Draft Subsequent Environmental Impact Report

City of Healdsburg
Wastewater Treatment Plant Upgrade Project

SCH #2002072083

Prepared by:

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August 1, 2019

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Acronyms and Abbreviations

°F	Fahrenheit
2005 Water Plan Update	California Water Plan Update 2005
AB	Assembly Bill
Alquist-Priolo Act	Alquist-Priolo Earthquake Fault Zoning Act
amsl	above mean sea level
APS	Alternative Planning Strategy
ARB	California Air Resources Board
Assembly Bill 1807	Tanner Air Toxics Act
Assembly Bill 2588	Air Toxics Hot Spots Information and Assessment Act of 1987
B.P.	Before Present
BAAQMD	Bay Area Air Quality Management District
basin plans	water quality control plans
BH	Biotic Habitat
BiOP	Biological Opinion
BMPs	best management practices
Btu	British thermal units
CAA	federal Clean Air Act
CAAA	Clean Air Act Amendments of 1990
CAAQS	California ambient air quality standards
CAL FIRE	California Department of Forestry and Fire Protection
CalEEMod	California Emissions Estimator Model
CalEPA	California Environmental Protection Agency
CALGreen Code	California Green Building Standards Code
Caltrans	California Department of Transportation
CAP	Climate Action Plan
CAPCOA	California Air Pollution Control Officers Association
CASGEM	California Statewide Groundwater Elevator Monitoring Program
CBC	California Building Standards Code
CCAA	California Clean Air Act
CCR	California Code of Regulations
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
cfs	cubic feet per second
CGS	California Geological Survey
CH_4	Methane
CIMIS	California Irrigation Management Information System
City	City of Healdsburg
CNDDB	California Natural Diversity Database
CNEL	community noise equivalent level
CNPS	California Native Plant Society
CNRA	California Natural Resources Agency
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	carbon dioxide-equivalents
Commission	California Fish and Game Commission

County	Sonoma County
CRHR	California Register of Historical Resources
CWA	Clean Water Act
dB	decibels
dBA	A-weighted dB
dBA/DD	dBA per doubling of distance
DDW	Division of Drinking Water
DOC	California Department of Conservation
EIR	environmental impact report
EPA	U.S. Environmental Protection Agency
ESA	federal Endangered Species Act of 1973
Farmland	Prime Farmland, Unique Farmland, or Farmland of Statewide Importance
FMMP	Farmland Mapping and Monitoring Program
FTA	Federal Transit Administration
g	percentage of gravity
GDP	gross domestic product
General Permit	NPDES General Permit No. CAS000002
General Plan	Sonoma County General Plan 2020
GHG	greenhouse gas
gpm	gallons per minute
GWP	Global warming potential
HAPs	hazardous air pollutants
Healdsburg Electric Utility Department	City of Healdsburg Electric Utility Department
HFC	Hydrofluorocarbons
Hz	Hertz
in/sec	inch per second
ITE	Institute of Transportation Engineers
kWh	kilowatt-hours
LCD	liquid-crystal-display
LCFS	low carbon fuel standard
L_{dn}	day-night noise level
LEA	Land Extensive Agriculture
L_{eq}	equivalent noise level
LIA	Land Intensive Agriculture
LOS	level of service
MBTA	Migratory Bird Treaty Act
MCLs	maximum contaminant levels
MG	million gallons
MMRP	mitigation monitoring and reporting plan
MMT	million metric tons
mph	miles per hour
MPOs	Metropolitan Planning Organizations
MRZ	mineral resource zone
MSDS	Materials Safety Data Sheet
MT	metric tons

MTC-ABAG	Metropolitan Transportation Commission/Association of Bay Area Governments
N_2O	Nitrous oxide
NAAQS	national ambient air quality standards
NAHC	Native American Heritage Commission
NCAB	North Coast Air Basin
NEHRP	National Earthquake Hazards Reduction Program
NEHRPA	National Earthquake Hazards Reduction Program Act
NF_3	Nitrogen trifluoride
NHPA	National Historic Preservation Act
NHTSA	National Highway Traffic Safety Administration
NMFS	National Marine Fisheries Service
NO_2	Nitrogen dioxide
NOA	notice of applicability
NOP	notice of preparation
NO_X	oxides of nitrogen
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
NSCAPCD	Northern Sonoma County Air Pollution Control District
OEHHA	Office of Environmental Health Hazard Assessment
OPR	Governor's Office of Planning and Research
ozone	photochemical smog
PCB	polychlorinated biphenyl
PFCs	Perfluorocarbons
PG&E	Pacific Gas and Electric Company
PM10	aerodynamic diameter of 10 micrometers or less
PM2.5	aerodynamic diameter of 2.5 micrometers or less
Porter-Cologne Act	Porter-Cologne Water Quality Control Act of 1975
ppm	part per million
PPV	peak particle velocity
PRC	California Public Resources Code
psi	pounds per square inch
RC	Riparian Corridor
RCPA	Regional Climate Protection Authority
Reporting Rule	Final Mandatory Greenhouse Gas Reporting Rule
Resolution	Climate Change Action Resolution
RO	Reverse osmosis
ROG	reactive organic gases
RPS	Renewables Portfolio Standard
RRD	Resources and Rural Development
RTP	Regional Transportation Plan
RWQCB	Regional Water Quality Control Board
SB	Senate Bill
SCAQMD	South Coast Air Quality Management District
Scoping Plan	Climate Change Scoping Plan: A Framework for Change
SCS	Sustainable Communities Strategy
SCTA	Sonoma County Transportation Authority
SCWA	Sonoma County Water Agency

SEIR	subsequent environmental impact report
SF_6	Sulfur hexafluoride
SIP	state implementation plan
SMAQMD	Sacramento Metropolitan Air Quality Management District
SO_2	Sulfur dioxide
SVP	Society of Vertebrate Paleontology
SWPPP	storm water pollution prevention plan
SWRCB	State Water Resources Control Board
TACs	toxic air contaminants
TCRs	tribal cultural resources
TDS	total dissolved solids
TMDLs	total maximum daily loads
UBC	Uniform Building Code
USA	Underground Service Alert
USACE	U.S. Army Corps of Engineers
USDOT	U.S. Department of Transportation
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
VdB	vibration decibels
VESCO	Vineyard and Orchard Development and Agricultural Grading and Drainage Ordinance
VOH	Valley Oak Habitat
WDRs	Waste Discharge Requirements
WRF	water reclamation facility
WRRs	Water Recycling Requirements
WWTP	Wastewater Treatment Plant

EXECUTIVE SUMMARY

ES.1 INTRODUCTION

This summary highlights the major areas of importance in the environmental analysis for the proposed options, as required by Section 15123 of the California Environmental Quality Act Guidelines (State CEQA Guidelines). As stated in Section 15123(a), "[a]n EIR shall contain a brief summary of the proposed action and its consequences. The language of the summary should be as clear and simple as reasonably practical." As required by the guidelines, this chapter includes (1) a summary description of the proposed project, (2) a synopsis of environmental impacts and recommended mitigation measures (Table ES-1), (3) identification of the alternatives evaluated, and (4) a discussion of the areas of controversy associated with the project. For additional detail regarding specific issues, please consult Chapter 3, Environmental Setting, Impacts, and Mitigation Measures; Chapter 4, Cumulative Impacts; Chapter 5, Alternatives; and Chapter 6, Other CEQA-Required Analysis.

ES.2 PROJECT CHARACTERISTICS

The *City of Healdsburg Wastewater Treatment Upgrade Project Environmental Impact Report* (City of Healdsburg 2005) addressed separate options for the City of Healdsburg (City) Water Reclamation Facility (WRF) upgrade, effluent disposal, and seasonal irrigation with recycled water. In 2014 and 2016, the City prepared addenda to the 2005 EIR (City of Healdsburg 2014a and 2016a) that considered delivery via haul trucks and pipelines of recycled water for seasonal irrigation of up to 25,000 additional acres of agricultural land within an area of approximately 103,000 acres. This subsequent EIR (SEIR) addresses the City's proposed expansion of the recycled water program, including proposed recycled water facilities and operations.

The proposed project includes both specific projects and programmatic components. The specific projects are subject to detailed analysis in this SEIR in accordance with State CEQA Guidelines Section 15161 ("Project EIR"). The proposed components identified below for the 2018 Program Expansion Area are analyzed in less detail in accordance with State CEQA Guidelines Section 15168 ("Program EIR").

The project-level analysis in this SEIR addresses the following facilities and features proposed for the 2018 Proposed Area:

- add approximately 1,160 acres that could receive recycled water via the proposed new pipelines (2018 Proposed Area);
- extend the existing recycled water transmission pipelines along two alignments totaling approximately 6,000 linear feet;
- construct a recycled water distribution system in the 2018 Proposed Area to irrigate approximately 150 acres of pasture lands and 40 acres of vineyards.

The following components are addressed programmatically in the analysis in this SEIR:

- Permit an additional 3,540 acres of land to receive recycled water at a future date (2018 Program Expansion Area).

- Make permanent the temporary program permitting application of recycled water via truck delivery on approximately 25,000 acres.

- To serve additional future water users in the 2018 Program Expansion Area, a 12-inch-diameter pipeline could be extended a maximum of approximately 3.5 miles.

Common to the 2018 Proposed Area, 2018 Program Expansion Area, and recycled water haul area, the project would expand the list of recycled water uses to include:

- orchards (apple, peach, plum/prune);

- cannabis;

- irrigated pasture;

- direct livestock watering (not including dairy cows);

- frost protection; and

- other agricultural uses occurring near the wastewater treatment plant, consistent with Title 22 of the California Code of Regulations.

The WRF operates under a National Pollutant Discharge Elimination System (NPDES) permit administered by the North Coast Regional Water Quality Control Board (RWQCB). The NPDES permit prohibits discharge to the Russian River from May 15 to September 30. Currently, the City can only store approximately 25 million gallons (MG), or 17 percent of the approximately 138 million gallons of water reclaimed during the prohibition period. The City is now planning to expand its recycled water system facilities and activities to meet the North Coast RWQCB discharge prohibition. The expanded recycled water activities and construction and operation of the associated facilities are the subject of this SEIR.

ES.3 Summary of Impacts and Mitigation Measures

Table ES-1 displays a summary of significant impacts and proposed mitigation measures that would avoid or minimize potential impacts. Impacts that were concluded in the EIR to be less than significant are not included in the summary. In the table, the level of significance of the impact following implementation of each mitigation measure is identified. For detailed descriptions of project impacts and mitigation measures, the reader is referred to Sections 3.1 through 3.12.

ES.4 Alternatives

The State CEQA Guidelines require that EIRs "describe a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives" (Section 15126.6[a]). Chapter 5 of this

Draft SEIR summarizes several alternatives considered but eliminated due to infeasibility, and provides a comparative analysis between the proposed project and a Geysers Pipeline Connection, as well as the No Project Alternative.

ES.4.1 NO PROJECT ALTERNATIVE

Under the No Project alternative, no expansion of the existing recycled water facilities would occur. However, the No Project alternative would include additional facilities and an expansion of existing recycled water activities. Specifically, the No Project alternative includes additional storage at the WRF that would add approximately 15 MG to the recycled water storage capacity at the WRF. Aside from the additional storage to be provided in lined ponds, the No Project alternative would maintain the status quo of the existing recycled water facilities. Additional customers could be added utilizing existing infrastructure, such that additional tertiary-treated water from the WRF could be diverted from discharge into the Basalt Pond (Russian River) and into the recycled water system.

Under the No Project alternative, the current program authorizing truck hauling of recycled water for irrigation would cease at the end of 2020.

ES.4.2 GEYSERS PIPELINE CONNECTION ALTERNATIVE

The Geysers Pipeline is an existing 60-inch-diameter transmission main that passes the west side of the City. Water in the Geysers Pipeline is currently pumped to a well field in the mountains north and east of the City of Healdsburg, where CalPine, Inc. injects the treated wastewater into wells and recovers geothermally-produced steam to generate electrical power. Under this alternative, the recycled water from the City's WRF would be conveyed to the Geysers Pipeline for injection into groundwater wells. To make a connection to the Geysers Pipeline, the City would need to construct approximately 200 feet of 8-inch-diameter pipeline and construct and operate a new booster pump station to force the recycled water into the pipeline. It is anticipated that connection to the Geysers Pipeline would be sufficient to use the entirety of the City's recycled water, some of which may be already allocated to irrigation reuse.

ES.4.3 ENVIRONMENTALLY SUPERIOR ALTERNATIVE

The No Project alternative would be environmentally superior to the proposed project as it would avoid or reduce most of the potentially significant project impacts. However, the No Project alternative would not meet the City's primary objective of complying with the seasonal discharge prohibition, or fully meet the objectives of expanding the beneficial reuse of recycled water and preserving groundwater supplies. The Geysers Pipeline Connection alternative would be superior to the proposed project because it would avoid or substantially lessen the impacts anticipated under the proposed project. However, this alternative would not fully meet the project objectives and the feasibility is uncertain due to financial considerations.

ES.5 KNOWN AREAS OF CONTROVERSY

Section 15123 of the State CEQA Guidelines requires that a summary of an EIR identify areas of controversy known to the lead agency, including issues raised by agencies and the public. Written input received during the public comment period for the notice of preparation and a summary of

comments received during the project scoping meeting are provided as Appendix A in this Draft SEIR.

Several comments received on the notice of preparation and during the scoping meeting related to concerns regarding surface and groundwater quality, and in particularly impacts on drinking water wells. Other comments expressed concerns about the use of recycled water for frost protection and cannabis cultivation. Comments also addressed the continued hauling of recycled water and concerns related to transportation and road safety.

Table ES-1
Summary of Significant Impacts and Mitigation Measures

Significant Impact	Mitigation Measures	Level of Significance Following Mitigation[1]
3.1 Land Use Consistency and Agriculture		
No significant or potentially significant land use impacts would result from project implementation.		
3.2 Hydrology and Water Quality		
Impact 3.2-1: Degradation of Surface Water Quality from the Use of Recycled Water for Landscape and Agricultural Irrigation		
Similar to any irrigation, using tertiary-treated recycled water for landscape and agricultural irrigation has the potential to create or contribute to incidental off-site runoff and discharge to adjacent drainages. Thus, discharges of irrigation runoff could reach natural surface waters, potentially causing incidental changes in surface water quality.	**Mitigation Measure S3.2-1: Implement Best Management Practices to Prevent Runoff from Recycled Water Irrigation** The following BMPs shall be applied to landscape and agricultural irrigation activities to prevent degradation of surface water quality from the application of recycled water. It should be noted that the city is already using tertiary treated wastewater for irrigation purposes and that the proposed project will expand on an existing system that already applies BMPs. • Do not irrigate during or immediately before or after rainfall events. • Apply recycled water within hydraulic agronomic rates. • Do not irrigate on water-saturated or frozen ground. • Do not irrigate before a predicted rainfall event of 0.5 inch or greater. • Do not irrigate for more than 12 continuous hours. • Allow at least 24 hours of drying time between irrigations. • Do not allow recycled water to pond on-site. All irrigation water shall infiltrate within a 24-hour period. • Maintain 100-foot setbacks to surface waters (including ponds with river connections), unless it can be demonstrated that a lesser setback is sufficient.	LS

LS = Less than significant

Table ES-1
Summary of Significant Impacts and Mitigation Measures

Significant Impact	Mitigation Measures	Level of Significance Following Mitigation[1]
	• Inspect and maintain irrigation distribution system once per week during growing season to prevent pipe breaks or leaks. • Repair leaks or pipe breaks within 72 hours or prior to the release of 1,000 gallons, whichever comes first. • Do not install hose bibs in areas that can be accessed by general public. • Inspect and maintain drip emitters once per month during growing season. Verify or re- establish proper operation, aim, and flowrate. • Periodically adjust valves or pressure regulators to ensure operation of the irrigation system at the appropriate pressure. • Conduct recycled water operations training before each growing season and whenever new employees are hired. • Ensure that the site supervisor attends the initial and periodic refresher training required of all recycled water users. • Implement the above measures in accordance with the BMPs prescribed by the applicable North Coast RWQCB Title 22 permit.	
Impact 3.2-2: Degradation of Surface Water Quality from the Use of Recycled Water for Agricultural Frost Protection		
Using tertiary-treated recycled water for frost protection of agricultural crops has the potential to create or contribute to incidental off-site runoff and discharge to adjacent drainages. Therefore, discharges of irrigation runoff could reach natural surface waters, potentially causing incidental changes in water quality.	**Mitigation Measure S3.2-2: Implement Best Management Practices to Prevent Runoff of Recycled Water Applied for Frost Protection** The following BMPs shall be applied to frost protection activities to prevent degradation of surface water quality from the application of recycled water.	LS

LS = Less than significant

Table ES-1
Summary of Significant Impacts and Mitigation Measures

Significant Impact	Mitigation Measures	Level of Significance Following Mitigation[1]
	• Conduct preseason inspections and infrastructure testing to ensure proper operation and verify that runoff capture systems are in place. • Limit application rates to the rates established by the City of Healdsburg to prevent site runoff. • Check irrigation systems during spray events to minimize ponding and runoff. • Do not use recycled water within 25 feet of state waters containing standing or flowing water. or in a manner that could result in uncontrolled runoff into state waters. • Adequately protect all recycled water storage ponds from erosion, washout, and flooding from a 24-hour rain event having a predicted frequency of once in 25 years. • Prevent recycled water from entering street gutters, storm drains, or nearby creeks. • The site supervisor must attend the initial and periodic refresher training required of all recycled water users. • Implement the above measures in accordance with the BMPs prescribed by the applicable North Coast RWQCB Title 22 permit.	
Impact 3.2-3: Degradation of Groundwater Quality from the Use of Recycled Water for Landscape and Agricultural Irrigation		
Using tertiary-treated recycled water for landscape and agricultural irrigation could cause recycled water to infiltrate into the groundwater table, potentially causing incidental changes to water quality. Irrigation would typically take place during the summer and fall when groundwater levels are lower.	**Mitigation Measure S3.2-3: Implement Best Management Practices to Prevent Recycled Water Applied during Irrigation Activities from Entering Groundwater** The following BMPs shall be applied to landscape and agricultural irrigation activities to prevent degradation of groundwater quality from the application of recycled water. • Apply recycled water within hydraulic agronomic rates.	LS

LS = Less than significant

Table ES-1
Summary of Significant Impacts and Mitigation Measures

Significant Impact	Mitigation Measures	Level of Significance Following Mitigation[1]
	• Do not irrigate within 50 ft of domestic water supply wells. • Do not allow recycled water to pond on-site. All irrigation water must infiltrate within a 24-hour period. • Do not irrigate on water-saturated or frozen ground. • Do not irrigate prior to a predicted rainfall event of 0.5 inches or greater. • Implement short and frequent irrigation periods to prevent soil saturation and increase the soil water available to roots. • Apply recycled water within nitrogen agronomic rates. • When calculating the amount of commercial fertilizer needed, consider the nitrogen load applied through irrigation with recycled water. • Implement the above measures in accordance with the BMPs prescribed by the applicable North Coast RWQCB Title 22 permit.	
Impact 3.2-4: Degradation of Groundwater Quality from the Use of Recycled Water for Agricultural Frost Protection		
Using tertiary-treated recycled water for agricultural frost protection could cause recycled water to infiltrate into the groundwater table, potentially causing incidental changes to water quality conditions.	**Mitigation Measure S3.2-4: Implement Best Management Practices to Prevent Recycled Water Applied for Frost Protection from Entering Groundwater** The following BMPs shall be applied to frost protection activities to prevent degradation of groundwater quality from the application of recycled water. • Limit application rates to the agronomic rates established by the City of Healdsburg (see Appendix B of this EIR). • Avoid applying recycled water for frost protection at a	LS

LS = Less than significant

Table ES-1
Summary of Significant Impacts and Mitigation Measures

Significant Impact	Mitigation Measures	Level of Significance Following Mitigation[1]
	level exceeding the applicable nutrient agronomic rates of the vineyard and the cover crop. • Conduct preseason inspections and infrastructure testing to ensure proper operation and verify that runoff capture systems are in place. • Plant cover crops to prevent runoff, protect against erosion, and provide additional nitrogen removal. • Check irrigation systems during spray events to minimize ponding and runoff. • Ensure that the site supervisor attends the initial and periodic refresher training required of all recycled water users. • Implement the above measures in accordance with the BMPs prescribed by the applicable North Coast RWQCB Title 22 permit.	
Impact 3.2-5: Degradation of Surface Water Quality during Construction		
Pipeline construction activities would involve ground disturbance to excavate the linear trenches for the proposed 8-inch and 12-inch recycled-water transmission pipeline extensions, and to install the irrigation system on the diary/vineyard property. The anticipated rate of construction would be approximately 200 linear feet per day. Construction activities have the potential to generate contaminated stormwater runoff from construction sites or to accidentally cause direct nonstormwater discharges of wastes, which are a particular concern when working near or in drainage channels.	**Mitigation Measure S3.2-5: Develop and Implement a SWPPP and BMPs** In accordance with the SWRCB guidelines for the statewide NPDES stormwater permit for general construction activity, the City (or its designated general contractor) shall prepare a SWPPP in compliance with the North Coast RWQCB requirements for construction-related activities. Pollution prevention measures shall be incorporated into all final design and construction plans. The SWPPP shall describe the proposed construction activities, the pollution prevention BMPs to be implemented to prevent discharge of pollutants, and the BMP inspection and monitoring activities to be conducted. All water quality, erosion, and sediment control measures included in the SWPPP shall be implemented in	LS

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Table ES-1
Summary of Significant Impacts and Mitigation Measures

Significant Impact	Mitigation Measures	Level of Significance Following Mitigation[1]
	accordance with the guidelines set forth in the SWPPP and the City's standard BMPs. The SWPPP shall identify the responsibilities of all parties, contingency measures, agency contacts, and training requirements and documentation for those personnel responsible for installation, inspection, maintenance, and repair of BMPs.	
3.3 Fisheries Resources		
No significant or potentially significant impacts are associated with fisheries resources.		
3.4 Biological Resources		
Impact 3.4-1: Impacts on Special-Status Plants		
Construction activities associated with installation of the recycled water distribution system in annual grassland habitat could potentially lead to the removal of or indirect impacts on special-status plant species. If special status plant species occur in the pastures that could be subject to an extended wet season due to irrigation, these plants could be affected by irrigation if the irrigation adversely affected the habitat by making the soil too wet for the plants to persist or by otherwise changing soil or habitat conditions.	**Mitigation Measure S3.4-1: Avoid Significant Impacts on Special-Status Plants** If no special-status plants are found during focused surveys, the findings will be documented in a letter report to the City of Healdsburg, and no further mitigation would be required. If special-status plants are found during focused surveys in the areas where pipelines will be installed, they should be avoided during construction. If impacts to special-status plant species can be avoided during construction, avoidance zones shall be included in construction drawings and the methods should be documented in a letter report to the City of Healdsburg. Locations of special-status plant populations clearly identified in the field for avoidance by staking or flagging before construction. No project activity would occur in the marked areas. If special-status plants are found in areas to be irrigated, the areas supporting the plants plus a 100 foot buffer zone shall be excluded from the area to be irrigated to avoid adverse effects on the plants from exposure	LS

LS = Less than significant

Table ES-1
Summary of Significant Impacts and Mitigation Measures

Significant Impact	Mitigation Measures	Level of Significance Following Mitigation[1]
	to excessive moisture. If special-status plants found during focused surveys cannot be completely avoided during construction or irrigation, informal consultation with CDFW shall be conducted to determine the appropriate measures for avoiding significant impacts to the plants. During this consultation, measures to protect the plants during construction shall be developed and implemented. These measures may include one or more of the following: erecting protective fencing (to avoid indirect impact), providing worker education, transplanting the plants to suitable nearby protected habitat, or locating and enhancing another off-site population of the species. The City or its contractor shall implement the protective measures deemed suitable in informal consultation with CDFW.	
Impact 3.4-2: Temporary Loss or Indirect Loss of Habitat for California Red-Legged Frog, Foothill Yellow-Legged Frog, and Western Pond Turtle		
Construction activities could result in indirect impacts on aquatic habitat and riparian vegetation, and result in the degradation of habitat for California red-legged frog, foothill yellow-legged frog, or western pond turtle.	**Mitigation Measure S3.4-2: Avoid Indirect Impacts on Habitat for Special-status Amphibians and Reptiles** Before any construction activity, the City shall avoid and minimize indirect impacts on suitable aquatic and riparian habitat for special-status amphibians and reptiles by implementing 2005 EIR Mitigation Measure 3.4-5, "Protect Waters of the United States, Wetlands, and Riparian Habitat." To avoid impacts on these habitats, a qualified biologist will be assigned to identify the locations of aquatic resources and riparian habitat and corresponding setbacks for avoidance. Riparian setback requirements will be identified as appropriate (i.e., minimum 25-foot setback) on project maps in accordance with provisions in the certified EIR (2005), and to comply with Sonoma County Riparian	LS

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Table ES-1
Summary of Significant Impacts and Mitigation Measures

Significant Impact	Mitigation Measures	Level of Significance Following Mitigation[1]
	Corridor Combining Zone streamside conservation setback requirements. Measures to minimize erosion and runoff will be included in all drainage plans, in accordance with the Sonoma County Construction Grading and Drainage Ordinance. Appropriate runoff controls, such as berms, straw wattles, silt fencing, filtration systems, and sediment traps, will be implemented to control siltation and the potential discharge of pollutants.	
Impact 3.4-3: Impacts on California Red-Legged Frog, Foothill Yellow-Legged Frog, and Western Pond Turtle		
Grading, clearing, and other activities associated with project construction could result in direct and indirect impacts on special-status amphibian and reptile species.	**Mitigation Measure S3.4-3a: Avoid and Minimize Impacts on Special-Status Amphibians and Reptiles** The City shall avoid and minimize impacts on California red-legged frog, foothill yellow-legged frog, and western pond turtle by implementing the following measures listed below: • Before the start of any construction activity, the construction contractor shall develop a worker environmental awareness program subject to review and approval by the City of Healdsburg. Before the start of construction, the environmental training will be provided to all personnel working on the project site during construction and operation. Worker environmental awareness program training materials will be submitted to the City, for their review and approval before ground-disturbing activities begin. Once approved, all City, consultant, and construction personnel entering the project site will be trained before being allowed on-site. Training materials and briefings will include but not be limited to: o discussion of the federal ESA and CESA, the MBTA, and CWA; California Fish and Game Code Sections	LS

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Table ES-1
Summary of Significant Impacts and Mitigation Measures

Significant Impact	Mitigation Measures	Level of Significance Following Mitigation[1]
	3503, 3503.5, 3511, 3513, 3800(a), 4150, 4700, 5050, 5515, and 1602; and the Porter-Cologne Act, as applicable; o the consequences of noncompliance with these regulatory requirements; o specific conditions of any permits from regulatory and other agencies obtained for the project (e.g., USACE, North Coast RWQCB, USFWS, NMFS, CDFW, and the County); o identification and values of the special-status amphibian and reptile species to be protected, as well as their life history descriptions, habitat requirements during various life stages, and the species' protected status; o hazardous substance spill prevention and containment measures; o clear instructions that if any workers encounter a special-status species within or near the project site during construction, work shall halt and the project biologist and City shall be informed; o clear instructions regarding the scenarios in which permit conditions require the notification of specific agencies, the method for contacting the agencies, and the legally required time frames for such contact; o a contact person at the on-call biological services provider in the event of the discovery of dead or injured wildlife; and o review of any mitigation requirements related to biological resources. • The City shall assign a qualified biologist to flag or fence aquatic habitats to clearly delineate the extent of	

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Table ES-1
Summary of Significant Impacts and Mitigation Measures

Significant Impact	Mitigation Measures	Level of Significance Following Mitigation[1]
	construction. All crews will be provided a set of drawings showing the locations of aquatic habitats in and near the work area. • Before issuance of a grading permit, the City shall consult with the State Water Resources Control Board and the North Coast RWQCB to acquire the appropriate regulatory approvals that may be necessary to obtain Section 401 water quality certification, a State Water Resources Control Board statewide National Pollutant Discharge Elimination System stormwater permit for general construction activity (Water Quality Order 2009-0009-DWQ), and any other necessary site-specific waste discharge requirements or waivers under the Porter-Cologne Act. The City shall prepare and submit the appropriate notices of intent and if applicable prepare the storm water pollution prevention plan and any other necessary engineering plans and specifications for erosion and pollution prevention and control. **Mitigation Measure S3.4-4b: Develop and Implement a Preconstruction Survey Plan for Special-Status Amphibians and Reptiles.** The City and its construction contractor shall implement preconstruction surveys as described below. The preconstruction survey plan will identify, at minimum, the following information for each special-status amphibian species and western pond turtle: • The life stage(s) to be surveyed for • Survey method(s) • Timing of survey(s) • Justification for timing and methodology of survey design	

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Table ES-1
Summary of Significant Impacts and Mitigation Measures

Significant Impact	Mitigation Measures	Level of Significance Following Mitigation[1]
	(e.g., watershed characteristics, timing and rate of spring runoff, day length, average ambient air and water temperatures, local and seasonal conditions) The City and its construction contractor shall conduct preconstruction surveys for special-status amphibians and western pond turtles. Preconstruction surveys shall include, at minimum, the following provisions: • Surveys shall be conducted by a qualified biologist within 3–5 days before entering or working within suitable aquatic and/or upland habitat. • Surveys shall be conducted within the boundaries of the proposed worksite plus a 500-foot buffer zone of the construction area. • Surveys shall include a description of any standing or flowing water. • Visual surveys for California red-legged frog, foothill yellow-legged frog, and western pond turtle. • If special-status amphibians or reptiles are detected during the preconstruction survey, impacts shall be avoided by establishing an exclusion buffer of no less than 50 feet within which construction activities shall be prohibited. A qualified biologist shall be on-site during all nearby construction activities. If the biologist determines that the habitat is no longer occupied, construction may proceed within the exclusion buffer. If avoidance is infeasible, the City and its construction contractor shall coordinate with CDFW and, if applicable, USFWS (i.e., for California red-legged frog) to passively relocate the special-status amphibian or reptile.	

LS = Less than significant

Table ES-1
Summary of Significant Impacts and Mitigation Measures

Significant Impact	Mitigation Measures	Level of Significance Following Mitigation[1]
Impact 3.4-4: Impacts on Nesting Raptors		
Common raptor species such as the red-tailed hawk and American kestrel, and special-status raptor species that nest within or immediately adjacent to the project area, including white-tailed kite and osprey, may be subjected to construction impacts because suitable nesting habitat for these species is present in the project area.	**Mitigation Measure S3.4-4: Protect Nesting Raptors** The City and its construction contractor shall implement the following measures to protect nesting raptors: • To the extent feasible, all grading and tree removal will occur outside the raptor nesting season (September through January). If grading or tree removal is avoided during the raptor nesting season, no further mitigation would be necessary. This measure applies to any heavy equipment activities that would occur within 500 feet of trees in or adjacent to the project area. • If grading within 500 feet of trees or tree removal is proposed to take place during the raptor nesting season, a focused survey for raptor nests will be conducted by a qualified biologist during the nesting season to identify active nests in the project area. The survey would be conducted no more than 30 days before the beginning of grading or tree removal. The results of the survey would be summarized in a written report to be submitted to the City of Healdsburg before the beginning of grading. • If active nests are found, no construction activity shall take place within 300 feet of the nest until the young have fledged (as determined by a qualified biologist). If no active nests are found during the focused survey, no further mitigation will be required.	LS

LS = Less than significant

Table ES-1
Summary of Significant Impacts and Mitigation Measures

Significant Impact	Mitigation Measures	Level of Significance Following Mitigation[1]
Impact 3.4-7: Impacts on Trees Subject to Sonoma County Valley Oak Habitat Combining District		
Construction activities could indirectly damage tree roots and potentially result in the loss of valley oak trees protected under Sonoma County Valley Oak Habitat Combining District.	**Mitigation Measure S3.4-7: Implement Requirements of the Sonoma County Valley Oak Habitat Combining District** For portions of the proposed pipeline extensions that fall within the Valley Oak Habitat Combining District as designated by the County of Sonoma, removal of any valley oak tree, or small valley oaks having a cumulative diameter at breast height greater than 60 inches, will be mitigated by implementing the measures outlined in Section 26-67-030 of the Sonoma County Zoning Ordinance. Consistent with the requirements of the Sonoma County Ordinance, compensation for loss of valley oak trees shall include one or more of the following requirements: • retaining other valley oaks on the subject property; • planting replacement valley oaks 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; • a combination of measures two measures listed above; or • paying an in-lieu fee, which shall be used exclusively for valley oak planting programs in the county. • The specific requirements are specified in Table 26-67-030 of the County zoning ordinance. The applicable measures shall be undertaken and completed within 1 year after the valley oak or valley oaks are cut down or removed in accordance with guidelines established by resolution or ordinance of the board of supervisors.	LS

LS = Less than significant

Table ES-1
Summary of Significant Impacts and Mitigation Measures

Significant Impact	Mitigation Measures	Level of Significance Following Mitigation[1]
Impact 3.4-8: Impacts on Jurisdictional Waters of the United States, Wetlands, and Riparian Habitat		
Construction activities could potentially affect jurisdictional waters of the United States, including wetlands, and riparian habitat, through indirect impacts such as degradation of water quality,	**Mitigation Measure S3.4-8a: Protect Waters of the United States, Wetlands, and Riparian Habitat from adverse effects due to water quality impacts** The City and its construction contractor shall avoid and minimize indirect impacts on waters of the United States, wetlands, and riparian habitat by implementing the following measures: • Before any construction activity, a qualified biologist will be assigned to identify the locations of aquatic resources and riparian habitat and corresponding setbacks for avoidance. Identification of aquatic resources and riparian habitat for avoidance will be in addition to and distinguished from any required construction boundary fencing or flagging. Riparian setback requirements will be identified as appropriate (i.e., minimum 25-foot setback) on project maps in accordance with provisions in the certified EIR (2005), and to comply with Sonoma County Riparian Corridor Combining Zone streamside conservation setback requirements. Streamside conservation areas will be established as indicated in the zoning database from the top of the highest bank, and increased to include the outer drip line of any riparian trees, if present. • Measures to minimize erosion and runoff into the drainage ditch south of Hozz Road will be included in all drainage plans, in accordance with the Sonoma County *Construction Grading and Drainage Ordinance*. Appropriate runoff controls, such as berms, straw wattles, silt fencing, filtration systems, and sediment traps, will be implemented to control siltation and the potential	LS

LS = Less than significant

Table ES-1
Summary of Significant Impacts and Mitigation Measures

Significant Impact	Mitigation Measures	Level of Significance Following Mitigation[1]
	discharge of pollutants. • Direct impacts on USACE jurisdictional waters of the United States, including wetlands, and CDFW jurisdictional riparian habitat will be avoided. If direct impacts cannot be avoided because direct physical disturbance would occur in these habitats, then the City and its construction contractor shall implement the following measures: o Before project implementation, a formal delineation of jurisdictional waters of the United States, including wetlands and all riparian habitat, that would be directly affected by the proposed options will be made by qualified biologists using the USACE methodology for wetland delineations. o The City shall consult with USACE to determine whether the waters and wetlands occurring on-site that would be directly affected by construction activity fall under the jurisdiction of USACE. If it is determined that the waters and/or wetlands that will be directly impacted fall under USACE jurisdiction, a permit under Section 404 of the CWA would be required from USACE. o If a 404 permit is required, secure authorization for fill of jurisdictional areas from USACE via the Section 404 permitting process, and a Section 401 RWQCB certification for effects on water quality before construction begins. o RWQCB certification, pursuant to Section 401 of the CWA would likely be required for direct impacts on waters and wetlands on-site, including those waters and wetlands which are not considered under the	

LS = Less than significant

Table ES-1
Summary of Significant Impacts and Mitigation Measures

Significant Impact	Mitigation Measures	Level of Significance Following Mitigation[1]
	jurisdiction of the USACE but would fall under jurisdiction of the state. o A CDFW streambed and lakebed alteration agreement would be required for construction in the bed, bank, or associated riparian vegetation of rivers and creeks in the project area. o If permits are needed, the City shall comply with the mitigation requirements of the permits. At a minimum, the acreage of jurisdictional habitat removed will be replaced or rehabilitated on a no-net-loss basis in accordance with USACE, RWQCB and CDFW regulations. Habitat restoration, rehabilitation, and replacement would be at a location and by methods agreeable to USACE, RWQCB, and CDFW.If needed as a results of permit requirements from USACE, CDFW, or RWQCB an on-site wetlands mitigation plan, including a replacement ratio for habitat types agreed to by the agencies, would be developed by a qualified biologist. The mitigation plan would quantify the total jurisdictional acreage lost and describe creation/replacement ratios for acres filled, annual success criteria, potential mitigation sites, and monitoring and maintenance requirements. The plan would be prepared by a qualified wetland biologist pursuant to, and through consultation with the regulatory agency whose permit requirement is triggering the permit. Implementing the plan would create habitat to compensate for the loss of jurisdictional waters of the United States. o Alternatively to onsite mitigation, the City may seek to purchase credit at a a local agency approved mitigation bank, if available.	

