Sonoma Water

Administrative Office
404 Aviation Blvd
Santa Rosa, CA 95403

Office Hours
8:00 AM – 5:00 PM
Monday – Friday

Front Desk
707-536-5370

VORTEX TUBE REHABILITATION PROJECT

DRAFT INITIAL STUDY AND MITIGATED NEGATIVE DECLARATION OF ENVIRONMENTAL IMPACT

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

Contact:
David Cook, Senior Environmental Specialist
David.Cook@scwa.ca.gov
(707) 547-1944

Posting and Review Period: August 28, 2020 to September 28, 2020

American Disabilities Act Compliance

This Initial Study and Proposed Mitigated Negative Declaration of Environmental Impact for the Vortex Tube Rehabilitation Project was prepared in compliance with requirements under the Americans with Disabilities Act (ADA). The ADA mandates that reasonable accommodations be made to reduce "discrimination on the basis of disability." As such, the Sonoma County Water Agency is committed to ensuring that documents we make publicly available online are accessible to potential users with disabilities, particularly blind or visually impaired users who make use of screen reading technology.

This disclaimer is provided to advise that portions of the document, including the figures, charts, and graphics included in the document, are non-convertible material, and could not reasonably be adjusted to be fully compliant with ADA regulations. For assistance with this data or information, please contact the Sonoma County Water Agency's Community & Government Affairs Division, at SonomaWater@scwa.ca.gov or 707-547-1900.

Table of Contents

List of Figures

List of Tables

Appendices

A. Notice of Availability/Intent to Adopt

B. Special Status Species

C. Air Quality and Green House Gas Emission Calculations

1.0 Introduction

The Sonoma County Water Agency (Sonoma Water) is the project proponent and lead agency in accordance with the California Environmental Quality Act (CEQA) for the proposed Vortex Tube Rehabilitation Project (Proposed Project), which is a flood control structure repair project. Sonoma Water staff has prepared this Draft Initial Study and Mitigated Negative Declaration of Environmental Impact (Draft IS/MND) to provide decision makers, the public, responsible agencies, and trustee agencies with information about the potential environmental impacts associated with the construction, maintenance, and operation of the Proposed Project. This Draft IS/MND was prepared pursuant to the requirements of CEQA (California Public Resources Code Sections 21000 et seq.), State CEQA Guidelines (Code of Regulations, Title 14, Division 6, Chapter 3), and Sonoma Water's Procedures for the Implementation of CEQA. After completion of the public review period for this document, this Draft IS/MND, along with a summary of comments submitted and response, will be brought before Sonoma Water's Board of Directors for their consideration.

The Vortex Tube is part of the Santa Rosa Creek Diversion Structure flood control facility, located beneath Montgomery Drive, near Spring Lake and the City of Santa Rosa. The Vortex Tube has deteriorated from over a half-century of scour. The Proposed Project would restore the structural integrity of the Vortex Tube and facilitate future inspections and maintenance.

1.1 Initial Study Review

Sonoma Water is circulating this IS/Proposed MND for a 30-day public and agency review period. Agencies and interested members of the public are invited to review and comment on the IS/Proposed MND. All comments received prior to 5:00 p.m. on the date identified for closure of the public comment period in the Notice of Availability/Intent to Adopt (Appendix A) will be considered. Please include a name, address, and telephone number of a contact person for all future correspondence on this subject.

Please send comments to:
David Cook, Senior Environmental Specialist
Sonoma Water
404 Aviation Boulevard
Santa Rosa, CA 95403

Or email comments to:
David.Cook@scwa.ca.gov

1.2 Summary of Findings

The IS/Proposed MND describes the Proposed Project and its environmental setting, including the Project site's existing conditions and applicable regulatory requirements.

This IS/Proposed MND also evaluates potential environmental impacts from the Proposed Project to the following resources:

- Aesthetics
- Agriculture and Forestry Resources
- Air Quality
- Biological Resources
- Cultural Resources
- Energy
- 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
- Tribal Cultural Resources
- Utilities and Service Systems
- Wildfire
- Mandatory Findings of Significance

Potentially significant effects were identified for air quality, biological resources, cultural resources, geology and soils, hazards and hazardous materials, hydrology and water quality, noise, transportation, and tribal cultural resources. The Proposed Project incorporates measures that would reduce all impacts to a less-than-significant level.

2.0. Project Location and Description

2.1 Project Background and Existing Flood Control Facility

Sonoma Water was created in 1949 by the California Legislature as a special district to provide flood protection and water supply services. The members of the Sonoma County Board of Supervisors are Sonoma Water's Board of Directors. Sonoma Water's powers and duties authorized by the California Legislature include the production and supply of surface water and groundwater for beneficial uses, control of flood waters, generation of

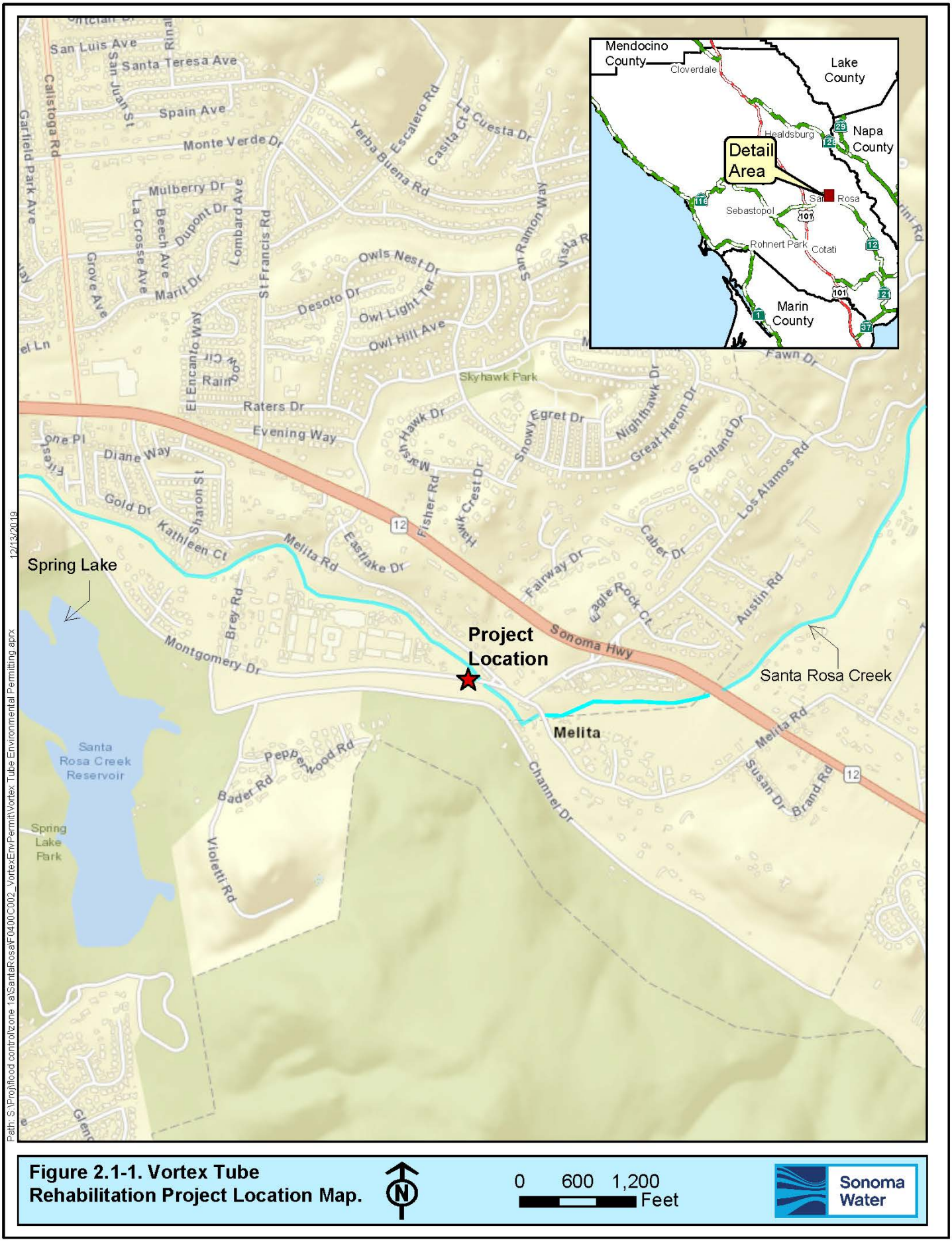
electricity, provision of recreational facilities (in connection with Sonoma Water's facilities), and the treatment and disposal of wastewater.

The Santa Rosa Creek Diversion Structure was constructed in 1963 as part of the Central Sonoma Watershed Project, and developed through coordination between the Sonoma County Flood Control and Water Conservation District (now Sonoma Water) and the United States Department of Agriculture (USDA) Soil Conservation Service (now USDA Natural Resources Conservation Service). The Central Sonoma Watershed Project involved a multi-year plan that was intended to improve flood protection in the Sonoma County area. Sonoma Water was tasked with operation and maintenance of all structural measures included in the Central Sonoma Watershed Project.

The Santa Rosa Creek Diversion Structure is a critical flood protection element of the overall Central Sonoma Watershed Project and regulates flooding in central Santa Rosa by directing peak flows into Spring Lake (reservoir), located in eastern Santa Rosa (Figure 2.1-1). The Diversion Structure consists of a weir, fish ladder, culvert (Vortex Tube), and bypass channel. Santa Rosa Creek flows south and westerly along the concrete-lined Montgomery Drive, over the weir and fish ladder, before flowing north beneath Montgomery Drive through a culvert known as the Vortex Tube. The Vortex Tube conveys low flows downstream to the natural channel of Santa Rosa Creek and diverts high flows into Spring Lake via a bypass channel where it is temporarily stored during peak flood events.

The Vortex Tube is comprised of 112 linear feet of 96-inch diameter reinforced concrete pipe. Upstream of the Vortex Tube is a concrete grade control weir across Santa Rosa Creek. At the base of the weir is a concrete transition channel (21 feet long, 10 feet wide, and four feet deep) that directs creek flows into the Vortex Tube. A fish ladder is located on the weir immediately upstream of the Vortex Tube to allow the passage of fish over the weir. The Vortex Tube accommodates flows up to approximately 850 cubic feet per second (cfs) to remain in the natural channel of Santa Rosa Creek and flows above this amount are diverted west through the concrete-lined bypass channel to Spring Lake. The downstream end of the Vortex Tube is a concrete-lined channel flanked by concrete wing walls and a concrete embankment along Montgomery Drive, followed by the natural creek channel.

In 2017, underwater inspections identified structural deterioration of the reinforced concrete within the Vortex Tube. While the original design included a 3-inch wearing surface of grout placed on the inside of the tube, the continued bedload transport of sand, gravels, and cobbles for decades within the Vortex Tube has completely eroded this protective layer in sections of the tube and entrance. In some locations, steel is exposed in the reinforced concrete.



Path: S:\Proj\flood control\zone 1a\SantaRosa\F0400C002_VortexEnvPermit\Vortex Tube Environmental Permitting.aprx 12/13/2019

Figure 2.1-1. Vortex Tube Rehabilitation Project Location Map.

0 600 1,200 Feet

Sonoma Water

2.2 Project Location and Regional Setting

The Proposed Project is located along Santa Rosa Creek at Montgomery Drive approximately 4 miles east of downtown Santa Rosa and ¾ mile east of Spring Lake Regional Park (Figure 2.1-1). The Proposed Project would occur within the Santa Rosa Creek Diversion Structure, and within the natural creek channel immediately upstream and downstream of the Diversion Structure on both sides of Montgomery Drive. The Proposed Project is located on Sonoma Water-owned and managed land. Sonoma Water's Stream Maintenance Program (SCWA 2020) frequently conducts sediment removal and vegetation management activities in the Project area in order to maintain the flood control facility.

The 22-mile-long Santa Rosa Creek is a tributary to the Laguna de Santa Rosa and Mark West Creek within the Russian River Watershed. The headwaters of Santa Rosa Creek are located on Hood Mountain in steep terrain on the western slopes of the Southern Mayacama Mountains, at an elevation of approximately 1,940 feet. Santa Rosa Creek gradient becomes more moderate as it descends toward the valley floor, known as the Santa Rosa Plain. The Proposed Project area is in a moderate gradient section of Santa Rosa Creek between Hood Mountain and the Santa Rosa Plain.

Predominant land uses in the Proposed Project vicinity are suburban and include public parks, rural and medium density residential, commercial, and agriculture. Land uses adjacent to the Proposed Project area are undeveloped, rural residential and commercial, and a gravel parking lot and access to Trione-Annadel State Park.

2.3 Project Purpose and Need

The continued surface erosion of the Vortex Tube and adjacent structures from abrasion during high stream velocities will compromise the integrity of Santa Rosa Diversion Structure and its flood control function. The Proposed Project is required to rehabilitate this critical infrastructure that reduces the risk of flooding to the central Santa Rosa area.

2.4 Project Description

The Proposed Project's repair of the Vortex Tube, which is part of an existing concrete flood control diversion structure along Santa Rosa Creek, would be implemented in two phases (Figure 2.1-2). The first phase consists of constructing a permanent Bypass Pipe to temporarily direct creek flows around the Vortex Tube. The second phase consists of repairing the damaged Vortex Tube. The Proposed Project would repair an existing flood control structure and not change the function or expand the capacity to regulate flooding. Below is a description of the phased project design, construction, operation, and maintenance.

Phase 1 - Bypass Pipe

A permanent Bypass Pipe is needed to divert creek flows downstream and around the Vortex Tube during the planned repairs (Proposed Project) and for future inspections and/or maintenance of the Vortex Tube. The Bypass Pipe would be constructed beneath Montgomery Drive and would have an inlet located approximately 15 feet upstream of the existing fish ladder and an outlet downstream of Montgomery Drive (Figures 2.1-2 and 2.1-3). The Bypass Pipe would maintain perennial flows in Santa Rosa Creek downstream of the project area. The Bypass Pipe would consist of approximately 120 feet of 36-inch diameter steel pipe installed using a trenchless (auger boring) method. The pipe can accommodate flows up to 30 cfs, which is several times more than the estimated dry season creek flow of 5 to 10 cfs. Concrete headwalls and flooring would be constructed at the ends of the pipe within the existing concrete-lined creek embankment of Montgomery Drive. Slide gates or caps would be installed on the pipe ends at the headwalls. Poured concrete would be allowed to cure before contact with flowing creek water to prevent changes in water chemistry that could affect aquatic life. A 145-foot-long by 4-foot-wide earthen ditch would be excavated to connect the downstream end of the pipe and the Santa Rosa Creek channel. The outlet of the ditch would be downstream of the Vortex Tube work area.

Prior to disturbance in the project area, exclusionary fencing and netting would be installed across the creek above and below the work areas to isolate the areas from fish and wildlife (Figure 2.1-2). Then coffer dams would be placed within the exclusionary fencing to dewater the work areas (Figure 2.1-2). Coffer dams would be constructed of sandbags, or similar material, stacked on plastic sheeting and would span the creek channel. Pumps with screened intakes would be used to dewater the project area. Water would be filtered before returning to the creek using a percolation pit, silt mattress, or other filtration option. Flexible piping would be placed through the Vortex Tube to route creek flows downstream during construction of the Bypass Pipe. Also, there may be a need to dewater along the Bypass Pipe alignment by installing temporary shallow wells to lower groundwater sufficiently to dry the borehole for trenchless installation of the pipe beneath Montgomery Drive. Once the Bypass Pipe is completed, a third coffer dam would be installed downstream of the pipe inlet (above the fish ladder) and the upstream coffer dam removed to backwater the Bypass Pipe inlet and direct flows through the pipe. Then the temporary flexible pipe directing flows through the Vortex Tube would be removed and repair of the Vortex Tube could begin.

Temporary work areas for construction of the Bypass Pipe would be located at both ends of the pipe within the creek channel (Figure 2.1-2). The work area downstream of

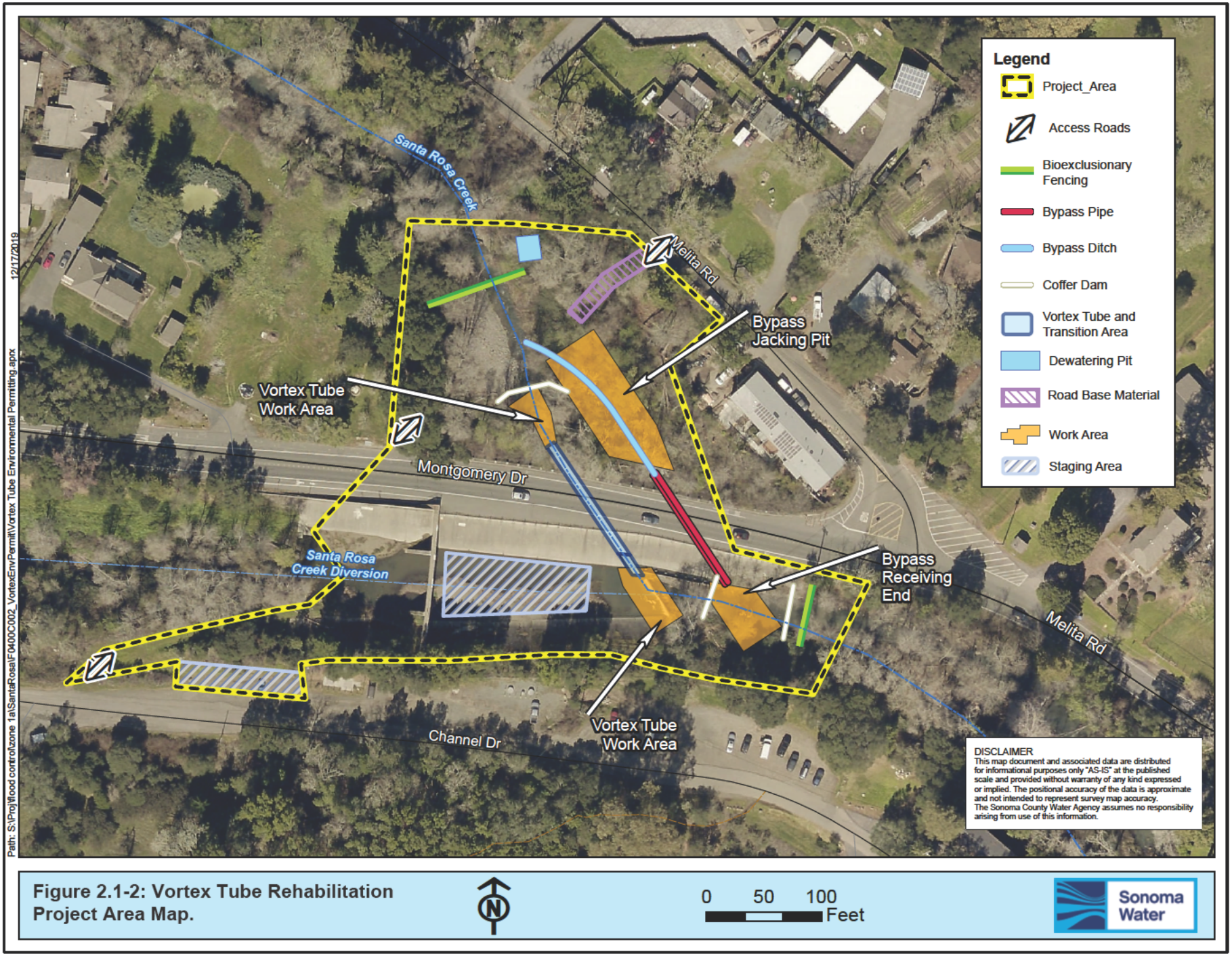


Figure 2.1-2: Vortex Tube Rehabilitation Project Area Map.

Figure 2.1-3: Photographs of Vortex Tube Rehabilitation Project Work Areas. Top: view of the downstream (north) side work area and outlet of Vortex Tube, foreground shows concrete embankment along Montgomery Drive. Bottom: view of the upstream (south) side work area at concrete weir and fish ladder that connect to the Vortex Tube.

Montgomery Drive would be 6,043 square feet (~60 feet by 100 feet) and include a temporary excavated auger bore pit (12 feet wide by 30 feet long and 6 feet deep). Temporary sheet piling may be installed to support the pit. The upstream work area would encompass a 2,121 square foot area (~40 feet by 50 feet).

Phase 2 – Vortex Tube Rehabilitation

Rehabilitation of the Vortex Tube would begin once the Bypass Pipe is in operation and the coffer dams would maintain a dry work area. Vortex Tube repairs would consist of preparing and recoating damaged areas in the tube and entrance (Figures 2.1-2 and 2.1-3). Work areas would be located at both ends of the tube totaling 2,698 square feet. These work areas are concrete-lined and part of the Santa Rosa Creek Diversion Structure. Surface preparation of the Vortex Tube would involve removal of deleterious areas, and replacement of damaged rebar. Then a protective layer of reinforced mortar would be applied to the pipe surface. The hydraulic function of the Vortex Tube would not change from the original design. Poured concrete would be allowed to cure before contact with flowing creek water to prevent changes in water chemistry that could affect aquatic life.

Under normal operation conditions, Santa Rosa Creek flows would pass through the Vortex Tube and the Bypass Pipe ends would be closed. The Bypass Pipe would only be in placed into operation during Vortex Tube repair work, a performance inspection one year following completion of construction, and to allow periodic future inspections of the integrity of the Vortex Tube and to conduct maintenance, as needed. These inspections would require dewatering the Vortex Tube using coffer dams and operation of the Bypass Pipe that may take 1 to 2 weeks to complete.

Staging and Equipment

Staging of equipment and materials would occur at two locations within the Proposed Project area (Figure 2.1-2). One staging area is located along Channel Drive and consists of a gravel parking area often used by the public to access Trione-Annadel State Park. The other staging area is adjacent to the Vortex Tube entrance and consists of the concrete-lined bypass channel that directs flood flows to Spring Lake. Both staging areas are owned by Sonoma Water (Figure 2). Also, the four work areas for the Bypass Pipe and Vortex Tube would be used to stage equipment and materials. Maintenance and staff vehicles would park at the Channel Drive staging area and along public roads including Montgomery Drive and Melita Road. The staging and work areas in the Santa Rosa Creek channel would be accessed by three existing gravel access roads. Gravel would be added to the existing access road off of Melita Road to accommodate heavy equipment. The project's construction specifications will incorporate the Bay Area Air Quality Management District's Basic Construction Measures to reduce dust emissions and minimize equipment idling times to avoid or minimize air pollutants from being generated by the project construction (BAAQMD 2017a).

The types of equipment that would be used during construction may include, but are not limited to, the following: bulldozer, water truck, compactors/roller, skid steer, pickup truck, paver, loader, flatbed truck, backhoe, aerial lift, dump truck, concrete truck, and excavator. In total, construction activities would require 658 one-way truck trips.[1] This would result in up to 30 one-way truck trips per day.

Summer Rainfall Contingency Plan

In the unlikely event that summer rains occur during construction of the Proposed Project, creek flows are not anticipated to increase significantly given the ability for soils to infiltrate and absorb most of the rain that might fall. If creek flows were to increase during construction of the Bypass Pipe, the coffer dam could be adjusted to allow for flows to pass through the Vortex Tube. If creek flows were to increase during rehabilitation of the Vortex Tube, the Bypass Pipe would likely be able to accommodate any incremental increase in summer flows caused by rains. Creek summer flows are typically 5 to 10 cfs and the Bypass Pipe can accommodate 30 cfs. If capacity of the Bypass Pipe were to be exceeded, screened pumps could be employed to redirect flows to the Santa Rosa Creek bypass channel and ultimately Spring Lake.

Vegetation Removal, Revegetation, and Monitoring

Vegetation pruning and removal activities in the project area will be conducted under the guidance of a staff biologist or certified arborist. Large mature riparian trees in the project area will be avoided. Only vegetation that is noxious, invasive, hazardous, or could obstruct construction work will be removed, which is largely Himalayan blackberry. Native trees may be pruned if located within work areas and access roads. Herbaceous layers that provide erosion protection and habitat value will be left in place.

The project's revegetation plan would stabilize exposed soils, reduce erosion, and quickly revegetate disturbed habitat areas with appropriate native plant species. Site revegetation would be conducted and include seeding with a mix of native grass, sedge and/or forb species after activities are complete during the fall and prior to the first significant rainfall (significant rainfall is defined as a forecast of 50% or greater chance of precipitation). Seed mix would be applied to disturbed work areas with exposed soil above the creek's shoreline. Biodegradable erosion control fabric, hydromulch, or other mechanism would be applied as appropriate to provide protection to seeds, hold them in place, and help retain moisture. Work areas that are concrete-lined or have a substrate of gravel and

[1] For the purposes of analysis, it is assumed that trucks would not be dual purpose (i.e., an empty truck will enter the Project site, and be filled with an off-haul load only).

cobble deposited by creek flows would not be seeded. No trees would be removed for the Proposed Project.

Seeded areas, would be inspected after the first winter rain events. If evidence of erosion is detected, corrective measures would be implemented including additional seed application, installation of native nursery stock plantings, and/or installation of erosion control fabric. A monitoring report describing the success of revegetation and any corrective measures implemented, would be prepared annually for five years.

Project Schedule, Monitoring and Reporting

Project construction is anticipated to take up to four months. All in-channel excavation and trenchless drilling would occur during the dry, low flow season, between June 15 and October 31. Construction activities would take place primarily during daytime hours from 7:00 a.m. and 7:00 p.m., Monday through Friday, and 8:00 a.m. to 6:00 p.m. on Saturdays. The ground disturbing work period may be extended during dry weather with approval from resource agencies that have jurisdiction over the project area (Section 2.7).

Facility inspections that require installation of coffer dams, operation of the Bypass Pipe, and maintenance would likely occur at five-year intervals; however, the frequency of inspections is dependent on scour from winter storm events and the condition of the Vortex Tube. In addition, a performance inspection of the Vortex Tube repairs would be completed one-year post-construction.

Revegetation activities would be completed during late fall after construction is complete. Monitoring would be conducted to assess survival and ecological function at the site for five years. Monitoring would be conducted to evaluate the efficacy of the revegetation methods and to develop corrective measures, if required. Monitoring would involve collecting quantitative data on vegetative cover, percent cover of native plants, and photo documentation of revegetation areas.

Annual reports of Proposed Project activities, monitoring findings, success criteria, and corrective measures would be completed by January 31 for five years.

2.5 Project Alternatives

The No Project alternative would mean that the Proposed Project's repair activities would not be implemented, and degradation of the Vortex Tube would continue. The No Project alternative would likely result in failure of the Santa Rosa Creek Diversion Structure, which could increase the risk of flooding to central Santa Rosa and impact the integrity of the Montgomery Drive levee. Also, uncontrolled flooding may cause erosion and sedimentation downstream that could degrade riparian and aquatic habitats and damage adjacent properties.

The Spring Lake Bypass Alternative would bypass flows around the Vortex Tube work area into Spring Lake via the existing bypass channel (Figure 2.1-2). This alternative would dewater approximately one mile of Santa Rosa Creek downstream of Montgomery Drive and was rejected due to the potential for significant impacts to aquatic resources.

2.6 Conformance with the General Plan and General Plan Designation

The Proposed Project area is subject to the land use policies and designations adopted in the Sonoma County General Plan 2020 (SCPRMD 2008). The Sonoma County General Plan 2020 contains a variety of goals, objectives, policies, programs, and implementation measures, which address several environmental resources and concerns including biological, cultural resources, geologic hazards, hazards and hazardous materials, water quality, noise, public services and utilities, and transportation and traffic. The Sonoma County General Plan 2020 Zoning and Land Use Designation for the Proposed Project area is Urban Service Area, an area designated for urban development (SCPRMD 2008).

