVref = 0.12 and Lvref = 70</i>	

Calculations for table in MND's Noise Section for Vibration Levels at 200 feet

Vibration Level (Lv) ; Vibration Level at 200 feet

Pile Driver (sonic)	93	61 where $L_v(D) = L_v(25 \text{ feet}) - 30 \log(D/25)$, L_v = vibration level at any distance, D, and
Vibratory Roller	94	62 $L_v(25\text{ft})$ VdB values are applied.
Large bulldozer	87	55
Loaded trucks	86	54
Jackhammer	79	47
Small bulldozer	58	26

Appendix H

Notice of Preparation of Initial Study



Notice of Preparation of Initial Study

July 2, 2015

Russian River-Cotati Intertie Pipeline Seismic Hazard Mitigation at the Russian River Crossing Project

TO: State Clearinghouse
Responsible and Trustee Agencies
Interested Agencies and Parties

Lead Agency: Sonoma County Water Agency
404 Aviation Blvd.
Santa Rosa, CA 95403

The Sonoma County Water Agency (Water Agency) is preparing an Initial Study for the Russian River-Cotati Intertie Pipeline Seismic Hazard Mitigation at the Russian River Crossing Project (proposed Project). An Initial Study is a preliminary analysis of a project's potential environmental impacts used to determine whether a Negative Declaration or an Environmental Impact Report will be prepared. It is a public document that analyzes the potential environmental effects related to construction, operation, and maintenance of a project and describes ways to reduce or avoid possible environmental impacts.

The Initial Study for the proposed Project will be prepared in accordance with the provisions of the California Environmental Quality Act (CEQA), the State CEQA Guidelines, and the Water Agency's *Procedures for the Implementation of CEQA*. The Water Agency will be the Lead Agency pursuant to CEQA, and will consider all comments received in response to this Notice of Preparation (NOP), including comments from responsible and trustee agencies, property owners, and interested parties, regarding the scope and content of the information to be included in the Initial Study. This NOP describes the proposed Project that will be analyzed in the Initial Study and identifies the issue areas that will be studied during the environmental review. Agencies and interested members of the public are invited to provide input on the scope of the environmental analysis to be evaluated.

SONOMA COUNTY WATER AGENCY

The Water Agency is a special district created by the California Legislature and operates under the direction of a Board of Directors, composed of the members of the Sonoma County Board of Supervisors. The Water Agency's powers and duties, as authorized by the California Legislature, include the production and supply of surface water and groundwater for beneficial uses, control of floodwaters, generation of electricity, providing of recreational facilities in connection with the Water Agency's facilities, and the treatment and disposal of wastewater.

PROJECT BACKGROUND

The Water Agency owns, operates, and maintains a 48-inch diameter steel water supply pipeline (referred to as the Russian River-Cotati Intertie) that crosses the southern and eastern aqueduct transmission lines and crosses the Russian River in Sonoma County (**Figure 1**). The Russian River-Cotati Intertie provides essential water service to 600,000

residents and businesses within the Water Agency's service area in portions of Sonoma and Marin counties. The pipeline conveys water from wells near the Russian River to customers in the Water Agency's service area. Constructed in 1975 through open-cut trenching methods, the pipeline is buried at a relatively shallow depth (approximately 7 feet below ground surface) across the Russian River channel and stream banks, and crosses seismically unstable terrain.

In 2002, the U.S. Geological Survey-led Working Group on California Earthquake Probabilities determined the probability of a major earthquake in the San Francisco Bay Area in the next 25 years is 62%, with a 27% chance that one will occur on the Rodger's Creek/Hayward Fault (USGS 2003). To identify and reduce potential adverse effects of an earthquake in their service area, the Water Agency prepared a Local Hazard Mitigation Plan (LHMP) (approved by the Federal Emergency Management Agency (FEMA) January 23, 2008). The LHMP identifies the Russian River-Cotati Intertie crossing of the Russian River as vulnerable to potential ground deformation, liquefaction, and lateral spread resulting from strong ground shaking in the soil at or below the elevation of the pipeline. The LHMP states that pipeline failure from an earthquake would isolate the Mirabel collector wells from the Russian River-Cotati Intertie Pipeline. As a result, water supplies would be limited for residence and businesses in the Water Agency's service area.

PROJECT NEED AND OBJECTIVES

The proposed Project is needed to address seismic concerns related to reliable delivery of water to the Water Agency's service area and prevent the loss of an essential water service due to a moderate or severe earthquake along the Rodger's Creek/Hayward Fault.

