INITIAL STUDY AND MITIGATED NEGATIVE DECLARATION OF ENVIRONMENTAL IMPACT

Sonoma Valley County Sanitation District
Sewer Trunk Main Replacement Project, Reaches 4A, 4B and 4C

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POSTING AND REVIEW PERIOD:
December 7, 2018 to January 7, 2019

Suggested Reference

Sonoma Valley County Sanitation District. 2018. Sonoma Valley County Sanitation District Sewer Trunk Replacement Project, Reaches 4A, 4B, and 4C Draft Initial Study and Mitigated Negative Declaration of Environmental Impact. December 2018.

American Disabilities Act Compliance

This Draft Initial Study and Mitigated Negative Declaration of Environmental Impact for the Sonoma Valley County Sanitation District's proposed Sewer Trunk Replacement Project, Reaches 4A, 4B, and 4C has been prepared to be compliant 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 Valley County Sanitation District 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, at (707) 526-5370 and reference the Draft Initial Study and Mitigated Negative Declaration of Environmental Impact for the Sonoma Valley County Sanitation District Sewer Trunk Replacement Project, Reaches 4A, 4B, and 4C, dated December 2018.

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1.0 INTRODUCTION

Introduction

The Sonoma Valley County Sanitation District[a] (District) is the lead agency in accordance with the California Environmental Quality Act (CEQA) for the proposed Sonoma Valley County Sanitation District Sewer Trunk Main Replacement Project, Reaches 4A, 4B and 4C (Proposed Project). Sonoma County Water Agency (Sonoma Water) staff, on behalf of the District,[b] has prepared this Initial Study and Mitigated Negative Declaration of Environmental Impact (IS/MND) to provide the public, responsible agencies, and trustee agencies with information about the potential environmental effects of the Proposed Project. This IS/MND was prepared pursuant to the requirements of the CEQA (California Public Resources Code Sections 21000 et seq.), the State CEQA Guidelines (Code of Regulations, Title 14, Division 6, Chapter 3), and Sonoma Water's Procedures for the Implementation of CEQA.

Purpose of Initial Study

This IS/MND is an informational document to be used in the decision-making process. After completion of the public review period for this document, this IS/MND, along with a summary of comments submitted and the District's response to those comments, will be brought before the District's Board of Directors for their consideration.

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

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

[a] The District's Board of Directors is comprised of the Mayor of the City of Sonoma, and the Chair and First District Supervisor of the County of Sonoma's Board of Supervisors.

[b] Sonoma Water manages and operates the District under contract.

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

Initial Study Review

Sonoma Water is circulating this IS/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/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 in your agency for all future correspondence on this subject.

Please send comments to:
Yvette O'Keefe, Senior Environmental Specialist
Sonoma County Water Agency
404 Aviation Boulevard
Santa Rosa, CA 95403

Or email comments to:
yokeefe@scwa.ca.gov

2.0 PROJECT DESCRIPTION

Project Background

The District's wastewater collection system includes approximately 188 miles of gravity flow pipelines. The sewer trunk main of the collection system is 10 miles in length, beginning in unincorporated Glen Ellen and ending at the District's wastewater treatment plant on 8th Street East, south of the City of Sonoma in unincorporated Sonoma County. The first segments of the trunk system were installed in 1914 in the City of Sonoma. Additional portions of the sewer trunk main system were installed in the 1950s. The majority of the collection system was constructed prior to the enactment of CEQA. In 1979, a diversion line was constructed that diverts flow from the sewer trunk main to accommodate higher wet weather flows. The 1979 diversion line was assessed under a 1976 Supplemental Environmental Impact Report for the District's Reclamation and Water Pollution Control Facilities project.

The District's wastewater treatment plant and collection system operations are regulated by the San Francisco Bay Regional Water Quality Control Board (Regional Board) under the Waste Discharge Requirements (WDRs) adopted in Regional Board Order (Order) No. R2-2014-0020 and National Pollutant Discharge Elimination System (NPDES) Permit No. CA0037800, dated May 14, 2014. In addition, the collection system is subject to State Water Resources Control Board (State Board) Order No. 2006-003-DWQ, Statewide General Waste Discharge Requirements for Sanitary Sewer Systems Sanitary Sewer Water Quality (WQ) Order No. 2006-0003, and State Board Order No. WQ 2013-0058-EXEC (Amending Monitoring and Reporting Program for Statewide General Waste Discharge Requirements for Sanitary Sewer Systems).

In April 1999, the Regional Board issued a Notice of Violation to the District in response to wet weather overflows from the collection system. Accordingly, the District began the Collection System Replacement project. This ongoing project consists of replacing or repairing approximately 26 miles of the collection system.

As a result of threatened or continued discharge violations of the District's operating Order, the Regional Board adopted Cease and Desist Order (CDO) No. R2-2015-0032 on June 10, 2015. The Regional Board provided a schedule to allow for the development of a phased project to remedy the problem of discharge violations and to bring the District into compliance with the CDO. The CDO requires the District to complete a capital improvement phased project and achieve full compliance with all applicable WDRs by October 31, 2022.

Project Purpose and Need

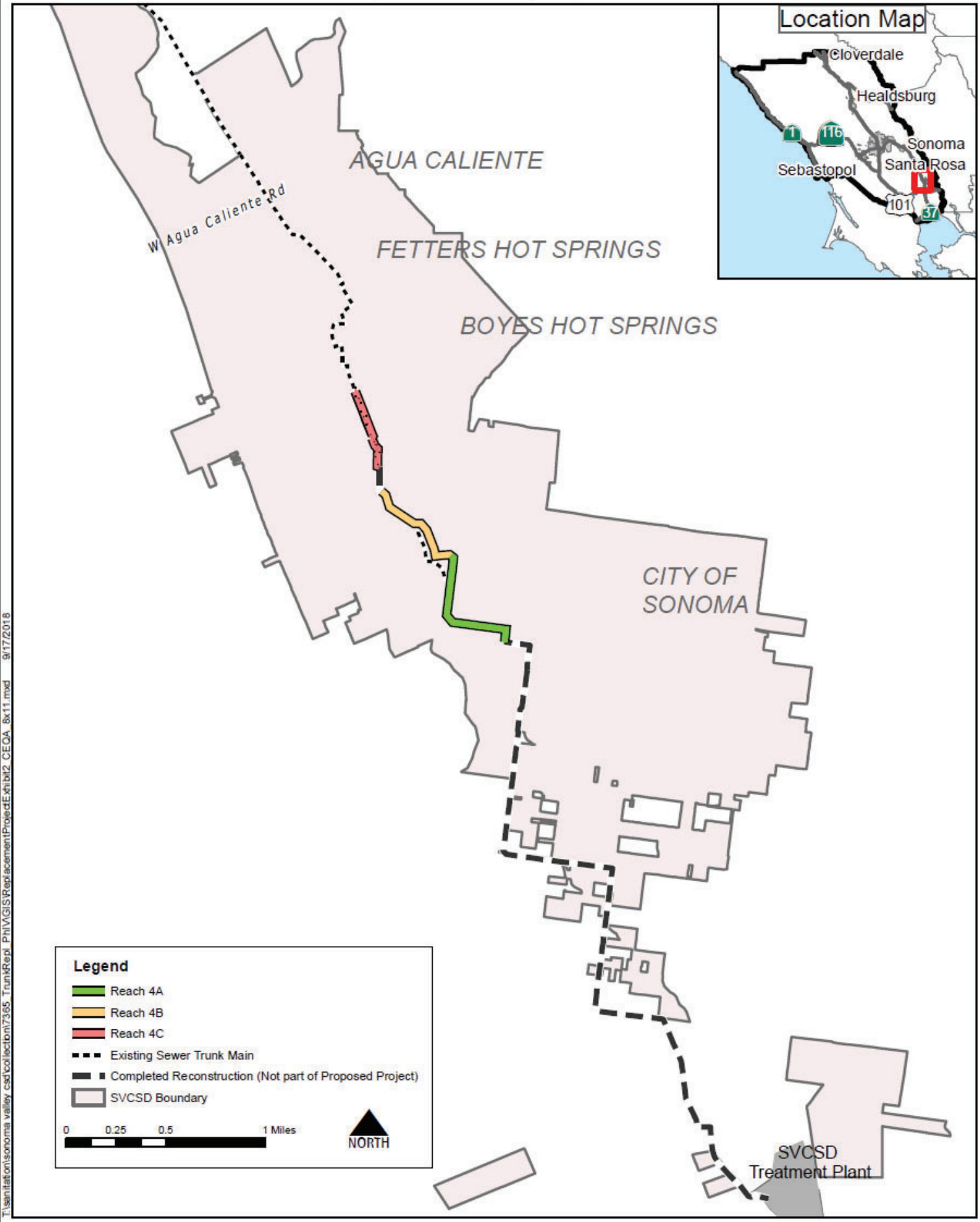
The purpose of the Proposed Project is to repair and improve the existing sewer trunk main to reliably handle dry and wet weather inflows. Implementation of the Proposed Project would address structural deficiencies in the existing trunk main, provide conveyance capacity to accommodate the 10-year, 24-hour storm, reduce or eliminate sanitary system overflows, enhance the system's wet weather capacity and reliability, improve surface water quality, mitigate settlement potential of the high liquefaction potential zone that the sewer trunk main bisects, address issues identified by CDO No. R2-2015-0032, and bring the District into compliance with its operating Order.

Project Location

The Proposed Project would be located in Sonoma County, including areas within unincorporated Sonoma County in the southern portion of Sonoma Valley and areas within the City of Sonoma, California, as shown on Figure 2-1. Sonoma Valley is located in southeastern Sonoma County between the Mayacamas Mountains and the Sonoma Mountains, approximately 20 miles north of San Francisco Bay and 17 miles southeast of the City of Santa Rosa. The Proposed Project would be within the District's service area boundary, west of State Route 12 (Highway 12) and south of Orchard Avenue. The Proposed Project is located within existing and new easements within private properties, public streets in the City of Sonoma right-of-way, Highway 12 in California Department of Transportation District 4 (Caltrans) right-of-way, and Maxwell Farms Regional Park in the County of Sonoma right-of-way.

The Proposed Project area is within a semi-natural suburban setting that contains businesses, residences, paved roads, recreational fields, ornamental landscaping, non-native annual grassland, valley oak and riparian woodlands, an ephemeral stream, and seasonal wetlands. The Proposed Project is comprised of three phases that each have different habitat characteristics.

Figure 2-1 Project Location Map
Sonoma Valley County Sanitation District
Sewer Trunk Main Replacement Project, Reaches 4A, 4B and 4C



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Proposed Project Description

The Proposed Project would allow the District to comply with conditions set forth in Order No. R2-2015-0032. The Proposed Project includes the replacement of a portion of the District's existing 59-year-old 21-inch diameter reinforced concrete sewer trunk main pipeline with polyvinyl chloride (PVC) pipe (including manholes, connecting sewer lines, and other appurtenances). Please refer to Figure 2-1 for an overview of the proposed routes for the Proposed Project. The below text describes the proposed construction activities to be completed in each reach.

Reach 4A

The Reach 4A portion of the Proposed Project would be located within Caltrans and City of Sonoma rights-of-way. Reach 4A would begin at a new manhole at the intersection of 6th Street West and Studley Street. The new sewer trunk main would run north and parallel to the existing sewer trunk up 6th Street West to the intersection of West Napa Street/ Highway 12. It would continue west and north along Highway 12 and connect to the existing sewer trunk main at manhole M126-002 near the intersection of Highway 12 and Lyon Street, then is proposed to stay within Highway 12 for approximately 630 feet, then turn west and stub into Ramon Street (just outside of Caltrans right of way). The portion of the new trunk sewer near Ramon Street would be relocated further east into Highway 12 in order to locate it further away from Sonoma Creek and outside of the high liquefaction potential zone.

Currently, at about 50 feet north of the intersection of Highway 12 and Lyon Street, the existing sewer trunk main turns west approximately 140 feet, thence parallel to the east bank of Sonoma Creek to Ramon Street. Please refer to Figures 2-1 and 2-2.

Reach 4A would consist of the following proposed construction activities:

Reach 4A
6th Street West (City of Sonoma right-of-way)
1. Excavation a. Open trench ▪ Approximately 340-linear feet by 48 to 52-inches wide by 16 to 20-feet deep ▪ Approximately 20-linear feet by 18 to 24-inches wide by 14 to 15-feet deep ▪ Trench shoring - Approximately 360-linear feet b. Temporary bypass pumping and associated piping

Reach 4A (continued)

6th Street West (City of Sonoma right-of-way) (continued)

2. Sewer Pipelines
   a. Install new PVC sewer pipe
      - 27-inch pipe: approximately 340-linear feet
      - 6-inch pipe: approximately 20-linear feet
   b. Remove existing asbestos cement sewer pipe
      - 6-inch pipe: approximately 20-linear feet
   c. Abandon existing reinforced concrete sewer pipe
      - 21-inch pipe: approximately 330-linear feet
      - 6-inch diameter: approximately 10-linear feet

3. Manholes
   a. Install new concrete manholes
      - 60-inch manhole: 2
   b. Remove existing manhole
      - 60-inch manhole: 1
   c. Abandon existing manhole
      - 60-inch manhole: 1

4. Roadway Surface Restoration
   a. Repave trench to match existing pavement
      - Approximately 300-square yards
   b. Repair or replace impacted pavement striping, markings and markers

Highway 12 (Caltrans right-of-way)

1. Excavation
   a. Open trench
      - Approximately 3,300-linear feet by 42 to 52-inches wide by 11 to 26-feet deep
      - Approximately 50-linear feet by 24 to 33-inches wide by 15 to 20-feet deep
      - Approximately 200-linear feet by 18 to 24-inches wide by 7 to 17-feet deep
      - Trench shoring
        - Approximately 3,550 linear feet
   b. Temporary bypass pumping and associated piping
   c. Receiving pit (jack and bore technique)
      - Approximately 10 to 70-feet long by 10-feet wide
   d. Ductile iron pipe casing for jack and bore technique
      - 42 to 52-inches ductile iron pipe casing: approximately 280-linear feet
   e. Jacking pit (jack and bore technique)
      - Approximately 10 to 30-feet long by 10 to15-feet wide

Reach 4A (continued)

Highway 12 (Caltrans right-of-way) (continued)

2. Sewer Pipelines
   a. Install new PVC sewer pipe
      - 27-inch pipe: approximately 3,300-linear feet
      - 21-inch pipe: approximately 10-linear feet
      - 15-inch pipe: approximately 40-linear feet
      - 12-inch pipe: approximately 10-linear
      - 8-inch pipe: approximately 130-linear feet
      - 6-inch pipe: approximately 40-linear feet
      - 4-inch pipe: approximately 30-linear feet
   b. Remove existing asbestos cement sewer pipe
      - 10-inch pipe: approximately 30-linear feet
      - 6-inch pipe: approximately 40-linear feet
   c. Remove existing vitrified clay sewer pipe
      - 6-inch pipe: approximately 10-linear feet
   d. Abandon existing reinforced concrete sewer pipe
      - 21-inch pipe: approximately 330-linear feet
   e. Abandon existing vitrified clay sewer pipe
      - 15-inch pipe: approximately 30-linear feet
      - 8-inch pipe: approximately 40-linear feet
   f. Abandon existing asbestos cement sewer pipe
      - 10-inch pipe: approximately 10-linear feet
      - 6-inch pipe: approximately 40-linear feet of existing

3. Manholes
   a. Install new concrete manholes
      - 48-inch manhole: 2
      - 60-inch manhole: 10
   b. Modify existing manholes
      - 48-inch manhole: 4
      - 60-inch manhole: 1
   c. Remove existing manholes
      - 60-inch manhole: 5
   d. Abandon existing manholes
      - 60-inch manhole: 4

Reach 4A (continued)

Highway 12 (Caltrans right-of-way) (continued)

4. Roadway Surface Restoration
   a. Remove and replace curb and gutter
      - Approximately 10-linear feet
   b. Remove and replace sidewalk
      - Approximately 70-square feet
   c. Repave trench to match existing pavement
      - Approximately 2,610-square yards
   d. Repair or replace impacted traffic signal sensors
      - Approximately 5 traffic sensor loops
   e. Repair or replace impacted pavement striping, markings and markers

Ramon Street (easements through private property and public right of way)

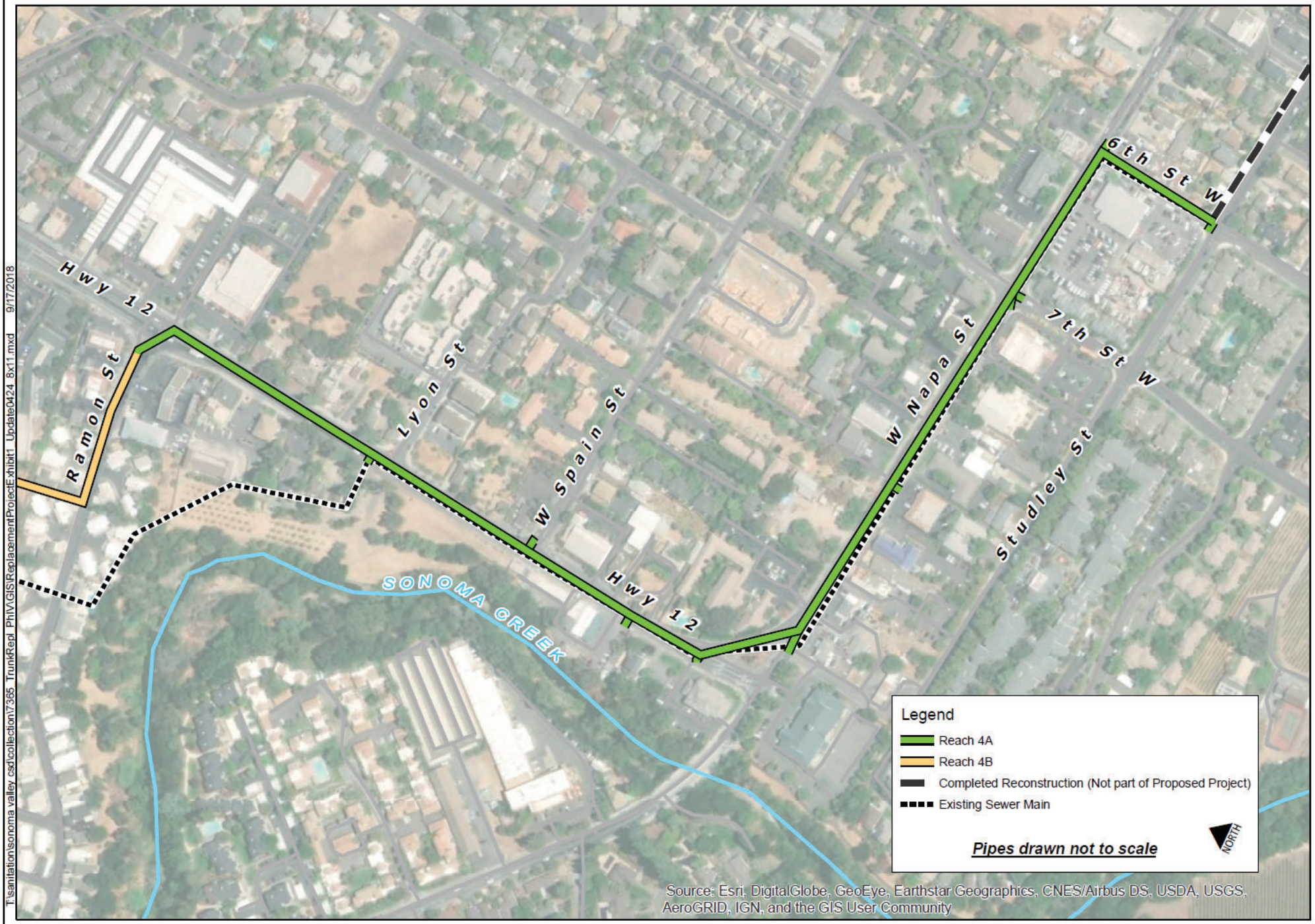
1. Excavation
   a. Open trench
      - Approximately 50-linear feet by 48 to 52-inches wide by 18 to 27-feet deep
      - Trench shoring
        - Approximately 50 linear feet

2. Sewer Pipelines
   a. Install new PVC sewer pipe
      - 27-inch pipe: approximately 50-linear feet

3. Manholes
   a. Install new concrete manholes
      - 60-inch manholes: 1

4. Roadway Surface Restoration
   a. Repave trench to match existing pavement
      - Approximately 25-square yards

Figure 2-2 Project Location Map Sonoma Valley County Sanitation District Sewer Trunk Main Replacement Project - Reach 4A



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Reach 4B

Reach 4B portion of the Proposed Project would be located within easements through private property (Sonoma Oaks Mobile Home Park and Ramon Street), within the County of Sonoma's Maxwell Farms Regional Park, and within County of Sonoma right-of-way (Verano Avenue). Reach 4B begins in Ramon Street at the northern most termination of Reach 4A near the intersection with Highway 12, continues west on Ramon Street through the Sonoma Oaks Mobile Home Park, thence north through Maxwell Farms Regional Park and continues under Verano Avenue to connect to the existing sewer trunk main at manhole M103-21 just north of Verano Avenue. The alignment of Reach 4B parallels the existing sewer trunk main, with the exception of the portion in Ramon Street that is being relocated further east in order to move it further away from Sonoma Creek and the high liquefaction potential zone. Please refer to Figures 2-1 and 2-3.

Reach 4B would consist of the following proposed construction activities:

Reach 4B
Ramon Street and Sonoma Oaks Mobile Home Park (easements through private property
1. Excavation a. Open trench ▪ Approximately 410-linear feet by 48 to 52-inches wide by 18 to 27-feet deep b. Trench shoring ▪ Approximately 410 linear feet c. Receiving pit (jack and bore technique) ▪ Approximately 10-feet long by 10-feet wide d. Ductile iron pipe casing for trenchless construction technique ▪ 42-inch ductile iron pipe casing: approximately 140 linear feet e. Temporary bypass pumping and associated piping
2. Sewer Pipelines a. Install new PVC sewer pipe ▪ 27-inch pipe: approximately 410-linear feet ▪ 27-inch pipe sleeved in steel casing: approximately 140-linear feet
3. Manholes a. Install new concrete manholes ▪ 60-inch manholes: 2 b. Modify existing manholes ▪ 60-inch manhole: 1

Reach 4B (continued)

Ramon Street and Sonoma Oaks Mobile Home Park (easements through private property) (continued)

4. Roadway Surface Restoration
   a. Remove and replace curb and gutter
      - Approximately 10 linear feet
   b. Repave trench to match existing pavement
      - Approximately 340-square yards

Maxwell Farms Regional Park and Verano Avenue (Sonoma County right-of-way)

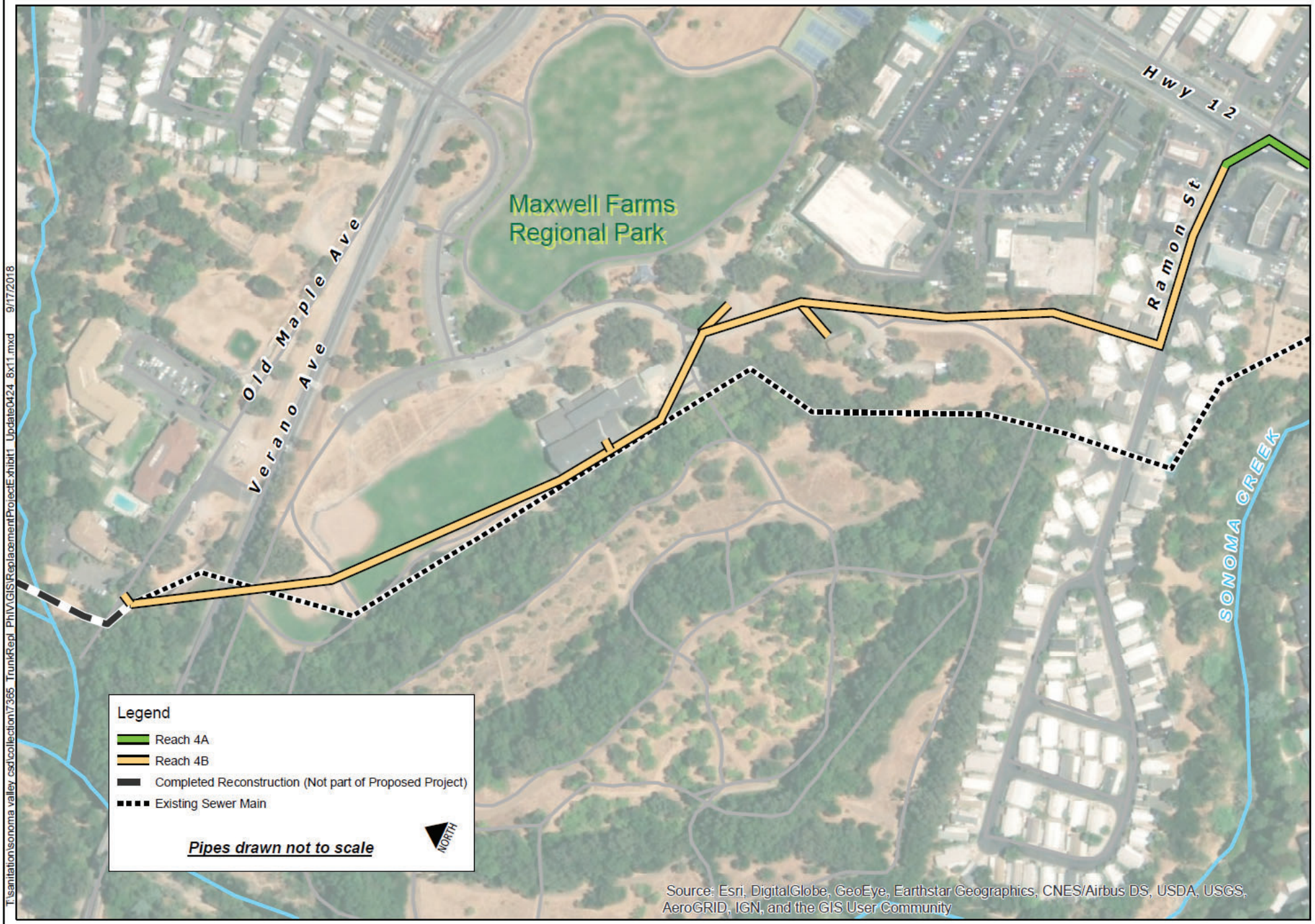
1. Excavation
   a. Open trench
      - Approximately 2,240-linear feet by 48 to 52-inches wide by 11 to 26-feet deep
      - Approximately 160-linear feet by 18 to 24-inches wide by 3 to 10-feet deep
   b. Trench shoring
      - Approximately 2,400-linear feet
   c. Jacking pit (jack and bore technique)
      - Approximately 30-feet long by 15-feet wide
   d. Temporary bypass pumping and associated piping

2. Sewer Pipelines
   a. Install new PVC sewer pipe
      - 27-inch pipe: approximately 2,240-linear feet
      - 4-inch pipe: approximately 160-linear feet
   b. Abandon existing reinforced concrete sewer pipe
      - 21-inch pipe: approximately 1,090-linear feet
      - 8-inch pipe: approximately 120-linear feet
      - 4-inch pipe: approximately 150-linear feet
   c. Abandon existing PVC sewer pipe
      - 27-inch pipe: approximately 10-linear feet

3. Manholes
   a. Install new concrete manholes
      - 60-inch manholes: 9
   b. Remove existing manholes
      - 60-inch manhole: 2
   c. Abandon existing manholes
      - 48-inch manhole: 1
      - 60-inch manhole: 6

Reach 4B (continued)
Maxwell Farms Regional Park and Verano Avenue (Sonoma County right-of-way) (continued)
4. Surface Restoration a. Restore turf area ▪ Approximately 500-square yards b. Restore bicycle path area ▪ Approximately 10-square yards c. Restore baseball field area ▪ Approximately 150-square yards d. Restore volleyball area ▪ Approximately 100-square yards e. Restore gravel access road ▪ Approximately 440-square yards f. Repave trench to match existing pavement ▪ Approximately 510-square yards g. Repair or replace impacted pavement striping, markings and markers ▪ Approximately 30-linear feet
5. Miscellaneous Structures a. Temporarily relocate metal storage container during construction b. Remove existing rock wall c. Extend existing 18-inch diameter corrugated metal storm drain pipe approximately 20-feet

Figure 2-3 Project Location Map Sonoma Valley County Sanitation District Sewer Trunk Main Replacement Project - Reach 4B



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Reach 4C

Reach 4C portion of the Proposed Project would be located in a mixture of public streets and private property. Reach 4C begins near the south end of Buena Vida Drive, then continues north through to Happy Lane. Reach 4C starts near the south end of Buena Vida Drive at Manhole 103-29, thence northwest approximately 30-feet crossing Lilley Creek, thence north paralleling to the existing sewer trunk main within easements through private property (along the west side of Lilley Creek) approximately 800 feet to Happy Lane, then continues north along Happy Lane for approximately 1,280 feet connecting to the existing sewer trunk main at manhole M90-3, including re-establishing existing connections to the new sewer trunk main. Please refer to Figures 2-1 and 2-4.

Reach 4C would consist of the following proposed construction activities:

Reach 4C
Easements through private property
1. Excavation a. Open trench ▪ Approximately 730 to 860-linear feet by 48 to 52-inches wide by 5 to 8-feet deep ▪ Approximately 80-linear feet by 18 to 24-inches wide by 6 to 7-feet deep b. Trench shoring ▪ Approximately 810 to 940-linear feet c. Jacking pit within private property (jack and bore technique) ▪ Approximately 30-feet long by 15-feet wide d. Temporary bypass pumping and associated piping
2. Sewer Pipelines a. Install new PVC sewer pipe ▪ 27-inch pipe: approximately 860-linear feet ▪ 6-inch pipe: approximately 70-linear feet ▪ 4-inch pipe: approximately 10-linear feet b. Abandon or remove existing reinforced concrete sewer pipe ▪ 21-inch pipe: approximately 830-linear feet c. Abandon or remove existing vitrified clay sewer pipe ▪ 6-inch pipe: approximately 70-linear feet ▪ 4-inch pipe: approximately 10-linear feet
3. Manholes/Cleanouts a. Install new manholes ▪ 60-inch manhole: 8 b. Remove existing manholes ▪ 60-inch manholes: 6

Reach 4C (continued)

Easements through private property (continued)

4. Other Utilities
   a. Relocate and install
      - 1-inch Polyethylene water service pipe: approximately 250-linear feet
      - 1-inch Polyethylene gas service pipe: approximately 60-linear feet
   b. Abandon other utility pipe
      - 1-inch diameter Polyethylene water service pipe: approximately 250-linear feet
      - 1-inch diameter Polyethylene gas service pipe: approximately 60-linear feet

5. Roadway Surface Restoration
   a. Repave trench to match existing driveway pavement
      - Approximately 200-square yards

6. Miscellaneous Structures
   a. Potentially remove and reconstruct swimming pool and associated concrete decking

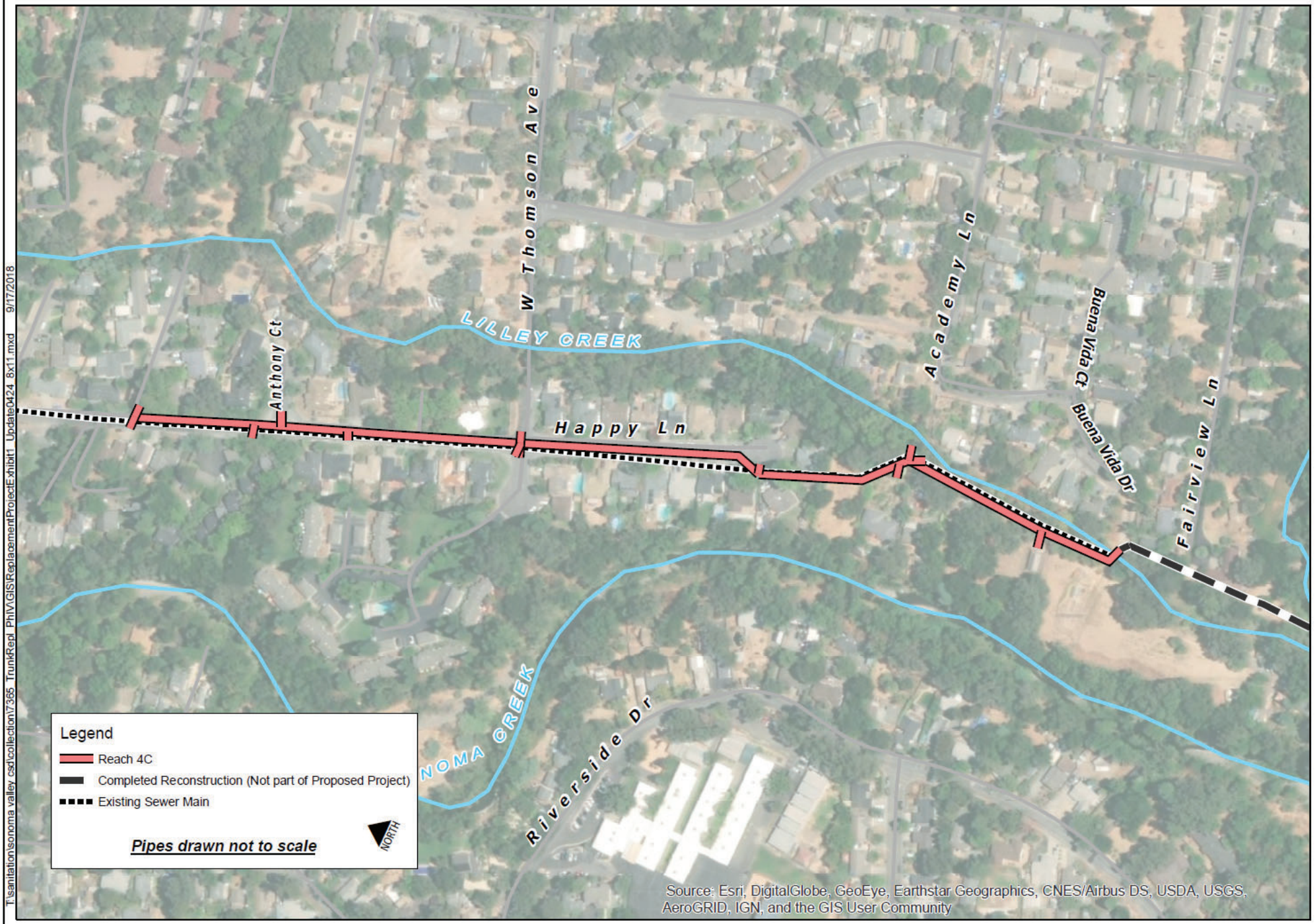
Happy Lane (Sonoma County right-of-way)

1. Excavation
   a. Open trench
      - Approximately 1,280-linear feet by 48 to 52-inches wide by 5 to 11-feet deep
   b. Trench shoring
      - Approximately 1,280 linear feet
   c. Temporary bypass pumping and associated piping
   d. Receiving pit (jack and bore technique)
      - Approximately 10-feet long by 10-feet wide
   e. Jack and bore technique
      - 42-inch ductile iron pipe casing: approximately 130-linear feet

2. Sewer Pipelines
   a. Install new PVC sewer pipe
      - 27-inch pipe: approximately 1,280-linear feet
      - 6-inch pipe: approximately 50-linear feet
   b. Remove existing reinforced concrete sewer pipe
      - 21-inch pipe: approximately 930-linear feet
   c. Remove existing asbestos cement sewer pipe
      - 6-inch pipe: approximately 25-linear feet

Reach 4C (continued)
Happy Lane (Sonoma County right-of-way) (continued)
d. Remove existing PVC sewer pipe ▪ 6-inch pipe: approximately 20-linear feet e. Remove existing vitrified clay sewer pipe ▪ 6-inch pipe: approximately 5-linear feet f. Abandon existing reinforced concrete sewer pipe ▪ 21-inch pipe: approximately 350-linear feet
3. Manholes a. Install new manholes ▪ 60-inch diameter manholes: 6 b. Remove existing manholes ▪ 60-inch diameter manholes: 6
4. Roadway Surface Restoration a. Remove and reconstruct existing pedestrian ramps to meet current American Disability Act requirements ▪ Pedestrian ramps: 5 b. Grind and repave half to full width of street to match existing pavement ▪ Approximately 4,400-square yards c. Repair or replace impacted pavement striping, markings and markers ▪ Approximately 40-square feet

Figure 2-4 Project Location Map Sonoma Valley County Sanitation District Sewer Trunk Main Replacement Project - Reach 4C



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Project Implementation

In general, project construction would occur in the following sequence: site clearing (vegetation removal), open trench or trenchless construction techniques, pipe and manhole installation, trench backfilling in short segments extending in phases down the length of the pipeline alignment, and bore pit backfilling. During project construction stormwater, groundwater, and spoil management would occur. In addition, bypass pumping would be required for making connections to the existing system at both ends of the new sewer trunk main and at the various collection sewer connection locations along the new sewer trunk main. During construction, sewage flow would be bypassed around the construction area and routed back into the District's existing sewer system or into the District's parallel infiltration and inflow pipeline (where available). Bypassing of the sewer flows would either be achieved by a gravity pipeline connection, or by pumping from manhole to manhole. Portions of the existing pipe and manholes that would not be replaced would be abandoned upon completion of new pipe installation. Site restoration would be conducted last. These project activities are described further in the following sub-sections.

Construction Techniques

The Proposed Project (including the trunk main, manholes and connecting sewer lines) is designed to be constructed primarily by open trench excavation, with trenchless construction techniques used in select locations. Sewer system excavations would be structurally shored pursuant to shoring plans as prepared by a California licensed engineer in accordance with Occupational Safety and Health Administration (OSHA) requirements. Any necessary dewatering would be conducted pursuant to all applicable State Board regulations.

Construction Corridor

The construction corridor on average would be approximately 30 feet in width, 10 feet on one side of the pipeline alignment, and approximately 20 feet wide on the opposite side to facilitate loading of dump trucks. However, the corridor width would vary depending on resource, easement, rights-of-way and traffic constraints.

Vegetation Removal

The Proposed Project would require removal of shrubs and trees. In addition, some pruning could be required to provide access along the pipeline alignment.

Open Trenches

Most of the construction would be installed using standard cut and cover trenching techniques, with the exception of three potential trenchless construction technique locations (Highway 12, crossing between existing residences at Ramon Street, and crossing between existing residences at Happy Lane). Following vegetation removal, including trees and shrubs and grubbing of the topsoil, excavation of open trenches would commence for the new pipeline alignment. Excavations would be structurally shored pursuant to shoring plans as prepared by a California licensed engineer in accordance

with OSHA requirements. Construction methods for the trenches would primarily be shored to the entire depth of the excavation allowing an approximate 48 to 52-inch wide trench to lay the pipe in, or potentially may be opened to full depth without shoring by sloping and benching to reach the final depth in select locations. The depth of the trench varies from approximately 5 to 27 feet below the ground surface, depending on the elevation of the existing grade and position along the pipeline alignments.

Trenches would be excavated in short sections of 40 to 200 feet per day (depending on the location and depth of the pipe) using an excavator. Excavated soils would be loaded directly into trucks staged alongside the trench or stockpiled adjacent to the trench, space permitting. Trenches would be backfilled, plated with traffic rated metal plates, or secured with construction fencing around the trench, to prevent entry overnight. Pipe installation would occur as described in the next section. Following pipe installation, the trench would be backfilled with imported materials in roadway areas and backfilled with stockpiled soils in non-roadway areas. Disposal of excess spoils are discussed in the Spoils Management subsection below.

Trenchless Techniques

Portions of the pipeline (potentially three locations) would be installed using trenchless construction techniques (jack and bore). These techniques are used for installing underground pipelines for short distances where space is limited and conditions require minimal disturbance to the ground surface. Each undercrossing would require a jacking pit and receiving pit.

Jack and Bore

This method employs a steel casing that is advanced by hydraulic jacks that push the casing from the entry pit to a receiving pit. As the steel casing is advanced forward, additional sections of steel casing are welded into the pipe string until the final length is achieved. Each undercrossing would require a jacking pit measuring approximately 25 feet long by 10 feet wide, and a receiving pit measuring approximately 10 feet long by 10 feet wide. These temporary pits would be excavated slightly deeper than the sewer trunk main, require trench shoring, and would be backfilled with imported materials in roadway areas; excavated soils would be retained for backfill in non-roadway areas. Pipeline installation by this method would require approximately one to two weeks at the various locations.

Pipeline Installation

Portions of the new pipeline would be installed using standard cut and cover trenching techniques (as described above), and would be bedded in granular material, with the balance of the trench backfilled with aggregate class 2 base rock compacted to a minimum 95 percent (%) relative compaction, or bedded and backfilled with controlled density fill (CDF).

Native backfill would be used as much as possible; however, it is estimated that approximately 6,000 cubic yards of imported granular bedding and backfill material and approximately 12,000 cubic yards of CDF material would be placed as part of pipeline installation, with subsequent off-haul of approximately18,000 cubic yards of native soils.

Connections between the new pipeline segments and the District's existing collection system would be made at 26 separate locations, ten on the northern 4C reach, five on the southern 4B reach, and eleven on the southern 4A reach.

Pipeline and Manholes Abandoned in Place

Pipelines to be abandoned in place would be filled with cellular concrete. For manholes to be abandoned in place, the frame, cover, cone and portion of the barrel sections would be removed to a depth of three feet or more below ground surface. These would be backfilled with imported materials in roadway areas and backfilled with trench spoils in non-roadway areas.

Spoils Management

Up to approximately 23,000 cubic yards of spoils would be generated from trench construction (5,000 cubic yards would be backfilled and approximately 18,000 cubic yards would be off-hauled). In non-roadway areas, the excavated material would be temporarily stockpiled and then backfilled in the trenches after pipeline installation. Excess trench spoils would become the property of the contractor, to be disposed of offsite in accordance with all local, state and federal laws and regulations.

Restoration

Following construction activities, disturbed areas would be restored by reestablishing existing topography, including repaving roadways, and reseeding with a native seed mix (hydroseed) in applicable areas.

Pipeline installation in roadways would require paving when complete. Paved roads that would be impacted by project construction include 6th Street West, Highway 12, Ramon Street, Verano Avenue, and Happy Lane.

Construction Equipment

Required construction equipment would include, but would not be limited to the following:

- excavator
- dump trucks
- water trucks
- utility and flatbed trucks
- backhoe/loader

- air compressors
- pneumatic tools (jack hammer, hammer/pile driver)
- power hand tools including a concrete saw
- portable generator
- boring jack power unit
- dewatering sump pumps, related pressure piping and electrical supply
- large water storage tank
- compacting equipment
- concrete trucks and concrete pumper equipment
- paving equipment (asphalt hauling trucks, compactors, asphalt paver, smooth drum rollers, and grader)
- temporary sewer bypass systems including pumps (engine or electric motor driven – depending upon the amount of flow required) with temporary pressure piping to convey wastewater from manhole to manhole through the construction area, as needed, during the construction period.

Duration of Construction

Construction of the Proposed Project would be conducted in phases. The duration of project construction for Reach 4A would be up to approximately eight months, and for Reaches 4B and 4C would be up to approximately six months each. Construction would proceed linearly at a rate of 40 to 200 feet per day. Construction activities would comply with hours specified in the City of Sonoma's Municipal Code, Chapter 9.56 (Noise), Section 9.56.050(A) Standard Exceptions to General Noise Limits (between 8:00 am – 6:00 pm, Monday through Friday, between 9:00 a.m. and 6:00 p.m. on Saturdays, and between 10:00 a.m. and 6:00 p.m. on Sundays and holidays). If necessary, construction may occur on some Saturdays between 9:00 a.m. and 6:00 p.m. and some Sundays between 10:00 a.m. and 6:00 p.m. to minimize service delays and finish the Proposed Project in a timely manner. Some working days and times may have exceptions (as approved by the District) as required for encroachment permits, safety considerations or certain construction procedures that cannot be interrupted. With exceptions, advance notification of surrounding residents will occur. Some exceptions would comply with the City of Sonoma's Municipal Code, Chapter 9.56 (Noise), Section 9.56.060(A) Exceptions Allowed with Permits. Construction activities within Caltrans right-of-way will require an encroachment permit that may require work to occur at night. It is Caltrans procedure to grant the encroachment permit after a project's CEQA document is approved and certified. In addition, construction activities within the County of Sonoma and City of Sonoma rights-of-way will require encroachment permits that may require work to occur at night. Therefore, if night work is required, it is assumed that construction will occur at night between 8:00 p.m. and 6:00 a.m.

It is anticipated that construction for Reach 4A and a portion of Reach 4B would begin in summer of 2019. Construction for the other portion of Reach 4B is anticipated to begin in summer of 2020 and construction would begin in summer of 2021 for Reach 4C. Construction is planned during summer months when sewer flows and groundwater would the lowest.

Construction Staging Areas

The District's contractor will determine staging areas for Reaches 4A and 4C of the Proposed Project. Staging areas would likely be located within existing vacant parcels near the construction routes. The project staging areas for Reach 4B of the Proposed Project may be located between Verano Avenue and Old Maple Avenue, in one or two vacant lots (approximately 17,415 square feet), and located within Maxwell Farms Regional Park in two open areas (approximately 10,040 square feet), owned by the County of Sonoma. If the sites are not available, the staging area would likely be located within existing vacant parcels near the construction route. Sites identified as potential staging areas would be examined by a qualified biologist prior to construction, and must be approved by the District. If potentially jurisdictional features are found that could be impacted by staging activities, they shall be avoided. All heavy equipment would be stored within the designated construction staging areas.

Project-Incorporated Best Management Practices

Measures to avoid and/or substantially reduce environmental impacts are incorporated in the Proposed Project, as specified in Table 2-1. The District would require the selected contractor(s) to comply with Best Management Practices (BMPs), as defined in project plans and specifications. These BMPs would therefore be implemented as components of the project during all phases of activities associated with the construction of the Proposed Project, and maintenance activities (repair and replacement). BMPs, such as dust and noise control procedures, would be implemented to avoid potential impacts to air quality and noise resources. These practices and procedures are intended to protect the environment by avoiding potential adverse environmental impacts.

Project Operations and Maintenance

Once constructed, the District's newly replaced sections of the collection system would have operation and maintenance activities similar to existing activities. Maintenance activities associated with the Proposed Project would be minimal. Maintenance activities for the pipeline and associated facilities would require routine maintenance trips, periodic inspections, and vegetation management activities. Vegetation management in the rights-of-way could include control of noxious weeds and trimming of shrubs or trees for safety upkeep. In addition, District staff would also repair or replace equipment that reaches the end of its useful lifetime, which would require construction activities.

Table 2-1
Proposed Project Best Management Practices

Number	Title	BMP Description
BMP-1	General Impact Avoidance and Minimization Work Window	A. When feasible, ground-disturbing activities would take place during the dry season, generally between April 15 and October 15. B. When ground disturbing activities occur outside the dry season, work would avoid significant rainfall events. Significant rainfall is defined as 0.5 inch of rain in a 24-hour period. Work would resume when conditions allow and as specified in the Storm Water Pollution Prevention Plan (SWPPP) and Construction General Permit that the contractor would be required to develop for the Proposed Project. C. In anticipation to the first significant rainfall event, exposed soils would be stabilized according to requirements of the SWPPP and BMPs for erosion and sediment control measures listed below in the Erosion and Sediment Control Measures. D. All ground-disturbing activities occurring in Lilley Creek channel (i.e., from top-of-bank to top-of-bank) or within Waters of the United States (U.S.) will take place during the low-flow period, between June 15 and October 15. Exceptions may be made for emergencies or on a project-by-project basis with advance approval of U.S. Army Corps of Engineers (USACE), San Francisco Bay Regional Water Quality Control Board (Regional Board), California Department of Fish and Wildlife (CDFW), National Marine Fisheries Service (NMFS), and/or United States Fish and Wildlife Service (USFWS) as appropriate. E. Work on the upper banks of stream channels may be conducted year round.
BMP-2	Minimize the Area of Disturbance	A. To minimize impacts to natural resources, soil disturbance would be kept to the minimum footprint necessary to complete the project. B. The contractor shall install temporary construction fencing to protect trees and vegetation at the project site that will not be disturbed. C. During construction and as necessary, the contractor shall provide and maintain fences, barriers, signs, and other safety devices adjacent to and on the project site to prevent accidents and damage to property, the environment, and the public.
BMP-3	Tree Protection Measure	A. If required, pruning of trees along the alignment will be minimized and overseen by a certified arborist. B. Tree pruning will be conducted prior to construction to allow construction vehicles to pass safely beneath them without damaging the branches. C. Prior to construction, proposed jacking and receiving pit sites will be identified and evaluated by a certified District arborist to minimize disturbance to trees and avoid creating a hazard. D. In areas where trenchless construction techniques will occur beneath or near the dripline of trees, an arborist will monitor construction to ensure that a majority of the roots are not compromised. E. Special trenching techniques will be implemented in specific areas of the project (open trench areas), which will require that a certified arborist be onsite to ensure that root pruning is performed in accordance with ANSI 300 pruning standards.

Table 2-1 (continued)
Proposed Project Best Management Practices

Number	Title	BMP Description
BMP-3 (cont.)		F. When work is required under dripline of existing trees, mulch would be spread to minimize soil compaction in the work area; and exclusion fencing installed around dripline of all trees to create buffer zones. G. Construction vehicles would be limited to a designated access road that would be clearly indicated. H. Prior to construction, mulch should be spread along the proposed construction access roads to minimize soil compaction in specific areas (i.e., within tree driplines) identified by a District certified arborist. I. Protective fencing shall be installed around all of the trees with as much of a buffer zone as possible in the access and maintenance road construction zone.
BMP-4	Protection for Sensitive Natural Communities	A. During construction, as much understory vegetation and as many trees as possible would be retained. All trees to remain during construction within the grading area will be flagged by contractor for avoidance, and trimmed if necessary to ensure their trunks and/or limbs are not disturbed during construction. Permanent and temporary erosion control measures shall be implemented to minimize erosion and sedimentation during and after construction. Any seeded erosion control products shall be certified weed free.
BMP-5	Special-Status Plant Surveys	A. A qualified District botanist will conduct appropriately timed (blooming period April-October), focused botanical surveys of the project site for special-status plants (includes federally and state listed species) within potential habitat areas (Reaches 4B and C) that could be impacted by Proposed Project activities. B. If discovered, special-status plant populations with the potential to be impacted would be enumerated, photographed, and conspicuously flagged to maximize avoidance, as well as determine the total number of individuals affected. If feasible, the project would be redesigned or modified to avoid direct and indirect impacts on special-status plant species.
BMP-6	Nesting Bird Protection Measures	A. To the extent feasible, construction activities will take place outside the migratory bird and raptor nesting period (February 15 through August 15 for most birds). During the bird nesting season, work sites that are less densely vegetated will be prioritized, to decrease the likelihood of disturbing undiscovered nests. B. If construction activities must be scheduled to occur during the nesting season, a qualified District wildlife biologist, familiar with the species and habitats in the Proposed Project area, would be retained to conduct pre-construction surveys for raptors and nesting birds within suitable nesting habitat within 300 feet of construction activities. The surveys should be conducted within one week before initiation of staging, vegetation management, or construction activities within those habitats. If no active nests are detected during surveys, activities may proceed. Vegetation removal activities will be conducted under the guidance of a biologist.

Table 2-1 (continued)
Proposed Project Best Management Practices

Number	Title	BMP Description
BMP-6 (cont.)		C. If active nests are identified within the construction areas, non-disturbance buffers shall be established at a distance sufficient to minimize disturbance based on the nest location, topography, cover and species' tolerance to disturbance. Buffer size shall be determined in cooperation with the CDFW. If active nests are found within 300 feet of the Proposed Project 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-related activity is resulting in nest disturbance, work shall cease immediately and CDFW shall be contacted. Buffers will be developed through consultation with CDFW. Buffers will remain in place until biologists determine that the young have successfully fledged or nests have been otherwise abandoned.
BMP-7	Pre-Construction Educational Training	A. Prior to construction activities, all personnel would participate in an educational training session conducted by a qualified District biologist. This training would include instruction on how to identify bird nests, recognize special-status species that may occur in work areas, and the appropriate protocol if any nests or special-status species are found during project implementation. B. Personnel who do not receive the initial training must participate in a make-up session before participating in construction activities.
BMP-8	On-Call Wildlife Biologist Description	A. A qualified District biologist would be on-call in southern Sonoma County and available to visit the project area during construction activities in the event a special-status species is encountered.
BMP-9	Erosion and Sediment Control Measures	During construction and maintenance activities, the District's staff and contractor(s) shall follow the following measures: A. Upland soils disturbed or exposed during construction activities shall be seeded and stabilized using erosion control fabric and/or straw, and/or hydroseeding using California native seeds. The channel bed, wetlands, and other areas below ordinary high water mark are exempt from this BMP. B. Erosion control fabrics shall consist of natural fibers that will biodegrade over time. No plastic or other non-porous material will be used as part of a permanent erosion control approach. Plastic sheeting may be used to temporarily protect a slope from runoff. C. Erosion control measures shall be installed according to manufacturer's specifications. D. Appropriate measures include, but are not limited to, the following: i. Silt Fences ii. Straw Bale Barriers iii. Brush or Rock Filters iv. Storm Drain Inlet Protection v. Sediment Traps vi. Sediment Basins

Table 2-1 (continued)
Proposed Project Best Management Practices

Number	Title	BMP Description
BMP-9 (cont.)		vii. Erosion Control Blankets and Mats viii. Straw wattles ix. Soil Stabilization (i.e., tackified straw with native seed, jute or geotextile blankets, broad cast and hydroseeding, etc.) E. All temporary construction-related erosion control methods (e.g., silt fences) shall be removed at the completion of construction, or as directed by a qualified erosion control specialist.
BMP-10	Dust Management, Exhaust Control, and Air Quality Protection	During construction and maintenance activities, the District's staff and contractor(s) shall follow the following measures: A. All disturbed areas, including storage piles, which are not being actively used for construction purposes, shall be effectively stabilized for dust emissions, using water or a chemical stabilizer/suppressant, or by covering with a tarp or other suitable cover or a vegetative ground cover as necessary. B. All on-site unpaved roads shall be effectively stabilized for dust emissions by using water or a chemical stabilizer/suppressant as necessary. C. All land-clearing, grubbing, scraping, excavation, leveling, grading, cut-and-fill, and demolition activities shall be effectively controlled for fugitive dust emissions by applications of water or by presoaking as necessary. D. When materials are transported off-site, all material shall be covered or effectively wetted to limit visible dust emissions, and freeboard space from the top of the container shall be maintained. E. Sweep as necessary (with water sweepers or dry sweepers, as appropriate) all paved access roads, parking areas and staging areas at construction sites. F. Sweep streets as necessary (with water sweepers or dry sweepers, as appropriate) if visible soil material is carried onto adjacent public streets. G. Following the addition of materials to, or the removal of materials from, the surface of outdoor storage piles, the piles shall be effectively stabilized to limit fugitive dust emissions through treatment with sufficient water or a chemical stabilizer/ suppressant. H. All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered a least two times per day. I. All vehicle speeds on unpaved roads shall be limited to 15 mph. J. All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. K. 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 CCR).