The Proposed Project appears to be consistent with applicable general plans and policies and would not limit or restrict any existing activities that occur in the Project area. Also, Sonoma Water would comply with County ordinances and zoning codes. Under Ordinance No. 3836R, the County of Sonoma issues roiling permits for work conducted within riparian corridors. Activities of the Proposed Project would occur within riparian areas. Sonoma Water would comply with this ordinance by receiving a permit prior to Project implementation, as necessary. Also, County of Sonoma Zoning Code Regulation Article 65 (Riparian Corridor Combining Zone) Section 26-65-040 allows several activities including “stream maintenance and restoration carried out or overseen by the Sonoma County Water Agency [Sonoma Water].”

2.7 Other Public Agencies Whose Approval Is Required

The following are public entities and agencies that may require review or approval of the Proposed Project or that may have jurisdiction over the Project area:

- U.S. Army Corps of Engineers (USACE)
- National Marine Fisheries Service (NMFS)
- U.S. Fish and Wildlife Service (USFWS)
- California Department of Fish and Wildlife (CDFW)
- California North Coast Regional Water Quality Control Board (NCRWQCB)
- Sonoma County Permit and Resources Management Department (Permit Sonoma)

- City of Santa Rosa

3.0 Environmental Checklist

The Proposed Project's environmental impacts were assessed based on the environmental checklist provided in Appendix G to the CEQA Guidelines. The checklist provides a summary of potential impacts that may result from implementation of the Proposed Project. In addition, each section below includes a discussion of the rationale used to determine the significance level of the Project's environmental impact for each checklist question. A list of environmental factors and summary of findings are below. The findings of each environmental analysis are included in Sections 3.1 through 3.21.

With regard to the checklist, a "No Impact" response indicates that the analysis concludes that the Proposed Project would not have the impact described. A "Less-than-Significant Impact" response indicates that the Proposed Project would not cause a substantial adverse change to the environment and mitigation is not required. A "Less Than Significant with Mitigation Incorporated" response indicates that the Proposed Project may cause a substantial adverse change to the environment, but that mitigation measure(s) have been identified that would reduce the impact to a less-than-significant level. A "Potentially Significant Impact" response indicates that the Proposed Project may cause a substantial adverse change to the environment and that the impact cannot be reduced to a less-than-significant level by incorporating mitigation measures. An environmental impact report must be prepared.

Each response is discussed at a level of detail commensurate with the potential for adverse environmental effect. Each question was answered by evaluating the Proposed Project as proposed, that is, without considering the effect of any added mitigation measures. The Initial Study includes a discussion of the potential impacts and identifies mitigation measures to substantially reduce those impacts to a level of insignificance where feasible. All references and sources used in the Initial Study are listed in the Reference section of the document.

Environmental Checklist and Summary of Potential Impacts

Environmental Factor	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Aesthetics	☐	☐	☒	☐
Agriculture and Forestry Resources	☐	☐	☐	☒
Air Quality	☐	☒	☐	☐
Biological Resources	☐	☒	☐	☐
Cultural Resources	☐	☒	☐	☐
Energy	☐	☐	☒	☐
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	☐	☒	☐	☐
Tribal Cultural Resources	☐	☒	☐	☐
Utilities and Service Systems	☐	☐	☒	☐
Wildfire	☐	☐	☒	☐
Mandatory Findings of Significance	☐	☒	☐	☐

3.1 Aesthetics

Except as provided in Public Resources Code Section 21099, would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a. Have a substantial adverse effect on a scenic vista?	☐	☐	☒	☐
b. Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	☒
c. Substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point.) If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	☐	☐	☒	☐
d. Create a new source of substantial light or glare which would adversely affect daytime or nighttime views in the area?	☐	☐	☐	☒

Aesthetics Setting

The Proposed Project is located in an urbanized area in northeastern Santa Rosa that includes roadways, residences, and concrete flood control infrastructure. The project area is bisected by a busy, two-lane, public roadway (Montgomery Drive). The Santa Rosa Creek Diversion Structure is the primary visible feature within the Proposed Project area and the project area is visible from Montgomery Drive. Visual elements of the Proposed Project would be temporary and occur during project construction, which would take up to four months, and one to two weeks for periodic maintenance in future years. Most of the permanent project structures (Bypass Pipe and Vortex Tube) would be located underground and would not be visible. The permanent aboveground project elements, including the Bypass Pipe headwalls and earthen Bypass Pipe ditch, would be similar to

the existing infrastructure within the project area and not significantly contrast with the surrounding infrastructure.

The Sonoma County General Plan 2020 defines scenic resources under three categories: Community Separators, Scenic Landscape Units, and Scenic Highway Corridors (SCPRMD 2008). The Proposed Project is not located within or visible from a Community Separator or Scenic Landscape Unit. The nearest Scenic Highway Corridor is Highway 12 south of Melita Road approximately 0.6 miles southeast of the project area. The project is not visible from the Highway 12 Scenic Highway Corridor. There are no California Department of Transportation (Caltrans) designated State Scenic Highways or County Scenic Highways within the project vicinity (Caltrans 2019).

The City of Santa Rosa General Plan 2035 (Santa Rosa 2009) includes goals and policies related to Urban Design and Aesthetics.

- UD-A: Preserve and enhance Santa Rosa's scenic character, including its natural waterways, hillsides, and distinctive districts.
- UD-A-7: Continue the city's program of utility undergrounding.
- UD-C: Enhance and strengthen the visual quality of major entry routes into the city, as well as major corridors that link neighborhoods with downtown.

Discussion of Potential Impacts

In accordance with CEQA, the Proposed Project could result in potentially significant impacts to Aesthetic Resources if it would:

a. Have a substantial adverse effect on a scenic vista? – *Less Than Significant.*

Scenic vistas are generally designated as areas that have scenic or community values or high levels of viewer sensitivity. The Proposed Project area is not located within a scenic vista. Visual elements of the Proposed Project would be temporary and occur during project construction, which would take up to four months, and one to two weeks for periodic maintenance in future years. The project area would be most visible from Montgomery Drive, although the project area is primarily below the grade of the road and not immediately visible from the roadway. Most of the permanent project structures (Bypass Pipe and Vortex Tube) would be located underground and would not be visible. The permanent aboveground project elements, including the Bypass Pipe headwalls and earthen Bypass Pipe ditch, would be similar to the existing infrastructure within the project area and not significantly contrast with the surrounding infrastructure. The Proposed Project would not have substantial adverse effects on a scenic vista and the impact would be less than significant. See Section 3.1c, below.

b. Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway? – *No Impact.*

The Proposed Project would not be located within or adjacent to a state scenic highway. There would be no impact to scenic vistas or scenic resources from the Proposed Project.

c. Substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point.) If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality? – *Less than Significant.*

The Proposed Project would not conflict with applicable zoning or other regulations governing scenic quality. The project is within the City of Santa Rosa Urban Boundary and on property owned by Sonoma Water. The Sonoma County General Plan 2020 Land Use Designation for the project area is Urban Service Area, an area designated for urban development (SCPRMD 2008).

Sonoma Water staff used the County of Sonoma's Visual Assessment Guidelines, which were developed to assess the impacts of individual projects in both unincorporated and incorporated locations, to evaluate the Proposed Project's potential for impacts to aesthetic resources. These guidelines provide for rating site sensitivity and the visual dominance of the project site, and then using a combination of these ratings to assess the potential for significant impacts (SCPRMD 2019a). Under this methodology, the sensitivity of the Proposed Project site would be considered "low" due to its location outside of designated scenic resources and within the City of Santa Rosa's Urban Boundary. The Visual Assessment Guidelines also define a methodology for determining visual dominance of a proposed project. Project elements that are not visible from the public view are considered "inevident" and project elements that are minimally visible from public view, or can be seen but do not attract attention, would be considered "subordinate." Because the visual elements of the Proposed Project, once completed, would mainly be underground and only minimally visible to the public, as such subordinate, the Proposed Project impacts to the visual character or quality of the project site would be less than significant. No mitigation is required.

d. Create a new source of substantial light or glare which would adversely affect daytime or nighttime views in the area? – *No Impact*.

The Proposed Project construction and maintenance activities would be conducted during daylight hours only, thus no nighttime lighting would be needed. The project would not involve construction of new facilities or modifications to existing facilities that would result in new reflective surfaces (sources of glare) or installation of lighting. Therefore, there would be no impact from the Proposed Project.

3.2 Agriculture and Forestry Resources

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program (FMMP) of the California Resources Agency, to nonagricultural use?	☐	☐	☐	☒
b. Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒
c. Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	☐	☐	☐	☒
d. Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒
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?	☐	☐	☐	☒

Discussion of Potential Impacts

This analysis of potential agricultural resource and forestry impacts is based on review of the following resources: California Important Farmland Maps produced by the California Department of Conservation (CDOC 2019); Sonoma County Williamson Act Land Contacts Map (SCPRMD 2019b); the Sonoma County 2020 General Plan Land Use Map (SCPRMD 2008); and the Zoning Map of the City of Santa Rosa (Santa Rosa, 2015).

In accordance with CEQA, the Proposed Project could result in potentially significant impacts to Agricultural and Forestry Resources if it would:

a. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program (FMMP) of the California Resources Agency, to nonagricultural use? – *No Impact.*

No Prime Farmland, Unique Farmland, or Farmland of Statewide Importance; forest lands or timberlands; or lands under a Williamson Act contract would be converted by, or conflict with, the Proposed Project's activities (CDOC 2019; SCPRMD 2019b). Farmland of Local Importance are located approximately 500 feet southwest and 1,000 feet east of the project site; however, the Proposed Project would not conflict with their current use. The Proposed Project is within an engineered flood control facility. There are no commercial forest lands or timberlands in the project area. Therefore, designated Farmlands would not be affected by the Proposed Project and there would be no impact.

b. Conflict with existing zoning for agricultural use, or a Williamson Act contract? – *No Impact.*

See Section 3.2 a, above, for details. The Proposed Project would not conflict with zoning for agricultural use or a Williamson Act contract and there would be no impact.

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))? – *No Impact*

See Section 3.2 a, above, for details. The Proposed Project would not conflict with or cause rezoning of forestlands or timberlands and there would be no impact.

d. Result in the loss of forest land or conversion of forest land to non-forest use? – *No Impact.*

See Section 3.2 a, above, for details. The Proposed Project would not result in the loss of forest land or conversion of forest land to non-forest use and there would be no impact.

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? – *No Impact.*

See Section 3.2 a, above, for details. The Proposed Project would not involve other changes in the existing environment that could result in conversion of farmland to non-agricultural use or conversion of forestland to non-forest use and there would be no impact.

3.3 Air Quality

When available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to make the following determinations.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a. Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☒	☐
b. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?	☐	☒	☐	☐
c. Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐
d. Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	☐	☐	☒	☐

Air Quality Setting

The air quality setting is provided along with relevant regulatory information and guidelines, and their applicability to the Proposed Project.

Air quality is a function of both the rate and location of pollutant emissions under the influence of meteorological conditions and topographic features that influence pollutant movement and dispersal. Atmospheric conditions such as wind speed, wind direction, atmospheric stability, and air temperature gradients interact with the physical features of the landscape to determine the movement and dispersal of air pollutants, which affects air quality.

The Proposed Project is located within the San Francisco Bay Area Air Basin (SFBAAB). The Bay Area Air Quality Management District (BAAQMD) is responsible for attaining and maintaining the National Ambient Air Quality Standards and the California Ambient Air Quality Standards in the SFBAAB.

Discussion of Potential Impacts

In accordance with CEQA, the Proposed Project could result in potentially significant impacts to Air Quality if it would:

a. Conflict with or obstruct implementation of the applicable air quality plan? – *Less than Significant.*

The BAAQMD Bay Area 2017 Clean Air Plan (2017 CAP) is the most recently adopted regional air quality plan that pertains to the Proposed Project. The BAAQMD *CEQA Air Quality Guidelines* revision identifies a three-step methodology for determining a project's consistency with the current clean air plan (BAAQMD 2017a). BAAQMD considers a project consistent with air quality plans based on the three criteria below.

1. "Does the project support the goals of the air quality plan?" The BAAQMD-recommended measure for determining project support for these goals is consistency with the BAAQMD Thresholds of Significance. Table 3.3-1 below presents the BAAQMD Thresholds of Significance for construction-related air quality impacts.

Table 3.3-1. BAAQMD Thresholds of Significance for Construction-Related Criteria Air Pollutants and Precursors.

Pollutant/Precursor	Daily Average Emissions (lb/day)
ROG	54
NO_X	54
PM_{10}	82*
$PM_{2.5}$	54*

*Applies to construction exhaust emissions only.

Notes: ROG = reactive organic gases; NO_X = oxides of nitrogen; PM_{10} = respirable (able to be breathed in) particulate matter with an aerodynamic resistance diameter of 10 micrometers or less; $PM_{2.5}$ = fine particulate matter with an aerodynamic resistance diameter of 2.5 micrometers or less.

Source: BAAQMD (2017a).

Construction of the Proposed Project would generate regional air pollutant and precursor emissions from equipment exhaust and worker trips to the project site. The project emissions would be temporary in nature and vary considerably from day-to-day and by the type of equipment and weather. The BAAQMD provides screening criteria to determine whether a project would result in the generation of construction-related criteria air pollutants and/or precursors that exceed the Thresholds of Significance (Table 3.3-1). The screening criteria provide a conservative indication of whether the Proposed Project

could result in potentially significant air quality impacts. If all of the screening criteria are met, then construction of the Proposed Project would result in a less-than-significant impact from criteria air pollutant and precursor emissions, and the lead agency would not need to perform a detailed air quality assessment of their project's air pollutant emissions (BAAQMD 2017a). BAAQMD's construction screening criteria are as follows:

1. The project is below the applicable BAAQMD project screening level size; and
2. All Basic Construction Mitigation Measures would be included in the project design and implemented during construction; and
3. Construction-related activities would not include any of the following:
    a. Demolition;
    b. Simultaneous occurrence of more than two construction phases;
    c. Simultaneous construction of more than one land use type;
    d. Extensive site preparation; or
    e. Extensive material transport (greater than 10,000 cubic yards of soil import/export) requiring a considerable amount of haul truck activity.

The BAAQMD's screening size guidance includes operational-related criteria based on project land use types, such as single-family homes, apartments, restaurants, strip malls, hospitals and industrial parks. The screening guidance does not provide criteria pollutant and precursor screening levels for projects similar to the Proposed Project (infrastructure maintenance or pipeline construction projects). For reference, BAAQMD's construction criteria pollutant and precursor screening level size for a light industrial or industrial park development is 11 acres. The Proposed Project's total permanent and temporary impact area of less than one acre would be less than the BAAQMD's precursor screening level.

The Proposed Project includes the basic construction measures recommended by BAAQMD. Project construction would not include demolition, simultaneous occurrence of more than two construction phases, and does not include more than one land use. The Proposed Project would not involve extensive site preparation or material transport. It is anticipated that the Proposed Project would import and export less than 600 cubic yards (cy) of concrete, sand/gravel, and soil, which is considerably less than the BAAQMD threshold of 10,000 cy. Therefore, the project meets BAAQMD's screening criteria for project construction-related impacts. Because all of the screening criteria are met, construction of the Proposed Project would result in a less-than-significant impact from criteria air pollutant and

precursor emissions, a detailed air quality assessment is not needed, and the project is consistent with the 2017 CAP.

2. "Does the project include applicable control measures from the clean air plan?" The 2017 CAP contains 85 individual control measures in nine economic sectors: stationary (industrial) sources; transportation; energy; buildings; agriculture; natural and working lands; waste management; water; and super-greenhouse gas pollutants (BAAQMD 2017b). The control measures are intended to reduce emissions of ozone precursors, particulate matter, and toxic air contaminants. Many of these control measures require action on the part of BAAQMD, the California Air Resources Board, or local communities, and are not directly related to the actions undertaken for an individual infrastructure repair project. The Proposed Project would not prevent the BAAQMD from implementing the control measures in the 2017 CAP and none apply directly to the project.

3. "Does the project disrupt or hinder implementation of any control measures from the clean air plan?" As described above, the Proposed Project would not prevent the BAAQMD from implementing the 2017 CAP control measures, and none apply directly to the project.

In summary, the Proposed Project would not conflict with or obstruct implementation of the 2017 CAP. As a result, the impact is less than significant.

b. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is a non-attainment under an applicable federal or state ambient air quality standard? – *Less than Significant with Mitigation.*

According to California standards, the SFBAAB is currently designated as a non-attainment area for suspended particulate matter (PM_{10} and $PM_{2.5}$) and ozone. Under national standards, the SFBAAB is currently designated as non-attainment for 8-hour ozone, and non-attainment for $PM_{2.5}$. This air basin is in attainment (or unclassified) for all other air pollutants (BAAQMD 2019). Therefore, the non-attainment pollutants of concern for this impact are ozone, PM_{10} and $PM_{2.5}$. Section 3.3.a, above, examined the Proposed Project according to BAAQMD's screening criteria for construction-related impacts. The examination revealed that the Proposed Project meets all of the screening criteria and therefore construction of the Proposed Project would result in a less-than-significant impact from criteria air pollutant and precursor emissions, and a detailed air quality assessment is not needed. Furthermore, the Proposed Project description incorporates BAAQMD's recommended Basic Construction Mitigation Measures (BAAQMD 2017a). These BAAQMD's measures would be applied during project implementation and are included as Mitigation Measure AIR-1 below. These measures

protect air quality by avoiding or further minimizing potential adverse impacts to air quality thresholds during construction activities.

Following construction, the Proposed Project would not include any stationary sources of air emissions. Vehicle trips and equipment use associated with project maintenance would be far less than needed for project construction, similar to coffer dam installation activities, and be temporary and intermittent in nature. As such, the Proposed Project would not result in substantial long-term operational emissions of criteria air pollutants. Therefore, the Proposed Project's contribution to a cumulative non-attainment criteria pollutant impact with implementation of Mitigation Measure AIR-1 would be less than significant.

Mitigation Measure AIR-1: Bay Area Air Quality Management District Basic Construction Measures.

Sonoma Water will require contractors, through project contract specifications, and maintenance staff to implement the following:

1. To reduce dust emissions, all exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day or as needed, as determined by Sonoma Water, based on conditions.
2. All haul trucks transporting soil or other loose material off-site shall be covered.
3. All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day or as needed. The use of dry power sweeping is prohibited.
4. All vehicle speeds on unpaved roads shall be limited to 15 mph.
5. Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California Airborne Toxics Control Measure, Title 13, Section 2485 of California Code of Regulations [CCR]). Clear signage shall be provided for construction workers at all access points.
6. All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation.
7. Post a publicly visible sign with the telephone number and person to contact at the Lead Agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. The Bay Area Air Quality Control

District's phone number shall also be visible to ensure compliance with applicable regulations.

c. Expose sensitive receptors to substantial pollutant concentrations? – *Less than Significant.*

For the purposes of air quality and public health and safety, sensitive receptors are generally defined as people that would be particularly susceptible to disturbance from dust and air pollutant concentrations, or other disruptions associated with construction activities associated with the construction of the Proposed Project and maintenance activities (potential repair and replacement). Sensitive receptors generally include children, the elderly, asthmatics, and the infirmed at schools, day care centers, libraries, hospitals, residential care centers, parks, and churches and others who are more susceptible to respiratory distress and other air quality-related health problems than the general public (California Air Resources Board, 2020). Some sensitive receptors are considered to be more sensitive than others due to pre-existing health problems, proximity to emissions sources, or duration of exposure to air pollutants. Residential areas are considered sensitive to poor air quality because people usually stay home for extended periods of time, with associated greater exposure to ambient air quality. Recreational uses are also considered sensitive due to the greater exposure to ambient air quality conditions because vigorous exercise associated with recreation places a high demand on the human respiratory system. Residences, churches, parks, and schools located adjacent to the Proposed Project sites would be considered sensitive receptors.

Certain air pollutants have been classified as toxic air contaminants (TACs) because they are known to increase the risk of cancer and/or other serious health effects, ranging from eye irritation to neurological damage. The Proposed Project area is within 140 feet of the nearest residential receptor. Construction of the Proposed Project would generate diesel particulate matter (DPM) and gasoline fuel combustion emissions, which are considered to be TACs. The majority of TAC emissions would be generated during construction due to the use of heavy-duty off-road equipment.

As described in the project description and above in Section 3.3.a, the Proposed Project includes implementation of the BAAQMD's Basic Construction Mitigation Measures during construction (Mitigation Measure AIR-1). Such measures include minimizing idling times for trucks and equipment to five minutes, ensuring that construction equipment is maintained in accordance with manufacturer's specifications, watering exposed surfaces twice a day to minimize fugitive dust emissions, and other measures which would minimize project-generated air contaminant emissions.

Construction of the Proposed Project would occur over a period of up to four months. Given the phased nature of the Proposed Project, construction activities would continually

be shifting as the Bypass Pipe is installed and then the Vortex Tube repair would begin. Due to the temporary and variable nature of the construction and maintenance activities, and with the implementation of Mitigation Measure AIR-1, the Proposed Project would not result in the exposure of sensitive receptors to substantial pollutant concentrations. Therefore, the construction-related impact would be less than significant, and no mitigation is required.

Following construction, maintenance and operation of the Proposed Project would not include any stationary sources of air emissions. Vehicle trips and equipment use associated with project maintenance would be far less than needed for project construction and would be temporary and intermittent in nature. Therefore, the exposure of sensitive receptors during project maintenance would be less than significant and no mitigation is required.

d. Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people? – *Less than Significant.*

The Proposed Project would not create other emissions, such as those leading to objectionable odors, affecting a substantial number of people. Equipment used during Proposed Project construction activities may emit odors associated with combustion of diesel and gasoline fuels. However, these emissions would be temporary and intermittent in nature. The Project Project would not result in other emissions that would adversely affecting people. The impact would be less than significant, and no mitigation is required.

3.4 Biological Resources

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

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
f. Conflict with the provisions of an adopted Habitat Conservation Plan (HCP), Natural Community Conservation Plan, or other approved local, regional, or state HCP?	☐	☐	☐	☒

Biological Resources Setting

The Proposed Project is located in the Santa Rosa Creek watershed. The plant communities and wildlife habitats in the vicinity include forests, woodlands, riparian and aquatic, grasslands, chaparral, and agricultural lands. The mountainous upper watershed supports mixed evergreen forest that includes coast redwood (*Sequoia sempervirens*) and Douglas-fir (*Pseudotsuga menziesii*). At lower elevation the forest composition changes to valley oak (*Quercus lobata*), black oak (*Quercus kelloggii*), coast live oak (*Quercus agrifolia*), Oregon oak (*Quercus garryana*), California bay (*Umbellularia californica*), and madrone (*Arbutus menziesii*), mixed with patches of grassland. On dryer south facing slopes chaparral may occur. Most of the gentler terrain of the lower watershed is used for agricultural and residential purposes; however, these land uses do not occur in the project area. The natural communities in the project area include aquatic, emergent wetland, and riparian forest associated with Santa Rosa Creek (Figure 3.4-1). These habitats are further described below.

Emergent Wetlands and Aquatic Habitats

Wetland vegetation along Santa Rosa Creek in the project area is very limited due to the concrete-lined banks and high winter stream velocities that scour the creek banks, precluding all but the hardiest of plants, such as torrent sedge (*Carex nudata*), common rush (*Juncus patens*), umbrella sedge (*Cyperus eragrastis*), rice cutgrass (*Leersia oryzoides*), knotgrass (*Paspalum distichum*), American brooklime (*Veronica americana*), and spikerush (*Eleocharis macrostachya*). In addition, small wetland features are located in the northeast portion of the project area within the floodplain of Santa Rosa Creek (Figure 3.4-1). These wetlands are degraded and dominated by ruderal species, such as umbrella sedge and rice cutgrass, and the invasive Himalayan blackberry (*Rubus armeniacus)*.

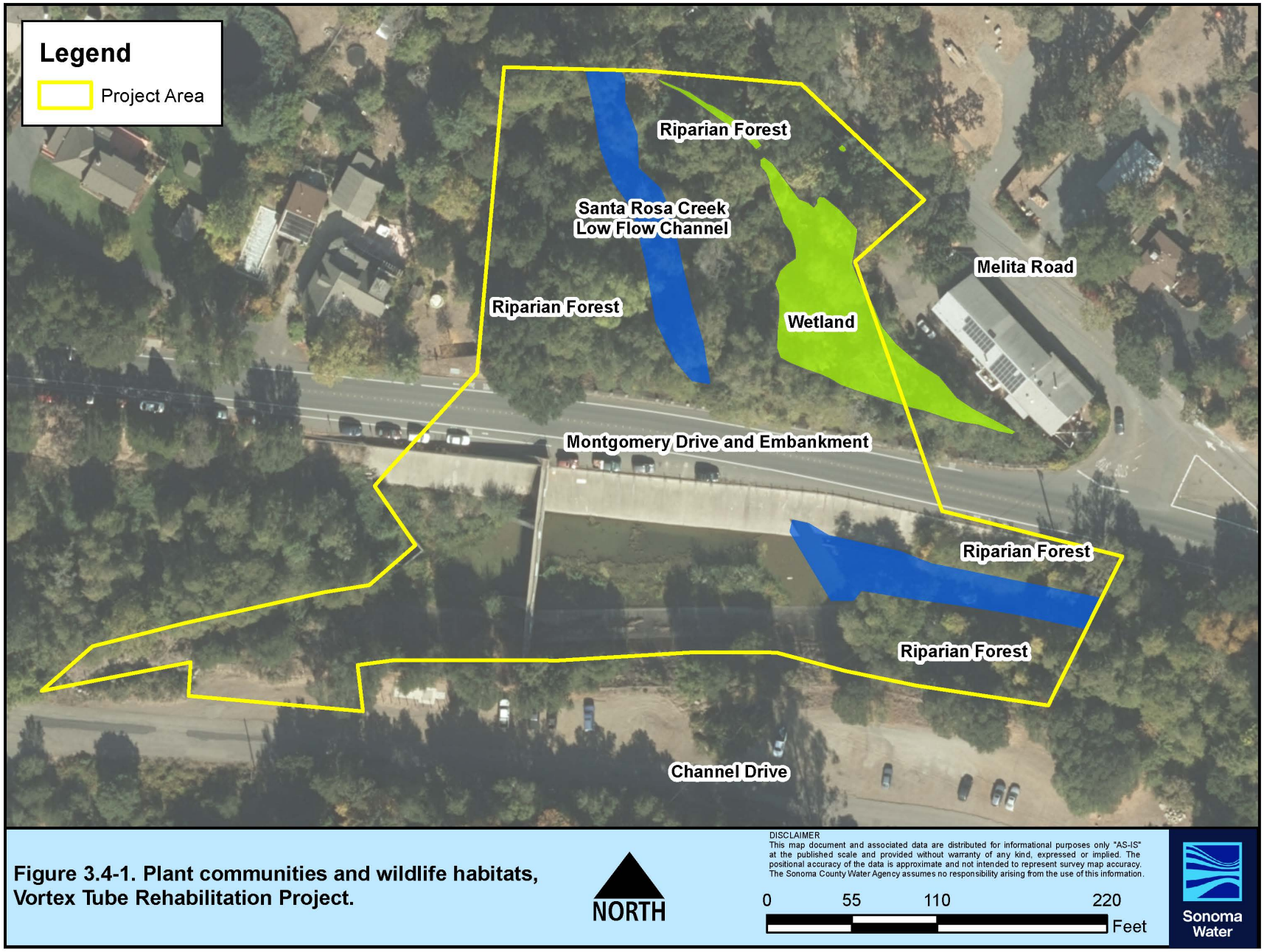


Figure 3.4-1. Plant communities and wildlife habitats, Vortex Tube Rehabilitation Project.