Objectives of the proposed Project are to:

- maintain safe and reliable water service to the entire population within Water Agency's service area (over 600,000 people and businesses);
- maintain support for firefighting capability; and
- avoid economic losses to local businesses as a result of pipeline rupture.

PROJECT LOCATION AND DESCRIPTION

The proposed Project is located approximately 1,200 feet northeast of the intersection of River Road and Mirabel Avenue near the community of Forestville in unincorporated Sonoma County (see Figure 1). The Project site encompasses the banks and upland areas on both sides of the Russian River channel, approximately 0.9 mile downstream (west) from Wohler Road Bridge. The adjacent land is currently developed with vineyards and unpaved access roads. The proposed pipeline would be installed within the Water Agency's fee-owned property over the existing pipeline alignment. The Water Agency owns and operates its facilities on the north side of the project site which would be used for site access, spoils stockpiling, and staging areas.

The proposed Project would consist of the following components: (1) abandon and replace sections of an existing underground pipeline on the north and south sides of the Russian River; (2) abandon and replace an underground pipe connection to one of the Mirabel collector wells (referred to as Collector #5); and (3) installation of supporting components: one meter vault, approximately three cathodic protection stations and/or and corrosion test stations; and one air valve.

The proposed Project consists of the installation, operation and maintenance of approximately 1,020 linear feet of two, 48-inch diameter steel pipeline segments on the north and south sides of the Russian River channel (see **Figures 2 and 3**). The new pipeline segments would replace the existing pipeline segments and would be installed parallel to (approximately 12 feet west of the existing pipeline) and up to 18 to 30 feet deeper than the existing pipeline. The existing pipeline segments would be capped, plugged and abandoned in place. The northern pipeline segment would be approximately 380 feet long and the southern pipeline segment would be approximately 640 feet long. The new pipeline segments would tie into the existing 48-inch diameter pipeline that runs beneath the Russian River channel.

In addition, an existing 20-inch diameter pipe connection between Collector #5 and the Russian River-Cotati Intertie would be replaced with a new 328-foot, 36-inch diameter steel pipe. The existing 20-inch pipeline would be capped, plugged and abandoned in place.

Supporting components of the proposed Project may include the following:

- Installation of a concrete meter vault. The meter vault would be installed adjacent to the existing meter vault, approximately 20 feet west of Collector #5.
- Installation of approximately three cathodic protection stations and/or corrosion test stations. Installation would occur on the northern and southern pipe segments.
- Installation of an air valve. The air valve would be installed on the 48-inch northern segment to maintain operational efficiency and to prevent corrosion.
- Installation of approximately 3 butterfly valves. The butterfly valves would be installed near pipe junctions. These valves would isolate pipeline segments and minimize the number of system shutdowns.

The Russian River-Cotati Intertie would be temporarily out of service to connect the new pipeline segments. The Water Agency would provide advanced notification of water service interruptions (at least 24 hours) to affected water users in the service area. Service interruptions would not last more than 48 hours, and are not anticipated to occur more than two times through Project construction. Collector #5 would remain offline throughout construction.

Project construction activities would occur in two seasons and the Project would be completed in approximately 16 to 24 months total. In general, project construction activities would include site clearing, trenching, pipe installation, trench backfilling, and site restoration. Groundwater dewatering and the use of cofferdams in the Russian River would likely be required during construction activities.

ISSUES TO BE ADDRESSED IN THE INITIAL STUDY

In accordance with CEQA, the Initial Study would address the potential environmental impacts, either individually or cumulatively, associated with the construction, operation, and maintenance of the Proposed Project. Specific areas of analysis may include: Aesthetics, Agricultural and Forest Resources, Air Quality, Biological Resources, Cultural Resources, Geology and Soils, Greenhouse Gas Emissions, Hazards and Hazardous Materials, Hydrology and Water Quality, Land Use and Planning, Mineral Resources, Noise, Population and Housing, Public Services, Recreation, Transportation and Traffic, and Public Utilities and Service Systems. Where feasible, mitigation measures will be proposed to avoid or reduce

impacts. Other areas of analysis may be added based on input from the public and public agencies during the NOP review period. Decision-makers, responsible and trustee agencies under CEQA, and interested persons and parties will also have an opportunity to comment on the applicable CEQA document, as determined by the Initial Study (EIR or Negative Declaration) after it is published and circulated for public review.