Table 2-1 (continued)
Proposed Project Best Management Practices

Number	Title	BMP Description
BMP-10 (cont.)		L. All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked frequently (in accordance with equipment manufacture's recommendations) by a certified mechanic and determined to be running in proper condition. M. Post a publicly visible sign with the telephone number and person to contact at the District regarding dust complaints. This person shall respond and take corrective action within 48 hours.
BMP-11	Staging and Stockpiling of Materials	During construction and maintenance activities, the District's staff and contractor(s) shall follow the following measures: A. To the extent feasible, staging shall occur in disturbed areas that are already paved, or compacted and only support ruderal vegetation. B. Stockpiling of materials, including portable equipment, vehicles and supplies (e.g., chemicals), shall be restricted to the designated construction staging areas. C. No runoff from the staging areas shall be allowed to enter water ways without being subjected to adequate filtration (e.g., vegetated buffer, hay wattles or bales, silt screens). 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. During the dry season, if stockpiled soils will remain exposed and unworked for more than 7 days then erosion control measures will be utilized. During the wet season, no stockpiled soils will remain exposed, unless surrounded by properly installed and maintained silt fencing or other means of erosion control. D. All maintenance-related items including equipment, stockpiled material, temporary erosion control treatments, and trash, will be removed within 72 hours of project completion. All residual soils and/or materials will be cleared from the project site. E. As necessary, to prevent sediment-laden water from being released back into waters of the State 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. If appropriate, and only within the active Proposed Project area where the sediment is loaded into the trucks, trucks may drain excess water by slightly tilting the loads and allowing the water to drain out through the applied filter. F. All spoils will be disposed of in an approved location. Sediments that contain contaminants in excess of hazardous materials disposal criteria will be stockpiled separately on heavy plastic pending disposal at an appropriate hazardous materials disposal location.

Table 2-1 (continued)
Proposed Project Best Management Practices

Number	Title	BMP Description
BMP-12	On-Site Hazardous Materials Management	During construction and maintenance activities, the District and contractor(s) shall follow these measures: A. An inventory of all hazardous materials used (and/or expected to be used) at the worksite and the end products that are produced (and/or expected to be produced) after their use shall be maintained by the worksite manager. B. As appropriate, containers shall be properly labeled with a "Hazardous Waste" label and hazardous waste shall be recycled properly or disposed of off-site. C. Contact of chemicals with precipitation shall be minimized by storing chemicals in watertight containers or in a storage shed (completely enclosed), with appropriate secondary containment to prevent any spillage or leakage. D. Quantities of toxic materials, such as equipment fuels and lubricants, shall be stored with secondary containment that is capable of containing 110% of the primary container(s). E. Petroleum products, chemicals, cement, fuels, lubricants, and non-storm drainage water or water contaminated with the aforementioned materials shall not contact soil and not be allowed to enter surface waters or the storm drainage system. F. All toxic materials, including waste disposal containers, shall be covered when they are not in use, and located as far away as possible from a direct connection to the storm drainage system or surface water. G. All trash that is brought to a project site during construction and maintenance activities (e.g., plastic water bottles, plastic lunch bags, cigarettes) shall be removed from the site daily. H. Sanitation facilities (e.g., portable toilets) will be surrounded by a berm, and a direct connection with soil or to the storm drainage system or receiving water will be avoided. I. Sanitation facilities will be regularly cleaned and/or replaced, and inspected daily for leaks and spills.
BMP-13	Existing Hazardous Materials	A. The project specifications will require the contractor to comply with the District's Standard Contract Documents regarding the removal, handling, containment, and disposal of existing hazardous wastes during construction activities Construction of the facility modifications of any concrete structures may require the removal of concrete that contains asbestos. The District's contractor shall carefully remove and dispose of all concrete containing asbestos from the District Collection System according to Division of Occupational Safety & Health (DOSH), also known as Cal/OSHA, requirements and applicable hazardous waste containment, handling, and disposal laws. All hazardous materials would be disposed of at a properly licensed disposal facility. B. If hazardous materials, such as oil, batteries or paint cans, are encountered at the project site, the District's contractor(s) shall carefully remove and dispose of them according to the *Safety Plan* and *Spill Prevention and Response Plan* (as identified in the District's Standard Contract Documents).

Table 2-1 (continued)
Proposed Project Best Management Practices

Number	Title	BMP Description
BMP-14	Accidental Release of Any Hazardous Materials and/or Wastes	A. The project specifications will require the contractor to comply with the District's Standard Contract Documents to protect the Proposed Project area from being contaminated by the accidental release of any hazardous materials and/or wastes. Disposal of all hazardous materials will comply with all current hazardous waste disposal laws. The construction contractor will contact the local fire agency and the Sonoma County Department of Environmental Health for any site-specific requirements regarding hazardous materials or hazardous waste containment or handling.
BMP-15	Encountered Hazardous Materials	A. The project specifications will require the contractor to prepare a Safety Plan in accordance with the District's Standard Contract Documents. If hazardous materials are encountered during construction activities, the contractor will be required to halt construction immediately and notify the District's Construction Inspection Section. Disposal of all hazardous materials will comply with all applicable hazardous waste disposal laws.
BMP-16	Spill Prevention and Response	During construction, operations, and maintenance activities, the District's staff and contractor(s) shall prevent the accidental release of chemicals, fuels, lubricants, and non-storm drainage water (including untreated wastewater) into channels following these measures: A. All field personnel shall be appropriately trained in spill prevention, hazardous material control, and cleanup of accidental spills. B. Equipment and materials for cleanup of spills will be available on site and spills and leaks shall be cleaned up immediately and disposed of according to guidelines stated in the *Spill Prevention and Response Plan* (developed by the contractor and approved by the District). C. Field personnel shall ensure that hazardous materials are properly handled and natural resources are protected by all reasonable means. D. Spill prevention kits shall always be in close proximity when using hazardous materials (e.g., at crew trucks and other logical locations). All field personnel shall be advised of these locations. E. District staff shall routinely inspect the work site to verify that spill prevention and response measures are properly implemented and maintained. F. The District Construction Inspectors will routinely inspect the work site to verify that the Spill Prevention and Response Plan is properly implemented and maintained. The District will notify contractors immediately if there is a noncompliance issue and will require compliance. i. *Spill Response Measures* 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.

Table 2-1 (continued)
Proposed Project Best Management Practices

Number	Title	BMP Description
BMP-16 (cont.)		a) As defined in 40 CFR 110, a federal reportable spill of petroleum products is the spilled quantity that: i. Violates applicable water quality standards; ii. Causes a film or sheen on, or discoloration of, the water surface or adjoining shoreline; or iii. Causes a sludge or emulsion to be deposited beneath the surface of the water or adjoining shorelines. b) If a spill is reportable, the contractor's superintendent will notify the District, and the District will take action to contact the appropriate safety and cleanup crews to ensure that the Spill Prevention and Response Plan is followed. A written description of reportable releases must be submitted to the Regional Board and the California Department of Toxic Substances Control (DTSC). This submittal must contain a description of the release, including the type of material and an estimate of the amount spilled, the date of the release, an explanation of why the spill occurred, and a description of the steps taken to prevent and control future releases. The releases will be documented on a spill report form. c) If an appreciable spill has occurred, and results determine that project activities have adversely affected surface water or groundwater quality, a detailed analysis will be performed to the specifications of DTSC to identify the likely cause of contamination. This analysis will include recommendations for reducing or eliminating the source or mechanisms of contamination. Based on this analysis, the District or contractors will select and implement measures to control contamination, with a performance standard that surface and groundwater quality must be returned to baseline conditions. These measures will be subject to approval by the District, DTSC, and the Regional Board.
BMP-17	Vehicle and Equipment Maintenance	During construction and maintenance activities, the District's staff and contractor(s) shall follow the following measures: A. All vehicles and equipment shall be kept clean. Excessive build-up of oil and grease shall not be allowed. B. All equipment used shall be inspected for leaks each day prior to initiation of work. Action shall be taken to prevent or repair leaks, prior to use. C. Incoming equipment shall be checked for leaking oil and fluids. Leaking equipment will not be allowed onsite. D. No equipment servicing shall be done in proximity to water bodies, unless equipment stationed in these locations cannot be readily relocated (i.e., pumps and generators). E. If necessary, all servicing of equipment done at the job site shall be conducted in a designated, protected area to reduce threats to water quality from vehicle fluid spills. Designated areas shall not directly connect to the ground, surface water, or the storm drain system. The service area shall be

Table 2-1 (continued)
Proposed Project Best Management Practices

Number	Title	BMP Description
		clearly designated with berms, sandbags, or other barriers. Secondary containment, such as a drain pan, to catch spills or leaks shall be used when removing or changing fluids. Fluids shall be stored in appropriate containers with covers, and properly recycled or disposed of offsite.
BMP-17 (cont.)		F. If emergency repairs are required in the field, only those repairs necessary to move equipment to a more secure location shall be conducted. G. Equipment shall be cleaned of any sediment or vegetation before entering the work area to avoid spreading pathogens or exotic/invasive species. H. Vehicle and equipment washing shall occur onsite only as needed to prevent the spread of sediment, pathogens or exotic/invasive species. No runoff from vehicle or equipment washing shall be allowed to enter water bodies, including channels and storm drains, without being subjected to adequate filtration (e.g., vegetated buffers, hay wattles or bales, and silt screens). I. Cracked batteries will be stored in a non-leaking secondary container and removed from the site. J. Spill clean-up materials will be stockpiled where they are readily accessible.
BMP-18	Vehicle and Equipment Fueling	During construction and maintenance activities, the District's staff and contractor(s) shall follow the following measures: A. For stationary equipment, secondary containment, such as a drain pan or drop cloth, shall be used to prevent accidental spills of fuels from reaching the soil, surface water, or the storm drain system. B. All non-stationary equipment fueling shall be done in staging areas equipped with secondary containment and avoid a direct connection to soil, surface water, or the storm drainage system.
BMP-19	Work Site Housekeeping	A. The contractor shall maintain the work site in neat and orderly conditions on a daily basis, and will leave the site in a neat, clean, and orderly condition when work is complete. Slash, sawdust, cuttings, etc. shall be removed to clear the site of vegetation debris. As needed, paved access roads shall be swept and cleared of any residual vegetation or dirt resulting from the maintenance activity. All lunch trash shall be disposed of properly. B. Materials or equipment left on the site overnight shall be stored as inconspicuously as possible, and will be neatly arranged.
BMP-20	Good Neighbor Practices	A. District shall post signs at construction sites pertaining to contact phone numbers to notify in the event of a problem or question (contractor and Sonoma Water's emergency desk). B. Designate a construction complaint manager for the Proposed Project. C. Include a list of telephone numbers to reach the construction complaint manager for the Proposed Project (during regular construction hours and off-hours).

Project Financing

The District maintains a Construction Fund which receives transfers annually from the District Operations fund for capital projects. These funds would be used for this sewer pipeline project. However, the District may apply for a loan from the State Water Resources Control Board (State Revolving Fund) or other equivalent public financing option.

Land Use and Conformance with General Plans

Historical and Present Land Use

The District facilities have been in place and operating since 1953. Property adjacent to the existing sanitation facilities include rural and urban residence, commercial, and a park.

Conformance with the General Plan

The Proposed Project areas are subject to the land use policies and designations adopted in the Sonoma County General Plan 2020 and the City of Sonoma 2020 General Plan. The County of Sonoma General Plan 2020 designates the Proposed Project area as Urban Residential, Recreation/Visitor-Serving Commercial and Public/Quasi-Public Use.[1] The City of Sonoma 2020 General Plan designates the Proposed Project area as Commercial, Low and Medium Density Residential, Public Facility, Mixed Use, Housing Opportunity, and a Mobile Home Park.[2] The Proposed Project would not limit or restrict any existing activities that occur in the project area.

Rights-of-Way Issues

The Proposed Project would be primarily sited within existing public rights-of-way and District easements within private lands. Acquisition of new District easements and temporary construction easements would be required for portions of the pipeline construction. The District is currently acquiring both permanent easements and temporary construction easements for this Proposed Project.

Jurisdictional/Permitting Agencies

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

1. Bay Area Air Quality Management District (BAAQCD)
2. California Department of Fish and Wildlife (CDFW)
3. California Department of Transportation (Caltrans)
4. City of Sonoma
5. National Marine Fisheries Service (NMFS)
6. State Historic Preservation Office (SHPO)

7. San Francisco Bay Regional Water Quality Control Board (Regional Board)
8. Sonoma County Permit and Resource Management Department (PRMD)
9. Sonoma County Department of Transportation and Public Works
10. United States Army Corps of Engineers (USACE)
11. United States Fish and Wildlife Service (USFWS)

Project Alternatives

The District considered a range of alternatives including the No Project Alternative, construction techniques, and project location. The following project alternatives were considered by the District to rehabilitate or replace existing 21-inch diameter reinforced concrete pipe (RCP) sewer trunk main.

No Project Alternative

Under the No Project Alternative, the District would continue to use the existing sewer trunk main. With implementation of the No Project Alternative, the structurally deficient and aged 21-inch sewer trunk main would continue to deteriorate. Under this alternative, the wet weather inflow and infiltration would continue to inundate the system and the existing structural deficiencies in the existing trunk main would continue to degrade, resulting in continued sanitary system overflows and eventual collapse of the trunk main, causing direct environmental impacts to hydrology and water quality, and biological resources. Continued system overflows will result in the continued violation of the WDRs Order No. R2-2014-0020, the NPDES Permit No. CA0037800, CDO No. R2-2015-0032, and may be subject the future fines due to Regional Board permit violations.

Pipeline Rehabilitation and Inflow/Infiltration Reduction Alternative

A combination system of lining the existing sewer trunk main to address existing structural deficiencies along with a program to reduce inflow and infiltration of non-sewer discharges into the sewer collection system was explored as a part of the District's 2002 Wet Weather Overflow Study. The 2002 Study concluded that this alternative would not be sufficient to eliminate the need for upsizing the sewer system in critical areas. Therefore, to prevent sanitary system overflows, the sewer trunk main would also need to be increased in size.

Pipe Bursting Alternative

Pipe bursting was explored as a potential design alternative to upsize the existing RCP sewer trunk main from 21-inches to 27-inches. Investigation of pipe bursting determined that the rebar reinforcement in the RCP pipe was likely spiral wound, which typically causes the rebar reinforcement to bunch up around the bursting head, absorbing the bursting energy without breaking. Additionally, by increasing the pipe size from 21-inch to 27-inch, this alternative would likely result in soil heave above the work that could potentially damage nearby utilities and overlying roadways.

Trenchless Alternatives

1. *Directional Drilling*: It was determined that this technology did not to provide adequate slope control to accommodate replacement of the overall sewer trunk with slopes of 0.1 % – 0.2%.
2. *Jack and Bore/Pipe Ramming*: It was determined for the overall project that these technologies were not steerable, and generally only suitable for crossings of less than 300-feet in length where some misalignment of the bore was tolerable.
3. *Microtunneling and Guided Bore*: These technologies were determined to be cost prohibitive and have significant ground settlement issues that exceeded California Department of Transportation requirements and could potentially damage overlying utilities.

In additional, all of the above trenchless technologies resulted in significant traffic issues due to large drill pits and pipe laydown areas.

Reach 4B Alternative Project Location – Alignment Shift

An alignment shift within Reach 4B was explored to re-align the sewer trunk main to remain within Highway 12 and Verano Avenue. This alignment would have avoided traversing through the Sonoma Oaks Mobile Home Park and Maxwell Farms Regional Park, however it would have also resulted in excessive pipe depths. Furthermore, this alternative would require the installation of an additional collector sewer main to be installed though the Maxwell Farms Regional Park to preserve service to existing sewer connections.

Reach 4C Alternative Project Location – Alignment Shift

An alignment shift within Reach 4C was explored to re-align the sewer trunk main to the East into Buena Vida Drive, then at the intersection of Buena Vida Drive and Academy Lane crossing through private property to Happy Lane. This alignment would have required the removal of an existing structure, the removal of multiple mature trees and the acquisition of new sewer easements to run the sewer trunk main though four private parcels that are not directly served by nor burdened by the existing sewer trunk main. Furthermore, this alternative would require the modification of the existing local water and sewer mains in Buena Vida Drive and the installation of an additional collector sewer main within the Academy Lane neighborhood to preserve service to existing sewer connections.

3.0 ENVIRONMENTAL SETTING

The Proposed Project area lies within Sonoma Valley. To the east of this north-south valley are the Mayacamas Mountains of the Outer North Coast Ranges, a rugged mountain range dominated by a series of northwest-trending ridges and steep canyons that form the boundary between Sonoma County and Lake County. To the west are the Sonoma Mountains, a low range that separates the Sonoma Valley from the Laguna de Santa Rosa basin. The Outer North Coast Ranges sub-region of the California Floristic Province is characterized by mosaics of upland oak and mixed evergreen forests, native and non-native grasslands, chaparral, upland scrub communities, marsh and wetland communities, and riparian scrub, woodlands and forests.[3] The Outer North Coast Ranges feature a Mediterranean climate, with most precipitation occurring as rainfall in the winter and early spring months, while summer and fall are hot and dry. Compared to the coast of California, this region has colder winters and hotter summers.

Regional Geology

The Proposed Project area topography is relatively flat ranging in elevation from approximately 90 to 105 feet above mean sea level and is located within the natural geologic region known as the Coast Range Geomorphic Province of Northern California. This province is generally characterized by northwest-trending mountain ranges and intervening valleys, which are a reflection of the dominant northwest structural trend of the bedrock in the region. The basement rock in the northern portion of this province consists of the Great Valley Sequence, a Jurassic (200 to 145 million years old) volcanic ophiolite sequence with associated Jurassic to Cretaceous (200 to 65 million years old) sedimentary rocks and the Franciscan Complex, a subduction complex of diverse groups of igneous, sedimentary and metamorphic rocks of late Jurassic to early Tertiary age (161 to 34 million years old). The Great Valley Sequence was tectonically juxtaposed with the Franciscan Complex most likely during subduction accretion of the Franciscan and these ancient fault boundaries are truncated by a modern right-lateral fault system that includes the San Andreas, Hayward-Rodgers Creek, Maacama and West Napa faults. The San Andreas fault defines the westernmost boundary of the local bedrock and is located approximately 24.1 miles southwest of the reaches. In the site vicinity, the Franciscan Complex is unconformably overlain by Tertiary age continental and marine sedimentary and volcanic rocks. These Tertiary age rocks are locally overlain by younger Quaternary alluvial, colluvial and landslide deposits.[4]

Local Geology

The Proposed Project area are underlain by Pleistocene and Holocene alluvial deposits. The low hills northeast of the reaches are mapped as being underlain by early Pliocene to late Miocene Sonoma Volcanics (andesite, basalt, rhyolite flows and tuff). Localized areas 500 to 1,000 feet southwest of the Proposed Project area underlain by early

Pleistocene to Pliocene Glen Ellen Formation bedrock (claystone, sandstone, siltstone and gravel). The Proposed Project area is located within Slope Stability Zone A, described as areas of greatest relative stability due to low slope inclination.[5]

Faults and Seismicity

The Proposed Project is located within the seismically active North Bay/North Coast Area of California.[6] The seismic environment in Northern California and the San Francisco Bay Area is characterized by the San Andreas fault zone, which formed due to major forces occurring at the boundary of shifting tectonic plates. This fault zone, and its northwest-trending folds and faults, control much of the geologic structure within the northern Coast Ranges. The major faults in the region include the San Andreas, Hayward Rodgers Creek, Maacama-Garberville, Calaveras, and Green Valley faults.[7,8]

The Proposed Project is not located within an Earthquake Fault Zone as defined by the 2010 California Geological Survey in accordance with the Alquist–Priolo Earthquake Fault Zone Act of 1972 (AP Zone).[9]

The nearest known active fault is the Hayward-Rodgers Creek fault, located approximately 3.4 miles southwest of the Proposed Project area, which is capable of producing a maximum earthquake magnitude event of 7.3. Moderate to major earthquakes generated on the Rodgers Creek fault can be expected to cause strong ground shaking at the site. In addition, strong ground shaking can be expected from moderate to major earthquakes generated on other faults in the region such as the San Andreas fault (located 24.1 miles southwest), the Maacama-Garberville fault (located 22.4 miles north of the site), the Concord-Green Valley fault (located 15.2 miles northeast of the site) and the West Napa fault (located 7.3 miles northeast of the site).[10,11,12]

A number of large earthquakes have occurred within this region in the historic past. Some of the significant nearby events include the 2000 Napa earthquake (M5.0), two (2) 1969 Santa Rosa earthquakes (movement magnitude (M) 5.6, 5.7), the 2014 Napa earthquake (M6.0) and the 1906 San Francisco earthquake (M8+). Future seismic events in this region can be expected to produce strong seismic ground shaking at this site. The intensity of future shaking will depend on the distance from the Proposed Project area to the earthquake focus, magnitude of the earthquake and the response of the underlying soil and bedrock.[13]

Land Use

The Proposed Project would be located in Sonoma County including areas within unincorporated Sonoma County in the southern portion of Sonoma Valley and the City of Sonoma, California. In the portion of the Proposed Project area located in unincorporated Sonoma County land use is defined in the Sonoma County General Plan 2020 as Urban Residential, Recreation/Visitor-Serving Commercial and Public/Quasi-Public Use.[14] In the

portion of the Proposed Project area located in the City of Sonoma land use is defined in the City of Sonoma 2020 General Plan as Commercial, Low and Medium Density Residential, Public Facility, Mixed Use, Housing Opportunity, and a Mobile Home Park.[15]

Vegetation

The Outer North Coast Ranges sub-region of the California Floristic Province[c] is characterized by mosaics of upland oak and mixed evergreen forests, native and non-native grasslands, chaparral, upland scrub communities, marsh and wetland communities, and riparian scrub, woodlands and forests.[16]

The Proposed Project area is within a semi-natural suburban setting that contains businesses, residences, paved roads, recreational fields, ornamental landscaping, non-native annual grassland, valley oak and riparian woodlands, an ephemeral stream, and seasonal wetlands. The Project is comprised of three phases that each have different habitat characteristics. Please refer to the Biological Resource section for a detailed discussion. A list of special-status plant species and the potential to occur in the locations proposed for facility modifications is included in Table C-1, Appendix C.

Wildlife and Fisheries

Wildlife habitats present within or adjacent to the Proposed Project area include ruderal/developed, non-native annual grassland, valley oak and riparian woodlands, an ephemeral stream, and seasonal wetlands habitats. Ruderal habitat and non-native annual grassland provides limited forage and cover for wildlife, and typically supports a low diversity of disturbance-adapted wildlife species.

A list of special-status wildlife species and the potential to occur in the locations proposed for facility modifications is included in Table C-2, Appendix C.

Cultural Resources

Regional Cultural History

Prehistoric Context

Much of the prehistoric occupation of the Sonoma County was very similar to the chronology of traditions within the San Francisco Bay Area; however, the patterns[d] in the record seem to reflect connection to the North Coast Ranges and that region's prehistoric peoples. The later patterns that exemplified the Bay Area regions—such as the Berkeley

[c] Geographic subdivisions are used to describe and predict features of the natural landscape. The system of geographic units is four-tiered: provinces, regions, sub-regions, and districts. Three floristic provinces cover the State of California: California Floristic Province, Great Basin, and Desert. The California Floristic Province is the largest and is made up of six regions with most of the state and small portions of Oregon, Nevada and Baja California, Mexico.

[d] A *pattern* is an essentially integrative cultural unit, or, in other words, the general mode of living shared by people within a given geographic region.

and Augustine Patterns—were represented in Sonoma County, but demonstrated a lack of similarity to the earliest Sacramento Valley material culture called the Windmiller Pattern (4,750–3,750 years before present [BP]). The material remains of the Windmiller sites reflected a people well adapted to riverine and marshland environments with common mortar and millingstone fragments and fishing implements.[17] However, while being contemporaneous with the Windmiller Pattern, the artifacts discovered in Sonoma County reflected a greater influence from artifacts seen in the Bay Area, often called the Berkeley Pattern.[18] By about 2,500 BP, the Berkeley Pattern in Sonoma County showed a greater reliance on hunting tools than milling implements.

A few early sites have been discovered in the Napa Valley to the northeast of Sonoma Valley, as well as near the drought-exposed shoreline of Lake Berryessa. These sites, often called the Hultman Phase sites, date to 8,000 to 5,000 BP[19] and contained crude and heavy core stone tools, millingstones, and manos, or hand-sized grinding stones. Similarities to the Berkeley Pattern of the Bay Area continued to evolve and demonstrate increasing complexity, both technologically and socially. This sequence ultimately led to the Augustine Pattern, also very similar to the assemblages found in the Bay Area, with increasing emphasis on ornamentation, like *Olivella* and *Haliotis* (shellfish) beads and bone tool forms. The increased distribution of beads and obsidian tool use indicative of the Augustine Pattern further reflects the increasing sociopolitical complexity and status distinctions in wealth observable in the archaeological record.[20]

Ethnographic Context

By the time of European settlement, the project vicinity was within part of the Coast Miwok territory, which was centered in Marin and Sonoma counties. Miwok was one of the California Penutian languages, which included two discrete groups: The Lake Miwok, to the northwest, and the Coast Miwok, to the west. The Coast Miwok made use of a large and abundant resource base that shaped a complex hunter-gatherer society. The settlement patterns consisted of large village sites surrounded by a constellation of small, task-specific camps. Primary village sites had headmen and were occupied throughout the year; these sites were often located near to shore or freshwater resources.

Historical Context

With the establishment of the San Francisco-Solano Mission at Sonoma, much of the Coast Miwok culture was severely disrupted by missionization, disease, and displacement. The missionization of the native peoples was followed by the occupation of the region by General Mariano Guadalupe Vallejo, who owned the large *Rancho Petaluma.* Between 1834 and 1840, Vallejo built the largest adobe in Northern California, the Petaluma Adobe, in the foothills of the Sonoma Mountains. Vallejo also owned *Rancho Aqua Caliente* along Sonoma Creek adjacent to the City of Sonoma. As the American Period began in the 1840s, the influx of new economies resulted in an increase

in settlement and the development of farming, ranching, and other businesses in Sonoma County. In the mid-nineteenth century, wine grapes from Europe were first grown successfully in Sonoma County and today Sonoma County is well known for its world-renowned wine production.

Project Area Cultural Resources

Tom Origer & Associates conducted two historical resources studies (one for Reach 4A[21] and one for Reaches 4B and 4C[22]). The studies included: archival research at the Northwest Information Center, Sonoma State University; examination of the library and files of Tom Origer & Associates; Native American tribes communication; and field inspection of the study areas. One historical resource was identified within the study area. Please refer to the below Cultural Resource section for further discussion.

Paleontological Resources

Despite the tremendous volume of sedimentary rock deposits preserved worldwide, and the enormous number of organisms that have lived through time, preservation of plant or animal remains as fossils is an extremely rare occurrence. Because of the infrequency of fossil preservation, fossils—particularly vertebrate fossils—are considered to be nonrenewable resources. Because of their rarity, and the scientific information they can provide, fossils are highly significant records of ancient life.

Rock formations that are considered of paleontological sensitivity are those rock units that have yielded significant vertebrate or invertebrate fossil remains. This includes, but is not limited to, sedimentary rock units that contain significant paleontological resources anywhere within its geographic extent. The Proposed Project area is primarily underlain by Late Pleistocene-age alluvial deposits. Based on the Society for Vertebrate criteria, Late Pleistocene-age alluvial deposits have the potential to contain significant paleontological resources.[23] A search of the University of California Museum of Paleontology database was conducted and indicates that twelve vertebrate paleontological discoveries have occurred in a Pleistocene context in Sonoma County.[24] None of these discoveries, however, are in the vicinity of the Proposed Project. In addition, the relatively minor and linear ground disturbance that will occur as part of the Proposed Project significantly lessons the potential for a paleontological discovery.

Tribal Cultural Resources

Formal AB52 tribal consultation was initiated with several Native American tribes that are known to have traditional lands or cultural places located within the boundaries of the Proposed Project. Sonoma Water received formal requests for AB52 consultation from the Middletown Rancheria on July 14, 2016, from Federated Indians of Graton Rancheria on December 18, 2017, and Lytton Rancheria on February 7, 2018, for projects subject to CEQA. Please see Tribal Cultural Resources for a detailed discussion.

4.0 ENVIRONMENTAL CHECKLIST

An assessment of the Proposed Project's environmental impacts is based on the Environmental Checklist Form included as Appendix G of the State's CEQA Guidelines (California Code of Regulations Title 14, Division 6, Chapter 3, Section 15000 et seq.). The environmental resources and potential environmental impacts of the Proposed Project are described in the individual subsections below. Each section provides a brief overview of existing environmental conditions for each resource topic to help the reader understand the conditions that could be affected by the Proposed Project. In addition, each section includes a discussion of the rationale used to determine the significance level of the Proposed Project's environmental impact for each checklist question.

Resources reviewed for relevant information are cited as applicable.

Impact Terminology

With regard to the checklist, this IS/MND uses the following terminology to describe environmental effects of the Proposed Project:

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

Environmental Factors Potentially Affected

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist on the following pages.

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

Environmental Impact Evaluation

I. AESTHETICS

Would the proposal:	Potentially Significant Impact	Less Than Significant with Mitigation	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 the site and its surroundings?	☐	☐	☒	☐
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☒	☐

AESTHETICS SETTING

Visual or aesthetic resources are generally defined as both the natural and built features of the landscape that contribute to the public's experience and appreciation of the environment. Depending on the extent to which a project's presence would alter the perceived visual character and quality of the environment, visual or aesthetic impacts may occur. This analysis of potential visual effects is based on review of a variety of data, including project maps and drawings, visual survey of the Proposed Project area, aerial and ground level photographs of the Proposed Project area, and planning documents (Sonoma County 2020 General Plan, Sonoma County Permit and Resources Department visual assessment guidelines, the City of Sonoma 2020 General Plan). The study area for aesthetic resources encompasses the landscapes directly affected by the Proposed Project and the immediate surrounding areas from which the Proposed Project would be visible. Discussion of potential impacts are presented and discussed at the conclusion.

The Proposed Project location is relatively flat, ranging in elevation from approximately 8 to 107 feet above mean sea level with mature trees, a public park, a mobile home park, apartments, houses and business within view. The following text describes each proposed reach:

Reach 4A

Reach 4A project site would be located in the City of Sonoma and would be visible from corner of 6th Street West and Studley Street, 6th Street West (Studley Street to Highway 12, including the intersecting corners of Studley Street and Highway 12), and

Highway 12 (6th Street West to Ramon Street, including the intersecting corners of 7th Street West, Riverside Drive, West Spain Street, Lyon Street and Ramon Street).

6th Street West and 7th Street West are characterized as Commercial, Medium Density Residential; Highway 12 is characterized by varying degrees of development including Commercial, Mixed Use, Housing Opportunity, Public Facility, and Medium Density Residential areas. Riverside Drive within the City of Sonoma limits is characterized as Commercial. Lyon Street is characterized as Mixed Use and Low Density Residential.

Reach 4B

The Reach 4B project site would be visible from the corner of Highway 12 and Ramon Street, Ramon Street, Maxwell Farms Regional Park, Verano Avenue and Old Maple Road Avenue to the south.

Highway 12, as described above, is characterized by varying degrees of development including Commercial Development, Public Facility and Residential areas. Ramon Street is characterized as a Mobile Home Park. Maxwell Farms Regional Park is characterized as a Public/quasi-public use. Verano Avenue and Old Maple Road are characterized as Urban Residential.

Reach 4C

The Reach 4C project site would be visible from the west end of Academy Lane, Happy Lane (cul-de-sac to north of Anthony Lane, including the intersecting streets of West Thomson Avenue and Anthony Court), and potentially some areas of Buena Vida Drive, Fairview Lane and Old Maple Avenue. Academy Lane, Happy Lane, West Thompson Avenue, Anthony Court, Buena Vida Drive, Fairview Lane and Old Maple are characterized as Urban Residential. The Proposed Project site would be temporarily visible from the nearby residences on portions of these streets; the closest residence would be approximately five feet from the Proposed Project where the pipeline runs through private property in an existing easement. The Proposed Project area is not located within an identified scenic area.

Scenic Highways

The Sonoma County General Plan 2020 defines scenic resources under three open space categories: community separators, scenic landscape units, and scenic highway corridors. Community separators are areas that are separate and identifiable cities/communities intermixed with large areas of open space that lead to the avoidance of corridor-style urbanization. Scenic landscape units are areas that are open, provide important visual relief from urban densities, and have little capacity to absorb very much development without significant visual impact. Scenic corridors are rural roads from which the community, as well as tourists, can view the variety and beauty of the many landscapes of Sonoma County including: orchards, forest covered hills, rolling dairy lands, and scenic valleys planted with

vineyards.[25] The Proposed Project area is not within any of the eight areas identified by the Sonoma County General Plan as a community separator, and the Proposed Project area and adjacent areas are not identified as part of a scenic landscape unit or scenic corridor.

PRMD has developed Visual Assessment Guidelines[26] to assess the impacts of individual projects. 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. Under this methodology, the sensitivity of the Proposed Project located within the unincorporated portion of Sonoma County and the City of Sonoma would be considered low, as the site is located within Urban Residential, Recreation/Visitor-Serving Commercial and Public/Quasi-Public Use,[27] Commercial, Low and Medium Density Residential, Public Facility, Mixed Use, Housing Opportunity, and a Mobile Home Park[28] designations visible from a public roadway, but is not within a land use or zoning designation protecting scenic or natural resources. As existing and proposed pipelines are located below grade, the Proposed Project is generally not visible from public view, and would be considered "inevident" with respect to visual dominance.

In the portion of the Proposed Project area located in southern Sonoma County in the City of Sonoma land use is defined in the City of Sonoma 2020 General Plan as Commercial, Low and Medium Density Residential, Public Facility, Mixed Use, Housing Opportunity, and a Mobile Home Park.[29] The portion of the Proposed Project area located in the unincorporated portion of Sonoma County land use is defined in the Sonoma County General Plan 2020 as Urban Residential, Recreation/Visitor-Serving Commercial and Public/Quasi-Public Use.[30]

The Caltrans administers the California Scenic Highway Program (Streets and Highways Code, Section 260 et. Seq.) to preserve and protect scenic highway corridors from changes that would diminish the aesthetic value of lands adjacent to highways. A highway may be designated scenic depending upon the amount of the natural landscape that can be seen by travelers, the scenic quality of the landscape, and the extent to which development intrudes upon the traveler's enjoyment of the view. Although segments of Highway 12 are designated as scenic highway routes, these designated portions are not located within or near the Proposed Project area. Sewer trunk main replacement is proposed (Reach 4A) along a Caltrans right-of-way within an undesignated section of Highway 12 approximately two miles south of the southernmost designated portion of this scenic corridor.[31] No project construction activities would be visible from a designated scenic corridor.

DISCUSSION OF POTENTIAL IMPACTS

a) No Impact. As described in the Aesthetic Setting section above, Proposed Project sites and adjacent areas are not characterized in the Sonoma County General Plan

2020 as a scenic landscape unit, community separator or scenic corridor, or characterized in the City of Sonoma General Plan as a scenic vista.

In relation to PRMD Visual Assessment Guidelines, the project area has low moderate visual sensitivity, as the Proposed Project site is located within Urban Residential, Recreation/Visitor-Serving Commercial and Public/Quasi-Public Use,[32] Commercial, Low and Medium Density Residential, Public Facility, Mixed Use, Housing Opportunity, and a Mobile Home Park[33] designations visible from a public roadway, but is not within a land use or zoning designation protecting scenic or natural resources. As existing and proposed pipelines are located below grade, and existing and proposed manholes are above ground and would not rise significantly above the landscape, the project components are generally not visible from public view, and would be considered "inevident" with respect to visual dominance. Therefore, the Proposed Project would not have a substantial adverse effect on a scenic vista.

b) No Impact. Although portions of Highway 12 are designated as scenic highway routes, these designated portions are not located within or near the Proposed Project area. No removal of trees, rock outcroppings, and historic buildings within a state scenic highway is proposed as part of the Proposed Project.

c) Less than Significant Impact. Construction activities associated with the construction of the Proposed Project and maintenance activities (potential repair and replacement) would result in short-term impacts to the existing visual character and quality of the site. Construction activities would require the use of heavy equipment and storage of materials at construction sites. During construction activities, excavated areas, stockpiled soils, and other materials within the construction easement and staging areas would contribute negative aesthetic elements in the visual landscape. Potential effects would be temporary and would not significantly impact the long-term visual character of the area. As noted in the Project Description, project implementation would include surface restoration, including repaving of roadways and hydroseeding areas necessary outside of the roadways.

   No long-term impacts to aesthetic resources from the construction of the Proposed Project are anticipated. As existing and proposed pipelines are located below grade, and existing and proposed manholes are above ground, and would not rise significantly above the landscape, the project components consistent with existing facilities and are generally not visible from public view. Therefore, the Proposed Project would not substantially degrade the quality of the site and the surroundings.

d) Less than Significant Impact. The Proposed Project would not require security lighting. However, construction activities associated with construction of the Proposed Project and maintenance activities (repair and replacement) within Caltrans right-of-way will

require an encroachment permit that may require work to occur at night. It is Caltrans procedure to grant the encroachment permit after a project's CEQA document is approved and certified. Therefore, it is assumed that some construction will occur at night and lighting of the construction area is anticipated, therefore short-term sources of light and/or glare would occur. However, the light or glare associated with the lighting would be directed downward and away from nearby residences and would not adversely affect nighttime views in the areas.

New manholes are the only permanent infrastructure that would be at or slightly above ground. They would not rise significantly above the landscape and would consist of non-reflective material, and be consistent with existing manholes in the project area. No new permanent sources of light and/or glare are proposed as part of operation and maintenance the Proposed Project.

II. AGRICULTURAL AND FOREST RESOURCES

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☒
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?	☐	☐	☐	☒

AGRICULTURAL AND FORESTRY RESOURCES SETTING

The 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's Farmland Mapping and Monitoring Program (FMMP); Land Conservation Act Map: Sonoma County Williamson Act Map produced by the California Department of Conservation; Williamson Act 2015 Calendar Year Map and the Sonoma County 2020 General Plan Land Use Map – Sonoma Valley produced by Sonoma County Permit and Resources Department; and the City of Sonoma 2020 General Plan Land Use Map, produced by the City of Sonoma.

According to the maps reviewed, the Proposed Project area is not located within Prime Farmland, Unique Farmland, Farmland of Statewide Importance, and Farmland of Local Importance. The Proposed Project area is designated as Non-Williamson Act Land. In addition, the Proposed Project area is not designated as Diverse Agriculture within the

Sonoma County 2020 General Plan or designated as Agriculture within the City of Sonoma's 2020 General Plan. The Proposed Project would not result in conversion of farmland to non-agricultural use. In addition, the Proposed Project area is not designated as forest land or timberland.

DISCUSSION OF POTENTIAL IMPACTS

a) No Impact. The Proposed Project area is not located within Prime Farmland, Unique Farmland, Farmland of Statewide Importance, and Farmland of Local Importance. Therefore, no conversion of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to non-agricultural use would occur as a result of the construction of modifications to the existing sanitation facilities or reconstruction of existing sanitation facilities. The Proposed Project would not result in the conversion of any farmlands to non-agricultural uses.

b) No Impact. The Proposed Project would not result in any changes in land use that would conflict with existing zoning for agricultural use or a Williamson Act contract.

c) No Impact. The Proposed Project area is not designated as forest land or timberland; it is designated as Urban Residential, Recreation/Visitor-Serving Commercial and Public/Quasi-Public Use in the Sonoma County 2020 General Plan[34] and as Commercial, Low and Medium Density Residential, Public Facility, Mixed Use, Housing Opportunity, and a Mobile Home Park in the City of Sonoma 2020 General Plan.[35] Therefore, the Proposed Project would not conflict with existing zoning, or cause rezoning of forest land, timberland, or timberland zoned Timberland Production. No timber harvest activities are occurring or expected to occur within the Proposed Project area.

d) No Impact. Please refer to the above Item II c) above. The Proposed Project would not result in the loss of forest land or conversion of forest land to non-forest use.

e) No Impact. Please refer to the above Item II a) above. The Proposed Project would not result in a change in the existing environment that could result in a conversion of Farmland to non-agricultural use.

III. AIR QUALITY

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☒	☐
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☐	☐	☒	☐
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	☐	☐	☒	☐
d) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐
e) Create objectionable odors 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.

Air Basin

The Proposed Project site is located within the boundaries of the San Francisco Bay Area Air Basin (SFBAAB). The SFBAAB encompasses the nine-county region, which includes Alameda, Contra Costa, Santa Clara, San Francisco, San Mateo, Marin, and Napa counties, and the southern portions of Solano and Sonoma counties. The complex topography of the SFBAAB, including mountain ranges, valleys, and bays, distorts normal wind flow patterns. The climate of the San Francisco Bay Area, including the Sonoma Valley, is a Mediterranean-type climate characterized by warm, dry summers, and mild, wet winters. The climate of the SFBAAB is determined largely by a high-pressure system that is usually present over the eastern Pacific Ocean off the California Coast. During

winter, the Pacific high-pressure system shifts southward, allowing more storms to pass through the region and reduce air pollution. During summer and early fall, when few storms pass through the region, emissions generated within the Bay Area may combine with abundant sunshine under the restraining influences of topography and subsidence inversions to create conditions that are conducive to the formation of photochemical pollutants, such as ozone, and secondary particulates, such as nitrates and sulfates.[36]

Types of Pollutants

Criteria Air Pollutants

Regulation of air pollution is achieved through both the National Ambient Air Quality Standards (NAAQS) and the California Ambient Air Quality Standards (CAAQS) as well as emission limits for individual sources of air pollutants. The United States Environmental Protection Agency (EPA) is responsible for implementing programs established under the federal Clean Air Act (CAA). As required by CAA, the EPA has identified criteria pollutants that are a threat to public health and welfare and has set "primary" and "secondary" maximum ambient thresholds to meet specific public health and welfare criteria. Criteria air pollutants include ozone (O3), particulate matter (PM_{10}, $PM_{2.5}$), carbon monoxide (CO), nitrogen dioxide ($NO_{2)}$, sulfur dioxide (SO_2), and lead. The California Air Board Resources Board (ARB) and the EPA focus on these criteria pollutants as indicators of ambient air quality. Criteria air pollutants are described in more detail below.

Ozone

Ozone (O_3) is a respiratory irritant and an oxidant that increases susceptibility to respiratory infections and that can cause substantial damage to vegetation and other materials. Ozone is not emitted directly into the atmosphere, but is a secondary air pollutant produced in the atmosphere through a complex series of photochemical reactions involving reactive organic gases (ROG) and oxides of nitrogen (NO_x), including nitrogen dioxide (NO_2). ROG and NO_x are known as precursor compounds for ozone. Significant ozone production generally requires ozone precursors to be present in a stable atmosphere with strong sunlight for approximately three hours.

Ozone is a regional air pollutant because it is not emitted directly by sources, but is formed downwind of sources of ROG and NO_x under the influence of wind and sunlight. Ozone concentrations tend to be higher in the late spring, summer, and fall, when the long sunny days combine with regional subsidence inversions to create conditions conducive to the formation and accumulation of secondary photochemical compounds, like ozone.

Particulate Matter

PM_{10} and $PM_{2.5}$ represent fractions of particulate matter that can be inhaled into air passages and the lungs and can cause adverse health effects. Particulate matter in the atmosphere results from many kinds of dust-and fume-producing industrial and agricultural

operations, fuel combustion, and atmospheric photochemical reactions. Some sources of particulate matter, such as demolition and construction activities, are more local in nature, while others, such as vehicular traffic, have a more regional effect. Very small particles of certain substances (e.g., sulfates and nitrates) can cause lung damage directly, or can contain absorbed gases (e.g., chlorides or ammonium) that may be injurious to health. Particulates can also damage materials and reduce visibility. Respirable particulate matter with an aerodynamic diameter of 10 micrometers or less is referred to as PM_{10}. A subgroup of PM_{10} with an aerodynamic diameter of 2.5 micrometers or less is referred to as $PM_{2.5}$. Some particulate matter, such as pollen, occurs naturally.

Carbon Monoxide

Carbon monoxide (CO) is a non-reactive pollutant that is a product of incomplete combustion and is mostly associated with motor vehicle traffic. High CO concentrations develop primarily during winter when periods of light winds combine with the formation of ground level temperature inversions (typically from the evening through early morning). These conditions result in reduced dispersion of vehicle emissions. Motor vehicles also exhibit increased CO emission rates at low air temperatures. When inhaled at high concentrations, CO combines with hemoglobin in the blood and reduces the oxygen-carrying capacity of the blood. This results in reduced oxygen reaching the brain, heart, and other body tissues. This condition is especially critical for people with cardiovascular diseases, chronic lung disease, or anemia.

Oxides of Nitrogen

Nitrogen oxides produce O_3 during photochemical reactions in the atmosphere. Nitric oxide (NO) and nitrogen oxide (NO_2) are the primary compounds produced. Nitrogen oxides (NO_X) can produce a brown haze that is visible in the atmosphere. These compounds can increase the risk of acute and chronic respiratory disease

Sulfur Dioxide

Sulfur dioxide (SO_2) is produced through combustion of sulfur or sulfur-containing fuels such as coal. SO_2 is also a precursor to the formation of atmospheric sulfate and particulate matter (PM_{10} and $PM_{2.5}$) and contributes to potential atmospheric sulfuric acid formation that could precipitate downwind as acid rain.

Lead

Lead is a metal found both naturally in the environment and in manufactured products. Mobile and industrial sources have historically been the major sources of lead emissions but mobile source emissions have been greatly reduced as a result of the phase-out of leaded gasoline. The phase-out of leaded gasoline has resulted in decreasing levels of atmospheric lead. Currently, metal processing is the primary source of lead emissions but recycling facilities are another source. Lead exposure affects the nervous system, kidney

function, immune system, reproductive and developmental systems as well as the cardio vascular system.

Toxic Air Contaminants

Toxic Air Contaminants (TACs) are airborne substances that are capable of causing short-term (acute) and/or long-term (chronic or carcinogenic, i.e., cancer-causing) adverse human health effects (i.e., injury or illness). TACs include both organic and inorganic chemical substances. They may be emitted from a variety of common sources including gasoline stations, automobiles, dry cleaners, industrial operations, and painting operations. The current California list of TACs includes nearly 200 compounds, including Diesel Particulate Matter (DPM) emissions from diesel-fueled engines.

Sensitive Receptors

For the purposes of air quality and public health and safety, sensitive receptors are generally defined as land uses with population concentrations 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 receptor land uses generally include schools, day care centers, libraries, hospitals, residential care centers, parks, and churches. Some sensitive receptors are considered to be more sensitive than others to air pollutants. The reasons for greater than average sensitivity include pre-existing health problems, proximity to emissions sources, or duration of exposure to air pollutants. Schools, hospitals, and convalescent homes are considered to be relatively sensitive to poor air quality because children, elderly people, and the infirm are more susceptible to respiratory distress and other air quality-related health problems than the general public. 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 located adjacent to the Proposed Project site, and Boys and Girls Club of Sonoma Valley attendees and recreational users to Maxwell Farms Regional Park facilities located adjacent to the Proposed Project area would be considered sensitive receptors. The nearest residences are approximately 5 feet from the Proposed Project area.

Existing Air Quality

The Bay Area Air Quality Management District (BAAQMD) is responsible for attaining and maintaining NAAQS and CAAQS in the SFBAAB. The BAAQMD has jurisdiction over southern Sonoma County, including Sonoma, Petaluma, Sebastopol, and Santa Rosa. The BAAQMD maintains a regional monitoring network that measures the ambient

concentrations of criteria pollutants in the Air Basin. Ambient air quality measurements from air monitoring stations maintained by BAAQMD help to determine the level of air quality in the local area. The closest BAAQMD air quality monitoring station to the Proposed Project is the Napa-Jefferson Avenue station (approximately 8 miles east of the Proposed Project site). Table 3.3-1 shows a 3-year (2015 through 2017) summary of ozone, NO_2, PM_{10} and $PM_{2.5}$ data monitored at the Napa-Jefferson Avenue station. The data are compared to the CAAQS and NAAQS.

Table 3.3-1
Summary of Air Quality Monitoring Data (2015–2017)

Pollutant	Applicable Standard	Number of Days Standards Were Exceeded and Maximum Concentrations Measured[a]		
		2015	2016	2017
Ozone – Napa-Jefferson Avenue Station				
Days 1-hour State Std. Exceeded	>0.09 ppm	0	0	1
Max. 1-hour Conc. (ppm)		0.079	0.080	**0.098**
Days 8-hour National and State Std. Exceeded	>0.070 ppm	0	0	2
Max. 8-hour Conc. (ppm)		0.069	0.067	**0.084**
Nitrogen Dioxide (NO_2) – Napa-Jefferson Avenue Station				
Days 1-hour State Std. Exceeded	>0.18 ppm	0	0	0
Days 1-hour National Std. Exceeded	>0.10 ppm	0	0	0
Max. 1-hour Conc. (ppm)		0.042	0.039	0.052
Annual Average Conc. (ppm)		0.007	0.007	0.007
Respirable Particulate Matter (PM_{10}) – Napa-Jefferson Avenue Station				
Estimated Days Over 24-hour National Std.[d]	>150 µg/m^3	0	ND	ND
Estimated Days Over 24-hour State Std.[d]	>50 µg/m^3	0	ND	ND
Max. 24-hour Conc. National/State (µg/m^3)		51.5/50.0	32.2/33.0	ND/ND
State Annual Average (µg/m^3)	>20 µg/m^3	18.7	ND	ND
Fine Particulate Matter ($PM_{2.5}$) – Napa-Jefferson Avenue Station				
Estimated Days Over 24-hour National Std.[d]	>35 µg/m^3 [c]	1.1	0	13.3
Max. 24-hour Conc. National (µg/m^3)		**38.2**	24.3	**199.1**
National Annual Average (µg/m^3)	>12.0 µg/m^3	10.8	8.7	13.7

NOTES:
The Bold value is in excess of the applicable standard. "NA" indicates that data are not available.
Std. = Standard; Conc. = concentration; ppm = parts per million; ppb = parts per billion; µg/m3 = micrograms per cubic meter; ND = No data available or insufficient data.

SOURCE: California Air Resources Board, 2018.[37]

Attainment Status

The SFBAAB is classified as a non-attainment area for the State 1-hour and 8-hour ozone standards as well as the federal 8-hour ozone standard. The air basin is also a non-attainment area relative to the State and federal $PM_{2.5}$ standards, and the State PM_{10} standard. For all other criteria pollutants, Sonoma County is classified as either unclassified or as attainment with respect to State and federal standards.[38] Refer to Table 3.3-2 for the current attainment status of the Proposed Project area.

Table 3.3-2
Project Area Attainment Status

Pollutant	Federal	State
Ozone (one-hour standard)	---[1]	Nonattainment
Ozone (eight-hour standard)	Nonattainment	Nonattainment
Carbon Monoxide (CO)	Attainment	Attainment
Nitrogen Dioxides (NO_2)	Attainment	Attainment
Respirable Particulate Matter (PM_{10})	Unclassified	Nonattainment
Fine Particulate Matter ($PM_{2.5}$)	Nonattainment	Nonattainment

NOTES:
[1] The federal 1-hour standard of 12 ppm was in effect from 1979 through June 15, 2005.