Aquatic habitat in the Proposed Project area is the perennial Santa Rosa Creek. Aquatic habitat features are comprised of riffles and runs over cobble substrate in the upper and lower ends of the project area. These areas are frequently disturbed by winter high velocities and periodic sediment removal as part of routine maintenance of the Santa Rosa Creek Diversion Structure (SCWA 2020). Concrete flood control infrastructure elements are located in the creek in the central portion of the project area, including the Vortex Tube, weir, and fish ladder (Figures 2.1-2 and -3).

Fish species primarily use the project area for dispersal and migration to other areas of Santa Rosa Creek, although some fish may reside in the Vortex Tube during low flows. Species that likely use the project area include warm water native species, such as three-spine stickleback (*Gasterosteus aculeatus*) and prickly sculpin (*Cottus asper*), and nonnative species such as bluegill (*Lepomis macrochirus*), green sunfish (*Lepomis cyanellus*), and smallmouth bass (*Micropterus dolomieu*). Santa Rosa Creek also supports anadromous steelhead (*Oncorhynchus mykiss*).

Aquatic habitat along Santa Rosa Creek provides breeding and foraging habitat and dispersal corridors for several amphibian and reptile species. Common stream breeding amphibians include Pacific treefrog (*Pseudacris regilla*), western toad (*Anaxyrus boreas*), and newts (*Taricha* spp.). Western pond turtle (*Actinemys marmorata*) and common gartersnake (*Thamnophis sirtalis*) forage in aquatic habitats.

Riparian Forest

Riparian forest consists of water-dependent trees and shrubs growing from the shore to the top of the stream channel bank. Most of Santa Rosa Creek in the vicinity of the project area has a dense and mature riparian canopy that often covers the creek. The dominant riparian trees are red willow (*Salix laevigata*), arroyo willow (*Salix lasiolepis*), Pacific willow (*Salix lucida lasiandra*), red alder (*Alnus rubra*), California bay, Douglas-fir, boxelder (*Acer negundo*), and big-leaf maple (*Acer macrophyllum*). Native shrubs and herbaceous plants in the understory include dogwood (*Cornus sericea*), poison oak (*Toxicodendron diversilobum*), snowberry (*Symphoricarpos albus*), sedges (*Scirpus* ssp.), mugwort (*Artemisia douglasii*), and California figwort (*Scrophularia californica*). Mature and dense riparian zone on the banks of Santa Rosa Creek exists at the upstream and downstream ends of the project area, which is dominated by alder and willow with an understory of nonnative Himalayan blackberry. The center of the project area includes Montgomery Drive and concrete embankment and flood control infrastructure elements.

Riparian forest and stream channels in the Santa Rosa Creek watershed provide den/nest habitat, food, and cover and may serve as migration corridors for a variety of wildlife species. Birds represent the most abundant and prominent wildlife. Common birds found in riparian habitat include red-tailed hawk (*Buteo jamaicensis*), acorn woodpecker

(*Melanerpes formicivorus*), wrentit (*Chamaea fasciata*), California towhee (*Pipilo maculatus*), western scrub jay (*Aphelocoma californica*), song sparrow (*Melospiza melodia*), golden-crowned sparrow (*Zonotrichia atricapilla*), and California quail (*Callipepla californica*). Amphibians and reptiles that may use riparian habitats include California slender salamander (*Batrachoseps attenuatus*), yellow-eyed salamander (*Ensatina eschscholtzii xanthoptica*), western fence lizard (*Sceloporus occidentalis*), northern alligator lizard (*Elgaria coerulea*), and gopher snake (*Pituophis catenifer*).

Riparian forest and instream habitats support a number of mammalian species. The understory and tree cavities provide escape, cover, and den sites. Some common mammals include deer mouse (*Peromyscus maniculatus*), western gray squirrel (*Sciurus griseus*), dusky footed woodrat (*Neotoma fuscipes*), raccoon (*Procyon lotor*), and black-tailed deer (*Odocoileus hemionus columbianus*). Larger predatory mammals, such as bobcat (*Lynx rufus*) and gray fox (*Urocyon cinereoargenteus*), may hunt in riparian areas. In addition, several bat species may forage for insects over this habitat and may roost in tree cavities and crevices.

Special Status Plants, Fish, and Wildlife

A review of special status species with potential to occur in the project area was conducted. A list of federally endangered and threatened species that may occur in the project area was obtained from the U.S. Fish and Wildlife Service (USFWS) website (USFWS 2019). The California Natural Diversity Database (CNDDB) and the California Native Plant Society (CNPS) electronic inventory were also queried. The CNDDB, CNPS, and the USFWS search results for the Proposed Project are listed in Tables B-1 through B-3 in Appendix B. These tables also include information on each species' habitat requirements, Critical Habitat (if designated), and the likelihood of occurring in the project area. In evaluating the potential occurrence of special status plant and animal species in the project area (No Potential, Low, Moderate, and High), relevant literature, knowledge of regional biota, and observations made during the field investigations were applied as analysis criteria. .

Discussion of Potential Impacts

In accordance with CEQA, the Proposed Project could result in potentially significant impacts to Biological Resources if it would:

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 CDFW or USFWS? – *Less than Significant with Mitigation.*

There are 53 special status species identified as potentially occurring in the Proposed Project vicinity, consisting of 30 plant species (Tables B-1 and B-2) and 23 fish and wildlife species (Table B-3). There are 40 special status species (28 plants and 15 animals) that have low or no potential to occur because their required habitat is not present in the project area. Examples include green turtle that is a marine species and several plant species that are endemic to dry serpentine environments. There are two plant species and eight animal species that have a moderate to high potential to occur in the project area, including Sonoma alopecurus (*Alopecurus aequalis* var. *sonomensis*), coastal triquetrella (*Triquetrella californica*), steelhead, California giant salamander (*Dicamptodon ensatus*), foothill yellow-legged frog (*Rana boylii*), red-bellied newt (*Taricha rivularis*), western pond turtle, Cooper's hawk (*Accipiter cooperii*), white-tailed kite (*Elanus leucurus*), and pallid bat (*Antrozous pallidus*). These species are further discussed below.

Sonoma alopecurus and coastal triquetrella are sensitive plant species with potential to occur in the project area (Table B-2). Sonoma alopecurus is a federally endangered wetland plant and has been reported at Ledson Marsh approximately four miles south of the project area (CNDDB 2019). The shoreline of Santa Rosa Creek upstream of the weir in the project area provides marginal habitat for this endangered wetland plant due to prior disturbance of the creek channel. Coastal triquetrella is a California Native Plant Society (CNPS) List 1B.2 species that can inhabit gravel roadsides and has been found at Spring Lake Park approximately 0.7 miles from the project area. The dirt staging area along Channel Drive, frequently used for parking by visitors to Trione-Annadel State Park, provides marginal habitat. Appropriately time botanical surveys conducted in the project area by Sonoma Water biological staff found no Sonoma alopecurus or coastal triquetrella. Due to marginal and degraded habitat onsite, and the absence of these plants during focused surveys, the Proposed Project would have a less than significant impact on these plant species and no mitigation is needed.

The State Fully Protected white-tailed kite and Species of Special Concern pallid bat have a moderate potential to occur in the project area (Table B-3). The kite may be an infrequent visitor to the project area and its preferred nesting and foraging habitat is not present onsite. The riparian forest provides potential foraging habitat for the bat, but no roosting habitat. The Proposed Project would not remove any mature riparian trees but would result in disturbance to wetlands and aquatic habitat along the Santa Rosa Creek riparian zone during construction and maintenance activities. This temporary and minimal disturbance to foraging habitat would have a less than significant impact on these species. No mitigation is required.

There are six species with high potential to occur in the Proposed Project area (Table B-3). The Cooper's hawk forages in dense woodlands and nests in riparian trees. There are

no known occurrences of this hawk nesting in the project vicinity (CNDDB 2019; Burridge 1995). The riparian forest onsite provides marginal nesting habitat due to its lack of tree density and no trees would be removed. Cooper's hawk likely forages in the project vicinity and the potential disturbance from temporary project-related construction and maintenance activities would be a less than significant impact. No mitigation is required.

The remaining five species require aquatic habitat for all or a portion of their life cycle and consist of one fish, three amphibians, and one reptile.

The Central California Coast steelhead is federally listed as threatened (Table B-3). Adult steelhead migrate from the ocean and spawn in cool, clear, freshwater streams with moderate gradient. Juveniles rear in creeks and estuaries before migrating to the ocean. There are several reports of steelhead from Santa Rosa Creek (CNDDB 2019, Cook and Manning 2002, CDFG 2006). Adult steelhead are known to migrate during winter and spring through the project area and spawn in upper Santa Rosa Creek.

Steelhead spawning habitat is marginal in the project area. Aquatic substrates, cobble and gravel, in the project area are largely under laid by concrete of the Santa Rosa Creek Diversion Structure and this substrate is frequently disturbed from winter flood scour and sediment removal conducted as routine maintenance of the Diversion Structure (SCWA 2020). This regular disturbance and restricted subsurface stream flow needed to aerate eggs degrades the habitat for spawning adult steelhead.

Juvenile steelhead have been found in the project area during Sonoma Water stream (flood control) maintenance activities in 2016 and 2017. During the summer low flow season juvenile steelhead may forage and rear in flatwater areas within the project area, including the Vortex Tube. The project area provides adult migration, juvenile rearing, and marginal spawning habitat for steelhead.

The California giant salamander, foothill yellow-legged frog, and red-bellied newt are stream-breeding amphibians that utilize similar habitats as steelhead (Table B-3). These amphibians are State Species of Special Concern and have been reported from Santa Rosa Creek. The western pond turtle is a Species of Special Concern and inhabits several stream and pond habitat types. There are several reports of this turtle from Santa Rosa Creek, including an adult turtle observed at the weir in the project area. Santa Rosa Creek within the project area provides suitable habitat and there is a high potential for these sensitive amphibian and reptile species to occur.

The Proposed Project's construction and maintenance activities have the potential to adversely impact aquatic habitat of the five aquatic-dependent special status species (Figure 3.4-1).Temporary disturbance would occur during dewatering activities (between coffer dams) along the perennial Santa Rosa Creek. Approximately 390 linear feet of

channel with an estimated summer low flow average width of 22 feet would be affected for a total area of 0.2 acre of aquatic creek habitat.

The Proposed Project may potentially adversely impact federally listed as threatened California Coastal steelhead and other special-status aquatic species (California giant salamander, foothill yellow-legged frog, red-bellied newt, and western pond turtle). Temporary impact to steelhead habitat and possible take of individuals would occur from the dewatering of Santa Rosa Creek during Proposed Project construction and maintenance activities. Mitigation Measure BIO-1 would minimize impacts to steelhead by complying with the federal Endangered Species Act and would minimize the potential take of this species. To avoid and minimize impacts to special-status aquatic species, including steelhead, Mitigation Measure BIO-2 would relocate these species out of the project work area prior to construction and maintenance activities. In addition, common aquatic species would be relocated out of the work area.

To further minimize potential impacts to steelhead and other special-status species, worker awareness training would be implemented as described in Mitigation Measure BIO-3 to ensure that all personnel conducting construction and maintenance activities are aware of the special-status species and their habitats with potential to occur within the project area and the measures to be implemented to avoid or minimize impacts to those species.

Implementation of Mitigation Measures BIO-1, BIO-2, and BIO-3 would reduce impacts to steelhead and other special-status aquatic species to a less-than-significant level.

Mitigation Measure BIO-1: Federally Listed Steelhead Protection Measures

1. The project may impact the federally listed California Central Coast steelhead and require compliance with the federal Endangered Species Act. The project would impact wetlands and waters of the United States under the jurisdiction of the U.S. Army Corps of Engineers (USACE) pursuant to Section 404 of the Clean Water Act. Sonoma Water, through the USACE, shall be required to consult with the National Marine Fisheries Service (NMFS) regarding steelhead under Section 7 of the federal Endangered Species Act. The Section 7 consultation process will identify the necessary mitigation to compensate for unavoidable impacts to California Central Coast steelhead. All Proposed Project activities shall comply with the terms and conditions of the Project's Biological Opinion or other authorizing document issued by the NMFS. This measure applies to all aquatic habitat disturbing activities,

species capture, and relocation. Permit special conditions for the Proposed Project will be overseen by a qualified biologist (see item 3 below).

2. If approved by resource agencies, California Central Coast steelhead will be relocated outside of the construction area as described in Mitigation Measure BIO-2.
3. The qualified biologist or designated trained monitor will notify the onsite construction inspector to stop work if a protected species is encountered until such a time as the animal may be moved to an area outside of the project area. A qualified biologist (including those specializing in botany, wildlife, and fisheries) is determined by a combination of academic training and professional experience in biological sciences and related resource management activities. Sonoma Water may also utilize appropriately experienced and/or trained environmental staff. Resumes will be submitted to California Department of Fish and Wildlife, U.S. Fish and Wildlife Service and/or NMFS, as appropriate, for approval prior to commencement of biological surveys.

Mitigation Measure BIO-2: Special-Status Aquatic Species Relocation Out of Construction Areas.

To mitigate the potential to impact special-status aquatic species within the project area, Sonoma Water shall:

1. Prior to construction or maintenance activities beginning at the project area, aquatic species will be excluded from the work areas by blocking the creek with fine-meshed net or screens. The bottom of the screens will be completely secured to the channel bed. Screens will be checked periodically and cleaned of debris to permit free flow of water.
2. Fish, amphibian, and reptile species found within the construction area will be relocated to suitable habitat outside the construction area. The most efficient means for capturing fish and aquatic wildlife will be determined and implemented. Complex stream habitat generally requires the use of electrofishing equipment, whereas in deep areas, fish may be captured by seining or dipnetting.
3. All fish captured by electrofishing will be allowed to recover in an aerated bucket before being returned to the stream.

4. Prior to capturing fish, amphibian, and reptile species, the most appropriate release location(s) will be identified and used. The following criteria will be considered when selecting release site(s):
    a. proximity to the work area;
    b. similar water temperature as capture location;
    c. ample habitat availability prior to release of captured aquatic species; and
    d. low likelihood of animals reentering work site.

Mitigation Measure BIO-3: Worker Environmental Awareness Training

Sonoma Water will require contractors, through project contract specifications, and maintenance staff to participate in the following:

1. Prior to beginning construction activities, all personnel involved in the activities will participate in an educational training session conducted by a qualified biologist. A qualified biologist (including those specializing in botany, wildlife, and fisheries) is determined by a combination of academic training and professional experience in biological sciences and related resource management activities. Sonoma Water may also utilize appropriately experienced and/or trained environmental staff. Resumes will be submitted to California Department of Fish and Wildlife, U.S. Fish and Wildlife Service and/or National Marine Fisheries Service, as appropriate, for approval prior to commencement of biological surveys. This training will include instruction on how to identify bird nests, recognize special status species and sensitive habitats, and the appropriate protocol if any special species or nests are found during project implementation.
2. Personnel who miss the first training session must participate in a make-up session before conducting construction activities.

Breeding birds and raptors, and their nest and eggs are protected under Sections 3503 and 3503.5 of California Department of Fish and Game Code. Additionally, Section 3513 of the Code, as well as the Federal Migratory Bird Treaty Act (16 USC, Sec. 703 Supp. I, 1989), prohibit the “killing, possession, or trading of migratory birds.” Lastly, Section 3800 of the Code prohibits the take of non-game birds, defined as birds occurring naturally in California that are neither game birds nor fully protected species. Disturbance of breeding birds and raptors would be a potentially significant impact.

Disturbance to nesting birds would be avoided by conducting construction and maintenance outside of the nesting season or minimized by conducting pre-construction nesting surveys as described in Mitigation Measure BIO-4. If nesting birds are found, a buffer would be established around the nest and maintained until the young have fledged or work postponed until a nest is no longer active. Mitigation Measure BIO-3 (Worker Awareness Training) would further minimize potential impacts to nesting birds. Implementation of Mitigation Measures BIO-3 and BIO-4 would reduce the impact to nesting birds to less than significant.

Mitigation Measure BIO-4: Nesting Bird Protection Measures

1. If construction or maintenance activities must be scheduled during the nesting season (February 15 through August 15 for most birds), a qualified biologist, familiar with the species and habitats in the area, will conduct pre-construction surveys for raptors and nesting birds within suitable habitat within 500 feet of construction and maintenance activities. The surveys will be conducted within one week before initiation of construction or maintenance activities. If no active nests are detected during surveys, activities may proceed. Vegetation removal activities will be conducted under the guidance of a qualified biologist or designated trained monitor. A qualified biologist (including those specializing in botany, wildlife, and fisheries) is determined by a combination of academic training and professional experience in biological sciences and related resource management activities. Sonoma Water may also utilize appropriately experienced and/or trained environmental staff. Resumes will be submitted to California Department of Fish and Wildlife (CDFW), U.S. Fish and Wildlife Service and/or National Marine Fisheries Service, as appropriate, for approval prior to commencement of biological surveys.
2. If active nests are identified in the project area, non-disturbance buffers shall be established at a distance of 500 feet for raptors and 50 feet for all other bird species. Buffer distance may be adjusted with CDFW approval. If active nests are found within 500 feet of a work area, a qualified biologist shall be on site as necessary to monitor the nests for signs of nest disturbance. If it is determined that construction or maintenance activity is resulting in nest disturbance, work shall cease immediately and CDFW shall be contacted. Buffers will remain in place until a qualified biologist determines that the young have successfully fledged, or nests have been otherwise abandoned.

Overall, the mitigation measures incorporated into the Proposed Project would avoid and minimize potential impacts to fish and wildlife special-status species and their habitats, including BIO-1 (Federally Listed Steelhead Protection Measures), BIO-2 (Special-Status

Aquatic Species Relocation Out of Construction Areas), BIO-3 (Worker Environmental Awareness Training), and BIO-4 (Nesting Bird Protection Measures). In addition, disturbance to habitat and individuals would be minimized by implementing the Proposed Project during summer low flows when fish and wildlife activity is low and restricting work to a small area at the existing Santa Rosa Creek Diversion Structure. Therefore, the Proposed Project would have a less than significant adverse effect on sensitive species and their habitats with mitigation incorporated.

b. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the CDFW or USFWS? – *Less than Significant with Mitigation Incorporated.*

Portions of the Proposed Project are within the oversight of the Sonoma County General Plan 2020 (SCPRMD, 2016) and City of Santa Rosa General Plan 2035 (Santa Rosa, 2009). These plans require the protection of several natural communities. Relevant goals and objectives include:

Sonoma County General Plan 2020

- 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.
- 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.

City of Santa Rosa General Plan 2035

- OSC-D: Conserve wetlands, vernal pools, wildlife ecosystems, rare plant habitats, and waterways.
- OSC-H: Conserve significant vegetation and trees and plant new trees.

The project area includes riparian, wetland, and aquatic habitats. No riparian habitat, including trees, would be removed, although some trees may be pruned for equipment access. The Proposed Project could impact sensitive natural communities, including wetland and aquatic habitats in the project area as shown on Figure 3.4-1.

Project impacts consist of temporary disturbance to aquatic and wetland habitats during construction and maintenance requiring dewatering Santa Rosa Creek. Permanent impacts of aquatic and wetland habitats would occur from the construction of the Bypass Pipe headwalls, Vortex Tube repair, access road, and Bypass Pipe ditch. Bypass Pipe

headwalls would be constructed within an existing concrete embankment along Montgomery Drive. Excavation of a portion of the Bypass Pipe ditch would cross a degraded wetland. Gravel would be added to the access road near Melita Road that crosses a small off-channel wetland. Overall, the Vortex Tube repair would return the existing concrete structure to its original design. Combined these impacts would be less than 0.6 acre of sensitive natural communities (0.1 acre wetland and 0.5 acre aquatic and other water features [see section 3.4c]) and would not substantially change the character or function of the habitats. However, the permanent and temporary disturbance to aquatic and wetland habitats could be a significant impact. Implementation of Mitigation Measure BIO-5 would minimize the potential impact by complying with state and federal regulations that protect these aquatic resources. See Section 3.4c for a discussion of state and federal jurisdictional wetlands and mitigation measures.

The Proposed Project would be consistent with the County of Sonoma General Plan 2020 and City of Santa Rosa General Plan 2035 goals, objectives, and policies outlined above because the project would protect sensitive biological resources by avoiding or minimizing potential adverse impacts during construction and maintenance activities. The project description includes restricting vegetation disturbance, constructing during summer when fish and wildlife activity is low, and a revegetation plan to stabilize and revegetate disturbed areas with native plant species. The following mitigation measure would further protect sensitive biological resources: BIO-1 (Federally Listed Steelhead Protection Measures), BIO-2 (Special-Status Aquatic Species Relocation Out of Construction Areas), BIO-3 (Worker Environmental Awareness Training), and BIO-4 (Nesting Bird Protection Measures). Implementation of Mitigation Measure BIO-5 (Avoid, Minimize, or Compensate for Impacts to Jurisdictional Wetlands and Other Protected Waters) (see Section 3.4c below for details) would minimize the potential for significant adverse effects to aquatic resources. These actions would minimize disturbance to wetland and aquatic habitats during project construction and maintenance activities to a less than significant level with mitigation incorporated.

c. Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, and coastal, etc.) through direct removal, filling, hydrological interruption, or other means? – *Less than Significant with Mitigation Incorporated.*

There are state and federally protected wetlands and other protected water features in the Proposed Project area. A preliminary wetland evaluation estimated that there are approximately 0.20 acre of wetlands and 1.47 acres of “Waters of the US” under the jurisdiction of Section 404 of the Clean Water Act (CWA), and 3.32 acres of “Waters of the State” under the jurisdiction of Section 401 of CWA and under Section 1602 of the California Fish and Game Code in the project area. However, the Proposed Project would only temporarily and/or permanently impact a small portion of these jurisdictional

wetlands and “Waters”. Impact to wetlands would be less than 0.1 acre and would occur at the Bypass Pipe downstream work area, Bypass Pipe ditch, and when placing gravel on the access road near Melita Road. Impacts to other protected water features would be less than 0.5 acre and occur mainly in work areas.

Also, northern vernal pool was identified as occurring in the vicinity (CNDDB 2019); however, this seasonal wetland habitat does not occur in the project area.

Significant impacts to wetlands under the jurisdiction of USACE, NCRWQCB, and/or CDFW would occur during construction and maintenance activities of the Proposed Project. The project description includes restricting vegetation disturbance and a revegetation plan to stabilize and revegetate disturbed areas with native plant species. In addition, implementation of Mitigation Measure BIO-5 would further reduce impacts to wetlands from construction and maintenance activities to a less than significant level.

Mitigation Measure BIO-5: **Avoid, Minimize, or Compensate for Impacts to Jurisdictional Wetlands and Other Protected Waters.**

1. Construction activities resulting in the introduction of fill or other disturbance to jurisdictional wetlands and other protected waters may require a permit from the US Army Corps of Engineers (USACE) pursuant to Section 404 of the Clean Water Act (CWA), a Water Quality Certification from North Coast Regional Water Quality Control Board (NCRWQCB) pursuant to Section 401 of the CWA, and California Department of Fish and Wildlife (CDFW) has jurisdiction over streams and may require a Streambed Alteration Agreement (SAA) under Section 1602 of the California Fish and Game Code. Sonoma Water shall apply for permits from the appropriate regulatory agencies and comply with terms, which would likely include, but not necessarily limited to, the measures listed below:

    a) Delineate all jurisdictional wetlands and other protected waters in the Proposed Project area according to USACE protocol.

    b) Where soil removal is necessary in a wetland or drainage, the top 12 inches of soil will be stockpiled to maintain an onsite seed source. After excavation is complete, the stockpiled material will be returned and recontoured to the original topography. Supplemental native wetland seed mix will be applied, as needed.

    c) To account for temporal and permanent disturbance to wetland function, wetland habitat enhancement will be conducted on- or off-site. Enhancement will include one or more of the following: increasing native plant species abundance within the area impacted, managing invasive plants, installing native wetland vegetation on or offsite, and/or acquiring credit from an approved wetland mitigation bank. The appropriate mitigation ratio shall be

negotiated with the USACE and NCRWQCB and shall be no less than 1:1. The enhancement effort shall require implementation of a five-year monitoring program with applicable performance standards negotiated with the resource agencies, which will include criteria such as establishing 80 percent survival rate of restoration plantings, increase in vegetative cover by native plant species, and a self-sustaining habitat condition.

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

The Proposed Project would retain Santa Rosa Creek's riparian corridor in the project area that may be used for migration and movement by fish and wildlife. However, temporary impacts may occur during construction and maintenance activities. The project description includes a work schedule designed to minimize impacts to the movement of native resident or migratory fish species, including federally listed California Central Coast steelhead, by restricting work to the dry season when migration is limited. The upstream movement of fish would be restricted during project construction and maintenance activities when coffer dams are installed and the Bypass Pipe is in operation. Downstream movement of fish during construction and maintenance would be maintained through the Bypass Pipe. This temporary interruption of upstream passage of fish would have a negligible effect because most fish migrate and disperse during late fall to spring and the Proposed Project would be implemented during summer.

Wildlife use of the riparian corridor along Santa Rosa Creek would be minimally affected as access to the riparian forest in the project area would be maintained during construction and maintenance activities. Also, creek flow would be maintained during all project activities that would limit indirect effects of fish movement outside the project area.

The project would not interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites. Retaining the riparian corridor and avoiding the migration period for most fish would further reduce this potential impact to a level of less than significant and no mitigation is required.

e. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance? – *No Impact.*

Ordinance 6089 of the Sonoma County zoning code protects riparian corridors and functions along designated streams. Development setbacks of 50-200 feet are designated along most creeks and rivers outside of city boundaries. Prohibited activities within setbacks include grading, vegetation removal, agricultural cultivation, structures, roads, utility lines, and parking lots. Allowable land use and activities are described in

Section 26-65-040 of the ordinance including “stream maintenance and restoration carried out or overseen by the Sonoma County Water Agency.” The Proposed Project, to rehabilitate an existing flood control facility and install a bypass pipe, would comply with all zoning codes protecting riparian and stream corridors.

Article 67, Valley Oak Habitat Combining District, of the Sonoma County zoning code protects and enhances valley oaks and valley oak woodlands. This ordinance requires mitigation for the removal of large, 60-inch diameter, valley oak trees. However, exceptions include trees “dead or irretrievably damaged or destroyed by causes beyond the property owner’s control, including, without limitation, fire, flood, wind, lightning, or earth movement” (Section 26-67-030, item b). The Proposed Project would not affect any protected oak trees.

The Proposed Project would not remove any trees, would maintain the existing riparian corridor, have no conflict with county policies and ordinances protecting biological resources, and therefore would result no impact.

f. Conflict with the provisions of an adopted Habitat Conservation Plan (HCP), Natural Community Conservation Plan, or other approved local, regional, or state HCP? – *No Impact.*

There are no Habitat Conservation Plans or Natural Community Conservation Plans (NCCP) that include the project area (CDFW 2019, USFWS 2019). Therefore, the Proposed Project would not conflict with the provisions of an adopted or approved HCP or NCCP and there would be no impact.