LS = Less than significant

Table ES-1
Summary of Significant Impacts and Mitigation Measures

Significant Impact	Mitigation Measures	Level of Significance Following Mitigation[1]
	Mitigation Measure S3.4-8b: Prevent Runoff of Recycled Water Applied to Irrigated Pasture To avoid indirect impacts on jurisdictional waters of the United States, including wetlands, and riparian habitat as a result of runoff of summer irrigation water from pastures, develop a site-specific irrigation management plan as part of a recycled water use agreement between diary/vineyard property and the City of Healdsburg before installation of a recycled water meter at the user's property. The irrigation management plan will ensure compliance with the General Order of the Regional Water Board, which requires use of recycled water at agronomic rates that consider soil, climate, and plant demand. The irrigation management plan will include provisions of the General Order, including general operating parameters, monitoring and reporting procedures, and methods to ensure compliance with Titles 17 and 22 of the California Code of Regulations. The irrigation management plan may include downloading evapotranspiration data from the local California Irrigation Management Information System Windsor Station No. 103 on a daily or weekly basis to better inform irrigation system operation. The irrigation management plan will also include the general parameters and limitations applicable to the project, summarized as follows. **Irrigation Management Plan General Parameters and Limitations** Irrigation Type | Irrigation Months | Irrigation Schedule | Irrigation Method | Monthly Agronomic Rate (acre-ft/ac) | Annual Agronomic Rate (acre-ft/ac) Pasture | May–October | Daily, depending on demand | Sprinkler | 0.02 to 0.76 | 3.08 Vineyard | April–September | Variable, generally weekly | Drip irrigation | 0.03 to 0.19 | 0.75 Note: acre-ft/ac = acre-feet per acre Source: City of Healdsburg 2019	

LS = Less than significant

Table ES-1
Summary of Significant Impacts and Mitigation Measures

Significant Impact	Mitigation Measures	Level of Significance Following Mitigation[1]
Impact 3.4-9: Impacts on Sensitive Natural Communities		
Construction activities related to grading, stockpiling, trenching, and drilling could injure or damage oak tree roots and lead to a decline in health and/or size of the affected oak woodland vegetation.	**Mitigation Measure S3.4-9: Protect Valley Oak Woodland Sensitive Natural Community in the diary/vineyard property Recycled Water Pipeline Extension and SIR Distribution System** The City and its construction contractor shall avoid and minimize impacts on valley oak woodland that occurs outside of the Sonoma County VOH Combining District to the greatest extent feasible. Before the start of any construction activity, the City and its construction contractor shall protect the valley oak woodland sensitive natural community in and adjacent to the eastern extent of the proposed 12-inch recycled water pipeline extension and the entire diary/vineyard property distribution system by implementing the following measures: • Assign a qualified biologist to flag or fence valley oak woodland to clearly delineate the extent of construction. All crews will be provided a set of drawings showing the locations of valley oak woodland in and near the work area. • Develop a worker environmental awareness program (introduced in Mitigation Measure S3.4-1, "Avoid and Minimize Impacts on Special-Status Amphibians and Reptiles"), subject to review and approval by the City of Healdsburg in consultation with CDFW, to include specific information regarding the valley oak woodland sensitive natural community that occurs on the project site and that either would be affected or has been identified for avoidance; the locations and extent of the sensitive natural community; and methods of resource avoidance.	LS

LS = Less than significant

Table ES-1
Summary of Significant Impacts and Mitigation Measures

Significant Impact	Mitigation Measures	Level of Significance Following Mitigation[1]
	If impacts on valley oak woodland sensitive natural community cannot be avoided, then the City and its construction contractor shall compensate for any loss or damage to valley oak or other native trees within the valley oak woodland sensitive natural community (e.g., coast live oak) by implementing the mitigation measures outlined in Mitigation Measure S3.4-5, "Protect Trees Subject to Sonoma County Valley Oak Combining District," for all native tree species affected.	
3.5 Earth Resources		
Impact 3.5-2: Construction-Related Erosion		
Implementing the proposed options would require trenching, grading, and placement of fill materials during project construction. Soil disturbance associated with construction activities would increase the potential for ground instability and erosion, and the placement of fill could result in unstable soil conditions associated with loose or uncompacted fill materials.	**Mitigation Measure S3.5-2: Develop and Implement an Erosion Control Plan** As required by Chapter 17.36 of the City of Healdsburg Municipal Code, the City shall develop and implement an erosion control plan that specifies the land treatment, structural measures, and timing requirements that would be implemented at the project site to effectively minimize soil erosion and sedimentation. The plan shall also include appropriate construction site BMPs to prevent erosion and off-site sediment transport; the specific locations where BMPs will be installed; a maintenance schedule; and the rationale for selecting the BMPs. The plan shall be prepared by a registered civil engineer. Erosion and sediment control BMPs that could be used include, but are not limited to, detention basins, berms, swales, wattles, silt fencing, and covering stockpiled soils.	LS

LS = Less than significant

Table ES-1
Summary of Significant Impacts and Mitigation Measures

Significant Impact	Mitigation Measures	Level of Significance Following Mitigation[1]
Impact 3.5-3: Location of the Project on an Unstable Geologic Unit or Soil		
Most of the 2018 Proposed Area and the 2018 Program Expansion Area on the west side of Westside Road would be located on steep slopes and in mapped landslide deposits. Thus, the potential for additional landslides to occur in the future is high. The proposed facilities on the dairy/vineyard property and the 12-inch pipeline extension along Westside Road in the 2018 Program Expansion Area could be subject to landslide damage during operations.	**Mitigation Measure S3.5-3: Prepare a Design-Level Landslide Hazards Evaluation** A design-level landslide hazard evaluation shall be completed before construction permits are issued for all proposed facilities on the west side of Westside Road. The study shall specifically address the susceptibility of the site to landslides and shall include recommendations applicable to earthwork and site preparation, such as buttressing toe slopes and avoiding certain hazardous locations more susceptible to landslides. The evaluation shall be prepared by a registered civil or geotechnical engineer. Measures included in the report shall be implemented as appropriate, based on specific site conditions.	LS
Impact 3.5-4: Location of the Project on Expansive Soil		
Soils associated with the proposed booster pump station in the 2018 Proposed Area and the future extension of the 12-inch pipeline along Westside Road in the 2018 Program Expansion Area, have a moderate to high shrink-swell potential. The expansion potential of these soils could result in damage to project structures during operation.	**Mitigation Measure S3.5-4: Prepare Design-Level Geotechnical Study to Address Expansive Soils** A design-level geotechnical study shall be completed for the project area before construction permits are issued. The study shall specifically address whether expansive soils are present in the project area and shall identify measures, such as use of artificial/imported fill or soil treatment with lime, to address these soils where they occur. Measures included in the report shall be implemented as appropriate, based on specific soil conditions.	LS
Impact 3.5-5: Potential Damage to or Destruction of Unique Paleontological Resources		
Project-related construction activities associated with proposed water conveyance pipelines in both the 2018 Proposed Area and a portion of the 2018 Program Expansion Area, along with the proposed booster	**Mitigation Measure S3.5-5: Conduct Construction Personnel Education, Stop Work if Paleontological Resources are Discovered, Assess the Significance of the**	LS

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Table ES-1
Summary of Significant Impacts and Mitigation Measures

Significant Impact	Mitigation Measures	Level of Significance Following Mitigation[1]
pump station, would occur within Pleistocene-age alluvial deposits. Earthmoving activities in these deposits could result in accidental damage to or destruction of unique paleontological resources.	**Find, and Prepare and Implement a Recovery Plan, as Required.** To minimize the potential for destruction of or damage to potentially unique, scientifically important paleontological resources during project-related earthmoving activities associated with all water conveyance pipelines and the booster pump station, the City shall implement the following measures. • Before the start of construction activities, construction personnel involved with earthmoving activities shall be informed of the possibility of encountering fossils, the appearance and types of fossils likely to be seen during construction activities, and proper notification procedures should fossils be encountered. This worker training may either be prepared and presented by an experienced field archaeologist at the same time as construction worker education on cultural resources, or prepared and presented separately by a qualified paleontologist. • If paleontological resources are discovered during earthmoving activities, the construction crew shall notify the City and shall immediately cease work in the vicinity of the find. The City shall retain a qualified paleontologist to evaluate the resource and prepare a recovery plan in accordance with SVP (1996) guidelines. The recovery plan may include but is not limited to a field survey, construction monitoring, sampling and data recovery procedures, museum storage coordination for any specimen recovered, and a report of findings. Recommendations in the recovery plan that are determined by the City, as the CEQA lead agency, to be necessary and feasible shall be implemented before construction activities can resume at the site where the	

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Table ES-1
Summary of Significant Impacts and Mitigation Measures

Significant Impact	Mitigation Measures	Level of Significance Following Mitigation[1]
	paleontological resources were discovered.	
3.6 Air Quality		
Impact 3.6-2: Cumulatively Considerable Net Increase in a Criteria Pollutant for Which the Region is Nonattainment.		
Construction of the proposed project would generate temporary emissions of ROG, NO_X, CO, PM_{10}, and $PM_{2.5}$ from mobile equipment exhaust, including off-road construction equipment and on-road motor vehicles, and fugitive dust during site preparation and trenching.	**Mitigation Measure S3.6-2: Implement Air Quality Emissions Control Measures during Construction.** In accordance with the BAAQMD CEQA Guidelines (BAAQMD 2017), as recommended for use by NSCAPCD and the City of Healdsburg, the City and its construction contractor shall implement the following mitigation, which includes BAAQMD-recommended Basic Construction Mitigation Measures Recommended for All Proposed Projects, as applicable to reduce construction-generated emissions. Construction activities shall also comply with all applicable NSCAPCD rules and regulations, specifically Rule 485 regarding architectural coatings, Rule 430 regarding fugitive dust, and Rule 410 regarding visible emissions. • All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day. • All haul trucks transporting soil, sand, or other loose material off-site shall be covered. • All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited. • All vehicle speeds on unpaved roads shall be limited to 15 miles per hour (mph). • All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be	LS

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Table ES-1
Summary of Significant Impacts and Mitigation Measures

Significant Impact	Mitigation Measures	Level of Significance Following Mitigation[1]
	laid as soon as possible after grading unless seeding or soil binders are used. • Idling times shall be minimized either by shutting equipment off when not in use or by reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations). Clear signage shall be provided for construction workers at all access points. • All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation. • A publicly visible sign shall be posted with the telephone number and person to contact at the City regarding dust complaints. This person shall respond and take corrective action within 48 hours. The air district's phone number shall also be visible to ensure compliance with applicable regulations.	
3.7 Noise		
Impact 3.7-1: Generation of Temporary Construction Noise Levels		
Simultaneous operation of on-site construction equipment could generate combined intermittent noise levels of approximately 83 dBA at 50 feet from the project site. As a result, exterior noise levels at the nearest sensitive receptors approximately 700 feet and 900 feet from the construction sites would be 54 dBA and 52 dBA, respectively, which would exceed the 50 dBA daytime threshold and would exceed the existing ambient noise level of 49 dBA in the project area.	**Mitigation Measure S3.7-1: Implement Noise Control Measures** The City and the general construction contractor shall implement the following measures to reduce construction-generated noise: • Construction equipment shall be maintained properly and equipped with noise control devices, such as mufflers and	LS

LS = Less than significant

Table ES-1
Summary of Significant Impacts and Mitigation Measures

Significant Impact	Mitigation Measures	Level of Significance Following Mitigation[1]
	shrouds, in accordance with manufacturers' specifications. • Project construction activities shall be limited to 8 a.m. to 6 p.m. Monday through Friday, 9 a.m. to 6 p.m. on Saturdays, and 10 a.m. to 6 p.m. on Sundays and holidays. • Construction staging areas shall be located as far from noise-sensitive uses as feasible. • Construction equipment not being used for more than 30 minutes shall be shut down.	
3.8 Cultural Resources		
Impact 3.8-1: Potential Impacts on Documented Cultural Resources and Tribal Cultural Resources		
If the pipeline along Westside Road were to be extended through the 2018 Program Expansion Area, two cultural resources near the west side of this thoroughfare may be affected. In addition, three other cultural resources are documented in the 2018 Program Expansion Area that could be affected by future recycled water facilities.	**Mitigation Measure S3.8-1: Reduce Potential Impacts on Cultural Resources through Archaeological Monitoring and/or Testing, Where Necessary** If the pipeline along Westside Road is to be extended or any other subsurface ground disturbance is required in the project area, the City will retain a qualified archaeologist to conduct a cultural resources field survey before ground-disturbing activities. If a potentially affected cultural resource is identified, the qualified archaeologist shall assess the resources further by conducting additional archival research to determine the significance of the resource. If warranted by the field survey and research, the project design shall be refined to help ensure avoidance of the resource and archaeological monitoring of project construction activities in the vicinity of the resource shall be required.	LS

LS = Less than significant

Table ES-1
Summary of Significant Impacts and Mitigation Measures

Significant Impact	Mitigation Measures	Level of Significance Following Mitigation[1]
Impact 3.8-2: Potential Impacts on Undocumented Cultural Resources		
Although no prehistoric cultural resources have been documented in the vicinity proposed facilities within the 2018 Proposed Area, there are potential undocumented resources that could be affected. Similarly, while no facilities or improvements are currently proposed for the 2018 Program Expansion Area, if the proposed recycled water transmission pipeline to the dairy/vineyard property is extended south along Westside Road, construction of this pipeline extension or other recycled water facilities could substantially impact undocumented cultural resources in the 2018 Program Expansion Area.	**Mitigation Measure S3.8-2: Reduce Potential Impacts on Cultural Resources through Archaeological Monitoring, Where Necessary** Before ground-disturbing activities are initiated, all construction personnel shall be alerted to the possibility of buried cultural resources, regulations protecting cultural resources and human remains, and the protocol to follow in case such resources are discovered. If potential historical, architectural, archaeological, or cultural resources are discovered during subsurface excavations at the site of construction, the following procedures shall apply: 1. The Contractor shall immediately notify the City's designated construction management engineer (Engineer) and shall stop any work that may jeopardize the discovery pending an investigation of its significance. 2. The Engineer shall select a qualified archaeologist to complete an evaluation of significance before continuing work in that area. 3. The Engineer shall supply the contractor with a "stop-work order" directing the contractor to cease all portions of the work that the Engineer determines may affect the discovery. The stop-work order shall be effective until a qualified archaeologist assesses the value of the potential cultural resources. The stop-work order shall contain the following: a. A clear description of the work to be suspended. b. Any instructions regarding issuance of further orders by the contractor for materials services. c. Guidance as to action to be taken regarding	LS

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Table ES-1
Summary of Significant Impacts and Mitigation Measures

Significant Impact	Mitigation Measures	Level of Significance Following Mitigation[1]
	subcontractors. d. Any direction to the contractor to minimize costs. e. Estimated duration of the temporary suspension. 4. The archaeologist shall determine the potential significance of the discovery and shall determine a course of action to reduce further impacts in accordance with CEQA standards. Such efforts may include no action, documentation, or testing and potential further subsurface investigation.	
Impact 3.8-3: Potential to Affect Unrecorded Human Interments		
Although no evidence of prehistoric interment was identified in the 2018 Proposed Area and only one historic-era interment was identified in the 2018 Program Expansion Area, unmarked and undocumented subsurface human remains could present, and construction activities have the potential to uncover unknown or undocumented prehistoric Native American burials and historic-era interments.	**Mitigation Measure S3.8-3: Stop Potentially Damaging Work if Human Remains Are Discovered during Construction, Assess the Significance of the Find, and Pursue Appropriate Management** California law recognizes the need to protect historic-era and Native American human burials, skeletal remains, and items associated with Native American interments from vandalism and inadvertent destruction. The procedures for the treatment of Native American human remains are contained in California Health and Safety Code Sections 7050.5 and 7052 and PRC Section 5097. In accordance with the California Health and Safety Code, if human remains are uncovered during construction at the project site, the construction contractor shall immediately halt potentially damaging excavation and notify the City's designated representative. The City will immediately notify the Sonoma County coroner of the discovery. The coroner is required to examine all discoveries of human remains within 48 hours of receiving notice of a discovery on private or state lands (Health and Safety Code Section 7050.5[b]). If the	LS

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Table ES-1
Summary of Significant Impacts and Mitigation Measures

Significant Impact	Mitigation Measures	Level of Significance Following Mitigation[1]
	coroner determines that the remains are those of a Native American, he or she must contact the NAHC by phone within 24 hours of making that determination (Health and Safety Code Section 7050[c]). After a Most Likely Descendant has been designated by the NAHC, the Most Likely Descendant, in consultation with the City's representative, will determine the ultimate disposition of the remains. The responsibilities of the City for acting upon notification of a discovery of Native American human remains are outlined in detail in PRC Section 5097.9.	
3.9 Transportation		
Impact 3.9-3: Substantial Increase in Hazards Due to a Geometric Design Feature (e.g., Sharp Curves or Dangerous Intersections) or Incompatible Uses (e.g., Farm Equipment).		
Project construction would result in temporary disruption to traffic flow, roadway wear and tear, removal or reduction of lanes, the presence of construction equipment in the public right-of-way, and localized increases in traffic congestion. As a result, drivers would be presented with unexpected driving conditions and obstacles, which could increase the occurrence of automobile or haul truck accidents.	**Mitigation Measure S3.9-1: Prepare and Implement a Traffic Control Plan.** Before construction begins, the City and/or its construction contractor shall prepare and implement a traffic control plan to minimize construction-related traffic safety hazards on affected roadways and ensure adequate access for emergency responders. The City and/or its contractor shall coordinate development and implementation of this plan with agencies with jurisdiction over the affected routes (e.g., Sonoma County), as appropriate. The traffic control plan shall, at minimum: • Discuss work hours and haul routes, delineate work areas, and identify traffic control methods and plans for flagging. • Determine the need to require workers to park personal vehicles at an approved staging area and take only necessary project vehicles to the work sites.	LS

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Table ES-1
Summary of Significant Impacts and Mitigation Measures

Significant Impact	Mitigation Measures	Level of Significance Following Mitigation[1]
	• Develop and implement a process for communicating with affected residents and landowners about the project before the start of construction. Public notification shall include posting notices and appropriate signage regarding construction activities. The written notification shall include the construction schedule, the exact location and duration of activities on each roadway (e.g., which roads/lanes and access points/driveways will be blocked on which days and for how long), and contact information for questions and complaints. • Notify the public regarding alternative routes that may be available to avoid delays. • Ensure that appropriate warning signs are posted in advance of construction activities, alerting bicyclists and pedestrians to any closures of nonmotorized facilities. • Notify administrators of police and fire stations, ambulance service providers, and recreational facility managers regarding the timing, location, and duration of construction activities and the locations of detours and lane closures, where applicable. Maintain access for emergency vehicles in and/or adjacent to roadways affected by construction activities at all times. • Require the repair and restoration of affected roadway rights-of-way to their original condition after construction is completed.	

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Table ES-1 Summary of Significant Impacts and Mitigation Measures		
Significant Impact	**Mitigation Measures**	**Level of Significance Following Mitigation[1]**
3.12 Wildfire		
Impact 3.12-1: Increased Risk of Wildland Fires.		
The use of construction equipment and diesel fuel could pose a wildfire risk because vehicle mufflers, combustion engines, gasoline-powered tools, and other equipment could produce a spark, fire, or flame.	**Mitigation Measure S3.12-1: Prepare and Implement a Fire Safety and Management Plan to Minimize Potential for Wildland Fires.** Before any construction permits are issued or construction activity begins, the City shall develop a fire protection plan, which the construction contractor shall implement during construction. The fire safety and management plan shall do all of the following: • Require that light trucks and cars with factory-installed (type) mufflers be used only on roads where the roadway is cleared of vegetation. These vehicle types shall maintain their factory-installed (type) muffler in good condition. • Ensure that equipment staging areas and worker parking areas are cleared of all extraneous flammable materials. • Require that construction personnel be trained and equipped to extinguish small fires to prevent them from growing into more serious threats. • Provide a list of key names and addresses identifying whom to alert in case of an emergency. • Prohibit smoking in wildland areas, with smoking limited to paved areas or areas cleared of all vegetation.	LS

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1 INTRODUCTION

This draft subsequent environmental impact report (SEIR) has been prepared to address the proposed expansion by the City of Healdsburg (City) of its recycled water program. The proposed project would expand the City's existing recycled water transmission facilities to serve new customers in an area of approximately 1,160 acres primarily west of Westside Road and south of the City limits. The project also proposes future expansion of the recycled water program onto another 3,540 acres; no specific facilities or customers are currently proposed for this 3,540-acre area. The proposed project would also make permanent a temporary program that allows trucks to haul recycled water for irrigation of up to 25,000 acres within an area of approximately 103,000 acres.

This assessment has been conducted to inform City decision makers, responsible agencies, trustee agencies, and the public of the environmental consequences of implementing the proposed options. This draft SEIR has been prepared in accordance with and in fulfillment of the California Environmental Quality Act (CEQA) and the State CEQA Guidelines. The City is the lead agency for the proposed project under CEQA and has overall authority for approving the proposed project.

1.1 BACKGROUND

An environmental impact report (EIR) for the City of Healdsburg Wastewater Treatment Upgrade Project prepared in 2005 (City of Healdsburg 2005), certified on June 13, 2005 (State Clearinghouse #2002072083) addressed separate options for the City's proposed Water Reclamation Facility (WRF) upgrade, effluent disposal, and seasonal irrigation with recycled water.

Consistent with the 2005 EIR, the City implemented a water recycling program that made a portion of the treated wastewater available to nearby water users. Uses of the treated wastewater are currently limited to vineyard irrigation, commercial landscaping, and landscape irrigation. The recycled water is conveyed from the City's WRF to several places of use via three pipelines, which extend north, south, and west of the WRF. In April 2014 and March 2016, the City prepared addenda to the 2005 EIR that provided for the expansion of the seasonal irrigation area, construction of two extensions of the recycled water transmission pipelines, and the transport of recycled water for irrigation via haul trucks.

The WRF operates under a National Pollutant Discharge Elimination System permit administered by the North Coast Regional Water Quality Control Board (RWQCB). The permit prohibits discharge to the Russian River from May 15 to September 30. Compliance with this seasonal discharge prohibition drives the City's recycled water program. Currently, the City can only store approximately 25 million gallons, or 17 percent of the approximately 138 million gallons of water reclaimed during the prohibition period. The remaining flow needs to be beneficially reused in the recycled water program. Beneficial reuse, as currently permitted, includes water for construction, landscape irrigation, and vineyard irrigation.

On July 1, 2016, the North Coast RWQCB issued a notice of applicability (NOA) for the Statewide Water Reclamation Requirements for Recycled Water Use (Order WQ 2016-0068-DDW), referred to in this SEIR as the General Order (SWRCB 2016). The NOA authorized the City's Recycled

Water Program and prescribed a project-specific monitoring and reporting program. The July 1, 2016, NOA authorized the use of recycled water for vineyard irrigation and landscape irrigation of golf courses, parks, schools, and cemeteries. The City is now planning to expand its recycled water system and use recycled water for irrigation of pastures, cut hay (ryegrass, alfalfa), cannabis, and orchards (apples, plums, prunes, and peaches), and to protect vineyards from frost. The expanded recycled water activities and construction and operation of the associated facilities are the subject of this SEIR.

1.2 CEQA AND THE ENVIRONMENTAL REVIEW PROCESS

CEQA requires state and local government agencies to consider the environmental effects of projects over which they have discretionary authority before acting on those projects (Public Resources Code Sections 21000 et seq.). CEQA also requires public agencies to avoid or mitigate, to the extent feasible, the significant environmental effects of projects they approve or implement.

Section 15121(a) of the State CEQA Guidelines states that an EIR is an informational document for decision makers and the general public that analyzes the significant environmental effects of a project, identifies possible ways to minimize significant effects, and describes reasonable alternatives to the project that could reduce or avoid its adverse environmental impacts. Public agencies with discretionary authority must consider the information in the EIR, along with any other relevant information, in making decisions on a proposed project.

CEQA Guidelines Section 15162 indicates that a subsequent EIR should be prepared where:

- substantial changes are proposed in the project which require major revisions of the previous EIR;
- substantial changes occur with respect to the circumstances under which the project is undertaken, requiring major revisions of the previous EIR; or
- new information of substantial importance, which was not known and could not have been known at the time the previous EIR was certified as complete, shows new or more severe environmental impacts.

The City of Healdsburg has determined that that a subsequent EIR should be prepared to address the proposed expansion of the recycled water program.

The State CEQA Guidelines identify several types of EIRs, each applicable to different project circumstances. The project analyzed in this SEIR includes both project-specific and programmatic components. The site-specific, project-level analysis provided in this SEIR meets the requirements of State CEQA Guidelines Section 15161, and would fully support the consideration and authorization of discretionary approvals for construction and implementation of the expanded seasonal irrigation reuse options. The programmatic components described in this SEIR have been addressed in accordance with Section 15168 of the State CEQA Guidelines.

1.2.1 LEAD, RESPONSIBLE, AND TRUSTEE AGENCIES

Under CEQA, the lead agency for a project is the public agency with primary responsibility for carrying out or approving the project and for implementing the requirements of CEQA. As stated

previously, the City of Healdsburg is the lead agency responsible for considering implementation of the project and preparing this EIR. After completion of the environmental review process, including required public review periods, the City Council will decide whether to certify the EIR as adequate according to CEQA and whether to approve the project.

The state and local agencies, other than the lead agency, that are responsible for carrying out or approving a project or components of a project are called CEQA "responsible agencies." The following are the anticipated responsible agencies for this project:

- California Department of Fish and Wildlife (CDFW)
- State Water Resources Control Board
- North Coast RWQCB
- Sonoma County Permit and Resource Management Department

These agencies will provide permits or other discretionary approvals for the project. Required permits and approvals are described in Chapter 2, "Project Description."

Trustee agencies under CEQA are designated public agencies that have jurisdiction over resources held in trust for the people of California, whether or not they have authority to approve or implement the project. The originally proposed project analyzed in the 2005 EIR indicated that the project would affect resources of interest to CDFW and the State Lands Commission. Because of the relatively limited nature of the currently proposed project activities addressed in this SEIR, trustee agencies identified for this project are limited to CDFW only.

In addition, several federal agencies may have jurisdiction over portions of the project, including the U.S. Army Corps of Engineers and the U.S. Fish and Wildlife Service.

1.2.2 Intended Uses of the EIR

This SEIR has been prepared in accordance with CEQA to evaluate the environmental impacts of implementing the project. In accordance with Section 15126 of the State CEQA Guidelines, this SEIR should be used as the primary environmental document for evaluating all subsequent discretionary planning and permitting actions for the project, as described in Chapter 2.

1.2.3 Certification of the EIR/Project Consideration

The City of Healdsburg City Council will review and consider the final SEIR, which will consist of the draft SEIR, agency and public comments on the draft SEIR, and responses to comments. If the City Council finds that the final EIR is "adequate and complete," it may certify the final SEIR. The rule of adequacy generally holds that the EIR can be certified if it (1) shows a good-faith effort at full disclosure of environmental information and (2) provides sufficient analysis to allow decisions to be made regarding the project in contemplation of its environmental consequences.

Once the SEIR is certified, the City Council will consider whether to approve or deny the entitlements evaluated in the SEIR. City staff will determine whether the project is consistent with the City's general plan and give its recommendation to the City Council regarding the CEQA

findings and mitigation monitoring and reporting plan (MMRP). At this point, City staff may also request that the Sonoma County (County) Planning Department evaluate the preferred project for general plan consistency, for those project components located on lands within the County's jurisdiction.

Once consistency findings are made, the City Council will determine whether to approve the project, CEQA findings, a Statement of Overriding Considerations (if applicable), and MMRP. The CEQA findings would be adopted by resolution, the project would be approved, and staff could then be directed to begin work on the project. The CEQA Notice of Determination would be submitted to the State Clearinghouse within 5 days of project approval.

1.2.4 Mitigation Monitoring and Reporting

CEQA Section 21081.6(a) requires lead agencies to adopt an MMRP to describe measures that have been adopted or made a condition of project approval to mitigate or avoid significant effects on the environment. CEQA does not require that the specific reporting or monitoring program be included in the EIR; however, the program will be presented to the City Council for adoption if the council proposes to approve the project. In Chapter 3 of this EIR, mitigation measures have been clearly identified and presented in language that will facilitate preparation of an MMRP. Any mitigation measures adopted by the City as conditions of approval for the project will be included in an MMRP, pursuant to CEQA.

1.2.5 Scoping and Public Review Process

Scoping

Section 15083 of the State CEQA Guidelines authorizes and encourages an early consultation or scoping process to help identify the range of actions, alternatives, mitigation measures, and significant effects to be analyzed and considered in an EIR, and to help resolve the concerns of affected regulatory agencies, organizations, and the public. Scoping is designed to explore issues for environmental evaluation, ensuring that important considerations are not overlooked and uncovering concerns that might otherwise go unrecognized. This section describes the scoping activities sponsored by the City for the proposed options.

Pursuant to CEQA, the City published a notice of preparation (NOP) on August 1, 2018, describing the proposed project, the project background, and the probable environmental impacts. The public review period was August 1–31, 2018. The August 2018 NOP indicated that a supplemental EIR would be prepared, consistent with Section 15163 of the State CEQA Guidelines. A scoping meeting was held on August 21, 2018, to solicit stakeholder feedback on the CEQA process.

Based on stakeholder input received during the August 2018 NOP process, and on internal deliberations, the City decided to prepare a more comprehensive subsequent EIR, consistent with State CEQA Guidelines Section 15162. As a result, a second NOP was published on February 5, 2019, stating that an SEIR would be prepared to address the proposed expansion of the recycled water program. This NOP also refined the project description to clarify the potentially affected project acreage and include the proposal to permanently extend the recycled-water truck hauling activities, which are currently authorized through the end of 2020. The public review period for this NOP was February 6 through March 8, 2019.

All significant environmental comments received in response to the NOPs were considered in developing the scope and content of this SEIR. In addition, input was solicited from Native American tribes based on the requirements of Assembly Bill (AB) 52, addressed in detail in Chapter 3 of this SEIR. Based on input received during the scoping process, the City determined that the following issues are of concern, and these issues have been analyzed in this SEIR:

- Land use consistency, agriculture, and forestry resources
- Hydrology and water quality
- Fisheries resources
- Terrestrial biological resources (vegetation, wildlife, and wetland resources)
- Earth resources (geology, soils, seismicity, and paleontology)
- Air quality
- Noise
- Cultural resources
- Transportation
- Greenhouse gases
- Wildfires
- Energy

PUBLIC PARTICIPATION AND PUBLIC REVIEW PROCESS

As stated above, an NOP for the project was issued on August 1, 2018, and again on February 5, 2019, to provide the public and agencies an opportunity to comment on issues to be addressed in the EIR (Appendix A). The scope of this SEIR has been identified based in part on the August 21, 2018 scoping meeting and the NOP comment periods.

This SEIR is being circulated for 45 days for public review and comment, from. The City invites comments from the general public, agencies, organizations, and other interested parties. Comments on the draft SEIR must be received by 5 p.m. on the final day of public review, as provided in the Notice of Availability of this draft SEIR. Comments may be emailed to the City at pfuss@ci.healdsburg.ca.us or sent by regular mail to:

Patrick Fuss, Water/Wastewater Principal Engineer
City of Healdsburg
401 Grove Street
Healdsburg, CA 95448

Copies of the SEIR are available for review at the following public library branch:

Healdsburg Regional Library
139 Piper Street
Healdsburg, CA 95448-3819

In accordance with Public Resources Code Section 21092(b)(1), copies of this SEIR may be reviewed at the City Planning Department (401 Grove Street, Healdsburg, California). Public comments on the draft SEIR will be accepted both in written form and via e-mail. Comments must be received by the City on or before the final date of the public review and comment period so that they can be considered in the final SEIR. All interested persons are invited to a public

hearing on the draft SEIR that will be held by the City Council on the date and time provided in the Notice of Availability of this draft SEIR. The hearing will be held at the City of Healdsburg City Council Chambers, 401 Grove Street, Healdsburg. The objective of the meeting will be to brief interested parties on the content of the draft SEIR, and to solicit and accept formal input on the content of the draft SEIR.

Following the public review period, a final SEIR will be prepared. The final SEIR will respond to significant environmental concerns raised in written or e-mail comments received during the public review period, and in oral comments made at the public hearing. As required by CEQA, after the final SEIR has been provided to commenting parties for a 10-day review, the City Council can consider certification of the EIR on the merits of the project before official action is taken on its adoption or denial.

1.3 ORGANIZATION AND SCOPE OF THE SEIR

1.3.1 ORGANIZATION OF THE SEIR

The content and format of this SEIR are designed to meet the requirements of CEQA and the State CEQA Guidelines (Sections 15122–15132). The SEIR is organized into the following chapters.

- The **Executive Summary** presents an overview of the proposed project; a summary of the alternatives being considered; a discussion of known areas of controversy; and a listing of the impacts and mitigation measures in a tabular format, including the significance of impacts before and after proposed mitigation measures.

- **Chapter 1, "Introduction,"** explains the CEQA process and the purpose of this EIR; lists the lead, responsible, and trustee agencies with discretionary authority over the proposed options; provides information on public participation; and outlines the organization and scope of the document.

- **Chapter 2, "Project Description,"** provides background on the project; identifies the project's objectives; lists the regulatory requirements of the project; and describes the proposed facilities and activities, affected areas, and operational characteristics.

- **Chapter 3, "Environmental Setting, Impacts, and Mitigation Measures,"** is divided into 13 sections. Section 3.0 introduces the chapter and explains the approach to the environmental analysis. Each of the remaining 12 sections is devoted to a particular topic area and describes the updated environmental setting (the baseline, or existing conditions) and regulatory setting. Following the setting information, each section presents an analysis of impacts that would result from construction and operation of the proposed facilities and activities. Where applicable, each section identifies mitigation measures that would avoid or eliminate significant impacts or reduce them to less-than-significant.

- **Chapter 4, "Cumulative Impacts,"** identifies the project's contribution to the cumulative impacts associated with implementing other projects in the vicinity.

- **Chapter 5, "Alternatives,"** presents the impact analysis for the No-Project Alternative and the Geysers Pipeline Extension. The chapter also describes the alternatives that were considered but eliminated from further consideration.

- **Chapter 6, "Other CEQA-Required Analyses,"** identifies the growth-inducing impacts and significant and unavoidable impacts of implementing the proposed project.

- **Chapter 7, "References,"** provides information about the published documents and other, unpublished information (personal communications) cited in this SEIR.

- **Chapter 8, "Report Preparers,"** lists the individuals who were involved in preparing this SEIR.

- **Technical appendices** present the background information that supports the SEIR.

A glossary and list of acronyms and abbreviations used in this SEIR are included following the table of contents.

1.3.2 Scope of the SEIR and Effects Found Not to Be Significant

Population and Housing

Residences are adjacent to the alignment for the proposed 8-inch recycled-water pipeline east of Westside Road; however, the pipeline would be extended within the rights-of-way of existing access roads, and none of the residences would be affected. No residences are adjacent to the alignment for the proposed 12-inch recycled-water pipeline. Therefore, the project would not displace substantial numbers of people or existing housing that would necessitate the construction of replacement housing elsewhere.

The proposed project would not construct new homes or businesses or extend roadways or other infrastructure that would directly or indirectly induce population growth. The project would involve extending the existing recycled-water pipelines, constructing a recycled-water distribution system, and applying recycled water to the land surface. Construction activities would occur for a limited period (approximately 5 weeks to install the 8-inch recycled-water pipeline extension and 6 weeks to install the 12-inch pipeline). The number of construction workers needed for the project improvements would be small, averaging approximately six workers per phase. Because of the proximity of the project site to urban centers, such as Healdsburg, Windsor, and Santa Rosa, the construction workers could be expected to come from the existing local workforce. No new City employees would be required for operation or maintenance of the expanded recycled water program. Consequently, construction and operation of the expanded recycled water program would not directly or indirectly induce unplanned population growth in the region.

Public Services

The proposed project would not provide any new housing that would generate new residents. As discussed previously, construction workers likely would come from the local labor pool, and no new City employees would be required for operation and maintenance of the expanded recycled water program. Therefore, the project would not increase the demand for new schools, parks, or other public facilities (i.e., libraries).

The proposed project would not include any new structures that would increase demand for fire protection services and facilities. As discussed further in Section 3.12, "Wildfire," the 2018 Proposed Area and the 2018 Program Expansion Area are within a State Responsibility Area where the California Department of Forestry and Fire Protection's Sonoma-Lake-Napa Unit is primarily responsible for response to wildland fire.

The proposed project would not increase the project area's population as a result of new housing; therefore, the project would not require the County Sheriff's Department to increase staffing to maintain its officer-to-population service ratio, nor would it affect the department's performance objectives.

RECREATION

The proposed project would not increase the project area's population because of new housing or employment opportunities. Therefore, the project would not increase the use of existing neighborhood and regional parks or other recreational facilities or require construction of new parks or other facilities.

UTILITIES

The proposed project would not include any new development that would require relocation or construction of new or expanded municipal water treatment, wastewater treatment, stormwater drainage, natural gas, or telecommunications facilities.

The project is expected to require water for dust control and other construction-related activities. The City anticipates obtaining water for construction from existing supplies of recycled water and trucking the water to the project site. Therefore, construction of the proposed project would not increase demand for water.

The proposed project would not include any new development that would require wastewater treatment by the Healdsburg Water Recovery Facility. Rather, the project would expand the City's recycled water program to provide tertiary-treated reclaimed water for beneficial reuse.

The 2016 California Green Building Standards Code (CALGreen Code) (California Code of Regulations Title 24, Part 11) requires that all trees, stumps, rocks, and associated vegetation and soils resulting primarily from land clearing be reused or recycled (California Building Standards Commission 2016). Excavated soils removed during trenching would be used for backfill material. Any unused organic material would be recycled consistent with the 2016 CALGreen Code. Operating the expanded recycled water program would not generate solid waste. Therefore, the proposed project would comply with all reduction statutes and regulations related to solid waste, and would not generate solid waste in excess of state or local standards or otherwise affect landfill capacity.

Extension of the 8-inch and 12-inch recycled-water pipelines would occur in existing graveled vineyard access roads where there are no public utilities or service systems. However, the 12-inch pipeline would cross Westside Road before terminating at the boundary of diary/vineyard property, and would travel south along Westside Road. Overhead electrical transmission lines and communications lines follow the east side of Westside Road. Therefore, project construction would not damage underground utilities. However, to prevent damage to public underground

facilities and interruption of utility service, the proposed construction activities would adhere to the best management practices listed in the City's standard construction specifications, which include requiring the contractor to call USA at least 2 working days in advance. The contractor would be required to work around any identified public and private utility facilities in the construction area (see Chapter 2, "Project Description," for further discussion).

HAZARDS AND HAZARDOUS MATERIALS

Project construction would involve using and temporarily storing small amounts of hazardous substances necessary to operate construction equipment, such as fuels, lubricants, and oils. All materials must be used and stored in compliance with federal, state, and local ordinances, laws, regulations, and policies related to hazardous materials. None of the substances would be acutely hazardous. Project construction activities would be subject to the City's standard construction specifications for hazardous materials (see Chapter 2, "Project Description, and requiring compliance with the City's requirements for the handling and transport of hazardous materials.

No known open, active hazardous materials sites listed under Section 65962.5 of the Government Code (the Cortese List) are located within 1 mile of the 2018 Proposed Area or the 2018 Program Expansion Area (DTSC 2019; SWRCB 2019). Three closed hazardous-materials sites lie within the 2018 Program Expansion Area (DTSC 2019; SWRCB 2019). All three sites involved soil contamination only—no groundwater contamination. Because the contaminated soils were excavated and removed, applying recycled water to these land areas would not affect the movement of any known hazardous materials or result in further contamination from existing hazardous-materials sites. The proposed recycled-water facilities would be installed in areas that have a history of agricultural operations, where fertilizers and pesticides have been applied and may persist in the soil, and where underground storage tanks may be present. Should any stained or odiferous soils or groundwater be encountered during project construction, the City would investigate as required by federal, state, and local laws, regulations, and policies, and either the City or the local landowner would be required to implement remedial activities.

There are no schools within 0.25 mile of either the 2018 Proposed Area or the 2018 Program Expansion Area.

The nearest airport is the Sonoma County Airport, approximately 2.25 miles (at the closest point) east of the 2018 Program Expansion Area. Installation of the 12-inch recycled-water pipeline extension and land application of recycled water would not affect aircraft safety.

Project construction activities and land application of recycled water would not impair the implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan because emergency ingress and egress routes would remain open and unblocked during both construction and operation.

For the reasons stated above, implementing the proposed project would not result in significant impacts related to hazards and hazardous materials.

For a discussion of the operation of the small amount of construction equipment required to install the proposed recycled-water facilities, as it relates to the potential for an increased risk of wildland fire hazards, see Section 3.12, "Wildfire."

MINERAL RESOURCES

The proposed 8-inch recycled-water pipeline would be installed in an area that the California Geological Survey (CGS) has designated as a regionally important mineral resource recovery area (i.e., an area classified by CGS as "MRZ-2"). However, the pipeline would be installed within the right-of-way of an existing access road, and thus would not impede mining activities. None of the other proposed facilities or proposed recycled-water application areas in the 2018 Proposed Area are located in regionally important mineral resource recovery areas. (Miller and Busch 2013.)

Portions of the 2018 Program Expansion Area adjacent to the Russian River, along with the alignment of the proposed 12-inch recycled-water pipeline extension, lie within areas designated by CGS as MRZ-2 (Miller and Busch 2013). However, the application of recycled water itself would not preclude any future mining activities. The 12-inch recycled-water pipeline would be extended within the rights-of-way of existing access roads, and thus would not impede future mining activities.