SOURCE: Bay Area Air Quality Management District (BAAQMD), 2017.[39]

BAAQMD Rules, Regulations, and CEQA Guidelines

BAAQMD is the regional agency responsible for rulemaking, permitting and enforcement activities affecting stationary sources in the Bay Area. BAAQMD does not have authority to regulate emissions from motor vehicles. Specific rules and regulations adopted by BAAQMD limit the emissions that can be generated by various stationary sources and identify specific pollution reduction measures that must be implemented in association with various activities. These rules regulate not only emissions of the six criteria air pollutants, but also TAC emission sources, which are subject to these rules are regulated through BAAQMD's permitting process and standards of operation. Through this permitting process BAAQMD monitors generation of stationary source emissions and uses this information in developing its air quality plans. Although the Proposed Project would not introduce any new stationary emission sources, any stationary sources constructed as part of the Proposed Project would be subject to the BAAQMD Rules and Regulations. Both federal and State ozone plans rely heavily upon stationary source control measures set forth in BAAQMD's Rules and Regulations.

With respect to construction activities associated with the construction of the Proposed Project development and maintenance activities (potential repair and replacement), applicable BAAQMD regulations relate to portable equipment (e.g., gasoline- or diesel-

powered engines used for power generation, pumps, compressors, and cranes), architectural coatings and paving materials. Equipment used during construction activities would be subject to the requirements of BAAQMD Regulation 2 (Permits), Rule 1 (General Requirements) with respect to portable equipment unless exempt under Rule 2-1-105 (Exemption, Registered Statewide Portable Equipment); BAAQMD Regulation 8 (Organic Compounds), Rule 3 (Architectural Coatings); and BAAQMD Regulation 8 (Organic Compounds) and Rule 15 (Emulsified and Liquid Asphalts).

DISCUSSION OF POTENTIAL IMPACTS

a) Less than Significant Impact. The Proposed Project would result in emissions related to construction activities associated with the construction of the Proposed Project, and maintenance activities (potential repair and replacement). The Proposed Project site is within the jurisdiction of the SFBAAB, which is currently designated as a nonattainment area for state and national ozone standards, state particulate matter (PM^{10} and $PM^{2.5}$) and federal particulate matter ($PM^{2.5}$) standards. The BAAQMD's 2017 Clean Air Plan (CAP) is the applicable clean air plan that has been prepared to address nonattainment issues in the SFBAAB.[40]

   The BAAQMD *CEQA Air Quality Guidelines* revision identifies a three-step methodology for determining a project's consistency with the current clean air plan.[41] If the responses to these three questions can be concluded in the affirmative and those conclusions are supported by substantial evidence, then BAAQMD considers the project consistent with air quality plans prepared for the Bay Area.

   1) "*Does the project support the goals of the air quality plan?*" The BAAQMD-recommended measure for determining project support for these goals is to assess whether the project emissions would exceed the BAAQMD thresholds of significance. Specifically, if a project would not result in significant and unavoidable air quality impacts after the application of all feasible mitigation measures, the project would be considered consistent with the goals of the 2017 CAP. As indicated in the following discussion with regard to air quality impact Criterion III b) and c), construction activities associated with the construction of the Proposed Project and maintenance activities (potential repair and replacement) of the project would result in a less than significant air quality impact, would result in no impact. Therefore, the Proposed Project would be considered to support the primary goals of the 2017 CAP and, therefore, it would be consistent with the 2017 CAP.

   2) *"Does the project include applicable control measures from the clean air plan?"* The 2017 CAP contains 85 control measures aimed at reducing air pollution in the Bay Area. Projects that incorporate all feasible air quality plan control measures are considered consistent with the 2017 CAP. Two of the 2017 CAP stationary source control measures are applicable to operation of the Proposed Project: WR1

(Limit Greenhouse gas (GHGs) from POTWs [Publicly-Owned Treatment Works]) and WR2 (Support Water Conservation). Since the Proposed Project would result in the increased efficiency of the existing sewer trunk main and would not result in a substantial increase in GHG emissions (see Section 3.7), the construction activities associated with the construction of the Proposed Project, and maintenance activities (potential repair and replacement) of the Proposed Project, would not hinder the implementation of the 2017 CAP measures.

3) *"Does the project disrupt or hinder implementation of any control measures from the clean air plan?"* As previously discussed, the Proposed Project would not create any barriers or impediments that would hinder implementation of the 2017 CAP control measures.

The responses to all three of the questions with regard to plan consistency are affirmative and the Proposed Project would not conflict with or obstruct implementation of the 2017 CAP. This is a less than significant impact.

b) Less than Significant Impact. The Bay Area experiences occasional violations of ozone and particulate matter (PM_{10} and $PM_{2.5}$) standards. Construction activities associated with the construction of the Proposed Project and maintenance activities (potential repair and replacement) would involve use of equipment and materials that would emit ozone precursor emissions (i.e., ROG and NO_x). Construction activities would also result in the emission of other criteria pollutants from equipment exhaust, construction-related vehicular activity, and construction worker automobile trips. Emission levels for these activities would vary depending on the number and type of equipment, duration of use, operation schedules, and the number of construction workers. Criteria pollutant emissions of ROG and NO_x from these emission sources would incrementally add to the regional atmospheric loading of ozone precursors during project development. Emissions were estimated using the Road Construction Emissions Model (Version 8.1.0) and are depicted below in Table 3.3-3. Air quality modeling details can be found in Appendix B.

Although the Proposed Project would not generate construction emissions that would exceed the BAAQMD thresholds, due to the non-attainment status of the air basin with respect to ozone, PM_{10}, and $PM_{2.5}$, the BAAQMD recommends that projects implement a set of Basic Construction Mitigation Measures as best management practices regardless of the significance determination. The Proposed Project activities are not anticipated to result in air quality impacts as construction activities would incorporate measure in BMP-10 (Dust Management, Exhaust Control, and Air Quality Protection), as defined in project plans and specifications (Table 2-1). For example, all construction and maintenance equipment and vehicles shall be maintained and properly tuned in accordance with manufacturer's specifications and all equipment and vehicles shall be checked by a certified mechanic and determined to be running

in proper condition prior to operation. In addition, all disturbed areas, including storage piles, which are not being actively used for construction purposes, shall be effectively stabilized for dust emissions, using water or a chemical stabilizer/suppressant, or by covering with a tarp or other suitable cover or a vegetative ground cover as necessary. These practices and procedures protect air quality by avoiding or minimizing potential adverse impacts to air quality thresholds that could be violated during construction activities, which minimize impacts to less than significant.

Table 3.3-3
Average Daily Construction-related Pollutant Emissions (pounds/day)[a] Associated with Construction of the Proposed Project and Maintenance Activities (Potential Repair and Replacement) to BAAQMD Thresholds for Construction-related Activities

Reach (Year)	ROG	NO_x	Exhaust PM_{10}[b]	Exhaust $PM_{2.5}$[b]
Reach 4A and portion of Reach 4B (2019)	5.0	49.7	2.6	2.4
Reach 4B (2020)	4.2	40.2	2.0	1.8
Reach 4C (2021)	3.8	35.9	1.7	1.5
*BAAQMD Construction Threshold**	54	54	82	54
Over Threshold?	No	No	No	No

NOTES:
[a] Emissions were modeled using Sacramento Metropolitan Air Quality Management District (SMAQMD) Road Construction Emissions Model (Version 8.1.0). Modeling details can be found in Appendix B.
[b] BAAQMD's proposed construction-related significance thresholds for PM10 and PM2.5 apply to exhaust emissions only and not to fugitive dust.
SOURCE:* Bay Area Air Quality Management District (BAAQMD), 2017.[42]

In regards to operation, the Proposed Project would result in virtually no sources of air pollutants. Therefore, there would be no net change in long-term conditions as a result of the Proposed Project compared to the baseline conditions. There would be no long-term operational impact.

c) Less than Significant Impact. According to the BAAQMD, no single project is sufficient in size to, by itself, result in nonattainment of ambient air quality standards. Instead, a project's individual emissions contribute to existing cumulatively significant adverse air quality impacts. In addition, according to the BAAQMD *CEQA Air Quality Guidelines*, if a project exceeds the identified significance thresholds, its emissions would be cumulatively considerable, resulting in significant adverse air quality impacts to the region's existing air quality.[43] Alternatively, if a project does not exceed the identified significance thresholds, then the project would not be considered cumulatively considerable and would result in less than significant air quality impacts. As discussed for Criteria III b) above, although the Proposed Project would not

generate construction emissions that would exceed the BAAQMD thresholds, due to the non-attainment status of the air basin with respect to ozone, PM_{10}, and $PM_{2.5}$, the BAAQMD recommends that projects implement a set of Basic Construction Mitigation Measures as best management practices regardless of the significance determination. The Proposed Project activities are not anticipated to result in air quality impacts as construction activities would incorporate BMP-10 (Dust Management, Exhaust Control, and Air Quality Protection), as defined in project plans and specifications (Table 2-1). These practices and procedures protect air quality by avoiding or minimizing potential adverse impacts during construction activities, which minimize impacts to less than significant. The inclusion of BMP-10 would insure that temporary construction-related emissions of particulates would not be considered cumulatively considerable. These practices and procedures protect air quality by avoiding or minimizing potential adverse impacts during construction activities, which minimize impacts to a less than significant level.

d) Less than Significant Impact. Construction of the Proposed Project would result in short-term diesel exhaust emissions (DPM), which are TACs, from on-site heavy-duty equipment. The construction activities associated with the construction of the Proposed Project and maintenance activities (potential repair and replacement) would generate DPM emissions from the use of diesel equipment required for construction activities. Exposure of sensitive receptors, such as nearby residences is the primary factor used to determine health risk. Exposure is a function of the concentration of a substance or substances in the environment and the extent of exposure of that person to the substance. A longer exposure period would result in a higher exposure level. Thus, the risks estimated for a maximally exposed individual are higher if a fixed exposure occurs over a longer period of time.

   Construction activities for Reach 4A would be up to approximately eight months, and for Reaches 4B, and 4C would be up to approximately six months each per year for three years. Maintenance activities associated with the Proposed Project will be intermittent and short term, however potential repairs and replacement may occur. Due to the uncertainty in assessing cancer risks from very short-term exposures, the Office of Environmental Health Hazard Assessment (OEHHA), health risk assessments, does not recommend assessing cancer risk for projects lasting longer than two months.[44] Although the construction activities under the Proposed Project would last longer than two months, construction would proceed linearly at a rate of 10 to 200 feet per day resulting in nearby sensitive land uses being exposed to DPM for period between several days to two weeks. Due to this relatively short period of exposure, TACs generated during construction activities would not be expected to result in concentrations that could cause significant health risks. Construction activities associated with the construction of the Proposed Project and maintenance activities of the Proposed Project would result in less than significant impacts associated with

construction-related health risks. In addition, the Proposed Project activities are not anticipated to result in air quality impacts associated with DPM exhaust emissions, as construction activities would incorporate BMP-10 (Dust Management, Exhaust Control, and Air Quality Protection), as defined in project plans and specifications (Table 2-1). These practices and procedures protect air quality by avoiding or minimizing potential adverse impacts during construction activities, which minimize impacts to less than significant.

The long-term emissions related to operation of the Proposed Project would not result in any sources of TAC emissions. As a result, existing residential sensitive receptors and workers at the project site would not be exposed to substantial TAC emissions from operation of the Proposed Project. There would be no impact associated with Project operations.

e) Less than Significant Impact. The operation of the Proposed Project would not create objectionable odors affecting a substantial number of people. However, diesel equipment used during construction activities associated with the construction of the Proposed Project and maintenance activities (potential repair and replacement) may emit objectionable odors associated with combustion of diesel fuel. However, these emissions would be temporary and intermittent in nature, thus odor impacts associated with diesel combustion during construction activities would be less than significant.

IV. BIOLOGICAL RESOURCES

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☐	☒	☐
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	☐	☒	☐	☐
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act, including, but not limited to, marsh, vernal pool, coastal, through direct removal, filling, hydrological interruption, or other means?	☐	☒	☐	☐
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☒	☐
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☒	☐	☐
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local regional, or state habitat conservation plan?	☐	☐	☐	☒

BIOLOGICAL RESOURCES SETTING

Regional Proposed Project Area

The Proposed Project area lies within Sonoma Valley. To the east of this north-south valley are the Mayacamas Mountains of the Outer North Coast Ranges, a rugged

mountain range dominated by a series of northwest-trending ridges and steep canyons that form the boundary between Sonoma County and Lake County. To the west are the Sonoma Mountains, a low range that separates the Sonoma Valley from the Laguna de Santa Rosa basin. The Outer North Coast Ranges sub-region of the California Floristic Province[e] is characterized by mosaics of upland oak and mixed evergreen forests, native and non-native grasslands, chaparral, upland scrub communities, marsh and wetland communities, and riparian scrub, woodlands and forests.[45] The Outer North Coast Ranges feature a Mediterranean climate, with most precipitation occurring as rainfall in the winter and early spring months, while summer and fall are hot and dry. Compared to the coast of California, this region has colder winters and hotter summers.

Local Proposed Project Area

The Proposed Project area is within a semi-natural suburban setting that contains residences, paved roads, recreational fields, ornamental landscaping, non-native annual grassland, valley oak and riparian woodlands, an ephemeral stream, and seasonal wetlands. Vegetation communities found within the Proposed Project area are discussed below.

Vegetation Communities

Ruderal Grassland

The sewer trunk main alignment for Reaches 4B and 4C run through managed non-native ruderal grassland. Dominant plant species include Italian ryegrass (*Festuca perennis*), slender oat (*Avena barbata*), Harding grass (*Phalaris aquatica*), English plantain (*Plantago lanceolata*), filaree (*Erodium brachycarpum*, *E. moschatum*), subterranean clover (*Trifolium subterraneum*), and American vetch (*Vicia americana*). Most areas characterized as grassland are periodically mowed.

Valley Oak Woodland (*Quercus lobata* Alliance)

Valley oak woodland within Reach 4B is composed mostly of mature valley oak (*Quercus lobata*) and some coast live oak (*Q. agrifolia*), California bay (*Umbellularia californica*), and coyote brush (*Baccharis pilularis*). The habitat is relatively open with few shrubs and an herbaceous understory with species composition that is similar to that of the ruderal grassland described above. Reach 4C valley oak woodland has a more closed canopy and higher tree diversity. Valley oak, coast live oak, Oregon ash (*Fraxinus latifolia*), California bay, English walnut (*Juglans regia*; potentially grafted on native root stock), and eucalyptus (*Eucalyptus* sp.) are present in Reach 4C valley oak woodland. Understory

[e] Geographic subdivisions are used to describe and predict features of the natural landscape. The system of geographic units is four-tiered: provinces, regions, sub-regions, and districts. Three floristic provinces cover the State of California: California Floristic Province, Great Basin, and Desert. The California Floristic Province is the largest and is made up of six regions with most of the state and small portions of Oregon, Nevada and Baja California, Mexico.

varies but is mostly composed of ruderal grasses and herbaceous species. Most grass areas within this habitat type are periodically mowed. The *Quercus lobata* Alliance is a sensitive natural community according to the California Natural Community List.[46]

Riparian Forest

Riparian forest adjacent to and within the Proposed Project has a closed canopy and low- to moderate-density understory shrubs and herbaceous species. Dominant woodland species include California bay and Oregon ash, with lesser amounts of coast live oak and valley oak. Understory composition is primarily poison oak (*Toxicodendron diversilobum*) and Himalayan blackberry (*Rubus armeniacus*), with few ruderal herbaceous species. Riparian forest within the Proposed Project area most closely matches the *Umbellularia californica* and *Fraxinus latifolia* alliances, both considered sensitive natural communities.[47]

Lilley Creek

Lilley Creek is a potentially jurisdictional ephemeral stream that holds water and conveys flow during rain events. The stream banks are moderately vegetated, with some areas of bare ground. While mostly earthen, in a few locations the stream banks are modified with rip rap and retaining walls. Most of the creek has a well-developed canopy and riparian habitat ranging from valley oak woodland to California bay-dominated riparian forest. Lilley Creek drains into Agua Caliente Creek, a tributary to Sonoma Creek.

Seasonal Wetlands

Two seasonal wetlands fall within the Proposed Project area. Wetland A (Figure 3.4-1) is characterized as gently sloping with contours that promote saturation rather than prolonged inundation of soil. The wetland is within a managed area of Maxwell Farms Regional Park and is regularly mowed and disked by park personnel during late spring and summer. The area appears disturbed, as evidenced by several mounds, an existing dirt road, intermittent gravel on the surface, and mowing. Herbaceous cover is dense, with dominant plant species that include Italian ryegrass, little quaking grass (*Briza minor*), seaside barley (*Hordeum marinum*), California wild oat (*Danthonia californica*), and soft brome (*Bromus hordeaceus*). Wetland hydrology is presumably influenced by runoff from an adjacent shopping center.

Wetland B (Figure 3.4-2) is characterized as a swale within a riparian woodland in Maxwell Farms Regional Park. The wetland is inundated during the wet season in years with normal rainfall. Understory vegetation is sparse and mainly along the fringe, most likely due to a combination inundation and dense canopy of California bay and Oregon ash trees adjacent to the swale.

Figure 3.4-1 Wetland A Impacts
Sonoma Valley County Sanitation District
Sewer Trunk Main Replacement Project - Reach 4B

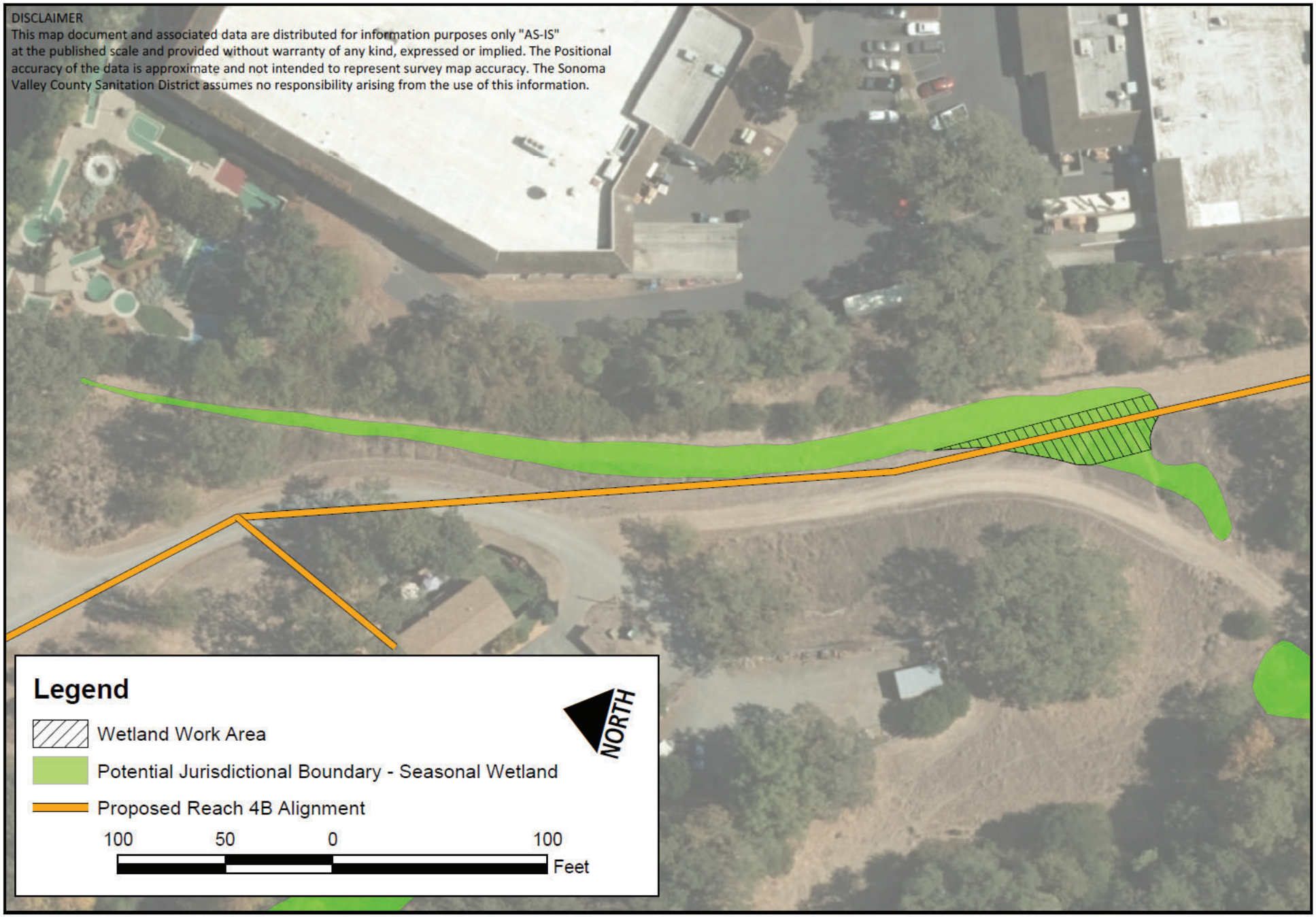
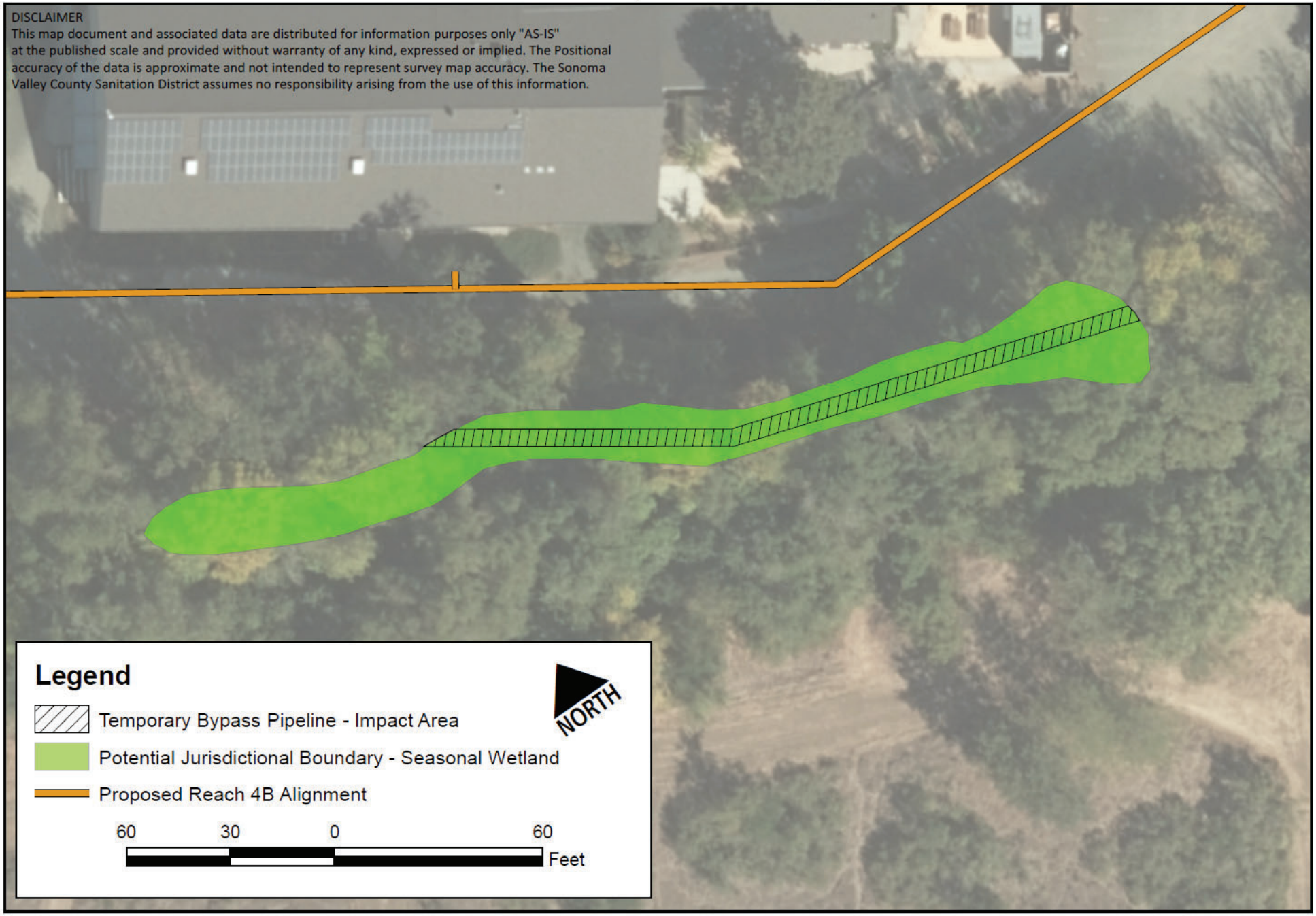


Figure 3.4-2 Wetland B Impacts
Sonoma Valley County Sanitation District
Sewer Trunk Main Replacement Project - Reach 4B



Developed Areas

Developed areas consist of paved surfaces such as roadways, houses, yards, and landscaped areas. Vegetation cover within non-paved areas include cultivated fig (*Ficus* sp.), ornamental oleander (*Nerium oleander*), bamboo *(Phyllostachys* sp.), cultivated apple (*Malus* sp.), liquidambar (*Liquidambar styraciflua*), maple (*Acer* sp.), citrus trees, annual bluegrass (*Poa annua*), and other non-native ruderal grasses. Most developed areas within the Proposed Project area are paved surfaces and lack natural or semi-natural habitat.

Recreational Fields

Recreational areas are present within the Maxwell Farms Regional Park and include a baseball diamond/field, several walking trails, a volleyball court, and a large open field. Vegetation through this area is composed of mostly non-native grasses (*Poa annua*) and forbs. Recreational Fields within the Proposed Project area are frequently mowed.

Habitat within Proposed Project Reaches 4A, 4B and 4C

Reach 4A

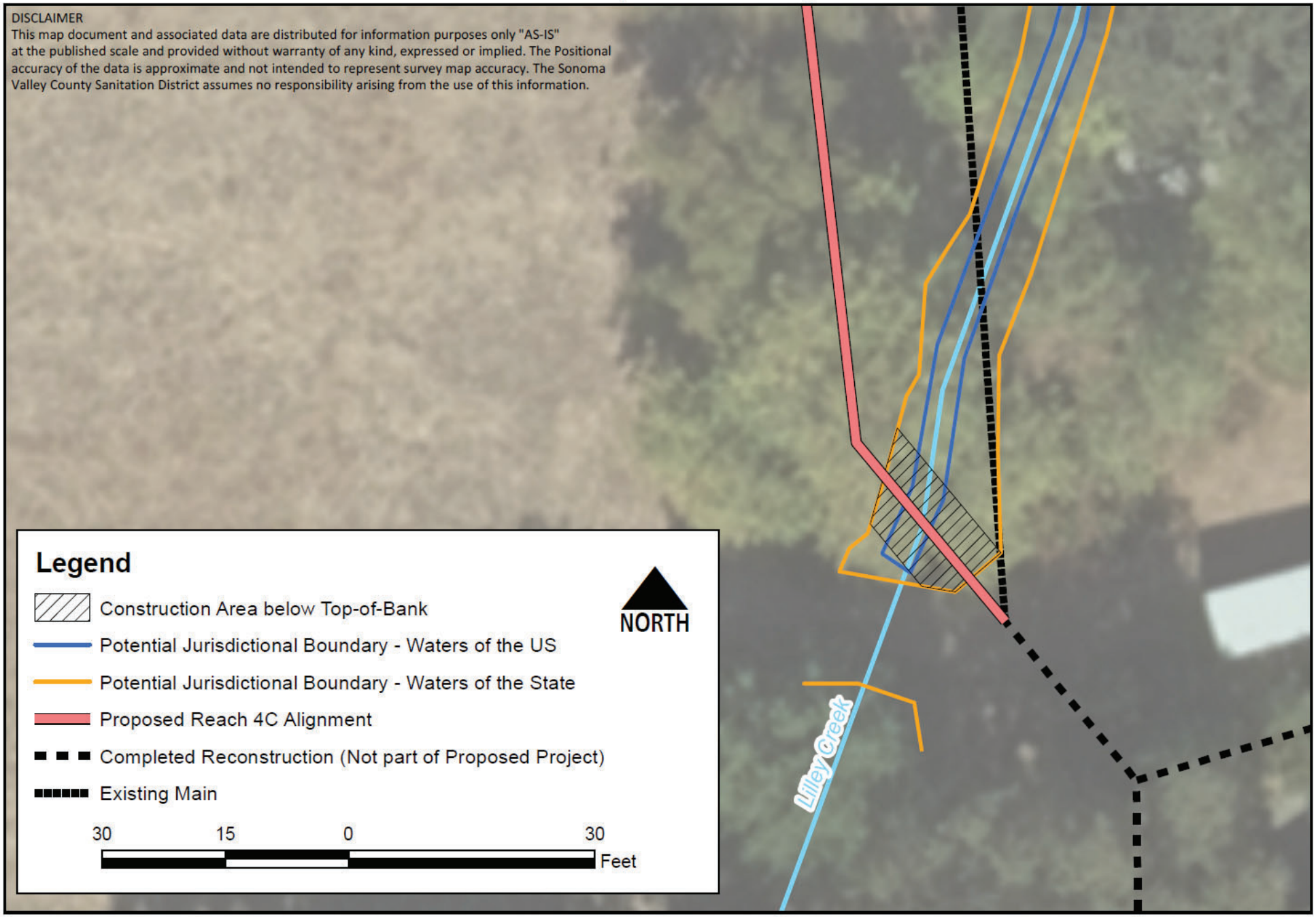
Reach 4A, the southernmost portion of the Proposed Project (approximately 3,650 feet) is entirely within paved roadways and gravel shoulders, including portions of 6th Street West, West Napa Street, and Highway 12 and Ramon Street. The alignment does not intersect the dripline of trees and no habitat is present within Reach 4A. Access would be provided through existing roadways.

Reach 4B

Habitat within Reach 4B of the Proposed Project includes areas with paved roadways, ornamental landscaping, ruderal grassland, recreational fields, and valley oak and riparian woodlands. Reach 4B also includes two seasonal wetlands. Reach 4B extends from Reach 4A along Ramon Street (paved surface) for approximately 500 feet. The alignment turns north through 130 feet of small ornamental shrubs and trees associated with adjacent residences.

The majority of Reach 4B runs through Maxwell Farms Regional Park, an area with elements of natural and landscaped habitat. Extending from the southeast corner of the park boundary, the alignment runs through ruderal grassland for approximately 850 feet, across a seasonal wetland (Wetland A, Figure 3.4-3), with a short section just outside the perimeter and dripline of valley oak woodland. Topography is gently sloping and the alignment generally follows an unpaved gravel access road. Grassland in Maxwell Farms Regional Park is mowed by park staff during late spring and summer, supporting a mix of mostly non-native grasses that can withstand this management regime.

Figure 3.4-3 Potential Jurisdictional Waters A Impacts
Sonoma Valley County Sanitation District
Sewer Trunk Main Replacement Project - Reach 4C



Just south of the Boys and Girls Club of Sonoma Valley the alignment turns roughly west adjacent to a section of managed valley oak woodland (approximately 80 feet), but mostly remains within gravel access roads (100 feet). Moderate-to-large valley oaks are well spaced and provide a semi-enclosed canopy. A California bay (fused at the base with a valley oak) and several coast live oaks are present in this section of the Proposed Project area. A sewer lateral to connect the Park Ranger's residence extends through valley oak woodland but outside of the dripline of trees.

The pipeline alignment for the northern portion of Reach 4B follows an existing access road along the perimeter of riparian woodland for approximately 400 feet. In two locations, the alignment intersects the driplines of coast live oak, California bay, and Oregon ash trees that overhang the access road. An area west of the access road adjacent to the Boys and Girls Club of Sonoma Valley contains a seasonal wetland (Wetland B, Figure 3.4-4) that could be used for a potential bypass pipeline during construction activities. Extending from this location, the alignment turns and crosses a managed recreational field and baseball diamond.

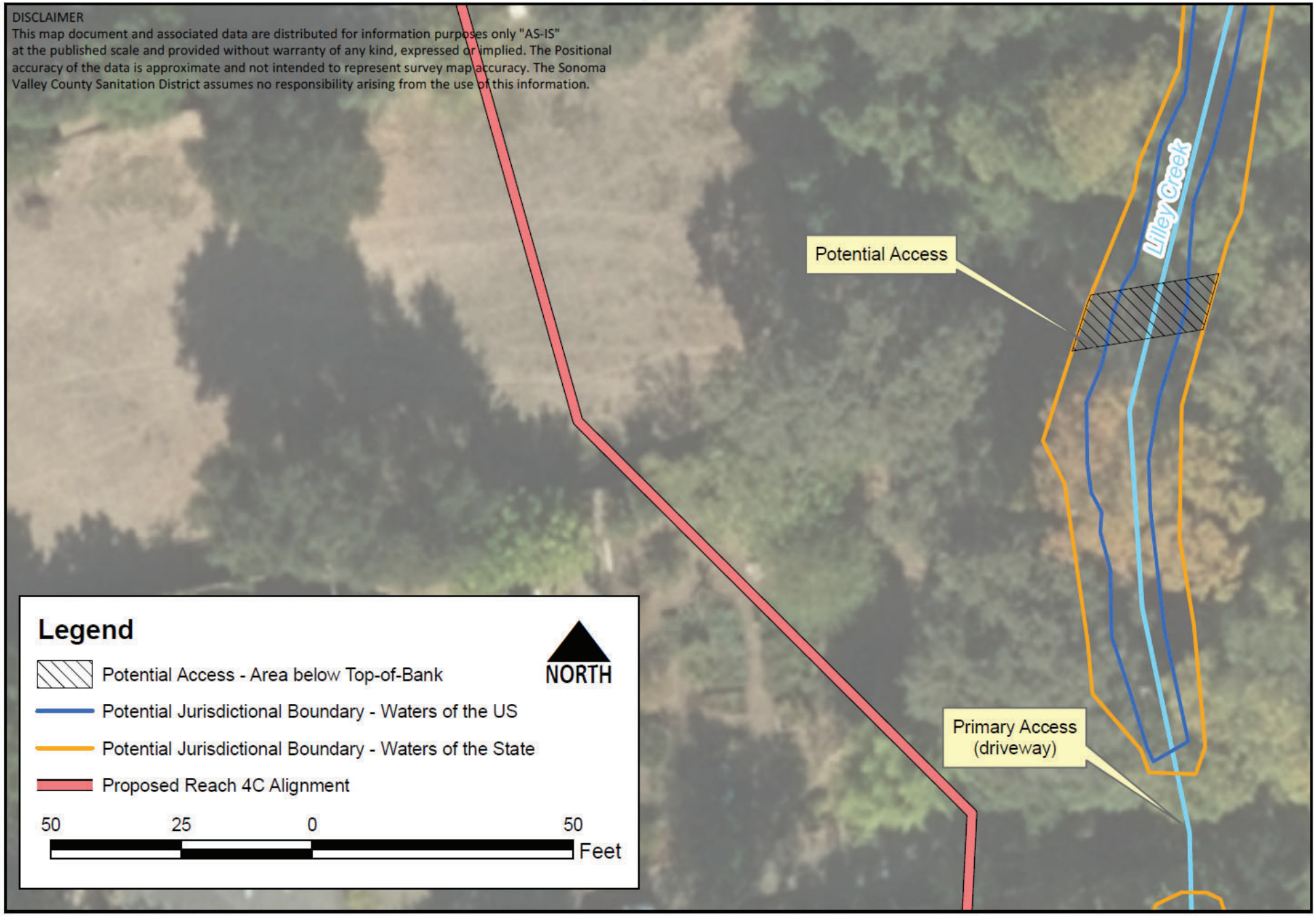
South of Verano Avenue, the Proposed Project area intersects a narrow strip of woodland with valley oak, black walnut (*Juglans* sp.), coast live oak, and Himalayan blackberry. On the northern side of Verano Avenue, the alignment crosses a newly constructed bicycle path, and across approximately 170 feet of ruderal grassland, ending with approximately 45 feet of the alignment within the boundary of riparian woodland dominated by mature valley oak and herbaceous understory.

Reach 4C

Reach 4C of the Proposed Project extends from a previously constructed section of the sewer trunk main (Agua Caliente Crossing). The alignment crosses a narrow section of Lilley Creek (Figure 3.4-3, Waters A). The Proposed Project area parallels Lilley Creek for approximately 500 feet through valley oak woodland and developed areas.

The alignment crosses approximately 100 feet of ruderal grassland, then enters the yard of a residence at the southern end of Happy Lane, where it runs adjacent to the site of an in-ground pool, ornamental plantings, liquidambar, and maple (*Acer* sp.) trees. Potential access for this section of the alignment could be provided by existing driveways or across the creek on a private property off of Academy Lane. If the latter is used, equipment and personnel would cross Lilley Creek through a section historically used for vehicle access (Figure 3.4-4, Waters B). Vegetation is characteristic of valley oak woodland, with periodic removal of the understory vegetation by homeowners. The remaining Proposed Project area (approximately 1,300 feet) is entirely within paved surfaces (Happy Lane) within suburban development and outside of the driplines of trees lining the street.

Figure 3.4-4 Potential Jurisdictional Waters B Impacts
Sonoma Valley County Sanitation District
Sewer Trunk Main Replacement Project - Reach 4C



Special-status Species

A comprehensive list of special-status species observed or that have potential to occur within the Proposed Project area was compiled through assessments and by reviewing the following sources: reconnaissance-level plant and animal; focused plant field surveys conducted in March and May of 2016 and March through May of 2017; reconnaissance for amphibian habitat conducted March of 2018; records from the California Natural Diversity Database[48] and California Native Plant Society's Electronic Inventory[49] for the Glen Ellen and Sonoma USGS 7.5 minute topographic quadrangles; and a list of plant and animal species of concern for the region provided by the U.S. Fish and Wildlife Service[50] Endangered Species Office.

Special-status plant and wildlife species with potential to occur in the Proposed Project area are provided in Tables C-1 and C-2 in Appendix C. No candidate, sensitive, or Federal or State listed special-status plant species had high potential to occur, but one sensitive plant species, hayfield tarplant (*Hemizonia congesta ssp. congesta),* had moderate potential to occur. No Federal or State special-status listed, or candidate wildlife species are likely to occur within the Proposed Project area, however there is a high likelihood for the presence of sensitive nesting birds.

Breeding birds and raptors, and their nest and eggs are protected under Sections 3503 and 3503.5 (respectively) of California Department of Fish and Game Code (the 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.

DISCUSSION OF POTENTIAL IMPACTS

a) Less than Significant Impact. Special-status species with potential to occur in the Proposed Project area are provided in Tables C-1 and C-2 in Appendix C. No special-status, candidate, or sensitive plant species have high potential to occur within the Proposed Project area. Hayfield tarplant, a species somewhat tolerant to human-related disturbance and known to occur in valley and foothill grassland, has a moderate potential to occur due to presence of suitable grassland habitat within the Proposed Project area. No Federal or State special-status listed, candidate, or sensitive, non-avian wildlife species are likely to occur within the Proposed Project area. During the breeding and migration season, there is a high likelihood for the presence of nesting birds (including special-status species), which, along with their nests and eggs, are protected under both the Migratory Bird Treaty Act (MBTA) and Fish and Game Code (Section 35043.5, 1992).

Effects on Special-status Plant Species

Habitat assessments and California Natural Diversity Database occurrence review concluded that hayfield tarplant has a moderate potential to occur within ruderal grassland habitat in the Proposed Project area. The habitat is potentially suitable for the species, which is tolerant of the disturbance (*e.g.* mowing, disking) within the Proposed Project area. There are no documented occurrences within or adjacent to the Proposed Project area, and appropriately timed presence/absence rare plant surveys were conducted by Sonoma Water botanists in 2016 and 2017, which did not detect new occurrences. Proposed Project activities are not anticipated to result in impacts to this species as construction activities would incorporate the use of BMP-5 (Special-Status Plant Surveys) and BMP-7 (Pre-Construction Educational Training), as defined in project plans and specifications (Table 2-1). For example, prior to construction, a qualified botanist will conduct appropriately timed focused botanical surveys of the project site for special-status plants (includes federally and state listed species) within areas that could be impacted by Project activities. If discovered, special-status plant populations with the potential to be impacted would be enumerated, photographed, and conspicuously flagged to maximize avoidance, as well as determine the total number of individuals affected. If feasible, the project would be redesigned or modified to avoid direct and indirect impacts on special-status plant species. In addition, prior to construction activities, all personnel would participate in an educational training session conducted by a qualified biologist. This training would include instruction on how to recognize special-status species that may occur in work areas, and the appropriate protocol if special-status species are found during project implementation. Personnel who do not receive the initial training must participate in a make-up session before participating in construction activities. These practices and procedures protect candidate, sensitive and special-status plant species by avoiding or minimizing potential adverse impacts during construction activities, which minimize impacts to less than significant.

Effects on Birds Including Special-status Species

The surrounding Proposed Project areas includes potential nesting habitat for numerous common and special-status birds. Proposed Project activities are not anticipated to result in impacts to these species as construction activities would incorporate the use of BMP-6 (Nesting Bird Protection Measures) and BMP-7 (Pre-Construction Educational Training), as defined in project plans and specifications (Table 2-1). For example, for construction that would occur during the bird nesting season (February 15 – August 15 for most birds), pre-construction surveys would be conducted by a qualified wildlife biologist within one week before initiation of construction activities. If active nests are identified within the project site, non-disturbance buffers would be established. Buffer size would be determined by a

qualified wildlife biologist in cooperation with the California Department of Fish and Wildlife (CDFW). Buffers would remain in place until biologists determine that the young have successfully fledged. In addition, prior to construction activities, all personnel would participate in an educational training session conducted by a qualified biologist. This training would include instruction on how to identify bird nests that may occur in work areas, recognize any special-status species that may that may occur in the project area, and the appropriate protocol if any nest or special-status species are found during project implementation. Personnel who do not receive the initial training must participate in a make-up session before participating in construction activities. These practices and procedures protect biological resources by avoiding or minimizing potential adverse impacts during construction activities, which minimize impacts to less than significant.

b) Less than Significant with Mitigation. The Proposed Project is within the jurisdiction of the Sonoma County General Plan 2020,[51] which requires that natural communities and special-status species be identified and protected. Several goals and objectives are relevant, including the following:

- *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.

  The Proposed Project would be consistent with Objective OSCR 7.1 and GOAL OSRC 8 because the Proposed Project description and specifications would include implementation of BMP to protect biological resources by avoiding or minimizing potential adverse impacts during construction activities. The Proposed Project activities are not anticipated to result in impacts to riparian habitat or other sensitive natural communities as construction activities would incorporate the use of BMP-1 (General Impact Avoidance and Minimization Work Window), BMP-2 (Minimize the Area of Disturbance), BMP-3 (Tree Protection Measure), and BMP-9 (Erosion and Sediment Control Measures), as defined in project plans and specifications (Table 2-1). For example, when feasible, ground-disturbing activities would take place during the dry season, generally between April 15 and October 15. In addition, to minimize impacts to natural resources, soil disturbance would be kept to the minimum footprint necessary to complete the project. Furthermore, if required, pruning of trees along the alignment will be minimized and conducted by a certified arborist. In areas where trenchless construction techniques will occur beneath or near the drip line of trees, an arborist will monitor construction to ensure that a majority of the roots are not compromised. Special trenching techniques would be implemented in specific areas of the project (open trench areas), which would

require that a certified arborist be onsite to ensure that root pruning is performed in accordance with ANSI 300 pruning standards. These practices and procedures protect biological resources by avoiding or minimizing potential adverse impacts during construction activities, which minimize impacts to less than significant.

In addition to the Sonoma County General Plan, the Proposed Project area contains riparian forest and oak woodlands, which are also considered sensitive natural communities as described by the CDFW.[52] Specifically, habitats with the Proposed Project area include the *Umbellularia californica* alliance, *Fraxinus latifolia* association, and *Quercus lobata a*lliance.[53]

The CDFW potentially has jurisdiction of riparian habitat in the Proposed Project area. Impacts to riparian areas and wetlands are addressed in Question IV (c) below. Compliance with local tree ordinances would further reduce impacts to sensitive natural communities, and is discussed in Question IV (e) in this section. Implementation of **Mitigation Measure BIO-1 (Avoid, minimize, or compensate for impacts to jurisdictional wetlands, other waters of the U.S., and impacts to riparian habitat)** would reduce the impacts on riparian habitat or other sensitive natural communities to less than significant.

c) Less than Significant with Mitigation. The Proposed Project would require work and placement of fill material within U.S. Army Corps of Engineers (USACE), San Francisco Regional Water Quality Control Board (Regional Board) and CDFW potential jurisdictional areas. The majority of fill would be temporary in nature, and wetlands and other Waters of the U.S. functions would be restored following pipeline installation.

Wetland assessments were performed by Sonoma Water biologists in March of 2017. Following USACE protocol for a routine wetland assessment and using hydric plant, soil, and hydrology indicators, two potentially jurisdictional seasonal wetlands were identified in Reach 4B that would be impacted by the Proposed Project. The Proposed Project sewer trunk pipeline alignment crosses Wetland A (Figure 3.4-1), resulting in approximately 0.01 acres of ground disturbance (open trenching), and 0.04 acres of total work area (including trench). Wetland B would potentially be used to run a bypass pipeline during the Proposed Project activities, resulting in approximately 0.02 acres of temporary fill (maximum 24-inch diameter pipe).

The Reach 4C alignment crosses a section of Lilley Creek (Figure 3.4-3), potentially jurisdictional Waters of the U.S., resulting in less than 0.01 acres of ground disturbance and a total footprint less than 0.01 acres below the top-of-bank. The Proposed Project activities are not anticipated to result in substantial adverse effects to wetlands, or other Waters of the U.S. as construction activities would incorporate the use of BMP-1 (General Impact Avoidance and Minimization Work Window), and BMP-9 (Erosion and Sediment Control Measures), as defined in the project plans and specifications. For example, when feasible, ground disturbing activities would take

place during the dry season, generally April 15 through October 15. In addition, erosion control fabric and hand application of native grass seed above the ordinary high water mark would be included during project construction activities. Lastly, a second section of Lilley Creek (Figure 3.4-4) would potentially be used to provide access for construction equipment and personnel. Total impact to area below the top of bank is less than 0.01 acres. BMP-1 (General Impact Avoidance and Minimization Work Window) would be implemented during construction activities. No water would be present during construction activities. These practices and procedures protect wetlands and Waters of the U.S. avoiding or minimizing potential adverse impacts during construction activities.

The permanent fill material associated with the Proposed Project is not be anticipated to result in any net reduction of USACE, Regional Board, or CDFW potential jurisdictional areas. No substantial adverse effects to wetlands, or other Waters of the U.S. are anticipated to result from the Proposed Project. The following **Mitigation Measure BIO-1 (Avoid, minimize, or compensate for impacts to jurisdictional wetlands, other waters of the U.S., and impacts to riparian habitat)** would address impacts from construction activities on wetlands and other Waters of the U.S. Because the impacts are temporary, compensatory mitigation is not anticipated. Implementation of **Mitigation Measures BIO-1**, would reduce the impacts to federally protected wetlands to less than significant.

Mitigation Measure BIO-1: **Avoid, minimize, or compensate for impacts to jurisdictional wetlands, other waters of the U.S., and impacts to riparian habitat.**

1. Construction activities resulting in the introduction of fill or other disturbance to jurisdictional wetlands and other waters of the U.S. would require permit approval from the U.S. Army Corps of Engineers (USACE) pursuant to Section 404 of the Clean Water Act (CWA). The Proposed Project would likely be authorized under Nationwide Permit #12 (Utility Lines) pursuant to Section 404 of the CWA. In addition, a Water Quality Certification would be required from the San Francisco Bay Regional Water Quality Control Board, pursuant to Section 401 of the CWA. The California Department of Fish and Wildlife has jurisdiction in the Proposed Project area over riparian habitat, including stream bed and banks. Therefore, pipeline construction resulting in alteration to channel bed or banks, extending to the outer dripline of trees forming the riparian corridor, would require a Streambed Alteration Agreement (SAA) from the CDFW under Section 1602 of the California Fish and Game Code. The District would apply for permits from the appropriate regulatory agencies and comply with terms. Terms of these permits and the SAA would likely include, but not necessarily be limited to, the mitigation measures listed below:

    a) The District would conduct a wetland assessment according to U.S. Army Corps of Engineers protocol and regional supplement to delineate all

potentially jurisdictional wetlands and other waters in the Proposed Project area. The District would then obtain and comply with necessary conditions for permits for wetland impacts from the U.S. Army Corps of Engineers, the Regional Water Quality Control Board, and the California Department of Fish and Wildlife.

b) Specific locations of pipeline segments shall be configured, wherever feasible, to avoid and minimize direct and indirect impacts to wetlands and stream drainage channels. Consideration taken in finalizing configuration placement shall include:

   i. Placement of project components as distant as possible from channels and wetlands.

   ii. Where possible, construction work area boundaries shall have a minimum 20-foot setback from jurisdictional features. Pipeline construction activities in proximity to jurisdictional features include: 1) open trench operations; and 2) portions of pipeline segments listed as parallel to wetland/water features and as having potentially avoidable temporary impacts.

c) Sites identified as potential staging areas would be examined by a qualified biologist prior to construction. If potentially jurisdictional features are found that could be impacted by staging activities, they shall be avoided.

d) Where soil removal is necessary in a wetland or drainage, to maintain wetland function, the top 12 inches of soil would be stockpiled and preserved during construction. After the pipeline has been installed, the stockpiled material would be placed back into the drainage or wetland feature to return the beds to approximately their original composition.

d) Less than Significant Impact. The Proposed Project would not interfere substantially with the movement of any native resident or migratory fish or any native resident or migratory wildlife species. Crossing of Lilley Creek would occur during the dry season when no water is present in the channel and is unlikely to provide wildlife habitat. Thus, there would be a less than significant impact to wildlife corridors or nursery sites from the Proposed Project.

e) Less than Significant with Mitigation. The Sonoma County Tree Protection Ordinance (zoning code Section 26-88-010(m)) only applies when a discretionary permit is involved (e.g. use permit, subdivisions, etc.). Replacement of a sewer main does not require a discretionary permit; therefore, the tree protection ordinance does not apply to the Proposed Project. The Sonoma County Ordinance No. 3651 preserves heritage and landmark trees that have been nominated and accepted by the County as heritage or landmark trees. No heritage or landmark trees would be removed or impacted during the Proposed Project activities, therefore no impact to biological resources would occur.

The Sonoma County Ordinance No. 4991 protects valley oak trees and valley oak woodlands within the Valley Oak Habitat district boundaries in the Proposed Project area. This ordinance requires mitigation for removal of any large valley oak, or any small valley oaks having a cumulative diameter sixty inches or greater at diameter breast height[f] on any property within the Valley Oak Habitat district boundaries. The alignment for the Proposed Project was chosen to minimize tree removal. To not conflict with any local tree preservation policies or ordinances the District would comply with Sonoma County Ordinance No. 4991 and submit a Notice of Intent to Mitigate and Remove Valley Oak Trees application. Implementation of **Mitigation Measure BIO-2 (Comply with Sonoma County Ordinance No. 4991)** would reduce impacts to protected trees to less than significant.

Mitigation Measure BIO-2: Comply with Sonoma County Ordinance No. 4991

1. Prior to start of construction, the final number of valley oak trees to be removed would be determined. A Notice of Intent to Mitigate and Remove Valley Oak Trees application would be submitted, and all requirements would be adhered to. The District would comply with mitigation requirements in accordance with Ordinance No. 4991.

   As outlined in the Sonoma County Municipal Code Sec. 26-67-030(a), mitigation for tree removal may be in the form of (1) tree replacement by planting valley oak seedlings on the subject property or on another site in the county having the geographic, soil, and other conditions necessary to sustain a viable population of valley oaks; (2) retaining other valley oak trees on the subject property; (3) a combination of measures (1) and (2); or (4) paying an in-lieu fee, which shall be used exclusively for valley oak planting programs in the County of Sonoma.

f) No Impact. No Habitat Conservation Plans or Natural Community Conservation Plans cover the area of the Proposed Project. Thus, the Proposed Project would not conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan. Thus, there would be no impact to habitat conservation plans from the Proposed Project.

[f] A valley oak may have multiple trunks which stem from the same root mass. The diameter around the cluster of trunks (cumulative diameter) would be measured as the diameter breast height.

V. CULTURAL RESOURCES

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Cause a substantial adverse change in the significance of a historical resource as defined in CEQA Guidelines §15064.5?	☐	☒	☐	☐
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines §15064.5?	☐	☐	☐	☒
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☒	☐	☐
d) Disturb any human remains, including those interred outside of formal cemeteries?	☐	☒	☐	☐

CULTURAL RESOURCES SETTING

The cultural resources setting is provided along with relevant regulatory background, summary of surveys conducted, and their applicability to the Proposed Project.

Cultural resources discussed in this section include archaeological resources (which may be historical resources or unique archaeological resources) and paleontological resources. Historical resources and unique archaeological resources are defined below under the California Environmental Quality Act section.

Paleontological Resources

Paleontological resources are the fossilized evidence of past life found in the geologic record. For the purpose of this document, paleontological resources refer to fossilized plant and animal remains of prehistoric species. Fossils are important scientific and educational resources because of their use in (1) documenting the presence and evolutionary history of particular groups of now-extinct organisms; (2) reconstructing the environments in which these organisms lived; and (3) determining the relative ages of the strata in which they occur, as well as the relative ages of the geologic events that resulted in the deposition of the sediments that formed these strata and in their subsequent deformation.