3.5 Cultural Resources

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a. Cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5?	☐	☒	☐	☐
b. Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?	☐	☒	☐	☐
c. Disturb any human remains, including those interred outside of formal cemeteries?	☐	☒	☐	☐

Cultural Resource Setting

Prehistoric Setting

The concept of prehistory refers to the period of time before events were recorded in writing and varies worldwide. Because there is no written record, our understanding of California prehistory relies on archaeological materials and oral histories passed down through generations.

Early occupants of the Santa Rosa area 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 concurrent with the development of sedentism (the practice of living in one place for a long time) 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. These horizons or periods are marked by a transition from large projectile points and milling slabs, indicating a focus on hunting and gathering during the Early Period (2100 BC to 600 BC), to a marine focus during the Middle Period (600 BC to 1265 AD) evidenced by the number of shell mounds in the San Francisco Bay Area. The Middle Period also saw more reliance on acorns and the use of

bowl-shaped mortars and pestles. Acorn exploitation increased during the Late Period (1256 AD to 1770 AD) and the bow and arrow were introduced (Origer 2019).

Prehistoric archaeological site indicators expected to be found in the region include but are not limited to: obsidian and chert flakes and chipped stone tools; grinding and mashing implements such as slabs and hand-stones, and mortars and pestles; and locally darkened midden soils containing some of the previously listed items plus fragments of bone, shellfish, and fire affected stones (Origer 2019).

Ethnographic Setting

At the time of Euroamerican settlement, people inhabiting this area spoke Southern Pomo, one of seven Pomoan languages belonging to the Hokan language stock. The Southern Pomo's aboriginal territory falls within present-day Sonoma County. To the north, it reaches the divide between Rock Pile Creek and the Gualala River, and to the south it extends to near the town of Cotati. The eastern boundary primarily runs along the western flanks of Sonoma Mountain until it reaches Healdsburg, where it crosses to the west side of the Russian River. Within the larger area that constitutes the Southern Pomo homelands there were bands or tribelets that occupied distinct areas. Primary village sites of the Southern Pomo were occupied continually, while temporary sites were visited to procure 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 (Origer 2019).

The Southern Pomo population was decimated early in the historic period, especially in the southern part of their territory. Ethnic identity was severely impacted in the region of Santa Rosa and Sebastopol. By 1976, the few remaining Southern Pomo speakers were from north of Healdsburg (Origer 2019).

Historic Setting

Historically, the Proposed Project area is within the Los Guilicos Rancho granted to John (Juan) Wilson in 1837. When granted, it consisted of 18,834 acres that extended from Santa Rosa on the west side to Sonoma on the east side, with the town of Glen Ellen being on its southern end. The Proposed Project is outside of what was originally plotted as Santa Rosa. With the end of World War II, Santa Rosa experienced a population boom, much like the rest of the nation. To accommodate this growth, entire neighborhoods were erected in short order, and the outward movement of families to the suburbs, begun during the late nineteenth century, recommenced with due speed. Much of this growth was bolstered by benefits extended to returning service members and their families (Origer 2019).

Bolstered by post-war consumer confidence, new housing developments appeared, and with them the need for more schools, new churches, and new commercial enterprises. By the end of the 1950s, new commercial construction was usually located in the new suburbs at the edge of town (Origer 2019).

Historic period site indicators generally include fragments of glass, ceramic, and metal objects; milled and split lumber; and structure and feature remains such as building foundations and discrete trash deposits (e.g., wells, privy pits, dumps) (Origer 2019).

Results of Research and Surveys

Cultural resources studies were conducted by Tom Origer & Associates (Origer) for the Proposed Project area. Studies and archival record searches are compiled and summarized in the Origer report dated December 5, 2019 (Origer 2019). The studies included archival records searches at the Northwest Information Center (NWIC), Sonoma State University (NWIC File No. 19-0861); examination of the library and files of Origer; review of information from the Native American Heritage Commission (NAHC) Sacred Lands Files; and field inspection of the Proposed Project area.

The results of the Sacred Lands File review were that there are no buildings or structures listed in, or eligible for listing, in the National Register of Historic Places or the California Register of Historical Places within the Proposed Project area. Archival research found that no cultural resources have been identified within the Proposed Project area, although cultural resources have been identified within a quarter mile of the Proposed Project. There are no reported ethnographic sites within one mile of the project area. The field inspection found no archaeological sites within the Proposed Project area. Seasonal flooding, shallow ground water, and clay-rich soils would have combined to make the project area a less desirable location for habitation by historic and aboriginal populations. Based on the results of their field investigations, Origer (2019) concluded that there is a low potential for buried archaeological resources within the Proposed Project area.

Native American Outreach

On November 13, 2019, Sonoma Water obtained the list of tribes that are traditionally and culturally affiliated with the geographic area of the Proposed Project from the NAHC. On November 21, 2019, Sonoma Water notified the tribes on the list regarding the initiation of the Proposed Project in accordance with California State Assembly Bill 52 (AB52) and the CEQA Guidelines. The tribes notified included: Cloverdale Rancheria of Pomo Indians, Dry Creek Rancheria Band of Pomo Indians, Federated Indians of Graton Rancheria (Graton Rancheria), Guidiville Band of Pomo Indians, Kashia Band of Pomo Indians of the Stewards Point Rancheria, Lytton Rancheria of California, Middletown Rancheria of Pomo Indians of California, and Mishewal-Wappo Tribe of Alexander Valley.

Sonoma Water received a formal request from Graton Rancheria on January 3, 2020, for tribal consultation. Consultation with Graton Rancheria included Sonoma Water's sharing of the historical resources study prepared for the Proposed Project (Origer 2019), measures proposed for the project, and initial evaluation of potential for cultural and tribal resources impacts.

Discussion of Potential Impacts

In accordance with CEQA, the Proposed Project could result in potentially significant impacts to Cultural Resources if it would:

a. Cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5? – *Less than Significant with Mitigation Incorporated.*

As described in the Project Background and Existing Structures (Section 2.1), the Proposed Project site includes areas within the Santa Rosa Creek corridor that have been previously disturbed by construction activities. The Proposed Project would include excavation of aggraded creek sediments, some of which were deposited as recently as winter 2020, and roadbed material below Montgomery Drive.

No historical, archaeological, or cultural resources are known to occur within the Proposed Project area. Based on the Origer (2019) report, the potential for buried historical and archaeological resources within the Proposed Project area is low. While no resources have been recorded at the Proposed Project area, there is the potential to uncover previously unidentified historical or archaeological resources during ground disturbance. The disturbance, or damage, of a previously unidentified historical or archaeological resources would be a potentially significant impact. Implementation of Mitigation Measure CUL-1 (Inadvertent Discovery of Historical or Archaeological Resources) would reduce potential impacts to less than significant by ensuring that construction work would halt within 50 feet of an unanticipated find so that a qualified archaeologist and Native American representative could make additional recommendations if required. If the resource is determined to be a significant historical or unique archaeological resource, additional measures would be taken to minimize or avoid significant effects, which may include (but are not limited to): avoidance; capping the site; deeding the site into a permanent conservation easement; or data recovery excavation. Implementation of Mitigation Measure CUL-1 would minimize the potential for the Proposed Project to adversely affect historical or archaeological resources by requiring worker awareness training and halting work and implementing data recovery or preservation procedures and reduce the impact to less than significant.

Mitigation Measure CUL-1: Inadvertent Discovery of Historical and Archaeological Resources and Worker Awareness Training.

1. The contractor shall comply with Sonoma Water's Standard Contract Documents regarding the discovery of cultural resources, including Native American cultural resources and items of historical and archaeological interest. The Sonoma Water Construction Inspector and construction personnel will be notified of the possibility of encountering cultural resources during project construction.

    a. Prior to initiation of ground-disturbing activities, Sonoma Water shall arrange for construction personnel to receive training about the kinds of cultural materials that could be present at the project sites and protocols to be followed should any such materials be uncovered during construction. 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) shall provide appropriate archaeological training, including the purpose of the training to increase awareness and knowledge of tribal cultural resources and appropriate protocols in the event of an inadvertent discovery. The Tribal Monitor shall provide appropriate tribal cultural resources training as determined by the Tribe. Training may be required during different phases of construction to educate new construction personnel.

2. The project specifications will provide that if discovery is made of items of historical, archeological, or cultural interest, the contractor will immediately cease all work activities in the area of discovery. Historical, archaeological, and cultural indicators may include, but are not limited to, dwelling sites, locally darkened soils, stone implements or other artifacts, fragments of glass or ceramics, animal bones, and human bones. After cessation of excavation, the contractor will immediately contact Sonoma Water's Construction Inspector. The contractor will not resume work until authorization is received from the Construction Inspector.

    a. In the event of unanticipated discovery of archaeological materials occurs during construction, Sonoma Water shall retain the services of a qualified professional archaeologist who meets the U.S. Secretary of Interior's professional standards (48 CFR Parts 44738-44739 and Appendix A to 36 CFR 61) to evaluate the significance of the items prior to resuming any activities that could impact the site.

    b. In the case of an inadvertent archaeological discovery, if it is determined that the find is potentially eligible for listing in the California Register of Historical Resources and/or National Register of Historic Places, and the site cannot be

avoided, additional mitigation measures shall be implemented. Mitigation measures may include (but are not limited to): avoidance; capping the site; deeding the site into a permanent conservation easement; or data recovery excavation. Mitigation measures for historical resources shall be developed in consultation with responsible agencies, and the culturally affiliated Native American tribe. If data recovery excavation is necessary, Sonoma Water shall provide an Archaeological Resource Management and Data Recovery Plan, prepared by a qualified archaeologist, outlining recovery of the resource, analysis, and reporting of the find. The Archaeological Resource Management and Data Recovery Plan shall be approved by Sonoma Water and affected Native American tribe. Implementation of the Archaeological Resource Management and Data Recovery Plan shall be conducted prior to work being resumed.

b. Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5? – *Less than Significant with Mitigation Incorporated.*

No archaeological sites are known to occur within the Proposed Project area. While no resources have been recorded within the project area, there is potential to uncover previously unidentified archaeological resources during ground disturbance. The disturbance, or damage, of previously unidentified historical or archaeological resources would be a potentially significant impact. Implementation of Mitigation Measure CUL-1 (described above) would minimize the potential for the project to adversely affect archaeological resources by halting work and implementing data recovery or preservation procedures and reduce the impact to less than significant after mitigation.

c. Disturb any human remains, including those interred outside of formal cemeteries? – *Less than Significant with Mitigation Incorporated.*

No known historical or archaeological resources are located within the Proposed Project area and no human remains are anticipated to be discovered. However, if previously unknown human remains were inadvertently discovered during ground-disturbing activities, the impact would be significant. Implementation of Mitigation Measure CUL-2 (Inadvertent Discovery of Human Remains) would ensure proper procedures are followed if previously unknown human remains are discovered and the impact would be less than significant after mitigation is incorporated.

Mitigation Measure CUL-2: Inadvertent Discovery of Human Remains.

1. The project specifications will require the contractor to comply with Public Resources Code 5097.98 and Health and Human Safety Code 7050.5, as they pertain to the discovery of human remains. If human remains are encountered, the

contractor shall halt work within 50 feet of the find, and contact Sonoma Water's Construction Inspector and the Sonoma County Coroner in accordance with Public Resources Code Section 5097.98 and Health and Safety Code Section 7050.5. If the coroner determines the remains are Native American, the coroner will contact the Native American Heritage Commission. As provided in Public Resources Code Section 5097.98, 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 (MLD) makes recommendations for means of treating the human remains and any associated grave goods as provided in Public Resources Code Section 5097.98. Work shall cease in the immediate area until the recommendations of the appropriate MLD are concluded.

3.6. Energy

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a. Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	☐	☐	☒	☐
b. Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	☐	☐	☐	☒

Discussion of Potential Impacts

In accordance with CEQA, the Proposed Project could result in significant impacts to Energy Resources if it would:

a. Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation? – *Less than Significant.*

The Proposed Project would use fossil fuels (primarily gas, diesel, and motor oil) for vehicles and equipment required for the construction of the Proposed Project. The materials for construction also require energy to manufacture, process, and transport. The energy required for construction of the Proposed Project would be temporary, with construction scheduled for approximately four months. The use of fuels would not be wasteful or unnecessary because their use is required to complete the project. As described in the project description the Proposed Project's construction specifications will incorporate the Bay Area Air Quality Management District's Basic Construction Measures (BAAQMD 2017a) that avoid wasteful, inefficient, or unnecessary consumption of energy resources by minimizing equipment and idling times by either shutting equipment off when not in use or limiting idling time to five minutes or less. These measures are also included as Mitigation Measure AIR-1. Vehicle trips and equipment use associated with the operation and maintenance of the Proposed Project would be temporary and intermittent in nature, and would only occur as needed. Therefore, the Proposed Project would have less than significant impact on energy resources and no mitigation is required.

b. Conflict with or obstruct a state or local plan for renewable energy or energy efficiency? – *No Impact.*

The Energy Action Plan (EAP) was jointly adopted by the California Energy Commission (CEC), the California Power Authority (CPA), and the California Public Utilities Commission (CPUC) in 2003. The EAP listed goals for California's energy future and set forth a commitment to achieve these goals through specific actions. In 2005, the CPUC and the CEC jointly prepared the EAP II to identify the further actions necessary to meet California's future energy needs (CPUC 2005). Additionally, the CEC prepared the State Alternative Fuels Plan in partnership with the California Air Resources Board and in consultation with the other state, federal, and local agencies. The alternative fuels plan presents strategies and actions California must take to increase the use of alternative non-petroleum fuels in a manner that minimizes costs to California and maximizes the economic benefits of in-state production (CEC 2007).

Locally, the Sonoma County 2020 General Plan includes goals to promote energy conservation (Goal OSRC-14) and to increase use of renewable energy resources (OSRC-15) (SCPRMD 2008). Construction, operation, and maintenance of the Proposed Project would not conflict with or obstruct implementation of the EAP, EAP II, the State Alternative Fuels Plan or General Plan goals. Therefore, the Proposed Project would have no impact related to state or local plans for renewable energy and energy efficiency.

3.7 Geology and Soils

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a. Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☒	☐
ii. Strong seismic ground shaking?	☐	☐	☒	☐
iii. Seismic-related ground failure, including liquefaction?	☐	☐	☒	☐
iv. Landslides?	☐	☐	☒	☐
b. Result in substantial soil erosion or the loss of topsoil?	☐	☒	☐	☐
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 an on-site or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?	☐	☐	☒	☐
d. Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?	☐	☐	☒	☐

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
e. Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of waste water?	☐	☐	☐	☒
f. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☐	☒

Geology and Soils Setting

Regional Tectonism and Older Rocks

The geology and structure of Sonoma County has been shaped through a dynamic history of tectonism along the San Andreas Fault Zone (GOES 2000). The northwest-southeast alignment of this fault zone with its characteristic right-lateral strike-slip tensional movement is reflected in the alignment and orientation of the region's ridgelines and valleys. Movement along the fault zone was not only lateral, but also included compression resulting in the mountain building of the Coast Ranges, including the Proposed Project area. In geologic terms, this combination of lateral tension plus compression is known as transpression. In Sonoma County, the main artery of the San Andreas Fault roughly follows Highway 1 near the coast. The Healdsburg-Rodgers Creek and Mayacama faults represent more interior arms of the San Andreas system, sharing its same orientation. The Proposed Project is located near the Healdsburg-Rogers Creek fault.

The San Andreas Fault has been relatively quiet in Sonoma County since the historic 1906 earthquake (magnitude 8.3). The Healdsburg-Rogers Creek and Mayacama faults are considered active faults with known activity during the Holocene period (last 10,000 years). Of recent note, in 1969 two moderate earthquakes (magnitudes 5.6 and 5.7) along the Rogers Creek Fault caused moderate damage in Santa Rosa.

The distribution and sequence of rock types in the Proposed Project vicinity reflect the area's geologic history (Norris and Webb 1990). The oldest rocks include the Great Valley Complex with its tilted marine sedimentary layers, mostly sandstones and shales, which underlays much of the project area. The hills surrounding the project vicinity are

composed of the Huichica and Glen Ellen Formations and Sonoma Volcanics (Wagner and Bortugno 1982). The geology of the project area, located along the lowlands of Santa Rosa Creek, is described as Older Alluvium from the Pleistocene (Wagner and Bortugno 1982) and older deposits along channels from the Holocene (see BAGG Engineering 2019, which better characterizes the stream deposited material present).

Soils

At the association level, soils are generally distinguished according to their geomorphic and topographic setting, whether they are in basins, tidal flats, floodplains, terraces, alluvial fans, high terraces, foothills, uplands, and mountains. In general, the soils in the lowland basins, floodplains, and alluvial fans range from gravelly sandy loams to clays; most often composed of clays and clay loams that formed in alluvium from sedimentary and volcanic material. These soils vary in drainage capacity from poor to excessive, with the more clay-textured soils draining more poorly. The soils on the high terraces, foothills, uplands, and mountains consist of gravelly to stony sandy loams to clay loams and range in drainage capacity from moderate to excessive, with the coarser textured soils draining better.

While inherent erodibility is important in considering a soil's potential erosion, often it is the slope, type of land use, and intensity of land practices which are the more important determinants of potential erosion. Most of the Santa Rosa Creek headwaters upstream of the project area have high erosion potential. The Soil Survey of Sonoma County identifies soils in the project vicinity as loam to silty clay loam (USDA 1990); however, the project area is more characteristic of alluvial lands with native riverwash soils adjacent to Montgomery Drive. Montgomery Drive is an elevated roadway built on an artificial levee composed of clayey gravel and sand (BAGG Engineering 2019).

Discussion of Potential Impacts

In accordance with CEQA, the Proposed Project could result in potentially significant impacts to Geology and Soils if it would:

a. Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving: i. rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault?; ii. strong seismic ground shaking; iii. seismic-related ground failure, including liquefaction; iv. landslides? – *Less than Significant.*

The Proposed Project is located in a geologically active area and would be subject to ground shaking as a result of earthquake activity on any of a number of faults in the region. The nearest active fault is Healdsburg-Rogers Creek fault located approximately

three miles to the west (GOES 2000). Maximum ground accelerations and other earthquake-induced hazards could be sufficient to damage the project area. The Vortex Tube and Bypass Pipe would be located below Montgomery Drive, which consists mainly of course-grained fill material underlain by native alluvial soils that could be unstable. However, the potential for liquefaction, landslide, and erosion is very low because most of the roadbed below Montgomery Drive consists of stable engineered fill material and embankments on both sides of Montgomery Drive are reinforced by concrete.

The Proposed Project activities would not directly or indirectly substantially affect, or be affected by, risks related to seismic events or other geologic hazards. In the long-term, the repair of the Vortex Tube would reduce the risk of failure of the structure during an earthquake. Therefore, this impact is less than significant, and no mitigation is required.

b. Result in substantial soil erosion or the loss of topsoil? – *Less than Significant with Mitigation Incorporated.*

The Proposed Project is located primarily at an existing concrete flood control structure within the flood zone of Santa Rosa Creek. Most of the substrate in the project area consists of cobble and gravel deposited during winter flooding and soil is very limited, which reduces the potential for soil erosion. The Proposed Project's description includes a revegetation plan that would stabilize exposed soils, reduce erosion, and quickly revegetate disturbed habitat areas with appropriate native plant species. The revegetation plan includes seeding with a mix of native grass, sedge and/or form species after activities are complete during the fall and prior to the first significant rainfall (significant rainfall is defined as a forecast of 50% or greater chance of precipitation). Seed mix would be applied to disturbed work areas with exposed soil above the creek's shoreline. Biodegradable erosion control fabric, hydromulch, or other mechanism would be applied as appropriate to provide protection to seeds, hold them in place, and help retain moisture. Work areas that are concrete-lined or have a substrate of gravel and cobble deposited by creek flows would not be seeded. No trees would be removed for the Proposed Project. The plan includes inspections of seeded areas after winter rains and implementation of corrective measures, including additional seeding, planting of native nursery stock plantings, and/or installation of erosion control fabric. Implementation the Proposed Project's revegetation plan would avoid the potential for substantial soil erosion or loss of topsoil and result in a less than significant impact; however, the plan is included as Mitigation Measure GEO-1 to ensure that the measures would be implemented as part of the project and further reduce potential for substantial soil erosion or loss of topsoil.

Mitigation Measure GEO-1: Implementation of Revegetation Plan.

1. Sonoma Water will conduct site revegetation that will include seeding with a mix of native grass, sedge and/or forb species after activities are complete during the fall and prior to the first significant rainfall (significant rainfall is defined as a forecast of 50% or greater chance of precipitation).

    a. Seed mix will be applied to disturbed work areas with exposed soil above the creek's shoreline.

    b. Biodegradable erosion control fabric, hydromulch, or other mechanism will be applied as appropriate to provide protection to seeds, hold them in place, and help retain moisture. Work areas that are concrete-lined or have a substrate of gravel and cobble deposited by creek flows will not be seeded.

        i. If erosion control fabric is used, fabric will consist of natural fibers that will biodegrade over time. No plastic or other non-porous material will be used as part of a permanent erosion control approach. Erosion control fabric will be anchored in place. Anchors can include U-shaped wire staples, metal geotextiles stake pins or wooden stakes. The manufacturer's installation recommendations will be followed.

2. Sonoma Water will inspect seeded areas after the first winter rain events. If evidence of erosion is detected, corrective measures would be implemented including additional seed application, installation of native nursery stock plantings, and/or installation of erosion control fabric.

3. Sonoma Water will prepare a monitoring report describing the success of revegetation and any corrective measures implemented annually for five years.

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 an on-site or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse? – *Less than Significant.*

The Vortex Tube and Bypass Pipe would be located below Montgomery Drive that consists of course-grained engineered fill material and native alluvial soils, which could be unstable. However, the potential for landslide, lateral spreading, subsidence, liquefaction, or collapse is very low because the Proposed Project would be constructed within the existing concrete Santa Rosa Creek Diversion Structure. In addition, a geotechnical investigation of the subsurface conditions in the project area concluded that

the Proposed Project's design is adequate to create a stable structure (BAGG 2019). Therefore, this impact is less than significant, and no mitigation is required.

d. Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property? – *Less than Significant.*

Although most of the material below Montgomery Drive in the project area is course-grained fill and native alluvium, layers of expansive clay soils were found during geotechnical engineering studies (BAGG 2019). Expansive soils are characterized by the ability to undergo significant volume change (shrink and swell) as a result of variation in soil moisture content. The Bypass Pipe construction alignment below Montgomery Drive would avoid expansive soils and the existing fill material is capable of accommodating the Bypass Pipe construction (BAGG Engineering 2019). Therefore, this impact is less than significant, and no mitigation is required.

e. Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of waste water? – *No Impact.*

The Proposed Project would not result in the generation of wastewater, nor involve the construction or modification of any septic tanks or alternative wastewater disposal systems. As such, the Proposed Project would have no impact.

f. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature? – *No Impact.*

The Proposed Project would consist of repairing an existing concrete culvert (Vortex Tube) and installing a Bypass Pipe through mainly engineered fill material and alluvial soils (stream deposits) located beneath Montgomery Drive and above bedrock. The underlying geology in the Proposed Project includes sedimentary rock from the Holocene and Pleistocene that could contain paleontological resources (fossils). However, the Proposed Project is not located in an area known for paleontological resources or geologic features. Also, the sedimentary rock layer would be avoided. Construction and maintenance of the Proposed Project would not directly or indirectly impact unique paleontological or geologic resources and there would be no impact.

3.8 Greenhouse Gas Emissions

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

Discussion of Potential Impacts

In accordance with CEQA, the Proposed Project could result in potentially significant impacts to Greenhouse Gas Emissions if it would:

a. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment? – *Less than Significant.*

Construction activities associated with the Proposed Project would include infrastructure repair for a flood protection facility that would occur over the course of approximately four months. The majority of the Project-related greenhouse gas (GHG) emissions would be generated onsite from the use of heavy-duty off-road equipment, including an excavator, a large crane, a water truck, etc. The equipment operation hours per day and number of required workdays would vary depending on the specific type of equipment and on the construction activity. GHG emissions would also be generated off-site associated with construction worker daily commutes and material and debris hauling.

As described in Section 3.3 Air Quality, the Proposed Project is located within the San Francisco Bay Area Air Basin, which is under the jurisdiction of the BAAQMD. The BAAQMD does not have an adopted threshold of significance for construction related GHG emissions. However, the BAAQMD identifies operations-related thresholds of significance for GHG emissions. The quantitative threshold for non-stationary source projects is annual operational emissions of more than 1,100 metric tons of carbon dioxide equivalent (CO2e) (BAAQMD 2017a). For comparative purposes, an analysis using

BAAQMD's threshold of 1,100 metric tons of CO2e per year for non-stationary source projects was applied to the Proposed Project.

For projects that are linear in nature (e.g., road or levee construction, pipeline installation, transmission lines), BAAQMD recommends using the most current version of Sacramento Metropolitan Air Quality Management District's (SMAQMD) Road Construction Emissions Model (RoadMod) to quantify construction-related GHG emissions. The Proposed Project emissions that would be generated during construction were estimated using the latest version of SMAQMD RoadMod (Version 9.0.0) (SMAQMD 2018). Modeling details can be found in Appendix D. The Proposed Project would result in a total GHG emission of approximately 353 metric tons CO_{2e}, which is well below BAAQMD's operational threshold of 1,100 metric tons CO_2e per year. Therefore, GHG emissions generated during construction of the Proposed Project would be a less-than-significant impact and no mitigation is required.

Long term operation and maintenance of the Proposed Project would involve periodic operation (approximately every five years) of the Bypass Pipe and inspection of the Vortex Tube, which would result in negligible sources of GHG emissions. Therefore, there would be a minimal net change in long-term baseline conditions as a result of the project and the impact would be less than significant and no mitigation is required.

b. Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases? – *No Impact.*

Existing plans and policies aimed at reducing GHG emissions apply to a variety of sources such as residential, transportation, agriculture, water, waste management and industry. There are no adopted GHG-related plans, policies, or regulations that are directly applicable to the Proposed Project, which is an infrastructure maintenance project and would not result in land use changes, population growth or new development of any kind. As described in Section 3.3 and 3.8.a., the project would not exceed the BAAQMD air pollutant and GHG emission thresholds. Therefore, the Proposed Project would not conflict with any applicable plan, policy, or regulation to reduce GHG emissions and there would be no impact.

3.9 Hazards and Hazardous Materials

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☒	☐
b. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☒	☐	☐
c. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☐	☒
d. Be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	☒
e. For a project located within an airport land use plan area or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?	☐	☐	☐	☒

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
f. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☒	☐
g. Expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires?	☐	☐	☒	☐

Discussion of Potential Impacts

In accordance with CEQA, the Proposed Project could result in potentially significant impacts to Hazards and Hazardous Materials if it would:

a. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials? – *Less than Significant.*

The Proposed Project would involve the temporary, routine transport and handling of small quantities of hazardous substances such as diesel fuels, lubricants, and solvents for equipment during construction and periodic maintenance activities. Sonoma Water staff and contractors would be required to use, store, and transport hazardous materials in accordance with local, state, and federal regulations, including California Occupational Safety and Health Administration (Cal/OSHA) and California Department of Toxic Substances Control (DTSC) requirements and manufacturer's instructions, during project construction and maintenance activities. The Proposed Project would be required to implement and comply with existing hazardous material regulations; therefore the routine transport, use, and disposal of hazardous materials would be unlikely to result in a significant hazard to the public or the environment. There would be no operational transport, use or disposal of hazardous materials. Therefore, this impact would be less than significant.