The *Sonoma County Aggregate Resource Management Plan* (Sonoma County 2010) governs resource extraction in areas designated by CGS as MRZ-2. The *Sonoma County General Plan 2020* (General Plan) (Sonoma County 2016) considers locally important mineral resource areas to correspond with the MRZ-2 areas designated by CGS, and incorporates the *Sonoma County Aggregate Resource Management Plan* for management of such mineral resource areas. The proposed 8- and 12-inch recycled-water pipelines, and portions of the 2018 Program Expansion Area adjacent to the Russian River, are located within designated locally important mineral resource recovery areas. However, for the same reasons as described above, installation of the proposed water conveyance pipelines and land application of recycled water would not impede future mining activities.

Therefore, implementing the proposed project would not result in the loss of availability of a known mineral resource or of a locally important mineral resource recovery site delineated in a local plan.

VISUAL RESOURCES

The County has officially designated certain parts of Sonoma County as Scenic Landscape Units; these areas contain scenic resources that require preservation (Sonoma County 2016). However, neither the 2018 Proposed Area nor the 2018 Program Expansion Area are located in or adjacent to a County-designated scenic landscape unit.

The closest state-designated scenic highway is State Route 116, approximately 2 miles south of the 2018 Program Expansion Area (Caltrans 2018). Because of the intervening topography and vegetation, the 2018 Program Expansion Area is not visible from State Route 116. Westside Road is a County-designated scenic highway corridor (Sonoma County 2016). Construction activities to install the recycled-water lines and booster pump station would be visible from Westside Road. However, these activities would be small-scale, involving few personnel and only a small amount of equipment, and of short duration. Therefore, project-related construction would not adversely affect the viewshed of the Westside Road scenic corridor or substantially degrade the existing visual character or quality of public views of the site and its surroundings.

Because the recycled-water pipelines would be installed underground, they would not be visible from Westside Road during project operation. The proposed booster pump station would be 5 feet high and 20 feet wide, and as stated in Chapter 2, "Project Description," would be set back at least 200 feet from Westside Road in accordance with General Plan Policy OSRC-3c. Because of the booster pump station's small size and the 200-foot setback distance from Westside Road, operation of the new pump station would not adversely affect the viewshed of the Westside Road scenic corridor, nor would it substantially degrade the existing visual character or quality of public views of the site and its surroundings. For the same reasons, operation of the booster pump station would not create a substantial new source of glare.

No new project-related lighting would be required; thus, the project would not create new lighting that would adversely affect day or nighttime views in the area.

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2 PROJECT DESCRIPTION

2.1 INTRODUCTION

The *City of Healdsburg Wastewater Treatment Upgrade Project Environmental Impact Report* (City of Healdsburg 2005) addressed separate options for the City of Healdsburg (City) Water Reclamation Facility (WRF) upgrade, effluent disposal, and seasonal irrigation with recycled water. In 2009, the City prepared an initial study and mitigated negative declaration (City of Healdsburg 2009) that addressed the proposed expansion of lands near the WRF and discharge ponds that would be permitted to receive recycled water, and construction of a new pipeline to serve these areas. In 2014 and 2016, the City prepared addenda to the 2005 EIR (City of Healdsburg 2014a and 2016a) that considered delivery via haul trucks and pipelines of recycled water for seasonal irrigation of up to 25,000 additional acres of agricultural land within an area of approximately 103,000 acres.

This subsequent EIR (SEIR) addresses the City's proposed expansion of the recycled water program, including proposed recycled water facilities and operations. This chapter describes the project's location, background, objectives, and operational characteristics, and the discretionary actions and approvals that may be required. It also provides an overview of proposed construction methods and describes the project's environmental commitments.

2.2 PROJECT LOCATON

The project area encompasses the locations proposed for construction and operation of recycled water facilities, additional areas where the future recycled water facilities would operate, and the 25,000 acres currently permitted for irrigation with recycled water through 2020. Exhibit 2-1 shows the project's regional location and setting.

The proposed project includes construction of two transmission pipeline extensions (Exhibit 2-2). Exhibit 2-2 also shows the approximately 1,160-acre area that would receive the recycled water from these pipeline extensions for use in future agricultural operations. This area is referred to as in this SEIR as the "2018 Proposed Area." An area of approximately 3,540 acres that has been identified for future recycled water operations and a currently unspecified extension of the existing recycled water transmission pipelines is also shown on Exhibit 2-2. This area is referred to in this SEIR as the "2018 Program Expansion Area."

Exhibit 2-3 shows the approximately 103,000-acre basin within which up to 25,000 acres are currently approved to receive recycled water via haul trucks through 2020. The proposed project would permit this activity permanently. No new facilities are proposed in the area shown on Exhibit 2-3.

2.3 PROJECT BACKGROUND

The 2005 EIR addressed separate options for the City's WRF upgrade, effluent disposal, and seasonal irrigation with recycled water. The 2005 EIR was certified on June 13, 2005 (State Clearinghouse Number 2002072083).

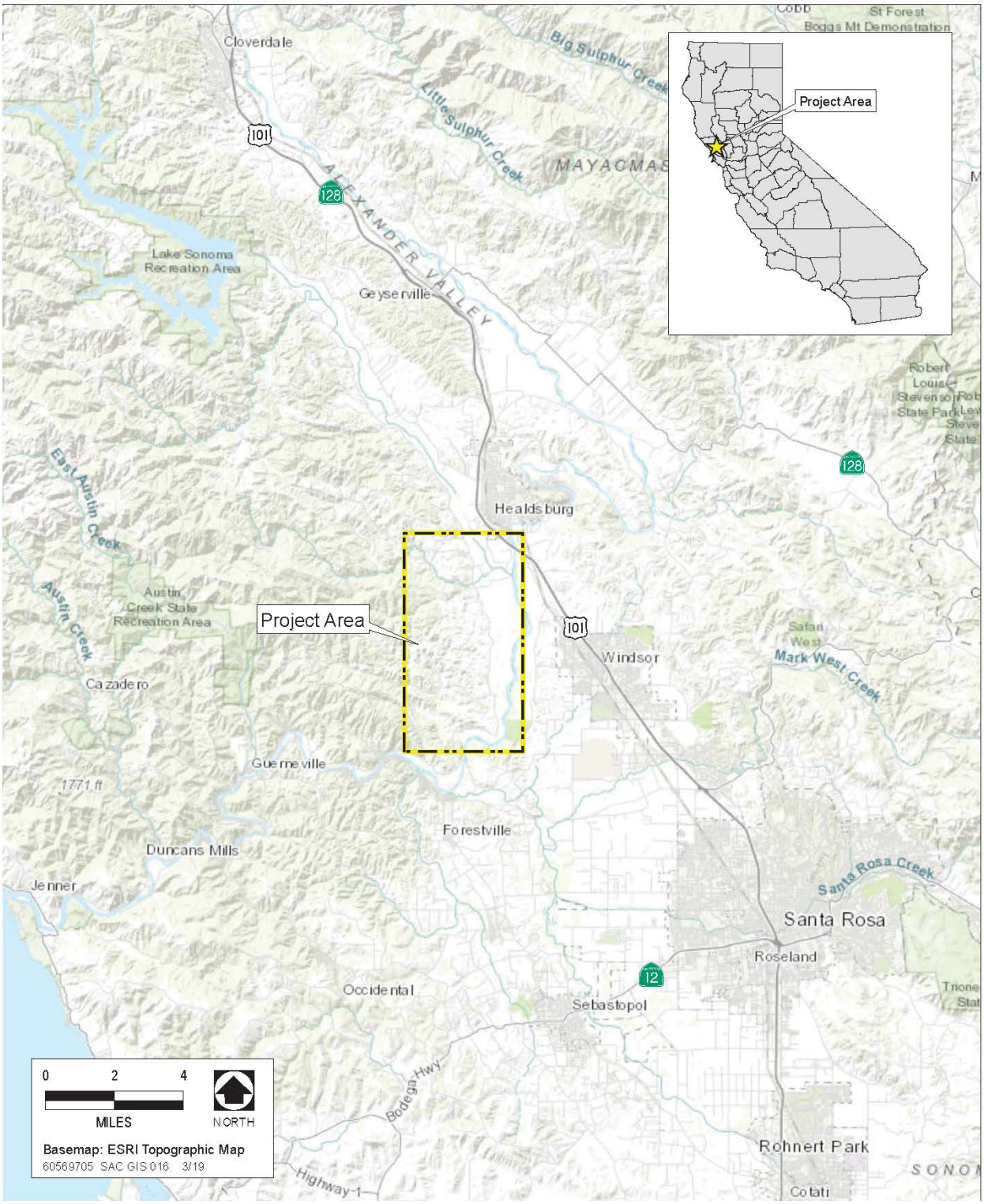
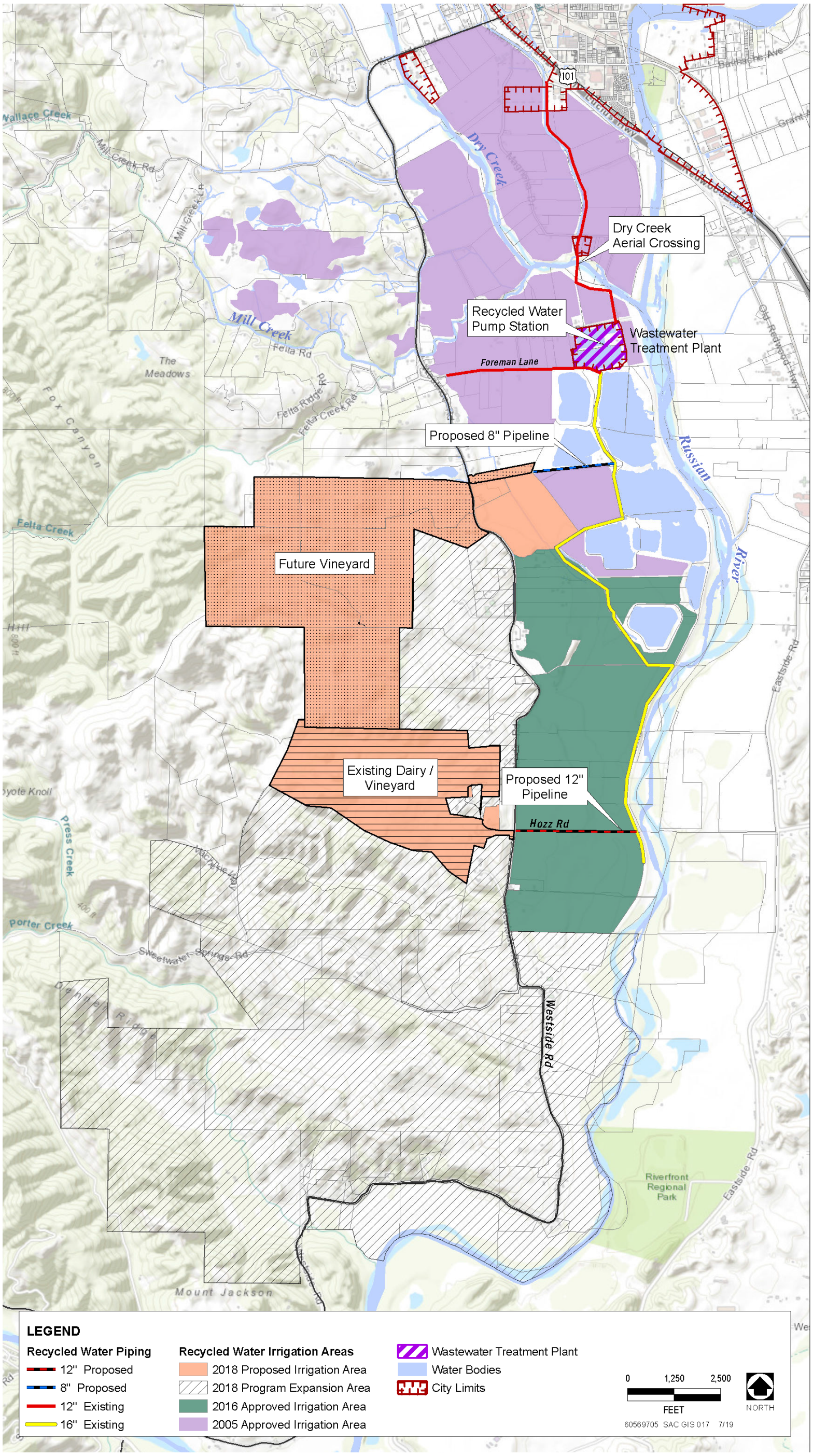


Exhibit 2.1 Regional Location Map



Source: City of Healdsburg 2019

Exhibit 2-2 Project Site

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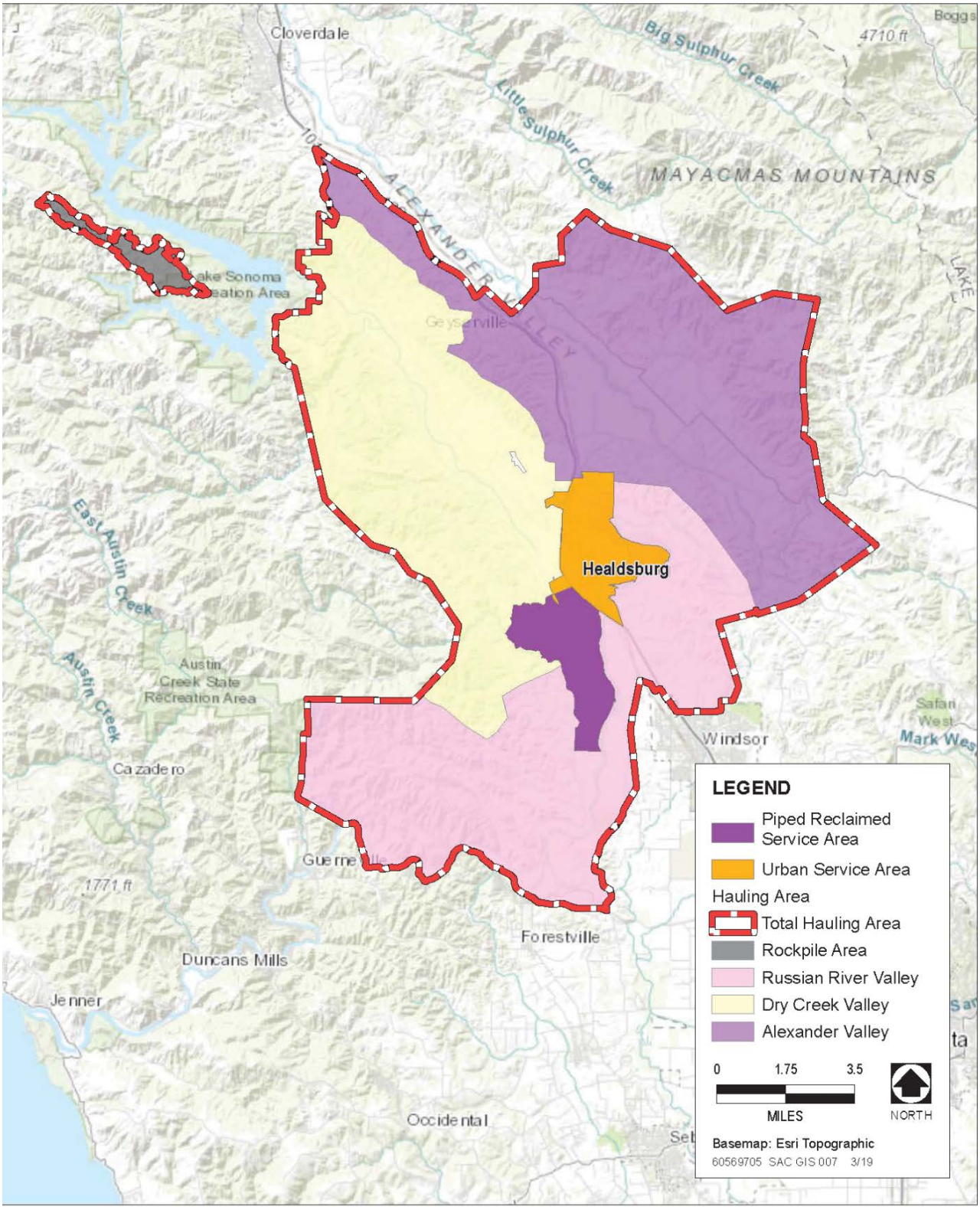


Exhibit 2-3 Recycled Water Haul Areas

Consistent with the 2005 EIR, the City implemented a water recycling program that made a portion of the treated wastewater available to nearby water users. Uses of the treated wastewater are currently limited to vineyard irrigation, commercial landscaping, and landscape irrigation. The recycled water is conveyed from the City's WRF to several places of use via three pipelines, which extend north, south, and west of the WRF. In the 2005 EIR, the City considered deliveries of recycled water to irrigate 1,350 acres.

In 2009, the City prepared an initial study and mitigated negative declaration addressing the proposed irrigation of additional properties near the WRF and south of the existing gravel mining ponds (City of Healdsburg 2009). A new pipeline extending from the WRF to these areas was proposed to supply the recycled water; however, this project was not implemented.

The City prepared addenda to the 2005 EIR in April 2014 and March 2016. In the 2014 addendum, the City considered delivery of recycled water for seasonal irrigation of up to 25,000 additional acres of agricultural land during the 2014 and 2015 irrigation seasons (City of Healdsburg 2014a). Two recycled water pipelines were constructed under the 2014 EIR addendum. One of the pipelines, a 12-inch pipeline measuring approximately 8,300 feet long, extended to the north of the WRF and included a crossing of Dry Creek via a pipe bridge. The second pipeline, a 16-inch pipeline measuring approximately 5,500 feet long, extended to the south of the WRF. The 2014 addendum also allowed trucks (in addition to pipelines) to deliver a portion of the recycled water. The 2016 addendum addressed the continued irrigation of the 25,000 acres with recycled water hauled by trucks through the year 2020, and the irrigation of 600 acres in this larger area with recycled water delivered by the new 16-inch and 12-inch recycled water pipelines (City of Healdsburg 2016a).

The WRF operates under a National Pollutant Discharge Elimination System (NPDES) permit administered by the North Coast Regional Water Quality Control Board (RWQCB). The NPDES permit allows the City to discharge up to 1.4 million gallons per day during dry weather and 4 million gallons per day during wet weather, but not more than 1 percent of the flow in the Russian River downstream of its confluence with Dry Creek.

The NPDES permit prohibits discharge to the Russian River from May 15 to September 30. Compliance with this seasonal discharge prohibition drives the City's recycled water program. The program was established to deliver tertiary-treated reclaimed water for beneficial reuse and avoid discharge. Currently, the City can only store approximately 25 million gallons (MG), or 17 percent of the approximately 138 million gallons of water reclaimed during the prohibition period. The remaining flow needs to be beneficially reused in the recycled water program. Beneficial reuse, as currently permitted, includes water for construction, landscape irrigation, and vineyard irrigation.

On July 1, 2016, the North Coast RWQCB issued a notice of applicability (NOA) for the Statewide Water Reclamation Requirements for Recycled Water Use (Order WQ 2016-0068-DDW), referred to in this SEIR as the General Order (SWRCB 2016). The NOA authorized the City's Recycled Water Program and prescribed a project-specific monitoring and reporting program. The July 1, 2016, NOA authorized the use of recycled water for vineyard irrigation and landscape irrigation of golf courses, parks, schools, and cemeteries. The City is now planning to expand its recycled water system and use recycled water to include irrigation of pastures, cut hay (ryegrass, alfalfa), cannabis, and orchards (apples, plums, prunes, and peaches), and protection of vineyards from frost. The

expanded recycled water activities and construction and operation of the associated facilities are the subject of this SEIR.

2.4 PROJECT OBJECTIVES

- Meet North Coast RWQCB order requirement to avoid discharge to the Russian River during the period of May 15 through September 30.
- Expand the beneficial use of the reclaimed water via landscape irrigation, agricultural irrigation, and construction uses.
- Promote the preservation and protection of existing groundwater and surface water sources.

2.5 PROJECT CHARACTERISTICS

The proposed project includes both specific projects and programmatic components. The specific projects are subject to detailed analysis in this SEIR in accordance with State CEQA Guidelines Section 15161 ("Project EIR"). The proposed components identified below for the 2018 Program Expansion Area are analyzed in less detail in accordance with State CEQA Guidelines Section 15168 ("Program EIR").

The project-level analysis in this SEIR addresses the following facilities and features proposed for the 2018 Proposed Area:

- adding approximately 1,160 acres of land that could receive recycled water via the proposed new pipelines (2018 Proposed Area);
- extending the existing recycled water transmission pipelines along two alignments totaling approximately 6,000 linear feet;
- constructing a recycled water distribution system in the 2018 Proposed Area to irrigate approximately 150 acres of pasture lands and 40 acres of vineyards.

The following components are addressed programmatically in the analysis in this SEIR:

- *2018 Program Expansion Area.* Permit an additional 3,540 acres of land to receive recycled water at a future date.
- *Recycled water Hauling.* Make permanent the temporary program (set to expire at the end of 2020) for the application of recycled water via truck delivery on approximately 25,000 acres.
- *Pipeline Extension.* To serve additional future water users in the area, the 12-inch-diameter pipeline that would serve the dairy/vineyard property could be extended a maximum of approximately 3.5 miles, with turnouts (service points) provided at intervals based on specific landowner requests for service.
- *Expansion of Permitted Uses of Recycled Water.* Common to the 2018 Proposed Area, 2018 Program Expansion Area, and recycled water haul area, expand the list of recycled water uses beyond those currently allowed in the program to include:

- orchards (apple, peach, plum/prune);
- cannabis;
- irrigated pasture;
- direct livestock watering (not including dairy cows);
- frost protection; and
- other agricultural uses occurring near the wastewater treatment plant, consistent with Title 22 of the California Code of Regulations.

Future proposals for recycled water facilities or activities in the 2018 Program Expansion Area will be reviewed separately under CEQA to confirm that no new impacts would occur, that previously disclosed impacts would not be substantially more severe than previously disclosed, and that no new mitigation measures are required beyond those identified in the 2005 EIR and this SEIR; otherwise, additional CEQA documentation would be required.

The proposed project-level and programmatic components are detailed below.

2.5.1 2018 Proposed Area

The project would involve constructing two recycled water transmission pipeline extensions, totaling about 6,000 linear feet, primarily within or adjacent to existing vineyard roads. Exhibit 2-2 shows the locations of the proposed pipeline extensions. A 12-inch-diameter pipeline would extend along Hozz Road for approximately 3,500 feet from the existing pipeline, and cross Westside Road to serve 150 acres of pasture and 40 acres of vineyards. This privately-held dairy/vineyard property is shown on Exhibit 2-2, and located on assessor's parcel number 110-180-036. The Westside Road pipeline crossing would be constructed via open-cut methods. In addition, as shown on Exhibit 2-2, an 8-inch-diameter transmission pipeline would extend approximately 2,500 feet and serve the future vineyard development located on Assessor's Parcel Numbers 110-180-002, 110-190-012, 110-190-013, 110-190-014, 110-190-015, 110-190-016. The proposed project would provide recycled water for irrigation of up to approximately 120 acres of future vineyard development within these parcels.

The City has also proposed creation of an assessment district to fund the development of a recycled water distribution system that would irrigate 150 acres of pasture lands and 40 acres of vineyards on the existing dairy/vineyard property. This recycled water distribution system would connect to the proposed 12-inch-diameter transmission pipeline at the boundary of the dairy/vineyard property along Westside Road, and would require construction of approximately 3,400 linear feet of recycled water distribution piping measuring 4–6 inches in diameter. A small pad-mounted booster pump station would be constructed approximately 200 feet west of Westside Road in accordance with the Sonoma County setback policy for this scenic corridor (Sonoma County 2016). The maximum dimensions of the booster pump station would be approximately 5 feet high and 20 feet square.

According to the *City of Healdsburg NPDES Seasonal Discharge Prohibition Compliance Feasibility Investigation* (Compliance Feasibility Investigation) prepared for the proposed project in August

2018 (City of Healdsburg 2018), the 150 acres of existing pasture could use approximately 15 inches of irrigation water during the irrigation season, equating to approximately 61 MG during the discharge prohibition period. The existing 40 acres of vineyard could use approximately 2 MG during the discharge prohibition period, based on 2 inches of irrigation per acre for the May–September irrigation season. Application of recycled water on the pasture lands and vineyards would be subject to the irrigation management plans detailed below in Section 2.5.5, "Project Operations and Management Plans."

The owner of the future vineyard property west of Westside Road has expressed interest in using recycled water to irrigate the potential vineyard development. The approximately 2,500 feet of 8-inch transmission pipeline required to serve this property would facilitate irrigation of approximately 120 acres of planned vineyards. According to the Compliance Feasibility Investigation, the vineyard could use approximately 6 MG during the discharge prohibition period (City of Healdsburg 2018). Like all other uses of recycled water for irrigation, application of recycled water on the vineyards would be subject to the irrigation management plans detailed below in Section 2.5.5, "Project Operations and Management Plans."

As of August 2018, the existing recycled water transmission system could provide water to approximately 985 acres of vineyard, of which approximately 700 acres are currently enrolled to use the recycled water, with seven active users on approximately 360 acres and inactive users on the remaining 340 acres. The proposed extension of the recycled water transmission pipelines would facilitate delivery of recycled water to an additional 323 acres to the users listed in Table 2-1, which includes the existing dairy/vineyard property and future vineyard property. In total, the proposed pipeline extensions would result in the diversion of up to 73 MG of recycled water and facilitate the beneficial reuse of recycled water on up to 1,160 acres in the 2018 Proposed Area (see Exhibit 2-2).

Table 2-1
City of Healdsburg Additional Beneficial Reuse—Agricultural Use Expansion

User	Acreage	Volume Diverted from Discharge, MG (rounded)
Hayfields (in current recycled water use area)	13	5
Existing Vineyard (2018 Proposed Area)	40	2
Existing Dairy Pasture (2018 Proposed Area)	150	60
Future Vineyard (2018 Proposed Area)	120	6
Additional Volume Diverted from Discharge, Expanded Uses and Area	**323**	**73**

Note: MG = million gallons
Source: City of Healdsburg 2018

2.5.2 2018 Program Expansion Area

The 2018 Program Expansion Area encompasses approximately 3,540 acres of land generally surrounding the 2018 Proposed Area and bisected by Westside Road. No facilities are currently proposed to serve this area. However, the proposed recycled water pipeline extension to the existing dairy/vineyard property could be extended farther south along Westside Road to serve additional users in the 2018 Program Expansion Area in the future. To serve additional future water users in the area, the 12-inch-diameter pipeline that would serve the dairy/vineyard

property could be extended a maximum of approximately 3.5 miles, with turnouts (service points) provided at intervals based on specific landowner requests for service.

Although no specific properties in the 2018 Program Expansion Area are currently proposed to receive recycled water, several potential new customers have expressed interest. Any future users of recycled water in the 2018 Program Expansion Area would be subject to the same permit conditions as the current and proposed users in the 2018 Proposed Area, as detailed below in Section 2.5.5.

2.5.3 RECYCLED WATER HAULING

The proposed project would make permanent the temporary recycled water truck hauling program authorized through the end of 2020. The existing truck hauling program allows the use of recycled water on approximately 25,000 acres within the larger 103,000-acre area shown in Exhibit 2-3. Haulers can use the recycled water for urban landscape irrigation, vineyard irrigation, and construction purposes. However, the permitted use of the hauled recycled water for construction is not limited to the geographic area shown in Exhibit 2-3 or the 2020 end date.

The City currently has two fill stations for recycled water haulers (see Exhibit 2-4). Each fill station is equipped with a flow metering kiosk that allows the City to track how much water each authorized user takes. The kiosks use a computerized, password-protected system to allow only authorized, properly trained users access to the recycled water. As of August 2018, the City had enrolled 39 construction haulers, five irrigation haulers, and 21 landscape haulers.

According to the City, an average of five trucks per day obtained recycled water in 2017, with a daily range of zero to eight trucks. In 2018, the daily average was closer to six trucks per day, with a daily range of zero to 12 trucks. Major consumers of the hauled recycled water include the Rocky Ridge/Mauritson Vineyard at 13500 Rockpile Road, which used 73 truckloads of recycled water in 2017 and 125 truckloads in 2018. The McCloskey Vineyard at 710 Lytton Springs used 57 truckloads of recycled water in 2018. The remaining truck trips associated with this program were primarily for construction use and dust control (Fuss, pers. comm., 2018). However, the use of trucks to haul water for construction is not subject to the 2020 sunset date or limited to the geographic area shown in Exhibit 2-3.

The anticipated number of truck trips associated with irrigation use is estimated to increase by about 50 percent over the next 20 years if the temporary program is made permanent. To apply a conservative approach to analyzing the potential impacts of indefinitely extending this temporary hauling program, this SEIR analysis assumes that the current number of truck trips and total amount of recycled water obtained through this program would double from current levels. Because the use of recycled water for construction purposes is currently allowed indefinitely, the analysis of truck trips is limited to water hauled for irrigation purposes.

Source: City of Healdsburg Compliance Feasibility Investigation (Healdsburg 2018a)

Exhibit 2-4 Recycled Water Fill Stations

2.5.4 EXPANSION OF PERMITTED USES OF RECYCLED WATER

The proposed project would expand the types of permitted uses currently approved under the City's recycled water program. Specifically, the currently approved uses of recycled water would be augmented to include:

- orchards (apple, peach, and plum/prune),
- cannabis,
- hay,
- irrigated pasture,
- direct livestock watering (not including dairy cows),
- frost protection, and
- other agricultural uses occurring near the WRF, consistent with Title 22 of the California Code of Regulations.

Subject to the individual and general permit conditions associated with the City's recycled water program, the above uses would be allowed in the 2018 Proposed Area, the 2018 Program Expansion Area, the truck hauling area, and other areas previously approved in the 2005 EIR and addenda for the use of recycled water.

The following sections provide an overview of the permit conditions applicable to individual recycled water users, including the maximum agronomic rates associated with specific crop types and frost protection.

2.5.5 PROJECT OPERATIONS AND MANAGEMENT PLANS

All users of recycled water are subject to a use agreement with the City that reflects the requirements of the North Coast RWQCB's permit program to ensure that recycled water is applied safely and legally at all recycled water use sites. The program described below includes the permitting program design, monitoring and reporting procedures, and methods used to ensure compliance with California Code of Regulations (CCR) Titles 17 and 22 and the provisions of the General Order. These requirements apply to all users of recycled water, including the potential new users in the 2018 Proposed Area, 2018 Program Expansion Area, and recycled water hauling area. The general operating parameters that would apply to all contracted users of recycled water are described below.

PERMIT PROGRAM

Potential recycled water users located near the City pipelines or interested in constructing an extension of the City pipeline to reach their property must contact the City to determine procedures. City staff would conduct a site visit to determine the feasibility of a connection, inspect the ponds (if planned for storage), and identify any site-specific conditions. A recycled

water use agreement between the user and the City would be negotiated and approved before construction or meter installation.

Access to the WRF filling station kiosk is restricted to haulers that have obtained a permit under the City's Self-Hauler, Commercial Hauler, or Trucked Recycled Water Program. The authorized haulers must follow fill station guidelines and obey the best management practices (BMPs) and regulations specified in the permit.

The following is a partial list of the BMPs from the May 2016 *Recycled Water Program Technical Report and Amended Notice of Intent* (City of Healdsburg 2016b) applicable to the existing truck hauling and construction use of recycled water.

- User must comply with all requirements and restrictions specified by the Regional Water Quality Control Board and the California Department of Public Health Title 22.Recycled water shall not be applied in areas where the public would be inadvertently exposed to recycled water.

- Truck storage tanks for the storage and transport of recycled water must comply with all federal, state of California and local requirements for the storage and transport of water that is to be reused.

- Recycled water shall not be allowed to spray onto external drinking water fountains or faucets used for potable water.

- Recycled water shall not be applied where it could contact or enter passing vehicles, buildings, areas where food is handled or eaten, or storm drains.

- Recycled water users shall take adequate measures to prevent overspray, ponding, or run off of recycled water from the authorized recycled water use area and at the filling station.

- Recycled water shall not be applied on water-saturated or frozen ground or during periods of precipitation such that runoff is induced.

- Recycled water shall not be applied on slopes if runoff cannot be controlled.

- There shall be no irrigation within 50 feet of any domestic (drinking water) well. There shall be no impoundment of recycled water within 100 feet of any domestic (drinking water) well.

- Any irrigation runoff shall be confined to the recycled water use area and shall not be allowed to escape as surface flow. No recycled water shall be applied to irrigation areas during periods when soils are saturated.

- Recycled water shall not be allowed to escape from the designated use area(s) as surface flow that would either pond and/or enter waters of the State.

- Recycled water shall not be applied into State waters, within 25 feet of State waters containing standing or flowing water, nor in a manner that could result in uncontrolled runoff into State water.

- All unused recycled water must be returned to the WRF for proper disposal.
- The treatment, storage, distribution, or reuse of recycled water shall not create a nuisance as defined in Section 13050(m) of the California Water Code.
- Annual refresher training for construction workers using recycled water shall be conducted.
- All containers utilized for recycled water storage shall be properly labeled.

Additional BMPs applicable to irrigation and frost protection uses are summarized further under "Irrigation Management Plans," below.

MONITORING AND REPORTING PROGRAM

The City would continue to monitor the quality and quantity of recycled water leaving the WRF as specified in the NPDES permit and Monitoring and Reporting Program Order No. 2016-0068-DDW-R1001 for the General Order. Metered users must observe site conditions and verify proper operation of the recycled water facilities and equipment. Metered users must perform these observations once per month when recycled water is used or stored and must record the results in the user self-monitoring report.

The City must submit reports periodically to the North Coast RWQCB that summarize operation of the Recycled Water Program, discuss violations of the General Order, and describe actions taken or planned to correct the violations and prevent future violations. The recycled water annual report (due April 1) would continue to describe operation of and changes to the Recycled Water Program. Monitoring data would be submitted to the North Coast RWQCB in either the quarterly or annual self-monitoring reports. Unauthorized discharges and violations of the General Order would be reported based on the volume of discharge that occurred, the severity of the violations, and the follow-up actions required. A Significant Violation report would be prepared to document violations and corrective actions taken.

USE AREA INSPECTION PROGRAM

The City would continue to perform unannounced, randomly timed inspections of all metered user sites at least once per year. The observations would be used to verify information reported in the user self-monitoring reports, including the volume of recycled water applied, operation of user storage ponds and irrigation systems, distance from domestic water supply wells, placement of warning signs, and evidence of runoff or ponding. The City would maintain a database that would include the locations and running totals of recycled water volumes delivered to sites receiving hauled recycled water. At least one-third of these users would be inspected each year. Construction sites using recycled water would be randomly inspected at least once per year. Commercial haulers that deliver more than 300 gallons to a particular site or user would perform a site inspection once per month. As needed, the City would provide random or follow-up inspections to verify compliance. All observations and findings would be recorded on the site inspection report.

OPERATIONS AND MAINTENANCE PROGRAM

Operations and maintenance associated with the Recycled Water Program would be the responsibility of users, commercial haulers, and the City. The users would be responsible for ensuring that recycled water storage containers and watering equipment are used and maintained properly. The commercial haulers would be responsible for properly operating and maintaining the trucks that deliver recycled water and the tanks or containers used during transport. For large-volume deliveries (more than 300 gallons), the commercial haulers would verify that they have complied with recycled water regulations, that no piped connections to irrigation systems exist, and that the recycled water would be used within 2–4 days to reduce the risk of bacterial growth and odors. Responsible City departments would maintain City-owned vehicles. The City would be responsible for the use of recycled water at all sites and for any recycled water equipment owned or operated by the City.

COMPLIANCE PROGRAM

The North Coast RWQCB would be guaranteed access, for inspection and monitoring purposes, to premises where recycled water is produced and distributed. Records maintained for the Recycled Water Program would be made available to the North Coast RWQCB upon request. The City would be responsible for implementing the rules and regulations in the Recycled Water Program Permit, CCR Titles 17 and 22, and the General Order. The commercial hauler would provide compliance information to the City for large deliveries. The City would be responsible for ensuring that users are adequately informed and trained on the rules and regulations in the Recycled Fill Station Use Application and Agreement. Each user would be responsible for implementing the rules and regulations of the use agreement.

City staff members would conduct periodic visits to user sites. The largest users of recycled water would be inspected monthly. During the visits, the City would note whether recycled water is being used according to the permit requirements and would ensure that the user is not violating the General Order. Commercial haulers delivering more than 300 gallons per visit to a particular use site would be required to verify that the recycled water is being used according to the General Order and CCR Title 17 and 22 regulations. Should any violations be noted or potential cross-connections exist, that information would be conveyed to the City as soon as possible.

If a violation were to be noted based on City inspections and communication with commercial haulers, the City would notify the North Coast RWQCB, the State Water Resources Control Board's Division of Drinking Water (DDW), and the California Governor's Office of Emergency Services as appropriate, within 24 hours. The City and the user would discuss the cause of the violation, and the approach and timing for correction. The North Coast RWQCB and DDW would be copied on any correspondence between the City and the user regarding noncompliance. City staff would return to the use site after a period of time agreed upon by the user and the City to determine whether the violation has been addressed. Should the user fail to address the violation, the City would have authority to revoke the user's permission to receive recycled water. Upon correction of the violation or revocation of permission to receive recycled water, the North Coast RWQCB would be notified of the final resolution.

EMPLOYEE AND USER TRAINING

All WRF staff and City employees that interface with the recycled water program would complete an orientation on the operation and regulatory requirements of the recycled water program. The participants would review the General Order, CCR Titles 17 and 22, and sections of the WRF Operations and Maintenance Manual on water-recycling facilities. Employees would tour the WRF during their first month of work to learn how recycled water is produced, monitored, and distributed to users.

The City would train metered users before the startup of recycled water delivery. In June 2014, the City prepared the *Training Program Technical Report for Micro-Irrigation of Vineyards* (City of Healdsburg 2014b). The report would be used for source material, but the program would be updated to address current permit provisions and conditions for the recycled water program. Training events would be conducted with the recycled water site supervisors and key personnel to provide an overview of recycled water regulations, introduce program forms, and detail when and how to submit required information. A copy of the General Order, CCR Titles 17 and 22, and the recommended and required BMPs would be provided. Additional training would occur when regulations change, operations are modified, or new employees start work.

The City would conduct recycled water training for self-haulers and commercial haulers when their permit applications or use agreements are submitted and annually thereafter. The training program would cover the appropriate uses of recycled water, health and safety guidelines, watering guidelines, prevention of cross-connections, and program rules.

EMERGENCY PROCEDURES AND NOTIFICATION

In case of a recycled water spill or other emergency during the use of recycled water, the user must contact the City of Healdsburg Dispatch Call Center at (707) 431-7000 or (855) 755-6586 and report the incident immediately. In case of a recycled water spill or other emergency during the delivery of recycled water, the truck driver or owner must contact the City of Healdsburg Dispatch Call Center at (707) 431-7000 or (855) 755-6586 and report the incident immediately.

IRRIGATION MANAGEMENT PLANS

The General Order from the North Coast RWQCB requires that recycled water be used at agronomic rates that consider soil, climate, and plant demand. In addition, recycled water and fertilizers must be used at a rate that takes into consideration the nutrient levels in recycled water and nutrient demand by plants. To ensure compliance with the provisions of the General Order, the City would implement an irrigation management plan.

During operations of the expanded recycled water activities, the City would conservatively estimate the volume of recycled water required for irrigation at hydraulic and nitrogen agronomic rates based on crop coefficients, irrigation system efficiencies, predicted recycled water quality, literature/farmer-provided nitrogen requirements, and historical local weather conditions. Updated data would be obtained and used for ongoing agronomic rate assessments, including monthly precipitation and evapotranspiration data from the local California Irrigation Management Information System (CIMIS) Windsor Station No. 103.