PUBLIC COMMENT PERIOD FOR THIS NOTICE OF PREPARATION

The public comment period will close at 5:00 p.m. on Saturday, August 1, 2015, which is 30 days after the date of publication. Please include a name, address, and telephone number of a contact person for all future correspondence on this subject. Please send comments to:

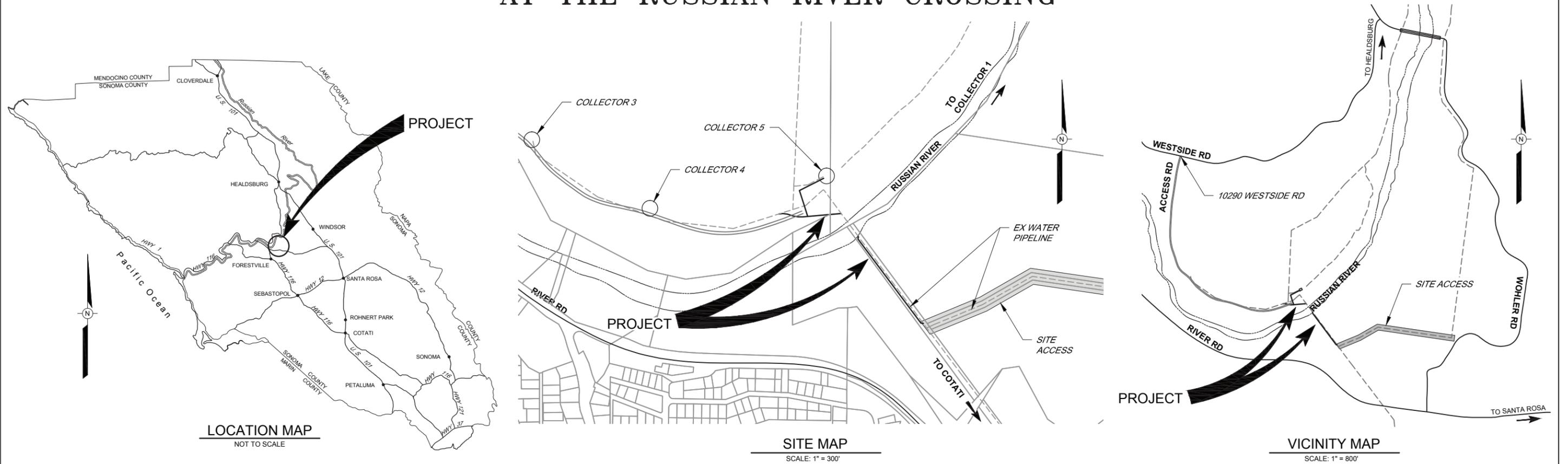
Sonoma County Water Agency
Attn: Connie Barton
404 Aviation Boulevard
Santa Rosa, CA 95403

Comments may also be submitted electronically to: connie.barton@scwa.ca.gov

Documents or files related to the Proposed Project are available for review online at www.sonomacountywater.org or at the Water Agency's administrative office located at 404 Aviation Boulevard, Santa Rosa, California, 95403. The NOP will also be available for review at the county library in Forestville.

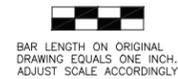
If you have any questions regarding this Notice of Preparation, or if you wish to update information on our mailing list, please contact Connie Barton at 707-547-1905 or connie.barton@scwa.ca.gov.

SONOMA COUNTY WATER AGENCY RUSSIAN RIVER COTATI INTERTIE SEISMIC HAZARD MITIGATION AT THE RUSSIAN RIVER CROSSING



GENERAL NOTES

1. HORIZONTAL DATUM: CALIFORNIA COORDINATE SYSTEM 1983 (CCS83), ZONE II (1991.35)
2. VERTICAL DATUM: BASED UPON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD29)
3. STATIONING: ALL STATIONING REPRESENTS HORIZONTAL MEASUREMENT AT CENTERLINE OF CONSTRUCTION
4. EXISTING FEATURES ARE INDICATED IN GRAY.