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? – *Less than Significant with Mitigation Incorporated.*

There are no reported or anticipated sources of hazardous material contamination within the project site. The Proposed Project would involve the temporary, routine transport and handling of small quantities of hazardous substances such as diesel fuels, lubricants, and solvents for equipment during construction and periodic maintenance activities. Sonoma Water staff and contractors would be required to use, store, and transport hazardous materials in accordance with local, state, and federal regulations, including California Occupational Safety and Health Administration (Cal/OSHA) and California Department of Toxic Substances Control (DTSC) requirements and manufacturer's instructions, during project construction and maintenance activities. The Proposed Project would be required to implement and comply with existing hazardous material regulations; therefore, the project would be unlikely to result in a significant hazard to the public or the environment. If these fuels and lubricants were released into the water or ground during application or equipment refueling or maintenance, contamination and harm to the environment could result in 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. There would be no operational transport, use or disposal of hazardous materials. Implementation of Mitigation Measure HAZ-1 would further minimize the potential effects of an unforeseeable release of hazardous materials. The potential impact would be reduced to less than significant with implementation of Mitigation Measure HAZ-1.

Mitigation Measure HAZ-1: Spill Prevention and Response

Sonoma Water will require the contractors, through project specifications, to prepare a Storm Water Pollution Prevent Plan (SWPPP). The SWPPP shall comply with Caltrans Storm Water Pollution Prevention Plan and Water Pollution Control Program Preparation Manual and the Caltrans Construction Site Best Management Practices Manual. Sonoma Water will require contractors, through project contract specifications, and maintenance staff to follow the SWPPP during all project activities as well as implement the following measures:

1. All field personnel shall be appropriately trained in spill prevention, hazardous material control, and cleanup of accidental spills.
2. Equipment and materials for cleanup of spills will be available on site and spills and leaks will be cleaned up immediately and disposed of in accordance with local, state, and federal regulations.
3. Spill prevention kits shall always be in close proximity when using hazardous materials (e.g., crew trucks and other logical locations). Spill clean-up materials will be stockpiled where they are readily accessible. All field personnel shall be advised of these locations and trained in their appropriate use.

4. During construction and maintenance activities, Sonoma Water staff and contractor(s) will routinely inspect the work site to verify that items 1-4 above are properly implemented and maintained.
5. Absorbent materials will be used on small spills located on impervious surface rather than hosing down the spill; wash waters shall not discharge to the storm drainage system or surface waters. For small spills on pervious surfaces such as soils, wet materials will be excavated and properly disposed rather than burying it. The absorbent materials will be collected and disposed of properly and promptly.
6. Vehicle and equipment maintenance activities will be conducted off-site or in a designated, protected area away from the creek channel equipped with secondary containment and designed to avoid a direct connection to underlying soil, surface water, or the storm drainage system. For stationary equipment that must be fueled on-site, secondary containment, such as a drain pan or drop cloth, shall be provided in such a manner to prevent accidental spill of fuels to underlying soil, surface water, or the storm drainage system.
7. All vehicles and equipment will be kept clean. Excessive build-up of oil or grease will be avoided. Incoming vehicles and equipment will be checked for leaking oil and fluids (including delivery trucks, and employee and subcontractor vehicles). Leaking vehicles or equipment will not be allowed on-site.

c. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school? – *No Impact.*

There are no schools located within 0.25 mile of the project area. The Proposed Project would involve the temporary, routine transport and handling of small quantities of hazardous substances such as diesel fuels, lubricants, and solvents for equipment during construction and periodic maintenance activities that would be used in accordance with local, state, and federal regulations. There would be no operational transport, use or disposal of hazardous materials. Therefore, there would be no impact to local schools.

d. Be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment? – *No Impact.*

A search for existing known contaminated sites in the project area on the State Water Resource Control Board's GeoTracker database (SWRCB 2019) was conducted. No contaminated or remediation sites are located at or in the vicinity of the Project area and therefore, there would be no impact.

e. For a project located within an airport land use plan area or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area? – *No Impact.*

The Proposed Project is not located within 2 miles of a public airport or public use airport. Airports in the project vicinity consist of Charles M. Schulz Sonoma County Airport located approximately 10 miles to the northwest, Santa Rosa Memorial Hospital Heliport 4 miles to the west, and Graywood Ranch Airport 4 miles to the southeast. Proposed Project activities would not interfere with airport operations, would not involve the use of any equipment that would affect aircraft utilizing any airports in Sonoma County, and would not result in a substantial safety hazard to people residing or working in vicinity of airports. Therefore, there would be no impact.

f. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan? – *Less than Significant.*

During construction and maintenance activities infrequent one-lane road closures, which may cause delays, may be necessary on Montgomery and Channel drives and Melita Road. If lane closures or traffic generated by project activities were to interfere with emergency response measures such that response times were extended, a significant impact would result. However, the Proposed Project would ensure that temporary lane closures are avoided or minimized and advanced notice provided in the project area to avoid inadequate emergency access by implementation of Mitigation Measure TRA-1. The Proposed Project would have a less-than-significant impact on emergency response or evacuations during construction and maintenance.

g. Expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires? – *Less than Significant.*

Proposed Project construction, maintenance, and operations activities would not involve placement of people or habitable structures that would result in exposure to a significant risk of wildland fires. The Proposed Project area is outside of a Fire Hazard Zone and Wildfire Hazard Rating area (Santa Rosa 2007; Geo Elements undated). Therefore, this impact would be less than significant, and no mitigation is necessary.

3.10 Hydrology and Water Quality

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a. Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality?	☐	☒	☐	☐
b. Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	☐	☐	☐	☒
c. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:				
i. result in substantial erosion or siltation on- or off-site;	☐	☐	☒	☐
ii. substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;	☐	☐	☐	☒
iii. create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or	☐	☐	☐	☒
iv. impede or redirect flood flows?	☐	☐	☒	☐

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
d. In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	☐	☐	☐	☒
e. Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	☐	☐	☒	☐

Hydrology and Water Quality Setting

Sonoma County has a Mediterranean climate characterized by warm, dry summers and mild, moist winters. The majority of annual precipitation in this region occurs as rain that falls during the period between November and April. Annual precipitation varies but average precipitation during the last century was 31 inches. Precipitation patterns in the region are influenced by local topography; correspondingly, mean annual precipitation generally increases with elevation. Stream discharge is determined by precipitation runoff bringing higher flows during winter and lower flows supported by groundwater during dry summer conditions.

Surface Water Quality

The mix of urban, rural, agricultural, and undeveloped land uses within the project vicinity contributes to varied pollutant types that currently exist in Santa Rosa Creek. Runoff from urban areas can entrain pollutants including sediment, oil and grease, heavy metals, pesticides, and debris. Agricultural pollutants can include contaminants from livestock manure and chemical fertilizers. Rural residences can potentially contribute pollutants through faulty sewage disposal systems.

The Regional Water Quality Control Boards in California implement water quality control plans (basin plans), which characterize the region's natural water quality, potential beneficial uses, water quality problems, and defines programs to achieve the water quality objectives (NCRWQCB 2018). The Proposed Project is within the Russian River Hydrologic Unit and is covered by North Coast Region Basin Plan implemented by NCRWQCB.

Groundwater Resources

The principal water-bearing materials in Sonoma County are the alluvial deposits and sedimentary units of the valleys as well as some of the volcanic rocks. Natural recharge takes place along streams, rivers, and through direct infiltration of precipitation through surficial and permeable portions of the water-bearing materials. Development in these areas can increase surface runoff and reduce groundwater quality and recharge capability.

The Sustainable Groundwater Management Act (SGMA) was enacted in 2014. SGMA requires governments and water agencies in high and medium priority basins to form Groundwater Sustainability Agencies (GSAs) to manage groundwater sustainably and adopt Groundwater Sustainability Plans (GSP). The Proposed Project is located in the Santa Rosa Valley-Rincon Valley Groundwater Basin within the North Coast hydrologic region (CDWR 2020). This basin is designated as a "very low" priority and no GSA has been formed and no GSP developed.

Discussion of Potential Impacts

In accordance with CEQA, the Proposed Project could result in potentially significant impacts to Hydrology and Water Quality if it would:

a. Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality? – *Less than Significant with Mitigation Incorporated.*

Water quality and waste discharge are regulated under the federal Clean Water Act and NCRWQCB issues Water Quality Certifications as required by Section 401 of the Act. Sonoma Water would request and comply with all provisions of the issued Water Quality Certification. The Proposed Project's construction and maintenance activities would require work within the Santa Rosa Creek channel. The Proposed Project would avoid or minimize accidental releases of sediment and contaminants from ground disturbance during construction and maintenance activities by isolating the work area with coffer dams, filtering water during dewatering, and allowing poured concrete to cure before contact with flowing creek water to prevent changes in water chemistry that could affect aquatic life as described in the project description. Staging and stockpiling of materials during construction and maintenance activities within the project area, but outside the creek bed, could result in discharges that could potentially result in degradation of surface waters, which would be a potentially significant impact. Mitigation Measure HWQ-1 would be implemented to minimize the potential for construction and maintenance activities to result in discharges that could degrade surface waters. The following mitigation measures would further limit the potential for impacts to surface and groundwater quality Mitigation

Measure HAZ-1 (Spill Prevention and Response) and Mitigation Measure GEO-1 (Implementation of Revegetation Plan). Implementation of these mitigation measures would reduce the level of impact to surface and groundwater quality to less than significant.

Mitigation Measure HWQ-1: Staging and Stockpiling of Materials

Sonoma Water will require contractors, through project contract specifications, and maintenance staff to implement the following:

1. Staging will occur on work areas, access roads, surface streets, designated stockpile areas, or other disturbed areas that are already compacted and only support ruderal vegetation. Similarly, all equipment and materials will be contained within the existing service roads, paved roads, or other pre-determined staging and stockpile areas.
2. All project-related items, including equipment, stockpiled material, temporary erosion control treatments, and trash, will be removed within 72 hours of project completion.
3. As necessary, to prevent sediment-laden water from being released back into the channel during transport of spoils to disposal locations, truck beds will be lined with an impervious material (e.g., plastic), or the tailgate blocked with wattles, hay bales, or other appropriate filtration material. Trucks may drain excess water by slightly tilting the loads and allowing the water to drain out through the applied filter, only within the active work area where the sediment is being loaded into the trucks.
4. No runoff from the staging areas will be allowed to enter waters of the State, including the creek channel or storm drains, 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.

b. Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin? – *No Impact.*

The Proposed Project is located in the Santa Rosa Valley-Rincon Valley Groundwater Basin (CDWR 2020). This basin is designated as a “very low” priority and no GSP has been developed. The Proposed Project consists of repairing an existing concrete flood control facility and would not change the existing groundwater conditions as such the Proposed Project would not impact groundwater supplies or impede management. There would be no impact.

c. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:

The Proposed Project would repair the Vortex Tube to its original design and not alter the existing drainage pattern of Santa Rosa Creek or increase impervious surfaces. Temporary operation of the Bypass Pipe during construction and periodic maintenance would direct creek flow around the Vortex Tube but would not substantially change the drainage through the existing Santa Rosa Creek Diversion Structure. Below are responses to Section 3.8b sub-questions:

i.) result in substantial erosion or siltation on- or off-site; – *Less than Significant*

As described in Section 3.7b (Geology and Soils), the Proposed Project would not substantially cause erosion or siltation.

ii.) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite; – *No Impact*

The structures constructed for the Proposed Project are within the existing Santa Rosa Creek Diversion Structure, are mainly underground, and therefore would not affect surface runoff and cause flooding. There would be no impact.

iii.) create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or – *No Impact*

The Proposed Project repairs would return the Vortex Tube to its original flood control design capacity and would not create or contribute runoff water. Also, the Proposed Project is a flood control conveyance structure and would not be a source of polluted runoff. There would be no impact.

iv.) impede or redirect flood flows? – *Less than Significant*

As mentioned above, the Proposed Project would temporarily divert Santa Rosa Creek flows during the summer low flow season and would not impede or redirect flood flows that typically occur during winter.

Overall, intent of the Proposed Project is to repair an existing flood control structure to its original design that would have a less-than-significant effect on the existing drainage pattern. No mitigation is required.

d. In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation? – *No Impact.*

The Proposed Project area is inland from the coast and is outside the influence of large water bodies. Consequently, seiche or tsunami events could not influence the project area. The Santa Rosa Creek Diversion Structure, including the Vortex Tube, is part of the Central Sonoma Watershed Project that was developed to reduce the risk of flooding in the Santa Rosa area. Implementing the Proposed Project would maintain the existing flood control facility and manage flooding. Also, there would be no source of pollutants onsite during the winter flood (inundation) season. Therefore, no impact from tsunami, seiche, or pollutants due to inundation would occur and no mitigation is required.

e. Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan? – *Less than Significant.*

The Proposed Project is within the North Coast Region Basin Plan implemented by the NCRWQCB. The Basin Plan requirements would be followed through the conditions of the Proposed Project's Water Quality Certification, as stated in Mitigation Measure BIO-5 (Avoid, Minimize, or Compensate for Impacts to Jurisdictional Wetlands and Other Protected Waters). In addition, the Proposed Project is not expected to violate any water quality standards, see Section 3. 10a. There is no GSP for the Proposed Project area. Overall, the Proposed Project would not conflict with or obstruct existing water quality or groundwater management plans. The impact would be less than significant, and no mitigation is required.

3.11 Land Use and Planning

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a. Physically divide an established community?	☐	☐	☐	☒
b. Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☐	☒

Discussion of Potential Impacts

In accordance with CEQA, the Proposed Project could result in potentially significant impacts to Land Use and Planning if it would:

a. Physically divide an established community? – *No Impact.*

The Proposed Project would not permanently affect access to any of the surrounding land uses, nor create any new permanent, physical barriers between developed areas. Therefore, the Proposed Project would not divide an established community and there would be no impact.

b. Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect? – *No Impact.*

As described in Section 2.6, the Sonoma County General Plan 2020 Zoning and Land Use Designation for the Proposed Project area is Urban Service Area. This general plan designation allows for urban development, such as high density residential, commercial and industrial (SCPRMD 2008). The Proposed Project site is classified as “Medium Density Residential” by the City of Santa Rosa General Plan 2035. This land use classification allows for housing densities from 8.0 to 18.0 units per gross acre and a range of housing types, including single family attached and multifamily developments, and is intended for specific areas where higher density is appropriate (Santa Rosa 2009).

Santa Rosa Creek is located within the Proposed Project area. The County of Sonoma Code of Ordinances, Chapter 26, and Regulation Article 65 established the Riparian

Corridor Combining Zone to protect habitat areas within and along riparian corridors and includes protection measures such as streamside conservation areas and setbacks, prohibited uses and permit requirements. Allowed land uses and activities under Regulation Article 65, Section 26-65-040 include “stream maintenance and restoration carried out or overseen by the Sonoma County Water Agency [Sonoma Water].”

The Proposed Project’s repair of an existing flood control facility would not conflict with the current land use designations or regulations. Project activities would not result in new development and land would not be altered from its present use. Implementation of the Proposed Project would protect existing development and land uses by maintaining an existing flood control facility. The Proposed Project would support existing land use plans and would not result in incompatibilities with existing and adjacent land uses. The Proposed Project would not cause an environmental impact due to a conflict with a land use plan, policy, or regulation and there would be no impact.

3.12 Mineral Resources

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

Discussion of Potential Impacts

In accordance with CEQA, the Proposed Project could result in potentially significant impacts to Mineral Resources if it would:

a. Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state? – *No Impact.*

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? – *No Impact.*

There are no mineral resource areas in Proposed Project area identified in the Sonoma County General Plan 2020 (SCPRMD 2008) or City of Santa Rosa General Plan 2035 (Santa Rosa, 2009). The Proposed Project construction, maintenance, and operation would not involve any activities that would result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state or of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan. Therefore, there would be no impact.

3.13 Noise

Would the Project result in:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a. Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in a local general plan or noise ordinance, or applicable standards of other agencies?	☐	☒	☐	☐
b. Generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☒	☐
c. For a project located within the vicinity of a private airstrip or an airport land use plan area, or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒

Noise Setting

The primary contributors to the noise environment in the Proposed Project area include vehicle traffic on adjacent roads; airplane over-flights; sounds emanating from residences; and naturally occurring sounds such as wind and wildlife, etc. The nearest roadway in the Proposed Project area is Montgomery Drive. The nearest sensitive receptors (residences) are located approximately 140 feet to the east of the Proposed Project area.

Discussion of Potential Impacts

In accordance with CEQA, the Proposed Project could result in potentially significant impacts to Noise Resources if it would:

a. Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in a local

general plan or noise ordinance, or applicable standards of other agencies? – *Less than Significant with Mitigation Incorporated.*

Sonoma County currently does not have a noise ordinance. The Sonoma County General Plan 2020 contains the following policy related to construction equipment and vehicles: Policy NE-1i: County equipment and vehicles shall comply with adopted noise level performance standards consistent with the best available noise reduction technology (SCPRMD 2008). The General Plan also provides guidance for reviewing new permanent projects and new transportation projects but does not address review of temporary construction noise.

The Proposed Project is located within the City of Santa Rosa Urban Boundary and the City of Santa Rosa's Noise Ordinance would apply. Section 17-16 of the City of Santa Rosa's Noise Ordinance limits permanent noise levels produced by stationary mechanical equipment to 60 dBA (A-weighted decibels, a measurement of sound) during daytime hours (7:30AM to 6:30PM), to 55 dBA during evening hours (6:30PM to 10:00PM), and to 50 dBA at night (10:00PM to 7:30AM) at single family residential property lines. The City of Santa Rosa Noise Ordinance does not set limits for construction noise. The Proposed Project is not a new stationary development project that would generate operational noise; therefore, the City of Santa Rosa's City Code is not applicable to the Proposed Project.

Traffic noise dominates the noise environment at the Proposed Project area. For reference, heavy traffic at a distance of 300 feet has a noise level of 60 dBA and a quiet urban area during the daytime of 50 dBA (Caltrans 2015). Construction of the Proposed Project would require heavy equipment, though use would be temporary and localized. Table 3.13-1 lists the anticipated equipment use period for construction of the Project and the reference noise level that would be generated by the equipment use. The reference noise levels presented in Table 3.13-1 are based on information provided by the U.S. Department of Transportation (USDOT 2006).

Table 3.13-1. Anticipated equipment use periods and reference noise levels for the Proposed Project.

Equipment description	Anticipated equipment use period*	Reference noise level (Lmax at 50 feet [dBA])**
Dump Truck	6 weeks	76
Drill Rig Truck	1 week	79
Roller	2 weeks	80
Concrete Truck	2 weeks	81
Crane	4 weeks	81
Excavator	6 weeks	81
Boring Power Unit	1 week	83
Compactor (ground)	2 weeks	83
Auger Drill Rig	1 week	84
Chain Saw	1-2 days	84
Vibratory Pile Driver	0.5 day	101

*Equipment use would be intermittent and vary from day to day throughout the given use period.

**Lmax is the highest measure of magnitude of the varying noise source quantity within the measuring period. Reference noise level source: USDOT (2006).

As shown in Table 3.13-1, the typical noise levels that would be produced during project construction would range from 76 to 84 dBA at 50 feet and occur intermittently during the 4-month construction period. For reference, riding on a lawn tractor presents an average noise exposure of 86 to 96 dBA, depending on the model (Mahoney et al. 2017). The equipment that would produce the loudest noise during project construction would be the vibratory pile driver (101 dBA at 50 feet); however, this equipment would be used briefly for up to a half day. The nearest sensitive noise receptor is a residence approximately 140 feet east of the project site.

The Proposed Project construction and maintenance activities could cause a temporary increase in noise in the project vicinity. The Proposed Project would restrict construction and maintenance activities to the hours of 7:00 a.m. to 7:00 p.m. Monday through Friday, and 8:00 a.m. to 6:00 p.m. on Saturdays. No construction or maintenance would be scheduled on Sundays or on holidays, Limiting construction and maintenance activities to the stated time periods would ensure that construction noise would not result in a substantial temporary or periodic increase in ambient noise levels that would result in annoyance or sleep disturbance of nearby sensitive receptors. Operation of the Proposed Project would resemble the existing operations at the project site and would not result in an increase in existing noise levels. There would be no permanent increase in ambient noise levels as a result of implementation of the Proposed Project. Implementation of Mitigation Measure NOI-1 would restrict noise producing construction activities to daytime

hours on Monday through Saturday. Therefore, there would be a less-than-significant impact with mitigation incorporated.

Mitigation Measure NOI-1: Avoid and Minimize Ambient Noise during Construction and Maintenance Activities

Sonoma Water will require contractors, through project contract specifications, and maintenance staff to implement in the following:

1. Work will be limited to the hours of 7:00 a.m. to 7:00 p.m. Monday through Friday, and 8:00 a.m. to 6:00 p.m. on Saturday. No construction shall be permitted on Sunday or on holidays.
2. Power equipment (vehicles, heavy equipment, and hand equipment such as chainsaws) will be equipped with manufacturer's sound-control devices, or alternate sound control that is no less effective than those provided as original equipment. Equipment will be operated and maintained to meet applicable standards for construction noise generation. No equipment will be operated with an unmuffled exhaust.

b. Generation of excessive groundborne vibration or groundborne noise levels? – *Less than Significant.*

Construction equipment can generate perceptible groundborne vibration and groundborne noise, which varies depending on the vehicle type, weight, and soil/pavement conditions. Construction of the Proposed Project would include the use of equipment that generates groundborne vibration. The nearest sensitive receptors (residences) are located approximately 140 feet to the east of the Proposed Project area. People residing in this area could potentially be exposed to temporary groundborne vibration or groundborne noise levels during project construction. Continuous vibrations with a peak particle velocity of approximately 0.1 inch/second begin to cause annoyance (Caltrans 2015).

Groundborne vibration typically attenuates (diminishes) over short distances. Table 3.13-2 lists the reference peak particle velocity (PPV; a measurement of vibration) for typical construction equipment at a distance of 25 feet and the attenuated PPV at 140 feet (the distance from the project to the nearest receptor). The reference vibration source levels listed in Table 3.13-2 are based on information provided by the Federal Transit Administration (FTA 2018).

Table 3.13-2. Vibration Source Levels for Construction Equipment at 25 feet and Attenuated at 140 feet (Proposed Project Distance to Nearest Sensitive Noise Receptor).

Equipment	Reference PPV at 25 Feet (inch/second)*	Attenuated PPV at 140 feet (inch/second)**
Pile Driver (vibratory), upper range	0.734	0.055
Pile Driver (vibratory), typical	0.17	0.013
Vibratory Roller	0.21	0.016
Large bulldozer	0.089	0.007
Caisson drilling	0.089	0.007
Loaded trucks	0.076	0.006
Jackhammer	0.035	0.003

*PPV = peak particle velocity (a measurement of vibration).

**Attenuated PPV = PPVref x (25/D)1.5 where attenuated PPV = peak particle velocity of the equipment adjusted for distance (inch/second), PPVref = the source reference vibration level at 25 ft (inch/second) and D = distance from the equipment to the receptor (feet).

The vibratory pile driver would produce the greatest groundborne vibration levels during construction of the Proposed Project. The vibration levels generated by the vibratory pile drivers at the nearest sensitive receptor (approximately 140 feet away) to the project would be a PPV of 0.005 inch/second. At the distance from the project construction area to the nearest sensitive receptor, and with the anticipated construction equipment, the PPV would be less than the vibration threshold of potential annoyance of 0.1 inch/second. Therefore, construction-generated vibrations are not expected to significantly impact sensitive receptors. The Proposed Project would restrict construction and maintenance activities to the hours of 7:00 a.m. to 7:00 p.m. Monday through Friday, and 8:00 a.m. to 6:00 p.m. on Saturdays. No construction or maintenance would be scheduled on Sundays or on holidays. Operation of the Proposed Project would resemble the existing operations at the project site and would not result in generation of groundborne vibration or groundbourne noise. The Proposed Project would not result in generation of excessive groundborne vibration or groundborne noise levels. Implementation of Mitigation Measure NOI-1 (Avoid and Minimize Ambient Noise during Construction and Maintenance Activities) would further minimize the impact. Therefore, the impact would be less than significant.

c. For a project located within the vicinity of a private airstrip or an airport land use plan area, or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels? – *No Impact.*

The Proposed Project is not located within or near an airport land use area or the vicinity of a private airstrip, see Section 3.9e for more details. Furthermore, as described above in Sections 3.13a and 3.13b, the Proposed Project would not generate excessive noise, groundborne vibration or groundborne noise levels. Therefore, there would be no impact.

3.14 Population and Housing

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a. Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☐	☒
b. Displace a substantial number of existing people or housing units, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

Discussion of Potential Impacts

In accordance with CEQA, the Proposed Project could result in potentially significant impacts to Population and Housing if it would:

a. Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)? – *No Impact.*

The Proposed Project would not involve new development or extension of infrastructure that could directly or indirectly induce population growth in the area, nor would the Proposed Project create the demand for additional housing. Therefore, the Proposed Project would have no impact.

b. Displace a substantial number of existing people or housing units, necessitating the construction of replacement housing elsewhere? – *No Impact.*

The Proposed Project would not displace any existing housing units or persons and would not require construction of replacement housing elsewhere. Therefore, there would be no impact.

3.15 Public Services

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a. Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the following public services:				
i. Fire protection?	☐	☐	☐	☒
ii. Police protection?	☐	☐	☐	☒
iii. Schools?	☐	☐	☐	☒
iv. Parks?	☐	☐	☒	☐
v. Other public facilities?	☐	☐	☐	☒

Discussion of Potential Impacts

In accordance with CEQA, the Proposed Project could result in potentially significant impacts to Public Services if it would:

a) i, ii. Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the following public services: fire protection; police protection? – *No Impact.*

The Proposed Project would not increase the population in the project area, nor would it alter the existing population distribution temporarily or permanently that could increase

the need for additional governmental facilities. The Proposed Project would not increase demand for fire and police protection and there would be no impact.

a) iii, v. Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the following public services: schools; other public facilities? – *No Impact.*

The Proposed Project does not include any activity that would affect the demand for schools or other public facilities and there are no schools in the vicinity of the project. Project activities would be short in duration and small in scale. The project's activities would repair a flood control facility, which, if not maintained, could negatively affect the operation of public flood protection facilities and the Montgomery Drive roadway. Therefore, the Proposed Project would have no adverse impact on schools or other public facilities and may have beneficial flood protection effects from maintenance of the Vortex Tube.

a) iv. Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the following public services: parks? – *Less than Significant.*

The Proposed Project's staging area along Channel Drive (Figure 2.1-2) is owned by Sonoma Water and consists of a gravel area over an underground pipeline and service structures. However, this area is available to the public, when not in use by Sonoma Water, and is typically used for parking by visitors to the nearby Trione-Annadel State Park. Formal parking is available nearby within the State Park. The Proposed Project would temporarily limit public use of the Sonoma Water-owned property during construction and maintenance activities, would not result in a need for new or physically altered governmental facilities, and therefore, would be a less than significant impact and no mitigation is required.

3.16 Recreation

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a. Would the Project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☒	☐
b. Does the Project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	☐	☐	☐	☒

Discussion of Potential Impacts

In accordance with CEQA, the Proposed Project could result in potentially significant impacts to Recreation if it would:

a. Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated – *Less than Significant.*

As noted in Section 3.14 Population and Housing, the Proposed Project would not result in population growth that could increase the use of existing neighborhood and regional parks.