Users of recycled water would submit monthly reports to the City that would include the area(s) irrigated each month, the amount of recycled water used for irrigation and frost protection, and the source and volume of other irrigation water applied. The City would maintain spreadsheets to compare actual use with the calculated hydraulic agronomic rate. The assessments would be conducted over 3-month periods. If necessary, the City would contact users and provide recommendations to reduce recycled water irrigation rates or change operations. If needed to ensure application at hydraulic agronomic rates and prevent runoff/ponding, site-specific irrigation management plans would be developed by the users for review and approval by the City. The irrigation management plans may include downloading evapotranspiration data from CIMIS Station No. 103 on a daily or weekly basis to better inform operation of the irrigation system.

Table 2-2 outlines the general parameters and limitations associated with specific uses of recycled water. The applicable agronomic rates are derived from the analysis provided by the City of Healdsburg, provided as Appendix B to this SEIR. These agronomic rates reflect those antitipated to apply within the 2018 Proposed Area and 2018 Program Expansion Area.

Table 2-2
Parameters and Limitations for Specific Uses of Recycled Water

Irrigation Type	Irrigation Months	Irrigation Schedule	Irrigation Method	Monthly Agronomic Rate (af/ac)	Annual Agronomic Rate (af/ac)
Landscaping	April–October	Daily, depending on demand and drought restrictions	Sprinkler, drip	0.02 to 0.66	2.89
Pasture	May–October	Daily, depending on demand	Sprinkler	0.02 to 0.76	3.08
Cut hay	April–October	Daily	Sprinkler	0.02 to 0.66	2.89
Orchard[1]	April–October	Two to three times per month; 24-hour cycle at ~0.11 inch per hour (~2.5 inches total)	Low-profile sprinkler	0.04 to 0.31	1.72 to 2.78
Cannabis	April–July	Daily	Furrow irrigation[2]	0.19 to 0.53	2.71
Vineyard	April–September	Variable, generally weekly	Drip irrigation	0.03 to 0.19	0.75
Frost protection	March-May	Five times per year average for 1–3 days for 8-hour period at 55 gpm/ac	Solid-set sprinklers	0.07 to 0.13	0.33

Notes:
af/ac = acre-feet per acre; gpm/ac = gallons per minute per acre
[1] Permitted rates apply to peach, apple, plum and prune orchards irrigation rates
[2] Furrow irrigation is conducted by creating small parallel channels along the field length in the direction of predominant slope. Water is applied to the top end of each furrow and flows down the field under the influence of gravity.
Source: City of Healdsburg 2019

The prescribed agronomic rates summarized above were developed with the objective of protecting public health and surface water/groundwater quality. To further achievement of that objective, irrigation uses would be subject to applicable BMPs. The following list of current BMPs

from *Recycled Water Program Technical Report and Amended Notice of Intent* (City of Healdsburg 2016b) are expected to apply to the proposed project. The following BMPs are apply to ongoing irrigation, fertilization, and operation and maintenance activities; no substantial changes are anticipated to these BMPs under the proposed project.

Irrigation Practices:

- Apply recycled water within hydraulic agronomic rates.
- Do not irrigate during or immediately before or after rainfall events.
- Do not irrigate on water-saturated or frozen ground.
- Do not irrigate prior to a predicted rainfall event of 0.5 inches or greater.
- Consider implementing shorter, more frequent irrigation periods to prevent soil saturation and increase soil water available to roots.
- Do not irrigate for more than 12 continuous hours.
- Allow at least 24 hours of drying time between irrigations.
- To ensure compliance with agronomic rate thresholds, use well water or local surface water if additional irrigation or post-harvest irrigation is needed.
- Do not allow recycled water to pond on-site. All irrigation water must infiltrate within a 24-hour period.
- Do not irrigate within 50 ft of domestic water supply wells.
- Maintain 100 ft setbacks to surface waters (including ponds with river connections), unless it can be demonstrated that a lesser setback is sufficient.

Fertilization:• Apply recycled water within nitrogen agronomic rates.

- When calculating the amount of commercial fertilizer needed, consider nitrogen load applied through irrigation with recycled water.
- Cleanup fertilizer spills immediately and remove waste from the site.
- Do not leave fertilizers on paved surfaces or in locations where it could migrate offsite or into nearby surface waters.
- Consider using petiole measurements to determine amount of nitrogen fertilizer required.

Operation and Maintenance:

- Inspect and maintain irrigation distribution system once per week during growing season to prevent pipe breaks or leaks.

- Repair leaks or pipe breaks within 72 hours or prior to the release of 1,000 gallons, whichever comes first.
- Do not install hose bibs in areas that can be accessed by general public.
- Inspect and maintain drip emitters once per month during growing season. Verify or re-establish proper operation, aim, and flowrate.
- Periodically adjust valves or pressure regulators to ensure operation of the irrigation system at the appropriate pressure.
- Consider using automatic rain shut-off devices.
- If timers are used, test accuracy of irrigation timers and recalibrate or repair as necessary.
- Post recycled water use signs at site entrances and corners. Mark recycled water equipment with signs or purple tape.
- All trucks used to haul recycled water must have proper signage.
- Inspect site once a month to verify the proper placement and legibility of recycled water identification signs, tags, stickers, and above ground pipe markers. Replace signs and markers as needed.
- Discourage or prevent public access to irrigation site.
- Utilize double-check valves to prevent backflows from the recycled water distribution system to agricultural wells.
- Conduct recycled water operations training prior to each growing season and whenever new employees are hired.

In addition to irrigation, recycled water would be used for frost protection at vineyards consistent with the rates, methods, and schedule shown in Table 2-2. The application of recycled water would help keep the temperature of the vines above freezing. Vineyard farmers would begin applying recycled water for frost control when field conditions dictate that frost is imminent (based on the dew point as measured in the field with a wet bulb thermometer). Farmers rely on frost reports and their years of experience to address frost events. Frost protection systems would be initiated and terminated manually, and the farmers would remain on-site during the event to monitor conditions. The total volume of water applied would depend on the type of sprinkler and the duration of frost conditions. The use of cover crops would prevent runoff and utilizes the extra nitrogen that may be applied during the frost event.

Monthly irrigation rates for frost protection would be similar to the agronomic rates for vineyard irrigation, but would occur during the winter months. The annual agronomic rate for vineyard irrigation noted above of 0.75 acre-foot per acre would increase to approximately 1.08 acre-feet per acre if additional frost protection measures were implemented (Appendix B).

The following list of the proposed BMPs were developed by the City of Healdsburg and would be applicy to the use of recycled water for frost protection. If the final BMPs approved by the North Coast RWQCB applicable to the proposed project activities are more stringent than those listed below, the final BMPs would apply.

- Conduct pre-season inspections and infrastructure testing to ensure proper operation and verify runoff capture systems are in place.
- Limit application rates to the rates established by the City of Healdsburg to prevent site runoff (see Appendix B of this SEIR).
- Do not use domestic water as a backup supply for frost protection.
- Plant cover crop to prevent runoff, to protect against erosion, and provide additional nitrogen removal.
- Check irrigation systems during spray events to minimize ponding and runoff.
- The application of recycled water for frost protection must not exceed the applicable nutrient agronomic rates of the vineyard and the cover crop.
- Protect potable water wells or connections from spray and runoff by covering, eliminating cross-connections, and diverting flows from these areas.
- If not already in place, post signs indicating that recycled water is being used for irrigation and label any storage areas. Signs must meet requirements of Title 22 Section 60310(g).
- Recycled water valves, outlets, quick couplers, and sprinklers shall be of a type, or secured in a manner, that permits operation only by the User's authorized personnel.
- Restrict access to irrigated areas when recycled water is being used.
- Do not use recycled water for frost control within a minimum of 50 feet of any domestic (drinking water) well.
- Do not use recycled water within 25 feet of State waters containing standing or flowing water, or in a manner that could result in uncontrolled runoff into State waters.
- Do not store recycled water without City approval. Any storage facility containing recycled water for reuse applications must be managed to control odor or nuisance conditions.
- All recycled water storage ponds shall be adequately protected from erosion, washout, and flooding from a 24-hour rain event having a predicted frequency of once in 25 years.
- Prevent recycled water from entering street gutters, storm drains, or nearby creeks.
- Irrigation equipment should be inspected and tested prior the irrigation season and inspected frequently throughout the year during use to ensure that the equipment is functioning properly. Any maintenance needs should be promptly addressed to avoid ponding, runoff, etc.

- The Site Supervisor must attend the initial and periodic refresher training required of all recycled water Users.

2.6 CONSTRUCTION ACTIVITIES

Implementing the proposed activities in the 2018 Proposed Area would require constructing two segments of pipeline that would extend from the existing recycled water transmission pipelines. Exhibit 2-2 shows the alignments of the proposed pipeline extensions. The proposed pipeline extending to the existing dairy/vineyard property would be 12 inches in diameter and approximately 3,500 feet long. The proposed pipeline serving the future vineyard property would be 8 inches in diameter and extend for about 2,500 feet. Construction would include the following specifications:

- The top of the pipes would be 3.5 feet below the ground surface, and the trench would extend about 6 inches below the bottom of the pipe (e.g., the 12-inch dairy/vineyard pipe would require a trench 5 feet deep).
- The construction trench would be approximately 3 feet wide.
- Alignments would be located within or adjacent to existing vineyard roads.
- The dairy/vineyard alignment is anticipated to extend along the north side of the road opposite from the existing drainage ditch, subject to approval by the property owner (Bacigalupi).
- The alignment serving the future vineyard could extend along either side of the road.
- Each alignment would fall within a 16-foot-wide easement.
- Construction would occur at a pace of about 200 feet per day.
- Open-cut construction methods would be used, with backfilling occurring every day.
- Standard City construction provisions would apply (see the BMPs summarized below).
- Alignments would occur in non-expansive soils.
- No construction work would occur during precipitation events.
- Water would be applied for dust control.
- No groundwater is expected to be encountered.

The proposed 12-inch pipeline segment serving the dairy/vineyard property would cross Westside Road at the location shown in Exhibit 2-2. Construction across Westside Road would occur via open-cut methods. Traffic would be controlled at this location in accordance with Sonoma County requirements during construction, and a minimum of one travel lane would remain open at all times. At the end of each construction day, steel plates would be placed above the open-cut area and both travel lanes would be made available.

Starting at the connection point to the 12-inch recycled water transmission pipeline on the dairy/vineyard property, a connection to the existing dairy and vineyard irrigation systems would be made by constructing approximately 3,400 linear feet of 4- to 6-inch-diameter pipe. The 3,400-foot pipeline would be placed in a trench approximately 1 foot wide and 3 feet deep. An estimated 200 feet of pipe would be constructed daily. All open trenches would be covered at the end of each work day. The total construction period on the dairy/vineyard property, including mobilization and demobilization activities, would be approximately 6 weeks.

Each transmission line extension and the dairy/vineyard property irrigation system improvements are expected to be constructed sequentially. Construction activity would occur Monday through Friday, between 8 a.m. and 6 p.m., consistent with the Sonoma County Noise Ordinance. If necessary, any construction activity on Saturday would be limited to 9 a.m. to 6 p.m. and on Sundays and holidays 10 a.m. to 6 p.m. Each construction phase is anticipated to require a crew of six: one foreman, two laborers, and three operators.

In addition to the applicable mitigation measures provided in the mitigation monitoring and reporting program for the 2005 EIR, and the environmental commitments to avoid sensitive resources described in Section 2.8 of the 2005 EIR, the proposed construction activities would adhere to the BMPs provided for in the City's standard construction specifications. These would be detailed in the City's notice to bidders that are applicable to all City construction projects (City of Healdsburg 2016c) and are summarized in the sections below.

2.6.1 Storm Water Pollution Prevention

The contractor must perform the work in compliance with all applicable requirements of the California State Water Resources Control Board pursuant to Order No. 99-08-DWQ, NPDES General Permit No. CAS000002 (General Permit), established pursuant to regulations adopted by the U.S. Environmental Protection Agency on November 16, 1990, and codified in Code of Federal Regulations Title 40, Parts 122, 123, and 124. The General Permit applies to stormwater discharges from construction sites that disturb land equal to or greater than 1 acre, and to construction activity that results in soil disturbance of less than 1 acre if the activity is part of a larger common plan of development that encompasses 1 or more acre of soil disturbance, or if significant water quality impairment results from the activity. The General Permit requirements that may apply to the contractor's performance of the work would include but not be limited to:

a. Development and implementation of a storm water pollution prevention plan (SWPPP) that would specify BMPs for preventing all construction pollutants from contacting stormwater and keeping all products of erosion from moving off-site into receiving waters.

b. Elimination or reduction of non-stormwater discharges to storm sewer systems and other waters of the nation.

c. Inspection of all BMPs.

Portions of the work that may be subject to the General Permit would include but not be limited to clearing, grading, stockpiling, and excavation. Before commencing performance of the work, the contractor must prepare a SWPPP in accordance with all applicable requirements of the General Permit. The contractor must also develop and implement a monitoring program to verify compliance with the General Permit.

2.6.2 MAINTAINING TRAFFIC AND PEDESTRIAN OPERATIONS

The contractor must conduct his or her operations in a manner that causes the least possible obstruction and inconvenience to public traffic. Unless otherwise approved by the project engineer, all traffic must be permitted to pass through the work. Because of the need to accommodate and minimize inconvenience to the public, unless expressly specified or approved in writing by the project engineer, no road closures would be permitted. Public vehicular and pedestrian traffic must be allowed to travel through the work area with an absolute minimum of interruption or impedance, unless otherwise provided for in the contract or approved in writing by the project engineer. The contractor must make provisions for the safe passage of pedestrians around the area of work at all times.

Throughout performance of the work, the contractor must construct and adequately maintain suitable and safe crossings over trenches and detours necessary to allow for public and private traffic at all times including Saturdays, Sundays, and holidays. The contractor would be responsible for keeping all emergency services providers, including the Healdsburg police and fire departments, informed of obstructions to or detours around any public or private roads caused by reasons of his or her operations.

2.6.3 OBSTRUCTIONS

Before starting work (a minimum of 2 working days in advance), the contractor must call Underground Service Alert (USA) toll free at (800) 642-2444 and provide USA with all necessary data relative to the proposed work. Upon notification, agencies having facilities in the area of the proposed excavation would mark their locations in the field using USA standard colors and codes to identify the facilities. The contractor would be required to work around public and private utility facilities and other improvements that would remain in place in the construction area, and would be held liable to the owners of such facilities or interference with service resulting from contractor operations.

2.6.4 HOURS OF WORK

Unless otherwise specified, all construction activity, except for emergency situations, would be confined to Monday through Friday between 7:30 a.m. and 6:00 p.m., to minimize nuisances to local residents. Mufflers and/or baffles would be required on all construction equipment to control and minimize noise. The contractor must comply with all applicable noise regulations in the City's Municipal Code. Saturday, Sunday, holidays, and overtime are not authorized working days. Work would not be allowed on nonworking days without the express approval of the project engineer. Construction activity outside the City boundaries is regulated by the Sonoma County Noise Ordinance, which limits construction activity to 8 a.m. to 6 p.m. Monday through Friday, 9 a.m. to 6 p.m. on Saturdays, and 10 a.m. to 6 p.m. on Sundays and holidays.

2.6.5 DUST CONTROL

The contractor must furnish all labor, equipment, and means required and must carry out effective measures wherever and as often as necessary to prevent operations from producing dust that would damage property, cultivated vegetation, or domestic animals, or would cause a nuisance. The contractor would be responsible for any damage resulting from dust originating from performance of the work. The use of water resulting in mud on streets, sidewalks, or

driveways, would not be permitted as a substitute for sweeping or other methods of dust control. The contractor may not discharge smoke, dust, or any other air contaminants into the atmosphere in a quantity that would violate the regulations of any legally constituted authority.

2.6.6 PROTECTION AND RESTORATION OF VEGETATION

Trees, lawns, shrubbery, and vegetation that would not be removed must be protected from damage. Existing trees, shrubs, and other plants that would not be removed and are damaged by the contractor's operations must be replaced by the contractor in accordance with Section 20-4.07, "Replacement," of the California Department of Transportation Standard Specifications. Section 20-4.07 has been incorporated into the project agreements.

When it is necessary to excavate adjacent to existing trees, shrubs, or hedges, the contractor must use all possible care to avoid damage to the trees, shrubs, or hedges and their roots. No roots or limbs 2 inches or larger in diameter may be cut without the express approval of the engineer.

All roots 2 inches in diameter and larger left in place must be wrapped with burlap to prevent scarring or excessive drying. When it is necessary to cut limbs and branches of trees to provide clearance for equipment used in construction, the contractor must seal the damaged areas by properly painting them with an emulsified asphalt-type seal. All cuts through ½-inch or larger roots and limbs must be hand trimmed and cleanly cut before being sealed.

2.6.7 CULTURAL RESOURCES

In accordance with the National Historic Preservation Act of 1966 (U.S. Code Title 16, Section 470 et seq.), the procedures below would be implemented to ensure historic preservation and fair compensation to the contractor for delays resulting from the cultural resources investigation. The contractor would agree to comply with these procedures.

SURPLUS MATERIAL

All material removed or excavated during construction would be surplus. All surplus material would be the property of the contractor and be disposed of outside the right-of-way, unless the City elects to salvage certain objects determined to be of historical interest. The City would reserve the right of ownership of all objects that it elects to salvage, and the contractor must protect such objects from subsequent damage until delivered unto the care of the owner.

HISTORICAL FINDS

In the event potential historical, architectural, archeological, or cultural resources (hereinafter called "cultural resources") are discovered during subsurface excavations at the site of construction, the following procedures would apply:

1. The contractor must immediately notify the engineer and stop any work that may jeopardize the find pending an investigation of its significance.

2. The engineer would select a qualified archaeologist (such as through the Northwest Information Center at Sonoma State University or other official contact) and wait for an

archaeologist to complete an evaluation of significance before continuing work in that area.

3. The project engineer would supply the contractor with a "stop-work order" directing the contractor to cease all portions of the work that the project engineer determines may affect the find. The stop-work order would be effective until a qualified archaeologist assesses the value of the potential cultural resources. The stop-work order would contain the following:

    a. A clear description of the work to be suspended.

    b. Any instructions regarding issuance of further orders by the contractor for materials services.

    c. Guidance as to action to be taken regarding subcontractors.

    d. Any direction to the contractor to minimize costs.

    e. Estimated duration of the temporary suspension.

4. Should the archaeologist determine that the potential find is a bona fide cultural resource, the project engineer may extend the duration of the stop-work order in writing. If so, the stop-work order would remain in effect, and work subject to the stop-work order may not resume until authorized by the engineer.

CULTURAL RESOURCES DEFINED

Possible indicators that a cultural resource has been found would include but not be limited to the following:

1. *Prehistoric-era archaeological site indicators:* Obsidian tools, tool manufacture waste flakes, grinding and other implements, dwelling sites, animal or human bones, fossils, and/or locally darkened soil containing dietary debris such as bone fragments and shellfish remains.

2. *Historic-era site indicators:* Ceramic, glass, and/or metal.

2.6.8 HAZARDOUS MATERIALS

Prior to beginning the Work, the Contractor shall review the City's Hazard Communication Program. In addition, if the Contractor brings any substance onto City property, other than gasoline or diesel fuel, for which a manufacturer has prepared a Materials Safety Data Sheet *(MSDS),* in quantities greater than 25 pounds, 200 cubic feet, or five gallons; or any substance defined in Cal/OSHA regulations as "acutely hazardous;" or if the Contractor's work activities may expose City employees to any of the substances described above, the Contractor shall first complete and submit to the Engineer a "Report of Use/Storage of Hazardous Substances on City Property" form.

2.7 REGULATORY REQUIREMENTS, PERMITS, AND APPROVALS

In addition to the ongoing regulatory requirements outlined above in Section 2.6, "Construction Activities," applicable to the current and planned recycled water facility construction and operations, the proposed project would be subject to various federal, state, and local requirements. Table 2-3 outlines the various agencies and types of permits that would or may apply to implementation of the proposed project.

Table 2-3
Potential Permit or Consultation Requirements

Permit/Agreement	Agency	Jurisdiction/Purpose
Federal Agencies		
Clean Water Act (CWA) Section 404 permit (nationwide permits, letters of permission, or individual permits)	U.S. Army Corps of Engineers	Authorizes discharge of fill into waters of the United States, including wetlands, if needed
Federal Endangered Species Act (ESA)	U.S. Fish and Wildlife Service or National Marine Fisheries Service	Supports issuance of federal permits related to federally listed species, if needed; consultation among federal agencies regarding potential imapcts on federally listes species.
Migratory Bird Treaty Act	USFWS	Protection of nesting migratory birds
State Agencies		
Waste discharge requirements for recycled water reclamation	North Coast Regional Water Quality Control Board	Authorizes discharges of treated wastewater or recycled water to land or waters of the state that have potential to affect surface water or groundwater quality
NPDES stormwater permit for general construction activity	North Coast RWQCB	Authorizes construction-related erosion and waste discharges to waters of the United States
CWA Section 401 clean water certification	North Coast RWQCB	Required as part of issuance of federal CWA Section 404 permit, if needed; also needed if waters of the state not subject to CWA section 404 would be impacted
California Fish and Game Code Section 1602	CDFW	Authorizes alteration of streambeds, rivers, and lakes
California Fish and Game Code Section 3503.5	CDFW	Provides for protection of nesting raptors
Local Agencies		
Encroachment and grading permits	Sonoma County Permit and Resource Management Department	Encroachment permit provides for temporary lane closures and construction activities in County rights-of-way; grading permit is required for review of structure locations, drainage, and erosion

Notes:
CDFW = California Department of Fish and Wildlife; CEQA = California Environmental Quality Act; County = Sonoma County; CWA = Clean Water Act; ESA = federal Endangered Species Act; NPDES = National Pollutant Discharge Elimination System; RWQCB = Regional Water Quality Control Board; USFWS = U.S. Fish and Wildlife Service
Source: Data compiled by AECOM in 2019

3 ENVIRONMENTAL SETTING, IMPACTS, AND MITIGATION MEASURES

3.0 APPROACH TO THE ENVIRONMENTAL ANALYSIS

As discussed in Chapter 1 of this EIR, this document evaluates the following 12 separate environmental issues:

- land use consistency, agriculture, and forestry resources;
- hydrology and water quality;
- fisheries resources;
- terrestrial biological resources;
- earth resources;
- air quality;
- noise;
- cultural resources, including tribal cultural resources;
- transportation;
- greenhouse gas emissions;
- energy; and
- wildfire.

This chapter examines each of these topic areas in a separate section, presenting a summary of findings from the EIR certified for the City of Healdsburg WWTP Upgrade Project in 2005 (where applicable); updates to the environmental setting and regulatory background; the standards of significance; the methodology for the analysis; impacts of the current project on the environment; and feasible measures to mitigate the identified significant impacts. The 2005 EIR did not analyze impacts on several topic areas (hazards and hazardous materials, transportation, greenhouse gas emissions, energy, and wildfire); these topic areas are addressed for the first time in this subsequent EIR.

The Environmental Setting Update subsections provide an overview of any changes to the existing physical environmental conditions that have occurred since certification of the 2005 EIR. The environmental setting discussions establish the environmental baseline by which the current project is measured and evaluated. The Regulatory Background Update subsections identify environmental laws and regulations that are relevant to each topical section that either are new or have changed since certification of the 2005 EIR. They describe required environmental permits and other approvals necessary to implement the proposed options.

Standards of significance are identified for each environmental issue. These standards are the thresholds used to determine whether implementing the current project would result in a significant environmental impact. The standards have been updated to reflect the current contents of State CEQA Guidelines Appendix G; in some cases, new topics (e.g., forestry resources, tribal cultural resources) have been added since certification of the 2005 EIR. In conformance with Section 15128 of the State CEQA Guidelines, the resource sections in this EIR describe impacts found not to be significant and not described in detail.

Impacts and feasible mitigation measures are presented, where appropriate, for each environmental issue, and a significance determination is provided at the end of each discussion. For each impact identified in the analysis, significance is expressed as one of four determinations: no impact, less than significant, potentially significant, or significant. A significant impact is defined under CEQA as a substantial adverse change to the environment. The significance determinations are presented in bold and italic type. Where significant (and potentially significant) impacts are identified, mitigation measures are provided to reduce or avoid the impact. In cases where the impact would not be reduced to a less-than-significant level by the mitigation, the impact is identified as significant and unavoidable.

As detailed in Chapter 2, "Project Description," this EIR examines the environmental impacts associated with expanding the City's existing recycled water program to include additional customers, acreage, and facilities to increase the beneficial reuse of recycled water for agricultural purposes.

The standard format convention used to present the discussion of the environmental impacts of implementing the project is presented below.

Impact 3.1-1: Name of Impact

Discussion of the impact of implementing the seasonal irrigation reuse system.

Mitigation Measure S3.1-1: Name of Impact

Description of a measure to mitigate a significant impact associated with implementing the project or a statement that no mitigation is necessary.

3.1 LAND USE CONSISTENCY, AGRICULTURE, AND FORESTRY RESOURCES

This section updates the environmental and regulatory conditions related to land use consistency and agricultural rsources since certification of the 2005 EIR. It examines the project's consistency with the land use policies and land use designations of the *Sonoma County General Plan 2020* (General Plan) and the Sonoma County (County) zoning code. It also identifies potential environmental impacts related to land uses.

In addition, this section addresses agricultural resources within the 2018 Proposed Area and 2018 Program Expansion Area. It describes existing agricultural uses, identifies the quality of agricultural land, and evaluates potential impacts of the proposed project on agricultural resources.

The 2005 EIR did not address potential impacts of forestry resources because it was prepared before the 2019 adoption of amendments to the State CEQA Guidelines pertaining to forestry resources. As a result, the environmental setting and impact analysis related to forestry resources is entirely new.

3.1.1 SUMMARY OF FINDINGS FROM THE 2005 EIR

Table 3.1-1 identifies significant project impacts related to land use consistency and agriculture, as presented in the 2005 EIR, and the mitigation measures identified to reduce those impacts. Impacts for which the analysis in the 2005 EIR reached conclusions of less than significant without mitigation or no impact are not listed here.

Table 3.1-1
Significant Impacts and Mitigation Measures Identified in the 2005 EIR—
Land Use Consistency and Agriculture

Impact	Mitigation Measures	Level of Significance Following Mitigation
Impact 3.1-3: Indirect Conversion of Farmland Associated with Potential Disruption of Existing Agricultural Operations		
Existing agricultural operations may involve infrequent ground disturbances that may damage the pipelines. Pipeline construction activities would have the potential to disrupt existing agricultural operations.	**Mitigation Measure 3.1-3: Avoid Potential Disruption of Existing Agricultural Operations** a) Construction activities shall be undertaken in an expedient fashion, and associated construction staging areas shall be located outside of the agricultural fields. b) Topsoil removed during construction activities on Important Farmland that is to be retained in agricultural production shall be properly salvaged, maintained, and redistributed by the construction contractor. c) Pipelines shall be placed at a depth beyond the typical depth of ground disturbance that occur as a part of the agricultural operations.	LS

Notes: EIR = environmental impact report; LS = less than significant
Source: Data compiled by AECOM in 2019, based on the 2005 EIR for the City of Healdsburg Wastewater Treatment Plant Upgrade Project

3.1.2 ENVIRONMENTAL SETTING UPDATE

EXISTING AND SURROUNDING LAND USES

2018 Proposed Area

The 2018 Proposed Area is situated along the base of the Outer North Coast Ranges in the western portion of the Russian River Valley, approximately 3 miles south of Healdsburg in unincorporated Sonoma County. The 2018 Proposed Area is generally bordered by the North Coast Ranges to the west and the Russian River to the east. Westside Road runs north to south along the western edge of the Russian River floodplain and generally bisects the 2018 Proposed Area. The 2018 Proposed Area encompasses approximately 1,160 acres and includes two properties (the future vineyard property and the dairy/vineyard property) that would be served by the proposed recycled water pipeline extensions.

The future vineyard property is located along Westside Road, approximately 2 miles south of Healdsburg. It is characterized by rolling hills covered by nonnative annual grassland and scattered oak woodland, interspersed with barren rock outcrops and seasonal drainages. Developed areas include graveled access roads, an equipment/gravel storage area in the northern portion of the property, and a residential home site accessed from Westside Road.

The proposed project would include a 12-inch-diameter pipeline extension to serve 150 acres of pasture and 40 acres of vineyards on the dairy/vineyard property. The dairy/vineyard property lies approximately 1.5 miles south of the proposed future vineyard recycled water pipeline extension, accessed from Westside Road via Wohlenberg Road. dairy/vineyard property consists mostly of dairy production facilities, livestock housing and pens, a composting facility, feed lots, a manure pond, storage areas, vehicle/equipment parking, and access roads. Land uses surrounding the dairy facility include dairy/vineyard property to the north, irrigated pasture to the west, and annual grassland to the south and east. The entire property slopes from west to east, with irrigated pastures at the highest point in the western portion of the property.

Surrounding land uses are similar to those in the 2018 Proposed Area, consisting of vineyards, irrigated pasture, and livestock grazing. Rural residences and commercial wineries are located along Westside Road. The Healdsburg Wastewater Treatment Plant is approximately 1 mile northeast of the northern boundary of the 2018 Proposed Area. The Syar Family Vineyards and Syar reclamation ponds are approximately 0.5 mile due east of the future vineyard property.

2018 Program Expansion Area

The 2018 Program Expansion Area encompasses approximately 3,540 acres of land generally west of Westside Road and south of the 2018 Project Area. The predominant land uses in the 2018 Program Expansion Area are vineyards in the northeast, central, and southern portions of the project area and along the Russian River corridor (DWR 2015). Livestock grazing occurs in pastures throughout the 2018 Program Expansion Area. In addition, there are fallow agricultural lands. Areas of native vegetation and forestland occur along the southwestern and western boundaries of the 2018 Program Expansion Area (DWR 2015).

Developed areas include paved and graveled roads, rural residences, commercial wineries, horticultural landscaping, storage areas, and livestock housing. Most rural residences, and commercial wineries are accessed from Westside Road.

AGRICULTURAL RESOURCES

The California Department of Conservation's (DOC's) Important Farmland classifications—Prime Farmland, Farmland of Statewide Importance, Unique Farmland, and Farmland of Local Importance—identify the land's suitability for agricultural production. These classifications consider the physical and chemical characteristics of the soil, such as soil temperature range, depth of groundwater table, flooding potential, rock fragment content, and rooting depth. They also consider location, growing season, and moisture available to sustain high-yield crops. Together, Important Farmland and Grazing Land are defined by DOC as "Agricultural Land." DOC also identifies other categories based on their suitability for agricultural use. (See Section 3.1.3, "Regulatory Background Update," for detailed descriptions of Important Farmland classifications.)

Table 3.1-2 summarizes acreages of Agricultural Land, Urban and Built-Up Land, and Other Land in the 2018 Proposed Area and 2018 Program Expansion Area. Exhibit 3.1-1 shows DOC's Important Farmland designations in the 2018 Proposed Area and 2018 Program Expansion Area based on the Sonoma County Important Farmland map, published by the California Division of Land Resource Protection (DOC 2016).

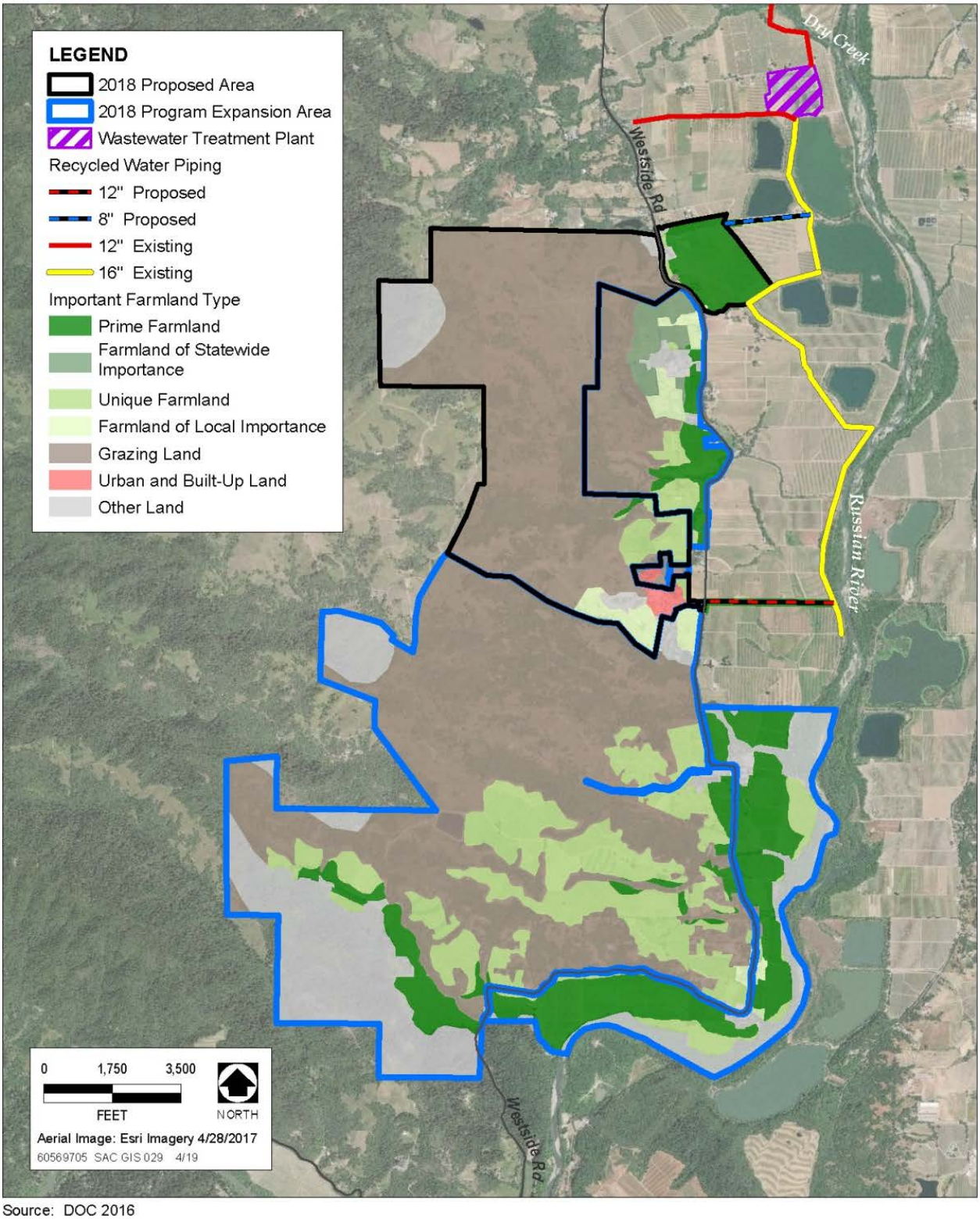
Table 3.1-2
Acres of Agricultural Land in the 2018 Proposed Area and 2018 Program Expansion Area

Farmland Mapping and Monitoring Program Land Designation	2018 Proposed Area (acres)	2018 Program Expansion Area (acres)
Prime Farmland	99	519.6
Farmland of Statewide Importance	–	52.9
Unique Farmland	50.1	607.9
Farmland of Local Importance	35.0	58.8
Grazing Land	871.6	1,629.4
Urban and Built-Up Land	14.9	–
Other Land	88.9	680.9

Source: DOC 2016; data compiled by AECOM in 2019

2018 Proposed Area

According to the Sonoma County Important Farmland map, approximately 99 acres of land in the 2018 Proposed Area are designated as Prime Farmland (DOC 2016). Active agricultural land uses in the northeast corner of the 2018 Proposed Area carry this designation. Approximately 50 acres, including the dairy/vineyard property, are designated as Unique Farmland. Approximately 35 acres are designated as Farmland of Local Importance; this area consists mostly of annual grassland within the dairy/vineyard property. Approximately 872 acres (75 percent) of the land in the 2018 Proposed Area is designated as Grazing Land. This area consists of the dairy/vineyard property irrigated pasture, the future vineyard property, and undeveloped parcels west of Westside Road.



Source: DOC 2016

Exhibit 3.1.1 Important Farmland

Approximately 15 acres in the 2018 Proposed Area are designated as Urban and Built-Up Land. The dairy/vineyard property dairy production facilities, livestock housing and pens, storage areas, and vehicle/equipment parking areas correspond to this designation. Approximately 89 acres are designated as Other Land; this area includes the dairy/vineyard property feed lots and manure pond and the undeveloped parcels in the northwest portion of the 2018 Proposed Area.

2018 Program Expansion Area

Approximately 520 acres in the 2018 Program Expansion Area are designated as Prime Farmland, 53 acres as Farmland of Statewide Importance, 608 acres as Unique Farmland, and 59 acres are designated as Farmland of Local Importance (Table 3.1-2). The majority of the Prime Farmland, Farmland of Statewide, and Unique Farmland in the 2018 Program Expansion Area is cultivated with vineyards (Exhibit 3.1-1) (DWR 2015).

Grazing Land comprises 1,629 acres (approximately 46 percent) of the 2018 Program Expansion Area. Most of this acreage borders the southern boundary of the 2018 Proposed Area and lies within the northeast corner of the 2018 Program Expansion Area (Exhibit 3.1-1). The Grazing Land is used primarily for livestock grazing and includes native and nonnative vegetation and forestland.

Approximately 681 acres in the 2018 Program Expansion Area are designated as Other Land. This land occurs within the northwest and southwest corners of the 2018 Program Expansion Area and includes livestock grazing and native and nonnative vegetation and forestland.