Paleontological resources are valued for the information they yield about the history of the earth and its past ecological settings. They represent a limited, non-renewable, impact-sensitive scientific and educational resource. Fossil remains such as bones, teeth, shells, and leaves are found in geologic deposits (i.e., rock formations). Paleontological

resources, in general, include fossils as well as the collecting localities and the geologic formations that contain those fossils.

Regulatory Framework

Archaeological Resources

State Laws, Regulations, and Policies

The State of California implements the National Historic Preservation Act (NHPA) of 1966, as amended, through its statewide comprehensive cultural resource surveys and preservation programs. The California Office of Historic Preservation (OHP), as an office of the California Department of Parks and Recreation, implements the policies of the National Historic Preservation Act (NHPA) on a statewide level. The OHP also maintains the California Historical Resources Inventory. The State Historic Preservation Officer (SHPO) is an appointed official who implements historic preservation programs within the State's jurisdiction.

The lead agency having jurisdiction over a project is responsible to ensure that archaeological and paleontological resources are protected in compliance with the California Environmental Quality Act (CEQA) and other applicable statutes.

California Environmental Quality Act

CEQA is a principal statue governing environmental review of projects occurring in the State. CEQA requires lead agencies to determine if a project would have a significant effect on historical resources, including archaeological resources. California Public Resource Code (PRC) Section 15064.5 (c) (1), under CEQA Guidelines states that when a project will impact an archaeological site, a lead agency shall first determine whether the site is an historical resource. Section 15064.5 (a) under CEQA Guidelines defines a historical resource as:

1. A resource listed in, or determined to be eligible for listing by the State Historical Resources Commission, for listing in, the California Register of Historical Resources (California Register); (PRC Section 5024.1, Title 14 CCR, Section 4850 et seq.).

2. A resource included in a local register of historical resources, as defined in PRC Section 5020.1(k) or identified as significant in a historical resource survey meeting the requirements pursuant to criteria set forth PRC Section 5024.1(g), shall be presumed to be historically or culturally significant. Public agencies must treat any such resource as significant unless the preponderance of evidence demonstrates that it is not historically or culturally significant; or

3. Any object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California may be considered to be a historical resource, provided

the lead agency's determination is supported by substantial evidence in light of the whole record.

If a lead agency determines that an archaeological site is a historical resource, the provisions of PRC Section 21084.1 and Section 15064.5 CEQA Guidelines apply.

Section 15064.5 of the CEQA Guidelines states:

(b) A project with an effect that may cause a substantial adverse change in the significance of an historical resource is a project that may have a significant effect on the environment.

(1) Substantial adverse change in the significance of an historical resource means physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of an historical resource would be materially impaired.

(2) The significance of an historical resource is materially impaired when a project:

(A) Demolishes or materially alters in an adverse manner those physical characteristics of an historical resource that convey its historical significance and that justify its inclusion in, or eligibility for, inclusion in the California Register of Historical Resources; or

(B) Demolishes or materially alters in an adverse manner those physical characteristics that account for its inclusion in a local register of historical resources pursuant to section 5020.1(k) of the Public Resources Code or its identification in an historical resources survey meeting the requirements of section 5024.1(g) of the Public Resources Code, unless the public agency reviewing the effects of the project establishes by a preponderance of evidence that the resource is not historically or culturally significant; or

(C) Demolishes or materially alters in an adverse manner those physical characteristics of a historical resource that convey its historical significance and that justify its eligibility for inclusion in the California Register of Historical Resources as determined by a lead agency for purposes of CEQA.

(3) Generally, a project that follows the Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings or the Secretary of the Interior's Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings (1995), Weeks and Grimmer, shall be considered as mitigated to a level of less than a significant impact on the historical resource.

(4) A lead agency shall identify potentially feasible measures to mitigate significant adverse changes in the significance of an historical resource. The lead agency shall ensure that any adopted measures to mitigate or avoid significant adverse changes are fully enforceable through permit conditions, agreements, or other

measures. CEQA Guidelines Section 15126.4 provides further guidance about minimizing effects to historical resources through the application of mitigation measures.

(5) When a project will affect state-owned historical resources, as described in Public Resources Code Section 5024, and the lead agency is a state agency, the lead agency shall consult with the State Historic Preservation Officer as provided in Public Resources Code Section 5024.5. Consultation should be coordinated in a timely fashion with the preparation of environmental documents.

If an archaeological site does not meet the CEQA Guidelines criteria for a historical resource, the site may meet the threshold of PRC Section 21083.2 (g) regarding unique archaeological resources. A unique archaeological resource defined in Section 21083.2 (g) is an archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

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

The CEQA Guidelines note that, if a resource is neither a unique archaeological resource nor a historical resource, the effects of the project on that resource shall not be considered a significant effect on the environment (CEQA Guidelines Section 15064[c][4]).

Although not specifically inclusive of paleontological resources, these criteria may also help to define “a unique paleontological resource or site.” The lead agency having jurisdiction over a project is also responsible to ensure that paleontological resources are protected in compliance with CEQA and other applicable statutes.

California Register of Historical Resources

Created by Assembly Bill 2881, PRC Section 5024.1 establishes the California Register of Historical Resources (California Register). The California Register is “an authoritative listing and guide to be used by state and local agencies, private groups, and citizens in identifying the existing historical resources of the state and to indicate which resources deserve to be protected, to the extent prudent and feasible, from substantial adverse change” (PRC Section 5024.1[a]). The criteria for eligibility to the California Register are based on National Register of Historic Places (National Register) criteria (PRC Section 5024.1[b]). Certain resources are determined by the statute to be automatically included

in the California Register, including California properties formally determined eligible for or listed in the National Register.

The OHP has broad authority under Federal and State law for the implementation of historic preservation programs in the State of California. The SHPO makes determinations of eligibility for listing on the NRHP and the California Register.

To be eligible for the California Register, a historical resource must be significant at the local, state, and/or federal level under one or more of the following criteria:

1. Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;
2. Is associated with the lives of persons important in our past;
3. Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or
4. Has yielded, or may be likely to yield, information important in prehistory or history (PRC Section 5024.1[c])

For a resource to be eligible for the California Register, it must also retain enough integrity to be recognizable as a historical resource and to convey its significance. A resource that does not retain sufficient integrity to meet the National Register criteria may still be eligible for listing in the California Register.

California Public Resources Code Section 5097 Native American Historic Resource Protection Act Archaeological, Paleontological, and Historical Sites Native American Historical, Cultural, and Sacred Sites

CEQA Guidelines Section 15064.5 also prescribes the processes and procedures found under Section 5097 of the PRC in the event of the unexpected discovery of a paleontological site and/or human remains on nonfederal land. Section 5097.5 states:

> A person shall not knowingly and willfully excavate upon, or remove, destroy, injure or deface any historic or prehistoric ruins, burial grounds, archaeological or vertebrate paleontological site, including fossilized footprints, inscriptions made by human agency, or any other archaeological, paleontological or historical feature, situated on public lands, except with the express permission of the public agency having jurisdiction over such lands. Violation of this section is a misdemeanor.

This statute would apply to any construction or other related project impacts that would occur on state-owned or state-managed lands.

Section 5097.98 further defines the standards for the handling of Native American human remains. Section 5097.993 sets requirements for the unlawful and malicious excavation,

removal, destruction, injury, or defacing of a Native American historic, cultural, or sacred site, that is listed or may be eligible for listing in the California Register of Historical Resources.

California Public Resources Code 5024 Memorandum of Understanding Between the California Department of Transportation and The California State Historic Preservation Officer Regarding Compliance With Public Resource Code Section 5024 and Governor's Executive Order W-26-92 (5024 MOU)

The January 2015 PRC 5024 Memorandum of Understanding between the California Department of Transportation and the California State Historic Preservation Officer Regarding Compliance with Public Resources Code Section 5024 and Governor's Executive Order W026-92 (5024 MOU) shall apply to all projects, activities and permits that affect a state-owned cultural resource. Under the 5024 MOU Caltrans shall ensure that, to the extent prudent and feasible, historical resources under its jurisdiction are preserved, rehabilitated, and maintained for the "inspiration and benefit of the people," as outlined in W-26-92 Section 1 (2), and as required under PRC 5024 and California Health and Safety Code 7050.5 – 7055 Dead Bodies General Provisions.

CEQA Guidelines Section 15064.5 also prescribes the processes and procedures found under Health and Safety Code Sections 7050.5 - 7055 which address the illegality of interference with human burial remains (except as allowed under applicable sections of the PRC), and the disposition of Native American burials in archaeological sites. These regulations protect such remains from disturbance, vandalism, or inadvertent destruction, and establish procedures to be implemented if Native American skeletal remains are discovered during construction of a project, including treatment of the remains prior to, during and after evaluation, and reburial procedures. Section 7052 of the California Health and Safety Code makes the willful mutilation, disinterment, or removal of human remains a felony. Section 7050.5 requires that the construction or excavation be stopped in the vicinity of discovered human remains until the coroner can determine whether the remains are those of a Native American. If determined to be Native American, the coroner must contact the Native American Heritage Commission (NAHC) within 24 hours.

California Code of Regulations Sections 6015, 6253, 6254, and 6254.10

Sections 6015, 6253, 6254, and 6254.10 of the California Code of Regulations authorize State agencies to exclude archaeological site information from public disclosure under the Public Records Act. In addition, the California Public Records Act (CPRA; Government Code [GC] Section 6250 et. seq.) and California's open meeting laws (The Brown Act, GC Section 54950 et. seq.) protect the confidentiality of Native American cultural place information. The CPRA (as amended, 2005) contains two exemptions that aid in the protection of records relating to Native American cultural places by permitting any state or local agency to deny a CPRA request and withhold from public disclosure:

- “records of Native American graves, cemeteries, and sacred places and records of Native American places, features, and objects described in Section 5097.9 and Section 5097.993 of the Public Resources Code maintained by, or in the possession of, the Native American Heritage Commission, another state agency, or a local agency” (GC Section 6254(r)); and

- “records that relate to archaeological site information and reports maintained by, or in the possession of, the Department of Parks and Recreation, the State Historical Resources Commission, the State Lands Commission, another state agency, or a local agency, including the records that the agency obtains through a consultation process between a California Native American tribe and a state or local agency” (GC Section 6254.10).

Likewise, the Information Centers of the California Historical Resources Information System (CHRIS) maintained by the OHP prohibit public dissemination of records and site location information. In compliance with these requirements, and those of the Code of Ethics of the Society for California Archaeology and the Register of Professional Archaeologists, the locations of cultural resources are considered restricted information with highly restricted distribution and are not publicly accessible. Any project site located on non-Federal land in California is also required to comply with State laws pertaining to the inadvertent discovery of Native American human remains.

Paleontological Resources

California Environmental Quality Act

Paleontological Resources are afforded protection by the environmental legislation set forth under CEQA Appendix G (part V) of the CEQA Guidelines provides guidance relative to significant impacts on paleontological resources, stating that “a project will normally result in a significant impact on the environment if it will …disrupt or adversely affect a paleontological resource or site or unique geological feature.” The Guidelines do not define “directly or indirectly destroy,” but it can be reasonable interpreted as the physical damage, alteration, disturbance, or destruction of a paleontological resource. The CEQA Guidelines also do not define the criteria or process to determine whether a paleontological resource is significant or “unique.”

California Public Resources Code Section 5097

Section 5097 of the PRC protects paleontological resources and states part that a person shall not knowingly and willfully excavate upon, or remove, destroy, injure or deface any vertebrate paleontological site, or any other paleontological feature, situated on public lands, except with the express permission of the public agency having jurisdiction over such lands. Violation of this section is a misdemeanor.

Cultural Resource Studies

Two historical resources studies were conducted by Tom Origer & Associates (Consultant) (one for Reach 4A[54] and one for Reaches 4B and 4C[55]) to meet requirements of CEQA. The studies included: archival research at the Northwest Information Center, Sonoma State University (NWIC File Nos. 15-1397 and 16-2144); examination of the library and files of Tom Origer & Associates; Native American tribes' communication; and field inspection of the study areas. One historical resource, prehistoric site (site) was identified within the Proposed Project site. Documentation pertaining to these studies are on file at the offices of Tom Origer & Associates (File No. 2016-037).

The site is located within Caltrans property; therefore, it is a state-owned cultural resource under Caltrans jurisdiction. As a portion of the Proposed Project would be located within this Caltrans property, it requires an encroachment permit. Therefore, the Proposed Project must comply with the 5024 MOU described above.

While complying with the 5024 MOU, Caltrans and the District determined that the activity (Proposed Project) within state property has the potential to affect a state-owned historical resource. This determination was made by establishing the Proposed Project's Project Area Limits (PAL). The PAL is the geographic area within which a project or activity may directly or indirectly cause alteration in the character or use of state-owned historical resources, if any such resources exist. To establish the PAL, the District contracted the Consultant to conduct an Extended Phase I (XPI) and XPI/Phase II subsurface investigation to determine the vertical and horizontal extent of the site. Once the PAL was established, identification and evaluation of state-owned historical resources were conducted by the Consultant. The District and Caltrans consulted with the appropriate affected Native American tribe to assist in identifying state-owned cultural resources to which they may attach religious and cultural significance located within the state-owned historical resource on the evaluation. The Consultant completed an Archaeological Survey Report and an Archaeological Evaluation Report, which determined that the site is eligible for inclusion in the National Register of Historic Places (National Register) under Criterion D, and not eligible as a California Historical Landmark. The SHPO concurred with this determination on June 14, 2018.

Through an assessment of effects Caltrans, the District, and the affected Native American tribe, determined that adverse effects to the site within state property cannot be avoided, and that a Finding of Adverse Effect and Mitigation through use of Standard Mitigation Measures (FAE-SMM), per the 5024 MOU, would reduce the impact. Caltrans and the District consulted with the affected Native American tribe in determining appropriate measures to mitigate adverse effects. Caltrans' finding may be used when the appropriate SMMs described in Attachment 6 to the 5024 MOU are imposed, in accordance with Stipulation XV.

DISCUSSION OF POTENTIAL IMPACTS

a) Less than Significant with Mitigation. A portion of the Proposed Project will be within Caltrans property and requires an encroachment permit to construct this portion of the Proposed Project. Pursuant to PRC Sections 5024, 5097.2, 5097.3 and 15064.5 under CEQA Guidelines, the District (lead agency) and Caltrans (responsible agency) determined that an archaeological resource is located within the Proposed Project site and is a state-owned historical resource. The determination was based on Tom Origer & Associates, archaeological consultant, archaeological investigations and evaluation results determined that the site is eligible for inclusion in the National Register of Historic Places under Criterion D. Since the Proposed Project will affect a Caltrans state-owned historical resource, the January 2015 5024 MOU between Caltrans and the California State Historic Preservation Officer regarding compliance with PRC Section 5024 and Governor's Executive Order W-26-92 (5024 MOU) applies. Through the 5024 MOU process, Caltrans and the District consulted with the affected Native American tribe.

Pursuant to the 5024 MOU, Caltrans, the District, and the affected Native American tribe have agreed and determined that adverse effects to the site within Caltrans property cannot be avoided, and that Caltrans Finding of Adverse Effect and Mitigation through use of Standard Mitigation Measures (FAE-SMM) (Attachment 6 of the 5024 MOU) will reduce the impact. In accordance with the 5024 MOU, potential adverse effects to a state-owned archaeological resource may be mitigated through data recovery to recover important information that would have been otherwise lost as a result of a project or activity. To reduce adverse effects to the site, the District in consultation with Caltrans and the affected Native American tribe, shall retain a Secretary of the Interior-qualified archaeologist to prepare and implement a Phase III Archaeological Resource Management and Data Recovery Plan. The Archaeological Resource Management and Data Recovery Plan is outlined in **Mitigation Measure CUL-1 (Archaeological Resource Management and Data Recovery Plan)**, which would reduce impacts to less than significant.

Mitigation Measure CUL-1: Archaeological Resource Management and Data Recovery Plan

1. The District, in consultation with Caltrans, and the affected Native American tribe shall undertake the following:

    a) Archaeological Resource Management and Data Recovery Plan. Because a California and National Register-eligible archaeological resource has been identified as being present within Caltrans property, which the Proposed Project area is within, the District, in consultation with Caltrans and the affected Native American tribe, shall retain a Secretary of the

Interior-qualified archaeologist to prepare and implement Archaeological Resource Management and Data Recovery Plan.

The Archaeological Resource Management and Data Recovery Plan shall include how a data recovery program would preserve the significant information the archaeological resource is expected to contain. Treatment would consist of (but would not be not limited to) sample excavation, artifact collection, site documentation, and historical research, with the aim of targeting the recovery of important scientific data contained in the portion(s) of the significant resource to be impacted by the Proposed Project. The Archaeological Resource Management and Data Recovery Plan shall include provisions for analysis of data in a regional context; reporting of results within a timely manner and subject to review and comments by Caltrans and the affected Native American tribe, before being finalized; curation of artifacts and data at a local facility; and dissemination of final confidential reports to Caltrans, the affected Native American tribe, and the Northwest Information Center of the California Historical Resources Information System.

A representative from the affected Native American tribe shall be present during ground disturbing activities within the site.

In addition, during general ground disturbance throughout the Proposed Project area, there is the potential to uncover previously unidentified archaeological resources. The disturbance of previously unidentified archaeological resources would be a potentially significant impact. Implementation of **Mitigation Measure CUL-2 (Inadvertent Discovery of Archaeological Resources)** would reduce potential impacts to less than significant by ensuring that work would halt in the vicinity of an unanticipated find so that a qualified archaeologist and Native American representative can make additional recommendations if required.

Mitigation Measure CUL-2: Inadvertent Discovery of Archaeological Resources

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

2. During construction outside of known archaeological resource site boundaries, if buried items of historical, archaeological or paleontological interest are encountered the contractor will immediately cease all soil–disturbing construction activities in that area and within 60 feet of the find. Historical, archaeological, cultural and paleontological 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, human bones, and fossils. After cessation of excavation, the contractor will immediately contact the District's Construction Inspector. The contractor will not resume work until authorization is received from the Construction Inspector.

a) In the event of inadvertent discovery of archaeological materials occurs during construction, the District 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) within 24 hours of discovery 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 appropriate affected Native American tribe. If data recovery excavation is necessary, the District 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 the District, and affected Native American tribe. Implementation of the Archaeological Resource Management and Data Recovery Plan shall be conducted prior to work being resumed.

b) No Impact. CEQA Guidelines Section 15064.5 defines an archaeological resource as a historical resource or a unique archaeological resource. Archaeological resources, that are determined to be a historical resource according to CEQA Guidelines Section 15064.5, are addressed above in Criteria V. a).

c) Less than Significant with Mitigation. The Proposed Project area is primarily underlain by Late Pleistocene-age alluvial deposits. Based on the Society for Vertebrate criteria, Late Pleistocene-age alluvial deposits have the potential to contain significant paleontological resources.[56] A search of the University of California Museum of Paleontology database indicates that twelve vertebrate paleontological discoveries have occurred in a Pleistocene context in Sonoma County.[57] None of these discoveries, however, are in the vicinity of the Proposed Project. In addition, the relatively minor and linear ground disturbance that will occur as part of the Proposed Project significantly lessons the potential for a paleontological discovery.

Given the general paleontological sensitivity of Pleistocene-age alluvial deposits in Sonoma County, there is the potential that paleontological resources could be encountered during project ground disturbing activities. Impacts to a paleontological resource would be potentially significant. Should a previously undiscovered paleontological resource be found, implementation of **Mitigation Measure CUL-3 (Inadvertent Discovery of Paleontological Resources)** would ensure that work would halt in the vicinity of an unanticipated find so that a qualified paleontologist can make additional recommendations to reduce potential impacts to less than significant.

Mitigation Measure CUL-3: Inadvertent Discovery of Paleontological Resources

1. Prior to initiation of ground-disturbing activities, the District shall arrange for construction crews to receive training about the kinds of paleontological materials that could be uncovered during construction. Training shall be conducted by a professional paleontologist meeting the professional standards established by the Society of Vertebrate Paleontology.[58] Training may be required during different phases of construction to educate new construction personnel.

2. If any items of paleontological interest are encountered, all soil-disturbing work in that area and within 60 feet of the find shall be halted until a qualified paleontologist meeting the professional standards established by the Society of Vertebrate Paleontology evaluates the site. If it is determined by the qualified paleontologist that the Proposed Project could damage a unique paleontological resource, as defined in the CEQA Guidelines, mitigation shall be implemented in accordance with PRC Section 21083.2 and Section 15126.4 of the CEQA Guidelines. If avoidance is not feasible, the paleontologist shall develop and implement a treatment plan consistent with the methods recommended by the Society of Vertebrate Paleontology.[59] Work shall not be resumed until recommendations received from the qualified paleontologist are implemented.

d) Less than Significant with Mitigation. Based on the known archaeological site boundaries within the project area and there is the potential for the discovery of human remains during construction activities that involve ground disturbance. Implementation of **Mitigation Measure CUL-1 (Archaeological Resource Management and Data Recovery Plan)** described above, would reduce impacts to less than significant. The District, in consultation with Caltrans and the affected Native American tribe, will develop and implement an Archaeological Resource Management and Data Recovery Plan that will ensure that archaeological resources, including human remains, will be treated appropriately. In addition, if human remains are discovered during ground disturbing activities in and outside of known archaeological site boundaries, implementation of **Mitigation Measure CUL-4 (Inadvertent Discovery of Human Remains)** would ensure that impacts to human remains would facilitate legal compliance and reduce impacts to less than significant.

Mitigation Measure CUL-4: Inadvertent Discovery of Human Remains

1. The project applicant will require the contractor to comply with Section 7050.5 of the Health and Safety Code, and Section 5097.94 of the Public Resources Code of the State of California, as they pertain to the discovery of human remains.

2. In the event of the discovery of human remains during construction, the contractor shall halt work in the area and within 60 feet of the find, and contact the District 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 remains are found on Caltrans property, the District Construction Inspector will contact Caltrans, and Caltrans will immediately contact the Sonoma County Coroner. 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 have been received.

VI. GEOLOGY AND SOILS

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
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 on- 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 risks to life or property?	☐	☐	☒	☐
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of wastewater?	☐	☐	☐	☒

GEOLOGY AND SOILS SETTING

Please refer to the Environmental Setting section above for the geology and soils setting.

DISCUSSION OF POTENTIAL IMPACTS

a) Less than Significant Impact. There are no active faults or potentially active faults underlying the Proposed Project sites according to published geologic maps. The Proposed Project is not located within an identified Alquist-Priolo Earthquake Hazard

Zones.[60] The nearest active fault is the Hayward-Rodgers Creek Fault, which is located approximately 3.8 miles to the west of the Proposed Project sites. The Concord-Green Valley Fault is approximately 12 miles away. The San Andreas Fault, identified as an Alquist-Priolo fault, is approximately 24 miles west of the Proposed Project.[61] Since the Proposed Project is not located within an Alquist-Priolo Earthquake Fault Zone and no major faults have been mapped within or adjacent to the Proposed Project sites, the likelihood of ground rupture from faulting across the Proposed Project sites is low. Therefore, impacts related to the rupture of a known earthquake fault would be less than significant.

i. Less than Significant Impact. The nearest active fault is the Hayward-Rodgers Creek Fault, which is located approximately 3.8 miles to the west of the Proposed Project sites. The Concord-Green Valley Fault is approximately 12 miles away. The San Andreas Fault is approximately 24 miles west of the Proposed Project. Earthquakes on these faults would result in seismic shaking that could affect the area of the Proposed Project. Ground shaking from earthquakes can cause extensive damage to property and people. Factors that determine the amount of damage cause from ground shaking are interrelated and include the magnitude and depth of the earthquake, distance from the fault, duration of the shaking, type of bedrock and soils, and topography, among others. The entire Bay Area, including Sonoma County, would be subject to strong ground shaking during earthquakes. The Association of Bay Area Governments (ABAG) rates the shaking severity level of the Proposed Project area in the event of an earthquake as “Very Strong.”[62]

ii. Less than Significant Impact. Although there are no mapped active or potentially active faults underlying the Proposed Project sites, the Proposed Project area could experience very strong intensity ground shaking during a large earthquake. According to the Working Group on California Earthquake Probabilities, the 2015 Uniform California Earthquake Rupture Forecast, Version 3 (UCERF3)[63] there is a 72 percent probability of a magnitude 6.7 or greater earthquake in the Bay Area within 30 years, with the greatest probabilities of earthquakes on the Hayward-Rodgers Creek Fault and the San Andreas Fault, which are two faults close to the Proposed Project sites. Therefore, the project area is very likely to experience very strong ground shaking from earthquakes in the future.

    Ground shaking associated with earthquakes could affect the Proposed Project by causing pipeline breakage or destabilizing pipeline trenches. The pipelines would be buried in fill and would have some flexibility to withstand some seismic shaking. In the event that the shaking was severe enough to damage or break the pipelines, the damage would result in a temporary shutdown of the affected pipe sections.

As the Proposed Project would be part of an essential utility (public sewer), repairs would be made promptly. During construction, vehicles, equipment, and construction workers would be located adjacent to each Proposed Project site in cleared areas or existing right-of-way. In the event of strong seismic ground shaking during construction and maintenance activities, humans could potentially be injured. Construction, however, would be temporary, and would be up to approximately eight months for Reach 4A, and for Reaches 4B and 4C would be up to approximately six months each. Maintenance activities would occur periodically but would be short-term in nature. Precautionary measures including adherence to state-mandated safety standards, including federal Occupational Safety and Health Administration (OSHA) regulations (29 CFR 1910.120) and Cal/OSHA regulations (8 CCR Title 8, Section 5192) during construction would minimize hazards to construction workers associated with strong seismic ground shaking. To comply with these regulations, the District would be required to prepare a site-specific Safety Plan, as described in more detail, in Table 2-1 and in the contract specifications. In particular, the Safety Plan would limit workers entering trenches and require shoring if entry is required. Through compliance with the Safety Plan, the District would take necessary action to protect construction workers and the general public from hazards associated with strong seismic ground shaking during construction. Therefore, impacts relative to seismic shaking would be less than significant.

iii. Less than Significant Impact. The Proposed Project sites occur in an area identified as having a very low to moderate potential for a liquefaction hazard, as mapped by the Association of Bay Area Governments (ABAG).[64] As a result, the Proposed Project could be subject to liquefaction during an earthquake. However, the Proposed Project would incorporate standard engineering and construction techniques related to seismicity and liquefaction. Implementation of these practices and requirements would minimize potential impacts of liquefaction on site. In particular, the backfill placed in the trenches over the pipelines would be composed of fill materials not susceptible to liquefaction and would be properly compacted. Therefore, impacts relative to liquefaction would be less than significant.

iv. No Impact. The Proposed Project sites are not immediately located in landslide hazard areas, as delineated in the County of Sonoma Hazard Mitigation Plan[65] and the City of Sonoma 2020 General Plan [66] In addition, the Proposed Project area is located on relatively flat lands. Therefore, the potential for landslides on site, including seismically induced landslides, is considered remote. The Proposed Project does not involve habitable structures that would be subject to major structural damage or that would expose people to substantial adverse effects including loss, injury, or death.

b) Less than Significant Impact. Surface soil erosion and loss of topsoil could occur from soil disturbance associated with the Proposed Project's ground disturbing construction activities, such as site clearing, open trench and trenchless construction activities. However, the extent of the soil erosion and topsoil loss expected for the Proposed Project is minor because construction activities would incorporate the use of BMP-1 (General Impact Avoidance and Minimization-Work Window), BMP-2 (Minimize the Area of Disturbance), BMP-9 (Erosion and Sediment Control Measures), and BMP-11 (Staging and Stockpiling of Materials), as defined in the project plans and specifications (Table 2-1). For example, construction would occur in localized areas of the Proposed Project area and amount to only a limited area of soil disturbance within the Proposed Project area. The Proposed Project would also include trench backfilling and site restoration activities that would restore upland disturbed or exposed areas to their pre-construction conditions, including replacing topsoil that was removed during excavation activities, re-establishing preconstruction contours and drainage patterns, and installing erosion and sedimentation controls (hydroseeding using California native seeds, and/or straw as appropriate (refer to Table 2-1). In addition, because the Proposed Project would disturb more than one acre, the Proposed Project would be required to comply with the State Water Resources Control Board Construction General Permit. The Construction General Permit would require the preparation and implementation of a Stormwater Pollution Prevent Plan that would include measures designed to prevent erosion and control stormwater runoff, as described in Section IX Hydrology and Water Quality, and Table 2-1 (BMP-1 General Impact Avoidance and Minimization-Work Window). These practices and procedures would reduce the risk or erosion and sediment transport outside of the Proposed Project work areas.

   The Proposed Project would also include reseeding once construction is complete, which would stabilize the soil and further prevent erosion and topsoil loss, as identified in BMP-9 (Erosion and Sediment Control Measures). These practices and procedures protect geology and soils by avoiding or minimizing potential adverse impacts during construction activities, which minimize impacts to less than significant.

c) Less than Significant Impact. Because the Proposed Project area is relatively flat, potential for landslides are considered low. The potential for liquefaction was previously discussed in Criteria VI a) 3) and would be less than significant. In addition, the Geotechnical Reports for Reaches 4A, 4B, and 4C did not find any large or continuous zones that could be potentially liquefiable and thus the potential for lateral spreading is low.[67] Finally, the backfill that would be placed in the trenches would be properly compacted to reduce the risk of settlement or collapse. Therefore, the impacts from unstable geologic units or soil is less than significant.

d) Less than Significant Impact. Although some of the native soils underlying the Proposed Project area may have expansion or shrink-swell potential, the removal and replacement of the existing trench fill material would result in mixing and re-compaction of the fill materials, breaking up intervals of soil susceptible to expansion, if any. Additionally, adherence to standard engineering and construction techniques would further minimize potential effects of expansive soils on site. Therefore, impacts relative to expansive soils would be less than significant.

e) No Impact. While replacement sewer pipelines and manholes would be constructed, no septic tanks or alternative wastewater disposal systems are included in the Proposed Project. Therefore, no impacts would occur.

VII. GREENHOUSE GAS EMISSIONS

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation	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?	☐	☐	☒	☐

GREENHOUSE GAS EMISSIONS SETTING

The greenhouse gas emissions setting is provided along with relevant regulatory background and guidelines, and their applicability to the Proposed Project.

"Global warming" and "global climate change" are the terms used to describe the increase in the average temperature of Earth's near-surface air and oceans since the mid-20th Century and its projected continuation. Warming of the climate system is now considered to be unequivocal.[68]

Natural processes and human actions have been identified as the causes of this warming. The International Panel on Climate Change (IPCC) has concluded that variations in natural phenomena such as solar radiation and volcanoes produced most of the warming from pre-industrial times to 1950 and had a small cooling effect afterward. After 1950, however, increasing greenhouse gas (GHG) concentrations resulting from human activity such as fossil fuel burning and deforestation are believed to be responsible for most of the observed temperature increase. Increases in GHG concentrations in Earth's atmosphere are thought to be the main cause of human-induced climate change. Certain gases in the atmosphere naturally trap heat by impeding the exit of solar radiation that has hit the earth and is reflected back into space. This is sometimes referred to as the "greenhouse effect" and the gases that cause it are called "greenhouse gases." Some GHGs occur naturally and are necessary for keeping Earth's surface inhabitable. However, increases in the concentrations of these gases in the atmosphere during the last 100 years have decreased the amount of solar radiation that is reflected back into space, intensifying the natural greenhouse effect, and resulting in the increase of global average temperature.

Carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6) are the principal GHGs. When concentrations of these gases exceed natural concentrations in the atmosphere, the

greenhouse effect may be intensified. CO_2, CH_4, and N_2O occur naturally, and are also generated through human activity. Emissions of CO_2 are largely by-products of fossil fuel combustion, whereas CH_4 primarily results from off-gassing[g] associated with agricultural practices and landfills. CO_2 is the reference gas for climate change because it is the predominant GHG emitted. The effect that each of the aforementioned gases can have on global warming is a combination of the mass of their emissions and their global warming potential (GWP). GWP indicates, on a pound-for-pound basis, how much a gas is predicted to contribute to global warming relative to how much warming would be predicted to be caused by the same mass of CO_2. For example, CH_4 and N_2O are substantially more potent GHGs than CO_2, with GWPs of 21 and 310 times that of CO_2, respectively.

In emissions inventories, GHG emissions are typically reported as metric tons of CO_2 equivalents (CO_2e). CO_2e are calculated as the product of the mass emitted of a given GHG and its specific GWP. While CH_4 and N_2O have much higher GWPs than CO_2, CO_2 is emitted in such vastly higher quantities that it accounts for the majority of CO_2e emissions, both from residential developments and human activity in general.

Regulatory Setting

Federal Regulations

Supreme Court Ruling of Carbon Dioxide as a Pollutant

The U.S. Environmental Protection Agency (EPA) is the federal agency responsible for implementing the federal Clean Air Act (CAA) and its amendments. The Supreme Court of the United States ruled on April 2, 2007 that CO_2 is an air pollutant as defined under the CAA, and that EPA has the authority to regulate emissions of GHGs. The ruling in this case resulted in EPA taking steps to regulate GHG emissions and lent support for state and local agencies' efforts to reduce GHG emissions.

State

In California, the legal framework for GHG emission reduction has come about through an incremental set of Governors' Executive Orders, legislation, and regulations put in place since 2002. The major components of California's climate change initiative are reviewed below.

Executive Order S-3-05

Executive Order S-3-05, signed by Governor Arnold Schwarzenegger in 2005, proclaims that California is vulnerable to the impacts of climate change. It declares that increased temperatures could reduce the Sierra Nevada snowpack, further exacerbate California's

[g] Off-gassing is defined as the release of chemicals under normal conditions of temperature and pressure.

air quality problems, and potentially cause a rise in sea levels. To combat those concerns, the Executive Order established total GHG emission targets for the state. Specifically, emissions are to be reduced to the 2000 level by 2010, the 1990 level by 2020, and to 80 percent below the 1990 level by 2050.

Assembly Bill (AB) 32 California Climate Change Scoping Plan

Assembly Bill 32 Requirements

In 2006, the California legislature passed Assembly Bill 32 (California Health and Safety Code Division 25.5, Sections 38500, et seq., or AB 32), also known as the Global Warming Solutions Act. AB 32 requires the California Air Resource Board (CARB) to design and implement feasible and cost-effective emissions limits, regulations, and other measures, such that statewide GHG emissions are reduced to 1990 levels by 2020 (representing a 25-percent reduction in emissions). AB 32 anticipates that the GHG reduction goals will be met, in part, through local government actions. The CARB has identified a GHG reduction target of 15 percent from current levels for local governments (municipal and community-wide) and notes that successful implementation of the plan relies on local governments' land use planning and urban growth decisions because local governments have primary authority to plan, zone, approve, and permit land development to accommodate population growth and the changing needs of their jurisdictions.

Scoping Plan Provisions

Pursuant to AB 32, the CARB adopted a *Climate Change Scoping Plan* in December 2008 (re-approved by CARB on August 24, 2011[69]) outlining measures to meet the 2020 GHG reduction goals. In order to meet these goals, California must reduce its GHG emissions by 30 percent below projected 2020 business-as-usual emissions levels or about 15 percent from today's levels. The Scoping Plan recommends measures that are worth studying further, and that the State of California may implement, such as new fuel regulations. It estimates that a reduction of 174 million metric tons of CO_2e (about 191 million U.S. tons) from the transportation, energy, agriculture, forestry, and other sources could be achieved should the state implement all of the measures in the Scoping Plan. The Scoping Plan relies on the requirements of Senate Bill (SB) 375 to implement the carbon emission reductions anticipated from land use decisions.

In May 2014, CARB published its First Update to the Scoping Plan.[70] This update builds upon the initial Scoping Plan with new strategies and recommendations. The update defines CARB's climate change priorities over the next five years and sets the groundwork to reach long-term goals set forth in Executive Orders S-3-05 and B-16-2012.

CARB is currently working on the second update to its Scoping Plan to reflect the 40 percent below 1990 by 2030 target required by SB32. This updated Scoping Plan was expected to be approved by the CARB in 2017, however it is still pending approval.

Executive Order B-30-15

On April 20, 2015, Governor Edmund G. Brown, Jr., signed Executive Order B-30-15 to establish a California GHG reduction target of 40 percent below 1990 levels by 2030. The Governor's executive order aligns California's GHG reduction targets with those of leading international governments such as the 28-nation European Union which adopted the same target in October 2014. California is on track to meet or exceed its legislated target of reducing GHG emissions to 1990 levels by 2020, as established in the California Global Warming Solutions Act of 2006 (AB 32, summarized above). California's new emission reduction target of 40 percent below 1990 levels by 2030 will make it possible to reach the ultimate goal of reducing emissions 80 percent below 1990 levels by 2050. This is in line with the scientifically established levels needed in the U.S. to limit global warming below 2°Celsius, the warming threshold at which there will likely be major climate disruptions such as super droughts and rising sea levels. None of the targets stated in Executive Order B-30-15 have been adopted by the state legislature.

Senate Bill 32

In 2016, Senate Bill (SB) 32 codified the Executive Order B-30-15 target of 40 percent reduction below 1990 levels by 2030 and directed State regulatory agencies to develop rules and regulations to meet the 2030 State target.

Regional and Local Regulations

Bay Area Air Quality Management District

The BAAQMD's *CEQA Air Quality Guidelines* were prepared to assist in the evaluation of air quality impacts of projects and plans proposed within the Bay Area.[71] The guidelines provide recommended procedures for evaluating potential air impacts during the environmental review process and include recommended thresholds of significance, mitigation measures, and background air quality information. BAAQMD has identified screening criteria and significance criteria for development projects that would be applicable to the Project. If a project exceeds the Guidelines' GHG screening-level sizes, the project would be required to conduct a full GHG analysis using the following BAAQMD significance criteria:

1. Compliance with a Qualified GHG Reduction Strategy; or
2. 1,100 metric tons of CO_{2e} per year; or
3. 4.6 metric tons of CO_{2e} per service population.

BAAQMD does not have thresholds of significance for construction-related GHG emissions, but requires quantification and disclosure of construction-related GHG emissions. GHG emissions from construction activities are short term. One-time, short-term emissions can be converted to average annual emissions by amortizing them over the service life of the project.

Sonoma County Regional Climate Action Plan

The Sonoma County Regional Climate Action Plan (RCAP) provides an overall strategy for reducing GHG emissions in each sector to meet a target of reducing emissions to 25 percent of 1990 levels by 2020 and provides the foundation for long-term success in reducing GHG emissions.[72] At the time of preparation of this document, however, the Sonoma County Climate Action Plan is considered a non-binding advisory document due to a July 20, 2017 ruling by the Sonoma County Superior Court which determined that the Environmental Impact Report was inadequate. Currently the RCPA has no plans to challenge the court decision and local jurisdictions cannot formally adopt the CAP, but can rely on it as a guidance document for measures to reduce GHG emissions.[73]

Sonoma County General Plan 2020

The Sonoma County General Plan 2020 does not contain any goals or policies related to GHG emissions relevant to the Proposed Project.[74]

City of Sonoma 2020 General Plan

The City of Sonoma 2020 General Plan does not contain any goals or policies related to GHG emissions relevant to the Proposed Project.[75]

DISCUSSION OF POTENTIAL IMPACTS

a) No Impact. No operational-related emissions are anticipated for the Proposed Project. The impact assessment below solely addresses annual GHG emissions during project construction activities. Construction equipment, including generators, for the Proposed Project would emit greenhouse gases. The GHG criteria used by the BAAQMD was reviewed. Maintenance activities for the Proposed Project would remain consistent with existing ongoing maintenance activities of the existing collection system. As such, GHG emissions from maintenance activities of the collection system would be similar to, but smaller in scale than, construction-related emissions.

   The BAAQMD has not adopted thresholds for construction, however the BAAQMD has adopted operational GHG significance thresholds of 1,100 metric tons of CO_{2e} per year for projects other than stationary sources and 10,000 metric tons of CO_{2e} per year for stationary source projects.[76] Since the Proposed Project would not include stationary sources of GHG emissions, annual construction emissions that exceed the BAAQMD's GHG operational significance threshold of 1,100 metric tons of CO_{2e} per year would be considered to result in a significant impact on the environment. This impact analysis estimates GHG emissions that would be emitted during project construction and then compares them to BAAQMD's 2017 Guidelines operational significance thresholds (Table 3.7-1).

Table 3.7-1
Project-related Annual Construction
GHG Emissions Compared to BAAQMD Thresholds for GHG

Year	GHG Emissions (CO2e per year)[a]
Reach 4A and Portion of Reach 4B – Summer 2019	146
Reach 4B – Summer 2020	173
Reach 4C – Summer 2021	169
Total Emissions	488
Amortized Emissions (over 30-year life of the Project)	16
BAAQMD GHG Operational Threshold	1,100
Over Threshold?	No

NOTE:
[a] Emissions were modeled using the Sacramento Metropolitan Air Quality Management District (SMAQMD) Road Construction Emissions Model (Version 8.1.0). Modeling details can be found in Appendix B.

Construction activities for Reach 4A would be up to approximately eight months, and for Reaches 4B and 4C would be up to approximately six months each. It is anticipated that construction for Reach 4A and a portion of Reach 4B would begin in summer of 2019. Construction for the other portion of Reach 4B is anticipated to begin in summer of 2020 and construction would begin in summer of 2021 for Reach 4C. Annual GHG emissions were estimated using the Road Construction Emission Model (Version 8.1.0) for each year of construction and are depicted above in Table 3.7-1. Additional assumptions and information are included in Appendix B.

As shown in Table 3.7-1, the annual GHG emissions associated with construction of the Proposed Project would not exceed the BAAQMD's 1,100 metric tons per year CO_{2e} operational significance threshold. Therefore, the Proposed Project would have no impact on climate change, or generate GHG emissions either directly or indirectly that would have a significant effect on the environment.

b) Less than Significant Impact. The Proposed Project does not conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of GHG. The County of Sonoma does not currently have an adopted plan to reduce GHG emissions. However, the Proposed Project would also be consistent with the BAAQMD 2017 Clean Air Plan (2017 CAP) and AB32. The 2017 CAP contains 35 control measures aimed at reducing GHG emissions in the Bay Area. The 2017 CAP has two GHG measures applicable to operation of WWTPs: WR1 (Limit Greenhouse gas' (GHGs) from POTWs [Publicly-Owned Treatment Works]) and WR2 (Support Water Conservation). Since the Proposed Project would not affect the existing production of recycled water at the facility or result in a substantial increase in GHG

emissions, the Proposed Project would not conflict with the implementation of the GHG reduction measures found in 2017 CAP. The BAAQMD GHG thresholds were designed to meet the AB32 goal of reducing GHG emissions to 1990 levels by 2020. As discussed under Criteria VII a), the Proposed Project would not result in any temporary or new permanent sources of GHG emissions that would exceed the BAAQMD's 1,100 metric tons per year CO_2e operational significance threshold. Since the BAAQMD GHG significance threshold would not be exceeded, the Proposed Project would not result in a cumulatively considerable increase in GHG emissions that would impair the State's ability to implement AB 32. This impact would be less than significant.

VIII. HAZARDS AND HAZARDOUS MATERIALS

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation	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 which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	☒
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☒	☐
h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	☐	☐	☐	☒

HAZARDS AND HAZARDOUS MATERIALS SETTING

EXISTING ENVIRONMENT

Environmental Resources Management (EDM) conducted a Phase I and Phase II Environmental Site Assessment (ESA) within the Proposed Project area. The Phase I ESA was conducted to assess the potential for encountering hazardous materials during construction and support planning for soil management and health and safety practices. The Phase I ESA identified three off-site recognized environmental conditions in connection with the Proposed Project area. The Phase II ESA[77] was conducted to perform pre-field activities, a soil and groundwater investigation, and a soil vapor investigation near the three sites. The analytical results of soil, soil vapor, and groundwater samples collected during this investigation concluded no impacts to Proposed Project sites.

In addition to the Phase I and Phase II ESA investigation, a Superfund Enterprise Management Search (SEMS) public access database search revealed no Superfund sites within the Proposed Project area.[78] A database search of the GeoTracker, a website complied by the State Water Resources Control Board to track cleanup sites, identified three locations with Leaking Underground Storage Tank (LUST) clean-up sites and one location as a Cleanup Program Site within the Proposed Project area.[79] The clean-up sites are identified in GeoTracker as closed cases where clean-up activities have been completed and the potential for encountering contaminated soils no longer exists or are too far away to affect the Proposed Project sites.

DISCUSSION OF POTENTIAL IMPACTS

a) Less than Significant Impact. Construction activities associated with the construction of the Proposed Project and maintenance activities (potential repair and replacement) would require the temporary transport of construction equipment and construction materials, and routine transport of vehicles that use hazardous materials (e.g. motor oil, gasoline, diesel). Some of the piping to be removed may consist of transit piping, a formerly used pipe material that contains asbestos. To avoid potential impacts, construction activities would incorporate the use of BMPs, as defined in project plans and specifications (refer to Table 2-1). Hazards and Hazardous Material BMPs 13 through 19 would ensure that the removal and disposal of hazardous materials, including asbestos, would be done in compliance with all Division of Occupational Safety & Health (DOSH), also known as Cal/OSHA, requirements and applicable hazardous waste containment, handling, and disposal laws (as identified in the District's Standard Contract Documents). In addition, contractors that handle hazardous materials are required to have a Hazardous Materials Business Plan that describes the hazardous materials they use, and how the materials will be properly stored, used, transported, and disposed of. All hazardous materials would be disposed of at a properly licensed disposal facility. The District's wastewater is not considered

hazardous waste according to the California Department of Toxic Substances Control and as codified in the California Code of Regulations (Title 22, Division 4.5, Chapter 11 Identification and Listing of Hazardous Waste). These practices and procedures protect the public and environmental resources by avoiding or minimizing potential adverse impacts during construction activities, which minimize impacts relative to the routine use of hazardous materials to less than significant.

b) Less than Significant Impact. Construction, and maintenance of the Proposed Project would require the use of vehicles and equipment that may have a slight potential for accidentally spilling oil or fuel. In addition, the removal and transport of transite pipe, manholes and/or other concrete structures, if any, could result in the accidental release of fugitive dust containing asbestos. The previously noted Hazardous Materials Business Plans would include procedures for responding to accidental releases. To avoid potential impacts, construction activities would incorporate the use of BMP-14 (Accidental Release of Any Hazardous Materials and/or Wastes), BMP-15 (Encountered Hazardous Materials), and BMP-16 (Spill Prevention and Response), as defined in project plans and specifications (refer to Table 2-1). BMPs would be employed to prevent an accidental release or spill from occurring and containing an accidental release or spill if it did occur.

   The Proposed Project specifications would require all contractors and District employees to comply with the District's Standard Contract Documents and Proposed Project BMPs (BMPs 13-19, please refer to Table 2.1) to protect the Proposed Project area and public roadways from being contaminated by the accidental release or unanticipated exposure of any hazardous materials and/or wastes during construction, or maintenance activities. The construction contractor would contact the local fire agency and the Sonoma County Department of Environmental Health for any site-specific requirements regarding hazardous materials or hazardous waste containment or handling. Project specifications would also require the construction contractor to prepare a Safety Plan in accordance with the District's Standard Contract Documents. These practices and procedures protect the public and environmental resources by avoiding or minimizing potential adverse impacts during construction activities, which minimize impacts from a reasonably foreseeable upset and accidental conditions involving release of use of hazardous materials into the environment to less than significant.

c) Less than Significant Impact. There are six existing schools (Sonoma Valley Unified School District, Sassarini Elementary School, El Verano Elementary School, El Verano Preschool, St. Francis Solano School (Private) and Sandy Standley FCCH Family Day Care)[80] within one-quarter mile of the Proposed Project area. Since significant quantities of hazardous materials would not be used during construction activities or for the operation of the Proposed Project, no impacts to existing or

proposed schools are anticipated to occur. As discussed in Question VIII a) above, construction activities of the Proposed Project have the potential to release hazardous materials and emit hazardous emissions.

Proposed Project activities are not anticipated to result in hazard or hazardous material impacts to existing or proposed schools, as construction activities would incorporation of the use of BMPs (refer to Table 2-1), as defined in the project plans and specifications. In addition, hazardous materials handling procedures would be implemented in each contractors Hazardous Materials Business Plan, and adherence to applicable laws as described above under Question VIII a) above would occur. These practices and procedures protect the public and the environment by avoiding or minimizing potential adverse impacts during construction activities, which minimize the potential of accidental release of hazardous materials impacts to less than significant.

d) No Impact. The Proposed Project sites are not included on any lists of hazardous materials sites maintained by the State Water Resources Control Board (State Board) or the Department of Toxic Substances Control (DTSC) that are compiled pursuant to Government Code Section 65962.5.[81,82] A few potentially-hazardous material sites have been identified to exist within 0.25 miles in the vicinity of the Proposed Project alignments, but none of these occur within the proposed alignments and none have groundwater plumes that would intersect the Proposed Project. Thus, the Proposed Project's ground-disturbing activities would not create a significant hazard to the public or the environment and therefore no impacts would occur.

e) No Impact. The Proposed Project is not located within an airport land use plan or within two miles of a public airport or public use airport. The Sonoma Skypark Airport is a public-use airport located approximately three miles southeast of the Proposed Project. The Sonoma Valley Airport is a public-use airstrip located approximately four to five miles southeast of the Proposed Project. The Proposed Project's permanent features are largely below the ground surface and would not pose a safety hazard to airport use. The Proposed Project is expected to have no impact on people residing or working at the project site with respect to airport compatibility.

f) No Impact. The Proposed Project is not located in the vicinity of a private air strip.

g) Less than Significant Impact. Construction activities associated with construction of the Proposed Project would be conducted in phases and would be of short duration (i.e., up to approximately eight months for Reach 4A and approximately six months each for Reaches 4B and 4C). Maintenance activities associated with the Proposed Project would be minimal, including regular maintenance, vegetation management activities, and periodic inspections. However, potential repairs and replacement may

occur that would require short duration of construction activities. As described in the Transportation and Traffic section, one lane closures in a short section of the Proposed Project would occur during construction activities, and a detour may occur, but no full road closures are anticipated. Per Mitigation Measure TRAF-1, a traffic control plan would be implemented in order to reduce potential impacts (see Traffic and Transportation section). Construction activities would continue to allow the movement of emergency vehicles and the Proposed Project would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.

h) No Impact. The portion of the Proposed Project area located in the City of Sonoma is defined in the City of Sonoma 2020 General Plan as Commercial, Low and Medium Density Residential, Public Facility, Mixed Use, Housing Opportunity, and a Mobile Home Park[83] and identifies the area as not being located in a wildland fire risk area.[84] The portion of the Proposed Project area located in the unincorporated portion of Sonoma County is defined in the Sonoma County General Plan 2020 with Urban Residential, Recreation/Visitor-Serving Commercial and Public/Quasi-Public Use.[85] The Sonoma County General Plan 2020 does not identify the Urban Residential area as being located in a wildland fire risk area.[86]

In addition, the California Department of Forestry and Fire Protection (CAL FIRE) has created a severity system to rank fire hazards and examine wildland fire potential across the state. These zones found on CAL FIRE maps account for the speed and intensity of potential fire, ability of embers to spread and multiply, loading of fuel, topographic conditions, and local climate (e.g. temperature and likelihood of strong winds). In total, there are three CAL FIRE designation for fire hazards, which are moderate, high, and very high. Typically, homes that are located within high or very high CAL FIRE severity zones are considered lacking in adequate wildland or structural fire protection. CAL FIRE has not designated the Proposed Project area as being subject to a moderate, high, or very high threat of fire.[87] Therefore, implementation of the Proposed Project would not result in a significant risk of loss, injury, or death involving wildland fires.

IX. HYDROLOGY AND WATER QUALITY

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Violate any water quality standards or waste discharge requirements?	☐	☐	☒	☐
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	☐	☐	☒	☐
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river in a manner which would result in substantial erosion or siltation on- or off-site?	☐	☐	☒	☐
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?	☐	☐	☐	☒
e) 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?	☐	☐	☐	☒
f) Otherwise substantially degrade water quality?	☐	☐	☒	☐
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	☐	☐	☐	☒
h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	☐	☐	☐	☒
i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	☐	☐	☐	☒
j) Inundation by seiche, tsunami, or mudflow?	☐	☐	☐	☒

HYDROLOGY AND WATER QUALITY SETTING

The hydrological setting is provided along with relevant regulatory background topics and their applicability to the Proposed Project.

Hydrological 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 through April and ranges from 25 to 40 inches per year. Precipitation patterns in the region are influenced by local topography; correspondingly, mean annual precipitation generally increases with elevation. The Proposed Project is located in Sonoma Valley in southeastern Sonoma County ranging in elevation from approximately 90-105 feet above mean sea level.

Surface Water Hydrology

The Proposed Project area is located within the Sonoma Creek watershed, which drains an area of approximately 165 square miles. The Proposed Project area drains into Sonoma Creek and Lilley Creek, a modified ephemeral stream that drains to Agua Caliente Creek, a perennial stream which contributes flows to Sonoma Creek.