Project staging of equipment and materials would occur adjacent to Channel Drive in the project area (Figure 2.1-2). This area is owned by Sonoma Water and consists of a gravel area often used by the public for parking and access to the nearby Trione-Annadel State Park. Closing the gravel area used for informal parking could result in an increase in the use of the State Park designated parking facility located at 6201 Channel Drive in Santa Rosa, California (approximately 0 5 mile east of the project). However, the increase in the use of the parking facility is anticipated to be small, would be intermittent and temporary in nature and would cease following project construction. The small and temporary increase in the use of the State Park designated parking facility would not cause or

accelerate substantial deterioration of the facility. Therefore, the potential impacts to recreational facilities would be less than significant and no mitigation is required.

b. Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment – *No Impact.*

The Proposed Project does not include recreational facilities and would not require the creation or expansion of recreational facilities. Therefore, there would be no impact.

3.17 Transportation

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a. Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	☐	☐	☐	☒
b. Conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b)?	☐	☐	☐	☒
c. Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☐	☒
d. Result in inadequate emergency access?	☐	☒	☐	☐

Transportation Setting

The Proposed Project is located within the City of Santa Rosa Urban Boundary and contains or is adjacent to three roads. Montgomery Drive crosses the project area and connects residential neighborhoods to commercial centers. Melita Road is a local street that provides access to rural residences and small neighborhoods. Channel Drive is a local street that provides access to a small neighborhood and terminates at Trione-Annadel State Park. There are no bike lanes and walking paths in the project area, although Channel Drive is used by hikers and bicyclists to access Trione-Annadel State Park.

There are no public transportation services along the Proposed Project area roadways. The nearest service is a bus route along Highway 12, approximately one-half mile north of the project area, that connects the Santa Rosa area and Oakmont.

County of Sonoma General Plan 2020

The County of Sonoma General Plan 2020 Circulation and Transit Element includes goals, objectives, and policies that support movement of automobiles and support alternative modes of transportation. Regarding construction of projects that could impact circulation, particularly for bicycles and pedestrians, the General Plan includes the following policy:

> **Policy CT-3z:** Require road construction projects to minimize their impacts on bicyclists and pedestrians through the proper placement of construction signs and equipment and by providing adequate, safe, well-marked detours. Where it is safe to do so, allow bicyclists and pedestrians to pass through construction areas in order to avoid detours. Where two-way bicycle and pedestrian travel can be safely accommodated in a one-way traffic control zone, adequate signage shall be placed to alert motorists of bicycles and pedestrians in the lane (SCPRMD 2008).

City of Santa Rosa General Plan 2035 and Bicycle & Pedestrian Master Plan

The City of Santa Rosa General Plan 2035 Transportation Element contains goals and policies to reduce traffic congestion and support alternative modes of transportation, including the following:

> **Goal T-B:** Provide a safe, efficient, free-flowing circulation system.
>
> **Goal T-J:** Provide attractive and safe streets for pedestrians and bicyclists.

The City of Santa Rosa Bicycle and Pedestrian Master Plan adds to the City's General Plan 2035 by presenting goals, policies, and recommendations to support current and future facilities available for pedestrians and bicyclists. In particular, the Bicycle and Pedestrian Master Plan proposes to increase access and comfort for people to use pedestrian and bicycle facilities, maintain and expand the network of pathways available, and support a culture of walking and biking (Santa Rosa, 2018).

Sonoma County Transportation Authority Moving Forward 2040

The Sonoma County Transportation Authority's (SCTA) Comprehensive Transportation Plan, called Moving Forward 2040, outlines the following goals:

1. Maintain the System
2. Relieve Traffic Congestion
3. Reduce Greenhouse Gas Emissions
4. Plan for Safety and Health
5. Promote Economic Vitality

To support these goals, Moving Forward 2040 proposes road and transit projects that would improve circulation of vehicles and promote alternative modes of transportation.

Discussion of Potential Impacts

In accordance with CEQA, the Proposed Project could result in potentially significant impacts to Transportation if it would:

a. Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities? – *No Impact.*

The Proposed Project is not a transportation project. The project's construction, maintenance, and operation activities would be consistent with the goals and objectives of the City of Santa Rosa and Sonoma County General Plans and SCTA Comprehensive Transportation Plan by maintaining the existing roadways in the project area. Also, there are no bicycle or pedestrian facilities in the project area. There are no conflicts with City and County programs, plans, ordinances or policies regarding transportation and no mitigation is needed.

b. Conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b)? – *No Impact.*

CEQA Guidelines Section 15064.3, subdivision (b) describes specific considerations for evaluating a project's transportation impacts, which is measured by "vehicle miles traveled" (VMT) and refers to the amount and distance of automobile travel that is attributable to a project.

The County of Sonoma has not yet adopted VMT policies. The City of Santa Rosa has published final draft *Vehicle Miles Traveled Guidelines* (Santa Rosa 2020) to identify key elements required for preparing and reviewing transportation analysis studies in Santa Rosa. The City of Santa Rosa's final draft guidelines require a transportation analysis "when any one or more of the following conditions are met:

1. The project has the potential to create a significant environmental transportation impact under CEQA (see below criteria from OPR)
2. A project with unique land uses or operating characteristics, as determined by the City Traffic Engineer or his/her/their designee
3. The project requires discretionary planning approval and was not previously analyzed under a prior transportation analysis or similar study
4. A transportation project that is likely to lead to a substantial or measurable increase in VMT" (Santa Rosa 2020).

The City of Santa Rosa's final draft guidelines also identify thresholds of significance, relying on the California Governor's Office of Planning and Research (OPR) published *Technical Advisory on Evaluating Transportation Impacts in CEQA* (OPR 2018) (referred to herein as the OPR Technical Advisory), which provides guidelines on the implementation of SB 743. The thresholds of significance are as follows:

"In accordance with OPR's guidelines for CEQA, a project could have significant transportation impact on the environment if it:

a) Conflicts with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadways, bicycle and pedestrian facilities;

b) Conflicts with or is inconsistent with CEQA Guidelines section 15064.3(b);

c) Substantially increases hazards due to geometric design feature (e.g. sharp curves or dangerous intersections) or incompatible uses (e.g. farm equipment);

d) Results in inadequate emergency access" (Santa Rosa 2020).

In addition, CEQA Guidelines Section 15064.3(b) provides the following criteria for analyzing transportation impacts:

1. Land Use Project. Vehicle miles traveled exceeding an applicable threshold of significance may indicate a significant impact. Generally, projects within ½ mile of either an existing major transit stop or a stop along an existing high-quality transit corridor should be presumed to cause a less than significant transportation impact. Projects that decrease vehicle miles traveled in the project area compared to existing conditions should be presumed to have a less than significant transportation impact.

2. Transportation Projects. Transportation projects that reduce, or have no impact on, vehicle miles traveled should be presumed to cause a less than significant transportation impact. For roadway capacity projects, agencies have discretion to determine the appropriate measure of transportation impact consistent with CEQA and other applicable requirements. To the extent that such impacts have already been adequately addressed at a programmatic level, such as in a regional transportation plan EIR, a lead agency may tier from that analysis.

The Proposed Project is not a land use or transportation project as described in CEQA Guidelines Section 15064.3(b). The Proposed Project is a flood control facility maintenance project. A transportation analysis is not required by the City of Santa Rosa's guidelines because the Proposed Project does not have the potential to create a

significant environmental transportation impact per CEQA Guidelines Section 15064.3(b) (not a land use or transportation project), it is not a project with unique land uses or operating characteristics, the project does not require discretionary planning approval and was not previously analyzed under a prior transportation analysis or similar study, and it is not a transportation project that is likely to lead to a substantial or measurable increase in VMT.

The Proposed Project's construction and maintenance activities would not generate long-term net increase in VMT. Construction activities would occur over a period of 4 months. There would be up to 15 construction workers per site on a peak day, and they would commute to and from the worksite primarily before or after peak traffic hours (Table 3.17-1). Parking for worker vehicles and construction vehicles would be available in designated on-site staging areas or adjacent roads and parking lots. Operation of the Proposed Project would resemble the existing operations at the project site and would not result in a long-term net increase in VMT.

Table 3.17-1. Vehicle Miles Traveled (VMT) Due to Project-related Construction Activities.

Type of Trip	Workers per Site	Estimated Worker Trips per Construction Day (one-way)	Construction Days per Site	Trips Related to Equipment and Material Drop-off and Pick-up per Site	Estimated Distance per Trip (miles round trip)	Total VMT per Site
Worker Commute	15	30	5		20	600
Soil Hauling				21	40	840
Asphalt				1	40	40
Water truck				8	40	320
Total						**1,800**

Per the Governor's Office of Planning and Research's Technical Advisory: On Evaluating Transportation Impacts in CEQA (OPR 2018), the term "automobile" in Guidelines Section 15064.3 means cars and light trucks, which only includes the "Worker Commute" category of trips above. As there are fewer than 110 trips per day, this project can be screened as a small project that has a less than significant impact (OPR 2018).

In addition, the Proposed Project would not exceed the City of Santa Rosa's thresholds of significance as it would not conflict with a program, plan, ordinance, or policy addressing the circulation system, would not conflict with CEQA Guidelines Section 15064.3(b), would not substantially increase hazards due to geometric design or

incompatible uses (see Section 3.7c, Transportation), and would not result in inadequate emergency access (see Section 3.7d, Transportation).

Therefore, the project would not conflict with or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b). There would be no impact.

c. Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)? – *No Impact.*

The Proposed Project does not include geometric design features or incompatible uses. There would be no increase in hazards generated by the project or any changes to the existing designs or uses of roadways. Therefore, there would be no impact.

d. Result in inadequate emergency access? – *Less than Significant with Mitigation.*

The Proposed Project does not include any structures that would permanently block or constrain roadways and would not result in inadequate emergency access. As described in Section 3.9f, Hazards and Hazardous Materials, construction and maintenance activities may require infrequent one-lane road closures on Montgomery and Channel drives and Melita Road, which may cause delays of short duration immediately adjacent to the project site. Operation of the Proposed Project would resemble the existing operations at the project site and would not result in inadequate emergency access. If lane closures or traffic generated by Project construction and maintenance activities were to interfere with emergency access such that response times were extended, a significant impact would result. The infrequent, short duration one-lane road closures adjacent to the project site would not result in inadequate emergency access and the impact would be less than significant. To further minimize the potential impact, Mitigation Measure TRA-1 would be implemented during construction and maintenance activities to ensure emergency access is maintained.

Mitigation Measure TRA-1: Traffic Control Measures

Sonoma Water will require contractors, through project contract specifications, and maintenance staff to implement the following:

1. Construction and maintenance activities will be staged and conducted in a manner that maintains two-way traffic flow on public roadways in the vicinity of the work site to the maximum extent practicable. If temporary lane closures are necessary, they will be coordinated with the City of Santa Rosa at least seven days prior to commencement of closure and scheduled to occur outside of peak traffic hours (7:00 – 10:00 a.m. and 3:00 – 6:00 p.m.). Work will be coordinated

so that emergency vehicles and personnel shall be provided immediate access at all times.

2. Traffic control and safety precautions shall conform to the “California Manual on Uniform Traffic Control Devices” (latest edition), and applicable provisions of the City of Santa Rosa encroachment permits.
3. Traffic control and safety precautions shall provide safe passage for vehicular and pedestrian traffic through the work at all times.
4. Subject to encroachment permit requirements, traffic on two-lane streets may be reduced to one lane provided that restriction of traffic flow, flaggers, cones, signs, and barricades are furnished as required by Sonoma Water. Traffic shall be permitted equal flow time in each direction.
5. At least seven days prior to commencement of work, notify residents along the Proposed Project roadways, in writing, that traffic flows will be subject to detours and/or delays, and that access to individual driveways may be disrupted during working hours. Notice will also be provided in writing to the property owner.
6. At least seven days prior to commencement of work, post notifications in the Proposed Project area to inform drivers of impending construction work and likely delays and detours.
7. Access for driveways and private roads will be maintained. If brief periods of construction would temporarily block access, property occupants would be notified, in writing, at least three days in advance of blocking property occupants’ driveways. Notice will also be provided in writing to the property owner.
8. Adequate off-street parking will be provided or designated public parking areas will be used for workers' personal vehicles and construction-related vehicles not in use through the maintenance period.

3.18 Tribal Cultural Resources

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

Tribal Cultural Resources Setting

Public Resources Code section 21074 defines tribal cultural resources as either of the following: (1) sites, features, cultural landscapes, sacred places, and objects with cultural value to a California Native American Tribe that are either of the following: (A) included or determined to be eligible for inclusion in the California Register of Historical Resources; (B) included in a local register of historical resources as defined in subdivision (k) of Section 5020.1; (2) a resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Section 5024.1. In applying the criteria set forth in subdivision (c), of

Section 5024.1 for the purposes of this analysis, the lead agency shall consider the significance of the resource to a California Native American tribe.

As described in Section 3.5 Cultural Resources, seasonal flooding, shallow ground water, and clay-rich soils would have combined to make the Proposed Project area a less desirable location for habitation by historic and aboriginal populations. In the modern era, the project area and surrounding vicinity has largely been developed. Santa Rosa Creek, which runs through the project site, was channelized in 1963. There are no buildings or structures listed in, or eligible for listing, in the National Register of Historic Places or the California Register of Historical Places within the Proposed Project area. Based on the Origer (2019) archival research and field investigations of the project area, the potential for buried historical or archaeological site indicators within the Proposed Project area is low.

Native American Outreach

As described in Section 3.5 Cultural Resources, Sonoma Water obtained the list of tribes that are traditionally and culturally affiliated with the geographic area of the Proposed Project from the NAHC. On November 21, 2019, Sonoma Water notified the tribes on the list regarding the initiation of the Proposed Project in accordance with Assembly Bill AB 52 (AB52) and the CEQA Guidelines. Sonoma Water received a formal request from Graton Rancheria on January 3, 2020 for tribal consultation. Consultation with Graton Rancheria included Sonoma Water's sharing of the historical resources study prepared for the Proposed Project, measures proposed for the project, and initial evaluation of potential for cultural and tribal resources impacts.

Discussion of Potential Impacts

In accordance with CEQA, the Proposed Project could result in potentially significant impacts to Tribal Cultural Resources if it:

Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:

a. Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k)? – *No Impact.*

As described above, there are no buildings or structures listed in, or eligible for listing, in the National Register of Historic Places or the California Register of Historical Places within the Proposed Project area. Therefore, there would be no impact.

b. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe? – ***Less than Significant with Mitigation Incorporated.***

As described above, there are no known historical, archeological, or tribal cultural resources within the Proposed Project area. While no resources have been recorded within the project area, there is potential to uncover previously unidentified tribal cultural resources during ground disturbance. The disturbance or damage of previously unidentified tribal cultural resources would be a potentially significant impact. Based on consultation with Graton Rancheria, Sonoma Water is including a measure to have a tribal cultural resource monitor present during project ground disturbing activities. Implementation of Mitigation Measure CUL-3 (Tribal Monitor and Archaeologist During Ground-disturbing Activities) and Mitigation Measures CUL-1 and CUL-2 (Section 3.5) would minimize the potential for the project to adversely affect tribal cultural resources by ensuring that a tribal monitor is present during ground disturbing activities, providing worker awareness training, halting work and implementing recovery or preservation procedures, and would reduce the impact to less than significant.

Mitigation Measure TCR-3: Tribal Monitor and Archaeologist During Ground-disturbing Activities

1. During ground-disturbing activities, a qualified archaeologist and representative from a culturally affiliated tribe shall be present to monitor ground-disturbing activities.

3.19 Utilities and Service Systems

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

Discussion of Potential Impacts

In accordance with CEQA, the Proposed Project could result in potentially significant impacts to Utilities and Service Systems if it would:

a. Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects? – *No Impact.*

The Proposed Project includes repair and maintenance of a flood control facility that does not include any uses, features, or facilities that would require potable water, generate wastewater, electric power, natural gas, or telecommunications or relocations of such facilities. The Proposed Project would not expand the capacity of any existing storm water drainage facility. The Proposed Project would repair and maintain the existing flood conveyance capacity of the Santa Rosa Creek Diversion Structure. As such, there would be no impact related to water and wastewater facilities, storm water drainage, or other utility.

b. Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years? – *Less than Significant.*

The Proposed Project does not involve future development requiring water supply (see Section 3.19a). The Proposed Project may require water for dust control during construction and maintenance activities, on-site vehicle cleaning, and irrigation of seeds and young plants associated with revegetation. These water uses would be infrequent, short-term, and provided by a water truck that is supplied from a nearby water hydrant or other source. Thus, this impact would be less than significant, and no mitigation would be required.

c. Result in a determination by the wastewater treatment provider that serves or may serve the Project that it has inadequate capacity to serve the Project's projected demand in addition to the provider's existing commitments? – *No Impact.*

The Proposed Project does not involve development requiring wastewater treatment (see Section 3.19a). Therefore, there would be no impact.

d. Generate solid waste in excess of state or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals? – *Less than Significant.*

The Proposed Project would not create a permanent source of solid waste; however, there would be small amounts of debris and trash generated during construction and maintenance activities. Debris and trash would be regularly removed and disposed of at the Sonoma County Central Landfill or similar facility that is compliant with federal, state, and local regulations. The Proposed Project would not generate solid waste in excess of state or local standards or in excess of local infrastructure or otherwise impair attainment of solid waste goals. This impact is less than significant, and no mitigation is required.

e. Comply with federal, state, and local management and reduction statutes and regulations related to solid waste? – *Less than Significant.*

The Proposed Project would generate a small amount of debris and trash during construction and maintenance activities and would comply with all federal, state, and local regulations related to solid waste. Therefore, there would be a less than significant impact.

3.20 Wildfire

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

Wildfire Setting

The Proposed Project area is located within a Local Responsibility Area (LRA) and the City of Santa Rosa's Fire Department. Local fire districts are responsible for fire suppression and prevention within LRAs. The City of Santa Rosa is preparing a Community Wildfire Protection Plan (CWPP). The draft CWPP, prepared by Geo Elements LLC, identifies the Proposed Project area with a Wildfire Hazard Rating of unburnable to low hazard rating (Geo Elements undated). However, the mountainous areas surrounding the project area have a High to Very High Wildfire Hazard Rating (Geo Elements undated).

Discussion of Potential Impacts

In accordance with CEQA, the Proposed Project could result in potentially significant impacts to Wildfire if it would be located in or near state responsibility areas or lands classified as very high fire hazard severity zones and would:

a. Substantially impair an adopted emergency response plan or emergency evacuation plan? – *Less than Significant.*

The Proposed Project area has a Wildfire Hazard Rating of unburnable to low hazard rating (Geo Elements undated). However, the mountainous areas surrounding the project area have a High to Very High Wildfire Hazard Rating (Geo Elements undated). During construction activities infrequent one-lane road closures, which may cause delays, may be necessary. If lane closures or traffic generated by project activities were to interfere with emergency response measures such that response times were extended, a significant impact would result. However, the Proposed Project would not result in inadequate emergency access, as described in Section 3.17d, Transportation. Implementation of Mitigation Measure TRA-1 during construction and maintenance activities would ensure emergency access is maintained. The Proposed Project would have a less-than-significant impact on emergency response or evacuation planning. No mitigation is required.

b. Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire? – *Less than Significant.*

The Proposed Project area has a Wildfire Hazard Rating of unburnable to low hazard rating (Geo Elements undated). The mountainous areas surrounding the project area have a High to Very High Wildfire Hazard Rating (Geo Elements undated). However, the project area consists of concrete structures, asphalt and gravel roads, Santa Rosa Creek, and riparian/wetland vegetation that is unburnable or low hazard rating (Geo Elements undated) and construction, maintenance, and operation would not exacerbate the risk of wildfire. Conditions at the project site would not exacerbate wildfire risks. Project work crews would only be onsite during temporary construction and maintenance activities. Montgomery Drive and Channel Drive are surface roads within the project area that provide emergency access routes for work crew evacuation. The Proposed Project would not result in inadequate emergency access, as described in Section 3.17d, Transportation. Implementation of Mitigation Measure TRA-1 during construction and maintenance activities would ensure emergency access is maintained. As such, the Proposed Project would minimize the risk of wildfire and minimize the exposure of occupants to wildfire pollutants or uncontrolled wildfires to a less than significant level and no mitigation is required.

c. Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment? – *Less than Significant.*

The Proposed Project's activities consist of construction and repair of underground structures that would not increase the risk of wildfire. The Proposed Project would not require the installation or maintenance of infrastructure such as roads, fuels breaks, emergency water sources, power lines or other utilities that may exacerbate fire risk. Therefore, to the impact would be less than significant and no mitigation is required.

d. Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes? – *No Impact.*

The Proposed Project consists of repair and maintenance of a flood control facility. Damage to the concrete and metal Santa Rosa Creek Diversion Structure, including the Vortex Tube, from wildfire is very unlikely. As such, the post-fire impact from slope instability, drainage changes, landslides, or flooding is very unlikely. Conversely, the proper operation of the Diversion Structure would reduce the post-fire impact related to flooding if wildfire should occur in the upper Santa Rosa Creek watershed. Therefore, there would be no impact.

3.21 Mandatory Findings of Significance

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a. Does the Project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory?	☐	☒	☐	☐
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.)	☐	☐	☒	☐
c. Does the Project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	☒	☐

Discussion of Potential Impacts

a. Does the Project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the

major periods of California history or prehistory? – *Less than Significant with Mitigation Incorporated.*

Potentially significant impacts from the Proposed Project were identified for wetlands, inadvertent discovery of cultural resources, and unidentified tribal cultural resources. For more details please refer to the impact discussions presented in Sections 3.4c (Biological Resources), 3.5a-c (Cultural Resources), and 3.18b (Tribal Cultural Resources). The Proposed Project includes mitigation measures that would minimize these impacts to a less-than-significant level. The Proposed Project with incorporation of the mitigation measures would not have a significant environmental impact on any of the 20 factors listed on the Environmental Checklist and described in Sections 3.1 to 3.20.

b. Does the Project have impacts that are individually limited but cumulatively considerable? – *Less than Significant.*

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

The Santa Rosa Creek Diversion Structure was built in 1963 to reduce flooding in the City of Santa Rosa. Sonoma Water conducts regular (often annual) maintenance of the Santa Rosa Creek Diversion Structure for flood control under the Stream Maintenance Program (SMP). The SMP maintains over 75 miles of engineered flood control infrastructure and implements Best Management Practices and mitigation (such as pre-construction surveys for sensitive resources and on-site habitat restoration) that reduce the program's potential impacts to less than significant. The maintenance of the Santa Rosa Creek Diversion Structure under the SMP includes sediment removal and vegetation management to maintain the flood capacity of the structure. The Proposed Project would restore the Vortex Tube, one of the key structural elements responsible for proper hydraulic function of the Diversion Structure. The project would have less than significant impacts during construction and maintenance, and in the long-term the Project would have beneficial effects by extending the useful life of the Vortex Tube. When considered together, the less than significant impacts of the Proposed Project and ongoing SMP activities do not result in significant cumulative effects.

c. Does the Project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly? – *Less than Significant.*

The Proposed Project consists of the repair and maintenance of an existing flood control facility. The Project actions would not alter the human population or community in the vicinity. There may be construction-related temporary impacts to humans associated with aesthetics, air quality, geology and soils, hazards and hazardous materials, noise, public services, transportation, and wildfire that with implementation mitigation measures would be less-then-significant. Please refer to the impact discussions presented in Sections 3.1 through 3.20. In addition, the Proposed Project would benefit the inhabitants of Santa Rosa by reducing the risk of flooding. As such, the Proposed Project would have a less-than-significant impact on human beings.

4.0 Determination

On the basis of this initial evaluation:

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

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

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

☐ I find that the Proposed Project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

☐ I find that although the Proposed Project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier 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: 8.26.20

Grant Davis - General Manager

5.0 List of Preparers

Sonoma County Water Agency

Jessica Martini-Lamb	Sonoma Water Environmental Resources Manager
David Cook	Sonoma Water Senior Environmental Specialist
Candace Messner	Sonoma Water Environmental Specialist
Carlos Diaz	Sonoma Water Engineer
Grant Davis	Sonoma Water General Manager
Verne Ball	Sonoma Deputy County Counsel

Origer and Associates

6.0 References

Airline Toll-Free Numbers and Websites (Airline). 2019. Sonoma County Public and Private Airports, California. Available: http://www.tollfreeairline.com/california/sonoma.htm. Accessed December 2, 2019.

BAGG Engineering. 2019. Geotechnical engineering investigation, vortex tube rehabilitation project Santa Rosa Creek diversion channel Santa Rosa, California.

Bay Area Air Quality Management District (BAAQMD). 2017a. California Environmental Quality Act Air Quality Guidelines, May 2017. Available: http://www.baaqmd.gov/plans-and-climate/california-environmental-quality-act-ceqa/updated-ceqa-guidelines. Accessed December 2, 2019.

Bay Area Air Quality Management District (BAAQMD). 2017b. Final 2017 Clean Air Plan. April 9, 2017. Available: http://www.baaqmd.gov/plans-and-climate/air-quality-plans/current-plans. Accessed December 2, 2019.

Bay Area Air Quality Management District (BAAQMD). 2019. Air Quality Standards and Attainment Status. Available: http://www.baaqmd.gov/research-and-data/air-quality-standards-and-attainment-status. Accessed December 2, 2019.

Burridge, B. 1995. Sonoma County breeding bird atlas. Madrone Audubon Society. 216p.

California Department of Conservation (CDOC). 2016. California Important Farmland Finder. Available: https://maps.conservation.ca.gov/DLRP/CIFF/. Accessed December 2, 2019.

California Department of Fish and Wildlife (CDFW). 2006. Stream inventory report. Santa Rosa Creek. Available at Sonoma County Water Agency, Santa Rosa, CA.

California Department of Fish and Wildlife (CDFW). 2019. California sensitive natural communities. Available: https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=153609&inline.

California Department of Transportation (Caltrans). 2011. Traffic Noise Analysis Protocol. May 2011. Available: https://dot.ca.gov/-/media/dot-media/programs/environmental-analysis/documents/traffic-noise-protocol-may2011-a11y.pdf. Accessed December 2, 2019.

California Department of Transportation (Caltrans). 2015. Noise Study Report. April 2015. Available: https://dot.ca.gov/programs/environmental-analysis/noise-vibration. Accessed December 2, 2019.

California Department of Transportation (Caltrans). 2019. Scenic Highway System Lists. Available: https://dot.ca.gov/programs/design/lap-landscape-architecture-and-community-livability/lap-liv-i-scenic-highways. Accessed December 2, 2019.

California Department of Water Resources (CDWR). 2020. SGMA basin prioritization dashboard. Available: https://gis.water.ca.gov/app/bp-dashboard/final/#.

California Energy Commission (CEC). 2007. State Alternative Fuels Plan. December 2007. Available: https://ww2.energy.ca.gov/2007publications/CEC-600-2007-011/CEC-600-2007-011-CMF.PDF. Accessed December 2, 2019.

California Natural Diversity Data Base (CNDDB). 2019. Rarefind. Database managed by California Department of Fish and Wildlife.

California Public Utilities Commission (CPUC). 2003. Energy Action Plan. May 8, 2003. Available: https://www.cpuc.ca.gov/eaps/. Accessed December 2, 2019.