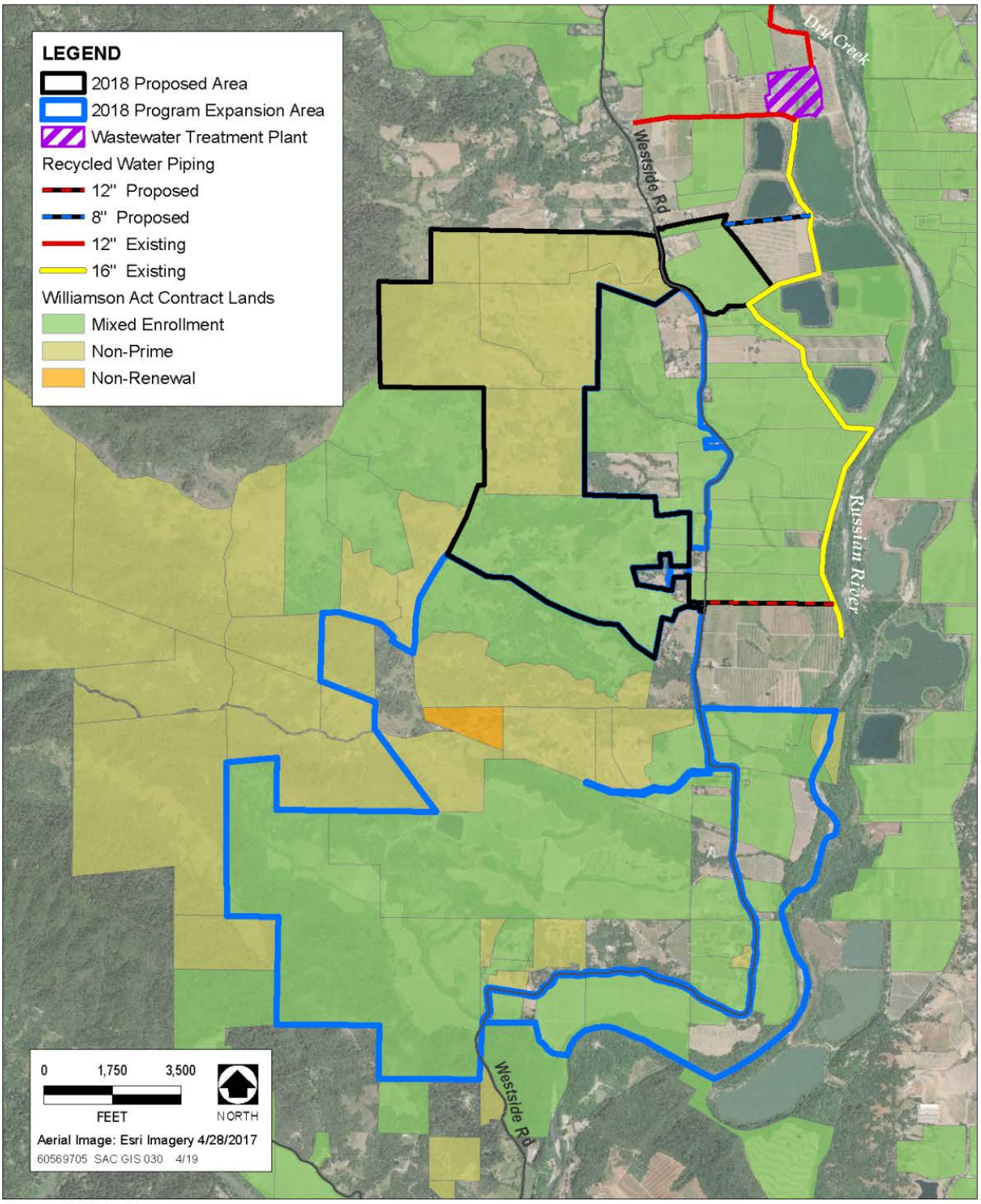
Williamson Act

Under the California Land Conservation Act of 1965, also known as the Williamson Act, local governments can enter into contracts with private property owners to protect land (within agricultural preserves) for agricultural and open space purposes. As shown in Exhibit 3.1-2, most of the land in the 2018 Proposed Area and 2018 Program Expansion Area is under Williamson Act contracts. Approximately 446 acres in the 2018 Proposed Area are Mixed Enrollment lands and 694 acres are Non-prime Agricultural lands (Table 3.1-3).[1, 2] In the 2018 Program Expansion Area, approximately 2,389 acres are Mixed Enrollment lands and 566 acres are Non-prime Agricultural lands (Table 3.1-3).

The nonrenewal process is the most common mechanism for termination of Williamson Act contracts. No Williamson Act contract lands in the 2018 Proposed Area are currently undergoing the nonrenewal process, and approximately 33 acres of Williamson Act contract lands in the 2018 Program Expansion Area are currently in the nonrenewal process (Table 3.1-3).

[1] Mixed Enrollment lands are those lands that contain a combination of Prime, Non-prime, Open Space Easement, or other contracted or enrolled lands not yet delineated by the County.

[2] Non-prime Agricultural land is enrolled under California Land Conservation Act contract but does not meet any of the criteria for classification as Prime Agricultural Land. Non-prime Land is defined as Open Space Land of Statewide Significance under the California Open Space Subvention Act (see California Government Code Section 16143). Most Non-prime Land is in agricultural uses such as grazing or nonirrigated crops. However, Non-prime Land may also include other open space uses that are compatible with agriculture and consistent with local general plans.



Source: DOC 2013

Exhibit 3.1.2 Williamson Act Contract Land

Approximately 20 acres in the 2018 Proposed Area and approximately 101 acres in the 2018 Program Expansion Area are Non-enrolled lands.[3]

Table 3.1-3
Acres of Williamson Act Contract Land in the 2018 Proposed Area and 2018 Program Expansion Area

Land Category	2018 Proposed Area	2018 Program Expansion Area
Mixed Enrollment	446	2,389.9
Non-prime	694	565.6
Nonrenewal	N/A	33.1
Non-enrolled	20.0	101.8

Note: N/A = not applicable
Source: DOC 2013; data compiled by AECOM in 2019

Agricultural Zoning

Parcels east of Westside Road in the 2018 Proposed Area are zoned by the County as Land Intensive Agriculture (LIA) and parcels to the south and southeast in the 2018 Program Expansion Area are zoned LIA and Land Extensive Agriculture (LEA). The LIA and LEA zoning districts are intended to enhance and protect the lands best suited for permanent agricultural use. The LIA zoning district applies to lands capable of relatively high agricultural production per acre of land, while the LEA zoning district applies to lands capable of relatively low agricultural production per acre of land (see Section 3.1.3, "Regulatory Background Update," for further discussion).

FORESTRY RESOURCES

Appendix G of the State CEQA Guidelines defines forestland as "land that can support 10 percent native tree cover and woodland vegetation of any species, including hardwoods, under natural conditions, and that allows for management of one or more forest resources, including timber, aesthetics, fish and wildlife, biodiversity, water quality, recreation, and other public benefits" (California Public Resources Code [PRC] Section 12220[g]).

Approximately 0.8 acre of riparian forest exists along Westside Road and in the eastern extent of the drainage ditch that parallels Hozz Road (see Exhibit 3.4-2 in Section 3.4, "Terrestrial Biological Resources"). Native oak woodland and several individual valley oak trees compose approximately 1.5 acres of native oak canopy cover in small, isolated patches along the western edge of the dairy/vineyard property and in riparian areas along the drainage ditch south of Hozz Road. These communities offer cover, forage, and breeding habitat for many birds and small mammals. However, because the riparian forest and oak woodland occupy less than 1 percent of the 2018 Proposed Area, these communities do not satisfy the requirements of PRC Section 12220(g).

Similar to the 2018 Proposed Area, the 2018 Program Expansion Area includes areas containing riparian forest and native oak woodland. These communities also offer cover, forage, and breeding habitat for many birds and small mammals. The acreage of riparian forest and native oak

[3] Non-Enrolled lands are those not enrolled in a Williamson Act contract and not mapped by the FMMP as Urban and Built-Up Land or Water.

woodland was not identified for this SEIR. However, based on review aerial imagery, it is possible that riparian forest and native oak woodland occupy more than 10 percent of the 2018 Program Expansion Area.

3.1.3 Regulatory Background Update

Federal Plans, Policies, Regulations, and Laws

No federal plans, policies, regulations, or laws relating to land use consistency, agriculture, or forestry resources would apply to the proposed project.

State Plans, Policies, Regulations, and Laws

California Important Farmland Inventory System and Farmland Mitigation and Monitoring Program

The Farmland Mapping and Monitoring Program (FMMP) was established by the State of California in 1982 to continue the Important Farmland mapping efforts begun in 1975 by the U.S. Soil Conservation Service (now called the Natural Resources Conservation Service, part of the U.S. Department of Agriculture). The intent was to produce agricultural resource maps, based on soil quality and land use across the nation. DOC sponsors the FMMP and is responsible for establishing agricultural easements in accordance with PRC Sections 10250–10255.

DOC updates its FMMP maps every 2 years with the use of aerial photographs, a computer mapping system, public review, and field reconnaissance. The following list provides a comprehensive description of all categories mapped by DOC (2015):

- **Prime Farmland**—Land that has the best combination of physical and chemical features able to sustain long-term agricultural production. This land has the soil quality, growing season, and moisture supply needed to produce sustained high yields.

- **Farmland of Statewide Importance**—Land similar to Prime Farmland but with minor shortcomings, such as greater slopes or less ability to store soil moisture.

- **Unique Farmland**—Land of lesser quality soils used for the production of the state's leading agricultural cash crops. This land is usually irrigated but may include nonirrigated orchards or vineyards as found in some climatic zones in California.

- **Farmland of Local Importance**—Land that is of importance to the local agricultural economy, as defined by each county's local advisory committee and adopted by its board of supervisors. The County Board of Supervisors has defined Farmland of Local Importance to consist of the hayland-producing areas of the Santa Rosa Plains, Petaluma Valley, and Tubbs Island Naval Reservation, along with additional lands classified as having the capability to produce locally important crops such as grapes, and corn, but that may not be planted at the present time.

- **Grazing Land**—Land with existing vegetation that is suitable for grazing.

- **Urban and Built-Up Lands**—Land used for residential, industrial, commercial, institutional, and public utility structures and for other developed purposes.

- **Other Lands**—Land that does not meet the criteria of any of the previously described categories and generally includes low-density rural developments, vegetative and riparian areas not suitable for livestock grazing, confined-animal agriculture facilities, strip mines, borrow pits, and vacant and nonagricultural land surrounded on all sides by urban development. In Sonoma County, Other Land is further divided into five subcategories: Rural Residential Land, Semi-agricultural and Rural Commercial, Vacant and Disturbed Land, Defined Animal Agriculture, and Nonagricultural and Natural Vegetation.

Important Farmland is classified by DOC as Prime Farmland, Farmland of Statewide Importance, Unique Farmland, and Farmland of Local Importance. Under CEQA, the designations for Prime Farmland, Farmland of Statewide Importance, and Unique Farmland are defined as "agricultural land" or "farmland" (PRC Sections 21060.1 and 21095, and State CEQA Guidelines Appendix G).

Williamson Act

The California Land Conservation Act of 1965 (the Williamson Act) is one of the state's primary agricultural conservation tools. Under this law, local governments can enter into contracts with private property owners to protect land (within agricultural preserves) for agricultural and open space purposes. Williamson Act contracts last for a minimum initial term of 10 years and are automatically extended each year for an additional year, unless either party (the landowner or the contracting city or county) notifies the other of the intent not to renew the contract. In return, the landowner is guaranteed a relatively stable tax rate, based on the value of the land for agricultural/open space use, rather the potential value of the land for development.

Local Plans, Policies, Regulations, and Ordinances

Sonoma County General Plan 2020

The General Plan has been updated since certification of the 2005 EIR. The *Sonoma County General Plan 2020* was adopted by the County Board of Supervisors on September 23, 2008. The General Plan is the blueprint for land use in unincorporated Sonoma County. It includes maps showing where agricultural, residential, commercial, and other land uses will be located, and a series of policies that guide future decisions about growth, development, and conservation of resources through 2020.

The General Plan's Agricultural Resources Element (Sonoma County 2016) identifies the following goal, objective, and policy that are applicable to the proposed project.

Goal AR-4: Allow farmers to manage their operations in an efficient, economic manner with minimal conflict with nonagricultural uses.

- **Objective AR-4.1:** Apply agricultural land use categories only to areas or parcels capable of the commercial production of food, fiber and plant material, or the raising and maintaining of farm animals including horses, donkeys, mules, and similar livestock. Establish agricultural

production as the highest priority use in these areas or parcels. The following policies are intended to apply primarily to lands designated within agricultural land use categories.

- **Policy AR-4a:** The primary use of any parcel within the three agricultural land use categories shall be agricultural production and related processing, support services, and visitor serving uses. Residential uses in these areas shall recognize that the primary use of the land may create traffic and agricultural nuisance situations, such as flies, noise, odors, and spraying of chemicals.

Sonoma County General Plan Land Use Designations

- The General Plan designates the 2018 Proposed Area as Land Intensive Agriculture (LIA) and Resources and Rural Development (RRD). The 2018 Program Expansion Area is designated as LIA, Land Extensive Agriculture (LEA), and RRD (Exhibit 3.1-3). The General Plan's Land Use Element describes these land use designations as follows (Sonoma County 2018):

- **Land Intensive Agriculture.** The purpose of the LIA land use designation is to enhance and protect lands capable of and generally used for a relatively high level of agricultural production and animal husbandry. The objective is to establish densities and parcel sizes that are conducive to continued agricultural production. Permitted uses in the LIA designation include agricultural production and services, agricultural employee housing, and surface mining operations. Permitted residential densities range from 20 to 100 acres per residential unit.

- **Land Extensive Agriculture.** The purpose of the LEA land use designation is to enhance and protect lands capable of and generally used for a relatively low level of agricultural production and animal husbandry. The objective is to establish densities and parcel sizes that are conducive to continued agricultural production. Permitted uses in the LEA designation include agricultural production and services, agricultural employee housing, and surface mining operations. Permitted residential densities range from between 60 and 320 acres per residential unit.

- **Resources and Rural Development.** The purpose of the RRD land use designation is to allow very low-density residential development, while also:

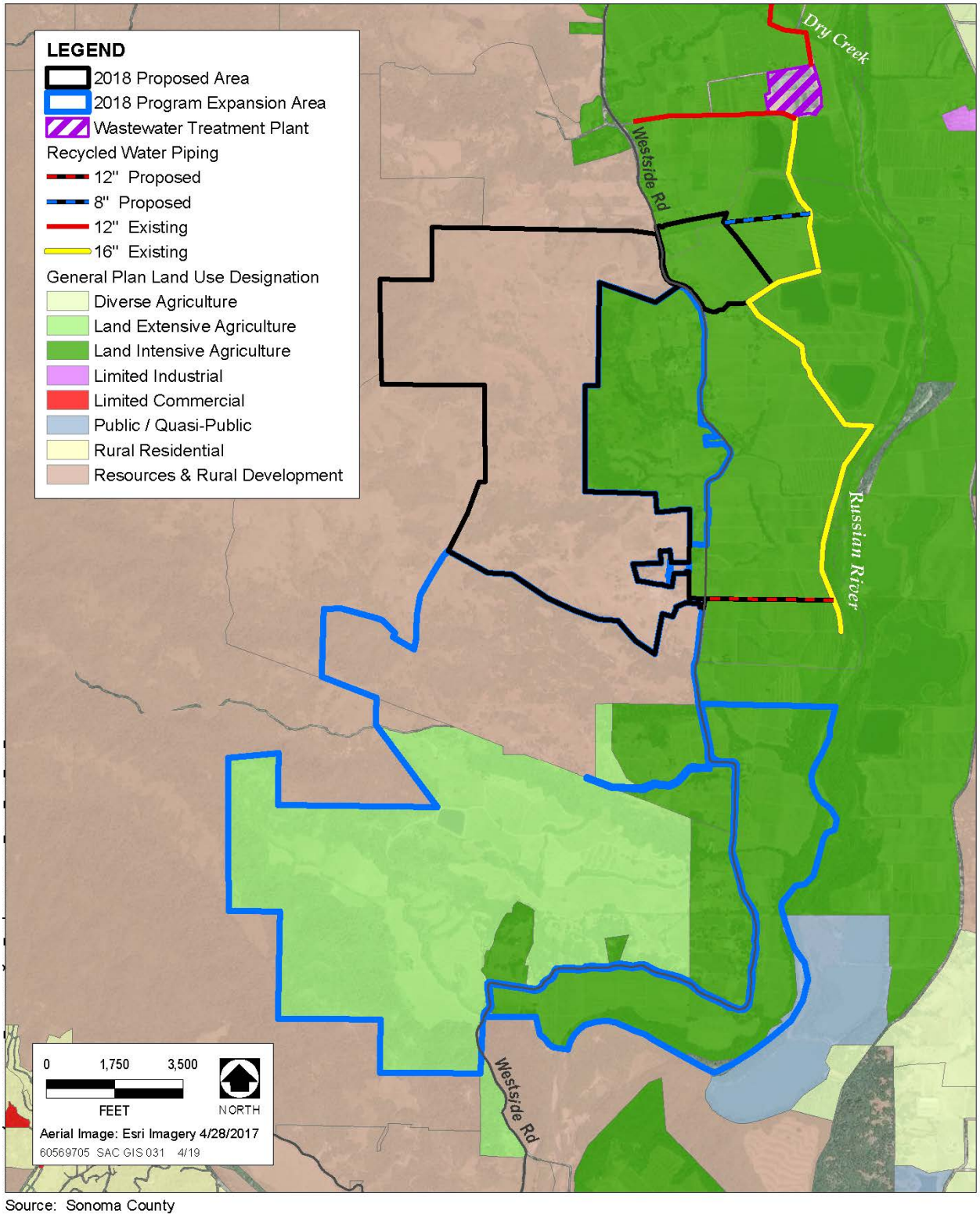
  - protecting timberlands needed for commercial timber production;

  - protecting lands needed for geothermal resource production and aggregate resource production;

  - protecting natural resource lands including but not limited to watershed, fish and wildlife habitat, and biotic areas;

  - protecting against intensive development of lands constrained by geologic hazards, steep slopes, poor soils or water, fire and flood prone areas, biotic and scenic areas, and other constraints; and

  - accommodating agricultural production activities.



Source: Sonoma County

Exhibit 3.1-3 Sonoma County General Plan Land Use Designations

Permitted uses in the RRD designation include single-family dwelling units; management of timber, geothermal and aggregate resources, fish and wildlife habitat; livestock farming, crop production, and firewood harvesting; and lodging, campgrounds, and similar recreational and visitor-serving uses.

Sonoma County Zoning Districts

The 2018 Proposed Area and 2018 Program Expansion Area are zoned by the County as Land Intensive Agriculture (LIA), Land Extensive Agriculture (LEA), and Resources and Rural Development (RRD). These zoning districts are defined as follows:

- **Land Intensive Agriculture.** The LIA zoning district is intended to enhance and protect lands best suited for permanent agricultural use and capable of relatively high production per acre of land, and to implement the provisions of the General Plan's LIA land use category and the policies of the Agricultural Resources Element. Permitted uses in the LIA zoning district include raising, feeding, maintenance, and breeding of farm animals; beekeeping; outdoor crop production including for growing and harvesting of trees, vines, fruits, vegetables, hay, grain, and similar food and fiber crops; cannabis cultivation in compliance with Ordinance 6245; agricultural support services; farm stands for the temporary or seasonal sales; and promotion of crops grown or animals raised.

- **Land Extensive Agriculture.** The LEA zoning district is intended to enhance and protect lands best suited for permanent agricultural use and capable of relatively low production per acre of land, and to implement the provisions of the General Plan's LEA land use category and the policies of the Agricultural Resources Element. Permitted uses in the LEA zoning district include raising, feeding, maintenance, and breeding of farm animals; beekeeping; outdoor crop production including for growing and harvesting of trees, vines, fruits, vegetables, hay, grain, and similar food and fiber crops; cannabis cultivation in compliance with Ordinance 6245; agricultural support services; farm stands for the temporary or seasonal sales; and promotion of crops grown or animals raised.

- **Resources and Rural Development.** The RRD zoning district is intended to implement the provisions of the General Plan's RRD land use category, namely to protect lands needed for commercial timber, geothermal, and aggregate resources production; for protection of watershed, fish and wildlife habitat, and biotic resources; and for agricultural production. The RRD zoning district is also intended to allow very low-density residential development and recreational and visitor-serving uses where compatible with resource use and available public services. Permitted uses include raising, feeding, maintenance, and breeding of horses, cattle, sheep, and goats; outdoor crop production including growing and harvesting of trees, vines, fruits, vegetables, hay, grain, and similar food and fiber crops; cannabis cultivation in compliance with Ordinance 6245; and management of lands and forests for the use of commercial production and harvest of trees.

Vineyard and Orchard Development and Agricultural Grading and Drainage Ordinance

Chapter 36, "Vineyard and Orchard Development and Agricultural Grading and Drainage Ordinance," of the Sonoma County Municipal Code requires landowners to apply for and obtain a permit before beginning any vineyard or orchard development or related work (preparatory land

clearing, vegetation removal, or other ground disturbance), unless exempted by Subsection D (e.g., hobby vineyards, replanting, and inter-planting in existing vineyards/orchards).

The purpose of the Vineyard and Orchard Development and Agricultural Grading and Drainage Ordinance is to protect against erosion and the pollution of watercourses with soil and other pollutants, maintain natural and existing drainage patterns, protect aquatic resources and wildlife habitat, and promote water conservation and groundwater recharge. It requires a biotic resource assessment for any new vineyard or orchard planting, and a focused species assessment for any vineyard or orchard replanting within a designated critical habitat area. Article 16, "Standards," identifies setback requirements for the protection of wetlands, streams, and other aquatic resources; limits the removal of trees and other vegetation; identifies measures to protect archaeological resources and human remains; identifies setbacks for areas of slope instability; and identifies best management practices to protect watercourses, control soil erosion, and prevent pollutant discharges.

Cannabis Land Use Ordinance

The Cannabis Land Use Ordinance (Ordinance 6245) provides development and operating standards for cannabis cultivation to ensure neighborhood compatibility, minimize potential environmental impacts, and provide opportunities for economic development. The ordinance requires landowners to apply for and obtain a cannabis cultivation permit before cultivating cannabis either indoors or outdoors.

The Cannabis Land Use Ordinance requires a biotic resource assessment for any new cannabis cultivation, and a focused species assessment for any cultivation within a designated critical habitat area. It identifies riparian corridor setbacks; identifies measures to protect cultural, historic, and paleontological resources and human remains; limits tree removal; prohibits timber conversions unless a conditional use permit is obtained; requires preparation and implementation of a stormwater management plan and an erosion and sediment control plan; and requires preparation of a waste management plan.

3.1.4 Impacts and Mitigation Measures

Standards of Significance

Based on Appendix G of the State CEQA Guidelines, the project would have a significant impact related to land use, agriculture, or forestry resources if it would:

- physically divide an established community;
- cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect;
- 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 nonagricultural use;
- conflict with existing zoning for agricultural use or a Williamson Act contract;

- conflict with existing zoning for, or cause rezoning of, forest land (as defined in PRC Section 12220[g]), timberland (as defined by PRC Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104[g]);

- result in the loss of forest land or conversion of forest land to nonforest use; or

- involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to nonagricultural use or conversion of forest land to nonforest use.

EFFECTS FOUND NOT TO BE SIGNIFICANT

The proposed project would occur in rural areas of unincorporated Sonoma County. The nearest established community is the city of Healdsburg, located approximately 2 miles north of the 2018 Proposed Area. The 8-inch and 12-inch recycled water pipelines would be extended within existing, graveled vineyard access roads and other disturbed or developed areas. Operation of the expanded recycled water program would consist of applying recycled water to the land surface for irrigation purposes. Scattered rural residences are present throughout the 2018 Program Expansion Area, and there are no established communities in or near the 2018 Program Expansion Area. None of the proposed activities would create a physical barrier within an established community; therefore, this issue is not discussed further in this section.

Project-related construction activities and land application of recycled water would not convert Important Farmland to nonagricultural uses or conflict with Williamson Act contracts. Construction activities would be temporary and would not hinder agricultural production. The 8-inch and 12-inch recycled water pipelines would be extended within existing, graveled vineyard access roads and other disturbed or developed areas. The portion of the recycled water pipeline within dairy/vineyard property would be installed mostly along an existing access road associated with the dairy/vineyard property dairy facilities, and the portion of the pipeline outside of access roads would be installed in annual grassland that is not designated as Important Farmland. Operation of the proposed project would expand the City's recycled water program to provide tertiary-treated reclaimed water for beneficial reuse via agricultural irrigation. Therefore, these issues are not discussed further in this section.

The 2018 Proposed Area and 2018 Program Expansion Area are not zoned as forestland, timberland, or a Timberland Production Zone. As discussed previously, the 2018 Proposed Area does not contain 10 percent native tree cover that would be classified as forestland under PRC Section 12220(g). Thus, the proposed project would not conflict with existing zoning for, or cause rezoning of, forestry resources or result in conversion of forestland to nonforest use in the 2018 Proposed Area. Therefore, these issues are not discussed further in this section.

METHODOLOGY

This analysis considers how extending the pipelines to the future vineyard and dairy/vineyard properties and installing a recycled water distribution system to irrigate pastures in the dairy/vineyard property would or would not change the conclusions of the prior environmental review. The analysis considered the application of all adopted mitigation measures from the prior

environmental review when making the impact determinations presented below in "Impact Analysis."

The evaluation of potential impacts of the proposed project on land use and agricultural resources was based on a review of field conditions, aerial photographs, policy guidance from the General Plan (Sonoma County 2016, 2018), the Sonoma County Zoning Code, and the California Department of Water Resources' Land Use Viewer (DWR 2015).

The Important Farmland Map for Sonoma County, produced by DOC's Division of Land Resource Protection (DOC 2016), and the Williamson Act Contract Map (DOC 2013) for Sonoma County were used to evaluate the agricultural significance of the lands in the 2018 Project Area and 2018 Program Expansion Area. Geographic information systems data were used to determine the acreage of designated farmland and Williamson Act contract land.

Information regarding the acreage and location of forestry resources was obtained from Section 3.4, "Terrestrial Biological Resources." Section 3.4 provides a detailed description of the methodology used to identify forestry resources.

IMPACT ANALYSIS

Impact 3.1-1: Consistency with Sonoma County Adopted Policies, Land Use Designations, and Zoning

The proposed project would be constructed within existing, graveled vineyard access roads and other disturbed or developed areas. Construction activities would be temporary and short term, occurring over approximately 5–6 weeks for each component (two pipeline extensions and dairy/vineyard irrigation system). None of the construction-related activities would result in permanent land use changes or conflict with surrounding General Plan land use designations and zoning.

The General Plan designates the 2018 Proposed Area as Land Intensive Agriculture, Land Extensive Agriculture, and Resources and Rural Development. Similarly, the County has zoned the area as LIA, LEA, and RRD. Currently, the recycled water system transmission system can provide water to approximately 985 acres of vineyard. The proposed extension of the recycled water transmission pipelines would facilitate the delivery of recycled water to an additional 323 acres to the users, which includes the dairy/vineyard and future vineyard properties (see Table 2-1 in Chapter 2, "Project Description"). In total, the proposed pipeline extensions would facilitate the beneficial reuse of recycled water on up to 1,160 acres in the 2018 Proposed Area. The proposed project would not result in land use changes in the 2018 Proposed Area and the existing land uses are consistent with their underlying General Plan land use designations and zoning.

The owner of the future vineyard property intends to convert portions of the property to vineyards. Vineyard installation within the future vineyard property would be subject to a vineyard and orchard development permit issued by the County. Conversion to vineyards is part of the landowner's existing plans for the property and is not contingent upon availability of recycled water (Palmer, pers. comm., 2018). Vineyards are a covered use under the 2005 EIR, and no new projects within the future vineyard property are included as part of the 2018 Proposed Area activities.

The proposed project would expand the list of recycled water uses beyond those currently allowed in the program to include orchards (apple, peach, plum/prune), hay, cannabis, and irrigated pasture. These uses would be allowed in the 2018 Project Area, the 2018 Program Expansion Area, and the truck hauling area. These uses are consistent with the LIA, LEA, and RRD land use designations and zoning of the 2018 Project Area, the 2018 Program Expansion Area, and the truck hauling area. In addition, the proposed project supports General Plan Policy AR-4a, which states that agricultural production should be the primary use of parcels within these land use designations.

The 2018 Program Expansion Area encompasses approximately 3,540 acres of land that would receive recycled water at a future date. No specific facilities are currently proposed to serve the 2018 Program Expansion Area beyond potentially extending the 12-inch water supply line to the south along Westside Road. Any future users of recycled water in the 2018 Program Expansion Area would be subject to the same land use permit requirements as the current and proposed users in the 2018 Project Area, including requirements identified in the Vineyard and Orchard Site Development Ordinance (Chapter 36 of the Sonoma County Municipal Code) and the Cannabis Land Use Ordinance (County Ordinance 6240) (see Section 3.1.3, "Regulatory Background Update"). These permit requirements are intended, in part, to reduce physical environmental effects from cultivation of vineyards, orchards, and cannabis.

The proposed project would make permanent the temporary recycled water truck haul program authorized through the end of 2020. The existing truck haul program allows for the use of recycled water on approximately 25,000 acres within the larger 103,000-acre area (see Exhibit 2-3 in Chapter 2, "Project Description"). For this analysis, it is assumed that the number of truck trips and total amount of recycled water obtained under this program would double from current levels over the next 20 years. Therefore, the number of truck trips could increase by 12 per day. This increase in daily truck trips would not substantially increase the amount of trucked water such that large-scale changes in land uses from uncultivated land, including grazing land and forestland, to irrigated farmland would occur.

It should be noted that land use inconsistencies are not physical effects on the environment, in and of themselves. Specific impacts on other resources and issue areas are addressed in each technical section of this SEIR, as appropriate. These technical sections provide a detailed analysis of other relevant physical environmental effects that could result from the proposed project. Operation of the expanded recycled water program would not conflict with land use designations or zoning for the 2018 Proposed Area or 2018 Program Expansion Area, nor would it generate any adverse physical impacts beyond those addressed in detail in the 2005 EIR and the environmental sections of this SEIR (e.g., air quality, transportation, terrestrial biological resources, cultural resources). Therefore, the proposed project would not conflict with a land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect. This impact would be **less than significant**.

Mitigation Measure: No mitigation is required.

3.2 HYDROLOGY AND WATER QUALITY

This section describes the existing setting as it relates to hydrology and water quality. It also presents an analysis of the potential environmental impacts of the proposed project and identifies mitigation measures to reduce the level of these impacts.

3.2.1 SUMMARY OF FINDINGS FROM THE CERTIFIED EIR

Table 3.2-1 identifies significant impacts of the project's seasonal irrigation reuse component on hydrology and water quality, as presented in the 2005 EIR, along with the mitigation measures identified to reduce those impacts. Impacts for which the analysis in the certified EIR reached conclusions of less than significant without mitigation or no impact are not listed here.

Table 3.2-1
Significant Impacts and Mitigation Measures Identified in the Certified EIR (2005)—Hydrology and Water Quality

Impact	Mitigation Measures	Level of Significance Following Mitigation
Impact 3.2-1: Construction Water Quality Effects		
Project construction activities would include site preparation and grading, vegetation clearing, excavation, and the various aspects of facility construction including, but not limited to, utility trenches, concrete construction, building construction, drainage improvements, paving, and landscaping. Construction activity would be anticipated to occur over at least 1 year; therefore, disturbed soils would likely be exposed to winter rains and stormwater runoff. Construction activity would also involve use of hazardous substances (e.g., concrete wastes, fuels, paints) that can be harmful to aquatic environment or contaminate groundwater if accidental spills on the ground or direct discharges to waters occur.	**Mitigation Measure 3.2-1: Implement Construction Water Quality Pollution Prevention Measures.** In accordance with the SWRCB guidelines for the statewide NPDES stormwater permit for general construction activity, the City (or its designated general contractor) shall prepare a SWPPP and seek authorization from the RWQCB for construction-related activities for and obtain appropriate WDRs. Pollution prevention measures shall be incorporated into all final design and construction plans. The SWPPP would describe the proposed construction activities, pollution prevention BMPs that will be implemented to prevent discharge of pollutants, and include a description of BMP inspection and monitoring activities that will be conducted. The SWPPP will be kept updated in the event modifications to any of the compliance measures become necessary, and amended for the RWQCB as necessary. All water quality, erosion, and sediment control measures included in the SWPPP will be implemented in accordance with the guidelines set forth in the SWPPP. The SWPPP will identify responsibilities of all parties, contingency measures, agency contacts, and training requirements and documentation for those personnel responsible for installation, inspection, maintenance, and repair of BMPs. Key categories of BMPs that will be used will be described in the SWPPP including: • Pollution Prevention BMPs: The SWPPP will identify	LS

Table 3.2-1 Significant Impacts and Mitigation Measures Identified in the Certified EIR (2005)— Hydrology and Water Quality		
Impact	**Mitigation Measures**	**Level of Significance Following Mitigation**
	all construction sites and staging activities; work schedules; temporary storage and borrow areas; construction materials handling and disposal; dewatering and treatment and disposal of groundwater removed from excavations; discharge locations and methods; and final stabilization and clean-up measures. • Erosion Control: BMPs will be included to stabilize exposed soils, including stockpiled soil; minimize offsite runoff; remove sediment from onsite runoff before it leaves the site; slow runoff rates across construction sites; and, identify post-construction soil stabilization BMPs. Appropriate temporary and long-term seeding, mulching, and other erosion control measures will be identified. • Good Housekeeping Measures: BMPs to reduce exposure of construction sites and materials storage to stormwater runoff will be identified including tracking control facilities; equipment washing; litter and construction debris; designated refueling and equipment inspection/maintenance practices; and, hazardous material spill control and response measures. • BMP Inspection and Monitoring: Clear objectives will be described in the SWPPP for evaluating environmental compliance. Inspection and monitoring protocols, environmental awareness training, contractor and agency roles and responsibilities, reporting procedures, and communication protocols will be identified. • Specific Pond Fill Measures: The City and contractor shall develop specific site inspection, monitoring, and response protocols for the SWPPP to address potential water quality effects from the proposed soil placement operations in the Syar ponds. Specific water quality protection elements to be addressed in the SWPPP include: 1. Routine inspection procedures to observe turbidity levels in the ponds and ensure that dispersion of suspended sediment is not increasing considerably above background levels and dispersion throughout the pond is minimized. 2. Observations should also include visual inspection of the shorelines to ensure that fish kills are not	

Table 3.2-1 Significant Impacts and Mitigation Measures Identified in the Certified EIR (2005)— Hydrology and Water Quality		
Impact	**Mitigation Measures**	**Level of Significance Following Mitigation**
	occurring that may indicate low DO levels or adverse effects from the turbidity. 3. Response action protocols should include specified contractors practices and guidelines for placement of containment curtains upon findings that dispersion is exceeding objective thresholds.	
Notes: BMP = best management practice; City = City of Healdsburg; DO = dissolved oxygen; EIR = environmental impact report; NPDES = National Pollutant Discharge Elimination System; RWQCB = Regional Water Quality Control Board; SWPPP = storm water pollution prevention plan; SWRCB = State Water Resources Control Board; WDR = waste discharge requirement Source: Data compiled by AECOM in 2019, based on the certified 2005 EIR for the City of Healdsburg Wastewater Treatment Plant Upgrade Project		

3.2.2 ENVIRONMENTAL SETTING UPDATE

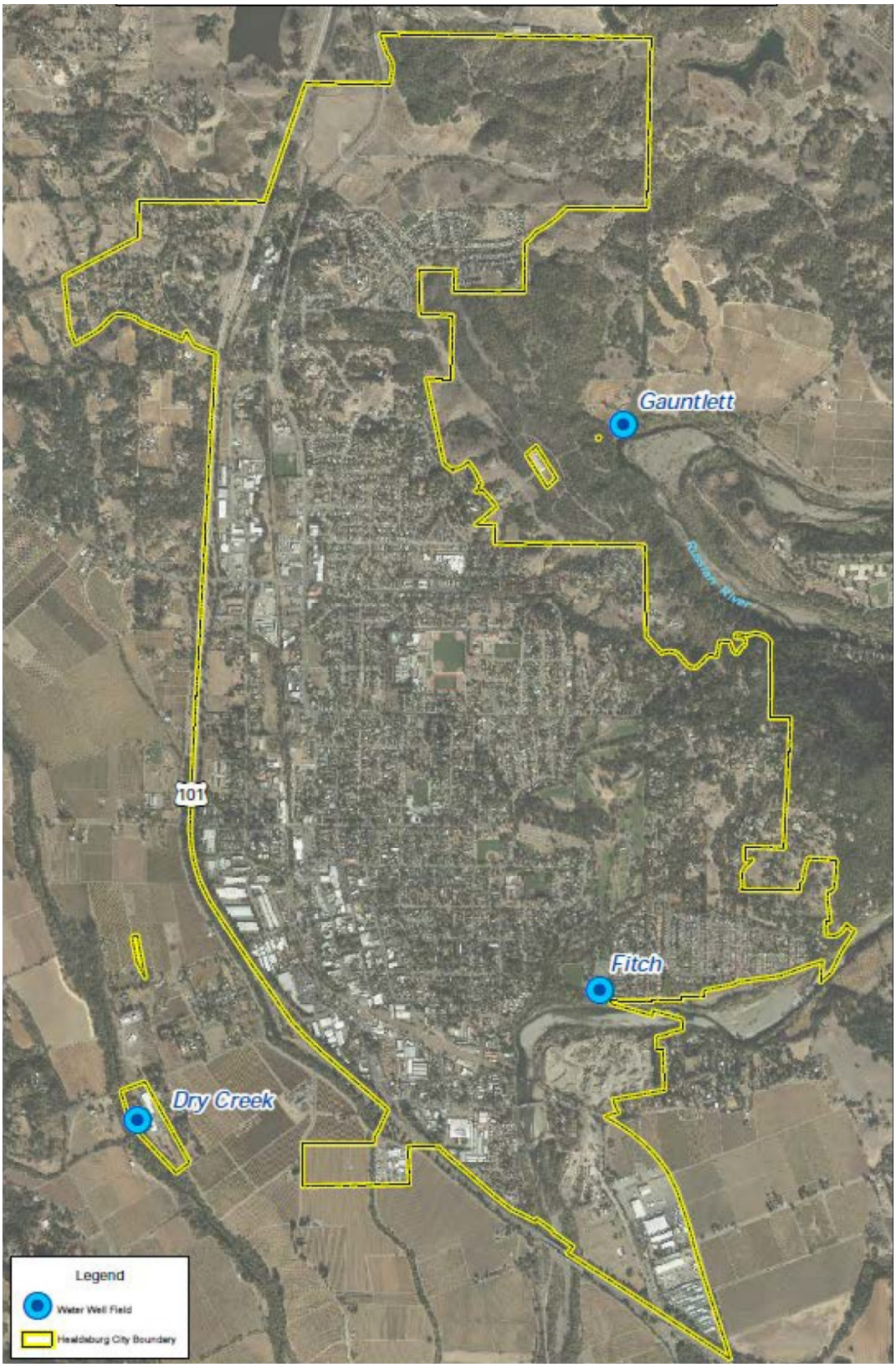
HYDROLOGY

Surface water resources in the project area include the Russian River (see Exhibit 2-2 in Chapter 2, "Project Description"). The project area overlies groundwater contained in the alluvial gravels historically deposited by the Russian River. The City uses groundwater for its municipal water supply, drawing from two well fields located adjacent to the Russian River and a third well field adjacent to Dry Creek (see Exhibit 3.2-1). All of the wells draw from the alluvial aquifers that directly underlie these channels. The hydrology of these resources is described below.

Russian River

The Russian River drains approximately 1,500 square miles in Mendocino and Sonoma counties and is approximately 110 miles long. Numerous tributaries in the watershed drain the surrounding mountains and flow into the flat alluvial valleys along the upper and middle river. Average annual rainfall at Healdsburg is approximately 40 inches, occurring mainly between October and May.

Runoff in the Russian River watershed is driven primarily by winter rains because the watershed lacks a snowpack. Runoff is largely controlled by operations of the multipurpose reservoirs Lake Mendocino and Lake Sonoma, which strongly influence winter flood control and dry-season releases of stored water. These reservoirs in the watershed provide a maximum storage capacity of 116,500 acre-feet and 370,700 acre-feet, respectively (SCWA 2016).



Source: City of Healdsburg Compliance Feasibility Investigation (Healdsburg 2018)

Exhibit 3.2-1: Existing Water Supply Well Field Locations

The Dry Creek watershed drains 217 mi² from the interior Coast Ranges of northern Sonoma and southern Mendocino counties before entering the Russian River near the City of Healdsburg, 30 mi upstream of the Pacific Ocean. Warm Springs Dam bisects and controls the upper 131 mi² of the Dry Creek watershed, approximately 60 percent of the area, of the watershed. The dam is located 14 miles upstream from the confluence of Dry Creek with the Russian River and is jointly operated by the USACE for flood control and by the Water Agency for water supply. Under current conditions, the median mean monthly flow in Dry Creek is greatest in March (approximately 390 cfs) and lowest from May through October (approximately 100 cfs). (SCWA 2016).