Surface Water Quality

In the urbanized sections of the Proposed Project area, storm water runoff can entrain urban pollutants generated by residential, commercial, and industrial land uses. These pollutants typically include sediment, oil and grease, heavy metals, pesticides, treatment facility discharges, and debris. Although some of these contaminants are deposited into streambeds, most are discharged directly into San Pablo Bay, adding to the overall pollutant load. Sediment is transported from steep erosive areas, and agricultural operations may add contaminants from livestock manure and chemical fertilizers. Additionally, sediments from erosion in the upper tributaries of the watershed decrease the capacity of downstream and tidal waterways. The Basin Plan also includes actions necessary to maintain these water quality standards. Surface water in Sonoma Creek was formerly listed as impaired for nutrients, pathogens, and sedimentation/siltation. A recent delisting occurred as the water body was administratively re-defined.[88]

Groundwater Resources

The Proposed Project area is located in 44,700 acre-Sonoma Valley (Sub-basin 2-2.02), which is a part of the Napa-Sonoma Valley groundwater basin (Basin 2-2) within the San Francisco Bay hydrologic region.[89] The principal water-bearing materials in Sonoma County are the alluvial deposits of the valleys as well as some of the volcanic rocks and local deposits of sand. Natural recharge takes place along streams, rivers, and other alluvial deposits. Development in these areas can increase surface runoff and reduce groundwater quality and recharge capability.

Groundwater resources are recognized as playing a significant role in the development, and sustainability of Sonoma Valley as groundwater contributions meet more than half of the overall water demand in the region.[90] Sonoma Valley has shown declining local groundwater levels in the past several decades as growth pressures have placed increasing demands on this historically agricultural and rapidly developing region.

Flooding and Storm Water Management System

The Federal Emergency Management Agency is responsible for mapping areas subject to flooding during a 100-year flood event (1 percent chance of occurring in a single year). The Proposed Project is not located within a 100-year flood zone. However, Sonoma Creek and areas in the coastal flood with velocity hazard zone of Agua Caliente Creek and Lilley Creek are subject to flooding.[91]

Water runoff from cities, highways, and construction sites, among other sources, can carry pollutants that can enter and degrade water quality. In order to systematically address this challenge, the Regional Water Quality Control Board and the U.S. Environmental Protection Agency have regulated the runoff and treatment of storm water in industrial, municipal and residential areas of the state mainly through the Municipal Stormwater Program and other similar programs, aimed at controlling the discharges with the goal of ultimately preventing pollutants from entering waterways.[92]

DISCUSSION OF POTENTIAL IMPACTS

a) Less than Significant Impact. The Proposed Project would involve ground disturbing construction activities such as excavation, grading, soil stockpiling, and filling, tree and shrub removal, grubbing of topsoil, and other site clearing activities in order to facilitate replacement of the existing sewer trunk main. Ground disturbances would in most cases involve open trench and trenchless construction methods. Trenchless construction activities would not occur within jurisdictional Waters of the U.S. or wetlands. If groundwater is encountered during excavation, it would be dewatered using sump pumps or well points. The removed groundwater would be stored in Baker-type water tanks (or equivalent) under a small quantity waste discharge requirement (WDR) permit (Water Quality Order No. 2003 – 0003 – DWQ) from the San Francisco Bay Regional Water Quality Control Board (Regional Board) Storm Water Pollution Prevention Plan (SWPPP), tested for contaminants, treated as required and depending on the testing results, either hauled away as necessary to a treatment facility, or discharged into the District's sewer system under a District Industrial Wastewater Permit.

   Construction would occur within areas that immediately or eventually drain to Lilley Creek, which flows into Agua Caliente Creek. Proposed Project activities are not anticipated to result in impacts to hydrology and water quality, as construction

activities would incorporate the use of BMPs as defined in the project plans and specifications (Table 2-1). For example, when feasible, ground disturbing activities would take place during the dry season, and the development and implementation of a SWPPP in accordance with State Water Resources Control Board would occur, as outlined in BMP-1 (General Impact Avoidance and Minimization Work Window) and outlined in BMP-2 (Minimize the Area of Disturbance). These BMPs would include limiting the soil disturbance to the footprint necessary to complete the project, installation of temporary construction fencing intended to protect trees and vegetation that will be retained adjacent to areas of disturbance, and providing safety measures to prevent damage to property, the environment and the public. BMP-3 (Tree Protection Measure) would include vertical mulching within the dripline of the trees which is intended to restore the soil profile for retained trees. BMP-9 (Erosion and Sediment Control Measures) would include additional erosion control measures including hydroseeding and other ground stabilization measures following the period of construction. Additionally, BMP-9 contains specific erosion and sediment control measures, such as providing storm inlet protection, hydro-seeding, and other erosion control directives to be implemented which would limit delivery of silt and sediments into waterways for all sites where project construction is proposed. BMP-11 (Staging and Stockpiling of Materials) contains details regarding staging and stockpiling of materials, which would include directives aimed at preventing runoff and contamination of surface waters. This BMP also stipulates measures such as utilizing filtration materials in truck beds, among others, intended to prevent water quality contamination during transportation of spoils offsite.

Disturbance of the total Proposed Project area is estimated to be greater than one acre, therefore, the District's contractor would be required to obtain coverage under the Non-Point Discharge Elimination System (NPDES) Construction General Permit (State Board Order No. 2009-0009-DWQ as amended by 2010-0014-DWQ (CGP) on or after September 2, 2012) from the State Water Resources Control Board. Consequently, development and implementation of a SWPPP would be required. The SWPPP would also include measures similar to those described above that would be implemented to minimize the potential for adversely affecting water quality during construction.

Following construction, the Proposed Project would restore disturbed areas by reestablishing existing topography, including repaving roadways, and reseeding with a native seed mix (hydro-seed) typical of the immediate surrounding area. As such, there would be no substantive change to water quality or waste discharge once construction is complete. These practices and procedures protect hydrology and water quality by avoiding or minimizing potential adverse impacts associated soil erosion

and subsequent discharge of sediment to adjacent surface water or drainages during construction activities, which minimize impacts to less than significant.

b) Less than Significant Impact. During construction, the Proposed Project could require dewatering activities to temporarily lower the groundwater table in order to complete subsurface improvements. However, the dewatering, if necessary, would be temporary and have negligible effects on the groundwater table or supplies. Once constructed, the Proposed Project would not require the use of groundwater and thus would not deplete groundwater supplies or interfere substantially with groundwater recharge. The potential impact to the groundwater table and underlying water supplies would be less than significant.

c) Less than Significant Impact. The Proposed Project would require short-term construction-related disturbances along Reach 4C, which is adjacent to and crosses Lilley Creek, a modified ephemeral stream within the Proposed Project area. The Proposed Project activities are not anticipated to result in impacts to hydrology and water quality as construction activities would incorporate the use of BMP-1 (General Impact Avoidance and Minimization Work Window) as defined in the project plans and specifications. For example, construction in these areas would occur during the dry season and would occur in consultation with California Department of Fish and Wildlife and other resource agencies, as deemed necessary per jurisdictional requirements. Following construction, disturbed areas would be restored to their original contours and seeded and stabilized using erosion control fabric and/or hydroseeding using California native seeds, and/or straw as appropriate to minimize erosion along the pipeline route and waterways, as identified under BMP-9 (Erosion and Sediment Control Measures). The channel bed, wetlands, and other areas below ordinary high water mark are exempt from this BMP. These practices and procedures protect hydrology and water quality resources by avoiding or minimizing potential adverse impacts during construction activities, related to change in existing drainage pattern of the site in a manner which would result in substantial erosion or siltation on or off site, to less than significant.

d) No Impact. The Proposed Project would not significantly alter existing drainage patterns of the site or area, including through the alteration of the course of any stream, river, or creeks, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding. Following construction, all disturbed areas would be restored to their original contours. Construction of the Proposed Project pipelines would be buried underground and the sites restored to pre-project conditions. New manholes would be installed, resulting in a minor increase in impervious surface, however minor runoff would result in flooding. Therefore, no substantial increases in the rate or amount of surface runoff in a manner which would

result in flooding is anticipated to result from project construction, maintenance or operation, therefore, no impact.

e) No Impact. Following the Proposed Project construction, the pipelines would be buried underground and the sites restored to pre-project conditions. New manholes would be installed, resulting in a minor increase in impervious surface. However, no substantial increases in the rate or amount of surface runoff is anticipated to result from project construction, maintenance or operation activities. Therefore, the Proposed Project would not create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff.

f) Less than Significant Impact. As noted above, the Proposed Project activities are not anticipated to result in impacts to substantially degrade water quality as construction activities would incorporate the use of BMPs as defined in the project plans and specifications (Table 2-1). BMP-11 (Staging and Stockpiling of Materials) contains details regarding staging and stockpiling of materials, which would include directives aimed at preventing runoff and contamination of surface waters. This BMP also stipulates measures such as utilizing filtration materials in truck beds, among others, intended to prevent water quality contamination during transportation of spoils offsite. If encountered, contaminated water would be prevented from entering surface water as specified under BMP-11. As outlined in the Project Description, sewage flow would be bypassed around the areas of construction and routed back into the District's collection system. These practices and procedures protect hydrology and water quality by avoiding or minimizing potential adverse impacts. Therefore, potential runoff, and other possible degradation of water quality would be controlled or otherwise prevented from adversely affecting surface waters or groundwater resulting in less than significant impacts.

g) No Impact. The Project does not propose to place any structures in any flood zones, as identified by the Federal Emergency Management Agency (FEMA) searchable flood map service.[93] The Proposed Project would not include the construction of housing. Therefore, no impact related to the placement of housing within the 100-year flood hazard area would occur.

h) No Impact. The Proposed Project area is not located within the 100-year flood zone. In addition, following construction, the pipelines would be buried underground and would not impede or redirect flood flows. New impervious surfaces would be limited new manholes, which would not substantially affect runoff flow volumes or velocities, and would not impede or otherwise redirect flood flows. Therefore, no impact is anticipated.

i) No Impact. No reservoirs or dams exist in the Proposed Project vicinity. There are no characteristics of the Proposed Project that would increase flooding hazard and therefore, no impacts associated with catastrophic flooding would occur.

j) No Impact. The Proposed Project locations are not located in areas subject to inundation by seiche, tsunami, or mudflow.

X. LAND USE AND PLANNING

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Physically divide an established community?	☐	☐	☐	☒
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project adopted for the purpose of avoiding or mitigating an environmental effect (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance)?	☐	☐	☐	☒
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	☐	☐	☐	☒

LAND USE AND PLANNING SETTING

The Proposed Project area is located in southern Sonoma County in the City of Sonoma and in the unincorporated portion of Sonoma County. The portion of the Proposed Project area located in southern Sonoma County in the City of Sonoma land use is defined in the City of Sonoma 2020 General Plan as Commercial, Low and Medium Density Residential, Public Facility, Mixed Use, Housing Opportunity, and a Mobile Home Park.[94] The portion of the Proposed Project area located in the unincorporated portion of Sonoma County land use is defined in the Sonoma County General Plan 2020 as are Urban Residential, Recreation/Visitor-Serving Commercial and Public/Quasi-Public Use.[95]

DISCUSSION OF POTENTIAL IMPACTS

a) No Impact. During Proposed Project construction, two-way traffic is anticipated for the majority of the project, with a one lane closure in a short section of the project, and may require a detour as a requirement of the project's Caltrans encroachment permit. No full road closures are anticipated. However, during this period, alternate pedestrian routes would be provided for local residents as needed. Following construction, the Proposed Project would not include any physical barriers or obstacles to circulation that would restrict existing patterns of movement within the project site neighborhoods. Therefore, it would not physically divide an established community.

   The Proposed Project involves replacement of the sewer pipelines, which would be compatible with the current use of the Proposed Project area and would not conflict with existing adjacent land uses. The Proposed Project would not result in long-term disruption or the physical division or isolation of existing residential areas. Once

completed, the newly replaced pipeline would be buried, and would therefore not be expected to physically divide the established community. Therefore, there would be no land use impacts associated with permanent alteration to established communities.

b) No Impact. Current land uses in the Proposed Project area in the unincorporated portion of Sonoma County as defined in the Sonoma County General Plan 2020 are Urban Residential, Recreation/Visitor-Serving Commercial and Public/Quasi-Public Use.[96] The current land use in Proposed Project area located in southern Sonoma County in the City of Sonoma land use is defined in the City of Sonoma 2020 General Plan as Commercial, Low and Medium Density Residential, Public Facility, Mixed Use, Housing Opportunity, and a Mobile Home Park.[97] Construction and operation of the Proposed Project would occur within existing rights-of-way and acquired easements. Adjacent land uses to the project site are currently developed, or designated as open space, and would not be permanently affected by implementation of the Proposed Project. The Proposed Project would not alter or conflict with the current land use designations, plans, or policies or regulation of an agency with jurisdiction over the project adopted for the purpose of avoiding or mitigating an environment effect (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance). Thus, there are no land use impacts associated with the Proposed Project.

c) No Impact**.** As described in Section 3.4, Biological Resources, the Proposed Project is not located within any applicable habitat conservation plan or natural community conservation plan and therefore does not present a conflict.

XI. MINERAL RESOURCES

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation	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?	☐	☐	☐	☒

MINERAL RESOURCES SETTING

The California Geological Survey (CGS) classifies the regional significance of mineral resources in accordance with the California Surface Mining and Reclamation Act of 1975 (SMARA). Mineral Resource Zones (MRZ) have been designated to indicate the significance of mineral deposits. The MRZ categories are as follows:

MRZ-1: Areas where adequate information indicates that no significant mineral deposits are present or where it is judged that little likelihood exists for their presence.

MRZ-2: Areas where adequate information indicates significant mineral deposits are present, or where it is judged that a high likelihood exists for their presence.

MRZ-3: Areas containing mineral deposits the significance of which cannot be evaluated from available data.

MRZ-4: Areas where available information is inadequate for assignment to any other MRZ.

Sonoma County contains areas classified as MRZ-1, MRZ-2a, MRZ-2b, MRZ-3a, MRZ-3b, and MRZ-4. The MRZ-2b area is roughly linear and related to Sonoma Creek deposits.[98] Current mining operations in Sonoma County consist almost exclusively of the extraction and processing of rock, sand and earth products for use in construction and landscaping.[99]

Based on a review of the California Geological Survey Mineral Land Classification of Aggregate Materials in Sonoma County, the Proposed Project alignment is not in an area identified as having significant measured or inferred mineral resources.[100]

DISCUSSION OF POTENTIAL IMPACTS

a) No Impact. No known mineral resources occur in the Proposed Project areas and little likelihood exists for their presence. The Proposed Project would not 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) No Impact. The Proposed Project would not result in the loss of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan. All Proposed Project modifications would occur in the following land use: Commercial, Low and Medium Density Residential, Public Facility, Mixed Use, Housing Opportunity, and a Mobile Home Park, in the City of Sonoma General Plan 2020,[101] and Rural Residential, Urban Residential, and Public/Quasi-Public as identified in the Sonoma County General Plan 2020.[102]

XII. NOISE

Would the project result in:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance or applicable standards of other agencies?	☐	☒	☐	☐
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	☐	☒	☐	☐
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☐	☒
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☒	☐	☐
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒

NOISE SETTING

The environmental setting for noise includes all areas that could be affected by activities associated with the Proposed Project. Consequently, the environmental setting includes from 6th Street in the City of Sonoma to Happy Lane, the unincorporated area of Sonoma County. Relevant regulatory background topics, guidelines, and their applicability to the Proposed Project are provided below.

Noise

Noise Background

Sound is mechanical energy transmitted by pressure waves through a medium such as air. Noise can be defined as unwanted sound. Sound is characterized by various

parameters that include the rate of oscillation of sound waves (frequency), the speed of propagation, and the pressure level or energy content (amplitude). In particular, the sound pressure level has become the most common descriptor used to characterize the loudness of an ambient sound level. Sound pressure level is measured in decibels (dB), with zero dB corresponding roughly to the threshold of human hearing and 120 to 140 dB corresponding to the threshold of pain.

Sound pressure fluctuations can be measured in units of hertz (Hz), which correspond to the frequency of a particular sound. Typically, sound does not consist of a single frequency, but rather a broad band of frequencies varying in levels of magnitude (sound power). When all the audible frequencies of a sound are measured, a sound spectrum is plotted consisting of a range of frequency spanning 20 to 20,000 Hz. The sound pressure level, therefore, constitutes the additive force exerted by a sound corresponding to the sound frequency/sound power level spectrum.

The typical human ear is not equally sensitive to all frequencies of the audible sound spectrum. As a consequence, when assessing potential noise impacts, sound is measured using an electronic filter that de-emphasizes the frequencies below 1,000 Hz and above 5,000 Hz in a manner corresponding to the human ear's decreased sensitivity to low and extremely high frequencies instead of the frequency mid-range. This method of frequency weighting is referred to as A-weighting and is expressed in units of A-weighted decibels (dBA).

Noise Exposure and Community Noise

An individual's noise exposure is a measure of the noise experienced by the individual over a period of time. A noise level is a measure of noise at a given instant in time. However, noise levels rarely persist consistently over a long period of time. In fact, community noise varies continuously with time with respect to the contributing sound sources of the community noise environment. Community noise is primarily the product of many distant noise sources, which constitute a relatively stable background noise exposure, with the individual contributors unidentifiable. Background noise levels change throughout a typical day, but do so gradually, corresponding with the addition and subtraction of distant noise sources and atmospheric conditions. The addition of short duration single event noise sources (e.g., aircraft flyovers, horns, sirens) makes community noise constantly variable throughout a day.

These successive additions of sound to the community noise environment vary the community noise level from instant to instant requiring the measurement of noise exposure over a period of time to legitimately characterize a community noise environment and evaluate cumulative noise impacts.

Noise Definitions

Time-varying characteristic of environmental noise is described using statistical noise descriptors. Noise descriptors discussed in this analysis are summarized below:

L_{eq}: The equivalent sound level is used to describe noise over a specified period of time, in terms of a single numerical value. The L_{eq} is the constant sound level which would contain the same acoustic energy as the varying sound level, during the same time period (i.e., the average noise exposure level for the given time period).

L_{50} The noise level that is equaled or exceeded 50 percent of the specified time period. The L_{50} represents the median sound level.

L_{90} The noise level that is equaled or exceeded 90 percent of the specified time period. The L_{90} is sometimes used to represent the background sound level.

L_{dn}: The day-night noise level (L_{dn}) average of the A-weighted sound levels occurring over a 24-hour period and which accounts for the greater sensitivity of most people to nighttime noise by weighting noise levels at night ("penalizing" nighttime noises). Noise between 10:00 p.m. and 7:00 a.m. is weighted (penalized) by adding 10 dB to take into account the greater annoyance of nighttime noises.

CNEL: Similar to the L_{dn}, the Community Noise Equivalent Level (CNEL) adds a 5-dB *penalty* for the evening hours between 7:00 p.m. and 10:00 p.m. in addition to a 10-dB penalty between the hours of 10:00 p.m. and 7:00 a.m.

L_{max}: The instantaneous maximum noise level measured during the measurement period of interest.

Effects of Noise on People

There is no universally acceptable way to measure the subjective effects of noise, or the corresponding reactions of annoyance and dissatisfaction. A wide variation exists in the individual thresholds of annoyance and different tolerances to noise tend to develop based on an individual's past experiences with noise. Thus, an important way of predicting a human reaction to a new noise environment is the way the new noise compares to the existing noise levels to which one has adapted: the so called "ambient noise" level. In general, the more a new noise exceeds the previously existing ambient noise level, the less acceptable the new noise would be judged by those hearing it. With regard to increases in A-weighted noise level, the following relationships occur:

1. Except in carefully controlled laboratory experiments, a change of 1-dB cannot be perceived;
2. Outside of the laboratory, a 3-dB change is considered a just-perceivable difference when the change in noise is perceived but does not cause a human response;

3. A change in level of at least 5-dB is required before any noticeable change in human response would be expected; and

4. A 10-dB change is subjectively heard as approximately a doubling in loudness and can cause an adverse response.

These relationships occur in part because of the logarithmic nature of sound and the decibel system. A ruler is a linear scale: it has marks on it corresponding to equal quantities of distance. One way of expressing this is to say that the ratio of successive intervals is equal to one. A logarithmic scale is different in that the ratio of successive intervals is not equal to one. Each interval on a logarithmic scale is some common factor larger than the previous interval. A typical ratio is 10, so that the marks on the scale read: 1, 10, 100, 1,000, 10,000, etc., doubling the variable plotted on the x-axis. The human ear perceives sound in a non-linear fashion; hence, the decibel scale was developed. Because the decibel scale is based on logarithms, two noise sources do not combine in a simple additive fashion, rather they combine logarithmically. For example, if two identical noise sources produce noise levels of 50 dBA, the combined sound level would be 53 dBA, not 100 dBA.

Noise Attenuation

Sound level naturally decreases with greater distance from the source. This basic attenuation rate is referred to as the *geometric spreading loss*. The basic rate of geometric spreading loss depends on whether a given noise source can be characterized as a point source or a line source. Point sources of noise, including stationary mobile sources such as idling vehicles or on-site construction equipment, attenuate (lessen) at a rate of 6 dB per doubling of distance from the source. In many cases, noise attenuation from a point source increases by 1.5 dB from 6 dB to 7.5 dB for each doubling of distance due to ground absorption and reflective wave canceling. These factors are collectively referred to as *excess ground attenuation*. The basic geometric spreading loss rate is used where the ground surface between a noise source and a receiver is reflective, such as parking lots or a smooth body of water. The excess ground attenuation rate (7.5 dB per doubling of distance) is used where the ground surface is absorptive, such as soft dirt, grass, or scattered bushes and trees.[103]

Widely distributed noises such as a street with moving vehicles (a “line” source) typically would attenuate at a lower rate of approximately 3 dB for each doubling of distance between the source and the receiver. If the ground surface between source and receiver is absorptive rather than reflective, the nominal rate increases by 1.5 dB to 4.5 dB for each doubling of distance. Atmospheric effects, such as wind and temperature gradients, can also influence noise attenuation rates from both line and point sources of noise. However, unlike ground attenuation, atmospheric effects are constantly changing and difficult to predict.[104]

Existing Ambient Noise Environment

The primary contributors to the noise environment in the Proposed Project area include vehicle traffic on adjacent roads; airplane over-flights; sounds emanating from businesses and residences; and naturally occurring sounds such as wind and wildlife, etc. Roadways in the project area include 6th Street West, Highway 12, Ramon Street, Verano Avenue, Buena Vida Drive, and Happy Lane. According to the City of Sonoma General Plan Noise Element,[105] the primary source of noise within the City is vehicular traffic along major streets, especially Highway 12, Leveroni Road, Napa Road, Napa Street, and Eighth Street East. Based on existing noise contours reported in the City of Sonoma General Plan, residences adjacent to this major roadways are exposed to vehicular traffic noise levels ranging from 60 to 65 dBA L_{dn}.[106] The Proposed Project is located in residential and business area that is subject to temporary and periodic increases in traffic-related noise as a result of the movement of vehicles.

While airports can be a significant source of noise, the Proposed Project is located approximately four miles northwest of the Sonoma Skypark and approximately four miles north of the Sonoma Valley Airport, which do not generate a significant amount of noise in the project area. There are no private airstrips in the project area.

Vibration

Vibration Characteristics

Vibration is an oscillatory motion through a solid medium in which the motion's amplitude can be described in terms of displacement, velocity, or acceleration. There are several different methods that are used to quantify vibration. Vibration can be a serious concern, causing buildings to shake and rumbling sounds to be heard. In contrast to noise, vibration is not a common environmental problem. Some common sources of vibration are trains, buses on rough roads, and construction activities such as blasting, pile driving, and heavy earth-moving equipment.

Vibration Definitions

Several different measurements are used to quantify different aspects of vibration. One measurement is the peak particle velocity (PPV), which is most frequently used to describe vibration impacts to buildings. Another measurement is the root mean square (RMS) amplitude, which is most frequently used to describe the effect of vibration on the human body. A third measurement is decibel notation (VdB or Lv), is commonly used to measure RMS amplitude.[107]

Ground-Borne Noise

Ground-borne noise refers to the rumbling sound caused by the vibration of surfaces within a building. The annoyance potential of ground-borne noise is characterized in dBA units. Due to differences in the medium the sound is travelling through, ground-borne

noises are characteristically of lower frequency sounds than air-borne noise. Due to the non-linearity of human hearing which causes sounds dominated by low-frequency components to seem louder, ground-borne noise with a level of 40 dBA typically sounds louder than 40 dBA air-borne noise.[108] Therefore, limits for ground-borne noise are lower than for air-borne noise.

Typical Perceptible Levels of Ground-Borne Vibration

In contrast to air-borne noise, ground-borne vibration is not a phenomenon that most people experience every day. The background vibration velocity level in residential areas is usually 50 VdB or lower, well below the threshold of perception for humans which is around 65 VdB. Most perceptible indoor vibration is caused by sources within buildings such as operation of mechanical equipment, movement of people or slamming of doors. Typical outdoor sources of perceptible ground-borne vibration are construction equipment, steel-wheeled trains, and traffic on rough roads. If the roadway is smooth, the vibration from traffic is rarely perceptible.[109]

Structural Response to Vibration

Structural response to vibration is typically evaluated in terms of PPV, which is often used since it is related to the stresses that are experienced by buildings. Various general standards are contained in the International Standards Organization standards 3945, 4866, and 7626-1. The Federal Transit Administration (FTA) identifies limit vibration damage threshold criteria set by these standards. At a PPV of 0.5 inches per second for reinforced-concrete, steel or timber (no plaster), PPV of 0.3 inches per second on engineered concrete and masonry (no plaster), PPV of 0.20 inches per second for non-engineered timber and masonry buildings (i.e., fragile buildings), and PPV of 0.12 inches per second for buildings extremely susceptible to vibration (i.e., fragile historic buildings).[110]

Construction Vibration

Construction activities can result in varying degrees of ground vibration, depending on the equipment and methods employed. Operation of construction equipment causes ground vibrations that spread through the ground and diminish rapidly in strength with distance. Buildings founded on the soil in the vicinity of a construction site respond to these vibrations with varying results, ranging from no perceptible effects at the lowest levels, low rumbling sounds and perceptible vibrations at moderate levels, and slight damage at the highest levels.

Ground vibrations from construction activities do not often reach the levels that can damage structures, but they can achieve the audible and noticeable ranges in buildings very close to the site. A possible exception is the case of fragile buildings, many of them old, where special care must be taken to avoid damage. The construction activities that typically generate the most severe vibrations are blasting and impact pile-driving.

Existing Vibration Environment

The existing vibration environment is dominated by traffic from nearby roadways. Vehicles associated with business, residence, recreation and tourism can generate vibrations that vary depending on vehicle type, weight, and pavement conditions.

Regulatory Framework

Federal, State, and local agencies regulate different aspects of environmental noise. Federal and State agencies generally set noise standards for mobile sources such as aircraft and motor vehicles, while local agencies regulation of stationary sources and development of land use noise compatibility policy is left to local agencies. Local regulation of noise involves implementation of general plan policies and noise ordinance standards. Local general plans tend to identify general principles intended to guide and influence development plans; and local noise ordinances and codes establish standards and procedures for addressing specific noise sources and activities. Below detail the settings for Federal, State and local Sonoma County and City of Sonoma regulatory standards related to noise and vibration.

Federal

In 1972, the Noise Control Act was established to address the concerns of noise as a growing danger to the health and welfare of the Nation's population, particularly in urban areas. In 1974, in response to the Noise Control Act, the U.S. Environmental Protection Agency (EPA) published Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety. Table 3.12-1 summarizes U.S. EPA findings for residential land uses.

Table 3.12-1
Sound Levels That Protect Public Health (dBA)

Category	Measure of Exposure	Indoor			Outdoor		
		Activity Interference	Hearing Loss	To Protect Against Both Effects	Activity Interference	Hearing Loss	To Protect Against Both Effects
Residential with Outside Space	L_{dn}	45	70	45	55	70	55
Residential with No Outside Space	L_{dn}	45	70	45	-	-	-

NOTES: Sound levels are yearly average equivalent in decibels; the exposure period which results in hearing loss at the identified level is a period of forty years.

SOURCE: U.S. Environmental Protection Agency, 1974.[111]

The Occupational Safety and Health Administration (OSHA) aims to ensure worker safety and health in the United States by working with employers and employees to create better working environments. With regard to noise exposure and workers, OSHA regulations set forth accepted criteria to protect the hearing of workers exposed to occupational noise. Noise exposure regulations are listed in 29 Code of Federal Regulations (CFR) Section 1910.95. Most applicable to this project, 1910.95(c)(1) states that an employer shall administer a hearing conservation program whenever noise exposure levels equal or exceed an 8-hour time-weighted average sound level of 85 dBA.

Federal regulations establish noise limits for medium and heavy trucks (more than 4.5 tons, gross vehicle weight rating) under 40 CFR, Part 205, Subpart B. The federal truck pass-by noise standard is 80 dBA at 15 meters (approximately 49 feet) from the vehicle pathway centerline. These controls are implemented through regulatory controls on truck manufacturers.

State

The State of California adopted the California Noise Insulation Standards in 1974.[h] These standards set forth an interior standard of 45 dBA L_{dn} for habitable spaces. These standards may be applied to residences located near construction activities or stationary noise sources as a method of examining potentially intrusive noise.

There are no adopted state policies or standards for ground-borne vibration. However, the Caltrans' *Transportation and Construction Vibration Guidance Manual* has identified vibration thresholds for adverse human reaction and risk of architectural damage to buildings.[112] According to Caltrans' guidance, the building damage threshold for older residential structures is 0.3 inch/second PPV and the vibration threshold where vibration level increases are considered strongly perceptible is 0.1 inch/second PPV.

Local

At the local level, noise is addressed through the implementation of general plan policies, including noise and land use compatibility guidelines, and through enforcement of noise ordinances. General plan policies provide guidelines for determining whether a noise environment is appropriate for a proposed or planned land use. Local noise ordinances regulate noise sources such as mechanical equipment and amplified sounds, as well as determine allowable hours of heavy equipment operation.

Sonoma County

The *Sonoma County General Plan 2020* Noise Element Policy NE1b addresses transportation noise (traffic on public roadways, railroads and airports) due to land use

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

development and noise standards. The Proposed Project is not a land use development project, therefore this policy and noise standards is not applicable to the Proposed Project. The Sonoma County General Plan 2020 Noise Element Policy NE-1c addresses non-transportation (stationary) related noise from new projects (noise resulting from new source, which is operational noise). It does not specifically address intermittent or short-term construction and maintenance noise (equipment) and currently there is no adopted noise ordinance in the County of Sonoma Municipal Code. The Sonoma County General Plan 2020 Policy NE-1h calls for the County to adopt a noise ordinance that would include noise performance standards (listed in Table 3.12-1) and other polices with the intent of protecting people from existing or future excessive levels of noise which interfere with sleep, communication, relaxation, health or legally permitted use of property. A noise ordinance has not been adopted to date, but Policy NE-1h does allow that the noise ordinance may exempt or modify noise requirements for certain uses, including construction activities.

City of Sonoma

The *City of Sonoma's General Plan 2020* Noise Element contains policies that define maximum allowable exterior noise level standards for new development noise sources.[113] The City of Sonoma's General Plan Policy 1.1 limits exterior noise levels to 60 dBA L_{dn} for outdoor environments around all residential developments and outdoor public facilities (e.g., parks). The Proposed Project is not a stationary new development project that would generate operational noise, therefore the City of Sonoma's General Plan Policy 1.1 is not applicable to the Proposed Project. However, the City of Sonoma's noise ordinance is contained in the City of Sonoma's Municipal Code, Chapter 9.56, Noise. The following noise ordinance sections would apply to the Proposed Project within the City of Sonoma's city limits:

> **Section 9.56.050(A) Standard exceptions to general noise limits (Construction).** Except as otherwise provided in subsection (B) of this section, or by the planning commission or city council as part of the development review for the project, on any construction project on property within the city, construction, alteration, demolition, maintenance of construction equipment, deliveries of materials or equipment, or repair activities otherwise allowed under applicable law shall be allowed as follows: (1) between 8:00 a.m. and 6:00 p.m., Monday through Friday, (2) between 9:00 a.m. and 6:00 p.m. on Saturday, and (3) between 10:00 a.m. and 6:00 p.m. on Sundays and holidays; however, the noise level at any point outside of the property plane of the project shall not exceed 90 dBA.
>
> **Section 9.56.060(A) Exceptions allowed with permit.** In addition to the standard exceptions permitted pursuant to section 9.56.050 of Chapter 9.56, the City Planner or his designee may grant a permit allowing an exception from any or all provisions

of Chapter 9.56 where the applicant can show that a diligent investigation of available noise abatement techniques indicates that compliance with the requirements of Chapter 9.56 would be impractical or unreasonable. Any such permit shall be issued with appropriate conditions to minimize the public detriment caused by the permitted exceptions. Any such permit shall be of such duration as approved by the City Planner or his designee, up to a maximum period of three months, but shall be renewable upon a showing of good cause, and shall be conditioned by a schedule for compliance and details of methods thereof in appropriate cases. In the discretion of the City Planner or his designee, an exception permit may be issued and reissued for successive short periods of time in order to allow monitoring of the adverse noise impacts of the excepted activity, and additional conditions may be imposed upon reissuance of the permit, if the City Planner or his designee determines that such additional conditions are necessary to mitigate noise impacts from the excepted activity to a level he deems acceptable under all the circumstances.

DISCUSSION OF POTENTIAL IMPACTS

a) Less than Significant with Mitigation. Operation of the Proposed Project is excluded from the analysis because the operation would resemble the existing functioning of District's facilities and would not result in an increase in existing noise levels. Consequently, the impact assessment below solely addresses the noise impacts associated with the use of construction equipment associated with construction activities.

Noise standards associated with construction activities, such as that which would occur under the Proposed Project (portions of Reach 4B, and Reach 4C) within the jurisdiction of Sonoma County are not addressed in the Sonoma County General Plan 2020 Noise Element and the County of Sonoma does not have an adopted noise ordinance. The Sonoma County General Plan 2020 Noise Element only addresses non-transportation (stationary) related noise from new projects (noise resulting from new source, which is operational noise). Because there are no noise standards for construction activities within the County of Sonoma, the noise levels associated with construction equipment related to the construction and maintenance activities (potential repair and replacement) of the Proposed Project (portion of Reach 4B, and Reach 4C) within the County of Sonoma's jurisdiction, would not expose persons to or generate ambient noise levels in excess of standards, therefore, no impact. However, since the County of Sonoma has no noise level standards or ordinances associated with construction activities, the City of Sonoma noise standards established in the City of Sonoma's Municipal Code, Chapter 9.56, Noise Section 9.56.050(A) were used in the below assessment for the overall Proposed Project area (County of Sonoma and the City of Sonoma jurisdictions).

According to Section 9.56.050(A) of the City of Sonoma Municipal Code, construction activities are restricted to specified hours and are not allowed to exceed 90dBA outside of the property plane. Construction activities for all reaches would generally occur within construction hours specified in the City of Sonoma's Municipal Code Section 9.56.050(A) (between 8:00 am – 6:00 pm, Monday through Friday, between 9:00 a.m. and 6:00 p.m. on Saturdays, and between 10:00 a.m. and 6:00 p.m. on Sundays and holidays). Some construction working days and times may have exceptions (as approved by the District) that may occur during emergencies, as required for encroachment permits, safety considerations, or certain construction procedures that cannot be interrupted. With such exceptions, prior notification of activities will be given to surrounding residents. In addition, exceptions that require work hours outside of the City of Sonoma's municipal code, within the City of Sonoma's jurisdiction would comply with the City of Sonoma's Municipal Code, Chapter 9.56 (Noise), Section 9.56.060(A) Exceptions Allowed with Permits. A comparison of the Proposed Project construction noise levels to the City of Sonoma's 90 dBA construction noise standard is discussed below.

Noise impacts from construction activities are assessed based on the typical construction phases, equipment noise levels and attenuation of those ambient noise levels due to distances, and any barriers between the construction activity and the sensitive receptors near the sources of construction noise. Noise generated at and near the construction areas would occur with varying intensities and durations during the various phases of construction. Noise would fluctuate depending on the particular type, number, and duration of uses of various pieces of construction equipment. The equipment operates in alternating cycles of full power and low power, thus, producing noise levels less than the maximum level. The average sound level of the construction activity also depends upon the amount of time that the equipment operates and the intensity of the construction during the time period. Table 3.12-2 depicts typical noise levels generated from various types of construction equipment likely to be used during Proposed Project construction at a reference distance of 50 feet. To quantify short-term construction-related noise exposure that would occur at the nearest sensitive receptors, it was assumed that the loudest piece of construction equipment would operate at the closest location of each reach to the nearest sensitive receptor. Table 3.12-3 presents the highest maximum noise levels to which sensitive receptors could be exposed to during open trench and trenchless construction along Reaches 4A, 4B and 4C. Noise generated during the operation of construction equipment were attenuated using a 7.5 dB per doubling of distance attenuation rate (i.e., soft site).

Construction of the Proposed Project would be conducted in phases. Construction activities for Reach 4A would be up to approximately eight months, and for

Reaches 4B, and 4C would be up to approximately six months each. Open trench construction would occur linearly at a rate of 40 to 200 feet per day. At this linear rate of construction, sensitive receptors adjacent to open trench construction areas are anticipated to be expose to construction noise lasting several days. Trenchless construction (including construction of jacking and receiving pits) is anticipated to be short-term, taking approximately two to four weeks to complete at each location. The locations of these reaches are shown in Figures 2-1, 2-2, 2-3 and 2-4.

Table 3.12-2
Reference Construction Equipment Noise Levels
(50 feet from source)

Type of Equipment	L_{max}, dBA
Air Compressor	80
Backhoe	80
Boring jack power unit	80
Chain saw	85
Compactor (ground)	80
Concrete Mixer	85
Concrete saw	90
Dump truck	84
Excavator	85
Flatbed truck	84
Generator (25 kilovolt-amperes [kVA] or less)	70
Generator (more than 25 kVA)	82
Grader	85
Jack hammer	88
Loader	85
Paver	85
Pickup truck	55
Pile driver/hammer (vibratory)	95
Pneumatic Tools	85
Pumps	77
Roller	85
Saw	76
Truck	88
Vacuum excavator (Vac-truck)	85
Vacuum street sweeper	80
Ventilation fan	85
Welder/Torch	73

SOURCE: United States Federal Highway Administration, 2006.[114]
United States Department of Transportation Federal Transit Administration, 2006.[115]

Table 3.12-3
Construction Noise Levels at the Nearest Sensitive Receptor During Proposed Project Construction

Reach	Type of Equipment	Distance to nearest Sensitive Receptor (feet)	Reference Maximum Noise Level from a distance of 50 feet (dBA Lmax)	Attenuated Maximum Noise Level (dBA Lmax)[a]
	Open Trench Construction			
Reach 4A (Highway 12)	Concrete Saw	50	90	90
Reach 4B (Ramon Street)	Concrete Saw	15	90	**103**
Reach 4C (Happy Lane)	Concrete Saw	5	90	**115**
	Trenchless Construction – Jacking Pits			
Reach 4A (Highway 12)	Jack and Bore Power Unit	115	80	71
	Vibratory Pile Driver		95	86
	Concrete Saw		90	81
Reach 4B (Maxwell Farms Regional Park-open field)	Jack and Bore power unit	24	80	88
Reach 4C (Open field)	Jack and Bore Power Unit	50	80	80
	Trenchless Construction - Receiving Pits			
Reach 4A (Highway 12)	Concrete Saw	170	90	77
	Vibratory Pile Driver		95	82
Reach 4B (Ramon Street)	Concrete Saw	15	90	**103**
Reach 4C (Happy Lane)	Concrete Saw	30	90	**96**

NOTES:
Bold = Exceeds City of Sonoma exterior construction noise threshold of 90 dBA L_{max}.
[a] Assumed a drop off rate of 7.5dBA per doubling of distance (i.e. soft site).
SOURCE: United States Federal Highway Administration, 2006.[116]

Construction activities along Reach 4B would occur within the jurisdictions of the County of Sonoma and City of Sonoma. The portion of Reach 4B that begins within the jurisdiction of the City of Sonoma is in Ramon Street at the northern most termination of Reach 4A near the intersection with Highway 12. It then continues west on Ramon Street through the Sonoma Oaks Mobile Home Park, then continues within

the jurisdiction of the County of Sonoma, north through Maxwell Farms Regional Park and continues under Verano Avenue to connect to the existing sewer trunk main at manhole M103-21 just north of Verano Avenue.

Construction activities occurring in Reach 4B would consist of open trench and trenchless techniques for the installation of new sewer pipes and manholes, and roadway surface restoration. Sensitive land uses adjacent to Reach 4B within the City of Sonoma's jurisdiction consist of multi-family residences along Ramon Street. During open trench construction, sensitive receptors could be located 15 feet from onsite construction equipment. Trenchless construction would require the excavation of a jacking pit (located on Maxwell Farms Regional Park adjacent to Ramon Street) and receiving pit along Ramon Street. Sensitive receptors would be located approximately 24 feet from the jacking pit and 15 feet from the receiving pit. The loudest pieces of construction equipment that could operate during open trench and trenchless construction is a concrete saw and vibratory hammer/pile driver, respectively. As shown in Table 3.12-3, sensitive receptors located near open trench and trenchless construction areas would be exposed to maximum noise levels of 103 dBA, respectively. Sensitive receptors along Ramon Street could be expose to construction noise levels that would exceed the City of Sonoma's construction noise standard of 90 dBA L_{max} during open trench and trenchless construction.

Construction activities along Reach 4C would occur within the jurisdiction of the County of Sonoma. Reach 4C construction activities would consist of open trench and trenchless technique, installation of new sewer pipes and manholes, and roadway surface restoration. Sensitive land uses adjacent to Reach 4C consist of single-family residences along Happy Lane. During open trench construction along Happy Lane, sensitive receptors could be located 5 feet from onsite construction equipment. Trenchless construction would require the excavation of a jacking pit in an open field on private property and a receiving pit along Happy Lane. Sensitive receptors would be located approximately 50 feet from the jacking pit and 30 feet from the receiving pit. The loudest pieces of construction equipment that would operate during open trench and trenchless construction is a concrete saw. As shown in Table 3.12-3, sensitive receptors located near open trench and trenchless construction areas would be exposed to maximum noise levels of 115 dBA and 96 dBA, respectively. Sensitive receptors along Happy Lane could be exposed to construction noise levels that would exceed the City of Sonoma's construction noise standard of 90 dBA L_{max} during open trench and trenchless construction.

In summary, the use of construction equipment associated with construction activities occurring along portions of Reach 4B (Ramon Street) and portions of Reach 4C (Happy Lane) within 50 feet of sensitive land uses, could expose nearby sensitive receptors (residence) to noise levels that would exceed the City of Sonoma's municipal code for

construction noise standard of 90 dBA L_{max}. Therefore, construction of the Proposed Project would expose adjacent sensitive receptors (residence) to noise levels in excess of the construction noise standards established in the City of Sonoma's municipal code, and the impact would be significant. However, implementation of **Mitigation Measure NOISE-1 (Construction Noise Reduction)** would require contractor(s) to reduce construction noise by avoiding or minimizing potential adverse impacts to sensitive land uses located within 50 feet of the Proposed Project areas during construction activities, which minimize impacts to less than significant.

Mitigation Measure NOISE-1

1. Limit use of construction equipment (e.g., vibratory hammer/pile driver or concrete saw) that will exceed 90dbA within 50 feet of sensitive land uses along portions of Reach 4B (Ramon Street) and portions of Reach 4C (Happy Lane) to daytime hours on weekdays to comply with City of Sonoma's Municipal Code, Chapter 9.56 (Noise), Section 9.56.050(A) hours (between 8:00 a.m. and 6:00 p.m., Monday through Friday).

   Some construction working days and times may have exceptions (as approved by the District) that may occur during emergencies, as required for encroachment permits, safety considerations, or certain construction procedures that cannot be interrupted. With exceptions construction hours may occur during nighttime, and/or on Saturdays and Sundays. If necessary, weekend work would generally comply with City of Sonoma's municipal code, hours (between 9:00 a.m. and 6:00 p.m. on Saturday, and between 10:00 a.m. and 6:00 p.m. on Sundays). With exceptions, prior notification of activities will be given to surrounding residents. In addition, exceptions that require work hours outside of the City of Sonoma's municipal code (between 8:00 a.m. and 6:00 p.m., Monday through Friday, between 9:00 a.m. and 6:00 p.m. on Saturday, and between 10:00 a.m. and 6:00 p.m. on Sundays and holidays), within the City of Sonoma's jurisdiction would comply with the City of Sonoma's Municipal Code, Chapter 9.56 (Noise), Section 9.56.060(A) Exceptions Allowed with Permits.

2. To the extent feasible, the use of construction equipment (e.g., vibratory hammer/pile driver or concrete saw) that generates noise levels greater than 90 dBA along portions of Reaches 4B and 4C within 50 feet of sensitive land uses shall not be used during Proposed Project construction. If not feasible, and the use of such construction equipment is required, the District shall offer sensitive receptors (residences) within 50 feet of the construction area along portions of Reaches 4B and 4C alternate temporary accommodations. The accommodations shall be provided for the duration of construction activities that generates noise levels greater than 90 dBA within 50 feet of the sensitive receptors (residence). The alternate temporary accommodations shall be reasonably similar to those of the impacted sensitive receptors (residents) in terms of number of beds and amenities.

3. Equipment and trucks used for construction activities shall utilize noise control equipment per manufacturer's original equipment or better (e.g., improved mufflers, equipment redesign, use of intake silencers, ducts, engine enclosures and acoustically-attenuating shields or shrouds, wherever feasible).

4. All construction machinery and equipment would be inspected daily to see if there are any problems that may contribute to increased noise levels and unsafe practices.

5. Construction equipment noise shall be minimized where feasible during project construction by muffling and shielding intakes and exhaust on construction equipment (per the manufacturer's specifications) and by potentially shrouding or shielding impact tools. No equipment will be operated with an unmuffled exhaust.

6. Temporary noise damper barriers/enclosures/ structures (e.g. plywood with sound absorbing materials, sound blankets, sandbags or other materials) shall be installed around noisy equipment that may exceed 90dBA and jacking and receiving pits to minimize noise where feasible.

7. Construction contractors shall locate fixed construction equipment (such as compressors and generators) and construction staging areas as far as feasible from nearby sensitive receptors.

8. A District Inspector and/or contractor shall conduct management control of sound source by implementing noise level monitoring for specific construction activities within 50 feet of sensitive receptor locations.

9. Residences and other sensitive receptors within 200 feet of construction and staging areas shall be notified on the construction schedule in writing, at least two weeks prior to the commencement of construction activities. This notice shall indicate the allowable hours of construction activities as specified by the applicable local jurisdiction. The construction contractor shall designate a noise disturbance coordinator who would be responsible for responding to complaints regarding construction noise. The coordinator shall determine the cause of the complaint and ensure that reasonable measures are implemented to correct the problem. A contact number for the noise disturbance coordinator shall be conspicuously placed on the project identification sign(s) and included in the construction schedule notification sent to nearby residences and sensitive receptors.

b) Less than Significant with Mitigation. Since the operation of the Proposed Project would not include any activities known to generate vibration, it is not anticipated that the operation of the Proposed Project would expose the nearest sensitive receptor or structure to vibration levels that would result in annoyance or building damage. Therefore, only vibration impacts from construction equipment associated with construction activities (such as open trench and trenchless construction) that would

occur during the construction and maintenance activities (potential repair and replacement) of the Proposed Project are evaluated.

A numerical threshold to identify the point at which construction equipment vibration impacts on a structure or humans occurs has not been identified by a local jurisdiction in the applicable standards or municipal codes. In the absence of local regulatory significance thresholds for vibration from construction equipment, it is appropriate to use the Caltrans' *Transportation and Construction Vibration Guidance Manual*.[117] Analysis of temporary vibration effects from construction activities is based on equipment vibration levels and attenuation of vibrations due to distances between the construction activity and the sensitive receptors near the source of construction vibration. According to the Caltrans' *Transportation and Construction Vibration Guidance Manual*, the building damage threshold for older residential structures is 0.3 inch/second PPV and the vibration threshold where vibration level increases are considered strongly perceptible is 0.1 inch/second PPV for continuous/frequent intermittent sources.[118] There are no historic buildings or structures near Reaches 4A, 4B and 4C. The vibration levels sensitive receptors would be exposed to during open trench and trenchless construction are provided in Table 3.12-4.

Open trench construction activities would not require the use of equipment known to generate high vibration levels such as an impact pile driver or blasting. However, for this analysis it is conservatively assumed that off-road equipment used during open trench construction would generate vibration levels equivalent to a jackhammer. As shown in Table 3.12-4, sensitive receptors (residences) adjacent to open trench construction activities along Reach 4C would be exposed to vibration levels that would exceed both the applied human annoyance and building damage thresholds.

Construction activities that may result in temporary vibration impacts include use of off-road construction equipment and trenchless construction techniques (jack and bore). Trenchless construction is expected to occur along Reach 4A (along Highway 12), Reach 4B (at Ramon Street) and Reach 4C (near Happy Lane). Trenchless construction techniques for Reach 4A may require the use of a vibratory hammer/pile driver to install sheet piles at the pit areas and a jack and bore power unit to install pipe under roadways and residences. The distances and vibrations levels during the use of a vibratory hammer/pile driver to install sheet piles for the pits supporting the trenchless construction equipment as well as the operation of jack and bore power unit is presented in Table 3.12-4.

Table 3.12-4
Vibration Velocities for Construction Equipment

Category	Type of Equipment	Distance (feet)	Reference PPV (Inch/Second) from a distance of 25 feet	Attenuated PPV (Inch/Second)
Open Trench Construction				
Reach 4A (Highway 12)	Jack Hammer	50	0.035	0.012
Reach 4B (Ramon Street)	Jack Hammer	15	0.035	0.075
Reach 4C (Happy Lane)	Jack Hammer	5	0.035	**0.391**
Trenchless Construction - Jacking Pits				
Reach 4A (Highway 12)	Jack and Bore Power Unit	115	0.089	0.009
	Vibratory Hammer/ Pile Driver		0.17	0.017
Reach 4B (Maxwell Farms Regional Park-open field)	Jack and Bore Power Unit	24	0.089	0.094
Reach 4C (Open field)	Jack and Bore Power Unit	50	0.089	0.031
Trenchless Construction - Receiving Pits				
Reach 4A (Highway 12)	Vibratory Hammer/ Pile Driver	170	0.17	0.01
Reach 4B (Ramon Street)	NA	15	NA	NA
Reach 4C (Happy Lane)	NA	30	NA	NA

NOTES:
Bold = Exceeds applied building of engineered concrete and masonry (no plaster) (0.3 PPV) or human perception (0.1 PPV) thresholds.
NA = Does not include construction equipment known to generate high vibration levels.
[a] Assumed the same vibration level as a caisson drill.
SOURCE: United States Department of Transportation, Federal Transit Administration, 2006.[119]

In summary, short-term open trench construction along Reach 4C (Happy Lane) could expose sensitive land uses and sensitive receptors (residence) to vibration levels that would exceed the applied human annoyance threshold of 0.1 inch/second PPV within approximately 15 feet, and exceed the damage threshold for residential structures of 0.3 inch/second PPV within approximately 10 feet. Therefore, vibration from construction equipment associated with construction activities of the Proposed Project could expose persons and structures to excessive ground-borne vibration that would result in a significant impact. However, implementation of **Mitigation Measure NOISE-2 (Vibration Reducing Measures)** would require contractor(s) to reduce

vibratory construction equipment levels by avoiding or minimizing potential adverse impacts to sensitive land uses and sensitive receptors (residences) located within 25 feet of the Proposed Project areas during construction activities. These mitigation measures protect sensitive land uses and sensitive receptors (residence) or structures by avoiding or minimizing potential adverse ground-borne vibration or ground-borne noise level impacts during construction activities, which minimize impacts to a less than significant level.

Mitigation Measure NOISE-2

1. Limit use of vibratory construction equipment (e.g., or jackhammer) associated with construction activities within approximately 15 feet of sensitive receptors (residence) along Reach 4C (Happy Lane) that could exceed the applied human annoyance threshold of 0.1 inch/second PPV within approximately 15 feet, and exceed the damage threshold for residential structures of 0.3 inch/second PPV within approximately 10 feet. to daytime hours on weekdays to comply with City of Sonoma's Municipal Code, Chapter 9.56 (Noise), Section 9.56.050(A) hours (between 8:00 a.m. and 6:00 p.m., Monday through Friday).

   Some construction hours exceptions may occur along Reach 4C (Happy Lane) within approximately 15 feet of sensitive receptors (residence) during emergencies, hours required for encroachment permits, safety considerations, or certain construction procedures that cannot be interrupted. With some exceptions construction hours may occur during nighttime, and/or on Saturdays and Sundays. If necessary, weekend work would generally comply with City of Sonoma's municipal code hours (between 9:00 a.m. and 6:00 p.m. on Saturday, and between 10:00 a.m. and 6:00 p.m. on Sundays). With such exceptions, prior notification of activities will be given to surrounding residents.

2. Prohibit use of impact pile driving equipment/vibratory hammer within 25 feet of sensitive receptors along Reach 4B (Ramon Street) and Reach 4C (Happy Lane).