California Public Utilities Commission (CPUC). 2005. Energy Action Plan II. August 25, 2005. Available: https://www.cpuc.ca.gov/eaps/. Accessed December 2, 2019.

Cook, D., D. Manning. 2002. Data report 1999-2001: Russian River basin steelhead coho salmon monitoring program pilot study. Available: Sonoma County Water Agency, Santa Rosa, CA.

Federal Transit Administration (FTA). 2018. Transit Noise and Vibration Impact Assessment Manual. September 2018. Available: https://www.transit.dot.gov/research-innovation/transit-noise-and-vibration-impact-assessment-manual-report-0123. Accessed December 2, 2019.

Geo Elements. No date. Draft Santa Rosa Community wildfire protection plan, wildfire hazard rating. Available from Sonoma Water, Santa Rosa, CA.

Mahoney, D. P., B. D. Mahoney, and J. Spear. 2017. Lawn Tractor Noise Reduction, Results of a Noise Dosimetry Study. *Professional Safety*. March 2017. Available: https://www.jespear.com/lawn-tractor-noise-reduction/. Accessed December 2, 2019.

Norris, R.M. and R.W. Webb. 1990. *Geology of California.* John Wiley & Sons, Inc.

North Coast Regional Water Quality Control Board (NCRWQCB). 2018. Water quality control plan for the North Coast region. Santa Rosa, CA.

Office of Planning and Research (OPR). 2018. Technical advisory, on evaluation transportation impact in CEQA. Available: https://opr.ca.gov/docs/20190122-743_Technical_Advisory.pdf. Accessed August 17, 2020.

Origer. 2019. Cultural Resources Study for the Vortex Tube Rehabilitation Project Santa Rosa, Sonoma County, California. Tom Origer & Associates. Available at Sonoma County Water Agency, Santa Rosa, CA.

Sacramento Metropolitan Air Quality Management District (SMAQMD). 2018. Road Construction Emissions Model Version 9.0.0. May 2018. Available: http://www.airquality.org/Businesses/CEQA-Land-Use-Planning/CEQA-Guidance-Tools. Accessed December 2, 2019.

Santa Rosa. 2009. City of Santa Rosa General Plan 2035. November 3, 2009. Available: https://www.srcity.org/392/General-Plan. Accessed March 9, 2020.

Santa Rosa. 2015. Zoning Map of the City of Santa Rosa. August 14, 2015. Available: https://www.srcity.org/481/Zoning-Information. Accessed December 2, 2019.

Santa Rosa. 2018. City of Santa Rosa Bicycle & Pedestrian Master Plan, Update. Santa Rosa: City of Santa Rosa.

Santa Rosa. 2020. Vehicle Miles Traveled (VMT) Guidelines. Final Draft. Transportation and Public Works Department. June 5, 2020. Revised. Available: https://srcity.org/DocumentCenter/View/28508/Vehicle-Miles-Traveled-Final-Draft-Guidelines-6520 Accessed August 4, 2020.

Sonoma County Permits and Resource Management Department (SCPRMD). 2008. Sonoma County General Plan, 2020. Available at http://sonomacounty.ca.gov/PRMD/Long-Range-Plans/General-Plan/. Accessed December 2, 2019.

Sonoma County Permits and Resource Management Department (SCPRMD). 2016. Sonoma County General Plan, 2020. Available at http://sonomacounty.ca.gov/PRMD/Long-Range-Plans/General-Plan/.

Sonoma County Permits and Resource Management District (SCPRMD). 2019a. County of Sonoma, Environmental Review Guidelines: Visual Assessment Guidelines. Available: http://sonomacounty.ca.gov/PRMD/Regulations/Environmental-Review-Guidelines/Visual-Assessment-Guidelines/. Accessed December 2, 2019.

Sonoma County Permits and Resource Management District (SCPRMD). 2019b. County of Sonoma, Williamson Act Land Contracts Map. January 1, 2019.

Available: http://sonomacounty.ca.gov/PRMD/Administration/GIS/Map-Gallery/. Accessed December 2, 2019.

Sonoma County Water Agency. 2020. Stream Maintenance Program Manual. Available at Sonoma County Water Agency, Santa Rosa, CA.

State Water Resource Control Board (SWRCB). 2019. GeoTracker database. Available: https://geotracker.waterboards.ca.gov/. Accessed on November 6, 2019.

Sterling's Best Places. 2019. Santa Rosa, CA Climate. Available: https://www.bestplaces.net/climate/city/california/santa_rosa. Accessed December 2, 2019.

U.S. Department of Transportation (USDOT). 2006. Construction Noise Handbook, August 2006. Available: https://www.fhwa.dot.gov/environment/noise/construction_noise/handbook/. Accessed December 2, 2019.

U.S. Fish and Wildlife Service (USFWS). 2019. List of threatened and endangered species that may occur in your Proposed Project location, and/or may be affected by your proposed project, Vortex Tube. Consultation Code: 08ESMF00-2020-SLI-0115. Dated October 16, 2019.

Wagner, D. L. and E. L. Bortugno 1982. Geographic map of the Santa Rosa quadrangle. Available: https://www.quake.ca.gov/gmaps/rgm/santarosa/satarosa.html.Appendix.

Appendix A: Notice of Availability/Intent to Adopt

404 Aviation Boulevard
Santa Rosa, CA 95403
Front Desk: 707-526-5370
www.sonomawater.org

Notice of Availability / Notice of Intent to Adopt Initial Study and Mitigated Negative Declaration for the VORTEX TUBE REHABILITATION PROJECT

Posted: August 28, 2020

Public Review Period: August 28, 2020 to September 28, 2020

The Sonoma County Water Agency (Sonoma Water) is the Lead Agency under the California Environmental Quality Act (CEQA) for the proposed Vortex Tube Rehabilitation Project (Proposed Project). Sonoma Water has prepared an Initial Study and Mitigated Negative Declaration (IS/MND) for the project in accordance with the California Environmental Quality Act (CEQA), the State CEQA Guidelines, and Sonoma Water's Procedures for Implementation of CEQA. This notice is to announce that the IS/MND is available for review by the public, agencies, and interested parties. Instructions for submitting comments on the document are included in this notice.

Project Location: The Proposed Project site is located on Santa Rosa Creek where it flows beneath Montgomery Drive, approximately 4 miles east of downtown Santa Rosa and approximately 3/4 mile east of Spring Lake Regional Park.

Project Description: The Vortex Tube is part of the Santa Rosa Creek Diversion Structure, a concrete flood control facility constructed in 1963 as part of the Central Sonoma Watershed Project to reduce flooding in downtown Santa Rosa. A concrete culvert beneath Montgomery Drive, known as the Vortex Tube, regulates peak winter floods in Santa Rosa Creek. The Vortex Tube has been damaged by abrasion during high flows. The purpose of the Proposed Project is to extend the useful life of the Vortex Tube by restoring its structural integrity.

The Proposed Project's repair of the Vortex Tube would be implemented in two phases: 1) construct a permanent Bypass Pipe beneath Montgomery Drive to temporarily direct creek flows around the Vortex Tube, and 2) dewater and repair the damaged Vortex Tube. The Proposed Project would not change the function or expand the capacity of the Diversion Structure.

Materials: A copy of the IS/MND and supporting materials are available at the Sonoma Water administrative office at 404 Aviation Blvd., Santa Rosa, CA. The IS/MND is available online at: https://www.sonomawater.org/environmental-documents

Public Review: The 30-day public review on the IS/MND runs from August 28, 2020 to September 28, 2020. Please include a name, address, and email address of a contact person for all future correspondence on this subject. Written comments must be submitted no later than 5:00 pm on September 28, 2020. Written comments may be addressed to: David Cook, Senior Environmental Specialist, Sonoma Water, 404 Aviation Blvd., Santa Rosa, CA 95403-9019; or emailed to david.cook@scwa.ca.gov.

ADOPTION OF THE INITIAL STUDY AND MITIGATED NEGATIVE DECLARATION

Tentative Adoption Schedule: Following the close of the IS/MND public review period, Sonoma Water's Board of Directors will consider adoption of the IS/MND. The project is scheduled for consideration and adoption by Sonoma Water's Board of Directors at their regularly scheduled meeting beginning at **8:30 am on November 17, 2020.** Comments submitted during the Initial Study review period will be included in our report to the Board of Directors.

In accordance with Executive Orders N-25-20 and N-29-29 in response to the coronavirus pandemic, the Board meeting will be held virtually. Public comment may be submitted via recorded voice message or email. Members of the public may listen or watch the live stream of the Board meeting and find instructions for submitting comments on the Proposed Project by using the following link and clicking on the Board of Directors' agenda for the meeting of November 17, 2020: https://sonoma-county.legistar.com

Appendix B: Special Status Species

Table B-1: Special status plant species unlikely to occur in the project area due to habitat restrictions. These species have specialized habitat requirements, including vernal pools, serpentine soils, and exposed rock outcrops that do not occur in the project area.

Scientific Name (Common Name)	Status Federal, State, CNPS[1]
Vernal Pool Dependent	
Blennosperma bakeri (Sonoma sunshine)	FE, CE, 1B.1
Downingia pusilla (Dwarf downingia)	2B.2
Lasthenia burkei (Burke's goldfields)	FE, CE, 1B.1
Limnanthes vinculans (Sebastopol meadowfoam)	FE, CE, 1B.1
Navarretia leucocephala ssp. bakeri (Baker's navarretia)	1B.1
Navarretia leucocephala ssp. plieantha (Many-flowered navarretia)	FE, CE, 1B.2
Trifolium amoenum (two-fork clover)	FE, 1B.1
Trifolium [depauperatum] hydrophilum (saline clover)	1B.2
Serpentine/Ultramafic	
Allium peninsulare var. franciscanum (Franciscan onion)	1B.2
Arctostaphyos stanfordiana ssp. *decumbens* (Rincon Ridge Manzanita)	1B.1
Ceanothus sonomensis (Sonoma ceanothus)	1B.2
Fritillaria liliacea (Fragrant fritillary)	1B.2
Layia septentrionalis (Colusa layia)	1B.2
Jepson's leptosiphon (Jepson's leptosiphon)	1B.2
Mountainous/Rocky Xeric Uplands	
Amorpha californica var. *napensis* (Napa false indigo)	1B.2
Balsamorhiza macrolepis (Big-scale balsamroot)	1B.2
Ceanothus confuses (Rincon Ridge ceanothus)	1B.1
Ceanothus divergens (Calistoga ceanothus)	1B.2
Ceanothus purpureus (Holly-leaved ceanothus)	1B.2
Viburnum ellipticum (oval-leaved viburnum)	2B.3
Mesic Woodland and Grassland, Coastal	
Amsinckia lunaris (Bent-flowered fiddleneck)	1B.2
Astragalus claranus (Clara Hunt's milk-vetch)	1B.1

Scientific Name (Common Name)	Status Federal, State, CNPS[1]
Trifolium buckwestiorum (Santa Cruz clover)	1B.1
Unique Habitat	
Penstemon newberryi var. sonomensis (Sonoma beardtongue)	1B.3
Sidalcea oregana ssp. valida (Kenwood Marsh checkerbloom)	FE, CE, 1B.1

[1]Status:
FE: Federally listed as Endangered
FT: Federally listed as Threatened
CE: State of California listed as Endangered
CT: State of California listed as Threatened
CR: State of California listed as Rare
California Native Plant Society (CNPS)
1A: Presumed extinct in California
1B: Rare, Threatened, or Endangered in CA and elsewhere
2: Rare, Threatened, or Endangered in CA, but more common elsewhere
4: Plants of limited distribution

Table B-2: Special status plant species with potential to occur in project area.

Scientific Name (Common Name)	Status[1]	Habitat Preferences and Distribution	Flowering and Life Form	Habitat Suitability and Local Distribution[2]	Potential for Occurrence[3]
Alopecurus aequalis var. *sonomensis* (Sonoma alopecurus)	FE 1B.1	Freshwater marshes, swamps, and riparian scrub.	May-July perennial herb	CNDDB record from Ledson Marsh 4 miles from project area. Marginal and degraded habitat along creek edges in project area.	Moderate
Brodiaea leptandra (Narrow-anthered brodiaea)	1B.2	Broadleafed upland forest, Chaparral, Cismontane woodland, Lower montane coniferous forest, Valley and foothill grassland/volcanic.	May-July perennial herb	CNDDB record from vicinity of Spring Lake Park. Marginal habitat along Channel Drive staging area.	Low
Hemizonia congesta ssp. congesta (Congested-headed hayfield tarplant)	1B.2	Valley and foothill grassland, sometimes roadsides.	Apr-Nov	Marginal habitat along Channel Drive staging area. CNPS report from Santa Rosa quadrangle, but not known from the project area.	Low
Carex albida (White sedge)	FE	Coastal marshes and sphagnum bogs.		One occurrence in Santa Rosa Creek extirpated in 1960s. No suitable habitat in project area.	Low
Triquetrella californica Coastal triquetrella	1B.2	Coastal scrub and grasslands on rocky slopes, open gravels on roadsides, and thin soils over outcrops.		CNDDB report from hillside at Spring Lake Park 0.7 mile from project area. Marginal and degraded habitat along Channel Drive staging area.	Moderate

[1] Legal Status

Federal listing: California listing:

FE Federally listed as Endangered
FT Federally listed as Threatened
SR State listed as Rare
SE State listed as Endangered
ST State listed as Threatened

CNPS listing (CEQA significance):

1B.1	Plants Rare, Threatened, or Endangered in California and elsewhere, seriously threatened in California.
1B.2	Plants Rare, Threatened, or Endangered in California and elsewhere, moderately threatened in California.
1B.3	Plants Rare, Threatened, or Endangered in California and elsewhere, not very threatened in California.
2B.1	Plants Rare, Threatened, or Endangered in California but more common elsewhere, seriously threatened in California.
2B.3	Plants Rare, Threatened, or Endangered in California but more common elsewhere, not very threatened in California.
3	Plants about which more information is needed, a review list.
3.1	Plants about which more information is needed, a review list, seriously threatened in California.
3.2	Plants about which more information is needed, a review list, moderately threatened in California.
4	Plants of limited distribution

[2] Local distribution determined by a search of the California Natural Diversity Database (CNDDB) and California Native Plant Society (CNPS).

[3] Potential for occurrence defined as:

Low: Few of the habitat components meeting the species requirements may be present in the project area and/or few occurrences in the region. In these instances, the species is not likely to be present.

Moderate: Some of the habitat components meeting the species requirements are possibly present in the project area and there are some occurrences in the region. The species has a moderate probability of occurring at a maintenance site.

High: All of the habitat components meeting the species requirements are likely present in the project area and there are several known occurrences in the vicinity. The species has a high probability of occurring in the project area.

Table B-3: Special status fish and wildlife species potentially occurring in project area.

Common & *Scientific Name*	Federal & State Listing[1]	Habitat Requirements	Habitat Suitability and Local Distribution[2]	Potential for Occurrence[3]
INVERTEBRATES				
Obscure bumble bee *Bombus caliginosus*	SA	Food plant species include several upland shrubs and forbs.	No CNDDB reports in the project vicinity. No Suitable habitat in the project area.	Low
Blennosperma vernal pool andrenid bee *Andrena blennospermatis*	--	Host plant is vernal pool endemic *Blennosperma* sp. Nests in uplands around vernal pools.	No CNDDB reports in the Project vicinity. No Suitable habitat in the Project area.	Low
California linderiella *Linderiella occidentalis*	--	Seasonal wetlands and vernal pools.	No CNDDB reports in the project vicinity. No Suitable habitat in the project area.	Low
Western bumble bee *Bombus occidentalis*	SC	Nests in colonial hives. Forages on a variety of flower types for pollen.	No CNDDB reports in the project vicinity. No Suitable habitat in the project area.	Low
Leech's skyline diving beetle *Hydroporus leechi*	--	Aquatic	No CNDDB reports in project vicinity.	Low
California freshwater shrimp *Syncaris pacifica*	FE SE	Low gradient streams where riparian cover is moderate to heavy in Marin, Sonoma and Napa Counties. Utilizes pools and undercut banks with exposed roots out of direct streamflow.	Extirpated occurrence in Santa Rosa Creek. No suitable cover or overwintering habitat in project area.	Low
San Bruno elfin butterfly *Callophrys (=Incisalia) mossii bayensis (=Incisalia)*	FE	Coastal, mountainous areas with grassy ground cover, near San Bruno mountain. Steep, north facing slopes within fog belt.	No reports in project vicinity. No suitable habitat in project area.	No Potential
FISH				
California Coastal Chinook Salmon *Oncorhynchus tshawytscha*	FT	Adults migrate upstream in fall. Spawns in cold, clear, freshwater rivers and large creeks with gravel substrate. Juveniles (smolts) migrate downstream in spring and summer to the ocean.	Infrequent migrant to Santa Rosa Creek. No established spawning run. No suitable spawning habitat in project area.	Low

Common & *Scientific Name*	Federal & State Listing[1]	Habitat Requirements	Habitat Suitability and Local Distribution[2]	Potential for Occurrence[3]
Central California Coast Coho Salmon *Oncorhynchus kisutch*	FE SE	Adults migrate upstream in early winter. Spawns in cold streams with riffles, loose, silt-free gravel substrate. Preferred rearing habitat consists of slow water pools or cool back water areas.	No known occurrences in vicinity of project area. No suitable spawning habitat in project area.	Low
Central California Coast steelhead *Oncorhynchus mykiss irideus*	FT	Requires streams with cool water, pools and riffles, and moderate velocities. Adults spawn in clean gravel along moderate gradient creeks. Juveniles rear in creeks and estuaries before migrating to the ocean.	Several reports from Santa Rosa Creek. Known to spawn in the headwaters of Santa Rosa Creek. Project area provides adult migration and juvenile rearing habitat, and marginal spawning habitat.	High
AMPHIBIANS				
California giant salamander *Dicamptodon ensatus*	SSC	Adults inhabit forests. Breeding occurs in perennial streams with cool, clear water. Prefers moderate and high gradient creeks with pools and riffles.	Found in project area upstream of weir during several years (CNDDB #222). Suitable habitat in project area.	High
California tiger salamander *Ambystoma californiense*	FE ST	Adults inhabit grasslands and oak savannahs. Adults breed in vernal pools and seasonal wetlands. Locally endemic to Santa Rosa Plain and adjacent lowlands.	Project area outside of species range. No suitable habitat onsite. Project area outside of federal Critical Habitat designation.	No Potential
California red-legged frog *Rana draytonii*	FT SSC	Inhabits lowlands and foothills in or near permanent sources of deep water with dense, shrubby or emergent riparian vegetation. Often found in ponds, marshes, or slow-moving sections of creeks. Local breeding occurs in winter.	Nearest CNDDB record 4 miles south at Trione-Annadel State Park. Project area outside of federal Critical Habitat designation. Aquatic habitats in project area unsuitable breeding habitat. Amphibian surveys in diversion channel had no findings.	Low

Common & *Scientific Name*	Federal & State Listing[1]	Habitat Requirements	Habitat Suitability and Local Distribution[2]	Potential for Occurrence[3]
Foothill yellow-legged frog *Rana boylii*	SSC, SC	Inhabits moderate-gradient streams with cool, clear water in woodland and coniferous forest.	Found in project area upstream of weir (see CGS CNDDB #222). Also, found in Santa Rosa Creek headwaters (CNDDB #223). Suitable habitat in project area.	High
Red-bellied newt *Taricha rivularis*	SSC	Moderate-gradient streams with rocky substrate forested foothill and mountain terrain.	One CNDDB record from Santa Rosa Creek 3 miles upstream of project area. Santa Rosa Creek in project area provides potential habitat.	High
REPTILES				
Green turtle *Chelonia mydas*	FT	Globally distributed, occurring generally in tropical and subtropical marine waters. Nests on sandy beaches. May occur in California coastal waters, but no breeding.	Marine species. No suitable habitat in project area.	No Potential
Western pond turtle Actinemys *marmorata*	SSC	Freshwater turtle that inhabits permanent or nearly permanent bodies of water with low velocities. Habitats include creeks, rivers, ponds, lakes, ditches.	Several CNDDB reports from project vicinity. Reported basking on weir in Project area (CNDDB #762). Suitable habitat in the project area.	High
BIRDS				
Cooper's hawk *Accipiter cooperii*	WL	Forages in woodlands and nests in riparian trees.	Riparian forest in project area provides suitable foraging and nesting habitat.	High
Marbled Murrelet *Brachyramphus marmoratus*	FT	Feeds along coastal waters. Nests in old-growth forests, characterized by large trees, multiple canopy layers, and moderate to high canopy closure. Forests must be near marine environment.	CNDDB reports along coast at Arched Rock, Jenner. No reports of nesting in the project vicinity.	Low
Northern spotted owl *Strix occidentalis caurina*	FT SSC	Moist, dense coniferous old-growth forests of redwood, Douglas fir, western red cedar and other conifers. Nest in cavities in trees.	No CNDDB occurrences in Project vicinity. No suitable nesting habitat in the project area, but may infrequently forage in vicinity.	Low

Common & *Scientific Name*	Federal & State Listing[1]	Habitat Requirements	Habitat Suitability and Local Distribution[2]	Potential for Occurrence[3]
White-tailed kite *Elanus leucurus*	FP	Forages in foothill and valley areas with scattered oaks. Nests in dense-topped trees.	There are records in project vicinity. May infrequently visit the project area.	Moderate
Yellow rail *Coturnicops noveboracensis*	SSC	Summer resident to western California. Prefers freshwater marshlands.	CNDDB report from Rincon Valley from 1912. No suitable habitat in project area.	No Potential
MAMMALS				
Pallid bat *Antrozous pallidus*	SSC	Inhabits rocky terrain in open areas in lowlands, foothills and mountainous areas near water throughout California. Roosts in caves, rock crevices, mines, hollow trees, buildings and bridges in arid regions.	CNDDB report 1.7 miles southeast of project area. Riparian in project area provides potential foraging and no roosting habitat.	Moderate

[1]Legal Status

Federal listing:		California listing:	
FE	Federally listed as Endangered	SE	State listed as Endangered
FT	Federally listed as Threatened	ST	State listed as Threatened
		SR	State listed as Rare
		SC	State Candidate for listing
		SSC	Species of Special Concern
		SA	Special Animal
		FP	Fully Protected
		WL	Watch List

[2]Local distribution determined by a search of the California Natural Diversity Database (CNDDB) and other resources.

[3]Potential for occurrence defined as:

No Potential: Habitat components of a species are not known to occur in along creeks and riparian areas in the Project area. Habitats outside of the Project area include: marine, salt and brackish marsh, salt ponds, vernal pools, coniferous forest, and cismontane woodland.

Low: Few of the habitat components meeting the species requirements may be present in the Project area and/or few occurrences in the region. In these instances, the species is not likely to be present.

Moderate: Some of the habitat components meeting the species requirements are possibly present in the Project area and there are some occurrences in the region. The species has a moderate probability of occurring in the Project area.

High: All of the habitat components meeting the species requirements are likely present in the Project area and there are several known occurrences on-site or nearby. The species has a high probability of occurring in the Project area.

Appendix C. Air Quality and Green House Gas Emission Calculations

Road Construction Emissions Model, Version 9.0.0

Daily Emission Estimates for -> Vortex Tube Rehabilitation Project Project Phases (Pounds)	ROG (lbs/day)	CO (lbs/day)	NOx (lbs/day)	Total PM10 (lbs/day)	Exhaust PM10 (lbs/day)	Fugitive Dust PM10 (lbs/day)	Total PM2.5 (lbs/day)	Exhaust PM2.5 (lbs/day)	Fugitive Dust PM2.5 (lbs/day)	SOx (lbs/day)	CO2 (lbs/day)	CH4 (lbs/day)	N2O (lbs/day)	CO2e (lbs/day)	Overlap ?
Grubbing/Land Clearing	3.24	24.43	29.65	4.50	1.40	3.10	1.93	1.29	0.64	0.06	5,727.41	1.26	0.11	5,791.33	No
Grading/Excavation	4.21	26.83	43.79	4.94	1.84	3.10	2.25	1.60	0.64	0.09	9,231.26	1.30	0.66	9,460.44	No
Drainage/Utilities/Sub-Grade	5.27	35.98	49.29	5.21	2.11	3.10	2.58	1.94	0.64	0.10	9,730.13	2.50	0.17	9,843.23	No
Paving	3.90	28.24	35.99	1.63	1.63	0.00	1.50	1.50	0.00	0.07	7,006.04	1.67	0.12	7,083.73	No
Maximum (pounds/day)	5.27	35.98	49.29	5.21	2.11	3.10	2.58	1.94	0.64	0.10	9,730.13	2.50	0.66	9,843.23	
Total (tons/construction project)	0.20	1.33	1.90	0.20	0.08	0.12	0.10	0.07	0.02	0.00	382.90	0.08	0.01	389.32	

Notes:

Project Start Year ->	2020
Project Length (months) ->	4
Total Project Area (acres) ->	5
Maximum Area Disturbed/Day (acres) ->	0
Water Truck Used? ->	Yes

	Total Material Imported/Exported Volume (yd^3/day)		Daily VMT (miles/day)			
Phase	Soil	Asphalt	Soil Hauling	Asphalt Hauling	Worker Commute	Water Truck
Grubbing/Land Clearing	0	0	0	0	600	80
Grading/Excavation	412	0	840	0	600	80
Drainage/Utilities/Sub-Grade	0	16	0	40	600	80
Paving	0	38	0	0	600	80

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

Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns G and H. Total PM2.5 emissions shown in Column I are the sum of exhaust and fugitive dust emissions shown in columns J and K.

CO2e emissions are estimated by multiplying mass emissions for each GHG by its global warming potential (GWP), 1 , 25 and 298 for CO2, CH4 and N2O, respectively. Total CO2e is then estimated by summing CO2e estimates over all GHGs.

Total Emission Estimates by Phase for -> Vortex Tube Rehabilitation Project Project Phases (Tons for all except CO2e. Metric tons for CO2e)	ROG (tons/phase)	CO (tons/phase)	NOx (tons/phase)	Total PM10 (tons/phase)	Exhaust PM10 (tons/phase)	Fugitive Dust PM10 (tons/phase)	Total PM2.5 (tons/phase)	Exhaust PM2.5 (tons/phase)	Fugitive Dust PM2.5 (tons/phase)	SOx (tons/phase)	CO2 (tons/phase)	CH4 (tons/phase)	N2O (tons/phase)	CO2e (MT/phase)
Grubbing/Land Clearing	0.02	0.13	0.16	0.02	0.01	0.02	0.01	0.01	0.00	0.00	31.50	0.01	0.00	28.90
Grading/Excavation	0.07	0.44	0.72	0.08	0.03	0.05	0.04	0.03	0.01	0.00	152.32	0.02	0.01	141.61
Drainage/Utilities/Sub-Grade	0.09	0.59	0.81	0.09	0.03	0.05	0.04	0.03	0.01	0.00	160.55	0.04	0.00	147.34
Paving	0.02	0.16	0.20	0.01	0.01	0.00	0.01	0.01	0.00	0.00	38.53	0.01	0.00	35.34
Maximum (tons/phase)	0.09	0.59	0.81	0.09	0.03	0.05	0.04	0.03	0.01	0.00	160.55	0.04	0.01	147.34
Total (tons/construction project)	0.20	1.33	1.90	0.20	0.08	0.12	0.10	0.07	0.02	0.00	382.90	0.08	0.01	353.19

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

Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns G and H. Total PM2.5 emissions shown in Column I are the sum of exhaust and fugitive dust emissions shown in columns J and K.