Sonoma County Water Agency (SCWA) and numerous small communities divert water from the Russian River for domestic and municipal supply. The combined total water uses for agriculture and municipal supply have been estimated to be up to 120,000 acre-feet annually (ENTRIX 2004). Pacific Gas and Electric Company imports approximately 135,000 acre-feet of water per year from the Eel River watershed to the East Fork of the Russian River upstream of Lake Mendocino, at an average rate of about 190 cubic feet per second (cfs) on a year-round basis. During the summer in normal water years, and particularly during dry years, flow augmentation represents a large portion of the flow in the Russian River.

U.S. Geological Survey flow gauge data for the period of record, 1959–2015, indicate that average monthly streamflow in the Russian River at Healdsburg upstream from Dry Creek ranges from 183 cfs (September values) to 2,926 cfs (February values). Monthly average flows for June–October are relatively uniform within the narrow range of 183–211 cfs. Further downstream of the project site at the Hacienda Bridge in Guernville, stream gage data indicate that average monthly flows in Russian River peak in January at 4,876 cfs, with monthly average flows from June-October ranging from 158-254 cfs. (SCWA 2016)

SCWA coordinates water supply diversions and instream flow conditions in the Russian River in accordance with the provisions of State Water Resources Control Board (SWRCB) Decision 1610 (1986), and to meet the legal requirements of the Federal Energy Regulatory Commission licenses for these facilities (ENTRIX 2004). SCWA controls storage releases from Lake Mendocino on the East Fork of the Russian River and from Lake Sonoma to match the rate of withdrawals made for municipal supplies along the lower Russian River. During normal water year-types, the minimum instream flow objective is 125 cfs at all locations downstream of Dry Creek. These flow requirements are currently subject to change under the proposed Fish Habitat Flows and Water Rights Project proposed by the SCWA to further the objective of improving habitat for sensitive fish species (SCWA 2016).

Groundwater

The 2018 Proposed Area and 2018 Program Expansion Area are located within the northern extent of the Santa Rosa Plain hydrogeologic unit. Most of this area lies west of Westside Road in the foothills of the Coast Ranges adjacent to the Russian River Valley. These foothills comprise Mesozoic-age consolidated rock of the Franciscan Complex. A portion of this area lies east of Westside Road adjacent to the Russian River. The uppermost water-bearing aquifer unit of the valley floor consists of Holocene- to Pleistocene-aged unconsolidated alluvium (USGS 2019) Beneath the recent alluvium lies the Glen Ellen Formation, which consists of old alluvial fan, continental, and floodplain deposits that date to the Pliocene epoch (2–11 million years ago). Groundwater in the uppermost alluvium is unconfined. The Coast Ranges foothills have fewer

wells than the valley, with most being for domestic use (DWR 2019). Exhibit 3.2-2 shows groundwater contour levels in the project vicinity. As shown, depth to groundwater in the 2018 Proposed Area ranges from approximately 50 feet below ground surface near the Russian River to 292 feet below ground surface west of Westside Road. In the 2018 Program Expansion Area, depth to groundwater ranges from about 0 to 502 feet below ground surface. Depth to groundwater in the foothills tends to vary from 175 to 550 feet below ground surface, with yields of less than 10 gallons per minute (gpm) (Kondolf 2019). Conversely, the recently deposited alluvium in the Russian River Valley has approximate yields of 200–500 gpm while wells screened in the Glen Ellen Formation have yields of 1–140 gpm.

WATER QUALITY

The following discussion provides an overview of water quality conditions for the effluent generated by the City's water reclamation facility (WRF).

Beneficial Uses of Surface Water and Groundwater in the Project Area

Table 3.2-2 summarizes the beneficial uses designated by the North Coast Regional Water Quality Control Board (RWQCB) (see Section 3.2.3, "Regulatory Background Update") for the Russian River in the project area, as identified in the *Water Quality Control Plan for the North Coast Region* (Basin Plan) (North Coast RWQCB 2001). All groundwater in the state, unless otherwise defined, is assumed to provide beneficial uses for domestic and municipal drinking-water supply, agricultural supply, and industrial uses.

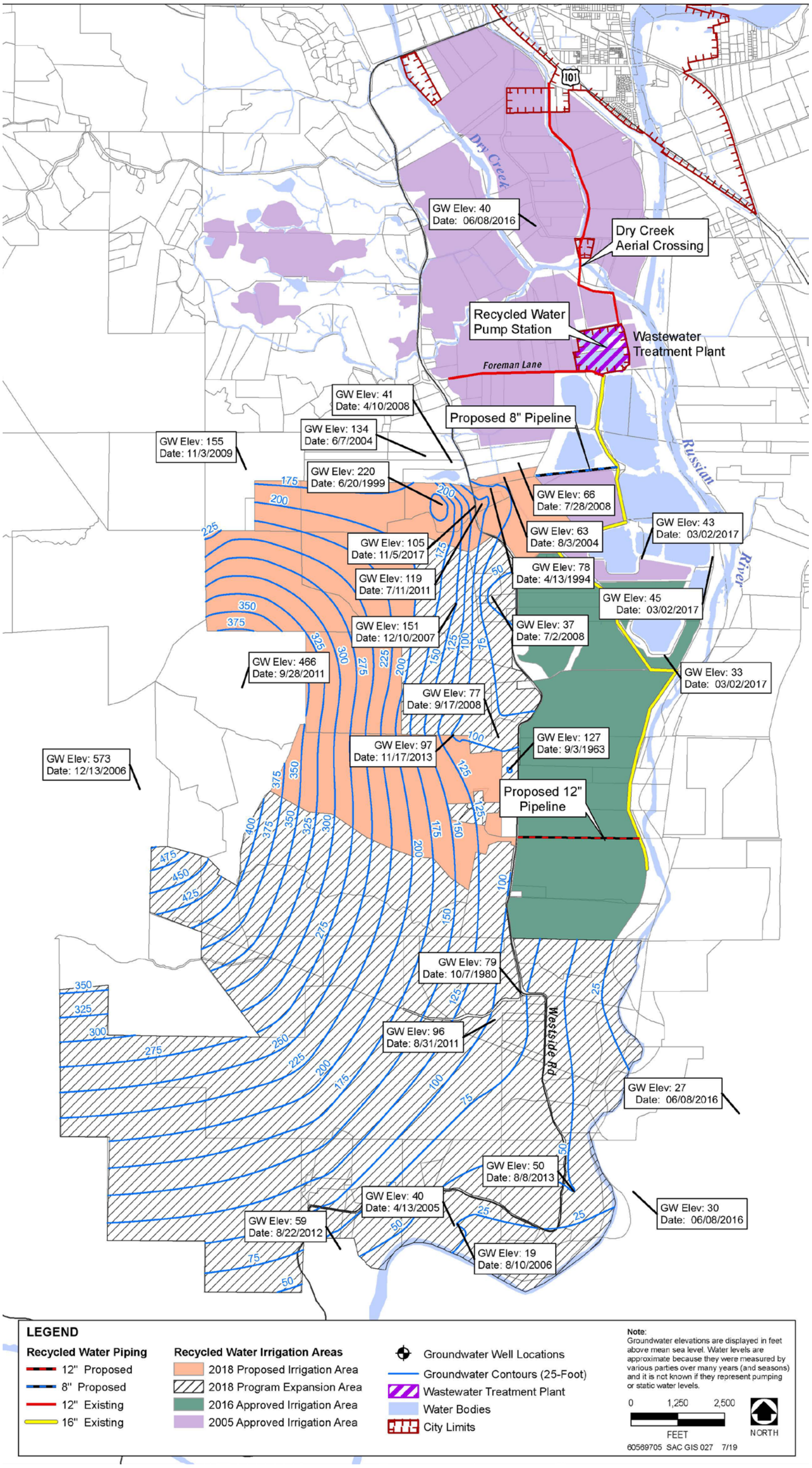
Characteristics of Water Reclamation Facility Effluent

Wastewater quality can be characterized by a variety of physical and chemical constituent measurements that reflect the types and strength of wastes potentially contained in the treated effluent. The City collected recent effluent samples for a variety of inorganic, organic, and microbiological parameters over the course of 2018 as follows:

- Samples were collected on December 12, 2018, from two locations: REC-002 and EFF-01.
- Daily samples were collected throughout 2018 from reclamation and effluent locations.

Table 3.2-2 summarizes the data collected from these WRF effluent samples for which an analyte was detected (for the full range of constituents analyzed, see Appendix C). Conventional parameters measured included:

- physical measurements (e.g., total suspended solids, turbidity, temperature),
- nontoxic chemical properties (e.g., dissolved oxygen, pH, total dissolved solids [TDS], hardness, sodium, chloride, nitrogen, nitrate, phosphorus, and organic carbon), and
- biological characteristics (e.g., coliform bacteria and other human pathogens).



Source: California Statewide Groundwater Elevator Monitoring Program (CASGEM), DWR

Exhibit 3.2-2 Groundwater Contours

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Table 3.2-2. Summary of Data from Water Reclamation Facility Effluent Samples

Analyte	Unit	Water Quality		Water Quality Standards			
				CalEPA Toxic Rule		North Coast RWQCB Basin Plan	
		Min	Max	Human Health (Drinking-Water + Organism Consumption)	Ecological [a] (Chronic)	Drinking Water	Surface Water
REC-002/EFF-01 (collected on 1 day, December 12, 2018)							
Hardness	mg/L	149	157	NA	NA	NA	NA
Antimony	µg/L	0.35	0.43	14	NA	6 (MCL)	NA
Arsenic	µg/L	<0.2	0.44	NA	150	10 (MCL)	NA
Copper	µg/L	6.1	10	1,300	84	1,300 (AL)	NA
Lead	µg/L	0.14	0.14	NA	2.5	15 (AL)	NA
Nickel	µg/L	2.6	3.6	610	52	100 (MCL)	NA
Zinc	µg/L	16	44	NA	120	5,000 (SMCL)	NA
Gamma-BHC	µg/L	<0.004	0.0045	0.019	NA	0.2 (MCL)	NA
Chloroform	µg/L	<0.4	0.41	NA	NA	80 (MCL)[b]	NA
RECLAMATION (collected daily in 2018)							
Boron	mg/L	0.34	0.77	NA	NA	NA	NA
Chloride	mg/L	55	87	NA	NA	250 (SMCL)	NA
Nitrate	mg/L	<0.05	5.6	NA	NA	NA	NA
Total nitrogen	mg/L	<1	2.1	NA	NA	NA	NA
Flow rate	mgd	0.0022	0.52	NA	NA	NA	NA
Sodium	mg/L	54	89	NA	NA	NA	NA
Total dissolved solids	mg/L	206	478	NA	NA	500 (SMCL)	170 [c,d]
EFFLUENT [e] (collected daily 2018)							
Ammonia	mg/L	<0.0003	0.0015	NA	NA	NA	NA
Average daily turbidity	NTU	0.07	1	NA	NA	5 (SMCL)	<20 % [f]
Maximum daily turbidity	NTU	0.08	0.2	NA	NA	5 (SMCL)	<20 % [f]
Minimum daily ultraviolet transmitted	%	66.2	77.9	NA	NA	NA	NA
Average daily ultraviolet transmitted	%	67.9	78.7	NA	NA	NA	NA
Average operational ultraviolet dose	mj/cm^2	85	138.7	NA	NA	NA	NA
Minimum operational ultraviolet dose	mj/cm^2	80.4	90.3	NA	NA	NA	NA
Biochemical oxygen demand 24-hour comparison	mg/L	0.1	11	NA	NA	NA	NA
Biochemical oxygen demand calculated value	mg/L	0.1	11	NA	NA	NA	NA
Biochemical oxygen demand mass limit	lb/day	175	195.7	NA	NA	NA	NA
Biochemical oxygen demand mass loading	lb/day	0.79	113.1	NA	NA	NA	NA
Daily flow rate	mgd	41.4	1163	NA	NA	NA	NA
Daily flow rate	mgd	45.2	6139	NA	NA	NA	NA
Dissolved oxygen	mg/L	3.1	6.6	NA	NA	NA	9 [g]
pH	s.u.	6.94	7.5	NA	NA	NA	6.5–8.5 [c]
Phosphorus	mg/L	0.5	8.2	NA	NA	NA	NA
Temperature	deg F	61.52	79.7	NA	NA	NA	<5 [h]
Coliform calculated value	MPN/100 mL	–	13	NA	NA	NA	50 [i]
Total coliform 30-day maximum	MPN/100 mL	<2	13	NA	NA	NA	50 [i]
Total coliform 7-day	MPN/100 mL	<2	2	NA	NA	NA	NA
Total suspended solids calculated value	mg/L	0.15	0.15	NA	NA	NA	NA
Total suspended solids mass limit	lb/day	175	195.7	NA	NA	NA	NA
Total suspended solids mass loading	lb/day	0.84	2.17	NA	NA	NA	NA

Notes:
< = less than; % = percent; µg/L = micrograms per liter; AL = action level (values referred to as MCLs for lead and copper are not actually MCLs; instead, they are called "Action Levels" under the lead and copper rule); Basin Plan = *Water Quality Control Plan for the North Coast Region*; CalEPA = California Environmental Protection Agency; deg F = degrees Fahrenheit; lb/day= pounds per day; MCL = maximum contaminant level; mg/L = milligrams per liter; mgd = milligrams per day; mj/cm^2 = millijoule per square centimeter; MPN/100 mL = most probable number per 100 milliliters; NA = not applicable; NTU = nephelometric turbidity units; North Coast RWQCB = North Coast Regional Water Quality Control Board; SMCL = secondary maximum contaminant level; s.u. = standard unit
Only analytes detected at least once are shown. Chemical constituents were collected on 1 day (December 12, 2018) from two locations (REC-002 and EFF-001). Other water quality parameters were collected once a day for 365 days from January 1, 2018, through December 31, 2018.
Green highlighting indicates an ecological exceedance.

[a] Freshwater criteria continuous concentrations (CCC). Site-specific water-effect ratio (WER) of 6.39 and maximum water hardness of 157 mg/L was used to develop site-specific CCC screening levels for copper (City of Healdsburg 2017).
[b] No individual trihalomethane MCL is available. Total trihalomethane was used as a surrogate.
[c] Specific water quality objectives for the upstream Russian River.
[d] 90% upper limit.
[e] Effluent results are only shown if reclamation results were not available.
[f] Shall not increase more than 20% above naturally occurring background.
[g] Daily minimum objective for beneficial use for water systems designated as SPWN (spawning, reproduction, and/or early development) between September 15 and June 4. At all other times of the year, the water quality objective is 6.0 mg/L.
[h] Receiving-water temperature shall not increase more than 5 degrees Fahrenheit.
[i] Waters designated for REC-1 (contact recreation) based on median fecal coliform based on minimum of not less than five samples for any 30-day period, nor should 10% of the total samples exceed 400 MPN/100 mL during any 30-day period.

Sources: CalEPA 2000, 2019; North Coast RWQCB 2018

Substances with the potential to cause toxic effects on aquatic life inhabiting receiving water or that could result in human health effects were evaluated. These substances included trace metals, cyanide, ammonia, residual chlorine, aquatic toxicity bioassays, and synthetic organic compounds including pesticides, polychlorinated biphenyl (PCB) compounds, dioxin compounds, volatile organic compounds, and semivolatile organic compounds.

The effluent quality data collected by the City for its National Pollutant Discharge Elimination System (NPDES) permit application served as a basis for the terms and conditions that the North Coast RWQCB imposed in the current NPDES permit. The North Coast RWQCB conducted a "reasonable potential analysis" to identify the likely constituents contained in the WRF effluent that may exceed regulatory objectives.

Comparing the sample results to applicable water quality standards demonstrates that the effluent does not exceed human health or ecological standards. The results are also in compliance with the objectives of the North Coast RWQCB Basin Plan, except for TDS, which slightly exceeds the surface water standard (Table 3.2-2). The comparison used the following methodologies:

- Potential effects on human health were evaluated by comparing the sample results to California Environmental Protection Agency (CalEPA) Toxic Rule standards (combined drinking-water and organism consumption) and CalEPA drinking-water standards (primary maximum contaminant levels [MCLs], secondary MCLs, and action levels). None of the samples exceed these standards, indicating no potential impact on human health.

- Potential effects on ecological receptors were evaluated by comparing the sample results to CalEPA Toxic Rule Standards (chronic exposures). None of the samples exceeded these standards, indicating no potential impact on ecological receptors.

Potential effects on surface water were evaluated by comparing the sample results to Basin Plan objectives. Only TDS exceeded the surface water quality objective of 170 mg/L, but TDS in the sample remained less than the secondary MCL of 500 mg/L.

Russian River

As indicated above, the Russian River provides water to support many beneficial uses, such as municipal drinking-water supplies, agricultural and industrial water supplies, groundwater recharge, fish and wildlife habitat, contact and noncontact recreation. The river is also influenced by potential contaminants from a variety of sources: gravel mining, summer dam operation, water diversions, septic system discharges, and urban and agricultural runoff. Discharges of treated wastewater discharges affect the river to a limited extent because of the North Coast RWQCB's seasonal discharge prohibition. In general, the North Coast RWQCB considers the Russian River's water quality adequate to support all designated beneficial uses attributed to its flows (North Coast RWQCB 2001). However, the North Coast RWQCB has identified the river on its Section 303(d) list of water quality limited segments for impairment because of suspended sediment and water temperature (see Section 3.2.3, "Regulatory Background Update"). The listing is based on water quality exceedances of the North Coast RWQCB's objectives for sediment and turbidity as listed in the Basin Plan. Elevated turbidity levels are common in North Coast rivers, typically during periods of high streamflow and/or watershed runoff after major storms (North Coast RWQCB 2001). Sport fishing conditions are usually poor during periods of high turbidity.

Besides its effects on sport fishing and river aesthetics, turbidity excludes sunlight and may restrict the growth of both planktonic and benthic algae, which are important to the food chain of a freshwater stream ecosystem.

Groundwater

The City has monitored and extensively evaluated the WRF in preparation for the expansion of the irrigation system. The treated water from the WRF would enable the development of farmland and pastures that currently may not have access to sufficient water to support certain agricultural uses. The Russian River watershed drains into the valley basin and recharges the alluvial aquifer (Russian River Watershed Association 2019). Groundwater in the Russian River Valley is present at depths of 15–35 feet, depending on location and season. Levels are shallower in the winter months, when higher rainfall rates recharge the underlying basin. Groundwater and surface water in the Russian River Valley are interconnected. For most of the year, the Russian River is a gaining system, with the surrounding groundwater level being higher than the level of the river, recharging the river. However, during particularly dry periods, the Russian River can be a losing system where surface water from the river recharges the groundwater (DWR 1983).

3.2.3 Regulatory Background Update

Discharges to surface waters and to land are subject to regulation by the North Coast RWQCB and other agencies under a variety of federal, state, and local regulations, plans, and policies. This section briefly describes the following regulations:

- Clean Water Act (CWA) and associated permit programs
- Porter-Cologne Water Quality Control Act of 1975 (Porter-Cologne Act) and North Coast RWQCB Basin Plan
- California Toxics Rule
- State Antidegradation Policy
- California Title 22 Recycled Water Regulations
- Sonoma County General Plan 2020
- Healdsburg 2030 General Plan

A brief description of these various regulations and policies follows. The manner in which these various regulations and policies would affect probable discharge requirements is discussed below for each listed effluent discharge.

Federal Plans, Policies, Regulations, and Laws

Clean Water Act and Associated Permit Programs

The CWA establishes the basic structure for regulating discharges of pollutants to surface waters in the United States. The law authorizes the U.S. Environmental Protection Agency (EPA) to set

limits for point-source discharges of effluent limits by industry and publicly owned treatment works. The CWA also requires states (or EPA, in the event of default by states) to set water quality standards for contaminants in surface waters.

The CWA authorizes EPA to delegate many permitting, administrative, and enforcement aspects of the law to state governments. In such cases, however, EPA still retains oversight responsibilities. In California, such responsibility has been delegated to the SWRCB, which administers the CWA in association with nine RWQCBs. Two particularly relevant programs resulting from the CWA are the NPDES program and the requirement for states to identify waters with impaired water quality conditions under CWA Section 303 and develop total maximum daily loads (TMDLs) to address the impairment.

NPDES Permits for Wastewater

The CWA requires point-source dischargers of municipal and industrial wastewater to waters of the United States to obtain a permit that establishes effluent discharge prohibitions, effluent and receiving-water limits, and compliance monitoring and reporting requirements. The North Coast RWQCB issued the City's current NPDES permit in September 2004. The NPDES permit includes terms and conditions for compliance with narrative and numerical water quality objectives in the effluent for a variety of parameters (e.g., flow, temperature, pH, biochemical oxygen demand, dissolved oxygen, coliform bacteria, total suspended solids, turbidity, residual chlorine, ammonia, toxicity, and other compounds of specific concern for receiving waters). The NPDES permit also includes terms and conditions for consistency with applicable ambient receiving-water quality criteria, water quality standards, and antidegradation policies. Order No. R1-2016-0015 under NPDES Permit No. CA0025135 includes Waste Discharge Requirements (WDRs) and Water Recycling Requirements (WRRs), and allows the WRF to discharge disinfected, tertiary recycled water to the Basalt Pond (part of the Russian River) and to deliver recycled water to authorized users.

The North Coast RWQCB issued a Notice of Applicability (NOA) for the Statewide Water Reclamation Requirements for Recycled Water Use (Order WQ 2016-0068-DDW; General Order) on July 1, 2016. The NOA authorized the City's Recycled Water Program and prescribed a project-specific Monitoring and Reporting Program (SWRCB 2016). The July 1, 2016 NOA authorized recycled water use for vineyard irrigation and landscape irrigation of golf courses, parks, schools, and cemeteries. The City is now planning to expand its recycled water system and utilize recycled water for pasture irrigation, cut hay irrigation (ryegrass), cannabis irrigation, orchard irrigation (e.g., apple, plum, prune, peach), and vineyard frost protection. The City will submit a Notice of Intent to the North Coast RWQCB, supported by a detailed Engineering Report, requesting approval for these additional recycled water uses.

NPDES Stormwater Permits

The CWA also established a framework for regulating municipal and industrial stormwater discharges under the NPDES program. On November 16, 1990, EPA published regulations establishing stormwater permit application requirements for specified industrial facilities and general construction activities that would disturb more than 5 acres of soil. On July 1, 2010, the SWRCB adopted a statewide NPDES stormwater permit for general construction activity (Order 2009-009-DWQ) that provides the policies and procedures for complying with the regulations. The

NPDES stormwater permit requires the preparation of a storm water pollution prevention plan (SWPPP) that identifies and describes the best management practices (BMPs) to be implemented at construction sites to control pollution in stormwater runoff. The size of the construction disturbance subject to the statewide NPDES permit is 1 acre or larger.

Section 303(d) Impaired Waters List

CWA Section 303(d) requires states to develop lists of water bodies (or sections of water bodies) that are not meeting water quality standards after point-source dischargers (i.e., municipalities and industries) have implemented the minimum required levels of treatment. Section 303(d) requires states to develop a TMDL program for each listed pollutant. A TMDL is the amount of loading that the water body can receive and still be in compliance with water quality standards. The TMDL must allocate allowable loadings to point and nonpoint sources, with background loadings considered. NPDES permit limits for listed pollutants must be consistent with the load allocation prescribed in the TMDL.

STATE PLANS, POLICIES, REGULATIONS, AND LAWS

Porter-Cologne Water Quality Control Act and North Coast RWQCB Basin Plan

The Porter-Cologne Act and other provisions in the California Water Code (California Code of Regulations [CCR] Title 23, Section 13000 et seq.) provide California's statutory authority for the protection of water quality. Under the Porter-Cologne Act, California adopts water quality policies, plans, and objectives to ensure that beneficial uses of the state are reasonably protected. The Porter-Cologne Act established nine RWQCBs to adopt, and periodically update through a triennial review process, water quality control plans (basin plans) that define the beneficial uses, water quality objectives, implementation programs, and surveillance and monitoring programs for surface water and groundwater resources in each region.

The primary mechanism used by the RWQCBs to ensure compliance with basin plans and the CWA is to regulate discharges of waste to land and waters of the state through WDRs, which are authorized under the Porter-Cologne Act, and through NPDES permits for discharges to waters of the United States, which are authorized under CWA Section 402. The Porter-Cologne Act defines waters of the state as "any surface water or ground water, including saline waters, within the boundaries of the state." Some waters that qualify as waters of the state do not necessarily qualify as waters of the United States (e.g., groundwater and isolated wetlands).

Each basin plan contains specific numeric surface water quality objectives for bacteria, dissolved oxygen, pH, electrical conductivity, TDS, temperature, and turbidity. Narrative objectives are set for parameters such as sediment, biostimulatory substances, oils and grease, color, taste and odor, pesticides, and aquatic toxicity. For surface water and groundwater that support municipal and domestic supply uses, the basin plan adopts by reference all of the state (and federal) drinking-water MCLs established under the federal Safe Drinking Water Act. The RWQCBs administer the state's primary and secondary drinking-water MCLs under CCR Title 22, Division 4, Chapter 15. The primary MCLs established for health protection address a number of inorganic elements (e.g., nitrate and fluoride), radioactivity, several of the priority trace metals, several common pesticides and herbicides, and a suite of other synthetic organic compounds. The primary MCLs are based on a one-in-a-million incremental cancer risk from ingestion of carcinogenic compounds and

threshold toxicity levels for noncarcinogens. Secondary MCLs are established for welfare considerations such as taste and odor control and laundry staining.

State Antidegradation Policy

The goal of SWRCB Resolution No. 68-16, *Statement of Policy With Respect to Maintaining High Quality Waters in California* (SWRCB 1968), is to maintain high-quality waters where they exist in the state, including surface water and groundwater. The SWRCB has interpreted Resolution No. 68-16 to incorporate the federal antidegradation policy, which is applicable to surface water only and to discharges that began after November 28, 1975, that could lower existing surface water quality (North Coast RWQCB 2004).

SWRCB Resolution No. 68-16 states, in part (SWRCB 1968):

1. Whenever the existing quality of water is better than the quality established in policies as of the date on which such policies become effective, such existing high quality will be maintained until it has been demonstrated to the State that any change will be consistent with maximum benefit to the people of the State, will not unreasonably affect present and anticipated beneficial use of such water and will not result in water quality less than that prescribed in the policies.

2. Any activity which produces or may produce a waste or increased volume or concentration of waste and which discharges or proposes to discharge to existing high quality waters will be required to meet waste discharge requirements which will result in the best practicable treatment or control of the discharge necessary to assure that (a) a pollution or nuisance will not occur and (b) the highest water quality consistent with maximum benefit to the people of the State will be maintained.

When an RWQCB receives an application that involves the proposed discharge of wastes to waters of the state, the RWQCB is responsible for determining the consistency of the discharge with the state's antidegradation policy. The RWQCB considers whether to allow a certain degree of water quality reduction by evaluating the nature of any proposed discharge, existing discharge, or material change in a discharge that could affect the quality of waters in the region. Under the antidegradation policy, a report of waste discharge (or equivalent technical information required by the RWQCB under Water Code Section 13267) must demonstrate the nature and extent of the proposed waste discharge and the potential for the discharge to affect the region's surface water or groundwater quality.

Maximum benefit is based on water quality, social, technological, economic, and legal issues. In 1990, the SWRCB adopted guidance for the RWQCBs regarding implementation of antidegradation policies in NPDES permitting (SWRCB Administrative Procedures Update No. 90-04). The guidance states that an RWQCB may determine it is not necessary to do a "complete" antidegradation analysis where a discharge satisfies one of the following requirements:

- The reduction of water quality will be spatially localized or limited with respect to the water body, i.e., confined to the mixing zone.

- The reduction in water quality will be temporally limited and will not result in long-term deleterious effects.

- The action will produce minor effects that will not result in a significant reduction of water quality, e.g., a wastewater treatment plant has a minor increase in the volume of discharge.

- The proposed activity that may potentially reduce water quality has been approved in the applicable jurisdiction's general plan and has been adequately subjected to the environmental and economic analyses in an EIR required under CEQA. If the EIR is inadequate, the RWQCB must supplement this information to support the decision.

The guidance states that the above considerations may vary by pollutant, e.g., bioaccumulative and toxic compounds should receive stricter scrutiny. A primary focus of the analysis is to determine whether and to what degree water quality is lowered. This determination greatly influences the level of analysis required and the level of scrutiny applied to the "balancing" test—i.e., whether the facility is necessary to accommodate important economic or social development, and whether a water quality change is consistent with maximum benefit to the people of the state. The technical information in this SEIR is intended to provide the basis for any findings that the RWQCB may be required to make under the antidegradation policy.

State Drinking-Water Quality Standards

Drinking-water standards established by the SWRCB Division of Drinking Water under CCR Title 22, Division 4, Chapter 15 are applicable to the quality of water delivered by municipal and domestic water supply conveyances. The standards apply to the source water only when specifically established in the basin plan by the RWQCB. EPA develops similar standards under the federal Safe Drinking Water Act. Both laws contain MCLs that are based on a one-in-a-million (10^{-6}) incremental cancer risk from ingestion of carcinogenic compounds and threshold toxicity levels for noncarcinogens. The MCLs are also based on technological and economic factors related to the feasibility of achieving and monitoring for the pollutants in a drinking-water supply. Secondary MCLs are established for welfare considerations such as taste and odor control and laundry staining. The MCLs apply to the quality of the water after it has entered a distribution system and do not apply to the quality of the untreated source water.

State Recycled Water Regulations

Wastewater reclamation in California is regulated under CCR Title 22, Division 4, Chapter 3 (Section 60301 et seq., as amended). The RWQCBs have jurisdiction over the distribution of reclaimed wastewater and the enforcement of Title 22 regulations. These regulations are intended to ensure the protection of public health associated with the use of reclaimed water. The regulations establish acceptable levels of constituents in reclaimed water for a range of uses and prescribe means for ensuring reliability in the production of reclaimed water.

Title 22 specifies the reliability of and redundancy for each recycled water treatment and use operation. Treatment plant design must allow for efficiency and convenience in operation and maintenance and provide the highest possible degree of treatment under varying circumstances. Title 22 sets bacteriological water quality standards based on the expected degree of public contact with recycled water. For water reuse applications with a high potential for the public to

come in contact with the reclaimed water, Title 22 requires disinfected tertiary treatment. For applications with a lower potential for public contact, Title 22 requires three levels of secondary treatment, which basically differ by the amount of disinfection required. For recycled water piping, the SWRCB Division of Drinking Water has requirements for preventing backflow of recycled water into the public water system and for avoiding cross-connection between the recycled- and potable-water systems. Other regulations include the California Plumbing Code, which contains requirements for the installation, construction, alteration, and repair of reclaimed water systems intended to supply toilets, urinals, and trap primers for floor drains and floor sinks. The use of recycled water for these applications is limited to nonresidential buildings.

The RWQCBs are responsible for issuing water reclamation requirements for recycled water treatment and distribution systems that specify discharge prohibitions, terms and conditions, and monitoring and reporting program requirements. To obtain water reclamation requirements from an RWQCB, an engineer's report must be prepared and submitted pursuant to Section 13522.5 of the California Water Code. The requirements may be placed upon the person reclaiming the water, the user, or both.

As noted previously, the North Coast RWQCB issued an NOA on July 1, 2016 that authorized the City's Recycled Water Program and prescribed a project-specific Monitoring and Reporting Program. The City is now planning to expand its recycled water program, and will submit a Notice of Intent to the North Coast RWQCB, supported by a detailed Engineering Report, requesting approval for the additional recycled water uses.

Constituents of Emerging Concern

As documented in the 2005 EIR, there continues to be ongoing public debate over the potential impacts of certain constituents of emerging concerning. According to the SWRCB, such new and emerging contaminants are unregulated and may be new contaminants (*e.g.,* MTBE, now regulated in California) or those that may have been present but not detected (*e.g.,* perchlorate, now also regulated in California). Also among the emerging contaminants are pharmaceuticals and personal care products, industrial chemicals present at low concentrations, and chemicals that may affect hormone status, referred to as "endocrine disruptors" (SWRCB 2019). The endocrine system is a combination of glands and hormones that assist in vertebrate reproduction, growth, and development. An endocrine-disrupting compound is a substance or mixture that alters the function of the endocrine system and consequently causes adverse health effects in an intact organism or its progeny. For example, certain drugs, such as birth control pills, intentionally alter the endocrine system. Plants such as soybeans and garlic produce natural endocrine-disrupting compounds as a defense mechanism. Currently, groundwater replenishment-and-reuse (or aquifer storage nd recovery) projects are subject to annual monitoring and reporting requirements related to new and emerging contaminants, including endocrine disruptors. However, these current requirements as provided for in the California Code of Regulations Title 22 do not apply to recycled water activities addressed in this document.

LOCAL PLANS, POLICIES, REGULATIONS, AND ORDINANCES

Sonoma County General Plan 2020

The following objective and policies in the Water Resources Element of the *Sonoma County General Plan 2020* (Sonoma County 2008) encourage the use of recycled water and are applicable to the proposed project:

- **Policy WR-3a:** Work with public water suppliers in assessments of the sustainable yield of surface water, groundwater, recycled water and conserved water, including during possible drought periods. This work should include the exploration of potentially feasible alternative water supplies. Surface and groundwater supplies must remain sustainable and not exceed safe yields.

- **Objective WR-4.1:** Increase the use of recycled water where it meets all applicable regulatory standards and is the appropriate quality and quantity for the intended use.

  - **Policy WR-4j:** Ensure that public wastewater disposal systems are designed to reclaim and reuse recycled water for agriculture, geothermal facilities, landscaping, parks, public facilities, wildlife enhancement and other uses to the extent practicable, provided that the water meets the applicable water quality standards and is supplied in appropriate quantities for the intended uses.

  - **Policy WR-4l:** Establish a program to revise County Codes to increase, where appropriate, the use of recycled water for new commercial, residential, and agricultural development.

Healdsburg 2030 General Plan

The following goal and policies in the Natural Resources Element of the *Healdsburg 2030 General Plan* (City of Healdsburg 2015) support high water quality standards and are applicable to the proposed project:

Goal NR-A: Improve water quality and flows in the Russian River, Dry Creek, and Foss Creek to protect the city's water supply, recreation, fish and wildlife.

- **Policy NR-A-1:** The establishment of any new individual septic systems within the city limits is prohibited, except as otherwise provided in this General Plan, and shall support the efforts of the County, the Regional Water Quality Control Board, and residents to replace existing septic systems in the Fitch Mountain area with a centralized collection and treatment system or equally effective alternative to service existing development.

- **Policy NR-A-2:** The City will seek to minimize siltation, sedimentation and pollution discharge into receiving waterways from construction activities and ongoing operations.

- **Policy NR-A-3:** The City strongly supports the maintenance of maximum summer flows in the Russian River to protect water quality and the recreational values of the Russian River.

- **Policy NR-A-4:** Land with important watershed values shall be designated for open space or very low-intensity uses.

3.2.4 IMPACTS AND MITIGATION MEASURES

STANDARDS OF SIGNIFICANCE

Based on Appendix G of the State CEQA Guidelines, the project would have a significant impact related to hydrology and water quality if it would:

- violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality;
- substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin;
- substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:
    - result in substantial erosion or siltation on- or off-site;
    - substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site;
    - create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or
    - impede or redirect flood flows;
- in flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation; or
- conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.

EFFECTS FOUND NOT TO BE SIGNIFICANT

Several potential hydrology or water quality issues identified above were found not to be significant impacts or applicable to the proposed project. The proposed project does not require the use of groundwater and would not develop any facilities that would impede groundwater recharge. Therefore, there the project has no potential to substantially deplete groundwater supplies or interfere substantially with groundwater recharge, and this issue is not discussed further. (Potential impacts on groundwater quality are addressed below under Impacts 3.2-3 and 3.2-4.)

The proposed project would involve limited surface disturbance, and does not include facilities or activities that have the potential to substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site. Similarly, the project is located in rural areas with limited stormwater infrastructure, and project implementation has no potential to create or

contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems. (Potential impacts on surface water quality are addressed below under Impacts 3.2-1 and 3.2-2.) Finally, the proposed project includes no surface facilities that could impede or redirect flood flows in flood hazard, tsunami, or seiche zones, and risk release of pollutants due to project inundation. Therefore, these issues are not discussed further in this section.

METHODOLOGY

The approach to analyzing the potential project effects on surface water and groundwater quality considered the BMPs that are anticipated to apply to proposed project activities, based on the BMPs that currently apply to the existing users of recycled water for agricultural purposes. These current BMPs are specified in the *Recycled Water Program Techincal Report and Amended Notice of Intent* (City of Healdsburg 2016), and summarized in Chapter 2, Project Description. Upon the North Coast RWQCB's approval of the proposed project activities, the final BMPs approved by the North Coast RWQCB shall supersed the current BMPs included in this assessment, to the extent that the final BMPs are more stringent. Where a current BMP is more stringent than a final BMP, it shall remain the applicable standard.

Table 3.2-2 shows the concentrations of selected constituents detected in the City's WRF effluent and the comparison to current human health and ecological risk levels. These data were considered for the impact analysis below.

IMPACT ANALYSIS

Impact 3.2-1: Degradation of Surface Water Quality from the Use of Recycled Water for Landscape and Agricultural Irrigation

Similar to any irrigation, using tertiary-treated recycled water for landscape and agricultural irrigation has the potential to create or contribute to incidental off-site runoff and discharge to adjacent drainages. Thus, discharges of irrigation runoff could reach natural surface waters, potentially causing incidental changes in surface water quality.

CCR Title 22 requires that the City prepare an engineering report that specifies where and how recycled water can be used. This report must be reviewed and approved by the North Coast RWQCB before the City is authorized to use recycled water. The engineering report includes BMPs that the user of recycled water is required to follow. The anticipated BMPs applicable to the project are summarized in Chapter 2, "Project Description," and include restricting the rate at which irrigation water is applied to the agronomic rate of the target crop (Appendix B). The City would be required to enforce the requirements listed in the BMPs and prepare regular reports to the North Coast RWQCB regarding the use of recycled water and the effectiveness or ineffectiveness of the BMPs used. However, because the applicable BMPs are still in draft form and have not been formally imposed as a requirement of project implementation, the application of recycled water could result in excess runoff into nearby waters and thereby degrade surface water quality. This impact would be **potentially significant**.

Mitigation Measure 3.2-1: Implement Best Management Practices to Prevent Runoff from Recycled Water Irrigation

The following BMPs shall be applied to landscape and agricultural irrigation activities to prevent degradation of surface water quality from the application of recycled water. It should be noted that the city is already using tertiary treated wastewater for irrigation purposes and that the proposed project will expand on an existing system that already applies BMPs.

- Do not irrigate during or immediately before or after rainfall events.
- Apply recycled water within hydraulic agronomic rates.
- Do not irrigate on water-saturated or frozen ground.
- Do not irrigate before a predicted rainfall event of 0.5 inch or greater.
- Do not irrigate for more than 12 continuous hours.
- Allow at least 24 hours of drying time between irrigations.
- Do not allow recycled water to pond on-site. All irrigation water shall infiltrate within a 24-hour period.
- Maintain 100-foot setbacks to surface waters (including ponds with river connections), unless it can be demonstrated that a lesser setback is sufficient.
- Inspect and maintain irrigation distribution system once per week during growing season to prevent pipe breaks or leaks.
- Repair leaks or pipe breaks within 72 hours or prior to the release of 1,000 gallons, whichever comes first.
- Do not install hose bibs in areas that can be accessed by general public.
- Inspect and maintain drip emitters once per month during growing season. Verify or re-establish proper operation, aim, and flowrate.
- Periodically adjust valves or pressure regulators to ensure operation of the irrigation system at the appropriate pressure.
- Conduct recycled water operations training before each growing season and whenever new employees are hired.
- Ensure that the site supervisor attends the initial and periodic refresher training required of all recycled water users.
- Implement the above measures in accordance with the BMPs prescribed by the applicable North Coast RWQCB Title 22 permit.