3. Ensure proper tuning of vibratory construction equipment.

4. Use vibration damping devices to the extent feasible.

5. Operate earth-moving equipment as far away as possible from vibration-sensitive receptors.

6. Limit use of vibratory construction equipment to the extent feasible.

7. Do not overlap the use of the greatest vibratory construction equipment (e.g., excavator and jack hammer).

8. The contractor shall implement a vibration monitoring program during trenchless and open trench construction techniques (jack and bore or jack hammering operations) within 15 feet of applicable residential structures along

Reach 4B (Ramon Street) and Reach 4C (Happy Lane) to minimize vibration-related impacts on applicable structures.

a) Vibration monitoring program:

   i. Contractor shall submit monitoring program to District and obtain approval from District prior to the start of construction.

   ii. Provide pre-construction monitoring in the vicinity of construction locations where the use of jack and bore or a jack hammer would be required in regards to building walls, floors, and foundations, driveways and sidewalks, storm drainage structures, sanitary sewer manholes, utility poles, exposed underground utilities, existing ground surfaces, and other facilities as needed, including but not limited to:

      a. Pictures/videos

      b. Provide crack gauge installation and initial measurement notations for buildings exteriors prior to start of trenchless operations.

      c. Provide monitoring of existing ground elevations along the trenchless alignments.

   iii. Provide on-going monitoring of existing building walls, floors, and foundations, driveways and sidewalks, storm drainage structures, utility poles, exposed underground utilities, existing ground surface, and other facilities in the vicinity of, and during, trenchless construction operations, including but not limited to:

      a. At a minimum, monitor facilities noted above under pre-construction monitoring, with the exception of existing ground surface elevations and foundation cracks, on a daily basis.

      b. Monitor existing ground surface elevations and foundation cracks within 15 feet horizontally of the lead end of the casing on an hourly basis during trenchless construction operations.

      c. Submit monitoring information to Owner daily at end of the workday.

      d. Keep on-going monitoring data up to date daily and/or hourly, as required herein, and available for Owner's inspection at all times during trenchless construction operations.

   iv. Provide post-monitoring cleanup following the completion of trenchless construction operations, as follows:

      a. Upon direction of Owner:

         1) Remove concrete monitoring provisions and restore surface to match existing, as needed.

2) Obtain signed post-construction property owner letters from each private property owner.

v. If a private property owner will not sign standard letter, determine reason(s) for non-signature and provide property owner(s) name to District for negotiation with private property owner.

9. During trenchless and open trench construction techniques (e.g. jack and bore or jack hammering operations) within 25 feet of applicable residential structures along Reach 4B (Ramon Street and 4C (Happy Lane) temporary alternate accommodations shall be offered by the District to reduce potential annoyance caused by construction-related vibration impacts on applicable residential receptors. The accommodations shall be provided for the duration of construction activities occurring within 15 feet of the residence. The temporary alternate accommodations shall be reasonably similar to those of the impacted residents in terms of number of beds and amenities.

c) No Impact. Once construction is complete, maintenance and operations at Reaches 4A, 4B and 4C would be similar to current operations. There would be no increase in ambient noise levels in the project vicinity above levels existing, therefore no impact.

d) Less than Significant with Mitigation. Operation of the Proposed Project is excluded from the analysis because the operation would resemble the existing functioning of District's facilities and would not result in an increase in existing noise levels. Consequently, the impact assessment below solely addresses the noise impacts associated with the use of construction equipment associated with construction activities.

The County of Sonoma does not have applicable local policies or standards to quantitatively assess the significance of a substantial temporary or periodic short-term increase in ambient noise level standards from construction activities over the existing conditions. In the absence of noise level standards associated with construction equipment in the County of Sonoma, it is appropriate to use the City of Sonoma noise level standards related to construction defined in Chapter 9.56, Noise of the City of Sonoma's Municipal Code Section 9.56.050(A) to assess short-term construction noise level impacts throughout the Proposed Project (County of Sonoma and City of Sonoma jurisdictions).

As discussed above in Criteria XII a) and shown in Table 3.12-3, sensitive receptors located near open trench and trenchless construction areas along Reaches 4B and 4C could be exposed to construction noise levels that would exceed the applied 90 dBA L_{max} substantial temporary noise increase threshold, potentially resulting in a significant impact. However, implementation of the Noise Reduction Mitigation Measures outlined in **Mitigation Measure NOISE-1 (Construction Noise Reduction)** would reduce construction noise levels by avoiding or minimizing potential

adverse impacts to sensitive land uses located near Proposed Project areas during construction activities, which minimize impacts to less than significant.

e) and f) No Impact. The Proposed Project does not involve the development of new noise sensitive land uses, and thus, implementation of the Proposed Project would not expose people to excessive aircraft noise. In addition, the Proposed Project is not located within an airport land use plan or where such a plan has not been adopted, or within two miles of a public airport, or public use airport the vicinity of a private airstrip, and would not expose people residing or working in the project area to excessive noise levels. No impact.

XIII. POPULATION AND HOUSING

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

POPULATION AND HOUSING SETTING

Population

As of 2013, the Association of Bay Area Governments estimated Sonoma Valley's 2020 resident population at 53,300. The projected 2040 population for Sonoma Valley is estimated at 59,500, a 12 percent increase from 2010.[120] Population statistics are summarized in Table 3.13-1.

Table 3.13-1
City of Sonoma ABAG Projections for Population and Households, 2010–2040

	2010	2015	2020	2025	2030	2035	2040
City of Sonoma							
Population	10,648	10,800	11,100	11,300	11,500	11,800	12,100
Households	4,955	5,030	5,110	5.200	5,260	5,320	5,390
City of Sonoma- Sphere of Influence							
Population	10,951	11,100	11,400	11,600	11,800	12,200	12,500
Households	5,071	5,150	5,230	5,330	5,390	5,450	5,530
Rural Sonoma Valley							
Population	29,657	30,500	30,800	32,000	32,900	33,700	34,900
Households	11,731	11,940	12,160	12,370	12,620	12,840	13,040
SOURCE: Association of Bay Area Governments (ABAG), 2013.[121]							

Housing

As of 2013, the Association of Bay Area Governments estimated the total housing units of Sonoma Valley—assumed here to include City of Sonoma, City of Sonoma's sphere of influence, and rural Sonoma Valley—to be approximately 22,500 in 2020. The projected 2040 household numbers for Sonoma Valley are estimated to increase by 6 percent to 23,960.[122] Housing statistics are summarized in Table 3.13-1.

DISCUSSION OF POTENTIAL IMPACTS

a) No Impact. The Proposed Project would address structural deficiencies in the existing sewer trunk main and provide increased conveyance capacity and reduce or eliminate sanitary system overflows. The Proposed Project would not increase wastewater treatment capacities above existing conditions and would not provide additional water or wastewater treatment capacity to allow for development. The District would utilize existing treatment capacity available at the Sonoma Valley County Sanitation District wastewater treatment facility to come into compliance with State Water Resources Control Board National Pollutant Discharge Elimination System Discharge regulations. Consequently, the effect of new project infrastructure on population growth would have no impact.

b) and c) No Impact. The construction of the Proposed Project would not result in the displacement of any existing housing or people, necessitating the construction of replacement housing in the vicinity of the project site, resulting in no impact.

XIV. PUBLIC SERVICES

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:				
Fire protection?	☐	☐	☐	☒
Police protection?	☐	☐	☐	☒
Schools?	☐	☐	☐	☒
Parks?	☐	☐	☐	☒
Other public facilities?	☐	☐	☐	☒

PUBLIC SERVICES SETTING

The Valley of the Moon Fire Protection District, operating as the Sonoma Valley Fire & Rescue Authority (SVFRA), provides all-risk fire, rescue, and emergency medical services to communities in Sonoma Valley including the City of Sonoma. The District covers an area of 31.5 square miles with a resident population of approximately 33,000. The District also provides ambulance service to the greater Sonoma Valley, an area of approximately 100 square miles. Sonoma Valley Fire Station 2 is located at 877 Center Street in Sonoma, less than one mile from the Proposed Project site.[123]

The Proposed Project site is also served by the City of Sonoma Police Department and the Sonoma County Sheriff's Office. The nearest Sonoma County Sheriff's Office is at 810 Grove Street, within one mile of the Proposed Project site.[124]

The Proposed Project site is located within the jurisdiction of the Sonoma Valley Unified School District. For discussion regarding nearby recreational facilities and parks, refer to Section 3.15, Recreation, below.

DISCUSSION OF POTENTIAL IMPACTS

a) No Impact. During each of the reaches proposed construction period (up to approximately eight months for Reach 4A and approximately six months each for Reaches 4B and 4C), up to 25 construction workers would be employed at the

Proposed Project site, depending on the particular reach of the Proposed Project and construction activities taking place (see Project Description). It is expected that construction workers could come from any part of Sonoma Valley. While it is possible that some workers might temporarily relocate from other areas, the Proposed Project would not result in a substantial increase in the local population. Potential incidents requiring law enforcement, fire protection, or emergency services could occur during construction; however, any temporary increase in incidents would not exceed the capacity of local law enforcement, fire protection, and emergency facilities such that new or expanded facilities would be required, because any temporary increase in the local population during project construction would be negligible and could be accommodated by existing service providers. Additionally, the project's construction would not be expected to significantly affect the SVFRA or the County Sheriff's ability to maintain acceptable service ratios, response times, or performance objectives. Therefore, the Proposed Project would have no impact on demand related to fire and police services.

Further, the Proposed Project would not induce growth that requires additional or altered schools, parks or other public facilities to maintain service ratios or performance objectives due to such demands. Therefore, no impact would occur on schools, parks, or other public facilities.

The Proposed Project would not result in a permanent increase in the local population. Operation and post-construction maintenance activities would be similar to existing maintenance activities and would not result in substantial increases in demand for public services, including fire protection, police protection, schools, hospitals, or other services. Therefore, operational impacts related to public services are not applicable.

XV. RECREATION

	Potentially Significant Impact	Less Than Significant with Mitigation	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?	☐	☐	☐	☒

RECREATION SETTING

Maxwell Farms Regional Park is an 85-acre park maintained by Sonoma County Regional Parks that is located within the Proposed Project area. It is bounded by Verano Avenue on the north, Highway 12 on the east, Riverside Drive on the west and the Sonoma Oaks Mobile Home Park on the south, as depicted on Figures 2-1 and 2-2. The park features outdoor recreational facilities such as multi-use fields (baseball and soccer), tennis, basketball, and volleyball courts, playgrounds, skate park and picnic areas. There are also 40 acres of nature trails used for equestrian, walking, biking, and hiking.[125]

Other recreation areas within the vicinity of the Proposed Project include: Olsen Park at 569 Linda Drive (a 2-acre park with a basketball court, picnic area and play structure); Ernie Smith Community Park at 18776 Gillman Drive, which features playing fields, trails, playgrounds and picnic facilities; and the Montini Open Space Preserve, a 98-acre property with a trail system approximately two miles from the Proposed Project site.[126]

DISCUSSION OF POTENTIAL IMPACTS

a) Less than Significant Impact. The Proposed Project would not 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. During construction, it is not expected that many recreationists would be displaced from recreational areas in the Proposed Project vicinity and thereby substantially increase the use of other nearby parks or recreational facilities. The portion of Reach 4B, which runs through Maxwell Farms Regional Park, would be fenced in sections during the duration of the short-term construction activities, and would be inaccessible to the public. Construction is anticipated to take place outside of baseball season. The soccer fields would not be impacted. Construction activities within the park boundaries are

described in the Project Description and would include open-trench excavation and installation of new sewer pipe and manholes. It is possible that some recreationists that currently use the recreation areas near Proposed Project construction areas would not want to use these areas during construction activities due to temporary increases in noise and reduced air quality associated with use of construction equipment. Other recreationists may avoid work areas due to the appearance of construction areas. These potentially displaced recreationists may instead use other portions of Maxwell Farms Regional Park, or similar local or regional recreation facilities located in the Proposed Project vicinity resulting in occasional increases in use of other recreation facilities. There are a number of additional trails, bicycle paths, and other general recreation resources that would be available within the Proposed Project vicinity, and in the overall Sonoma Valley area. The temporary increased use of other local or regional recreation resources that may be attributable to construction of the Proposed Project would not likely be enough to result in substantial physical deterioration of recreational resources, or otherwise result in physical degradation of existing recreational resources. Proposed Project activities are not anticipated to result in recreational impacts that would increase the use of existing neighborhood and regional parks or other recreational facilities, as construction activities would incorporate the use of BMP-20 (Good Neighbor Practices), as defined in the Proposed Project plans and specifications (Table 2-1). For example, BMP-20 will keep the public informed of the project's construction days and hours and contact information. For all of the above reasons, construction activities associated with the Proposed Project would have a less than significant impact relative to a potential increase in the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facilities would occur or be accelerated.

Following project construction, recreational surfaces would be restored to their general pre-project conditions in the turf area, bicycle path, baseball field area, and volleyball area. The Proposed Project operation would have no impact on recreational resources nor have a potential 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) No Impact. The Proposed Project does not propose to construct or expand, nor would it require the construction or expansion of, recreational facilities. The Proposed Project would not result in a permanent increase in the local population or increased demand for the construction or expansion of recreational facilities due to growth. The Proposed Project would involve a limited number of construction workers (up to 25) over the potential six-month construction period for Reach 4B, which runs through Maxwell Farms Regional Park. Therefore, the Proposed Project would have no impact related to the construction or expansion of recreational facilities.

XVI. TRANSPORTATION/TRAFFIC

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

TRANSPORTATION AND TRAFFIC SETTING

The three reaches of the Proposed Project are located in the unincorporated area of Sonoma County and in the City of Sonoma. The Proposed Project would be within the District's service area boundary, west of Highway 12 and south of Orchard Avenue. Access to the Proposed Project site is generally from Highway 12, but also includes local roadways depending on the reach:

1. Reach 4A: 6th Street West, Highway 12 and Ramon Street (City of Sonoma).
2. Reach 4B: Ramon Street (City of Sonoma) and Verano Avenue (unincorporated area of Sonoma County).
3. Reach 4C: Buena Vida Drive, Academy Lane, Happy Lane, west Thompson Avenue, Anthony Court, Melody Lane and Manzanita Road (unincorporated area of Sonoma County).

Highway 12 in the vicinity of the Proposed Project is designated as a two to three-lane (includes center turning lane) arterial running north and south through the City of Sonoma, connecting to US 101 approximately 40 miles to the west and Interstate 80 approximately 22 miles to the east. Highway 12 carries an average daily traffic volume of approximately 15,000 vehicles in the Proposed Project area, with trucks comprising approximately four percent of total vehicles.[127] According to the City of Sonoma 2016 Circulation Element, peak hour volumes on Highway 12 in the vicinity of the Proposed Project currently (2014) exceed roadway capacity, resulting in heavily congested conditions. However, signalized intersections along Highway 12 in the vicinity of the Proposed Project operate acceptably at level of service (LOS) C or better during the peak hour.[128] Highway 12 in the project vicinity is a Caltrans-designated truck route.[129] Traffic volumes on the local roadways listed above are low, as they only provide access to local residents in low-density neighborhoods and cannot be used by cut-through traffic due to the presence of cul-de-sacs.

There are no designated bicycle facilities on roadways in the Proposed Project vicinity. Sidewalks are provided on one or both sides of the road on Highway 12, 6th Street West, Ramon Street, and Happy Lane; there are no sidewalks on the remaining roadways in the project vicinity, although a pedestrian path is provided on the north side of Verano Avenue. Sonoma County Transit buses (e.g., Route 30, 32, 34, and 38) serve the Proposed Project sites, providing connections throughout Sonoma Valley and beyond to Santa Rosa and San Rafael.

DISCUSSION OF POTENTIAL IMPACTS

a) Less than Significant with Mitigation. As described in Chapter 2, Project Description, the Proposed Project would repair and improve the existing sewer trunk main to reliably handle dry and wet weather inflows for Reaches 4A, 4B, and 4C. Construction activities for Reach 4A would be up to approximately eight months, and for Reaches 4B and 4C would be up to approximately six months each. Each reach would involve site clearing, open trench construction, trenchless construction techniques, manhole installation, pipe installation, trench backfilling in short segments extending in phases down the length of the pipeline alignment, and entry and receiving pit backfilling. Site restoration, including repaving affected roadways, would be conducted last.

Construction activities for each of the three reaches would occur sequentially, and would be substantially similar with regard to the intensity and duration of the phases; therefore, the impact discussion below is representative of any of the three reaches.

Direct traffic impacts from construction of the Proposed Project would be short-term and temporary. The duration of impacts related to short-term disruption of traffic flow and potential increased congestion generated by construction vehicles would be limited to the period of time needed to complete construction of the project components. Construction activities that would generate off-site traffic would include the delivery of construction vehicles and equipment to the Proposed Project site, the daily arrival and departure of construction workers, and the delivery of materials throughout the construction period. Construction equipment would be delivered to and removed from the Proposed Project site in phases for the different construction activities. The estimated haul truck traffic would vary depending on the activity, but would peak at up to approximately 19 trucks per day during the open trench /trenchless construction phase, which would yield up to 38 daily one-way trips to and from the Proposed Project site, over the course of 35 work days at the peak of construction.[i] Although most excavated materials would stockpiled and then backfilled in the trenches after pipeline installation in non-roadway areas, it was conservatively assumed for the traffic impact analysis that all excavated materials would be exported and disposed of offsite in accordance with all local, state and federal laws and regulations. Exported materials would be transferred to the nearest landfill to be determined by the contractor.

There would be up to 25 construction workers on a peak day, and they would commute to and from the worksite primarily before or after peak traffic hours. Parking for worker vehicles and construction vehicles would be available in designated on-site staging areas, which would likely be located within existing vacant parcels near the construction route and/or within Maxwell Farms Regional Park.

Construction-generated traffic would be temporary, and therefore, would not result in any long-term degradation in operating conditions on any locally used roadways for the project. The impact of construction-related traffic would be a temporary and intermittent lessening of the capacities of streets in the Proposed Project area because of the slower movements and larger turning radii of construction trucks compared to passenger vehicles. Drivers could experience delays if they were traveling behind a heavy truck. Although in Reach 4B and Reach 4C project construction trips would fall within the daily fluctuations of traffic volumes (not perceptible to the average motorist), in Reach 4A, the traffic generated by construction

[i] The estimated truck trips are based on a quantity of approximately 190 cubic yards of excavated soils and asphalt being transported in 10-cubic yard-trucks over the course of 35 work days.

activities would be noticeable (i.e., would represent a higher percent increase in traffic volumes) on the local-serving roadways serving the construction site, therefore the resulting effect on traffic flows could be significant. Project construction along Reach 4A may require lane closures reducing the flow of traffic to one lane along a busy portion of Highway 12 to facilitate replacement of sewer trunk main and appurtenances (and associated construction activities described above). Existing traffic congestion on Highway 12 or on local roadways serving neighborhood traffic during peak times could be exacerbated by Proposed Project-related lane closures, and the resulting impacts could be significant with respect to the performance of the local circulation of the transportation network. However, such transportation and traffic impacts would be reduced to less than significant levels through implementation of **Mitigation Measure TRAF-1 (Traffic Control Plan)**.

The following **Mitigation Measure TRAF-1 (Traffic Control Plan)** would reduce potential construction-related impacts on transportation and traffic in the vicinity of the Proposed Project to less than significant. The project specifications will require the contractor to comply with **Mitigation Measure TRAF-1 (Traffic Control Plan)** will be included in the project specifications.

Mitigation Measure TRAF-1: Traffic Control Plan

1. Notification:
    a) 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. Provide notice to property owner.

    b) 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.

    c) Notify the property occupants, in writing, at least three days in advance of the trenching across property occupants' driveways. Provide notice to property owner.

    d) At least seven days prior to commencement of work, and in compliance with any additional notice requirements set forth in any applicable permits, coordinate vehicular access with affected entities, including, but not limited to, the following:

        i. El Verano Elementary School

        ii. Sassarini Elementary School

        iii. Sonoma Valley Unified School District

        iv. El Verano Preschool

v. St. Francis Solano School
vi. Sandy Standley, FCCH Family Day Care
vii. Sonoma Valley Fire Department
viii. Sonoma County Fire and Emergency Services Department
ix. Sonoma Police Department
x. Sonoma County Regional Parks Department
xi. Sonoma County Sherriff
xii. Recology (local recycling, compost, and trash collection hauler)
xiii. United States Postal Service (local office)
xiv. City of Sonoma
xv. Sonoma County Transit
xvi. U.S. Postal Service
xvii. Caltrans

e) If any applicable permits require contractor to notify residents or any organization of traffic detours or delays, provide such notice(s) to property owner.

2. Traffic Control Measures:

a) Traffic control and safety precautions shall conform to the "California Manual on Uniform Traffic Control Devices" (latest edition), and applicable provisions of the County of Sonoma, City of Sonoma, and California Department of Transportation encroachment permits.

b) Pay for traffic signage, including flagging and modification of traffic signal operation.

c) Provide safe passage for vehicular and pedestrian traffic through the work at all times.

d) 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 District. Permit the traffic equal flow time in each direction.

e) Maintain access to public and private buildings, businesses and driveways. Provide approved metal "bridge" or temporary backfill for access when and where required within thirty minutes after request by property owner except that emergency vehicles and personnel shall be provided immediate access at all times.

f) Restore access to residences for non-working hours, holidays, and weekends.

3. Maintain Traffic Control Measures:

   a) Maintain traffic control through the site and provide local access as specified herein regardless of rain or other causes, either within or beyond the control of contractor, which may force suspension or delay of the work. At all times keep on the site such materials, labor forces, and equipment as may be necessary to keep the streets and driveways within the site open to traffic and in good repair. Expedite the passage of such traffic, using such labor forces and equipment as may be necessary.

Long-term project operation and maintenance would be similar to the existing traffic and circulation conditions within the Proposed Project area, consisting of routine maintenance trips, inspection, and vegetation management activities. The impact would be less than significant.

b) Less than Significant Impact. None of the roadway facilities considered in this analysis fall within the purview of an adopted congestion management plan or program. Therefore, the City of Sonoma's and Sonoma County's current intersection operating standard, which is Level of Service (LOS) D or better during peak travel periods, applies to this analysis.

Based on analysis provided above for Criteria XVI a), the Proposed Project would not result in a substantial increase in traffic during construction activities and would not cause an exceedance of the City of Sonoma's and Sonoma County's established LOS standard for intersection operations. Local residents and business owners could potentially notice an increase in neighborhood traffic during the approximate six-month construction period for each of the three reaches; however, any increase in traffic would be temporary and short in duration. The impact would be less than significant.

As described above in Criteria XVI a), there would be very little traffic associated with the operation of the Proposed Project. Proposed Project maintenance activities would be similar to the existing traffic and circulation conditions within the Proposed Project area, consisting of routine maintenance trips, inspection, and vegetation management activities, with little if any increase in traffic on area roads. As such, it is reasonable to conclude that the Proposed Project would not result in an exceedance of the City of Sonoma's and Sonoma County's established LOS standard for intersection operations. The impact would be less than significant.

c) No Impact. The Proposed Project site lies approximately four miles northwest of the Sonoma Skypark and approximately six miles north of the Sonoma Valley Airport; both airports are privately owned and open to public use. The Proposed Project would not place any object within the flight path for airplanes in the area. The Proposed Project

would not result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks. There would be no impact.

d) No Impact. The Proposed Project is related to underground pipelines primarily within easements located on public roads or private access roads; neither project construction nor project operations would alter the physical configuration of the existing roadway network serving the area, and would not introduce unsafe design features. The Proposed Project also would not introduce uses that are incompatible with existing uses already served by the road system that serves the Proposed Project area. There would be no impact.

e) Less than Significant with Mitigation. As described above, neither project construction nor project operations and maintenance activities would permanently alter the physical configuration of the existing roadway network serving the area; however, detours to facilitate construction for the northbound lane of Highway 12, and redirection of local traffic in the affected neighborhoods (at Ramon Street and Happy Lane), may be required during trenchless and/or open trench construction. Temporary access restrictions or detours to local streets or adjacent uses (including access for emergency vehicles) could occur and impacts could be significant. With implementation of **Mitigation Measure TRAF-1 (Traffic Control Plan)**, such impacts would be reduced to less than significant.

f) Less than Significant Impact. Implementation of the Proposed Project would neither directly nor indirectly eliminate existing or planned alternative transportation corridors or facilities (e.g., bike paths, lanes, bus turnouts, etc.), or include changes in policies or programs that support alternative transportation. The Proposed Project would construct facilities in locations in which future alternative transportation facilities are planned – a Class III bikeway is planned on Happy Lane as part of the Central Sonoma Valley Bikeway[j,k] however, implementation of the Proposed Project would not preclude construction of this facility. The Proposed Project would not conflict with adopted policies, plans and programs supporting alternative transportation. The performance or safety of alternative transportation facilities could be temporarily affected by additional truck traffic along Grant Avenue; however, this affect would be of limited duration. The impact would be less than significant.

[j] A Class III bikeway provides for shared use with pedestrian or motor vehicle traffic with the route indicated just with signage.

[k] The Central Sonoma Valley Bikeway a conceptual 2.76-mile bike/pedestrian pathway consisting of bike paths, bike lanes, and bike routes paralleling Highway 12. The pathway will provide pedestrians and bicyclists an alternative route to the highway through on-street and off-street improvements.

XVII. 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	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

The relevant regulatory information and guidelines and their applicability to the Proposed Project are provided below.

State Laws, Regulations, and Policies

CEQA and CEQA Guidelines

Assembly Bill (AB) 52, which was approved in September 2014 and went into effect on July 1, 2015, requires that state lead agencies consult with a California Native American tribe that is traditionally and culturally affiliated with the geographic area of a Proposed Project, if so requested by the tribe. The bill, chaptered in Chapter 2.6 of Division 13 of the Public Resources Code, also specifies that a project with an effect that may cause a substantial adverse change in the significance of a tribal cultural resource (TCR) is a project that may have a significant effect on the environment.

Defined in Section 21074(a) of the Public Resources Code, TCRs are:

(1) Sites, features, places, cultural landscapes, sacred places and objects with cultural value to a California Native American tribe that are either of the following:

(2) Included or determined to be eligible for inclusion in the California Register of Historical Resources; or

   a. Included in a local register of historical resources as defined in subdivision (k) of Section 5020.1.

   b. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Section 5024.1. In applying the criteria set forth in subdivision (c) of Section 5024.1 for the purposes of this paragraph, the lead agency shall consider the significance of the resource to a California Native American tribe.

TCRs are further defined under Section 21074 as follows:

(3) A cultural landscape that meets the criteria of subdivision (a) is a TCR to the extent that the landscape is geographically defined in terms of the size and scope of the landscape; and

(4) A historical resource described in Section 21084.1, a unique archaeological resource as defined in subdivision (g) of Section 21083.2, or a “nonunique archaeological resource” as defined in subdivision (h) of Section 21083.2 may also be a tribal cultural resource if it conforms with the criteria of subdivision (a).

Defined in Section 21080.3.1. of the Public Resources Code:

(a) The Legislature finds and declares that California Native American tribes traditionally and culturally affiliated with a geographic area may have expertise concerning their tribal cultural resources.

(b) Prior to the release of a negative declaration, mitigated negative declaration, or environmental impact report for a project, the lead agency shall begin consultation with a California Native American tribe that is traditionally and culturally affiliated with the geographic area of the proposed project if: (1) the California Native American tribe requested to the lead agency, in writing, to be informed by the lead agency through formal notification of proposed projects in the geographic area that is traditionally and culturally affiliated with the tribe, and (2) the California Native American tribe responds, in writing, within 30 days of receipt of the formal notification, and requests the consultation. When responding to the lead agency, the California Native American tribe shall designate a lead contact person. If the California Native American tribe does not designate a lead contact person, or designates multiple lead contact people, the lead agency shall defer to the individual listed on the contact list maintained by the Native American Heritage Commission for the purposes of Chapter 905 of the Statutes of 2004. For purposes of this section and Section 21080.3.2, “consultation” shall have the same meaning as provided in Section 65352.4 of the Government Code.

(c) To expedite the requirements of this section, the Native American Heritage Commission shall assist the lead agency in identifying the California Native American tribes that are traditionally and culturally affiliated with the project area.

(d) Within 14 days of determining that an application for a project is complete or a decision by a public agency to undertake a project, the lead agency shall provide formal notification to the designated contact of, or a tribal representative of, traditionally and culturally affiliated California Native American tribes that have requested notice, which shall be accomplished by means of at least one written notification that includes a brief description of the proposed project and its location, the lead agency contact information, and a notification that the California Native American tribe has 30 days to request consultation pursuant to this section.

(e) The lead agency shall begin the consultation process within 30 days of receiving a California Native American tribe's request for consultation.

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

In accordance with Section 21080.3.2 of the PRC, if the California Native American tribe requests consultation regarding alternatives to the project, recommended mitigation measures, or significant effects, the consultation shall include those topics. The consultation may include discussion concerning the type of environmental review necessary, the significance of tribal cultural resources, the significance of the project's impacts on the tribal cultural resources, and, if necessary, project alternatives or the appropriate measures for preservation or mitigation that the California Native American tribe may recommended to the lead agency. The consultation shall be considered concluded when either of the following occurs:

- The parties agree to measures to mitigate or avoid a significant effect, if a significant effect exists, on a tribal cultural resource.
- A party, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached.

This section does not limit the ability of a California Native American tribe or the public to submit information to the lead agency regarding the significance of the tribal cultural resources, the significance of the project's impact on tribal cultural resources, or any appropriate measures to mitigate the impact. This section does not limit the ability of the lead agency or project proponent to incorporate changes and additions to the project as a result of the consultation, even if not legally required. If the project proponent or its consultants participate in the consultation, those parties shall respect the principles set forth in this section.

In accordance with PRC Section 21080.3.1, any information, including, but not limited to, the location, description, and use of the tribal cultural resources, that is submitted by a California Native American tribe during the environmental review process shall not be included in the environmental document or otherwise disclosed by the lead agency or any other public agency to the public, consistent with subdivision (r) of Section 6254, and Section 6254.10 of, the Government Code, and subdivision (d) of Section 15120 of Title 14 of the California Code of Regulations, without the prior consent of the tribe that provided the information. If the lead agency publishes any information submitted by a California Native American tribe during the consultation or environmental review process, that information shall be published in a confidential appendix to the environmental document unless the tribe that provided the information consents, in writing, to the disclosure of some or all of the information to the public. This subdivision does not prohibit the confidential exchange of the submitted information between public agencies that have lawful jurisdiction over the preparation of the environmental document.

DISCUSSION OF POTENTIAL IMPACTS

a) and b) Less than Significant with Mitigation. As discussed in the Cultural Resources Section above, the archaeological site is eligible for inclusion in the National Register of Historic Places (National Register) under Criterion D, and therefore is eligible for listing in the California Register of Historical Resources under Criterion 4. The site is defined as a Tribal Cultural Resource under PRC Section 21074 (a) (A).

CEQA requires the lead agency (District) to consider the effects of a Proposed Project on tribal cultural recourses that may cause a substantial adverse change in the significance of a tribal cultural resource. AB 52 consultation was conducted to inquire the significance of the state-owned resource to the appropriate Native American tribe.

To reduce substantial adverse change in the significance of an identified tribal cultural resource, as defined in Public Resources Code Section 21074(a), the District and the affected California Native American tribe (tribe) agreed and determined that the District, will implement **Mitigation Measure TCR-1 (Tribal Cultural Resources Interpretive Program) and Mitigation Measure TCR-2 (Tribal Monitoring During Grading, Groundbreaking, Excavation, and Ground-Disturbing Activities in Tribal Cultural Resource Areas)**, presented below. Mitigation Measure TCR-1 would provide for an interpretive program to honor the location and use of the area by the tribe prior to historical development. Mitigation Measure TCR-2 would provide tribal monitoring during grading, groundbreaking, excavation, and ground-disturbing activities in areas identified as tribal cultural resource by the California Native American tribe within Reaches 4A and 4B during consultation. In addition, in consultation with tribe, the District, shall retain a Secretary of the Interior-qualified archaeologist to prepare and implement an Archaeological Resource Management and

Data Recovery Plan. The Archaeological Resource Management and Data Recovery Plan is outlined in **Mitigation Measure CUL-1 (Archaeological Resource Management and Data Recovery Plan)**, which would reduce impacts to less than significant. In addition, if inadvertent discovery of archaeological resources occurs the District will notify the affected California Native American tribe's representative and will implement **Mitigation Measure CUL-2 (Inadvertent Discovery of Archaeological Resources)**, which would reduce impacts to less than significant.

Mitigation Measure TCR-1: Tribal Cultural Resources Interpretive Program

1. The District shall implement an interpretive program of the tribal cultural resource in consultation with the affected California Native American tribe. The plan shall identify, as appropriate, proposed locations for installations or displays, the proposed content and materials of those displays or installation, the producers or artists of the displays or installation, and a long term maintenance program. The interpretive program may include artist installations, preferably by local Native American artists, oral histories with local Native Americans, artifacts displays and interpretation, and educational panels or other informational displays. The affected California Native American tribe will oversee and approve the cultural interpretation program content, and as deemed appropriate by the affected California Native American tribe, the types of materials, photos, and illustrations used in the final display.

Mitigation Measure TCR-2: Tribal Monitoring During Grading, Groundbreaking, Excavation, and Ground-Disturbing Activities in Tribal Cultural Resource Areas

1. The District shall retain a monitor representative from the California Native American tribe during all grading, groundbreaking, excavation, and ground-disturbing activities performed in conjunction with the Project development of areas identified as tribal cultural resources within Reaches 4A and 4B during consultation.

2. For purposes of determining Tribal monitoring crew sizes, a written schedule of grading, groundbreaking, excavation, and ground-disturbing activities will be submitted by District to the California Native American tribe one week in advance of the commencement of these activities. For purposes of this mitigation, "notice" must be given during normal business hours (i.e., Monday - Friday from 8:00 a.m. to 5:00 p.m.) to be proper notice. Following any rescheduling or interruption of scheduled activities, the District will give the California Native American tribe forty-eight (48) hours' notice before activities resume.

XVIII. UTILITIES AND SERVICE SYSTEMS

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☐	☒
b) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☐	☐	☐	☒
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☒	☐
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	☐	☐	☐	☒
e) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☐	☒
f) Comply with federal, state, and local statutes and regulations related to solid waste?	☐	☐	☒	☐
g) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	☐	☐	☒	☐

DISCUSSION OF POTENTIAL IMPACTS

a) No Impact. The Proposed Project would involve construction activities relating to the repair and replacement of existing sewer infrastructure (e.g., sewer pipelines, manholes) to facilitate adequate wastewater conveyance, as mandated by the Regional Water Quality Control Board. The Proposed Project construction activities would include relocating and installing 250-linear feet of water service pipe and 60-linear feet of gas service pipe. The Proposed Project would not require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities which could cause significant environmental effects. Therefore, no impact would occur.

b) No Impact. The Proposed Project would not generate wastewater; it would upgrade existing sewer infrastructure per a mandated corrective measure in response to a Cease and Desist Order issued by the San Francisco Bay Regional Water Quality Control Board (Regional Board). This action would not materially affect compliance with wastewater treatment requirements issued by the Regional Board. For a discussion of storm water and storm water quality associated with Proposed Project construction, please refer to Section 9, Hydrology and Water Quality. Therefore, no impact relating the exceedance of wastewater treatment requirements of the Regional Board would occur.

c) Less than Significant Impact. The Proposed Project construction activities relating to the repair and replacement of existing sewer infrastructure would require extending an existing storm water drain within Maxwell Farms Regional Park. Therefore, this impact would be less than significant.

d) No Impact. The Proposed Project would not increase demand for water use as a result of implementation and thus would not require expanded water entitlements. Any water use during construction would be minimal. The Proposed Project would have no impact to existing water entitlements and resources.

e) No Impact. The Proposed Project would not generate wastewater and as such would not affect the capacity of the wastewater treatment provider beyond existing demand. The Proposed Project directly addresses the integrity of the existing wastewater conveyance infrastructure. No impact would occur.

f) Less than Significant Impact. The Proposed Project would be required to comply with applicable federal, state, and local statues and regulations related to solid waste. Proposed Project construction activities would generate minimal solid waste related to excess construction materials, and material removed during site clearing and construction. The quantity of solid waste, including asbestos material removed, is not anticipated to affect the capacity of a landfill and disposal of all waste would comply with applicable regulations. As a result, landfill and solid waste impacts would be less than significant.

g) Less than Significant Impact. Proposed Project construction activities would generate minimal solid waste related to excess construction materials, and material removed during site clearing and construction. The quantity of solid waste is not anticipated to affect the capacity of a landfill and disposal of all waste would comply with applicable regulations. As a result, landfill and solid waste impacts would be less than significant.

A majority of the solid waste would be diverted per California Assembly Bill 939 which requires all cities and counties in California to divert 50 percent of their waste stream. Solid waste generation would be limited to construction activities and would likely

produce spoils and pavement from trenching and the old pipeline segments and manholes that would be removed. Once the new sewer pipelines are installed, a majority of the spoils would be used as backfill and would not require disposal.

The Sonoma Transfer Station serves as a transfer station for solid waste, construction and demolition debris, and organics. Materials are consolidated at the Sonoma Transfer Station and loaded into large transfer trailers for shipment offsite to the Central Landfill in Petaluma. The Central Landfill has a remaining permitted capacity of approximately 9 million cubic yard and an estimated close date of 2034.[130]

The Proposed Project would not be expected to generate operational wastes. However, small amount of waste materials (e.g., pavement) could be generated as a result of periodic repair and maintenance activities. Any such wastes would be removed from the Proposed Project area and placed in an approved landfill. Due to the small quantities of any such wastes, no appreciable effect on area landfill capacity would be expected. This impact would be less than significant.

XVIIII. MANDATORY FINDINGS OF SIGNIFICANCE

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

DISCUSSION OF POTENTIAL IMPACTS

a) Less than Significant with Mitigation. As discussed throughout this Initial Study checklist, potential impacts were identified for biological resources, cultural resources, noise, traffic and transportation, and tribal cultural resources. Proposed Project activities are not anticipated to result in significant impacts as construction activities would incorporate the use of best management practices into the project plans and specifications (Table 2-1). In addition, with implementation of mitigation measures identified in this IS/MND (see Mitigation Measures BIO-1 and BIO-2, CUL-1 through CUL-4, NOISE-1 and NOISE-2, TRAF-1, and TCR-1) and Appendix D, Mitigation Monitoring and Reporting Plan/Program, the Proposed Project does not have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate

important examples of the major periods of California history or prehistory. With implementation of the aforementioned mitigation measures, this impact would be less than significant.

b) Less than Significant Impact. Cumulative environmental effects are multiple individual effects that, when considered together are considerable or compound or increase other environmental impacts. The individual effects may result from a single project or a number of separate projects and may occur at the same place and point in time or at different locations and over extended periods of time.

   In order to identify potential related projects that could combine with the Proposed Project to result in cumulative impacts, District staff consulted with and researched the websites of PRMD, the County of Sonoma Transportation and Public Works Department (TPW), Caltrans, and the City of Sonoma. The Sonoma County General Plan was also consulted for specific regional trends and projections. Cumulative projects include recently completed projects, current projects anticipated to occur within a reasonable proximity to and in a similar timeframe as the Proposed Project, as well as those projects identified with a potential to occur in the foreseeable future that may overlap in terms of location, and timeframe for implementation. Such projects would be cumulatively considerable for the affected resources. Cumulative project may include projects such as:

   - The Maxwell Farms Regional Park Master Plan Update
   - The Sonoma Valley Trail and Bikeway
   - Sonoma Citywide Slurry Seal and Pavement Preservations
   - North Bay Water Reuse Authority Recycled Water Pipeline

   Additional cumulative projects have been identified and are included in Table 4-1.

   Although these projects may contribute multiple individual effects on the environment that would be cumulatively considerable when combined with the impacts of the Proposed Project, implementation of the mitigation measures proposed in this environmental document would reduce the impacts of the Proposed Project to less that significant. Further, implementation of mitigation measures and BMPs, proposed by the proponent of the Proposed Project, would reduce the Proposed Project's contribution of such impacts to levels below a level which would be cumulatively considerable.

c) No Impact. The Proposed Project does not have environmental effects that would cause substantial adverse effects on human beings.

Table 4-1
Projects Considered in the Cumulative Impact Analysis

Project No.	Project Name (Jurisdiction) Location	Project Description	Estimated Implementation Schedule
Current and Ongoing Projects			
1	Larson Park Master Plan (Sonoma County Regional Parks, Sonoma County) Location: 329 Dechene Avenue, Boyes Hot Springs, CA	The updated Larson Park Master Plan will outline any renovations to the existing park facilities, and describe any new features to be included based on the future needs of the neighborhood residents and broader community of Sonoma Valley. Improvements to the facilities and infrastructure will be balanced with natural resource values, conservation objectives, and the existing conditions of the site.[131]	2019-2020
2	Road Pavement Preservation, Sonoma Area (Sonoma County Transportation and Public Works Department, Sonoma County) Location: Arnold Drive from Boyes Boulevard to Madrone-Agua Caliente Road; Grove Street from White Adler to Arnold Drive; Verano Boulevard from Bridge to Main Street; Fifth Street East to Napa Road; Eight Street East to Napa Road	Pavement treatments at various locations.[132] City-wide slurry seal project.[133]	2018-2019
3	Maxwell Farms Regional Park Master Plan Update Renovations Location: Maxwell Farms Regional Park	The project consists of renovations to the existing park including: a new driveway and fee station, expanded parking area, vehicular and pedestrian circulation improvements, updated baseball and soccer complexes, new lighting, improved pathways and trails, new play and picnic areas, new concession areas, and restoration and landscaping. Construction would be completed in three phases over a 3-year period.[134]	Spring 2019 through Fall 2022
4	2017 Street Rehabilitation & Water Services Replacement (City of Sonoma Department of Public Works, City of Sonoma) Location: Avenue Del Oro (from Fifth Street East to Cordilleras Drive and #693 Avenue Del Oro to Appleton Way), Aureo Court, and El Nido Court.	Street rehabilitation and removal/replacement of 1-inch water service and water main blow-off valve infrastructure. Specifically, improvements consist of demolition activities (e.g. asphalt saw cutting, concrete saw cutting, demolition of existing water service materials, etc.); trenching and shoring; construction dewatering; installation of water service materials; trench surface restoration; edge-grinding existing asphalt pavement; repairing localized pavement failures; frontage improvements; crack sealing; hot mix asphalt base course, overlay, and dike; traffic striping; curb painting and pavement markings; replacing water valve frame and cover; adjusting utility structures to grade; removal and replacement of existing concrete sidewalk, curb and gutter,	Through 2018

Table 4-1 (continued)
Projects Considered in the Cumulative Impact Analysis

Project No.	Project Name (Jurisdiction) Location	Project Description	Estimated Implementation Schedule
Current and Ongoing Projects (cont.)			
4 (cont.		driveway and pedestrian curb ramps; upgrading existing pedestrian curb ramps for ADA compliance; temporary traffic control; and related work.[135]	
5	Pavement Preservation Program (City of Sonoma Department of Public Works, City of Sonoma) Location: Fifth Street west, Arnold Drive, Adobe Road, and Bucks Road	Pavement improvements.[136]	Through 2018
6	Fryer Creek Pedestrian Bicycle Bridge Project	This project consists of the construction of a new bicycle and pedestrian bridge and path over Fryer Creek as well as circulation and accessibility improvements to Newcomb Street and Fryer Creek Drive.[137]	Scoping 2018
Recent Projects			
7	Central Sonoma Valley Trail (Sonoma County Regional Parks, Sonoma County) Location: Parallel to SR 12 between Verano Avenue and Agua Caliente Road; Verano Avenue between Sonoma Creek and Main Street.	This multi-phased project is described in the Central Sonoma Valley Bikeway Plan as a conceptual 2.76-mile bike/pedestrian pathway consisting of bike paths, bike lanes, and bike routes paralleling Highway 12. The pathway will provide pedestrians and bicyclists an alternative route to the highway through on-street and off-street improvements.[138]	Completed (2018)
8	North Bay Water Reuse Program – SVCSD Fifth Street East Recycled Water Pipeline Project (Sonoma County Water Agency, Sonoma County) Location: From the intersection of Watmaugh Road and Shainsky, extending east to Fifth Street, and into Valley Oaks Park	Approximately 8,000 linear feet of recycled water mainline pipe, valves, appurtenances and service laterals.[139]	Completed (2016)
9	North Bay Water Reuse Program – Sonoma Valley County Sanitation District Treatment Plant – Pumping and Piping Upgrade. (Sonoma County Water Agency, Sonoma County) Location: 22675 8th Street East, Sonoma	Upgrades at the Sonoma Valley County Sanitation District Wastewater Treatment Plant outside the limits of the City of Sonoma. The Work includes construction of approximately 3,000 linear feet of pipeline ranging from 12 to 18 inches in diameter, the addition of two vertical turbine pumps and one 1,980 gallon hydropneumatic bladder tank. Site work also includes piping, vaults, electrical and instrumentation.[140]	Completed (2018)

Table 4-1 (continued)
Projects Considered in the Cumulative Impact Analysis

Project No.	Project Name (Jurisdiction) Location	Project Description	Estimated Implementation Schedule
Recent Projects (cont.)			
10	West Napa Street Water System Replacement (City of Sonoma Department of Public Works, City of Sonoma) Location: West Napa Street between Broadway and Sonoma Highway (SR 12)	Replacement of designated water services; the addition of fire hydrants; and the replacement of the old 8-inch water main from the Plaza, extending west to Sonoma Highway (near Staples).[141]	Completed (2017)
11	Sonoma Valley County Sanitation District Agua Caliente Creek Crossing (Sonoma County Water Agency, Sonoma County) Location: Aqua Caliente Creek Crossing. Several locations are affected. APN: 056-611-078/056-611-079 APN: 056-611-063/056-611-064/056-611-065 APN: 056-531-006/056-611-009 APN: 127-071-009 (Fairview Ln., Buena Vida Ct., and Old Maple Ave.)	Replacement of 620 linear feet of sewer trunk main, including removal and realignment of trunk main and removal of the above channel crossing of Agua Caliente Creek. Work also included construction of 639 linear feet of HDPE pipe, 239 linear feet of siphon pipe and 133 linear feet of pipe rammed steel casing under Agua Caliente Creek.[142]	Completed (2015-2016)
12	North Bay Water Re-Use Program – Sonoma Valley County Sanitation District – McGill Road Recycled Water Pipeline (Sonoma County Water Agency, Sonoma County) Location: Along McGill Road crossing Highway 12, outside the City of Sonoma.	Construction of a recycled water pipeline.[143]	Completed (2014-2015)
Foreseeable Future Projects			
13	Ernie Smith Community Park Renovation, Bridge Replacement (Sonoma County Regional Park, Sonoma County) Location and areas affected: 18776 Gillman Drive, Sonoma, CA; SR 12 and Sonoma Valley	Replace pedestrian bridge, playground, and picnic areas. Replace athletic field irrigation system and renovate turf. Perform silt removal as part wetland restoration and flood control along creek.[144]	2019-2020

Table 4-1 (continued)
Projects Considered in the Cumulative Impact Analysis

Project No.	Project Name (Jurisdiction) Location	Project Description	Estimated Implementation Schedule
Foreseeable Future Projects (cont.)			
14	Sonoma Valley Regional Park Expansion Master Plan (Sonoma County Regional Parks, Sonoma County) Location: SVRP: 13630 Sonoma Highway, Glen Ellen, CA. Curreri Addition: (APN: 054-270-035); Sonoma Development Center (APN: 054-150-012)	Two properties were added to Sonoma Valley Regional Park: the 29-acre Curreri Addition, and a 41-acre property from the Sonoma Developmental Center.[145]	2018-unknown
15	Sonoma Valley Trail (Sonoma County Regional Parks, Sonoma County) Location: Highway 12 in Santa Rosa to Agua Caliente Road in the Springs Area.	The Sonoma Valley Trail is a proposed 13-mile paved trail along the scenic Highway 12 corridor between Santa Rosa and Sonoma. The scenic corridor offers fantastic views of Sonoma Valley but lacks a safe and separated pathway for pedestrians and bicyclists traveling north and south. A feasibility study was completed to help facilitate the trail development. This trail project would develop a separated pathway connecting Sonoma with Santa Rosa.[146]	Proposed
16	Olivia Apartments: (City of Sonoma Planning Department, Sonoma County) Location: 655 West Spain Street, Sonoma, CA	30-unit complex (4 buildings on 1.5 acres).[147]	2018-2019
17	Sonoma Hotel (City of Sonoma Planning Department, Sonoma County) Location: 153 West Napa Street and 541 First Street West.	62 room hotel and parking garage.[148]	2018-2019
18	Altamira Apartment Project Location: 20269 Broadway Sonoma	Affordable housing project 48 units.[149]	In Design Review 2018
19	Taub Apartments (City of Sonoma Planning Department, Sonoma County) Location: 19410 Sonoma Highway (SR 12)	Residential development featuring 12 apartment units and two live-work units.[150]	MND revised July 2018

Table 4-1 (continued)
Projects Considered in the Cumulative Impact Analysis

Project No.	Project Name (Jurisdiction) Location	Project Description	Estimated Implementation Schedule
Foreseeable Future Projects (cont.)			
20	Sonoma Creek Crossing (Verano Ave.)	The 16-inch Sonoma aqueduct crosses Sonoma Creek near Verano Avenue off Sonoma Highway. The pipeline is suspended from the bridge deck. This location has a moderate to high susceptibility for liquefaction and a high susceptibility for lateral spread. A new 16-inch pipeline, with length preliminarily estimated at up to 1000 feet of trenchless installation, is intended as a natural hazard reliability project designed to withstand a major seismic event. A smaller scale project to mitigate the hazard by adding flexibility to the pipeline joints may be determined to be feasible upon further investigation.[151]	2020-2023

SOURCES: City of Sonoma, County of Sonoma, Caltrans, Sonoma County Water Agency, 2018.

5.0 DETERMINATION

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

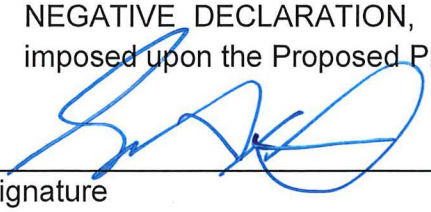
☐ I find that the Proposed Project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

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

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

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

☐ I find that although the Proposed Project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the Proposed Project, nothing further is required.



Signature

12.3.18

Date:

Name: Grant Davis

Sonoma Valley County Sanitation District

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APPENDIX A
NOTICE OF AVAILABILITY/INTENT TO ADOPT

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Notice of Availability/Intent to Adopt
Initial Study and Mitigated Negative Declaration for the Sonoma Valley County Sanitation District Sewer Trunk Replacement Project, Reaches 4A, 4B, and 4C
Public Review Period: December 7, 2018 to January 7, 2019

The Sonoma Valley County Sanitation District[1] (District), is the lead agency in accordance with the California Environmental Quality Act (CEQA) for the proposed **Sonoma Valley County Sanitation District Sewer Trunk Main Replacement Project, Reaches 4A, 4B, and 4C** (Proposed Project). Sonoma County Water Agency (Sonoma Water) staff, on behalf of the District, has prepared a Draft Initial Study and Mitigated Negative Declaration of Environmental Impact (IS/MND) for the project pursuant to the requirements of the CEQA (California Public Resources Code Sections 21000 et seq.), the State CEQA Guidelines (Code of Regulations, Title 14, Division 6, Chapter 3), and Sonoma Water's Procedures for the Implementation of CEQA.

An Initial Study is a preliminary analysis of a project's potential environmental impacts used to determine whether a Negative Declaration or an Environmental Impact Report will be prepared. The Initial Study document is intended to provide the public, responsible agencies and trustee agencies under CEQA, a clear understanding of the potential environmental impacts associated with the construction, maintenance and operation of the Proposed Project. If an Initial Study identifies potentially significant impacts but the project is modified or revised to clearly mitigate the impacts, a Mitigated Negative Declaration may be prepared. If an Initial Study concludes that a project may have a significant effect on the environment, an Environmental Impact Report should be prepared.

INITIAL STUDY REVIEW

Public disclosure and dialogue are priorities under CEQA. Pursuant to Sections 15073.5 and 15105[b] of the CEQA Guidelines, the District is now circulating the Draft IS/MND for a 31-day public and agency review. All comments received prior to 5:00 p.m. on January 7, 2019 will be considered. Please include a name, address, and telephone number of a contact person for all future correspondence on this subject.

[1] The District's Board of Directors is comprised of the Mayor of the City of Sonoma, and the Chair and First District Supervisor of the County of Sonoma's Board of Supervisors.

Questions or comments on this document can be sent to:

Yvette O'Keefe, Senior Environmental Specialist
Sonoma County Water Agency
404 Aviation Boulevard
Santa Rosa, CA 95403-9019
Email: yokeefe@scwa.ca.gov

The public review period closes at 5:00 p.m. January 7, 2019.

An electronic copy of the Draft IS/MND is available at www.sonomacountywater.org/environmental-documents. Hard copies of the Draft IS/MND are available for purchase by request at 707-547-1900 or at the Water Agency's administrative office (404 Aviation Boulevard, Santa Rosa). Hard copies are also available for public viewing at the following locations:

- **Sonoma County Water Agency:** 404 Aviation Boulevard, Santa Rosa
- **Sonoma Valley Library:** 755 West Napa Street, Sonoma

ADOPTION OF THE INITIAL STUDY AND NEGATIVE DECLARATION

The project is scheduled for consideration and adoption by the District's Board of Directors at their regularly scheduled Board meeting beginning at 8:30 am on **January 29, 2019**. Comments submitted during the Initial Study review period will be included in the report to the Board of Directors. Opportunity to comment on the project will also be available at the Board meeting.