CO2e emissions are estimated by multiplying mass emissions for each GHG by its global warming potential (GWP), 1 , 25 and 298 for CO2, CH4 and N2O, respectively. Total CO2e is then estimated by summing CO2e estimates over all GHGs.

The CO2e emissions are reported as metric tons per phase.

Calculation Assumptions:

- To be conservative, it was assumed that all equipment would be 2009 and older.
- Phases: (1) Grubbing/Land Clearing = vegetation removal and Project staging; (2) Grading/Excavation = grading work areas, excavation of boring pit and bypass ditch; (3) Drainage/Utilities/Sub-Grade = Bypass Pipe construction, Vortex Tube and Transition Area restoration; and (4) Paving = headwall construction and construction wrap-up.
- Off-Highway Trucks = dump truck, concrete truck, delivery truck, welding truck, and/or vacuum truck (depending on phase).
- The Proposed Project's activities would impact approximately 0.6 acre (including temporary and permanent impacts). A perimeter surrounding the Proposed Project activities includes an area of approximately 5 acres. To be conservative, the larger 5 acre area was used for the "Total Project Area" in the emissions model calculation. It was assumed that the "Maximum Area Disturbed/Day would be 0.6 acre.

Road Construction Emissions Model Version 9.0.0

Data Entry Worksheet

Note: Required data input sections have a yellow background.
Optional data input sections have a blue background.
Only areas with a yellow or blue background can be modified. Program defaults have a white background.
The user is required to enter information in cells D10 through D24, E28 through G35, and D38 through D41 for all project types.
Please use "Clear Data Input & User Overrides" button first before changing the Project Type or begin a new project.

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.

SACRAMENTO METROPOLITAN AIR QUALITY MANAGEMENT DISTRICT

Input Type

Project Name	Vortex Tube Rehabilitation Project	
Construction Start Year	2020	Enter a Year between 2014 and 2040 (inclusive)
Project Type For 4: Other Linear Project Type, please provide project specific off-road equipment population and vehicle trip data	4	1) New Road Construction : Project to build a roadway from bare ground, which generally requires more site preparation than widening an existing roadway 2) Road Widening : Project to add a new lane to an existing roadway 3) Bridge/Overpass Construction : Project to build an elevated roadway, which generally requires some different equipment than a new roadway, such as a crane 4) Other Linear Project Type: Non-roadway project such as a pipeline, transmission line, or levee construction
Project Construction Time	4.00	months
Working Days per Month	22.00	days (assume 22 if unknown)
Predominant Soil/Site Type: Enter 1, 2, or 3 (for project within "Sacramento County", follow soil type selection instructions in cells E18 to E20 otherwise see instructions provided in cells J18 to J22)	1	1) Sand Gravel : Use for quaternary deposits (Delta/West County) 2) Weathered Rock-Earth : Use for Laguna formation (Jackson Highway area) or the Ione formation (Scott Road, Rancho Murieta) 3) Blasted Rock : Use for Salt Springs Slate or Copper Hill Volcanics (Folsom South of Highway 50, Rancho Murieta)
Project Length	0.03	miles
Total Project Area	5.00	acres
Maximum Area Disturbed/Day	0.31	acres
Water Trucks Used?	1	1. Yes 2. No

Please note that the soil type instructions provided in cells E18 to E20 are specific to Sacramento County. Maps available from the California Geologic Survey (see weblink below) can be used to determine soil type outside Sacramento County.

http://www.conservation.ca.gov/cgs/information/geologic_mapping/Pages/googlemaps.aspx#regionalseries

Material Hauling Quantity Input

Material Type	Phase	Haul Truck Capacity (yd^3) (assume 20 if unknown)	Import Volume (yd^3/day)	Export Volume (yd^3/day)
Soil	Grubbing/Land Clearing	20.00	0.00	0.00
	Grading/Excavation	20.00	126.00	286.00
	Drainage/Utilities/Sub-Grade	20.00	0.00	0.00
	Paving	20.00	0.00	0.00
Asphalt	Grubbing/Land Clearing	20.00	0.00	0.00
	Grading/Excavation	20.00	0.00	0.00
	Drainage/Utilities/Sub-Grade	20.00	10.00	6.00
	Paving	20.00	38.00	0.00

Mitigation Options

On-road Fleet Emissions Mitigation	No Mitigation	Select "2010 and Newer On-road Vehicles Fleet" option when the on-road heavy-duty truck fleet for the project will be limited to vehicles of model year 2010 or newer
Off-road Equipment Emissions Mitigation	No Mitigation	Select "20% NOx and 45% Exhaust PM reduction" option if the project will be required to use a lower emitting off-road construction fleet. The SMAQMD Construction Mitigation Calculator can be used to confirm compliance with this mitigation measure (http://www.airquality.org/Businesses/CEQA-Land-Use-Planning/Mitigation). Select "Tier 4 Equipment" option if some or all off-road equipment used for the project meets CARB Tier 4 Standard

The remaining sections of this sheet contain areas that require modification when 'Other Project Type' is selected.

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

Construction Periods	User Override of Construction Months	Program Calculated Months	User Override of Phase Starting Date	Program Default Phase Starting Date
Grubbing/Land Clearing	0.50	0.40	6/15/2020	1/1/2020
Grading/Excavation	1.50	1.60	7/1/2020	1/17/2020
Drainage/Utilities/Sub-Grade	1.50	1.40	8/16/2020	3/3/2020
Paving	0.50	0.60	10/1/2020	4/18/2020
Totals (Months)	4			

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

Soil Hauling Emissions User Input	User Override of Miles/Round Trip	Program Estimate of Miles/Round Trip	User Override of Truck Round Trips/Day	Default Values Round Trips/Day	Calculated Daily VMT
Miles/round trip: Grubbing/Land Clearing				0	0.00
Miles/round trip: Grading/Excavation	40.00			21	840.00
Miles/round trip: Drainage/Utilities/Sub-Grade				0	0.00
Miles/round trip: Paving				0	0.00

Emission Rates	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Grubbing/Land Clearing (grams/mile)	0.53	1.30	7.55	0.24	0.17	0.02	1,892.05	0.02	0.30	1,981.28
Grading/Excavation (grams/mile)	0.53	1.30	7.55	0.24	0.17	0.02	1,892.05	0.02	0.30	1,981.28
Draining/Utilities/Sub-Grade (grams/mile)	0.53	1.30	7.55	0.24	0.17	0.02	1,892.05	0.02	0.30	1,981.28
Paving (grams/mile)	0.53	1.30	7.55	0.24	0.17	0.02	1,892.05	0.02	0.30	1,981.28
Grubbing/Land Clearing (grams/trip)	0.00	0.00	3.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation (grams/trip)	0.00	0.00	3.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Draining/Utilities/Sub-Grade (grams/trip)	0.00	0.00	3.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving (grams/trip)	0.00	0.00	3.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling Emissions	**ROG**	**CO**	**NOx**	**PM10**	**PM2.5**	**SOx**	**CO2**	**CH4**	**N2O**	**CO2e**
Pounds per day - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Grading/Excavation	0.98	2.40	14.14	0.44	0.32	0.03	3,503.85	0.05	0.55	3,669.11
Tons per const. Period - Grading/Excavation	0.02	0.04	0.23	0.01	0.01	0.00	57.81	0.00	0.01	60.54
Pounds per day - Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total tons per construction project	0.02	0.04	0.23	0.01	0.01	0.00	57.81	0.00	0.01	60.54

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

Asphalt Hauling Emissions User Input	User Override of Miles/Round Trip	Program Estimate of Miles/Round Trip	User Override of Truck Round Trips/Day	Default Values Round Trips/Day	Calculated Daily VMT
Miles/round trip: Grubbing/Land Clearing				0	0.00
Miles/round trip: Grading/Excavation				0	0.00
Miles/round trip: Drainage/Utilities/Sub-Grade	40.00			1	40.00
Miles/round trip: Paving				2	0.00

Emission Rates	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Grubbing/Land Clearing (grams/mile)	0.53	1.30	7.55	0.24	0.17	0.02	1,892.05	0.02	0.30	1,981.28
Grading/Excavation (grams/mile)	0.53	1.30	7.55	0.24	0.17	0.02	1,892.05	0.02	0.30	1,981.28
Draining/Utilities/Sub-Grade (grams/mile)	0.53	1.30	7.55	0.24	0.17	0.02	1,892.05	0.02	0.30	1,981.28
Paving (grams/mile)	0.53	1.30	7.55	0.24	0.17	0.02	1,892.05	0.02	0.30	1,981.28
Grubbing/Land Clearing (grams/trip)	0.00	0.00	3.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation (grams/trip)	0.00	0.00	3.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Draining/Utilities/Sub-Grade (grams/trip)	0.00	0.00	3.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving (grams/trip)	0.00	0.00	3.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Emissions	**ROG**	**CO**	**NOx**	**PM10**	**PM2.5**	**SOx**	**CO2**	**CH4**	**N2O**	**CO2e**

Pounds per day - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Grading/Excavation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grading/Excavation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Drainage/Utilities/Sub-Grade	0.05	0.11	0.67	0.02	0.02	0.00	166.85	0.00	0.03	174.72
Tons per const. Period - Drainage/Utilities/Sub-Grade	0.00	0.00	0.01	0.00	0.00	0.00	2.75	0.00	0.00	2.88
Pounds per day - Paving	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total tons per construction project	0.00	0.00	0.01	0.00	0.00	0.00	2.75	0.00	0.00	2.88

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

Worker Commute Emissions	User Override of Worker Commute Default Values	Default Values		
User Input				
Miles/ one-way trip	20		Calculated Daily Trips	Calculated Daily VMT
One-way trips/day	2			
No. of employees: Grubbing/Land Clearing	15		30	600.00
No. of employees: Grading/Excavation	15		30	600.00
No. of employees: Drainage/Utilities/Sub-Grade	15		30	600.00
No. of employees: Paving	15		30	600.00

Emission Rates	**ROG**	**CO**	**NOx**	**PM10**	**PM2.5**	**SOx**	**CO2**	**CH4**	**N2O**	**CO2e**
Grubbing/Land Clearing (grams/mile)	0.02	1.22	0.11	0.05	0.02	0.00	350.90	0.01	0.01	353.67
Grading/Excavation (grams/mile)	0.02	1.22	0.11	0.05	0.02	0.00	350.90	0.01	0.01	353.67
Draining/Utilities/Sub-Grade (grams/mile)	0.02	1.22	0.11	0.05	0.02	0.00	350.90	0.01	0.01	353.67
Paving (grams/mile)	0.02	1.22	0.11	0.05	0.02	0.00	350.90	0.01	0.01	353.67
Grubbing/Land Clearing (grams/trip)	1.25	3.05	0.37	0.00	0.00	0.00	75.08	0.09	0.04	88.34
Grading/Excavation (grams/trip)	1.25	3.05	0.37	0.00	0.00	0.00	75.08	0.09	0.04	88.34
Draining/Utilities/Sub-Grade (grams/trip)	1.25	3.05	0.37	0.00	0.00	0.00	75.08	0.09	0.04	88.34
Paving (grams/trip)	1.25	3.05	0.37	0.00	0.00	0.00	75.08	0.09	0.04	88.34
Emissions	**ROG**	**CO**	**NOx**	**PM10**	**PM2.5**	**SOx**	**CO2**	**CH4**	**N2O**	**CO2e**
Pounds per day - Grubbing/Land Clearing	0.11	1.82	0.17	0.06	0.03	0.00	469.13	0.01	0.01	473.67
Tons per const. Period - Grubbing/Land Clearing	0.00	0.01	0.00	0.00	0.00	0.00	2.58	0.00	0.00	2.61
Pounds per day - Grading/Excavation	0.11	1.82	0.17	0.06	0.03	0.00	469.13	0.01	0.01	473.67
Tons per const. Period - Grading/Excavation	0.00	0.03	0.00	0.00	0.00	0.00	7.74	0.00	0.00	7.82
Pounds per day - Drainage/Utilities/Sub-Grade	0.11	1.82	0.17	0.06	0.03	0.00	469.13	0.01	0.01	473.67
Tons per const. Period - Drainage/Utilities/Sub-Grade	0.00	0.03	0.00	0.00	0.00	0.00	7.74	0.00	0.00	7.82
Pounds per day - Paving	0.11	1.82	0.17	0.06	0.03	0.00	469.13	0.01	0.01	473.67
Tons per const. Period - Paving	0.00	0.01	0.00	0.00	0.00	0.00	2.58	0.00	0.00	2.61
Total tons per construction project	0.01	0.08	0.01	0.00	0.00	0.00	20.64	0.00	0.00	20.84

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

Water Truck Emissions **User Input**	User Override of Default # Water Trucks	Program Estimate of Number of Water Trucks	User Override of Truck Round Trips/Vehicle/Day	Default Values Round Trips/Vehicle/Day	Calculated Trips/day	User Override of Miles/Round Trip	Default Values Miles/Round Trip	Calculated Daily VMT
Grubbing/Land Clearing - Exhaust	1		2.00			40.00		80.00
Grading/Excavation - Exhaust	1		2.00			40.00		80.00
Drainage/Utilities/Subgrade	1		2.00			40.00		80.00
Paving	1		2.00			40.00		80.00

Emission Rates	**ROG**	**CO**	**NOx**	**PM10**	**PM2.5**	**SOx**	**CO2**	**CH4**	**N2O**	**CO2e**
Grubbing/Land Clearing (grams/mile)	0.53	1.30	7.55	0.24	0.17	0.02	1,892.05	0.02	0.30	1,981.28
Grading/Excavation (grams/mile)	0.53	1.30	7.55	0.24	0.17	0.02	1,892.05	0.02	0.30	1,981.28
Draining/Utilities/Sub-Grade (grams/mile)	0.53	1.30	7.55	0.24	0.17	0.02	1,892.05	0.02	0.30	1,981.28
Paving (grams/mile)	0.53	1.30	7.55	0.24	0.17	0.02	1,892.05	0.02	0.30	1,981.28
Grubbing/Land Clearing (grams/trip)	0.00	0.00	3.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation (grams/trip)	0.00	0.00	3.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Draining/Utilities/Sub-Grade (grams/trip)	0.00	0.00	3.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving (grams/trip)	0.00	0.00	3.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Emissions	**ROG**	**CO**	**NOx**	**PM10**	**PM2.5**	**SOx**	**CO2**	**CH4**	**N2O**	**CO2e**
Pounds per day - Grubbing/Land Clearing	0.09	0.23	1.35	0.04	0.03	0.00	333.70	0.00	0.05	349.44
Tons per const. Period - Grubbing/Land Clearing	0.00	0.00	0.01	0.00	0.00	0.00	1.84	0.00	0.00	1.92
Pounds per day - Grading/Excavation	0.09	0.23	1.35	0.04	0.03	0.00	333.70	0.00	0.05	349.44
Tons per const. Period - Grading/Excavation	0.00	0.00	0.02	0.00	0.00	0.00	5.51	0.00	0.00	5.77
Pounds per day - Drainage/Utilities/Sub-Grade	0.09	0.23	1.35	0.04	0.03	0.00	333.70	0.00	0.05	349.44
Tons per const. Period - Drainage/Utilities/Sub-Grade	0.00	0.00	0.02	0.00	0.00	0.00	5.51	0.00	0.00	5.77
Pounds per day - Paving	0.09	0.23	1.35	0.04	0.03	0.00	333.70	0.00	0.05	349.44
Tons per const. Period - Paving	0.00	0.00	0.01	0.00	0.00	0.00	1.84	0.00	0.00	1.92
Total tons per construction project	0.00	0.01	0.06	0.00	0.00	0.00	14.68	0.00	0.00	15.38

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

Fugitive Dust	User Override of Max Acreage Disturbed/Day	Default Maximum Acreage/Day	PM10 pounds/day	PM10 tons/per period	PM2.5 pounds/day	PM2.5 tons/per period
Fugitive Dust - Grubbing/Land Clearing	0.31		3.10	0.02	0.64	0.00
Fugitive Dust - Grading/Excavation	0.31		3.10	0.05	0.64	0.01
Fugitive Dust - Drainage/Utilities/Subgrade	0.31		3.10	0.05	0.64	0.01

Values in cells D195 through D228, D246 through D279, D297 through D330, and D348 through D381 are required when 'Other Project Type' is selected.

Off-Road Equipment Emissions

Grubbing/Land Clearing	Default Number of Vehicles	Mitigation Option Override of Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected)	Default		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Override of Default Number of Vehicles	*Program-estimate*		Equipment Tier	Type	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
			Model Default Tier	Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Bore/Drill Rigs	0.28	2.08	3.52	0.10	0.09	0.01	909.81	0.29	0.01	919.65
			Model Default Tier	Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Concrete/Industrial Saws	0.42	3.69	3.30	0.20	0.20	0.01	592.67	0.04	0.00	594.93
1.00			Model Default Tier	Cranes	0.45	2.12	5.39	0.22	0.20	0.01	558.79	0.18	0.01	564.81
			Model Default Tier	Crawler Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Excavators	0.25	3.27	2.41	0.12	0.11	0.01	500.12	0.16	0.00	505.51
			Model Default Tier	Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Generator Sets	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Graders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Off-Highway Trucks	0.66	3.81	6.32	0.23	0.21	0.01	1,278.62	0.41	0.01	1,292.39
			Model Default Tier	Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other General Industrial Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other Material Handling Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pavers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Pumps	0.42	3.76	3.53	0.21	0.21	0.01	623.04	0.04	0.00	625.36
1.00			Model Default Tier	Rollers	0.21	1.89	2.08	0.13	0.12	0.00	254.07	0.08	0.00	256.80
			Model Default Tier	Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Signal Boards	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Tractors/Loaders/Backhoes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Welders	0.34	1.77	1.57	0.09	0.09	0.00	207.48	0.03	0.00	208.76

User-Defined Off-road Equipment

If non-default vehicles are used, please provide information in 'Non-default Off-road Equipment' tab

Number of Vehicles	Equipment Tier	Type	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
			pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Grubbing/Land Clearing	pounds per day		3.03	22.38	28.13	1.30	1.23	0.05	4,924.58	1.24	0.04	4,968.23
	Grubbing/Land Clearing	tons per phase		0.02	0.12	0.15	0.01	0.01	0.00	27.09	0.01	0.00	27.33

Grading/Excavation Override of Default Number of Vehicles	Default Number of Vehicles *Program-estimate*	Mitigation Option Override of Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected)	Default Equipment Tier	Type	ROG pounds/day	CO pounds/day	NOx pounds/day	PM10 pounds/day	PM2.5 pounds/day	SOx pounds/day	CO2 pounds/day	CH4 pounds/day	N2O pounds/day	CO2e pounds/day
			Model Default Tier	Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Bore/Drill Rigs	0.28	2.08	3.52	0.10	0.09	0.01	909.81	0.29	0.01	919.65
			Model Default Tier	Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Concrete/Industrial Saws	0.42	3.69	3.30	0.20	0.20	0.01	592.67	0.04	0.00	594.93
1.00			Model Default Tier	Cranes	0.45	2.12	5.39	0.22	0.20	0.01	558.79	0.18	0.01	564.81
			Model Default Tier	Crawler Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Excavators	0.25	3.27	2.41	0.12	0.11	0.01	500.12	0.16	0.00	505.51
			Model Default Tier	Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Generator Sets	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Graders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Off-Highway Trucks	0.66	3.81	6.32	0.23	0.21	0.01	1,278.62	0.41	0.01	1,292.39
			Model Default Tier	Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other General Industrial Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other Material Handling Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pavers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Pumps	0.42	3.76	3.53	0.21	0.21	0.01	623.04	0.04	0.00	625.36
1.00			Model Default Tier	Rollers	0.21	1.89	2.08	0.13	0.12	0.00	254.07	0.08	0.00	256.80
			Model Default Tier	Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Signal Boards	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Tractors/Loaders/Backhoes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Welders	0.34	1.77	1.57	0.09	0.09	0.00	207.48	0.03	0.00	208.76

User-Defined Off-road Equipment

If non-default vehicles are used, please provide information in 'Non-default Off-road Equipment' tab

Number of Vehicles	Equipment Tier	Type	ROG pounds/day	CO pounds/day	NOx pounds/day	PM10 pounds/day	PM2.5 pounds/day	SOx pounds/day	CO2 pounds/day	CH4 pounds/day	N2O pounds/day	CO2e pounds/day
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Grading/Excavation	pounds per day	3.03	22.38	28.13	1.30	1.23	0.05	4,924.58	1.24	0.04	4,968.23
	Grading/Excavation	tons per phase	0.05	0.37	0.46	0.02	0.02	0.00	81.26	0.02	0.00	81.98

Drainage/Utilities/Subgrade Override of Default Number of Vehicles	Default Number of Vehicles *Program-estimate*	Mitigation Option Override of Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected)	Default Equipment Tier	Type	ROG pounds/day	CO pounds/day	NOx pounds/day	PM10 pounds/day	PM2.5 pounds/day	SOx pounds/day	CO2 pounds/day	CH4 pounds/day	N2O pounds/day	CO2e pounds/day
			Model Default Tier	Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Bore/Drill Rigs	0.28	2.08	3.52	0.10	0.09	0.01	909.81	0.29	0.01	919.65
			Model Default Tier	Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Concrete/Industrial Saws	0.42	3.69	3.30	0.20	0.20	0.01	592.67	0.04	0.00	594.93
1.00			Model Default Tier	Cranes	0.45	2.12	5.39	0.22	0.20	0.01	558.79	0.18	0.01	564.81
			Model Default Tier	Crawler Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Excavators	0.25	3.27	2.41	0.12	0.11	0.01	500.12	0.16	0.00	505.51
			Model Default Tier	Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Generator Sets	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Graders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4.00			Model Default Tier	Off-Highway Trucks	2.65	15.24	25.29	0.92	0.85	0.05	5,114.49	1.65	0.05	5,169.57
			Model Default Tier	Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other General Industrial Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other Material Handling Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pavers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Pumps	0.42	3.76	3.53	0.21	0.21	0.01	623.04	0.04	0.00	625.36
1.00			Model Default Tier	Rollers	0.21	1.89	2.08	0.13	0.12	0.00	254.07	0.08	0.00	256.80
			Model Default Tier	Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Signal Boards	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

			Model Default Tier	Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Tractors/Loaders/Backhoes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Welders	0.34	1.77	1.57	0.09	0.09	0.00	207.48	0.03	0.00	208.76

User-Defined Off-road Equipment — If non-default vehicles are used, please provide information in 'Non-default Off-road Equipment' tab

Number of Vehicles	Equipment Tier	Type	ROG pounds/day	CO pounds/day	NOx pounds/day	PM10 pounds/day	PM2.5 pounds/day	SOx pounds/day	CO2 pounds/day	CH4 pounds/day	N2O pounds/day	CO2e pounds/day
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Drainage/Utilities/Sub-Grade	pounds per day	5.02	33.81	47.10	1.99	1.87	0.09	8,760.45	2.48	0.08	8,845.41
	Drainage/Utilities/Sub-Grade	tons per phase	0.08	0.56	0.78	0.03	0.03	0.00	144.55	0.04	0.00	145.95

Paving Override of Default Number of Vehicles	Default Number of Vehicles *Program-estimate*	Mitigation Option Override of Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected)	Default Equipment Tier	Type	ROG pounds/day	CO pounds/day	NOx pounds/day	PM10 pounds/day	PM2.5 pounds/day	SOx pounds/day	CO2 pounds/day	CH4 pounds/day	N2O pounds/day	CO2e pounds/day
			Model Default Tier	Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Bore/Drill Rigs	0.28	2.08	3.52	0.10	0.09	0.01	909.81	0.29	0.01	919.65
			Model Default Tier	Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Concrete/Industrial Saws	0.42	3.69	3.30	0.20	0.20	0.01	592.67	0.04	0.00	594.93
1.00			Model Default Tier	Cranes	0.45	2.12	5.39	0.22	0.20	0.01	558.79	0.18	0.01	564.81
			Model Default Tier	Crawler Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Excavators	0.25	3.27	2.41	0.12	0.11	0.01	500.12	0.16	0.00	505.51
			Model Default Tier	Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Generator Sets	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Graders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.00			Model Default Tier	Off-Highway Trucks	1.33	7.62	12.65	0.46	0.42	0.03	2,557.25	0.83	0.02	2,584.79
			Model Default Tier	Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other General Industrial Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other Material Handling Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pavers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Pumps	0.42	3.76	3.53	0.21	0.21	0.01	623.04	0.04	0.00	625.36
1.00			Model Default Tier	Rollers	0.21	1.89	2.08	0.13	0.12	0.00	254.07	0.08	0.00	256.80
			Model Default Tier	Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

			Model Default Tier	Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Signal Boards	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Tractors/Loaders/Backhoes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Welders	0.34	1.77	1.57	0.09	0.09	0.00	207.48	0.03	0.00	208.76

User-Defined Off-road Equipment

If non-default vehicles are used, please provide information in 'Non-default Off-road Equipment' tab

Number of Vehicles	Equipment Tier	Type		ROG pounds/day	CO pounds/day	NOx pounds/day	PM10 pounds/day	PM2.5 pounds/day	SOx pounds/day	CO2 pounds/day	CH4 pounds/day	N2O pounds/day	CO2e pounds/day
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving		pounds per day		3.69	26.19	34.45	1.53	1.44	0.06	6,203.21	1.65	0.05	6,260.62
Paving		tons per phase		0.02	0.14	0.19	0.01	0.01	0.00	34.12	0.01	0.00	34.43
Total Emissions all Phases (tons per construction period) =>				0.17	1.19	1.59	0.07	0.07	0.00	287.01	0.08	0.00	289.68

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

Equipment	User Override of Horsepower	Default Values Horsepower	User Override of Hours/day	Default Values Hours/day	Horsepower	Load Factor adjustment
Aerial Lifts		63		8	63.00	0.31
Air Compressors		78		8	78.00	0.48
Bore/Drill Rigs		221		8	221.00	0.50
Cement and Mortar Mixers		9		8	9.00	0.56
Concrete/Industrial Saws		81		8	81.00	0.73
Cranes		231		8	231.00	0.29
Crawler Tractors		212		8	212.00	0.43
Crushing/Proc. Equipment		85		8	85.00	0.78
Excavators		158		8	158.00	0.38
Forklifts		89		8	89.00	0.20
Generator Sets		84		8	84.00	0.74
Graders		187		8	187.00	0.41
Off-Highway Tractors		124		8	124.00	0.44
Off-Highway Trucks		402		8	402.00	0.38
Other Construction Equipment		172		8	172.00	0.42
Other General Industrial Equipment		88		8	88.00	0.34
Other Material Handling Equipment		168		8	168.00	0.40

Pavers		130		8	130.00	0.42	
Paving Equipment		132		8	132.00	0.36	
Plate Compactors		8		8	8.00	0.43	
Pressure Washers		13		8	13.00	0.30	
Pumps		84		8	84.00	0.74	
Rollers		80		8	80.00	0.38	
Rough Terrain Forklifts		100		8	100.00	0.40	
Rubber Tired Dozers		247		8	247.00	0.40	
Rubber Tired Loaders		203		8	203.00	0.36	
Scrapers		367		8	367.00	0.48	
Signal Boards		6		8	6.00	0.82	
Skid Steer Loaders		65		8	65.00	0.37	
Surfacing Equipment		263		8	263.00	0.30	
Sweepers/Scrubbers		64		8	64.00	0.46	
Tractors/Loaders/Backhoes		97		8	97.00	0.37	
Trenchers		78		8	78.00	0.50	
Welders		46		8	46.00	0.45	

END OF DATA ENTRY SHEET