INDEX TO DRAWINGS

SHEET NUMBER	Sheet Title	SHEET DESCRIPTION
1	G-1	LOCATION MAP, VICINITY MAP, GENERAL NOTES, AND INDEX TO DRAWINGS
2	G-2	ABBREVIATIONS, LEGEND, AND PIPE SCHEDULE
3	R-1	SITE PLAN AND RIGHT OF WAY
4	C-1	PLAN AND PROFILE NEW 48" AQUEDUCT STA 1+00 TO STA 14+00 +/-
5	C-2	PLAN AND PROFILE REPLACEMENT PIPELINE STA 40+00 TO STA 42+88
6	D-1	MISCELLANEOUS DETAIL MAIN LINE VALVE
7	D-2	VALVE DETAIL
8	D-3	4" AIR VALVE ASSEMBLY DETAIL
9	D-4	PIPE BACKFILL, BEDDING AND TRENCH SURFACING
10	D-5	MISCELLANEOUS DETAILS MANWAY AND BUTTERFLY VALVE
11	D-6	FLOW METER INSTALLATION PIPING VAULT DETAILS
12	D-7	FLOW METER INSTALLATION PIPING VAULT COVER DETAILS
13	CP-1	TERMINAL BOARD AND MISC CATHODIC DETAILS
14	CP-2	TEST STATION AND FIELD INSTALLATION DETAILS
15	R-1	RUSSIAN RIVER COTATI INTERTIE PROJECT STA 0+00.15 TO STA 20+18.90
16	R-2	RUSSIAN RIVER COTATI INTERTIE PROJECT STA 20+18.98 TO STA 43+30
17	R-3	RUSSIAN RIVER COTATI INTERTIE PROJECT RUSSIAN RIVER CROSSING
18	R-4	PIPING PLAN AND PROFILE STA 1+00 TO STA 7+00
19	R-5	FLOW METER INSTALLATION PLAN-PIPELINES "A" & "B" & BEDDING/TRENCH DETAILS
20	R-6	FLOW METER INSTALLATION "A" & "B" LINE - PROFILE
21	R-7	FLOW METER INSTALLATION EXISTING PIPING DETAILS
22	R-8	FLOW METER INSTALLATION MISC DETAILS

RUSSIAN RIVER COTATI INTERTIE SEISMIC HAZARD MITIGATION AT THE RUSSIAN RIVER CROSSING
LOCATION MAP, VICINITY MAP, GENERAL NOTES,
AND INDEX TO DRAWINGS

PRELIMINARY
SUBJECT TO REVISION

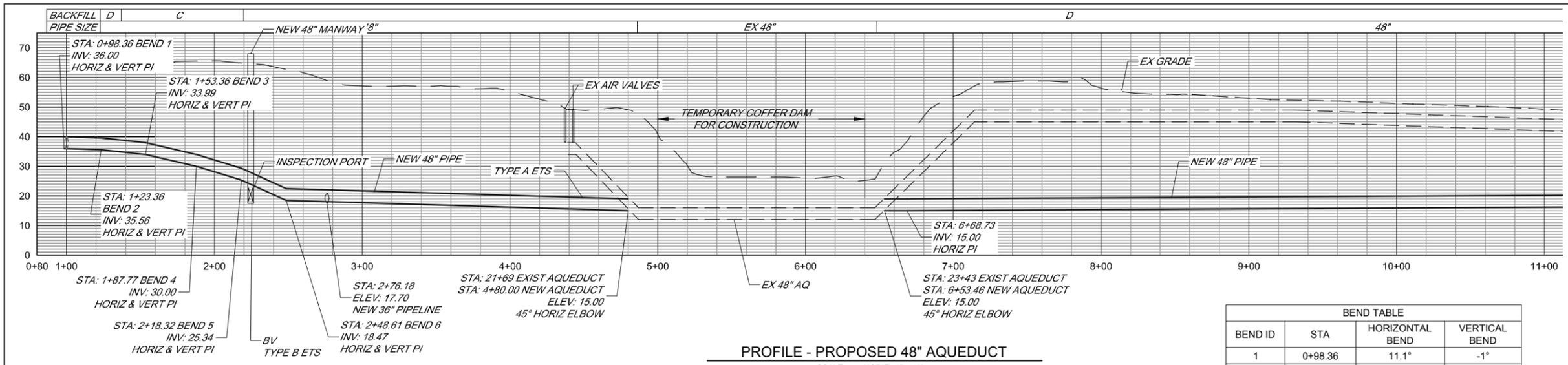
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Source: Sonoma County Water Agency 2015.

PRELIMINARY
SUBJECT TO REVISION
 Source: Sonoma County Water Agency 2015.