BACKGROUND

The District provides sewer collection and wastewater services to areas including the City of Sonoma and unincorporated areas of Sonoma County (Agua Caliente, Boyes Hot Springs, Eldridge, Fetters Hot Springs, Glen Ellen, Schellville, Temelec, and Vineburg). The District's wastewater treatment plant treats wastewater for approximately 22,000 residences and businesses. The sewer trunk main of the wastewater collection system is approximately 10 miles in length, beginning in the Town of Glen Ellen and ending at the District's wastewater treatment plant on 8th Street East, south of the City of Sonoma.

The District's wastewater treatment plant and collection system operations are regulated by the San Francisco Bay Regional Water Quality Control Board (Regional Board) under Waste Discharge Requirements (WDR) adopted in Regional Board Order No. (Order) R2-2014-0020 and National Pollutant Discharge Elimination System Permit No. CA0037800.

As a result of threatened or continued discharge violations of the District's operating Order, the Regional Board adopted Cease and Desist Order (CDO) No. R2-2015-0032.

The Regional Board provided a schedule to allow for the development of a phased project to remedy the problem of discharge violations and to bring the District into compliance with the CDO. The CDO requires the District to complete a phased capital improvement project to upgrade the sewer trunk main and achieve full compliance with all applicable WDRs by October 31, 2022.

PROJECT DESCRIPTION

The Proposed Project would repair and improve a portion of the District's existing sewer trunk main to reliably handle dry and wet weather inflows. The Proposed Project would include the following components: (1) abandon and/or remove and replace sections (approximately 8,500 linear feet) of the existing 21-inch diameter reinforced concrete underground sewer trunk main with 27-inch polyvinyl chloride pipe, including sections of connecting sewer lines, manholes and other appurtenances; (2) restore roadway surface; (3) relocate, reconstruct, or remove miscellaneous structures; and (4) relocate, install, or abandon other utilities. The Proposed Project would occur in three phases over approximately a three-year period, beginning in 2019.

PROJECT LOCATION

The Proposed Project would be located within the District's service area boundary, which is approximately 20 miles north of San Francisco Bay and 17 miles southeast of the City of Santa Rosa (Project Location Map).

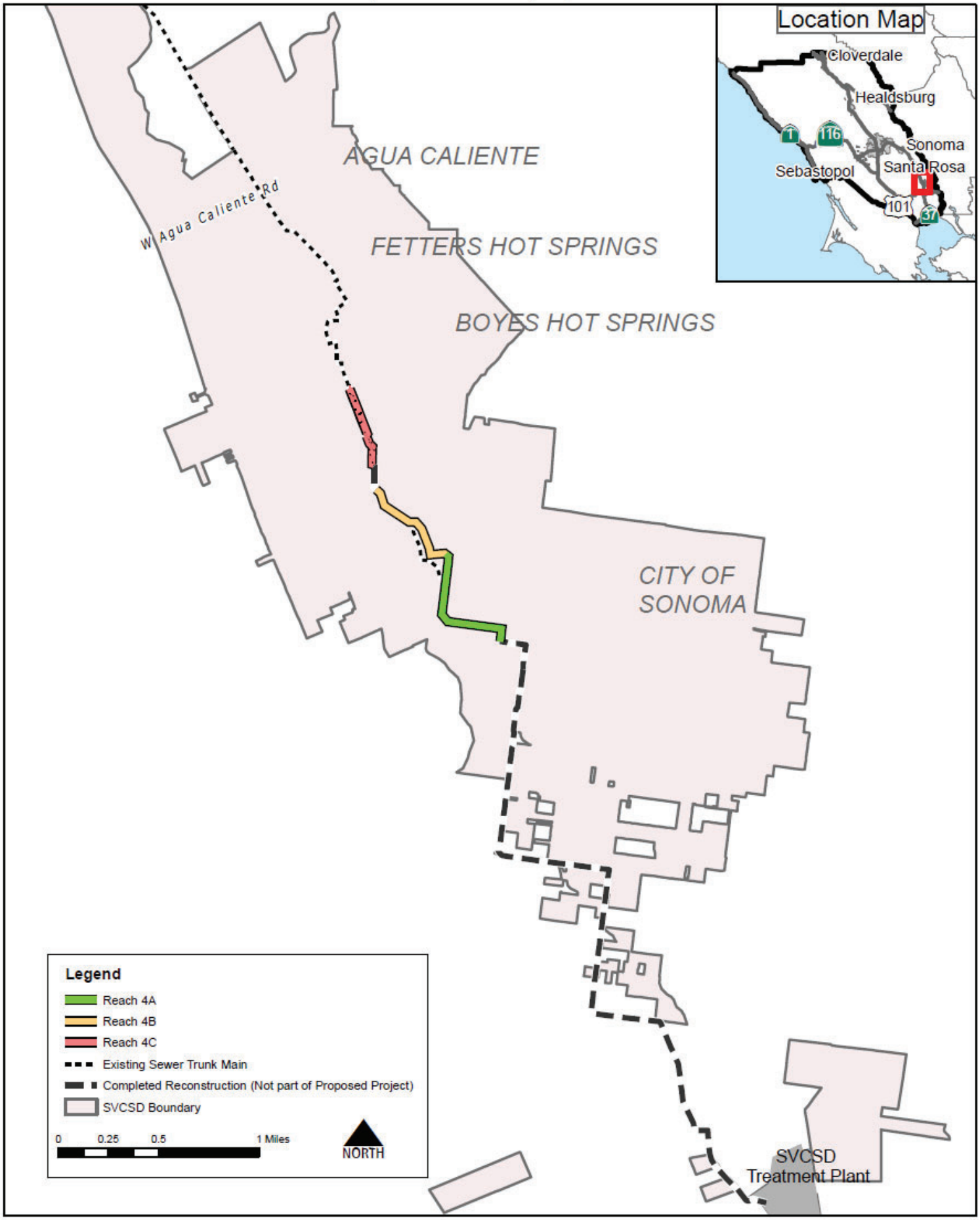
The Proposed Project would occur in three phases as follows:

- The first phase, Reach 4A, would begin at a new manhole at the intersection of 6th Street West and Studley Street, continue north to Highway 12 (West Napa Street), continue west and north along Highway 12, and then turn west and stub into Ramon Street.

- The second phase, Reach 4B, would begin at Ramon Street, continue west on Ramon Street into the Sonoma Oaks Mobile Home Park, continue north through Maxwell Farms Regional Park, then across Verano Avenue to connect at the south end of the recently completed Agua Caliente Creek Crossing project (south of Old Maple Avenue).

- The third phase, Reach 4C, would begin at the north end of the recently completed Agua Caliente Creek Crossing project (south of Old Maple Avenue), continue north through private easements to Happy Lane, continue north along Happy Lane, ending approximately 300 feet north of Anthony Court (to connect to the existing sewer trunk main at an existing manhole).

Project Location Map
Sonoma Valley County Sanitation District
Sewer Trunk Main Replacement Project, Reaches 4A, 4B and 4C



APPENDIX B
AIR QUALITY MODELING

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Annual Construction-related Pollutant Emissions

Year	ROG (tpy)	Nox (tpy)	PM10 (tpy)	PM2.5 (tpy)
2019	0.3	2.91	0.15	0.14
2020	0.28	2.65	0.13	0.12
2021	0.25	2.37	0.11	0.1

*Obtained from CalEEMod output file that follows this page.

Average Daily Construction-related Pollutant Emissions

Year	ROG (tpy)	Nox (tpy)	PM10 (tpy)	PM2.5 (tpy)
2019	4.5	44.1	2.3	2.1
2020	4.2	40.2	2.0	1.8
2021	3.8	35.9	1.7	1.5

Note: Each Reach would take an estimated 132 workdays to complete.

The maximum pounds per day in row 11 is summed over overlapping phases, but the maximum tons per phase in row 34 is not summed over overlapping phases.

Road Construction Emissions Model, Version 8.1.0

Daily Emission Estimates for -> SVCSD_SewerTrunkMain_Reach 4A_Portion of Reach 4B 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)
Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Drainage/Utilities/Sub-Grade	4.57	37.55	44.59	2.28	2.23	0.05	2.09	2.07	0.01	0.08	8,036.53	1.68	0.08	8,103.37
Paving	4.38	34.79	41.72	2.11	2.11	0.00	1.98	1.98	0.00	0.07	7,266.59	1.57	0.07	7,325.99
Maximum (pounds/day)	4.57	37.55	44.59	2.28	2.23	0.05	2.09	2.07	0.01	0.08	8,036.53	1.68	0.08	8,103.37
Total (tons/construction project)	0.30	2.45	2.91	0.15	0.15	0.00	0.14	0.14	0.00	0.01	522.79	0.11	0.01	527.13

Notes:

Project Start Year ->	2019
Project Length (months) ->	6
Total Project Area (acres) ->	1
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	200	40
Grading/Excavation	0	4	0	30	720	40
Drainage/Utilities/Sub-Grade	58	0	90	0	600	40
Paving	0	0	0	0	480	40

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 -> SVCSD_SewerTrunkMain_Reach 4A_Portion of Reach 4B Project Phases (Tons for all except CO2e. Metric tonnes 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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Drainage/Utilities/Sub-Grade	0.26	2.11	2.50	0.13	0.12	0.00	0.12	0.12	0.00	0.00	450.85	0.09	0.00	412.41
Paving	0.04	0.34	0.41	0.02	0.02	0.00	0.02	0.02	0.00	0.00	71.94	0.02	0.00	65.80
Maximum (tons/phase)	0.26	2.11	2.50	0.13	0.12	0.00	0.12	0.12	0.00	0.00	450.85	0.09	0.00	412.41
Total (tons/construction project)	0.30	2.45	2.91	0.15	0.15	0.00	0.14	0.14	0.00	0.01	522.79	0.11	0.01	478.21

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.

Road Construction Emissions Model Version 8.1.0

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	SVCSD_SewerTrunkMain_Reach 4A_Portion of Reach 4B	
Construction Start Year	2019	Enter a Year between 2014 and 2025 (inclusive)
Project Type	1	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	6.00	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 lone 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	0.69	miles
Total Project Area	0.60	acres
Maximum Area Disturbed/Day	0.01	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	0.00	0.00	0.00
	Grading/Excavation	20.00	0.00	0.00
	Drainage/Utilities/Sub-Grade	20.00	58.00	0.00
	Paving	20.00	0.00	0.00
Asphalt	Grubbing/Land Clearing	20.00	0.00	
	Grading/Excavation	20.00	0.00	3.97
	Drainage/Utilities/Sub-Grade	20.00	0.00	0.00
	Paving	20.00	0.00	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/ceqa/mitigation.shtml). 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 can be modified by the user, although those modifications are optional.

Note: The program's estimates of construction period phase length can be overridden in cells 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	0.00	0.60		1/1/2019
Grading/Excavation	0.00	2.40		1/1/2019
Drainage/Utilities/Sub-Grade	5.10	2.10		1/1/2019
Paving	0.90	0.90		6/6/2019
Totals (Months)	6			

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		30.00		0	0.00
Miles/round trip: Grading/Excavation		30.00		0	0.00
Miles/round trip: Drainage/Utilities/Sub-Grade		30.00		3	90.00
Miles/round trip: Paving		30.00		0	0.00

Emission Rates	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Grubbing/Land Clearing (grams/mile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation (grams/mile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Draining/Utilities/Sub-Grade (grams/mile)	0.13	0.52	4.97	0.13	0.07	0.02	1,647.29	0.01	0.06	1,664.03
Paving (grams/mile)	0.13	0.52	4.97	0.13	0.07	0.02	1,647.29	0.01	0.06	1,664.03
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	0.00	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	0.03	0.10	0.99	0.03	0.01	0.00	326.85	0.00	0.01	330.17
Tons per const. Period - Drainage/Utilities/Sub-Grade	0.00	0.01	0.06	0.00	0.00	0.00	18.34	0.00	0.00	18.52
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	0.00	0.01	0.06	0.00	0.00	0.00	18.34	0.00	0.00	18.52

Note: Asphalt Hauling emission default values can be overridden in cells D87 through D90, and F87 through F90.

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		30.00		0	0.00
Miles/round trip: Grading/Excavation		30.00		1	30.00
Miles/round trip: Drainage/Utilities/Sub-Grade		30.00		0	0.00
Miles/round trip: Paving		30.00		0	0.00

Emission Rates	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Grubbing/Land Clearing (grams/mile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation (grams/mile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Draining/Utilities/Sub-Grade (grams/mile)	0.13	0.52	4.97	0.13	0.07	0.02	1,647.29	0.01	0.06	1,664.03
Paving (grams/mile)	0.13	0.52	4.97	0.13	0.07	0.02	1,647.29	0.01	0.06	1,664.03
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	0.00	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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Note: Worker commute default values can be overridden in cells D113 through D118.

Worker Commute Emissions	User Override of Worker Commute Default Values	Default Values		
User Input				
Miles/ one-way trip		20	Calculated	Calculated
One-way trips/day		2	Daily Trips	Daily VMT
No. of employees: Grubbing/Land Clearing		5	10	200.00
No. of employees: Grading/Excavation		18	36	720.00
No. of employees: Drainage/Utilities/Sub-Grade		15	30	600.00
No. of employees: Paving		12	24	480.00

Emission Rates	**ROG**	**CO**	**NOx**	**PM10**	**PM2.5**	**SOx**	**CO2**	**CH4**	**N2O**	**CO2e**
Grubbing/Land Clearing (grams/mile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation (grams/mile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Draining/Utilities/Sub-Grade (grams/mile)	0.02	1.19	0.13	0.05	0.02	0.00	381.71	0.01	0.01	383.53
Paving (grams/mile)	0.02	1.19	0.13	0.05	0.02	0.00	381.71	0.01	0.01	383.53
Grubbing/Land Clearing (grams/trip)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation (grams/trip)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Draining/Utilities/Sub-Grade (grams/trip)	1.08	2.86	0.23	0.00	0.00	0.00	85.97	0.01	0.01	89.17
Paving (grams/trip)	1.08	2.86	0.23	0.00	0.00	0.00	85.97	0.01	0.01	89.17
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	0.10	1.76	0.18	0.06	0.03	0.01	510.60	0.01	0.01	513.22
Tons per const. Period - Drainage/Utilities/Sub-Grade	0.01	0.10	0.01	0.00	0.00	0.00	28.64	0.00	0.00	28.79
Pounds per day - Paving	0.08	1.41	0.15	0.05	0.02	0.00	408.48	0.01	0.01	410.58
Tons per const. Period - Paving	0.00	0.01	0.00	0.00	0.00	0.00	4.04	0.00	0.00	4.06
Total tons per construction project	0.01	0.11	0.01	0.00	0.00	0.00	32.69	0.00	0.00	32.86

Note: Water Truck default values can be overridden in cells D145 through D148, and F145 through F148.

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

Emission Rates	**ROG**	**CO**	**NOx**	**PM10**	**PM2.5**	**SOx**	**CO2**	**CH4**	**N2O**	**CO2e**
Grubbing/Land Clearing (grams/mile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation (grams/mile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Draining/Utilities/Sub-Grade (grams/mile)	0.13	0.52	4.97	0.13	0.07	0.02	1,647.29	0.01	0.06	1,664.03
Paving (grams/mile)	0.13	0.52	4.97	0.13	0.07	0.02	1,647.29	0.01	0.06	1,664.03
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	0.01	0.05	0.44	0.01	0.01	0.00	145.27	0.00	0.00	146.74
Tons per const. Period - Drainage/Utilities/Sub-Grade	0.00	0.00	0.02	0.00	0.00	0.00	8.15	0.00	0.00	8.23
Pounds per day - Paving	0.01	0.05	0.44	0.01	0.01	0.00	145.27	0.00	0.00	146.74
Tons per const. Period - Paving	0.00	0.00	0.00	0.00	0.00	0.00	1.44	0.00	0.00	1.45
Total tons per construction project	0.00	0.00	0.03	0.00	0.00	0.00	9.59	0.00	0.00	9.68

Note: Fugitive dust default values can be overridden in cells D171 through D173.

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		0.00	0.00	0.00	0.00	0.00
Fugitive Dust - Grading/Excavation		0.00	0.00	0.00	0.00	0.00
Fugitive Dust - Drainage/Utilities/Subgrade		0.01	0.05	0.00	0.01	0.00

Off-Road Equipment Emissions

Grubbing/Land Clearing 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
			Model Default Tier	Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			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
			Model Default Tier	Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Cranes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	1		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
0.00	1		Model Default Tier	Excavators	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			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
			Model Default Tier	Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			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
			Model Default Tier	Pumps	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rollers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			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
0.00	2		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
			Model Default Tier	Welders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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

		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Grubbing/Land Clearing	pounds per day	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grubbing/Land Clearing	tons per phase	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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
			Model Default Tier	Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			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
			Model Default Tier	Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0		Model Default Tier	Cranes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	1		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
0.00	3		Model Default Tier	Excavators	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			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
0.00	1		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
			Model Default Tier	Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			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
			Model Default Tier	Pumps	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	2		Model Default Tier	Rollers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			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
0.00	1		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
0.00	2		Model Default Tier	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	2		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
0.00	2		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
			Model Default Tier	Welders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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

		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Grading/Excavation	pounds per day	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation	tons per phase	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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		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
1.00	1		Model Default Tier	Air Compressors	0.36	2.46	2.45	0.17	0.17	0.00	375.26	0.03	0.00	376.90
1.00			Model Default Tier	Bore/Drill Rigs	0.26	1.93	3.44	0.10	0.09	0.01	864.32	0.27	0.01	873.47
1.00			Model Default Tier	Cement and Mortar Mixers	0.06	0.31	0.37	0.01	0.01	0.00	50.52	0.01	0.00	50.77
1.00			Model Default Tier	Concrete/Industrial Saws	0.46	3.70	3.59	0.23	0.23	0.01	592.67	0.04	0.00	595.04
1.00			Model Default Tier	Cranes	0.49	2.24	5.88	0.25	0.23	0.01	558.85	0.18	0.00	564.74
			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	0.27	3.37	2.77	0.13	0.12	0.01	527.30	0.17	0.00	532.86
			Model Default Tier	Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00	1		Model Default Tier	Generator Sets	0.44	3.72	3.78	0.23	0.23	0.01	623.04	0.04	0.00	625.42
0.00	1		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	0.71	3.98	7.15	0.26	0.24	0.01	1,301.23	0.41	0.01	1,314.94
			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
1.00			Model Default Tier	Pavers	0.28	2.81	3.03	0.15	0.14	0.00	451.18	0.14	0.00	455.93
1.00			Model Default Tier	Paving Equipment	0.21	2.50	2.24	0.11	0.10	0.00	400.26	0.13	0.00	404.49
1.00	1		Model Default Tier	Plate Compactors	0.04	0.21	0.25	0.01	0.01	0.00	34.48	0.00	0.00	34.65
			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	1		Model Default Tier	Pumps	0.47	3.78	3.83	0.24	0.24	0.01	623.04	0.04	0.00	625.47
			Model Default Tier	Rollers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	1		Model Default Tier	Rough Terrain Forklifts	0.14	2.30	1.85	0.08	0.08	0.00	340.97	0.11	0.00	344.56
			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
0.00	2		Model Default Tier	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	2		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
1.00	2		Model Default Tier	Tractors/Loaders/Backhoes	0.24	2.33	2.36	0.16	0.15	0.00	310.71	0.10	0.00	313.98
			Model Default Tier	Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Welders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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

		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Drainage/Utilities/Sub-Grade	pounds per day	4.43	35.64	42.98	2.13	2.03	0.07	7,053.81	1.67	0.06	7,113.23
Drainage/Utilities/Sub-Grade	tons per phase	0.25	2.00	2.41	0.12	0.11	0.00	395.72	0.09	0.00	399.05

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
1.00			Model Default Tier	Air Compressors	0.36	2.46	2.45	0.17	0.17	0.00	375.26	0.03	0.00	376.90
1.00			Model Default Tier	Bore/Drill Rigs	0.26	1.93	3.44	0.10	0.09	0.01	864.32	0.27	0.01	873.47
1.00			Model Default Tier	Cement and Mortar Mixers	0.06	0.31	0.37	0.01	0.01	0.00	50.52	0.01	0.00	50.77
1.00			Model Default Tier	Concrete/Industrial Saws	0.46	3.70	3.59	0.23	0.23	0.01	592.67	0.04	0.00	595.04
1.00			Model Default Tier	Cranes	0.49	2.24	5.88	0.25	0.23	0.01	558.85	0.18	0.00	564.74
			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	0.27	3.37	2.77	0.13	0.12	0.01	527.30	0.17	0.00	532.86
			Model Default Tier	Forklifts	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	Generator Sets	0.44	3.72	3.78	0.23	0.23	0.01	623.04	0.04	0.00	625.42
			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	0.71	3.98	7.15	0.26	0.24	0.01	1,301.23	0.41	0.01	1,314.94
			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
1.00	1		Model Default Tier	Pavers	0.28	2.81	3.03	0.15	0.14	0.00	451.18	0.14	0.00	455.93
1.00	1		Model Default Tier	Paving Equipment	0.21	2.50	2.24	0.11	0.10	0.00	400.26	0.13	0.00	404.49
1.00			Model Default Tier	Plate Compactors	0.04	0.21	0.25	0.01	0.01	0.00	34.48	0.00	0.00	34.65
			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	0.47	3.78	3.83	0.24	0.24	0.01	623.04	0.04	0.00	625.47
0.00	3		Model Default Tier	Rollers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			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
0.00	2		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
1.00	2		Model Default Tier	Tractors/Loaders/Backhoes	0.24	2.33	2.36	0.16	0.15	0.00	310.71	0.10	0.00	313.98
			Model Default Tier	Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Welders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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

			ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
	Paving	pounds per day	4.28	33.34	41.14	2.05	1.95	0.07	6,712.85	1.56	0.06	6,768.67
	Paving	tons per phase	0.04	0.33	0.41	0.02	0.02	0.00	66.46	0.02	0.00	67.01
Total Emissions all Phases (tons per construction period) =>			0.29	2.33	2.82	0.14	0.13	0.00	462.18	0.11	0.00	466.06

Equipment default values for horsepower and hours/day can be overridden in cells D391 through D424 and F391 through F424.

Equipment	User Override of Horsepower	Default Values Horsepower	User Override of Hours/day	Default Values Hours/day
Aerial Lifts		63		8
Air Compressors		78		8
Bore/Drill Rigs		206		8
Cement and Mortar Mixers		9		8
Concrete/Industrial Saws		81		8
Cranes		226		8
Crawler Tractors		208		8
Crushing/Proc. Equipment		85		8
Excavators		163		8
Forklifts		89		8
Generator Sets		84		8
Graders		175		8
Off-Highway Tractors		123		8
Off-Highway Trucks		400		8
Other Construction Equipment		172		8
Other General Industrial Equipment		88		8
Other Material Handling Equipment		167		8
Pavers		126		8
Paving Equipment		131		8
Plate Compactors		8		8
Pressure Washers		13		8
Pumps		84		8
Rollers		81		8
Rough Terrain Forklifts		100		8
Rubber Tired Dozers		255		8
Rubber Tired Loaders		200		8
Scrapers		362		8
Signal Boards		6		8
Skid Steer Loaders		65		8
Surfacing Equipment		254		8
Sweepers/Scrubbers		64	2.00	8
Tractors/Loaders/Backhoes		98		8
Trenchers		81		8
Welders		46		8

END OF DATA ENTRY SHEET

The maximum pounds per day in row 11 is summed over overlapping phases, but the maximum tons per phase in row 34 is not summed over overlapping phases.

Road Construction Emissions Model, Version 8.1.0

Daily Emission Estimates for -> SVCSD_SewerTrunkMain_Reach 4B

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)
Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Drainage/Utilities/Sub-Grade	4.21	36.93	40.56	2.03	1.98	0.05	1.84	1.83	0.01	0.08	7,916.88	1.67	0.08	7,983.00
Paving	4.03	34.23	37.98	1.87	1.87	0.00	1.75	1.75	0.00	0.07	7,160.06	1.55	0.07	7,218.83
Maximum (pounds/day)	4.21	36.93	40.56	2.03	1.98	0.05	1.84	1.83	0.01	0.08	7,916.88	1.67	0.08	7,983.00
Total (tons/construction project)	0.28	2.41	2.65	0.13	0.13	0.00	0.12	0.12	0.00	0.01	515.02	0.11	0.01	519.31

Notes:

Project Start Year ->	2020
Project Length (months) ->	6
Total Project Area (acres) ->	1
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	200	40
Grading/Excavation	0	4	0	30	720	40
Drainage/Utilities/Sub-Grade	58	0	90	0	600	40
Paving	0	0	0	0	480	40

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 -> SVCSD_SewerTrunkMain_Reach 4B

Project Phases (Tons for all except CO2e. Metric tonnes 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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Drainage/Utilities/Sub-Grade	0.24	2.07	2.28	0.11	0.11	0.00	0.10	0.10	0.00	0.00	444.14	0.09	0.00	406.28
Paving	0.04	0.34	0.38	0.02	0.02	0.00	0.02	0.02	0.00	0.00	70.88	0.02	0.00	64.83
Maximum (tons/phase)	0.24	2.07	2.28	0.11	0.11	0.00	0.10	0.10	0.00	0.00	444.14	0.09	0.00	406.28
Total (tons/construction project)	0.28	2.41	2.65	0.13	0.13	0.00	0.12	0.12	0.00	0.01	515.02	0.11	0.01	471.12

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.

Road Construction Emissions Model Version 8.1.0

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	SVCSD_SewerTrunkMain_Reach 4B	
Construction Start Year	2020	Enter a Year between 2014 and 2025 (inclusive)
Project Type	1	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	6.00	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 lone 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	0.57	miles
Total Project Area	0.69	acres
Maximum Area Disturbed/Day	0.01	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	0.00	0.00	0.00
	Grading/Excavation	20.00	0.00	0.00
	Drainage/Utilities/Sub-Grade	20.00	58.00	0.00
	Paving	20.00	0.00	0.00
Asphalt	Grubbing/Land Clearing	20.00	0.00	
	Grading/Excavation	20.00	0.00	3.97
	Drainage/Utilities/Sub-Grade	20.00	0.00	0.00
	Paving	20.00	0.00	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/ceqa/mitigation.shtml). 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 can be modified by the user, although those modifications are optional.

Note: The program's estimates of construction period phase length can be overridden in cells 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	0.00	0.60		1/1/2020
Grading/Excavation	0.00	2.40		1/1/2020
Drainage/Utilities/Sub-Grade	5.10	2.10		1/1/2020
Paving	0.90	0.90		6/5/2020
Totals (Months)		6		

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		30.00		0	0.00
Miles/round trip: Grading/Excavation		30.00		0	0.00
Miles/round trip: Drainage/Utilities/Sub-Grade		30.00		3	90.00
Miles/round trip: Paving		30.00		0	0.00

Emission Rates	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Grubbing/Land Clearing (grams/mile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation (grams/mile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Draining/Utilities/Sub-Grade (grams/mile)	0.11	0.44	4.13	0.12	0.05	0.02	1,631.71	0.00	0.06	1,648.31
Paving (grams/mile)	0.11	0.44	4.13	0.12	0.05	0.02	1,631.71	0.00	0.06	1,648.31
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	0.00	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	0.02	0.09	0.82	0.02	0.01	0.00	323.76	0.00	0.01	327.05
Tons per const. Period - Drainage/Utilities/Sub-Grade	0.00	0.00	0.05	0.00	0.00	0.00	18.16	0.00	0.00	18.35
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	0.00	0.00	0.05	0.00	0.00	0.00	18.16	0.00	0.00	18.35

Note: Asphalt Hauling emission default values can be overridden in cells D87 through D90, and F87 through F90.

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		30.00		0	0.00
Miles/round trip: Grading/Excavation		30.00		1	30.00
Miles/round trip: Drainage/Utilities/Sub-Grade		30.00		0	0.00
Miles/round trip: Paving		30.00		0	0.00

Emission Rates	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Grubbing/Land Clearing (grams/mile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation (grams/mile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Draining/Utilities/Sub-Grade (grams/mile)	0.11	0.44	4.13	0.12	0.05	0.02	1,631.71	0.00	0.06	1,648.31
Paving (grams/mile)	0.11	0.44	4.13	0.12	0.05	0.02	1,631.71	0.00	0.06	1,648.31
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	0.00	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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Note: Worker commute default values can be overridden in cells D113 through D118.

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		5	10	200.00
No. of employees: Grading/Excavation		18	36	720.00
No. of employees: Drainage/Utilities/Sub-Grade		15	30	600.00
No. of employees: Paving		12	24	480.00

Emission Rates	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Grubbing/Land Clearing (grams/mile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation (grams/mile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Draining/Utilities/Sub-Grade (grams/mile)	0.02	1.08	0.11	0.05	0.02	0.00	371.46	0.01	0.00	373.08
Paving (grams/mile)	0.02	1.08	0.11	0.05	0.02	0.00	371.46	0.01	0.00	373.08
Grubbing/Land Clearing (grams/trip)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation (grams/trip)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Draining/Utilities/Sub-Grade (grams/trip)	1.00	2.55	0.20	0.00	0.00	0.00	84.03	0.01	0.01	86.84
Paving (grams/trip)	1.00	2.55	0.20	0.00	0.00	0.00	84.03	0.01	0.01	86.84
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	0.09	1.59	0.16	0.06	0.03	0.00	496.92	0.01	0.01	499.24
Tons per const. Period - Drainage/Utilities/Sub-Grade	0.01	0.09	0.01	0.00	0.00	0.00	27.88	0.00	0.00	28.01
Pounds per day - Paving	0.07	1.27	0.13	0.05	0.02	0.00	397.54	0.01	0.01	399.39
Tons per const. Period - Paving	0.00	0.01	0.00	0.00	0.00	0.00	3.94	0.00	0.00	3.95
Total tons per construction project	0.01	0.10	0.01	0.00	0.00	0.00	31.81	0.00	0.00	31.96

Note: Water Truck default values can be overridden in cells D145 through D148, and F145 through F148.

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

Emission Rates	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Grubbing/Land Clearing (grams/mile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation (grams/mile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Draining/Utilities/Sub-Grade (grams/mile)	0.11	0.44	4.13	0.12	0.05	0.02	1,631.71	0.00	0.06	1,648.31
Paving (grams/mile)	0.11	0.44	4.13	0.12	0.05	0.02	1,631.71	0.00	0.06	1,648.31
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	0.01	0.04	0.36	0.01	0.00	0.00	143.89	0.00	0.00	145.36
Tons per const. Period - Drainage/Utilities/Sub-Grade	0.00	0.00	0.02	0.00	0.00	0.00	8.07	0.00	0.00	8.15
Pounds per day - Paving	0.01	0.04	0.36	0.01	0.00	0.00	143.89	0.00	0.00	145.36
Tons per const. Period - Paving	0.00	0.00	0.00	0.00	0.00	0.00	1.42	0.00	0.00	1.44
Total tons per construction project	0.00	0.00	0.02	0.00	0.00	0.00	9.50	0.00	0.00	9.59

Note: Fugitive dust default values can be overridden in cells D171 through D173.

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		0.00	0.00	0.00	0.00	0.00
Fugitive Dust - Grading/Excavation		0.00	0.00	0.00	0.00	0.00
Fugitive Dust - Drainage/Utilities/Subgrade		0.01	0.05	0.00	0.01	0.00

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
			Model Default Tier	Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			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
			Model Default Tier	Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Cranes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	1		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
0.00	1		Model Default Tier	Excavators	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			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
			Model Default Tier	Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			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
			Model Default Tier	Pumps	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rollers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			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
0.00	2		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
			Model Default Tier	Welders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

User-Defined Off-road Equipment	If non-default vehicles are used, please provide information in 'Non-default Off-road Equipment' tab			ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Number of Vehicles	Equipment Tier	Type		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

			ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
	Grubbing/Land Clearing	pounds per day	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Grubbing/Land Clearing	tons per phase	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Grading/Excavation	Default Number of Vehicles	Mitigation Option: Override of Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected)	Default Equipment Tier	Type	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
			Model Default Tier	Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			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
			Model Default Tier	Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0		Model Default Tier	Cranes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	1		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
0.00	3		Model Default Tier	Excavators	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			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
0.00	1		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
			Model Default Tier	Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			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
			Model Default Tier	Pumps	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	2		Model Default Tier	Rollers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			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
0.00	1		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
0.00	2		Model Default Tier	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	2		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
0.00	2		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
			Model Default Tier	Welders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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

		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Grading/Excavation	pounds per day	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation	tons per phase	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Drainage/Utilities/Subgrade	Default Number of Vehicles	Mitigation Option: Override of Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected)	Default Equipment Tier		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Override of Default Number of Vehicles	*Program-estimate*				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
1.00	1		Model Default Tier	Air Compressors	0.32	2.44	2.25	0.15	0.15	0.00	375.26	0.03	0.00	376.83
1.00			Model Default Tier	Bore/Drill Rigs	0.26	1.94	3.28	0.09	0.09	0.01	848.06	0.27	0.01	857.23
1.00			Model Default Tier	Cement and Mortar Mixers	0.06	0.31	0.37	0.01	0.01	0.00	50.52	0.01	0.00	50.77
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	0.44	2.07	5.27	0.22	0.20	0.01	546.70	0.18	0.00	552.59
			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	3.37	2.49	0.12	0.11	0.01	515.95	0.17	0.00	521.51
			Model Default Tier	Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00	1		Model Default Tier	Generator Sets	0.40	3.71	3.48	0.20	0.20	0.01	623.04	0.04	0.00	625.31
0.00	1		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	3.79	6.29	0.23	0.21	0.01	1,272.26	0.41	0.01	1,285.96
			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
1.00			Model Default Tier	Pavers	0.25	2.81	2.72	0.13	0.12	0.00	441.26	0.14	0.00	446.02
1.00			Model Default Tier	Paving Equipment	0.21	2.52	2.13	0.11	0.10	0.00	391.54	0.13	0.00	395.76
1.00	1		Model Default Tier	Plate Compactors	0.04	0.21	0.25	0.01	0.01	0.00	34.48	0.00	0.00	34.65
			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	1		Model Default Tier	Pumps	0.42	3.76	3.53	0.21	0.21	0.01	623.04	0.04	0.00	625.36
			Model Default Tier	Rollers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	1		Model Default Tier	Rough Terrain Forklifts	0.13	2.30	1.73	0.07	0.07	0.00	333.68	0.11	0.00	337.28
			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
0.00	2		Model Default Tier	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	2		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
1.00	2		Model Default Tier	Tractors/Loaders/Backhoes	0.21	2.30	2.13	0.13	0.12	0.00	303.87	0.10	0.00	307.14
			Model Default Tier	Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Welders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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

		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Drainage/Utilities/Sub-Grade	pounds per day	4.08	35.21	39.21	1.88	1.79	0.07	6,952.31	1.65	0.06	7,011.35
Drainage/Utilities/Sub-Grade	tons per phase	0.23	1.98	2.20	0.11	0.10	0.00	390.02	0.09	0.00	393.34

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
1.00			Model Default Tier	Air Compressors	0.32	2.44	2.25	0.15	0.15	0.00	375.26	0.03	0.00	376.83
1.00			Model Default Tier	Bore/Drill Rigs	0.26	1.94	3.28	0.09	0.09	0.01	848.06	0.27	0.01	857.23
1.00			Model Default Tier	Cement and Mortar Mixers	0.06	0.31	0.37	0.01	0.01	0.00	50.52	0.01	0.00	50.77
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	0.44	2.07	5.27	0.22	0.20	0.01	546.70	0.18	0.00	552.59
			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	3.37	2.49	0.12	0.11	0.01	515.95	0.17	0.00	521.51
			Model Default Tier	Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Generator Sets	0.40	3.71	3.48	0.20	0.20	0.01	623.04	0.04	0.00	625.31
			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	3.79	6.29	0.23	0.21	0.01	1,272.26	0.41	0.01	1,285.96
			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
1.00	1		Model Default Tier	Pavers	0.25	2.81	2.72	0.13	0.12	0.00	441.26	0.14	0.00	446.02
1.00	1		Model Default Tier	Paving Equipment	0.21	2.52	2.13	0.11	0.10	0.00	391.54	0.13	0.00	395.76
1.00			Model Default Tier	Plate Compactors	0.04	0.21	0.25	0.01	0.01	0.00	34.48	0.00	0.00	34.65
			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
0.00	3		Model Default Tier	Rollers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			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
0.00	2		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
1.00	2		Model Default Tier	Tractors/Loaders/Backhoes	0.21	2.30	2.13	0.13	0.12	0.00	303.87	0.10	0.00	307.14
			Model Default Tier	Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Welders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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

			ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
	Paving	pounds per day	3.95	32.91	37.48	1.81	1.73	0.07	6,618.63	1.54	0.06	6,674.08
	Paving	tons per phase	0.04	0.33	0.37	0.02	0.02	0.00	65.52	0.02	0.00	66.07
Total Emissions all Phases (tons per construction period) =>			0.27	2.30	2.57	0.12	0.12	0.00	455.55	0.11	0.00	459.41

Equipment default values for horsepower and hours/day can be overridden in cells D391 through D424 and F391 through F424.

Equipment	User Override of Horsepower	Default Values Horsepower	User Override of Hours/day	Default Values Hours/day
Aerial Lifts		63		8
Air Compressors		78		8
Bore/Drill Rigs		206		8
Cement and Mortar Mixers		9		8
Concrete/Industrial Saws		81		8
Cranes		226		8
Crawler Tractors		208		8
Crushing/Proc. Equipment		85		8
Excavators		163		8
Forklifts		89		8
Generator Sets		84		8
Graders		175		8
Off-Highway Tractors		123		8
Off-Highway Trucks		400		8
Other Construction Equipment		172		8
Other General Industrial Equipment		88		8
Other Material Handling Equipment		167		8
Pavers		126		8
Paving Equipment		131		8
Plate Compactors		8		8
Pressure Washers		13		8
Pumps		84		8
Rollers		81		8
Rough Terrain Forklifts		100		8
Rubber Tired Dozers		255		8
Rubber Tired Loaders		200		8
Scrapers		362		8
Signal Boards		6		8
Skid Steer Loaders		65		8
Surfacing Equipment		254		8
Sweepers/Scrubbers		64	2.00	8
Tractors/Loaders/Backhoes		98		8
Trenchers		81		8
Welders		46		8

END OF DATA ENTRY SHEET

The maximum pounds per day in row 11 is summed over overlapping phases, but the maximum tons per phase in row 34 is not summed over overlapping phases.

Road Construction Emissions Model, Version 8.1.0

Daily Emission Estimates for -> SVCSD_SewerTrunkMain_Reach 4C

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)
Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Drainage/Utilities/Sub-Grade	3.85	36.28	36.24	1.78	1.73	0.05	1.61	1.60	0.01	0.08	7,866.55	1.65	0.08	7,931.93
Paving	3.68	33.51	33.86	1.63	1.63	0.00	1.52	1.52	0.00	0.07	7,083.99	1.54	0.07	7,141.97
Maximum (pounds/day)	3.85	36.28	36.24	1.78	1.73	0.05	1.61	1.60	0.01	0.08	7,866.55	1.65	0.08	7,931.93
Total (tons/construction project)	0.25	2.37	2.37	0.12	0.11	0.00	0.11	0.10	0.00	0.01	511.44	0.11	0.01	515.69

Notes:

Project Start Year ->	2021
Project Length (months) ->	6
Total Project Area (acres) ->	0
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	160	40
Grading/Excavation	0	4	0	30	680	40
Drainage/Utilities/Sub-Grade	58	0	90	0	560	40
Paving	0	0	0	0	400	40

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 -> SVCSD_SewerTrunkMain_Reach 4C

Project Phases (Tons for all except CO2e. Metric tonnes 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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Drainage/Utilities/Sub-Grade	0.22	2.04	2.03	0.10	0.10	0.00	0.09	0.09	0.00	0.00	441.31	0.09	0.00	403.68
Paving	0.04	0.33	0.34	0.02	0.02	0.00	0.02	0.02	0.00	0.00	70.13	0.02	0.00	64.14
Maximum (tons/phase)	0.22	2.04	2.03	0.10	0.10	0.00	0.09	0.09	0.00	0.00	441.31	0.09	0.00	403.68
Total (tons/construction project)	0.25	2.37	2.37	0.12	0.11	0.00	0.11	0.10	0.00	0.01	511.44	0.11	0.01	467.83

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.

Road Construction Emissions Model Version 8.1.0

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	SVCSD_SewerTrunkMain_Reach 4C	
Construction Start Year	2021	Enter a Year between 2014 and 2025 (inclusive)
Project Type	1	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	6.00	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 lone 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	0.42	miles
Total Project Area	0.24	acres
Maximum Area Disturbed/Day	0.01	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	0.00	0.00	0.00
	Grading/Excavation	20.00	0.00	0.00
	Drainage/Utilities/Sub-Grade	20.00	58.00	0.00
	Paving	20.00	0.00	0.00
Asphalt	Grubbing/Land Clearing	20.00	0.00	
	Grading/Excavation	20.00	0.00	3.97
	Drainage/Utilities/Sub-Grade	20.00	0.00	0.00
	Paving	20.00	0.00	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/ceqa/mitigation.shtml). 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 can be modified by the user, although those modifications are optional.

Note: The program's estimates of construction period phase length can be overridden in cells 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	0.00	0.60		1/1/2021
Grading/Excavation	0.00	2.40		1/1/2021
Drainage/Utilities/Sub-Grade	5.10	2.10		1/1/2021
Paving	0.90	0.90		6/6/2021
Totals (Months)		6		

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		30.00		0	0.00
Miles/round trip: Grading/Excavation		30.00		0	0.00
Miles/round trip: Drainage/Utilities/Sub-Grade		30.00		3	90.00
Miles/round trip: Paving		30.00		0	0.00

Emission Rates	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Grubbing/Land Clearing (grams/mile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation (grams/mile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Draining/Utilities/Sub-Grade (grams/mile)	0.10	0.43	3.65	0.11	0.05	0.02	1,614.50	0.00	0.05	1,630.92
Paving (grams/mile)	0.10	0.43	3.65	0.11	0.05	0.02	1,614.50	0.00	0.05	1,630.92
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	0.00	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	0.02	0.09	0.72	0.02	0.01	0.00	320.34	0.00	0.01	323.60
Tons per const. Period - Drainage/Utilities/Sub-Grade	0.00	0.00	0.04	0.00	0.00	0.00	17.97	0.00	0.00	18.15
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	0.00	0.00	0.04	0.00	0.00	0.00	17.97	0.00	0.00	18.15

Note: Asphalt Hauling emission default values can be overridden in cells D87 through D90, and F87 through F90.

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		30.00		0	0.00
Miles/round trip: Grading/Excavation		30.00		1	30.00
Miles/round trip: Drainage/Utilities/Sub-Grade		30.00		0	0.00
Miles/round trip: Paving		30.00		0	0.00

Emission Rates	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Grubbing/Land Clearing (grams/mile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation (grams/mile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Draining/Utilities/Sub-Grade (grams/mile)	0.10	0.43	3.65	0.11	0.05	0.02	1,614.50	0.00	0.05	1,630.92
Paving (grams/mile)	0.10	0.43	3.65	0.11	0.05	0.02	1,614.50	0.00	0.05	1,630.92
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	0.00	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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Note: Worker commute default values can be overridden in cells D113 through D118.

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		4	8	160.00
No. of employees: Grading/Excavation		17	34	680.00
No. of employees: Drainage/Utilities/Sub-Grade		14	28	560.00
No. of employees: Paving		10	20	400.00

Emission Rates	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Grubbing/Land Clearing (grams/mile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation (grams/mile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Draining/Utilities/Sub-Grade (grams/mile)	0.02	0.99	0.10	0.05	0.02	0.00	360.03	0.01	0.00	361.48
Paving (grams/mile)	0.02	0.99	0.10	0.05	0.02	0.00	360.03	0.01	0.00	361.48
Grubbing/Land Clearing (grams/trip)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation (grams/trip)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Draining/Utilities/Sub-Grade (grams/trip)	0.93	2.28	0.18	0.00	0.00	0.00	81.88	0.01	0.01	84.35
Paving (grams/trip)	0.93	2.28	0.18	0.00	0.00	0.00	81.88	0.01	0.01	84.35
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	0.08	1.36	0.14	0.06	0.02	0.00	449.55	0.01	0.01	451.49
Tons per const. Period - Drainage/Utilities/Sub-Grade	0.00	0.08	0.01	0.00	0.00	0.00	25.22	0.00	0.00	25.33
Pounds per day - Paving	0.06	0.97	0.10	0.04	0.02	0.00	321.10	0.01	0.00	322.49
Tons per const. Period - Paving	0.00	0.01	0.00	0.00	0.00	0.00	3.18	0.00	0.00	3.19
Total tons per construction project	0.01	0.09	0.01	0.00	0.00	0.00	28.40	0.00	0.00	28.52

Note: Water Truck default values can be overridden in cells D145 through D148, and F145 through F148.

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

Emission Rates	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Grubbing/Land Clearing (grams/mile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation (grams/mile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Draining/Utilities/Sub-Grade (grams/mile)	0.10	0.43	3.65	0.11	0.05	0.02	1,614.50	0.00	0.05	1,630.92
Paving (grams/mile)	0.10	0.43	3.65	0.11	0.05	0.02	1,614.50	0.00	0.05	1,630.92
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	0.01	0.04	0.32	0.01	0.00	0.00	142.37	0.00	0.00	143.82
Tons per const. Period - Drainage/Utilities/Sub-Grade	0.00	0.00	0.02	0.00	0.00	0.00	7.99	0.00	0.00	8.07
Pounds per day - Paving	0.01	0.04	0.32	0.01	0.00	0.00	142.37	0.00	0.00	143.82
Tons per const. Period - Paving	0.00	0.00	0.00	0.00	0.00	0.00	1.41	0.00	0.00	1.42
Total tons per construction project	0.00	0.00	0.02	0.00	0.00	0.00	9.40	0.00	0.00	9.49

Note: Fugitive dust default values can be overridden in cells D171 through D173.

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		0.00	0.00	0.00	0.00	0.00
Fugitive Dust - Grading/Excavation		0.00	0.00	0.00	0.00	0.00
Fugitive Dust - Drainage/Utilities/Subgrade		0.01	0.05	0.00	0.01	0.00

Off-Road Equipment Emissions

Grubbing/Land Clearing 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
			Model Default Tier	Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			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
			Model Default Tier	Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Cranes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	1		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
0.00	1		Model Default Tier	Excavators	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			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
			Model Default Tier	Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			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
			Model Default Tier	Pumps	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rollers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			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
0.00	1		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
			Model Default Tier	Welders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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

		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Grubbing/Land Clearing	pounds per day	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grubbing/Land Clearing	tons per phase	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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
			Model Default Tier	Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			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
			Model Default Tier	Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0		Model Default Tier	Cranes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	1		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
0.00	3		Model Default Tier	Excavators	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			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
0.00	1		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
			Model Default Tier	Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			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
			Model Default Tier	Pumps	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	2		Model Default Tier	Rollers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			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
0.00	1		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
0.00	2		Model Default Tier	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	1		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
0.00	2		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
			Model Default Tier	Welders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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

		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Grading/Excavation	pounds per day	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation	tons per phase	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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		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
1.00	1		Model Default Tier	Air Compressors	0.29	2.42	2.04	0.13	0.13	0.00	375.26	0.03	0.00	376.75
1.00			Model Default Tier	Bore/Drill Rigs	0.24	1.93	2.82	0.09	0.08	0.01	850.16	0.28	0.01	859.35
1.00			Model Default Tier	Cement and Mortar Mixers	0.06	0.31	0.37	0.01	0.01	0.00	50.52	0.01	0.00	50.77
1.00			Model Default Tier	Concrete/Industrial Saws	0.38	3.67	3.04	0.17	0.17	0.01	592.67	0.03	0.00	594.85
1.00			Model Default Tier	Cranes	0.40	1.94	4.74	0.19	0.18	0.01	546.65	0.18	0.00	552.54
			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	0.24	3.38	2.22	0.11	0.10	0.01	516.02	0.17	0.00	521.59
			Model Default Tier	Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00	1		Model Default Tier	Generator Sets	0.36	3.68	3.17	0.17	0.17	0.01	623.04	0.03	0.00	625.23
0.00	1		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	0.60	3.59	5.24	0.19	0.18	0.01	1,272.16	0.41	0.01	1,285.87
			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
1.00			Model Default Tier	Pavers	0.24	2.82	2.52	0.12	0.11	0.00	441.06	0.14	0.00	445.81
1.00			Model Default Tier	Paving Equipment	0.19	2.52	1.93	0.10	0.09	0.00	391.47	0.13	0.00	395.69
1.00	1		Model Default Tier	Plate Compactors	0.04	0.21	0.25	0.01	0.01	0.00	34.48	0.00	0.00	34.65
			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	1		Model Default Tier	Pumps	0.38	3.74	3.21	0.18	0.18	0.01	623.04	0.03	0.00	625.28
			Model Default Tier	Rollers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	1		Model Default Tier	Rough Terrain Forklifts	0.12	2.29	1.61	0.06	0.06	0.00	333.77	0.11	0.00	337.37
			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
0.00	2		Model Default Tier	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	1		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
1.00	2		Model Default Tier	Tractors/Loaders/Backhoes	0.19	2.28	1.92	0.11	0.10	0.00	304.00	0.10	0.00	307.27
			Model Default Tier	Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Welders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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

		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Drainage/Utilities/Sub-Grade	pounds per day	3.74	34.79	35.06	1.64	1.56	0.07	6,954.28	1.64	0.06	7,013.02
Drainage/Utilities/Sub-Grade	tons per phase	0.21	1.95	1.97	0.09	0.09	0.00	390.14	0.09	0.00	393.43

Paving	Default Number of Vehicles	Mitigation Option Override of Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected)	Default Equipment Tier	Type	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Override of Default Number of Vehicles	*Program-estimate*				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
1.00			Model Default Tier	Air Compressors	0.29	2.42	2.04	0.13	0.13	0.00	375.26	0.03	0.00	376.75
1.00			Model Default Tier	Bore/Drill Rigs	0.24	1.93	2.82	0.09	0.08	0.01	850.16	0.28	0.01	859.35
1.00			Model Default Tier	Cement and Mortar Mixers	0.06	0.31	0.37	0.01	0.01	0.00	50.52	0.01	0.00	50.77
1.00			Model Default Tier	Concrete/Industrial Saws	0.38	3.67	3.04	0.17	0.17	0.01	592.67	0.03	0.00	594.85
1.00			Model Default Tier	Cranes	0.40	1.94	4.74	0.19	0.18	0.01	546.65	0.18	0.00	552.54
			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	0.24	3.38	2.22	0.11	0.10	0.01	516.02	0.17	0.00	521.59
			Model Default Tier	Forklifts	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	Generator Sets	0.36	3.68	3.17	0.17	0.17	0.01	623.04	0.03	0.00	625.23
			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	0.60	3.59	5.24	0.19	0.18	0.01	1,272.16	0.41	0.01	1,285.87
			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
1.00	1		Model Default Tier	Pavers	0.24	2.82	2.52	0.12	0.11	0.00	441.06	0.14	0.00	445.81
1.00	1		Model Default Tier	Paving Equipment	0.19	2.52	1.93	0.10	0.09	0.00	391.47	0.13	0.00	395.69
1.00			Model Default Tier	Plate Compactors	0.04	0.21	0.25	0.01	0.01	0.00	34.48	0.00	0.00	34.65
			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	0.38	3.74	3.21	0.18	0.18	0.01	623.04	0.03	0.00	625.28
0.00	3		Model Default Tier	Rollers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			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
0.00	1		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
1.00	2		Model Default Tier	Tractors/Loaders/Backhoes	0.19	2.28	1.92	0.11	0.10	0.00	304.00	0.10	0.00	307.27
			Model Default Tier	Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Welders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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

			ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
	Paving	pounds per day	3.62	32.50	33.45	1.58	1.50	0.07	6,620.51	1.53	0.06	6,675.65
	Paving	tons per phase	0.04	0.32	0.33	0.02	0.01	0.00	65.54	0.02	0.00	66.09
Total Emissions all Phases (tons per construction period) =>			0.25	2.27	2.30	0.11	0.10	0.00	455.68	0.11	0.00	459.52

Equipment default values for horsepower and hours/day can be overridden in cells D391 through D424 and F391 through F424.