Timing/Implementation: During operation of the irrigation systems.

Enforcement/Monitoring: City of Healdsburg.

Implementing this mitigation measure would reduce the potential surface water quality impact to ***less-than-significant*** because compliance with these BMPs would substantially limit the volume of runoff during irrigation activities, and thus limit contact between the tertiary treated water and surface waters. It should be noted that this measure may be superseded by the BMPs required by the North Coast RWQCB in the pending recycled water permit, once issued. Specifically, the project would be subject to either the requirements of Mitigation Measure 3.2-1 or the final recycled water BMP requirements, whichever is determined to be more stringent by the City of Healdsburg.

Impact 3.2-2: Degradation of Surface Water Quality from the Use of Recycled Water for Agricultural Frost Protection

Using tertiary-treated recycled water for frost protection of agricultural crops has the potential to create or contribute to incidental off-site runoff and discharge to adjacent drainages. Therefore, discharges of irrigation runoff could reach natural surface waters, potentially causing incidental changes in water quality. Similar to the application of recycled water for irrigation purposes, use of the recycled water for frost protection would be subject to the BMPs imposed by the North Coast RWQCB as a condition of issuing the recycled water permit for the project. However, because the applicable BMPs are still in draft form and have not been formally imposed as a requirement of project implementation, the application of recycled water for frost protection could result in excess runoff into nearby waters and thereby degrade surface water quality. Consequently, this impact would be **potentially significant**.

Mitigation Measure 3.2-2: Implement Best Management Practices to Prevent Runoff of Recycled Water Applied for Frost Protection

The following BMPs shall be applied to frost protection activities to prevent degradation of surface water quality from the application of recycled water.

- Conduct preseason inspections and infrastructure testing to ensure proper operation and verify that runoff capture systems are in place.
- Limit application rates to the rates established by the City of Healdsburg to prevent site runoff.
- Check irrigation systems during spray events to minimize ponding and runoff.
- Do not use recycled water within 25 feet of state waters containing standing or flowing water. or in a manner that could result in uncontrolled runoff into state waters.
- Adequately protect all recycled water storage ponds from erosion, washout, and flooding from a 24-hour rain event having a predicted frequency of once in 25 years.
- Prevent recycled water from entering street gutters, storm drains, or nearby creeks.

- The site supervisor must attend the initial and periodic refresher training required of all recycled water users.

- Implement the above measures in accordance with the BMPs prescribed by the applicable North Coast RWQCB Title 22 permit.

Timing/Implementation: During operation of the frost protection systems.

Enforcement/Monitoring: City of Healdsburg.

Implementing this mitigation measure would reduce potential quality impacts **to *less-than-significant*** because compliance with these BMPs would substantially limit the volume of runoff during frost protection activities. It is noted that this measure may be superseded by the BMPs required by the North Coast RWQCB in the pending recycled water permit. Specifically, the project would be subject to either the requirements of Mitigation Measure 3.2-2 or the final recycled water BMP requirements, whichever is determined to be more stringent by the City of Healdsburg.

Impact 3.2-3: Degradation of Groundwater Quality from the Use of Recycled Water for Landscape and Agricultural Irrigation

Using tertiary-treated recycled water for landscape and agricultural irrigation could cause recycled water to infiltrate into the groundwater table, potentially causing incidental changes to water quality. Irrigation would typically take place during the summer and fall when groundwater levels are lower. As noted previously, CCR Title 22 requires that the City prepare an engineering report that specifies where and how recycled water can be used. This report must be reviewed and approved by the North Coast RWQCB before the City is authorized to use recycled water. The engineering report includes BMPs that the user of recycled water is required to follow. The anticipated BMPs applicable to the project are summarized in Chapter 2, "Project Description," and include restricting the rate at which irrigation water is applied to the agronomic rate of the target crop (Appendix B). The City would be required to enforce the requirements listed in the BMPs and prepare regular reports to the North Coast RWQCB regarding the use of recycled water and the effectiveness or ineffectiveness of the BMPs used. However, because the applicable BMPs are still in draft form and have not been formally imposed as a requirement of project implementation, the recycled water applied for agricultural irrigation could infiltrate the subsurface and thereby degrade groundwater quality. This impact would be **potentially significant**.

Mitigation Measure 3.2-3: Implement Best Management Practices to Prevent Recycled Water Applied during Irrigation Activities from Entering Groundwater

The following BMPs shall be applied to landscape and agricultural irrigation activities to prevent degradation of groundwater quality from the application of recycled water.

- Apply recycled water within hydraulic agronomic rates.

- Do not irrigate within 50 ft of domestic water supply wells.

- Do not allow recycled water to pond on-site. All irrigation water must infiltrate within a 24-hour period.
- Do not irrigate on water-saturated or frozen ground.
- Do not irrigate prior to a predicted rainfall event of 0.5 inches or greater.
- Implement short and frequent irrigation periods to prevent soil saturation and increase the soil water available to roots.
- Apply recycled water within nitrogen agronomic rates.
- When calculating the amount of commercial fertilizer needed, consider the nitrogen load applied through irrigation with recycled water.
- Implement the above measures in accordance with the BMPs prescribed by the applicable North Coast RWQCB Title 22 permit.

Timing/Implementation: During operation of the landscape and agricultural irrigation system.

Enforcement/Monitoring: City of Healdsburg.

Implementing this mitigation measure would reduce groundwater quality impacts to ***less-than-significant*** because compliance with these BMPs would substantially limit potential subsurface infiltration during irrigation activities. It is noted that this measure may be superseded by the BMPs required by the North Coast RWQCB in the pending recycled water permit. Specifically, the project would be subject to either the requirements of Mitigation Measure 3.2-3 or the final recycled water BMP requirements, whichever is determined to be more stringent by the City of Healdsburg.

Impact 3.2-4: Degradation of Groundwater Quality from the Use of Recycled Water for Agricultural Frost Protection

Using tertiary-treated recycled water for agricultural frost protection could cause recycled water to infiltrate into the groundwater table, potentially causing incidental changes to water quality conditions. Similar to the application of recycled water for irrigation purposes, use of the recycled water for frost protection would be subject to the BMPs imposed by the North Coast RWQCB as a condition of issuing the recycled water permit for the project. However, because the applicable BMPs are still in draft form and have not been formally imposed as a requirement of project implementation, the application of recycled water for frost protection could result in subsurface infiltration and potentially degrade groundwater quality. Consequently, this impact would be **potentially significant**.

Mitigation Measure 3.2-4: Implement Best Management Practices to Prevent Recycled Water Applied for Frost Protection from Entering Groundwater

The following BMPs shall be applied to frost protection activities to prevent degradation of groundwater quality from the application of recycled water.

- Limit application rates to the agronomic rates established by the City of Healdsburg (see Appendix B of this EIR).

- Avoid applying recycled water for frost protection at a level exceeding the applicable nutrient agronomic rates of the vineyard and the cover crop.

- Conduct preseason inspections and infrastructure testing to ensure proper operation and verify that runoff capture systems are in place.

- Plant cover crops to prevent runoff, protect against erosion, and provide additional nitrogen removal.

- Check irrigation systems during spray events to minimize ponding and runoff.

- Ensure that the site supervisor attends the initial and periodic refresher training required of all recycled water users.

- Implement the above measures in accordance with the BMPs prescribed by the applicable North Coast RWQCB Title 22 permit.

Timing/Implementation: During operation of the frost protection systems.

Enforcement/Monitoring: City of Healdsburg.

Implementing this mitigation measure would reduce groundwater quality impacts to ***less-than-significant*** because compliance with these BMPs would substantially limit potential subsurface infiltration during frost protection activities. It is noted that this measure may be superseded by the BMPs required by the North Coast RWQCB in the pending recycled water permit. Specifically, the project would be subject to either the requirements of Mitigation Measure 3.2-4 or the final recycled water BMP requirements, whichever is determined to be more stringent by the City of Healdsburg.

Impact 3.2-5: Degradation of Surface Water Quality during Construction

Pipeline construction activities would involve ground disturbance to excavate the linear trenches for the proposed 8-inch and 12-inch recycled water transmission pipeline extensions, and to install the irrigation system on the dairy/vineyard property. The anticipated rate of construction would be approximately 200 linear feet per day. Construction activities have the potential to generate contaminated stormwater runoff from construction sites or to accidentally cause direct nonstormwater discharges of wastes, which are a particular concern when working near or in drainage channels. Consequently, the potential surface water and groundwater quality impact would be **potentially significant**.

Mitigation Measure 3.2-5: Develop and Implement a SWPPP and BMPs

In accordance with the SWRCB guidelines for the statewide NPDES stormwater permit for general construction activity, the City (or its designated general contractor) shall prepare a SWPPP in compliance with the North Coast RWQCB requirements for construction-related

activities. Pollution prevention measures shall be incorporated into all final design and construction plans. The SWPPP shall describe the proposed construction activities, the pollution prevention BMPs to be implemented to prevent discharge of pollutants, and the BMP inspection and monitoring activities to be conducted. All water quality, erosion, and sediment control measures included in the SWPPP shall be implemented in accordance with the guidelines set forth in the SWPPP and the City's standard BMPs. The SWPPP shall identify the responsibilities of all parties, contingency measures, agency contacts, and training requirements and documentation for those personnel responsible for installation, inspection, maintenance, and repair of BMPs.

Timing/Implementation: During operation of the frost protection systems.

Enforcement/Monitoring: City of Healdsburg.

Development and implementation of the SWPPP would substantially limit the potential for runoff from the project construction site and associated transport of any pollutants. Implementing this mitigation measure would reduce the potential surface water quality impact of construction activities to ***less-than-significant.***

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3.3 FISHERIES RESOURCES

This section describes the existing setting in the project area as it relates to fisheries resources. It also presents an analysis of potential environmental impacts of the proposed project and identifies mitigation measures to reduce the level of these impacts.

3.3.1 SUMMARY OF FINDINGS FROM THE CERTIFIED EIR

The certified EIR (2005) did not identify any significant or potentially significant impacts on fisheries resources.

3.3.2 ENVIRONMENTAL SETTING UPDATE

FISHERIES HABITATS IN THE PROJECT AREA

Water bodies supporting fish and their habitats that would be affected by the project are limited to the Russian River in the immediate vicinity and downstream of the City of Healdsburg Wastewater Treatment Plant (WWTP). These habitats and the fish that inhabit them are described below.

The Russian River drains approximately 1,500 square miles in Mendocino and Sonoma counties and is approximately 110 miles long. Numerous tributaries in the watershed drain the surrounding mountains and flow into the flat alluvial valleys along the upper and middle mainstem of the Russian River. The river is tidally influenced from the Pacific Ocean to near Duncans Mills, and the mouth of the estuary is located at Jenner. The Russian River provides wildlife and fish habitat, many recreational use areas, and a drinking water supply. The Sonoma County Water Agency (SCWA) and other cities and unincorporated communities divert drinking water from the river. Residents and vacationers swim, canoe, and fish along the river in many areas.

Numerous natural and human-caused influences affect the Russian River. Runoff patterns follow winter rains closely because the watershed lacks a snowpack. River flow is also controlled by upstream impoundments at Lake Mendocino and Lake Sonoma (see Exhibit 2-1). Releases from these reservoirs strongly influence river hydrology, temperature, and the composition of the riverine aquatic community. The river is also influenced by treated wastewater discharges, gravel mining, summer dams, water diversions, septic system discharges, and urban and agricultural runoff.

The Russian River has historically been the subject of many biological studies. The California Department of Fish and Wildlife (CDFW) began surveying the river's fishery resources more than 50 years ago. The Santa Rosa Subregional Long-Term Wastewater Project Environmental Impact Report/Environmental Impact Statement (City of Santa Rosa 1996) contains numerous technical reports on the aquatic resources of the Russian River. These aquatic resources have been reviewed by Steiner Environmental Consulting (1996), Beach (1996), and ENTRIX (2004). Heckel (1994), Merritt Smith Consulting (1997, 1998, 1999, 2000), and SCWA (Martini-Lamb and Merritt Smith Consulting 2001) have studied the Russian River estuary.

In recent years, SCWA, the California Sea Grant, and others have conducted regular surveys and monitoring programs for aquatic resources in the Russian River, involving various techniques to quantify the numbers and identify the distribution of the extensive fish resources that inhabit the

river system. Information regarding the fisheries resources described below has been derived from the above-referenced historical studies and augmented by more recent monitoring reports.

In overview, the Russian River is home to a large assemblage of resident and migratory species of fish and other aquatic organisms. Historically, Steelhead (*Oncorhynchus mykiss*), Chinook Salmon (*O. tshawytscha*), and Coho Salmon (*O. kisutch*) have used the river's watershed for spawning and juvenile rearing. Two species of lamprey—Pacific Lamprey (*Entosphenus tridentatus*) and River Lamprey (*Lampetra ayresii*)—have moved back and forth between the ocean and the Russian River for the spawning and rearing phases of their life histories. In addition to these migratory species, many other species of native and introduced warmwater fish use the river.

Steelhead have been observed spawning and rearing in the mainstem of the Russian River as far downstream as Healdsburg (Cook 2003a, 2003b, cited in ENTRIX 2004). Steelhead also routinely spawn and rear in Dry Creek and Mill Creek (see Exhibit 2-2 in Chapter 2, "Project Description"). Steelhead, Coho Salmon, and Chinook Salmon in the Russian River watershed are all federally listed as threatened or endangered. Coho Salmon in the Russian River watershed are also listed by the State of California as endangered.

The distribution of fish species in the Russian River is strongly influenced by the thermal regime of the river. An assessment of modeled water temperatures presented in the draft EIR for SCWA's Fish Habitat Flows and Water Rights Project (SCWA 2016a) demonstrated a broad range of water temperatures throughout the Russian River system, which are influenced by such factors as river flow, ambient air conditions, and reservoir releases. In the segment of the river near Healdsburg, average summer water temperatures routinely exceed 68 degrees Fahrenheit (°F) from May through September, rendering that particular segment and the lower river generally unsuitable for long-term residency by cold-water salmonid species. As reported in early investigations, summer river temperatures in the Healdsburg area and farther downstream often exceed optimal ranges for Steelhead and salmon, and sometimes reach lethal levels (Winzler and Kelly 1978, cited in SCWA 2016a). However, the cooler water released from Lake Sonoma into Dry Creek has been reported to produce an average 7.2°F decrease in the temperature of the Russian River below the Dry Creek confluence, which is approximately 0.25 mile upriver from the Healdsburg WWTP (ENTRIX 2004). This reduction in temperature in the mainstem Russian River presumably increases the probability of successful Steelhead spawning and rearing near the Healdsburg WWTP and for some distance downstream.

Nevertheless, adult salmonid species use the lower reaches of the river, including the segment near the WWTP, primarily as a migratory corridor to reach upstream spawning grounds outside the summer season. Chinook Salmon, for example, migrate upstream in the fall, passing through the lower reaches to natal spawning areas upstream of Healdsburg and in some tributaries. In recent years, the number of adult fish entering the fish ladder at the Mirabel inflatable dam fish ladder, approximately 10 miles downstream of Healdsburg, was 2,073 adults in the 2017–2018 run and 1,062 in the 2016–2017 run (SCWA 2019). Spawning occurs from November through January; fry emerge in late winter or early spring, followed quickly by juvenile outmigration to the ocean. Spawning Coho Salmon, which ascend the river typically in the October–November time frame, have demonstrated a steady increase in numbers in recent years since the inception of a broodstock program in 2001. The program consists of breeding Coho Salmon from local genetic stock at the Don Clausen Fish Hatchery at Lake Sonoma. An estimated 763 adult Coho Salmon returned to the river in 2018 (CSG 2018). Steelhead adults move into the river during winter, then

spawn in the upper watershed, with juveniles emigrating to the ocean before the onset of the summer's high thermal conditions. Juvenile Steelhead have been found in low numbers in the Russian River downstream of the confluence with Dry Creek, in part because of the cooling effect created by releases from Lake Sonoma.

Elevated summer water temperatures in the middle (including the Healdsburg area) and lower reaches of the Russian River provide ideal habitat for many warm-water fish species (Roth et al. 1995; ENTRIX 2004). Warm-water fishes that reside in the mainstem of the Russian River throughout the year include native species, such as Sacramento Sucker (*Catostomus occidentalis*), Hardhead (*Mylopharodon conocephalus*), Sacramento Pikeminnow (*Ptychocheilus grandis*), Sacramento Blackfish (*Orthodon microlepidotus*), Russian River Tule Perch (*Hysterocarpus traski pomo*), and California Roach (*Lavinia symmetricus*). Introduced species are also present, such as Common Carp (*Cyprinus carpio*), Smallmouth Bass (*Micropterus dolomeiu*), Largemouth Bass (*M. salmoides*), Bluegill (*Lepomis macrochirus*), Green Sunfish (*L. cyanellus*), and several species of catfish (*Ictalurus* spp. and *Ameiurus* spp.). Unpublished data from 11 recent years of fish surveys conducted by SCWA have revealed the presence of 25 species throughout the lower Russian River, downstream of the confluence with Dry Creek (SCWA 2016a). Smallmouth Bass and Sacramento Sucker dominated the 11-year catch, followed by other species that, taken as a whole, are representative of the Pikeminnow-Hardhead-Sucker Zone described by Moyle (2002, cited in SCWA 2016a).

SPECIAL-STATUS SPECIES IN THE PROJECT AREA

Table 3.3-1 lists special-status aquatic species that have the potential to occur in the project vicinity. All identified species are known to spend all or part of their life cycles in the mainstem of the Russian River in the project vicinity. They are also likely to occur in Dry Creek. Mill Creek, a small tributary of Dry Creek, is known to be used only by Steelhead, but is likely to support Russian River Roach, Pacific Lamprey, and River Lamprey.

3.3.3 REGULATORY BACKGROUND UPDATE

The U.S. Fish and Wildlife Service (USFWS) is the federal agency responsible for protecting terrestrial and freshwater plants and animals through implementation of the federal Endangered Species Act of 1973 (ESA). The National Marine Fisheries Service (NMFS) is the federal agency responsible for protecting anadromous fish and marine wildlife under the federal ESA. The U.S. Army Corps of Engineers (USACE) has primary responsibility for protecting wetlands and waters of the United States under Section 404 of the Clean Water Act. At the state level, CDFW is responsible for administration of the California Endangered Species Act (CESA) and for protection of streams and water bodies through the streambed alteration agreement process under Sections 1601–1606 of the California Fish and Game Code. A Section 401 water quality certification is also required by the North Coast Regional Water Quality Control Board when a proposed activity may result in discharge into waters of the state, pursuant to Section 401 of the Clean Water Act and the U.S. Environmental Protection Agency Section 404(b)(1) guidelines.

Table 3.3-1
Special-Status Aquatic Species that May Occur in the Project Vicinity

Common Name	Scientific Name	Management Status [a]	Habitat Requirements [b]
Chinook Salmon, California Coastal ESU	*Oncorhynchus tshawytscha*	FT	• High-quality, cool, perennial rivers and larger coastal streams. • Clean, well-aerated gravel beds for spawning, deeper and larger gravel beds than needed for Coho Salmon or Steelhead; juveniles begin moving downstream immediately after emerging from gravel, seldom spending more than 1 month in freshwater; thus, Chinook Salmon can successfully spawn in areas that normally go dry during summer. • Juveniles eat terrestrial and aquatic insects and crustaceans while in freshwater; adults feed at sea.
Coho Salmon, Central California Coast ESU	*Oncorhynchus kisutch*	FE, SE	• High-quality, cool, perennial streams. • Clean, well-aerated gravel beds for spawning. • Deep pools or glides with submerged root wads, downed woody debris, or other cover for juvenile rearing; juveniles typically spend one summer in freshwater rearing areas. • Juveniles eat aquatic insects and crustaceans, terrestrial insects, and small fish; adults feed at sea.
Steelhead, Central California Coast DPS	*Oncorhynchus mykiss*	FT	• High-quality, cool, perennial streams. • Clean, well-aerated gravel beds for spawning, often in steep, rocky reaches of upper tributaries, and in broad riffles in larger rivers; juveniles spend at least one summer in freshwater rearing areas and often spend two or three summers rearing in freshwater. • Juveniles eat insects, crustaceans, and other stream invertebrates; adults feed mainly at sea.
Russian River Roach	*Lavinia symmetricus*	SSC	• Wide variety of river and stream habitats in the Russian River watershed; broad tolerance of water quality conditions. • Well-aerated gravel or emergent vegetation in flowing water for spawning. • Foods include filamentous algae, small insects, and crustaceans.

Table 3.3-1
Special-Status Aquatic Species that May Occur in the Project Vicinity

Common Name	Scientific Name	Management Status [a]	Habitat Requirements [b]
Hardhead	*Mylopharodon conocephalus*	SSC	• Clear, high-quality streams with large, deep, rock- or sand-bottom pools. • Clean gravel riffles for spawning. • Absence of high densities of introduced fishes, particularly centrarchids. • Foods include benthic invertebrates and plants, drifting and floating insects; increasing proportion of plants in diets of older fish.
Pacific Lamprey	*Entosphenus tridentatus*	SSC	• Cool, high-quality perennial streams for spawning and larval rearing; larvae spend several years in the rearing area before transforming to adult form and migrating to sea. • Clean, well-aerated gravel beds for spawning. • Soft-bottom pools with abundant silt and detritus for larval rearing. • Adults are parasitic on other fishes in ocean or estuaries; larvae are surface deposit-feeders, consuming algae, bacteria, and detritus around the openings of their burrows.
River Lamprey	*Lampetra ayresii*	SSC	• Cool, high-quality perennial streams for spawning and larval rearing; larvae spend several years in the rearing area before transforming to adult form and migrating to sea. • Clean, well-aerated gravel beds for spawning. • Soft-bottom pools with abundant silt and detritus for larval rearing. • Adults are parasitic on other fishes in ocean or estuaries; larvae are surface deposit-feeders, consuming algae, bacteria, and detritus around the openings of their burrows.
Russian River Tule Perch	*Hysterocarpus traskii pomo*	SSC	• Low-elevation freshwater streams. • Emergent plants or overhanging banks or tree root wads for feeding, shelter, breeding, and rearing; livebearers. • Foods include amphipods and other crustaceans, aquatic insects, snails, and clams.

Notes: DPS = Distinct Population Segment; ESU = Evolutionarily Significant Unit

[a] Status definitions: FT = federally listed as threatened; SE = state listed as endangered; SSC = state species of special concern.

[b] Sources: Moyle 2003; Moyle et al. 1995; CDFW 2018.

Source: Data compiled by AECOM in 2019

FEDERAL PLANS, POLICIES, REGULATIONS, AND LAWS

Federal Endangered Species Act

Many species of fish, wildlife, and plants are in danger of or threatened with extinction. Enacting the ESA established a national policy that all federal agencies should work toward conservation of these species. The ESA designates the Secretary of the Interior and Secretary of Commerce as responsible for identifying endangered and threatened species and their critical habitats, carrying out programs for the conservation of these species, and rendering opinions regarding the impact of proposed federal actions on endangered species. The ESA also outlines what constitutes unlawful taking, importation, sale, and possession of endangered species and specifies civil and criminal penalties for unlawful activities.

Biological assessments are required under Section 7(c) of the ESA if listed species or critical habitat may be present in the area affected by any major construction activity conducted by, or subject to issuance of a permit from, a federal agency as defined in Part 404.02. Under Section 7(a)(3) of the ESA, a federal agency must consult with USFWS or NMFS on a proposed action if the agency determines that its proposed action may affect an endangered or threatened species.

Section 9 of the ESA prohibits the "take" of any fish or wildlife species listed under the ESA as endangered or threatened. Take, as defined by the ESA, means "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such action."

However, Section 10 allows for the "incidental take" of endangered and threatened wildlife species by nonfederal entities. The ESA defines incidental take as take that is "incidental to, and not the purpose of, the carrying out of an otherwise lawful activity." Section 10(a)(2)(A) requires an applicant for an incidental take permit to submit a conservation plan that specifies, among other things, the impacts that are likely to result from the taking and the measures the permit applicant will undertake to minimize and mitigate such impacts. Section 10(a)(2)(B) provides statutory criteria that must be satisfied before an incidental take permit can be issued.

STATE PLANS, POLICIES, REGULATIONS, AND LAWS

California Endangered Species Act

CESA (California Fish and Game Code Sections 2050–2098) established a state policy to conserve, protect, restore, and enhance any endangered species or any threatened species and its habitat. The California Fish and Game Commission is charged with establishing a list of endangered and threatened species. State agencies must consult with CDFW to determine whether a proposed project is likely to jeopardize the continued existence of any endangered or threatened species.

California Fish and Game Code Section 2081 has provisions that allow the take of a species listed as threatened or endangered by CESA. "Take" is defined in the code as any act that involves direct mortality or other actions that may result in adverse impacts when attempting to take individuals of a listed species. Under Section 2081, CDFW may issue a permit to authorize take for scientific, educational, or management purposes or take that is incidental to otherwise lawful activities.

LOCAL PLANS, POLICIES, REGULATIONS, AND ORDINANCES

Sonoma County Water Agency

The Sonoma County Water Agency released the Fish Habitat Flows and Water Rights Project (Fish Flow Project) Draft Environmental Impact Report (DEIR) for public review n August 19, 2016. The Fish Flow Project has five purposes:

1. Comply with National Marine Fisheries Service's Russian River Biological Opinion, which requires Sonoma Water to ask the State Water Board to lower minimum instream flow requirements in the Russian River and Dry Creek in order to improve conditions for coho and steelhead.

2. Improve conditions for threatened Chinook salmon, by better preserving cold water in Lake Mendocino, which can be released for the fall Chinook migration.

3. Replace a measuring requirement in Sonoma Water's water right permits, called the "hydrologic index," to better reflect conditions in the Russian River watershed.

4. Extend to 2040 Sonoma Water 's right to divert and re-divert 75,000 acre feet of water annually, in order to ensure a reliable water supply for more than 600,000 people.

5. Add existing points of diversion for Occidental Community Service District and the Town of Windsor as authorized points of diversion in Sonoma Water's water right permits.

While the Fish Flow Project has not yet been approved, if implemented, the project would alter the physical charactertics of the Russian River as summarized above.

Sonoma County General Plan

The *Sonoma County 2020 General Plan* was last updated in 2008 and is currently undergoing an update. The Open Space & Resource Conservation Element includes a goal and several policies for riparian corridors. The following goal is applicable to the proposed project:

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 or riparian vegetation, protection of water resources, flow control, bank stabilization and other riparian functions and values.

In addition, the general plan's Water Resources Element includes policies for water resources. The following goal is applicable to the proposed project:

Goal WR-1: Protect, restore and enhance the quality of surface and groundwater resources to meet the needs of all reasonable beneficial uses.

3.3.4 IMPACTS AND MITIGATION MEASURES

STANDARDS OF SIGNIFICANCE

Based on Appendix G of the State CEQA Guidelines, the project would have a significant impact on fisheries resources if it would:

- have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by CDFW or USFWS;

- 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; or

- conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan.

EFFECTS FOUND NOT TO BE SIGNIFICANT

No habitat conservation plan or natural community conservation plan has been adopted for the project site or the vicinity. Therefore, this issue is not discussed further in this section. The proposed project would not result in the construction of any permanent features in the Russian River or its tributaries that would substantially interfere with the movement of migratory fish or their nursery areas. Therefore, impacts related to movement are only discussed in relation to reduced flows from the WRF during the seasonal discharge prohibition period. Indirect effects of the project on migratory fish and their movement through the project area that could result from the reduction in river flow as a result of eliminating discharge to the river from the WRF during the seasonal discharge prohibition period are addressed below. Impacts to hydrology and water quality resulting from the proposed project are discussed in Section 3.2, "Hydrology and Water Quality".

METHODOLOGY

Project implementation would comply with the seasonal discharge prohibition between May 15 and September 30; the associated reduction in tertiary treated effluent entering the Russian River would result in a proportionate reduction in the organic and inorganic compounds entering the river. Thus, this impact assessment focuses on potential adverse changes to the Russian River from the reduced volume of river flow that would result from compliance with the prescribed seasonal discharge prohibition.

As summarized below, the methodology for the evaluation of fisheries resources focused on the potential for loss of habitat for listed species, and disruption of a migratory corridor

A reduction in river flow can affect aquatic habitat in various ways; primary among these is a simple reduction in the volume of space that can be occupied by resident fish and their benthic macroinvertebrate food base, or used as migratory pathways for anadromous species. To assess the project's impacts, previously performed studies of the relationship between river flow and

wetted width in the Russian River near Healdsburg were evaluated. These studies were considered to estimate the anticipated change to the river resulting from the proposed project.

In addition, a reduction in river flow can affect resident species by changing the quality of habitat; changes in water depth and water column velocity alter the usability of the wetted area. Previously published relationships between flow and usable habitat for rearing salmonid species were evaluated to identify potential changes in the availability of rearing habitat associated with reduced flows that would occur under the proposed project.

IMPACT ANALYSIS

Impact 3.3-1: Potential for Loss of Individuals, or Loss of Occupied Habitat of Endangered, Threatened, or Rare Species of Fish

The single element of the project that has the potential to affect fisheries resources is the elimination of the seasonal discharge of surface waters from the WWTP into the Russian River from May 15 through September 30. This action, ordered by the North Coast Regional Water Quality Control Board to protect river water quality, while enhancing fish habitat by improving water quality, would also result in a reduction in the volume of river flow directly adjacent to the WWTP and downstream. This could result in the loss of occupied habitat used by the special-status fish species identified in Table 3.3-1. The magnitude of reduction in river flow that would occur at any point in time would be controlled by the operational requirement that effluent discharges from the WWTP must provide a minimum of 100:1 dilution, relative to existing instream water volume. Thus, because the volume of effluent could not exceed the river flow by more than 1 percent at any time, eliminating the summer discharge would never reduce the river flow by more than 1 percent during this time period.

This small percentage reduction in river flow is not likely to substantially affect the habitats of the special-status species identified in Table 3.3-1, the the reasons that follow. During the summer months of June–September, flow in the Russian River near Healdsburg is generally at its lowest level of the year. A review of the U.S. Geological Survey record for Station 1146400 (Russian River near Healdsburg) over the past 3 years (2016–2018) reveals that mean monthly flows for June–September range from 98.4 to 263.5 cubic feet per second (cfs). A 1 percent reduction in flow equates to reductions of approximately 1–3 cfs. Flow reductions of these magnitudes generally do not alter the physical habitat of pools and runs, which are likely used during the summer months by the nonsalmonid special-status species identified in Table 3.3-1, including Russian River Roach, Hardhead, Russian River Tule Perch, River Lamprey, and Pacific Lamprey. These small flow changes would imperceptibly alter physical attributes such as wetted width, depth, and velocity of these habitat types.

For special-status salmonid species, the life stages most likely to be present in the segment of the project-influenced Russian River during the summer months are the rearing life stages (fry and juvenile), when water temperatures may be suitable in certain years. The likelihood of negative effects on habitat for rearing salmonids with small drops in flow can be inferred from the results of an instream flow study performed as part of the SCWA Fish Habitat Flows and Water Rights Project. The instream flow study (SCWA 2016b) was performed at four study sites within the Russian River watershed upstream of the Healdsburg WWTP, where existing water temperatures are more favorable for these species. This instream flow study uses models to predict the

functional relationship between flow and fish habitat, expressed as weighted usable area, which is an industry standard measure of fish habitat. Of the four study sites where these functional relationships were generated, the closest to the WWTP is a site located near Cloverdale, approximately 30 miles upriver of Healdsburg. The river morphology at the Cloverdale site is expected to be similar, though not exact, to that of the WWTP area due to the fact that no major tributaries enter the river between the two locations. Because of this geomorphic similarity the general trends of the functional relationships developed at the Cloverdale instream flow study site are informative for this impact assessment. For example, for all salmonid species/life stages modeled at the Cloverdale site, the habitat/flow trend lines show a slightly increasing or unchanged quantity of usable area when flows are reduced by 1-3 cfs over the range of 100–250 cfs. Thus, by extrapolating the general trend from Cloverdale to the Healdsburg segment of the river, the comparatively small reductions in streamflow associated with the project (about 1–3 cfs) would not be expected to result in a substantial reduction in rearing salmonid habitat. In fact, salmon and steelhead fry are predicted to experience an increase in usable area with reduction in streamflow within the range of 100-250 cfs.

Another potential impact of the project on fisheries resources is a reduction in the wetted width of riffle habitat. All habitat types (riffle, run, pool) support populations of benthic macroinvertebrates, an important food source for many fish species. Riffle habitat often provides high-quality habitat for invertebrate populations; thus, substantial reductions in wetted width at representative riffle transects could suggest impacts on the food base of fisheries resources. As part of its Fish Habitat Flows and Water Rights Project (SCWA 2016b), SCWA examined the changes in the wetted width of riffles at two reaches of the Russian River near Healdsburg. The investigation focused on demonstrating the differences in wetted width (and other parameters) under two flows at riffles that were deemed critical to canoeing. The results of this investigation that are pertinent to the WWTP Upgrade Project are shown in Table 3.3-2. Reductions in wetted width, expressed in units of feet per cfs, are very small, ranging from no measurable reduction to a reduction in width of approximately 1 foot. Thus, based on the summary of the investigation results presented in Table 3.3-2, a reduction in summer flow of 1–3 cfs is not expected to materially shrink wetted width in riffles throughout the project-affected segment of the Russian River, and thus would not affect habitat for benthic macroinvertebrates and for any rearing special-status fish species.

In addition, the summer reduction in river flow could potentially alter Russian River water temperatures, which could affect special-status fish species. The effluent temperature emanating from the WWTP is elevated relative to Russian River background conditions, which would have a tendency to increase temperatures downstream of the WWTP. Therefore, if the proportion of WWTP effluent is high, elimination of the effluent discharge under the proposed project would lower water temperatures in the river adjacent to the WWTP. However, because of the required effluent discharge limit of 100:1, no substantial temperature change at the point of discharge is anticipated. Furthermore, ambient air conditions (e.g., air temperature, relative humidity) generally control water temperatures in downstream reaches of the river, which further reduces the effects of water temperature changes associated with effluent discharge.

Because of the very small flow changes in the Russian River that would result from eliminating the summer effluent discharge from the WWTP, and the limited effects on fish habitat, operational impacts of the project on fishery resources would be ***less than significant***.

Table 3.3-2. Measured Reduction in Wetted Width at Select Riffle Transects in 2009 at Two Russian River Reaches, as a Function of Reduction in River Flow				
Reach: Rio Linda to Healdsburg Memorial Beach				
	June 16	August 2	Change	
River Flow at Healdsburg (cfs)	145	69	-76	
Riffle 1	Width (ft)	Width (ft)	Width (ft)	Reduction in wetted width (ft/cfs)
Transect 1	84	84	0	0.00
Transect 2	87	90	3	–
Transect 3	87	84	-3	0.04
Riffle 2				
Transect 1	177	165	-12	0.08
Transect 2	147	126	-21	0.27
Transect 3	126	111	-15	0.20
Riffle 3				
Transect 1	99	51	-48	0.63
Transect 2	48	45	-3	0.04
Transect 3	60	54	-6	0.08
Reach: Healdsburg Memorial Beach to Wohler				
	June 17	August 3	Change	
River Flow at Healdsburg (cfs)	142	69	-73	
Riffle 1	Width (ft)	Width (ft)	Width (ft)	Reduction in wetted width (ft/cfs)
Transect 1	81	78	-3	0.04
Transect 2	78	81	3	–
Transect 3	78	75	-3	0.04
Riffle 2				
Transect 1	60	57	-3	0.04
Transect 2	63	63	0	0.00
Transect 3	42	45	3	–
Riffle 3				
Transect 1	96	93	-3	0.04
Transect 2	90	90	0	0.00
Transect 3	87	87	0	0.00
Riffle 4				
Transect 1	138	81	-57	0.78
Transect 2	123	102	-21	0.29
Transect 3	147	66	-81	1.11
Notes: cfs = cubic feet per second; ft = feet; ft/cfs = feet per cubic foot per second Source: SCWA 2016				

Mitigation Measures: No mitigation is required.

Impact 3.3-2: Potential for Substantial Interference with the Movement of a Native Resident or Migratory Fish or Impedance of the Use of Native Wildlife Nursery Sites

As discussed previously, special-status anadromous salmonids use the lower reaches of the river as a migratory corridor to and from upstream spawning grounds; thus, the potential exists for project-related flow reductions to affect migrations. However, all migrations undertaken by adult salmonid species occur outside of the May 15–September 30 period of flow reduction that would result from project operation. Chinook Salmon move through the lower river in fall, Coho Salmon

migrate in October and November, and Steelhead migrate in the winter months. Downstream migrations by juveniles also typically occur outside the summer season. As described above, the potential effects on downstream migrants could include changes in water temperature, depth, or wetted area. However, the anticipated effects of the project on these habitat characteristics in the lower river would be negligible. Consequently, the project's potential impact on fish migrations would be ***less than significant***.

Mitigation Measures: No mitigation is required.

3.4 TERRESTRIAL BIOLOGICAL RESOURCES

This section addresses updates to environmental and regulatory conditions since certification of the 2005 EIR, and describes the terrestrial biological resources that may occur in or near the 2018 Proposed Area. It also evaluates potential impacts on terrestrial biological resources from project construction activities in the 2018 Proposed Area; compares potential effects with the effects described in the certified EIR; and identifies mitigation measures to reduce any new significant impacts to a less-than-significant level.

This evaluation is based on data collected during a field survey conducted on December 18, 2018, supplemented by information from previously completed environmental documents that addressed biological resources in the project vicinity.

3.4.1 SUMMARY OF FINDINGS FROM THE CERTIFIED EIR

Table 3.4-1 identifies significant project impacts on terrestrial biological resources, as presented in the certified 2005 EIR, and the mitigation measures identified to reduce those impacts. Impacts for which the analysis in the certified EIR reached conclusions of less than significant without mitigation or no impact are not listed here.