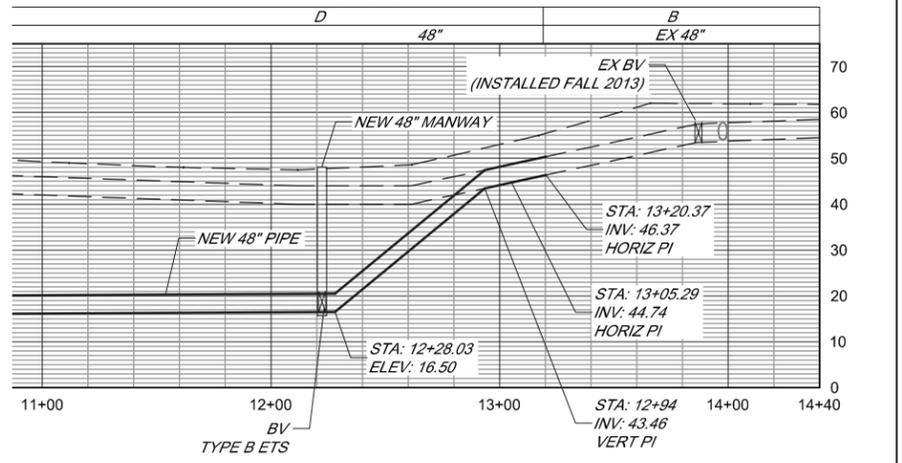
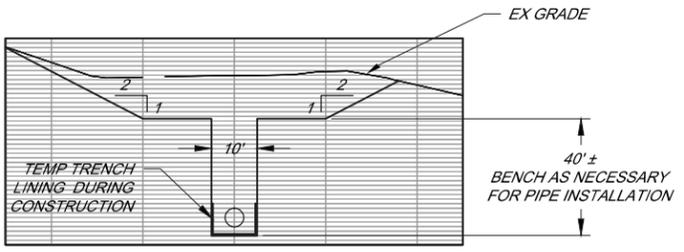
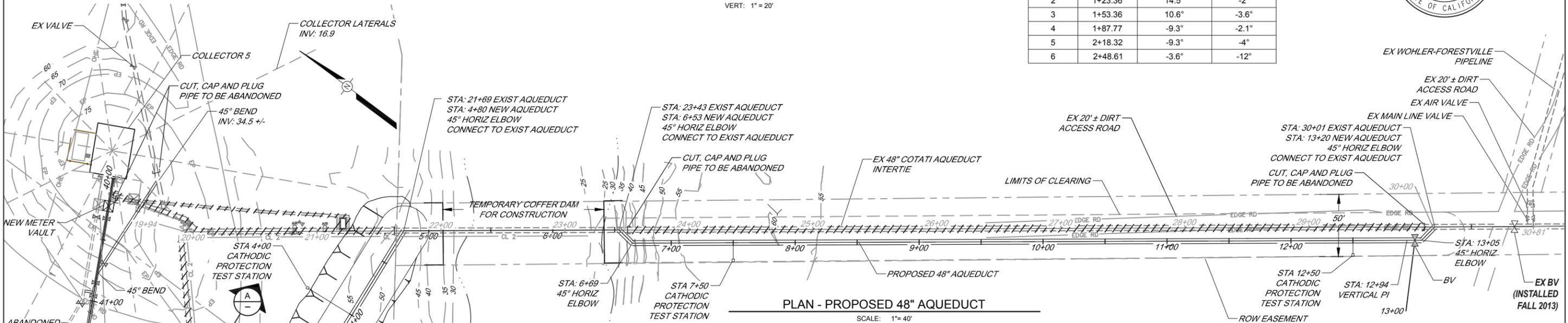
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BAR LENGTH ON ORIGINAL
 DRAWING EQUALS ONE INCH.
 ADJUST SCALE ACCORDINGLY



BEND TABLE

BEND ID	STA	HORIZONTAL BEND	VERTICAL BEND
1	0+98.36	11.1°	-1°
2	1+23.36	14.5°	-2°
3	1+53.36	10.6°	-3.6°
4	1+87.77	-9.3°	-2.1°
5	2+18.32	-9.3°	-4°
6	2+48.61	-3.6°	-12°