Equipment	User Override of Horsepower	Default Values Horsepower	User Override of Hours/day	Default Values Hours/day
Aerial Lifts		63		8
Air Compressors		78		8
Bore/Drill Rigs		206		8
Cement and Mortar Mixers		9		8
Concrete/Industrial Saws		81		8
Cranes		226		8
Crawler Tractors		208		8
Crushing/Proc. Equipment		85		8
Excavators		163		8
Forklifts		89		8
Generator Sets		84		8
Graders		175		8
Off-Highway Tractors		123		8
Off-Highway Trucks		400		8
Other Construction Equipment		172		8
Other General Industrial Equipment		88		8
Other Material Handling Equipment		167		8
Pavers		126		8
Paving Equipment		131		8
Plate Compactors		8		8
Pressure Washers		13		8
Pumps		84		8
Rollers		81		8
Rough Terrain Forklifts		100		8
Rubber Tired Dozers		255		8
Rubber Tired Loaders		200		8
Scrapers		362		8
Signal Boards		6		8
Skid Steer Loaders		65		8
Surfacing Equipment		254		8
Sweepers/Scrubbers		64	2.00	8
Tractors/Loaders/Backhoes		98		8
Trenchers		81		8
Welders		46		8

END OF DATA ENTRY SHEET

APPENDIX C
SPECIAL-STATUS PLANT AND ANIMAL SPECIES WITH POTENTIAL TO OCCUR IN THE VICINITY OF THE PROPOSED PROJECT AREAS

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Table C-1
Special-Status Plant Species with Potential to Occur in the Vicinity of the Proposed Project Areas[1]

SPECIES *Scientific Name* Common Name	STATUS[2]	HABITAT REQUIREMENTS[3]	POTENTIAL TO OCCUR IN THE PROJECT AREA[4]
Allium peninsulare var. *franciscanum* Franciscan onion	Rank 1B	Cismontane woodland, valley and foothill grassland; on clay substrate, often derived from serpentine. Elevation range 170 – 985 feet. *Blooms*: May – June. *Counties*: MEN, SCL, SMT, SON.	*Unlikely*. This species is closely associated with rocky clay substrates formed from colluvium. The soil within the Project Area is derived from alluvium from mixed parent material.
Amorpha californica var. *napensis* Napa false indigo	Rank 1B	Openings in broadleaf upland forest, chaparral, cismontane woodland. *Elevation range*: 395 – 6560 feet. *Blooms*: April – July. *Counties*: LAK, MRN, NAP, SON.	*Unlikely*. Although the Project Area contains woodland habitats, this species is closely associated with oak and mixed hardwood woodlands on hillslopes and has not been documented from alluvial valley settings.
Balsamorhiza macrolepis big-scale balsamroot	Rank 1B	Valley and foothill grassland, cismontane woodland; sometimes on serpentine substrate. *Elevation range*: 295 – 3100 feet. *Blooms*: March – June.	*None*. This species is closely associated with rocky soils derived from volcanic (basalt, tuff) or serpentine situated in hilly or montane landforms.
Blennosperma bakeri Sonoma sunshine	FE, SE, Rank 1B	Vernal pools, vernal swales, and mesic areas in valley grassland; highly restricted to the Santa Rosa Plain and Valley of the Moon. *Elevation range*: 35 – 360 feet. *Blooms*: March – April.	*None*. The Project Area does not contain vernal pool habitat necessary to support this species.
Brodiaea leptandra narrow-anthered California brodiaea	Rank 1B	Broadleaf upland forest, chaparral, lower montane coniferous forest. *Elevation range*: 360 – 3000 feet. *Blooms*: May – July.	*None*. The Project Area does not contain substrate derived from volcanic or serpentine, and chaparral and forest habitat is not present.
Ceanothus confusus Rincon Ridge ceanothus	FSC; Rank 1B	Closed-cone coniferous forest, chaparral, cismontane woodland; known from volcanic and serpentine substrate; typically on dry shrubby slopes. *Elevation range*: 245 – 3495 feet. *Blooms*: February – April.	*None*. The Project Area does not contain chaparral, forest, or foothill woodland habitat necessary to support this species. Likewise, the substrate in the Project Area is not derived from serpentine or volcanic parent material.

Table C-1 (continued)
Special-Status Plant Species with Potential to Occur in the Vicinity of the Proposed Project Areas[1]

SPECIES *Scientific Name* Common Name	STATUS[2]	HABITAT REQUIREMENTS[3]	POTENTIAL TO OCCUR IN THE PROJECT AREA[4]
Ceanothus sonomensis Sonoma ceanothus	FSC; Rank 1B	Chaparral; located on sandy serpentine or volcanic substrates. *Elevation range*: 705 – 2625 feet. *Blooms*: February – April.	*None*. The Project Area does not contain chaparral habitat necessary to support this species. Likewise, the substrate in the Project Area is not derived from serpentine or volcanic parent material.
Downingia pusilla dwarf downingia	Rank 2B	Valley and foothill grassland, vernal pools; located in mesic grassy sites, pool and lake margins. *Elevation range*: 3 – 1450 feet. *Blooms*: March – May.	*Unlikely*. Although the Project Area contains seasonal wetlands, this species is known from wetlands with a longer duration and deeper inundation period to preclude the emergence of non-native vegetation.
Fritillaria liliacea fragrant fritillary	Rank 1B	Coastal scrub, valley and foothill grassland, coastal prairie, cismontane woodland; located in grassy sites underlain by clay, typically derived from volcanics or serpentine. *Elevation range*: 10 – 1335 feet. *Blooms*: February – April.	*Unlikely*. Although the Project Area contains grassland habitat, this species is closely associated with rocky clay soils derived from serpentine or volcanic parent material which are not present in the Project Area.
Hemizonia congesta ssp. congesta Hayfield tarplant	Rank 1B	Coastal scrub, valley and foothill grassland. *Elevation range*: 65 – 1840 feet. *Blooms*: April – October.	*Moderate*. The Project Area contains open grasslands that may support this species. This species is relatively tolerant of disturbance (e.g., mowing, grazing, tilling).
Horkelia tenuiloba thin-lobed horkelia	Rank 1B	Broadleaf upland forest, coastal scrub, valley and foothill grassland, chaparral; in mesic openings, on sandy substrate. *Elevation range*: 165 – 1640 feet. *Blooms*: May – July.	*Unlikely*. Although the Project Area contains grassland habitat, this species is closely associated with acidic uplifted marine sands.
Legenere limosa legenere	Rank 1B	Vernal pools; typically located in the deepest portions of pools. *Elevation range*: 3 – 2860 feet. *Blooms*: April – June.	*Unlikely*. Although the Project Area contains seasonal wetlands, this species is known from wetlands with a longer duration and deeper inundation period to preclude the emergence of non-native vegetation.

Table C-1 (continued)
Special-Status Plant Species with Potential to Occur in the Vicinity of the Proposed Project Areas[1]

SPECIES *Scientific Name* Common Name	STATUS[2]	HABITAT REQUIREMENTS[3]	POTENTIAL TO OCCUR IN THE PROJECT AREA[4]
Leptosiphon jepsonii Jepson's leptosiphon	Rank 1B	Chaparral, cismontane woodland; on open to partially shaded grassy slopes on volcanic or the periphery of serpentine substrate. *Elevation range*: 330 – 1640 feet. *Blooms*: April – May.	*None*. The Project Area does not contain substrate derived from volcanic or serpentine parent material necessary to support this species.
Lupinus sericatus Cobb Mountain lupine	Rank 1B	Broadleaf upland forest, chaparral, cismontane woodland, lower montane coniferous forest; typically located in stands of knobcone pine-oak woodland or ponderosa pine-California black oak woodland, on open wooded slopes in gravelly substrate, sometimes serpentine. *Elevation range*: 890 – 4960 feet. *Blooms*: March – June.	*None*. The Project Area does not contain foothill woodland, chaparral, or forest habitat necessary to support this species. Additionally, serpentine substrate is lacking.
Viburnum ellipticum oval-leaved viburnum	Rank 2B	Chaparral, cismontane woodland, lower montane coniferous forest. *Elevation range*: 705 – 4595 feet. *Blooms*: May – June.	*Unlikely*. Although the Project Area contains woodland habitat, this species is typically located in dense forest, chaparral, or woodland habitat in montane or hillslope settings. No documented occurrences from alluvial valley settings.

NOTES:

[1]**Species List:** Species listed in this table were compiled from: the California Department of Fish and Wildlife (CDFW) Natural Diversity Database (2018)[1], U.S. Fish and Wildlife Service (USFWS) Species Lists (2018)[2], and California Native Plant Society (CNPS) Electronic Inventory (2018)[3] searches of the Glen Ellen and Sonoma USGS 7.5' quadrangles.

[2]**Status:**
FE: Federal Endangered
FT: Federal Threatened
SE: State Endangered
SD: State Delisted
ST: State Threatened
SR: State Rare
Rank 1A: CNPS Rank 1A: Plants presumed extinct in California
Rank 1B: CNPS Rank 1B: Plants rare, threatened or endangered in California and elsewhere
Rank 2A: CNPS Rank 2A: Plants presumed extirpated in California, but more common elsewhere
Rank 2B: CNPS Rank 2B: Plants rare, threatened, or endangered in California, but more common elsewhere
Rank 3: CNPS Rank 3: Plants about which CNPS needs more information (a review list)
Rank 4: CNPS Rank 4: Plants of limited distribution (a watch list)

Table C-1 (continued)
Special-Status Plant Species with Potential to Occur in the Vicinity of the Proposed Project Areas[1]

NOTES (continued):

[3]**Habitat:** California Department of Fish and Wildlife (2018)[4].

[4]**Potential to Occur:**

None. Habitat on and adjacent to the site is clearly unsuitable for the species requirements (cover, substrate, elevation, hydrology, plant community, site history, disturbance regime).

Unlikely. Few of the habitat components meeting the species requirements are present, and/or the majority of habitat on and adjacent to the site is unsuitable or of very poor quality. The species is not likely to be found on the site.

Moderate. Some of the habitat components meeting the species requirements are present, and/or only some of the habitat on or adjacent to the site is unsuitable. The species has a moderate probability of being found on the site.

High Potential. All of the habitat components meeting the species requirements are present and/or most of the habitat on or adjacent to the site is highly suitable. The species has a high probability of being found on the site.

Table C-2
Special-Status Wildlife Species with Potential to Occur in the Vicinity of the Proposed Project Areas[1]

SPECIES *Scientific Name* Common Name	STATUS[2]	HABITAT REQUIREMENTS[3]	POTENTIAL TO OCCUR IN THE PROJECT AREA[1]
Amphibians			
Ambystoma californiense California tiger salamander	FT, ST	Grasslands and valley foothill woodland habitats with appropriate subterranean sites (burrows). Breeds in vernal pools and fishless seasonal ponds.	*None*. No vernal pools or seasonal ponds in Project Area. Some burrows present but due to development and land use unlikely to occur within Project Area. No records within Project Area.
Dicamptodon ensatus California giant salamander	CSC	Adults prefer damp coniferous forests near streams. Adults breed in perennial mountainous streams with rocky substrate. Larvae are aquatic for one or more years. Occasionally occurs in lakes and ponds, but usually at higher elevations.	*None*. No suitable habitat within Project Area. Historical occurrence in area with non-specific location and from >100 years ago.
Rana boylii foothill yellow-legged frog	SCT	Moderate to high gradient streams with gravel to cobble substrate. Breeds in areas with slower moving water. Tadpoles use rocky shallow creek margins for cover and grazing.	*None*. No suitable breeding or larval habitat within Project Area or adjacent areas. Could serve as migratory habitat but surrounding development likely precludes presence.
Rana draytonii California red-legged frog	FT, CSC	Streams, ponds, and marshes with permanent or temporary water bordered by emergent or riparian vegetation. 4-6 months of permanent water for larval development.	*None*. No suitable breeding or larval habitat within Project Area or adjacent areas. Could serve as migratory habitat but surrounding development likely precludes presence.
Taricha rivularis red-bellied newt	CSC	Rapid streams with rocky substrate in proximity to redwood forest. Adults can migrate 1+ miles from breeding stream.	*None*. Low gradient streams and lack of suitable habitat within or adjacent to Project Area.
Birds			
Agelaius tricolor tricolored blackbird	SCE, CSC, BCC	Generally cattail or tule marshes, but can forage in fields, farms, and open habitats. Breeds in large freshwater marshes.	*Unlikely*. No suitable breeding habitat within Project Area. Could serve as foraging habitat but no marshes immediately adjacent to Project Area.
Ammodramus savannarum grasshopper sparrow	CSC	Moderately open grasslands with scattered shrubs and native bunchgrass.	*Unlikely*. The Project Area contains very little open grassland necessary to support this species.

Table C-2 (continued)
Special-Status Wildlife Species with Potential to Occur in the Vicinity of the Proposed Project Areas[1]

SPECIES *Scientific Name* Common Name	STATUS[2]	HABITAT REQUIREMENTS[3]	POTENTIAL TO OCCUR IN THE PROJECT AREA[1]
Birds (cont.)			
Aquila chrysaetos golden eagle	BCC, CSC, FP	Rolling foothills, mountainous areas, and sage-juniper flats from sea level to 11500 feet. Nests on cliffs and in large trees in open areas.	*Unlikely*. Contains habitat where species can be found but is unlikely to nest. Density of surrounding development likely precludes present within or adjacent to Project Area.
Athene cuniculata burrowing owl	BCC, CSC	Primarily grassland species that is tolerant of human dominated landscapes. Mostly nest and roost in burrows within short vegetation or sparse shrubs and trees. Known to occur in developed areas such as airfields, urban parks and adjacent to roads or canals.	*Moderate*. No documented occurrences near Project Area, however habitat is suitable for roosting or nesting burrows.
Baeolophus inornatus oak titmouse	BCC	Oak and pinyon-juniper woodlands, especially around river woods and shade trees. Very common in parts of range.	*High*. This species has been observed within and adjacent to Project Area by Sonoma County Water Agency staff biologists.
Buteo regalis ferruginous hawk	BCC, WL	Large, open grasslands or sparse shrub. Winter migrant and resident in lower elevation open grassland in Modoc Plateau, Central Valley, and Coast Ranges.	*None*. No suitable habitat within or adjacent to Project Area.
Chamaea fasciata wrentit	BCC	California chaparral and coastal scrub. Nests in various dense low growth.	*Moderate*. Preferred habitat not within Project Area. Suitable habitat present adjacent to Project Area, however no observations or known occurrences.
Coccyzus americanus occidentalis western yellow-billed cuckoo	FT, SE	Requires patches of at least 25 acres of dense riparian forest with a canopy cover of at least 50 percent in both the understory and overstory; nests typically in mature willows.	*Unlikely*. Project Area is not adjacent to or contain riparian forests with suitable density or patch size due to density of surrounding development.
Coturnicops noveboracensis yellow rail	BCC, CSC	Breed in sedge marshes or wet meadows with moist soil or shallow standing water. Likely inhabit wet meadows or coastal marsh in winter.	*Unlikely*. Seasonal wetlands do occur within Project Area but are not large enough to support this bird.
Cypseloides niger black swift	CSC, BCC	Limited nesting locations restricted to behind waterfalls or on vertical cliffs near water.	*None*. No habitat within Project Area and only known in this area for winter range.

Table C-2 (continued)
Special-Status Wildlife Species with Potential to Occur in the Vicinity of the Proposed Project Areas[1]

SPECIES *Scientific Name* Common Name	STATUS[2]	HABITAT REQUIREMENTS[3]	POTENTIAL TO OCCUR IN THE PROJECT AREA[1]
Birds (cont.)			
Elanus leucurus white-tailed kite	FP	Forages in grasslands, open woodlands, agricultural fields, and marshes. Nests in trees with dense foliage.	*Unlikely*. Little suitable habitat within and adjacent to Project Area.
Eremophila alpestris actia California horned lark	WL	Open grassland where trees and large shrubs are absent.	*Unlikely*. Little suitable habitat within and adjacent to Project Area.
Laterallus jamaicensis black rail	ST, BCC, FP	Rarely seen resident of saline, brackish or freshwater emergent wetlands in SF Bay area. Prefers saltwater tidal marshes but can inhabit freshwater marshes.	*None*. No habitat present within Project Area.
Melanerpes lewis Lewis's woodpecker	BCC	Scattered or logged forest, river groves, burns, foothills. Requires open country for aerial foraging and large trees for nesting and perching.	*Unlikely*. Potential habitat within Project Area however dense woods likely preclude foraging. Recent fires may result in increased likelihood of occurring within Project Area.
Melospiza melodia samuelis San Pablo song sparrow	BCC, CSC	Dense vegetation within tidal salt marshes fringing San Pablo Bay in northern reaches of SF Bay Estuary.	*None*. No habitat within or adjacent to Project Area.
Picoides nuttallii Nuttall's woodpecker	BCC	Wooded canyons and foothills, river woods, especially around oaks. May use manmade structures such as utility poles for nesting.	*Moderate*. Suitable habitat within Project Area and within known range of species. No known occurrences or observations near Project Area.
Riparia riparia bank swallow	ST	Colonial nester in vertical banks and cliffs next to water.	*Unlikely*. No suitable nesting habitat within Project Area. Possible this species could forage near Project Area. CNDDB observation >20 years ago.
Selasphorus rufus rufous hummingbird	BCC	Breeds north of CA border. Can be found in forest edges, streamsides, and mountain meadows. Migration commonly through lowlands.	*Unlikely*. Suitable habitat during migration. Project Area outside of known nesting range.
Selasphorus sasin Allen's hummingbird	BCC	Common summer resident and migrant along CA coast. Coastal scrub, valley foothill woodland and riparian habitats.	*Moderate*. Suitable habitat within Project Area. Adjacent suburban gardens could provide nectar sources for foraging. No known occurrences or observations.

Table C-2 (continued)
Special-Status Wildlife Species with Potential to Occur in the Vicinity of the Proposed Project Areas[1]

SPECIES *Scientific Name* Common Name	STATUS[2]	HABITAT REQUIREMENTS[3]	POTENTIAL TO OCCUR IN THE PROJECT AREA[1]
Birds (cont.)			
Spinus lawrencei Lawrence's goldfinch	BCC	Oak-pine woodlands, chaparral. Breeds in habitat including riparian trees, oak woodland, open woods, and chaparral.	*Moderate*. Suitable habitat adjacent to Project Area. Project Area is outside of but close to typical range.
Toxostoma redivivum California thrasher	BCC	Chaparral, foothills, valley thickets, parks, and gardens. Prefers thick vegetation and does utilize suburban neighborhoods with suitable vegetation.	*Unlikely*. Within known range however prefers chaparral habitat with thick vegetation.
Invertebrates			
Callophrys mossii bayensis San Bruno elfin butterfly	FE	Inhabits rocky outcrops and cliffs in coastal scrub on the San Francisco Peninsula. Host plant is *Sedum spathulifolium* (broadleaf stonecrop).	*None*. Outside of known range. No suitable habitat and host plant does not occur within Project Area.
Syncaris pacifica California freshwater shrimp	FE, SE	Perennial creeks with slow flows and developed bank vegetation. Needs deep undercut banks with exposed roots for winter refugia.	*None*. No suitable habitat within Project Area.
Mammals			
Antrozous pallidus pallid bat	CSC	Forages in a variety of habitats. Roosts in caves, crevices, mines, and occasionally hollow trees, and buildings. Prefers cool, mesic areas.	*Unlikely*. Foraging habitat is present. Project area doesn't contain preferred roosting habitat. Roosting habitat is adjacent to Project Area.
Myotis thysanodes fringed myotis bat	FSC	Pinyon-juniper, valley and foothill woodland, and hardwood-conifer habitats at elevation range of 4,000-7,000 feet is optimal habitat; however, can occur in a wider range of habitats. Breeds in caves and old buildings.	*Unlikely*. Project Area outside of normal range for this species, but known to occur to sea level. Marginal foraging and roosting habitat adjacent to Project Area.
Myotis volans long-legged myotis	WBWG H-High Priority	Forages in chaparral, coastal scrub, early successional woodlands, and forests. Roosts in trees (under bark, cavities), snags, buildings, rock crevices, and cliff crevices. Caves and mines are frequently used as night roosts.	*Moderate*. Suitable habitat within Project Area however no recent occurrences documented. No special status listing for Federal or State agencies.

Table C-2 (continued)
Special-Status Wildlife Species with Potential to Occur in the Vicinity of the Proposed Project Areas[1]

SPECIES *Scientific Name* Common Name	STATUS[2]	HABITAT REQUIREMENTS[3]	POTENTIAL TO OCCUR IN THE PROJECT AREA[1]
Mammals (cont.)			
Reithrodontomys raviventris salt marsh harvest mouse	FE, SE	Saline emergent marsh with dense pickleweed.	*None*. No suitable habitat within or adjacent to the Project Area.
Taxidea taxus American badger	CSC	Uncommon, permanent resident found through most of CA except North Coast. More abundant in drier open areas of shrub, forest, and herbaceous habitats with friable soils.	*Unlikely*. Development likely precludes presence with Project Area. No known occurrences in Sonoma Valley.
Reptiles			
Emys marmorata western pond turtle	CSC	Permanent or nearly permanent ponds, lakes, streams, or pools. Wide variety of habitats.	*None*. No suitable habitat within Project Area. Depressions that pool within Project Area could serve as winter habitat. These pools dry during the summer months (during the construction period).

NOTES:

[1]**Species List:** Species listed in this table were compiled from: the California Department of Fish and Wildlife (CDFW) Natural Diversity Database (2018)[5], U.S. Fish and Wildlife Service (USFWS) Species Lists (2018)[6] searches of the Glen Ellen and Sonoma USGS 7.5' quadrangles.

[2]**Legal Status:**
FE: Federal Endangered
FT: Federal Threatened
SE: State Endangered
ST: State Threatened
SCT: State Candidate Threatened
BCC: USFWS Birds of Conservation Concern
FSC: USFWS Species of Special Concern
CSC: CDFW Species of Special Concern
FP: CDFW Fully Protected
WL: CDFW Watch List
WBWG H-High Priority: Western Bat Working Group

[3]**Habitat:**
California Department of Fish and Wildlife (2018)[7].

Table C-2 (continued)
Special-Status Wildlife Species with Potential to Occur in the Vicinity of the Proposed Project Areas[1]

NOTES (continued):

[4]Potential to Occur:

None. Habitat on and adjacent to the site is clearly unsuitable for the species requirements (cover, substrate, elevation, hydrology, plant community, site history, disturbance regime).

Unlikely. Few of the habitat components meeting the species requirements are present, and/or the majority of habitat on and adjacent to the site is unsuitable or of very poor quality. The species is not likely to be found on the site.

Moderate. Some of the habitat components meeting the species requirements are present, and/or only some of the habitat on or adjacent to the site is unsuitable. The species has a moderate probability of being found on the site.

High. All of the habitat components meeting the species requirements are present and/or most of the habitat on or adjacent to the site is highly suitable. The species has a high probability of being found on the site.

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1 California Natural Diversity Data Base (CNDDB). 2018. California Department of Fish and Wildlife. Accessed: February 2018.

2 US Fish and Wildlife Service. 2018. USFWS Information for Planning and Conservation (IPaC) Trust Resources Report for the Proposed Project area.

3 California Native Plant Society, Rare Plant Program. 2018. Inventory of Rare and Endangered Plants of California (online edition, v8-03 0.39). Website http://www.rareplants.cnps.org [accessed 12 April 2018].

4 California Department of Fish and Wildlife. 2018. California Life History Accounts and Range Maps. Accessed: December 2017. www.wildlife.ca.gov/data/cwhr/life-history-and-range.

5 California Natural Diversity Data Base (CNDDB). 2018. California Department of Fish and Wildlife. Accessed: February 2018.

6 US Fish and Wildlife Service. 2018. USFWS Information for Planning and Conservation (IPaC) Trust Resources Report for the Proposed Project area.

7 California Department of Fish and Wildlife. 2018. California Life History Accounts and Range Maps. Accessed: December 2017. www.wildlife.ca.gov/data/cwhr/life-history-and-range.

APPENDIX D
DRAFT MITIGATION MONITORING AND REPORTING PLAN/PROGRAM (MMRP)

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APPENDIX D

Mitigation Monitoring and Reporting Plan/Program

This report summarizes the mitigation measures that would be integrated into the Sonoma Valley County Sanitation District (District) Sewer Trunk Main Replacement Project, Reaches 4A, 4B, and 4C (Project) to reduce the potentially significant impacts to a less-than-significant level. These mitigation measures are fully described in the Project's IS/MND. References included in this report to impacts and resource area analyses are referring to those impacts and analyses included in the Project's IS/MND. Also provided is a Mitigation Monitoring and Reporting Plan/Program (MMRP) organized in a tabular format, which identifies mitigation measures that apply to the Project. The tables following each measure provide a breakdown of how the mitigation measure would be implemented, who would be responsible, and when it would occur. The tables consist of five column headings which are defined as follows:

- *Implementation Procedure*: If needed, this column provides additional information on how the mitigation measures would be implemented.
- *Monitoring and Reporting Actions*: This column contains an outline of the appropriate steps to verify compliance with the mitigation measure.
- *Monitoring Responsibility*: This column contains an assignment of responsibility for the monitoring and reporting tasks.
- *Monitoring Schedule*: This column provides a general schedule for conducting each monitoring and reporting task, identifying where appropriate both the timing and the frequency of the action.
- *Responsible Agency*: This column states the agency, which would be responsible for implementing the mitigation measure.

Biological Resources

Impact BIO-b: Have a substantial adverse effect on riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the California Department of Fish and Game or US Fish and Wildlife Service.

Impact BIO-c: Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act

Construction and maintenance activities associated with the Project could result in impacts to riparian habitat, jurisdictional wetlands, and other waters of the United States.

The following mitigation measures will be implemented to reduce potential impacts to riparian habitat, jurisdictional wetlands, and other waters of the U.S. and State to less than significant levels.

Mitigation Measure BIO-1: **Avoid, minimize, or compensate for impacts to jurisdictional wetlands, other waters of the U.S., and impacts to riparian habitat.**

1. Construction activities resulting in the introduction of fill or other disturbance to jurisdictional wetlands and other waters of the U.S. would require permit approval from the U.S. Army Corps of Engineers (USACE) pursuant to Section 404 of the Clean Water Act (CWA). The Proposed Project would likely be authorized under Nationwide Permit #12 (Utility Lines) pursuant to Section 404 of the CWA. In addition, a Water Quality Certification would be required from the San Francisco Bay Regional Water Quality Control Board, pursuant to Section 401 of the CWA. The California Department of Fish and Wildlife has jurisdiction in the Proposed Project area over riparian habitat, including stream bed and banks. Therefore, pipeline construction resulting in alteration to channel bed or banks, extending to the outer dripline of trees forming the riparian corridor, would require a Streambed Alteration Agreement (SAA) from the CDFW under Section 1602 of the California Fish and Game Code. The District would apply for permits from the appropriate regulatory agencies and comply with terms. Terms of these permits and the SAA would likely include, but not necessarily be limited to, the mitigation measures listed below:

    a) The District would conduct a wetland assessment according to U.S. Army Corps of Engineers protocol and regional supplement to delineate all potentially jurisdictional wetlands and other waters in the

Proposed Project area. The District would then obtain and comply with necessary conditions for permits for wetland impacts from the U.S. Army Corps of Engineers, the Regional Water Quality Control Board, and the California Department of Fish and Wildlife.

b) Specific locations of pipeline segments shall be configured, wherever feasible, to avoid and minimize direct and indirect impacts to wetlands and stream drainage channels. Consideration taken in finalizing configuration placement shall include:

   i. Placement of project components as distant as possible from channels and wetlands.

   ii. Where possible, construction work area boundaries shall have a minimum 20-foot setback from jurisdictional features. Pipeline construction activities in proximity to jurisdictional features include: 1) open trench operations; and 2) portions of pipeline segments listed as parallel to wetland/water features and as having potentially avoidable temporary impacts.

c) Sites identified as potential staging areas would be examined by a qualified biologist prior to construction. If potentially jurisdictional features are found that could be impacted by staging activities, they shall be avoided.

d) Where soil removal is necessary in a wetland or drainage, to maintain wetland function, the top 12 inches of soil would be stockpiled and preserved during construction. After the pipeline has been installed, the stockpiled material would be placed back into the drainage or wetland feature to return the beds to approximately their original composition.

Implementation Procedure	**Monitoring and Reporting Actions**	**Monitoring Responsibility**	**Monitoring Schedule**	**Responsible Agency**
1. Acquire permits from USACE, CDFW, and Regional Board. 2. Implement Best Management Practices (BMPs). 3. Stockpile excavated soil. 4. Implement compensatory mitigation.	1. Comply with regulatory permit. 2. Sign-off on inspection report and/ or MMRP. 3. Sign-off on inspection report and/ or MMRP. 4. Comply with regulatory permits and SAAs.	1. District 2. Contractor 3. Contractor 4. District	1. Prior to Construction 2. During Construction 3. During Construction 4. Prior to and During Construction	District

Impact BIO-e: Conflict with any local policies or ordinances protecting biological resources, such as tree preservation policy or ordinance

Construction and maintenance activities associated with the Project could result in impacts to sensitive natural communities including riparian forests and oak woodlands. Specific measures shall be implemented to reduce impacts to trees protected under Sonoma County Ordinance No. 4991.

The following mitigation measures will be implemented to reduce potential impacts to trees protected under Sonoma County Ordinance No. 4991 to less than significant levels.

Mitigation Measure BIO-2: Comply with Sonoma County Ordinance No. 4991

1. Prior to start of construction, the final number of valley oak trees to be removed would be determined. A Notice of Intent to Mitigate and Remove Valley Oak Trees application would be submitted, and all requirements would be adhered to. The District would comply with mitigation requirements in accordance with Ordinance No. 4991.

   As outlined in the Sonoma County Municipal Code Sec. 26-67-030(a), mitigation for tree removal may be in the form of (1) tree replacement by planting valley oak seedlings on the subject property or on another site in the county having the geographic, soil, and other conditions necessary to sustain a viable population of valley oaks; (2) retaining other valley oak trees on the subject property; (3) a combination of measures (1) and (2); or (4) paying an in-lieu fee, which shall be used exclusively for valley oak planting programs in the County of Sonoma.

Implementation Procedure	Monitoring and Reporting Actions	Monitoring Responsibility	Monitoring Schedule	Responsible Agency
1. Submit a notice of intent to mitigate and remove valley oak trees to Sonoma County (based on final number of valley oak trees to be removed). 2. Implement mitigation requirements derived during application process.	1. Design protective measures. 2. Comply with permit conditions; sign-off on inspection report and/or MMRP	1. District 2. Contractor	1. Prior to Construction 2. During Construction	District

Cultural Resources

Impact Cultural-a: Change in the significance of a historical resource as defined in Section 15064.5

Construction and maintenance activities associated with the Project could result in impacts to historical resources as defined in Section 15064.5.

The following mitigation measures will be implemented to reduce potential impacts to historical resources as defined in Section 15064.5 to less than significant levels.

Mitigation Measure CUL-1: Archaeological Resource Management and Data Recovery Plan

1. The District, in consultation with Caltrans, and the affected Native American tribe shall undertake the following:

    a) Archaeological Resource Management and Data Recovery Plan. Because a California and National Register-eligible archaeological resource has been identified as being present within Caltrans property, which the Proposed Project area is within, the District, in consultation with Caltrans and the affected Native American tribe, shall retain a Secretary of the Interior-qualified archaeologist to prepare and implement Archaeological Resource Management and Data Recovery Plan.

    The Archaeological Resource Management and Data Recovery Plan shall include how a data recovery program would preserve the significant information the archaeological resource is expected to contain. Treatment would consist of (but would not be not limited to) sample excavation, artifact collection, site documentation, and historical research, with the aim of targeting the recovery of important scientific data contained in the portion(s) of the significant resource to be impacted by the Proposed Project. The Archaeological Resource Management and Data Recovery Plan shall include provisions for analysis of data in a regional context; reporting of results within a timely manner and subject to review and comments by Caltrans and the affected Native American tribe, before being finalized; curation of artifacts and data at a local facility; and dissemination of final confidential reports to Caltrans, the affected Native American tribe, and the Northwest Information Center of the California Historical Resources Information System.

    A representative from the affected Native American tribe shall be present during ground disturbing activities within the site.

In addition, during general ground disturbance throughout the Proposed Project area, there is the potential to uncover previously unidentified archaeological resources. The disturbance of previously unidentified archaeological resources would be a potentially significant impact. Implementation of **Mitigation Measure CUL-2 (Inadvertent Discovery of Archaeological Resources)** would reduce potential impacts to less than significant by ensuring that work would halt in the vicinity of an unanticipated find so that a qualified archaeologist and Native American representative can make additional recommendations if required.

Implementation Procedure	Monitoring and Reporting Actions	Monitoring Responsibility	Monitoring Schedule	Responsible Agency
1. In consultation with the affected tribe, prepare an archaeological resource management and data recovery plan. 2. Provide final confidential reports to affected Native American tribe, Caltrans, and the Northwest Information Center. 3. In consultation with the affected Native American tribe, arrange for a tribal representative monitor to be present on site during ground disturbing activities.	1. Consult with Caltrans and affected California Native American tribe. 2. District 3. District	District	1. Prior to and during construction 2. Following construction 3. During construction (ground disturbing activities)	District

Mitigation Measure CUL-2: Inadvertent Discovery of Archaeological Resources

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

2. During construction outside of known archaeological resource site boundaries, if buried items of historical, archaeological or paleontological interest are encountered the contractor will immediately cease all soil–disturbing construction activities in that area and within 60 feet of the find. Historical, archaeological, cultural and paleontological 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, human bones, and fossils. After cessation of excavation, the contractor will immediately contact the District's Construction Inspector. The contractor will not resume work until authorization is received from the Construction Inspector.

a) In the event of inadvertent discovery of archaeological materials occurs during construction, the District 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) within 24 hours of discovery 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 appropriate affected Native American tribe. If data recovery excavation is necessary, the District 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 the District, and affected Native American tribe. Implementation of the Archaeological Resource Management and Data Recovery Plan shall be conducted prior to work being resumed.

Implementation Procedure	**Monitoring and Reporting Actions**	**Monitoring Responsibility**	**Monitoring Schedule**	**Responsible Agency**
1. Prepare and provide cultural resources training for construction crews 2. In the inadvertent event of a find, cease construction within 60 feet of find, and 3. In consultation with the affected tribe(s), implement additional mitigation/ arrange for data recovery	1. Provide a sign-in sheet to document training 2. Evaluate significance prior to resuming construction activities.	1. Contractor/District 2. Qualified Archaeologist	1. Prior to and during construction 2. During construction (ground disturbing activities)	District

Impact Cultural-c: Destroy a unique paleontological resources or unique geological feature

Construction and maintenance activities associated with the Project could result in impacts to paleontological resources.

The following mitigation measures will be implemented to reduce potential impacts to paleontological resources to less than significant levels.

Mitigation Measure CUL-3: Inadvertent Discovery of Paleontological Resources

1. Prior to initiation of ground-disturbing activities, the District shall arrange for construction crews to receive training about the kinds of paleontological materials that could be uncovered during construction. Training shall be conducted by a professional paleontologist meeting the professional standards established by the Society of Vertebrate Paleontology. Training may be required during different phases of construction to educate new construction personnel.

2. If any items of paleontological interest are encountered, all soil-disturbing work in that area and within 60 feet of the find shall be halted until a qualified paleontologist meeting the professional standards established by the Society of Vertebrate Paleontology evaluates the site. If it is determined by the qualified paleontologist that the Proposed Project could damage a unique paleontological resource, as defined in the CEQA Guidelines, mitigation shall be implemented in accordance with PRC Section 21083.2 and Section 15126.4 of the CEQA Guidelines. If avoidance is not feasible, the paleontologist shall develop and implement a treatment plan consistent with the methods recommended by the Society of Vertebrate Paleontology. Work shall not be resumed until recommendations received from the qualified paleontologist are implemented.

Implementation Procedure	Monitoring and Reporting Actions	Monitoring Responsibility	Monitoring Schedule	Responsible Agency
1. Prepare and provide paleontological training for construction crews 2. In the inadvertent event of a paleontological find, cease construction within 60 feet of find, and 3. If avoidance is infeasible, apply mitigation/ arrange for a treatment plan	1. Provide a sign-in sheet to document training 2. Evaluate significance prior to resuming construction activities.	1. Contractor/ District 2. Contractor/District 3. Qualified Paleontologist	1. Prior to and during construction/for new crew members 2. During construction (ground disturbing activities)	District

Impact Cultural-d: Disturb any human remains, including those interred outside of formal cemeteries

Construction and maintenance activities associated with the Project could result in impacts to human remains.

Implementation of **Mitigation Measure CUL-1 (Archaeological Resource Management and Data Recovery Plan)** described above and the following mitigation measure will be implemented to reduce potential impacts to the discovery of human remains to less than significant levels.

Mitigation Measure CUL-4: Inadvertent Discovery of Human Remains

1. The project applicant will require the contractor to comply with Section 7050.5 of the Health and Safety Code, and Section 5097.94 of the Public Resources Code of the State of California, as they pertain to the discovery of human remains.
2. In the event of the discovery of human remains during construction, the contractor shall halt work in the area and within 60 feet of the find, and contact the District 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 remains are found on Caltrans property, the District Construction Inspector will contact Caltrans, and Caltrans will immediately contact the Sonoma County Coroner. 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 have been received.

Implementation Procedure	Monitoring and Reporting Actions	Monitoring Responsibility	Monitoring Schedule	Responsible Agency
1. Cease work within 60 feet of a find and inform the District in the event of an inadvertent discovery of human remains. 2. In the event of discovery of human remains, cease work and contact county coroner and Native American Heritage Commission (NAHC) if necessary.	1. Copies of Site Records or DPR 523 forms shall be retained in District files; incorporate recommendations for design modification if necessary. 2. Sign-off on inspection report and/ or MMRP; coordinate with NAHC.	1. Contractor/District 2. District	1. During Construction 2. During Construction	District

Noise

Impact Noise-a: Expose of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.

Construction and maintenance activities associated with the Project could result in a substantial temporary increase in ambient noise levels in the vicinity of Project during construction. Additionally, construction activity would violate standards established in the local noise ordinances, and/or would adversely affect nearby sensitive receptors.

The following mitigation measures will be implemented to reduce potential impacts to persons exposed to substantial temporary increase in ambient noise levels to less than significant levels.

Mitigation Measure NOISE-1: Construction Noise Reduction

1. Limit use of construction equipment (e.g., vibratory hammer/pile driver or concrete saw) that will exceed 90dbA within 50 feet of sensitive land uses along portions of Reach 4B (Ramon Street) and portions of Reach 4C (Happy Lane) to daytime hours on weekdays to comply with City of Sonoma's Municipal Code, Chapter 9.56 (Noise), Section 9.56.050(A) hours (between 8:00 a.m. and 6:00 p.m., Monday through Friday).

   Some construction working days and times may have exceptions (as approved by the District) that may occur during emergencies, as required for encroachment permits, safety considerations, or certain construction procedures that cannot be interrupted. With exceptions construction hours may occur during nighttime, and/or on Saturdays and Sundays. If necessary, weekend work would generally comply with City of Sonoma's municipal code, hours (between 9:00 a.m. and 6:00 p.m. on Saturday, and between 10:00 a.m. and 6:00 p.m. on Sundays). With exceptions, prior notification of activities will be given to surrounding residents. In addition, exceptions that require work hours outside of the City of Sonoma's municipal code (between 8:00 a.m. and 6:00 p.m., Monday through Friday, between 9:00 a.m. and 6:00 p.m. on Saturday, and between 10:00 a.m. and 6:00 p.m. on Sundays and holidays), within the City of Sonoma's jurisdiction would comply with the City of Sonoma's Municipal Code, Chapter 9.56 (Noise), Section 9.56.060(A) Exceptions Allowed with Permits.

2. To the extent feasible, the use of construction equipment (e.g., vibratory hammer/pile driver or concrete saw) that generates noise levels greater than 90 dBA along portions of Reaches 4B and 4C within 50 feet of

sensitive land uses shall not be used during Proposed Project construction. If not feasible, and the use of such construction equipment is required, the District shall offer sensitive receptors (residences) within 50 feet of the construction area along portions of Reaches 4B and 4C alternate temporary accommodations. The accommodations shall be provided for the duration of construction activities that generates noise levels greater than 90 dBA within 50 feet of the sensitive receptors (residence). The alternate temporary accommodations shall be reasonably similar to those of the impacted sensitive receptors (residents) in terms of number of beds and amenities.

3. Equipment and trucks used for construction activities shall utilize noise control equipment per manufacturer's original equipment or better (e.g., improved mufflers, equipment redesign, use of intake silencers, ducts, engine enclosures and acoustically-attenuating shields or shrouds, wherever feasible).

4. All construction machinery and equipment would be inspected daily to see if there are any problems that may contribute to increased noise levels and unsafe practices.

5. Construction equipment noise shall be minimized where feasible during project construction by muffling and shielding intakes and exhaust on construction equipment (per the manufacturer's specifications) and by potentially shrouding or shielding impact tools. No equipment will be operated with an unmuffled exhaust.

6. Temporary noise damper barriers/enclosures/ structures (e.g. plywood with sound absorbing materials, sound blankets, sandbags or other materials) shall be installed around noisy equipment that may exceed 90dBA and jacking and receiving pits to minimize noise where feasible.

7. Construction contractors shall locate fixed construction equipment (such as compressors and generators) and construction staging areas as far as feasible from nearby sensitive receptors.

8. A District Inspector and/or contractor shall conduct management control of sound source by implementing noise level monitoring for specific construction activities within 50 feet of sensitive receptor locations.

9. Residences and other sensitive receptors within 200 feet of construction and staging areas shall be notified on the construction schedule in writing, at least two weeks prior to the commencement of construction activities. This notice shall indicate the allowable hours of construction activities as specified by the applicable local jurisdiction. The construction contractor shall designate a noise disturbance coordinator who would be responsible for responding to complaints regarding construction noise. The coordinator shall determine the cause of the

complaint and ensure that reasonable measures are implemented to correct the problem. A contact number for the noise disturbance coordinator shall be conspicuously placed on the project identification sign(s) and included in the construction schedule notification sent to nearby residences and sensitive receptors.

Implementation Procedure	Monitoring and Reporting Actions	Monitoring Responsibility	Monitoring Schedule	Responsible Agency
1. Implement acceptable construction hours. 2. Distribute notices to sensitive receptors within 200-feet of Project 3. Implement construction noise reduction measures. 4. Use appropriate noise muffling equipment. 5. Appropriately locate all stationary noise-generating equipment.	1. Incorporate into contract specifications; sign-off on MMRP. 2. Sign-off on MMRP. 3. Incorporate into contract specifications; sign-off on MMRP. 4. Incorporate into contract specifications; sign-off on MMRP. 5. Incorporate into contract specifications; sign-off on MMRP.	1. District 2. District/ Contractor 3. District 4. Contractor 5. Contractor	1. Prior to and during construction 2. At least two weeks prior to construction 3. During construction 4. During construction 5. During construction	District

Impact Noise-b: Expose of persons to excessive ground-borne vibration or ground-borne noise

Construction and maintenance activities associated with the Project could expose sensitive receptors to excessive ground-borne vibration levels.

The following mitigation measures will be implemented to reduce potential impacts to persons exposed to ground-borne vibration to less than significant levels.

Mitigation Measure NOISE-2: Vibration Reducing Measures

1. Limit use of vibratory construction equipment (e.g., or jackhammer) associated with construction activities within approximately 15 feet of sensitive receptors (residence) along Reach 4C (Happy Lane) that could exceed the applied human annoyance threshold of 0.1 inch/second PPV within approximately 15 feet, and exceed the damage threshold for residential structures of 0.3 inch/second PPV within approximately 10 feet. to daytime hours on weekdays to comply with City of Sonoma's Municipal Code, Chapter 9.56 (Noise), Section 9.56.050(A) hours (between 8:00 a.m. and 6:00 p.m., Monday through Friday).

   Some construction hours exceptions may occur along Reach 4C (Happy Lane) within approximately 15 feet of sensitive receptors (residence)

during emergencies, hours required for encroachment permits, safety considerations, or certain construction procedures that cannot be interrupted. With some exceptions construction hours may occur during nighttime, and/or on Saturdays and Sundays. If necessary, weekend work would generally comply with City of Sonoma's municipal code hours (between 9:00 a.m. and 6:00 p.m. on Saturday, and between 10:00 a.m. and 6:00 p.m. on Sundays). With such exceptions, prior notification of activities will be given to surrounding residents.

2. Prohibit use of impact pile driving equipment/vibratory hammer within 25 feet of sensitive receptors along Reach 4B (Ramon Street) and Reach 4C (Happy Lane).

3. Ensure proper tuning of vibratory construction equipment.

4. Use vibration damping devices to the extent feasible.

5. Operate earth-moving equipment as far away as possible from vibration-sensitive receptors.

6. Limit use of vibratory construction equipment to the extent feasible.

7. Do not overlap the use of the greatest vibratory construction equipment (e.g., excavator and jack hammer).

8. The contractor shall implement a vibration monitoring program during trenchless and open trench construction techniques (jack and bore or jack hammering operations) within 15 feet of applicable residential structures along Reach 4B (Ramon Street) and Reach 4C (Happy Lane) to minimize vibration-related impacts on applicable structures.

    a) Vibration monitoring program:

        i. Contractor shall submit monitoring program to District and obtain approval from District prior to the start of construction.

        ii. Provide pre-construction monitoring in the vicinity of construction locations where the use of jack and bore or a jack hammer would be required in regards to building walls, floors, and foundations, driveways and sidewalks, storm drainage structures, sanitary sewer manholes, utility poles, exposed underground utilities, existing ground surfaces, and other facilities as needed, including but not limited to:

            a. Pictures/videos

            b. Provide crack gauge installation and initial measurement notations for buildings exteriors prior to start of trenchless operations.

c. Provide monitoring of existing ground elevations along the trenchless alignments.

iii. Provide on-going monitoring of existing building walls, floors, and foundations, driveways and sidewalks, storm drainage structures, utility poles, exposed underground utilities, existing ground surface, and other facilities in the vicinity of, and during, trenchless construction operations, including but not limited to:

a. At a minimum, monitor facilities noted above under pre-construction monitoring, with the exception of existing ground surface elevations and foundation cracks, on a daily basis.

b. Monitor existing ground surface elevations and foundation cracks within 15 feet horizontally of the lead end of the casing on an hourly basis during trenchless construction operations.

c. Submit monitoring information to Owner daily at end of the workday.

d. Keep on-going monitoring data up to date daily and/or hourly, as required herein, and available for Owner's inspection at all times during trenchless construction operations.

iv. Provide post-monitoring cleanup following the completion of trenchless construction operations, as follows:

a. Upon direction of Owner:

1) Remove concrete monitoring provisions and restore surface to match existing, as needed.
2) Obtain signed post-construction property owner letters from each private property owner.

v. If a private property owner will not sign standard letter, determine reason(s) for non-signature and provide property owner(s) name to District for negotiation with private property owner.

9. During trenchless and open trench construction techniques (e.g. jack and bore or jack hammering operations) within 25 feet of applicable residential structures along Reach 4B (Ramon Street and 4C (Happy Lane) temporary alternate accommodations shall be offered by the District to reduce potential annoyance caused by construction-related vibration impacts on applicable residential receptors. The accommodations shall be provided for the duration of construction activities occurring within 15 feet of the residence. The temporary alternate accommodations shall be reasonably similar to those of the impacted residents in terms of number of beds and amenities.

Implementation Procedure	Monitoring and Reporting Actions	Monitoring Responsibility	Monitoring Schedule	Responsible Agency
1. Limit vibratory equipment use to daytime hours consistent with City of Sonoma rules. 2. Develop a Construction Vibration Monitoring Program in the event that trenchless technology is not feasible.	1. Incorporate into contract specifications. 2. Incorporate into contract specifications.	1. Contractor 2. Contractor	1. During construction 2. Prior to and during construction	District

Transportation and Traffic

Impact Traf-a: Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, street, highways and freeways, pedestrian and bicycle paths, and mass transit.

Impact Traf-e: Result in inadequate emergency access

Construction and maintenance activities associated with the Project could impact existing traffic congestion on Highway 12 or on local roadways serving neighborhood traffic during peak times. The Project's construction-related lane closures, and the resulting impacts could be significant with respect to the performance of the local circulation of the transportation network.

The following mitigation measures will be implemented to reduce potential impacts on transportation and traffic and emergency access in the vicinity of the Proposed Project to less than significant levels.

The following mitigation measures will be implemented to reduce potential impacts on trees protected under Sonoma County Ordinance No. 4991 to less than significant levels.

Mitigation Measure TRAF-1: Traffic Control Plan

1. Notification:
    a) 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. Provide notice to property owner.

b) 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.

c) Notify the property occupants, in writing, at least three days in advance of the trenching across property occupants' driveways. Provide notice to property owner.

d) At least seven days prior to commencement of work, and in compliance with any additional notice requirements set forth in any applicable permits, coordinate vehicular access with affected entities, including, but not limited to, the following:

i. El Verano Elementary School
ii. Sassarini Elementary School
iii. Sonoma Valley Unified School District
iv. El Verano Preschool
v. St. Francis Solano School
vi. Sandy Standley, FCCH Family Day Care
vii. Sonoma Valley Fire Department
viii. Sonoma County Fire and Emergency Services Department
ix. Sonoma Police Department
x. Sonoma County Regional Parks Department
xi. Sonoma County Sherriff
xii. Recology (local recycling, compost, and trash collection hauler)
xiii. United States Postal Service (local office)
xiv. City of Sonoma
xv. Sonoma County Transit
xvi. U.S. Postal Service
xvii. Caltrans

e) If any applicable permits require contractor to notify residents or any organization of traffic detours or delays, provide such notice(s) to property owner.

2. Traffic Control Measures:

a) Traffic control and safety precautions shall conform to the "California Manual on Uniform Traffic Control Devices" (latest edition), and

applicable provisions of the County of Sonoma, City of Sonoma, and California Department of Transportation encroachment permits.

b) Pay for traffic signage, including flagging and modification of traffic signal operation.

c) Provide safe passage for vehicular and pedestrian traffic through the work at all times.

d) 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 District. Permit the traffic equal flow time in each direction.

e) Maintain access to public and private buildings, businesses and driveways. Provide approved metal “bridge” or temporary backfill for access when and where required within thirty minutes after request by property owner except that emergency vehicles and personnel shall be provided immediate access at all times.

f) Restore access to residences for non-working hours, holidays, and weekends.

3. Maintain Traffic Control Measures:

a) Maintain traffic control through the site and provide local access as specified herein regardless of rain or other causes, either within or beyond the control of contractor, which may force suspension or delay of the work. At all times keep on the site such materials, labor forces, and equipment as may be necessary to keep the streets and driveways within the site open to traffic and in good repair. Expedite the passage of such traffic, using such labor forces and equipment as may be necessary.

Implementation Procedure	Monitoring and Reporting Actions	Monitoring Responsibility	Monitoring Schedule	Responsible Agency
1. Conduct notifications to residents, schools, and public service providers along affected Project roadways. 2. Implement a traffic control plan which includes the following measures such as identifying hours of construction and deliveries; identifying access and parking restriction, pavement markings and signage requirements; and	1. Incorporate into contract specifications. 2. Incorporate traffic control plan measures into contract specifications. 3. Incorporate permit conditions into contract specifications. 4. Incorporate plans into contract specifications.	1. /District/Contractor 2. District/Contractor 3. District 4. District 5. District	1. Prior to construction 2. Prior to and during construction 3. Prior to and during construction 4. Prior to and during construction 5. During construction	District

Implementation Procedure	Monitoring and Reporting Actions	Monitoring Responsibility	Monitoring Schedule	Responsible Agency
planning for notifications; coordinating all construction activities with emergency service providers. 3. Obtain local road encroachment permits for roads that are affected by construction activities. 4. Develop circulation and detour plans to minimize impact to local street circulation. This may include the use of signing and flagging to guide vehicles through and/or around the construction zone. 5. Encourage construction crews to park at staging areas to limit lane closures in the public right-of-way.	5. Incorporate parking restrictions into contract specifications.			

Tribal Cultural Resources

Impact TCR-a: 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 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).

Impact TCR-b: 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 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.

Construction and maintenance activities associated with the project could cause a substantial adverse change in the significance of a tribal cultural resource that is 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); and 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.

Implementation of **Mitigation Measure CUL-1 (Archaeological Resource Management and Data Recovery Plan) and Mitigation Measure CUL-2 (Inadvertent Discovery of Archaeological Resources)** described above, and the following mitigation measures, will be implemented to reduce potential impacts to tribal cultural resources to less than significant levels.

Mitigation Measure TCR-1: Tribal Cultural Resources Interpretive Program

1. The District shall implement an interpretive program of the tribal cultural resource in consultation with the affected California Native American tribe. The plan shall identify, as appropriate, proposed locations for installations or displays, the proposed content and materials of those displays or installation, the producers or artists of the displays or installation, and a long term maintenance program. The interpretive program may include artist installations, preferably by local Native American artists, oral histories with local Native Americans, artifacts displays and interpretation, and educational panels or other informational displays. The affected California Native American tribe will oversee and approve the cultural interpretation program content, and as deemed appropriate by the affected California Native American tribe, the types of materials, photos, and illustrations used in the final display.

Mitigation Measure TCR-2: Tribal Monitoring During Grading, Groundbreaking, Excavation, and Ground-Disturbing Activities in Tribal Cultural Resource Areas

1. The District shall retain a monitor representative from the California Native American tribe during all grading, groundbreaking, excavation, and ground-disturbing activities performed in conjunction with the

Project development of areas identified as tribal cultural resources within Reaches 4A and 4B during consultation.

2. For purposes of determining Tribal monitoring crew sizes, a written schedule of grading, groundbreaking, excavation, and ground-disturbing activities will be submitted by District to the California Native American tribe one week in advance of the commencement of these activities. For purposes of this mitigation, "notice" must be given during normal business hours (i.e., Monday - Friday from 8:00 a.m. to 5:00 p.m.) to be proper notice. Following any rescheduling or interruption of scheduled activities, the District will give the California Native American tribe forty-eight (48) hours' notice before activities resume.

Implementation Procedure	**Monitoring and Reporting Actions**	**Monitoring Responsibility**	**Monitoring Schedule**	**Responsible Agency**
1. In consultation with the affected tribe, prepare an interpretive program of the tribal cultural resource. 2. Retain a monitor representative from the California Native American tribe in conjunction with the project development of areas identified as tribal cultural resources within Reaches 4A and 4b.	1. Consult with affected California Native American tribe. 2. Incorporate tribal monitor into contract specifications.	1. District 2. District/Contractor	1. During and following construction 2. During construction	District