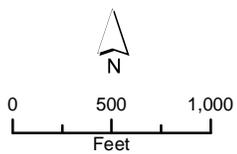
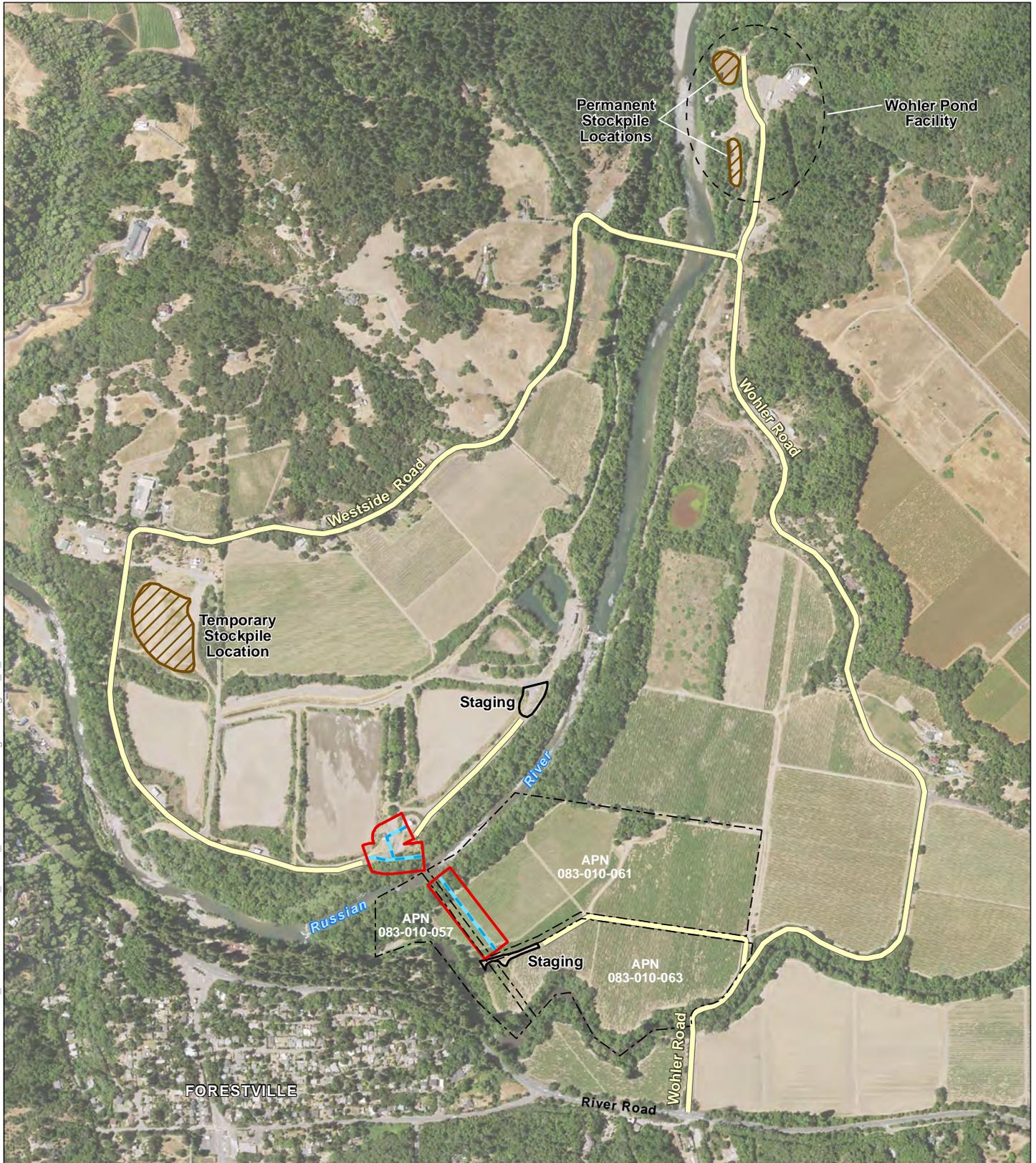


12.020 Task 4A Sonoma County Water Agency, Russian River Cotati Intertie (6/12/15).JD



PLAN AND PROFILE NEW 48" AQUEDUCT
 STA 1+00 TO STA 14+00 +/-

Figure 2
Project Plan and Profile Views



- Project Work Site
- Staging Area
- Stockpile Location
- Parcel Boundaries (with APNs)
- Proposed Pipeline
- Site Access Routes

Figure 3
Access, Staging,
and Stockpile Areas

Russian River-Cotati Intertie
 Pipeline Seismic Hazard Mitigation
 at the Russian River Crossing Project