Table 3.4-1
Significant Impacts and Mitigation Measures Identified in the Certified EIR (2005)—Terrestrial Biological Resources

Impact	Mitigation Measures	Level of Significance Following Mitigation
Impact 3.4-1: Impacts on Special-Status Plants		
(Foreman Lane/Tayman Park portion) This portion would involve directional drilling under Dry Creek and a bridge crossing on Foss Creek. Although the riparian areas are dominated by nonnative grasses, there is potential for special-status plant species to occur. *(Foreman Lane/Mill Creek Road portion)* This portion could include conversion of annual grassland to vineyards or irrigated pasturelands on up to approximately 40 acres. Some annual grassland, mixed woodland, and oak woodland might be removed to install the pipeline and recycled water storage tank. Special-status plants have the potential to be found in annual grassland, mixed woodland, and oak woodland in the site for this option.	**Mitigation Measure 3.4-1: Avoid Significant Impacts on Special-Status Plants** Before project implementation, surveys for the special-status plants listed in Table 3.4.1 [of the 2005 EIR] shall be conducted by a qualified botanist, in accordance with USFWS and DFG [CDFW] guidelines and at the appropriate time of year when the target species would be in flower or otherwise clearly identifiable. If special-status plants found during focused surveys cannot be completely avoided, consultation with DFG, USFWS, or both shall be initiated, depending on the listing status of the plant. During this consultation, an appropriate mitigation plan shall be developed and approved by the relevant agencies. This plan may include one or more of the following measures: erecting protective fencing (for indirect impact), providing worker education, locating and enhancing another offsite population of the species, or transplanting the population to suitable nearby habitat.	LS

Table 3.4-1 Significant Impacts and Mitigation Measures Identified in the Certified EIR (2005)— Terrestrial Biological Resources		
Impact	**Mitigation Measures**	**Level of Significance Following Mitigation**
Impact 3.4-3: Impacts on Nesting Raptors		
A small portion of mixed woodland and annual grassland that provide nesting habitat for raptors would be removed. In addition, noise from construction might cause active nests to fail.	**Mitigation Measure 3.4-3: Protect Nesting Raptors** To the extent feasible, all grading and tree removal shall occur outside the raptor nesting season (September through January). If grading or tree removal is avoided during the raptor nesting season, no further mitigation shall be necessary. This measure applies to any heavy equipment activities that would occur within 500 feet of heritage trees in or adjacent to the project area. If grading within 500 feet of heritage trees or tree removal is proposed to take place during the raptor nesting season, a focused survey for raptor nests shall be conducted by a qualified biologist during the nesting season to identify active nests in the project area. The survey would be conducted no more than 30 days before the beginning of grading or tree removal. The results of the survey would be summarized in a written report to be submitted to DFG and the City of Healdsburg before the beginning of grading. If active nests are found, no remediation or other construction activity shall take place within 300 feet of the nest until the young have fledged (as determined by a qualified biologist). If no active nests are found during the focused survey, no further mitigation will be required.	LS
Impact 3.4-4: Impacts on Heritage Trees		
(Foreman Lane to Tayman Park) In constructing this option, the potential exists to cause damage to tree roots during the trenching or drilling operations. *(Foreman Lane/Mill Creek Road options)* Under this option, construction could result in the removal of heritage trees or damage to their root system. Indirectly, if landowners do not comply with existing regulations regarding the protection of oaks and instead convert their grassland to cropland, oaks in these grassland areas would	**Mitigation Measure 3.4-4: Protect Trees Subject to Tree Ordinances Implemented by City of Healdsburg and Sonoma County** Before construction activities begin, a qualified arborist shall conduct a heritage tree survey to determine whether heritage trees in the project area could be adversely affected. If no heritage trees would be affected, no further mitigation would be required. If heritage trees are present, the following mitigation shall be implemented: • Heritage trees within and adjacent to the project area shall be fenced 5 feet beyond the dripline of each tree to minimize disturbance to the trees and their root zones. Fences shall be maintained until all project activities are complete. No grading,	LS

Table 3.4-1 Significant Impacts and Mitigation Measures Identified in the Certified EIR (2005)— Terrestrial Biological Resources		
Impact	**Mitigation Measures**	**Level of Significance Following Mitigation**
be threatened either with removal or with harm from overwatering.	trenching, or movement of heavy equipment shall occur within fenced areas. • For heritage trees within Healdsburg city limits that cannot be avoided (i.e., trees that would be removed or trees located in areas where construction would occur within 5 feet of the dripline), a permit under Section 18105 of the Healdsburg Zoning Ordinance shall be obtained. Fencing shall be installed to protect the remaining portion within the dripline where activity would not occur, and any other requirements of the permit shall be implemented. In addition: o a tree location and preservation plan shall be prepared by a qualified arborist, and o removed heritage trees shall be replaced at a 3:1 ratio by the project applicant before or immediately following construction, at an appropriate site determined by the City. For portions of the proposed options that fall within the Valley Oak Habitat Combining District as designated by the County of Sonoma, removal of any valley oak tree or small valley oaks having a cumulative diameter at breast height greater than 60 inches shall be mitigated by implementing the mitigation measures outlined in Section 26-67-030 of the Sonoma County Zoning Ordinance. To ensure that landowners in the Valley Oak Habitat Combining District do not endanger oaks by converting their grassland to cropland, the City shall require evidence that all applicants for water supply intend to comply with the requirements in the Sonoma County Zoning Ordinance regarding the Valley Oak Habitat Combining District.	
Impact 3.4-5: Impacts on Jurisdictional Waters of the United States, Wetlands, and Riparian Habitat		
(Foreman Lane to Tayman Park and the Foreman Lane/Mill Creek portions) The construction activities associated with these portions of the system could potentially affect jurisdictional waters of the United States, including wetlands and riparian habitat.	**Mitigation Measure 3.4-5: Protect Waters of the United States, Wetlands, and Riparian Habitat** • Before project implementation, a delineation of jurisdictional waters of the United States, including wetlands and all riparian habitat, that would be affected by the proposed options shall be made by qualified biologists using the USACE methodology for wetland delineations.	LS

Table 3.4-1 Significant Impacts and Mitigation Measures Identified in the Certified EIR (2005)— Terrestrial Biological Resources		
Impact	**Mitigation Measures**	**Level of Significance Following Mitigation**
	• The applicant shall consult with USACE to determine whether the waters and wetlands occurring onsite fall under the jurisdiction of USACE. If it is determined that the waters and/or wetlands onsite fall under USACE jurisdiction, a permit under Section 404 of the CWA would be required from USACE. • RWQCB certification, pursuant to Section 401 of the CWA, and a streambed alteration agreement, pursuant to Section 1602 of the Fish and Game code, would likely be required for impacts to waters and wetlands onsite, including those waters and wetlands which are not considered under the jurisdiction of the USACE. Impacts on USACE jurisdictional waters of the United States, including wetlands, and DFG jurisdictional riparian habitat should be avoided, if feasible.	
Notes: CWA = Clean Water Act; DFG = California Department of Fish and Game (now known as California Department of Fish and Wildlife); EIR = environmental impact report; RWQCB = Regional Water Quality Control Board; USACE = U.S. Army Corps of Engineers; USFWS = U.S. Fish and Wildlife Service Source: Data compiled by AECOM in 2019, based on the certified 2005 EIR for the City of Healdsburg Wastewater Treatment Plant Upgrade Project		

3.4.2 ENVIRONMENTAL SETTING UPDATE

REGIONAL SETTING

The environmental and regional setting of the 2018 Program Expansion Area is substantially similar to that described in the 2005 EIR. The entire project area is in the North Coast Ranges Subregion of the California Floristic Province (Baldwin et al. 2012). This region features highly variable terrain characterized by prominent mountain peaks and ridgelines, steep canyons and drainages, river bottoms, and wide fertile valleys. The project area is generally bordered by the North Coast Range to the west and the Russian River to the east. As described in the 2005 EIR, the predominant land use in the region is agriculture (e.g., vineyards, field crops, and livestock grazing). Developed areas are common and include paved and graveled roads, home sites, horticultural landscaping, storage areas, and livestock housing. The climate is temperate, characterized by warm summers and cool winters, with mean annual precipitation of 42 inches falling entirely as rain during the winter and spring months. During the warmer months, fog regularly intrudes from the Petaluma Gap to the south and settles in the Russian River Valley.

The 2018 Proposed Area is situated along the base of the Outer North Coast Ranges in the western portion of the Russian River Valley, approximately three miles south of Healdsburg in unincorporated Sonoma County. Westside Road runs north to south along the western edge of the Russian River floodplain and generally bisects the 2018 Proposed Area. Topography of the project site slopes gently from west to east with elevations ranging from approximately 300 feet above mean sea level (amsl) to 160 feet amsl. Hydrology is comprised of natural precipitation and, during the dry season, supplemental irrigation of vineyards and pasture.

ENVIRONMENTAL SETTING

The 2018 Proposed Area includes two properties (i.e., future vineyard property and dairy/vineyard property) that would be served by the proposed recycled water pipeline extensions. Descriptions of the general topography, vegetation, and land use of each property and project-level component are included below.

Future Vineyard Property

The future vineyard property is characterized by rolling hills vegetated predominantly by nonnative annual grassland and scattered oak woodland, interspersed with barren rock outcrops and seasonal drainages. Developed areas include graveled access roads, an equipment/gravel storage area in the northern portion of the property, and a residence accessed from Westside Road. Grazing of cattle is the primary land use.

The proposed 8-inch recycled water pipeline alignment would extend from an existing 16-inch buried recycled water distribution line located in Syar Family Vineyards, approximately 0.5 mile due east of the future vineyard property (Exhibit 3.4-1). The proposed pipeline alignment runs from east to west for approximately 2,500 feet along an existing graveled vineyard access road located between a Syar reclamation pond to the north and vineyards to the south.

The vineyard access road where pipe installation is proposed is completely flat and devoid of vegetation. Surrounding habitat consists primarily of mowed ruderal vegetation and vineyards. Approximately two-thirds of the proposed pipeline extension is bounded to the north by a south-facing pond levee slope that is approximately 8-feet tall. Most of the levee slope is densely vegetated by ruderal species, except for the western end which is planted with several native trees and shrubs, including box elder (*Acer negundo*), California wild rose (*Rosa californica*), interior live oak (*Quercus wislizenii*), and coyote brush (*Baccharis pilularis*). On the opposite levee slope, dense willows (*Salix exigua*) and coyote brush border open water. The eastern end of the proposed pipeline traverses a developed area containing a rural residence, equipment storage areas, a large barn, and 10 medium-sized valley oak (*Quercus lobata*) trees scattered between buildings.

Dairy/Vineyard Property

The majority of dairy/vineyard property is comprised of developed and disturbed areas, including dairy production facilities, livestock housing and pens, composting facility, feed lots, manure pond, storage areas, vehicle/equipment parking, and access roads (Exhibit 3.4-2). Landscape features surrounding the dairy facility include dairy/vineyard property's vineyards to the north, pasture to the west, and annual grassland to the south and east. The entire property slopes from west to east, with irrigated pastures situated at the highest point in the western portion of the

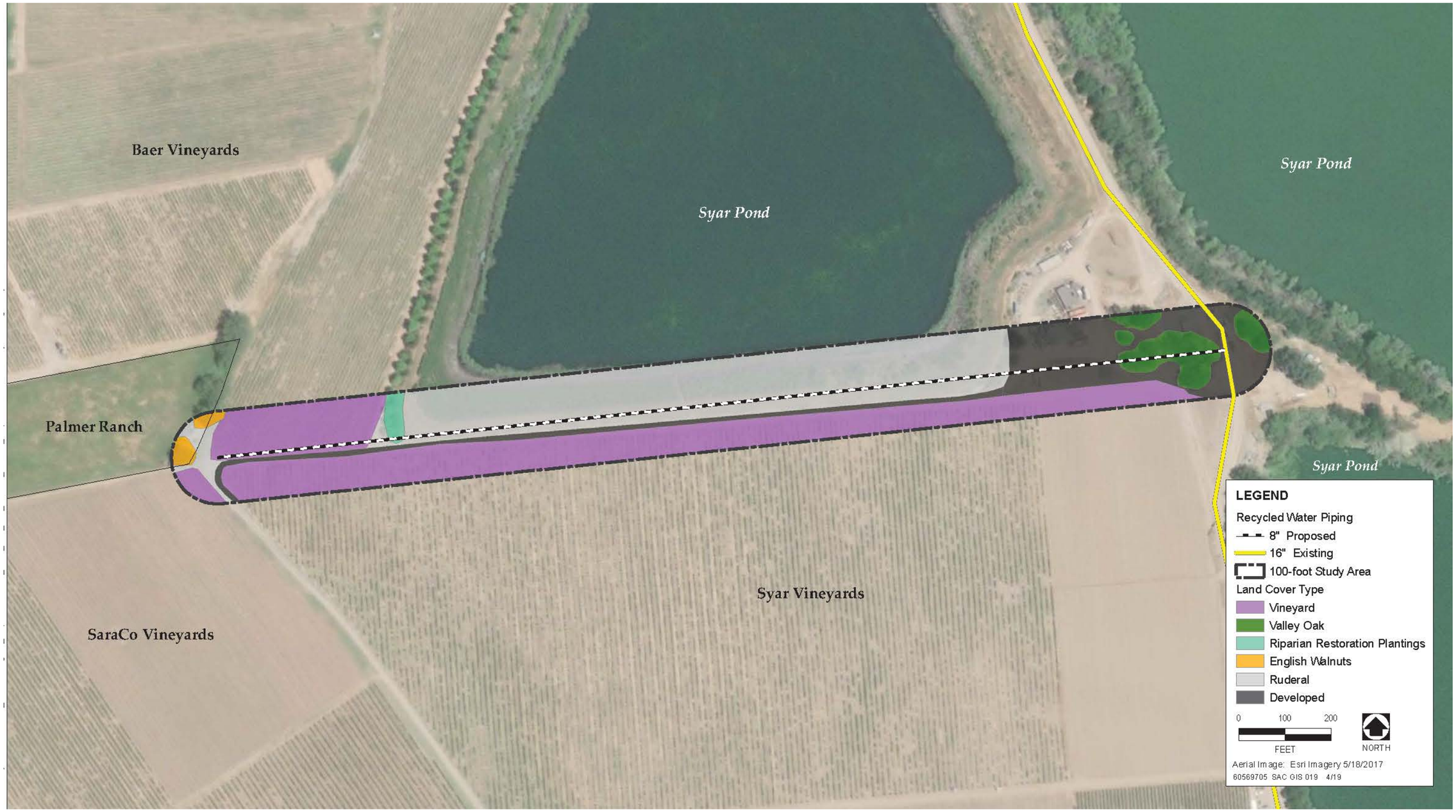
property. Soils consist of fine loam and clay loam (NRCS 2017). Patches of oak woodland are scattered amongst irrigated pastures and annual grassland, and a row of mature valley oak trees borders the south side of Wohlenberg Road; other trees on the property are part of planted horticultural landscaping.

The dairy/vineyard property pastures are seeded in early fall with forage grasses, relying upon natural precipitation in fall and winter months to germinate seed and maintain green pasture grasses as supplemental winter forage for dairy cattle. In late spring, when seasonal rains have ceased, pastures are irrigated and fertilized (Bucher, pers. comm., 2019). Currently, irrigation water is supplied from a groundwater well located on the neighboring Gallo Property to the west. Water is conveyed uphill from this well via an existing buried pipeline that follows a farm access road that runs from east to west along the south side of the dairy facilities. Irrigation water is stored in an existing 60,000-gallon redwood tank and several smaller concrete tanks located on the western side of the irrigated pasture (Exhibit 3.4-2). A proposed recycled water distribution system would be installed adjacent to this pipeline system and terminate at the existing storage tanks. The eastern extent of this distribution alignment would be routed to the south and east of the existing dairy facilities, extending through annual grasslands toward Westside Road, where it will connect with the proposed 12-inch recycled water pipeline alignment.

The proposed pipeline alignment extends east to west along the northern boundary of Hozz Road, across Westside Road, and terminates at the eastern boundary of dairy/vineyard property (Exhibit 3.4-2). Hozz Road is graveled and devoid of vegetation for its entire length, surrounded primarily by vineyards and ruderal habitat. Other landscape features in the immediate vicinity of Hozz Road include fallow field, several large native oaks and other trees, and a drainage ditch that parallels the south side of the road for two-thirds of its length. The topography of Hozz Road slopes gently eastward for approximately 2,450 feet, and then flattens out as it approaches the Russian River levee, where it dead ends. Riparian forest dominated by valley oak and Fremont cottonwood (*Populus fremontii*) is present along the banks of the Russian River to the east of the levee road.

BIOLOGICAL STUDY AREA

The biological study area (study area) encompasses the locations of all project components as well as adjacent lands that were surveyed as part of this evaluation. To support a conservative approach to project planning and environmental review, a reconnaissance-level biological survey was conducted in October 2018 within the proposed project areas that included the proposed 8- and 12-inch pipeline alignments, the proposed dairy/vineyard property recycled water distribution system, plus an adjacent 100-foot-wide corridor centered on the proposed project footprints. The biological survey included evaluations of vegetation type, identification and location of trees, potential habitat for sensitive species, and aquatic resources.



Source: Data compiled by AECOM in 2019

Exhibit 3.4-1 Land Cover Types—8-inch Recycled Water Pipeline Study Area

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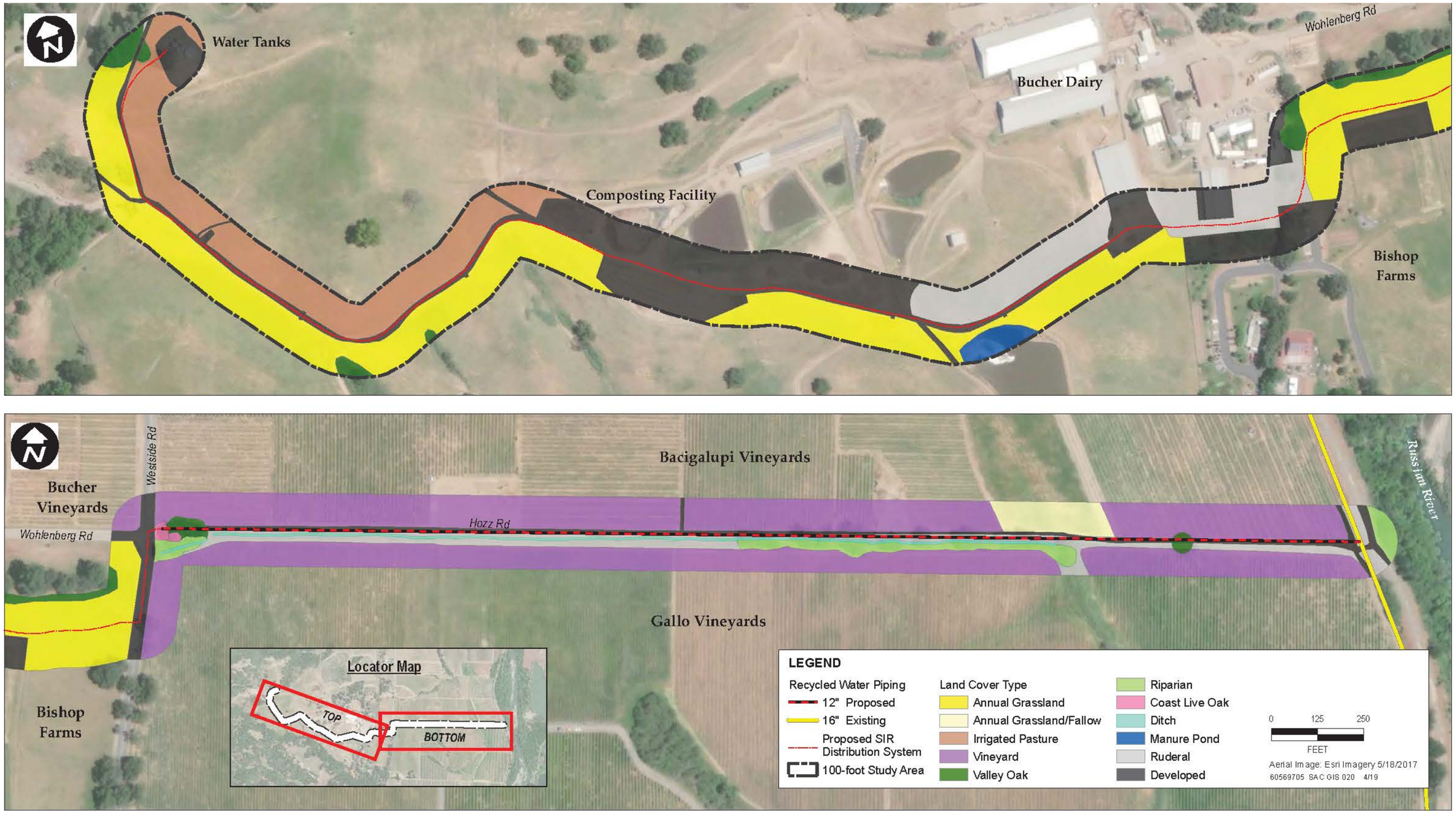

Source: Data compiled by AECOM in 2019

Exhibit 3.4-2 Land Cover Types—12-inch Recycled Water Pipeline and Distribution System Study Area

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Land Cover Types

The 2005 EIR (2005) describes vineyards as the dominant land cover type in the seasonal irrigation reuse program area, followed by annual grassland, oak woodland, riparian forest/scrub, and developed/disturbed areas. These land cover types are also present in the 2018 Proposed Area and 2018 Program Expansion Area. Additional land cover types in the biological study area that are not described in the 2005 EIR include irrigated pasture, ruderal vegetation, manure pond, and drainage ditch. Table 3.4-2 summarizes the land cover types and total acreage mapped within the study area.

Table 3.4-2
Land Cover Types in the Biological Study Area

Land Cover Type	Total Acres (Approximate)
Vineyard	15.43
Annual Grassland	9.04
Oak Woodland/Valley Oak	1.45
Riparian	0.77
Developed/Disturbed	9.94
Irrigated Pasture	3.59
Ruderal	8.26
Manure Pond	0.29
Drainage Ditch	0.33
Total	**49.09**

Source: Data compiled by AECOM in 2018 and 2019

Land cover types within the study area are described briefly below, and their locations are shown in Exhibits 3.4-1 and 3.4-2. Each land cover type description is followed by a discussion of the habitats and wildlife commonly found in that particular community.

Vineyard

The proposed 8- and 12-inch pipeline alignments are both situated within vineyards. Approximately 15 acres of vineyards were mapped within the study area. Another 40 acres of vineyards exist within the dairy/vineyard property, on a hill to the northeast of the dairy facility.

Common wildlife species that use vineyards for foraging include western scrub-jay (*Aphelocoma californica*), American crow (*Corvus brachyrhynchos*), European starling (*Sturnus vulgaris*), and American robin (*Turdus migratorius*).

Irrigated Pasture

The dairy/vineyard property contains approximately 150 acres of irrigated pasture that are drill-seeded annually (typically in the month of October) with Italian ryegrass (*Festuca perennis*). Approximately 3.6 acres of irrigated pasture were mapped within the study area, adjacent to the north side of the proposed dairy/vineyard property distribution system facilities. These pastures are irrigated in late spring with a combination of fresh water and supernatant from a nearby manure pond in a process called "fertigating" to provide moisture to pasture and keep it green for a few weeks at the beginning of the dry season (Bucher, pers. comm., 2019). Dairy cows are grazed

in the pastures when the forage is green and palatable. When rainfall or potable irrigation water sources are not available during the summer months, the pasture is fallow and the cows are grain fed (Bucher, pers. comm., 2019).

At the time of the survey, wildlife species observed in irrigated pastures were American crow, Brewer's blackbird (*Euphagus cyanocephalus*), common raven (*Corvus corax*), red-winged blackbird (*Agelaius phoeniceus*), and Botta's pocket gopher (*Thomoys bottae*). Although California ground squirrels (*Otospermophilus beecheyi*) would also normally be expected to inhabit this area, they were exterminated from the property several decades ago (Bucher, pers. comm., 2018).

Ruderal

Approximately 8.3 acres of ruderal vegetation exist in the study area, typically along access roads and other developed areas. This vegetation community is characterized by ongoing disturbance and dominated by nonnative weedy forbs such as spiny cocklebur (*Xanthium spinosum*), cheeseweed (*Malva parviflora*), prickly lettuce (*Lactuca serriola*), curly dock (*Rumex crispus*), field mustard (*Brassica rapa*), and English plantain (*Plantago lanceolata*). Nonnative annual grasses are also present in ruderal areas, including wild oats (*Avena fatua* and *A. barbata*) and Italian ryegrass. The levee slope north of the future vineyard pipeline extension is dominated by ruderal species, primarily field mustard and scattered coyote brush, intermixed with nonnative annual grasses and other forbs.

Within the dairy/vineyard property, ruderal areas are present in highly disturbed cattle pens adjacent to the proposed recycled water distribution system. Vegetation in these areas is dominated by coastal heron's bill (*Erodium cicutarium*) intermixed with field mustard, chicory (*Cichorium intybus*), doveweed (*Croton setiger*), cheeseweed (*Malva parviflora*), stinkwort (*Dittrichia graveolens*), field bindweed (*Convolvulus arvensis*), and medusahead grass (*Elymus caput-medusae*).

At the time of the survey, wildlife species observed using ruderal areas included house finch (*Haemorhous mexicanus*) and northern flicker (*Colaptes auratus*).

Developed and Disturbed Areas

Approximately 10 acres of developed and disturbed areas are present in the study area, including residential housing, commercial facilities, access roads, livestock containment areas, dairy production facilities, landscape plantings, and cultivated gardens. Although the majority of landscape plants are nonnative, several large valley oak trees are present in and adjacent to developed areas, including within the eastern extent of the proposed 8-inch recycled water pipeline extension and along the proposed recycled water distribution system in the dairy/vineyard property.

Wildlife commonly observed in developed and disturbed areas include Brewer's blackbird, American robin, western scrub jay, American crow, and northern flicker.

Manure Pond

A manure pond is situated in the southern portion of the dairy/vineyard property, to the south of and downslope from the proposed recycled water distribution system. In order to maintain

organic certification, dairy/vineyard property is required to use liquid manure stored and sourced from this pond to fertilize irrigated pastures. In addition, the pond is regularly mucked out and the solid 'sludge' is either used on-site for the production of compost for dairy/vineyard property's vineyards, or sold as fertilizer. An existing buried pipeline system follows an access road from the manure pond to pastures, and will remain separate from the proposed recycled water distribution system.

Because of steep slopes, lack of vegetation, and the highly disturbed nature of the manure pond, wildlife is not expected to use this area for foraging, nesting, cover, or migration.

Annual Grassland

Approximately 9 acres of annual grassland are located to the south and east of the dairy/vineyard property's dairy facility, extending to the neighboring Bishop Farms. This area is mowed regularly to suppress weeds and to maintain a firebreak along Westside Road. On the neighboring Bishop Farms property, annual grasslands are grazed by sheep. Additional annual grassland vegetation exists in a fallow field in the Bacigalupi Property to the north of the proposed dairy/vineyard recycled water pipeline extension, approximately 0.01-acre of which overlaps with the study area.

Vegetation in annual grassland is dominated by nonnative grasses, such as wild oats, ripgut brome (*Bromus diandrus*), foxtail barley (*Hordeum murinum* ssp. *leporinum*), Bermuda grass (*Cynodon dactylon*), and soft chess brome (*Bromus hordeaceus*). Nonnative forbs are also common, including hairy vetch (*Vicia villosa*), short-pod mustard (*Hirschfeldia incana*), chickweed (*Stellaria media*), and filaree (*Erodium* spp.).

Annual grassland in the study area is expected to support common small mammals, such as deer mouse (*Peromyscus maniculatus*) and California vole (*Microtus californicus*). These small mammals are prey for a variety of raptor species, including American kestrel (*Falco sparverius*), northern harrier (*Circus cyaneus*), white-tailed kite (*Elanus leucurus*), and red-tailed hawk (*Buteo jamaicensis*). Other birds that may use these grasslands include loggerhead shrike (*Lanius ludovicianus*), western meadowlark (*Sturnella neglecta*), and yellow-billed magpie (*Pica nuttalli*). Reptiles expected to occur in grasslands include gopher snake (*Pituophis melanoleucus*) and western fence lizard (*Sceloporus occidentalis*).

Drainage Ditch

An approximately 0.3-acre drainage ditch is located approximately 30 feet south of Hozz Road (Exhibit 3.4-2). This ditch begins at a 36-inch corrugated metal culvert pipe located along Westside Road, approximately 75 feet south of the junction with Hozz Road. From the culvert along Westside Road, the ditch bends northward toward Hozz Road for approximately 130 feet, where it is interrupted by a 24-inch concrete culvert and ditch crossing, presumably to allow vehicle access over the ditch from Hozz Road to Gallo Vineyards. From here, the ditch jogs eastward to parallel the south side of Hozz Road for another 2,300 feet.

The entire ditch is earth-lined, with occasional reinforcement of broken concrete-block and rip-rip along its north bank. There are no berms associated with this ditch, and it does not appear to be maintained. For approximately 1,400 feet—or two-thirds of its length—the ditch is about 4 feet deep and 10 feet wide, with no tree cover. At the time of the survey, the western end of the ditch nearest to Westside Road exhibited surface hydrology characterized by shallow, slow-moving

water that flowed toward the concrete culvert south of Hozz Road. Ditch banks in this area are vegetated by herbaceous species and several nonnative acacia (*Acacia dealbata*) trees. East of the concrete culvert, soils were moist for another 800 feet of ditch length. The entire western section of the ditch is densely vegetated with herbaceous ruderal species characteristic of moist, disturbed areas, including Italian ryegrass, cheeseweed, johnsongrass (*Sorghum halapense*), water pepper (*Persicaria hydropiperoides*), annual beard grass (*Polypogon monspeliensis*), pennyroyal (*Mentha pulegium*), and crabgrass (*Digitaria sanguinalis*).

In contrast to the western portion, the eastern one-third of the ditch is narrow and deep (approximately 6 feet deep and 4 feet wide), with a cobble and rip-rap substrate and little herbaceous vegetation. At the time of the survey, this section of the ditch was completely dry, with no evidence of recent surface hydrology. Vegetation in this area is dominated by native riparian trees rooted into ditch banks and a sparse understory of wild oats. The ditch abruptly shallows to less than 1 foot deep as it approaches its terminus, where sloping topography transitions to a low, flat terrace. The native tree canopy also ends here (Exhibit 3.4-2). This transitional area appears to have been previously disturbed and is characterized by a 4-foot tall mounded berm at the ditch terminus. Vegetation on the mounded berm is dominated by ruderal species such as field mustard and Himalayan blackberry (*Rubus armeniacus*). The land extending to the north and east of the ditch terminus is completely flat and dominated by annual grasses, ruderal vegetation, and vineyards.

The drainage ditch may provide habitat for dispersing amphibians and reptiles, including California red-legged frog (*Rana draytonii*), foothill yellow-legged frog (*Rana boylii*), and western pond turtle (*Emys marmorata*). At the time of survey, gopher snake and western fence lizard were observed using the drainage ditch.

Riparian

The riparian land cover type is defined by woody (i.e., tree and/or shrub) vegetation that overlaps with aquatic features. The drainage ditch described above supports approximately 0.8 acre of riparian vegetation consisting of a small clump of nonnative acacia trees along Westside Road, and a larger, linear patch of native riparian trees in the eastern extent of the ditch (Exhibit 3.4-2). Native riparian vegetation in the drainage ditch consists of a moderate to dense canopy of mixed valley oak (*Quercus lobata*), coast live oak (*Q. agrifolia*), black oak (*Q. kelloggii*), California bay (*Umbellularia californica*), California buckeye (*Aesculus californica*), arroyo willow (*Salix lasiolepis*), and Oregon ash (*Fraxinus latifolia*).

A number of birds are expected to nest in the riparian habitat, including western kingbird (*Tyrannus verticalis*), western scrub-jay, Bewick's wren (*Thryomanes bewickii*), and several species of raptors. The trees in the riparian habitat provide nesting habitat for several special-status species, including white-tailed kite and osprey (*Pandion haliaetus*). Mammals expected to occur in riparian habitat in the project area include coyote (*Canis latrans*), raccoon (*Procyon lotor*), and opossum (*Didelphis viginiana*). Reptiles such as gopher snake, southern alligator lizard (*Gerrhonotus multicarinatus*), and western fence lizard are also likely to occur.

Native Oak Woodland/Valley Oaks

Native oak woodland and several individual valley oak trees were mapped in the study area, comprising approximately 1.5 acre of native oak canopy cover. Oak woodland habitat is present in small, isolated patches along the western edge of the dairy/vineyard property, adjacent to the proposed distribution system facilities, and in riparian areas along the drainage ditch to the south of Hozz Road (Exhibit 3.4-2). Oak woodlands are dominated by valley oak and coast live oak, with an understory of annual grassland species. In addition to oak woodland, native oak canopy cover in the study area also includes several medium- to large-sized individual valley oak trees growing in disturbed and developed areas, typically along roadsides and next to buildings.

Oak woodland habitat and individual oak trees provide cover, forage, and breeding habitat for many wildlife species. Common wildlife species associated with native oak trees include western scrub jay, northern flicker, California quail (*Callipepla californi*a), oak titmouse (*Baeolophus inornatus*), spotted towhee (*Pipilo maculates*), acorn woodpecker (*Melanerpes formicivorus*), mule deer (*Odocoileus hemionus*), and western gray squirrel (*Sciurus griseus*).

3.4.3 Regulatory Setting Update

Some regulations related to biological resources have been updated or revised since certification of the 2005 EIR. Therefore, key regulatory and conservation planning issues applicable to the proposed project are listed and discussed below.

Federal Plans, Policies, Regulations, and Laws

Federal Endangered Species Act

Regulations in the federal Endangered Species Act (ESA) of 1973 and subsequent amendments govern the conservation of endangered and threatened species and the ecosystems on which they depend. The U.S. Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS) oversee the ESA. USFWS has jurisdiction over plants, wildlife, and resident fish and NMFS has jurisdiction over anadromous fish and marine fish and mammals. ESA Section 7 requires federal agencies to consult with USFWS and NMFS if they determine that a proposed project may affect a listed species or destroy or adversely modify designated critical habitat. Under Section 7, the federal lead agency must obtain incidental take authorization or a letter of concurrence stating that the project is not likely to adversely affect federally listed species. Section 7 requirements do not apply to nonfederal actions.

Projects that do not involve a federal action, but that would adversely affect (result in take of) a federally listed species, must comply with ESA Section 10. To comply with Section 10, the project proponent must prepare a habitat conservation plan, which results in the issuance of an incidental take permit by USFWS and/or NMFS.

Clean Water Act

Section 404

Section 404 of the Clean Water Act (CWA) requires project proponents to obtain a permit from the U.S. Army Corps of Engineers (USACE) before performing any activity that involves any

discharge of dredged or fill material into waters of the United States. Waters of the United States include navigable waters of the United States, interstate waters, all other waters where the use or degradation or destruction of the waters could affect interstate or foreign commerce, tributaries to any of these waters, and wetlands that meet any of these criteria or that are adjacent to any of these waters or their tributaries. Many surface waters and wetlands in California meet the criteria for waters of the United States.

Section 402

CWA Section 402 regulates construction-related stormwater discharges to surface waters through the National Pollutant Discharge Elimination System program, which is administered by the U.S. Environmental Protection Agency. In California, the State Water Resources Control Board is authorized by the U.S. Environmental Protection Agency to oversee the program through the regional water quality control boards (RWQCBs), in this case, the North Coast (Region #1) RWQCB.

Section 401

CWA Section 401(a)(1) specifies that any applicant for a federal license or permit to conduct any activity that may result in any discharge into waters of the United States shall provide the federal licensing or permitting agency with a certification that any such discharge will not violate state water quality standards. The RWQCBs administer the Section 401 program with the intent of prescribing measures for projects that are necessary to avoid, minimize, and mitigate adverse effects on water quality and ecosystems.

STATE PLANS, POLICIES, REGULATIONS, AND LAWS

California Endangered Species Act

Pursuant to the California Endangered Species Act (CESA) and Section 2081 of the Fish and Game Code, a permit from the California Department of Fish and Wildlife (CDFW) is required for projects that could result in the take of a species state listed as threatened or endangered. Under CESA, "take" is defined as an activity that would directly or indirectly kill an individual of a species, but the definition does not include "harm" or "harass," as the federal act does. As a result, the threshold for a take under CESA is higher than that under the ESA.

California Fish and Game Code

Several sections of the California Fish and Game Code apply to the project, as described below.

Fully Protected Species

Protection of fully protected species is described in Sections 3511, 4700, 5050, and 5515 of the California Fish and Game Code. These statutes prohibit take or possession of fully protected species and do not provide for authorization of incidental take of fully protected species. CDFW has informed nonfederal agencies and private parties that their actions must avoid take of any fully protected species.

Section 1602—Streambed Alteration

All diversions, obstructions, or changes to the natural flow or bed, channel, or bank of any river, stream, or lake in California that supports wildlife resources are subject to regulation by CDFW under Section 1602 of the California Fish and Game Code. Under Section 1602, it is unlawful for any person, governmental agency, or public utility to do the following without first notifying CDFW:

- substantially divert or obstruct the natural flow of, or substantially change or use any material from, the bed, channel, or bank of any river, stream, or lake; or

- deposit or dispose of debris, waste, or other material where it may pass into any river, stream, or lake.

A "stream" is defined as a body of water that flows at least periodically or intermittently through a bed or channel that has banks and supports fish or other aquatic life. This definition includes watercourses with a surface or subsurface flow that supports or has supported riparian vegetation. CDFW's jurisdiction within altered or artificial waterways is based on the value of those waterways to fish and wildlife. A CDFW streambed alteration agreement must be obtained for any project that would result in an impact on a river, stream, or lake.

Sections 3503 and 3503.5—Protection of Bird Nests and Raptors

Section 3503 of the California Fish and Game Code states that it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird. Section 3503.5 specifically states that it is unlawful to take, possess, or destroy any raptors (i.e., species in the orders Falconiformes and Strigiformes), including their nests or eggs. Typical violations of these codes include destruction of active nests resulting from removal of vegetation in which the nests are located. Violation of Section 3503.5 could also include failure of active raptor nests resulting from disturbance of nesting pairs by nearby project construction. This statute does not provide for the issuance of any type of incidental take permit.

Section 3513—Protection of Migratory Birds

This section protects California's migratory birds by making it unlawful to take or possess any migratory nongame bird as designated by the federal Migratory Bird Treaty Act (MBTA), except as authorized in regulation adopted by the federal government under provisions of the MBTA (DOI 2017).

Section 3800(a)—Protection of Nongame Birds

All birds occurring in California that are not resident game birds, migratory game birds, or fully protected birds are nongame birds. It is unlawful to take any nongame bird except as provided in Section 3800(a) of the California Fish and Game Code or in accordance with regulation of the California Fish and Game Commission or, when relating to mining operation, a mitigation plan approved by CDFW.

Section 4150—Protection of Nongame Mammals

Bats are nongame mammals under California Fish and Game Code Section 4150. As such, bats are protected from being taken or possessed without a permit (Fish and Game Code Section 4152); "take" means hunt, pursue, catch, capture, or kill, or attempt any of these (Section 86). The State of California may pursue civil damages for violation of these sections.

Porter-Cologne Water Quality Control Act

Under the Porter-Cologne Act, waters of the state fall under the jurisdiction of the appropriate RWQCB, in this case, the North Coast RWQCB. The RWQCB must prepare and periodically update water quality control plans (basin plans). Each basin plan establishes numerical or narrative water quality objectives to protect established beneficial uses, which include wildlife, fisheries, and their habitats. Projects that affect wetlands or waters of the state, including groundwater, must meet discharge requirements of the RWQCB, which may be issued in addition to a water quality certification or waiver under Section 401 of the CWA.

LOCAL PLANS, POLICIES, REGULATIONS, AND ORDINANCES

Sonoma County General Plan 2020

The Open Space and Resource Conservation Element of the *Sonoma County General Plan 2020* (Sonoma County 2016) includes the following goals, objectives, and policies related to biotic habitats and riparian corridors that apply to the proposed actions:

Goal OSRC-7: Protect and enhance the County's natural habitats and diverse plant and animal communities.

- **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.
- **Objective OSRC-7.3:** Establish development guidelines to protect designated Biotic Habitat Areas and assure that the quality of these natural resources is maintained.
- **Objective OSRC-7.4:** Where appropriate, support regulatory efforts by other agencies to protect biotic habitat.
- **Objective OSRC-7.5:** Maintain connectivity between natural habitat areas.
- **Objective OSRC-7.6:** Establish standards and programs to protect native trees and plant communities.
- **Objective OSRC-7.7:** Support use of native plant species and removal of invasive exotic species.
- **Objective OSRC-7.8:** Encourage voluntary efforts to restore and enhance biotic habitat.

- **Policy OSRC-7b:** Provide for the protection of designated Biotic Habitat Areas, Marshes and Wetlands, and Habitat Connectivity Corridors through site assessment and adequate mitigation.

- **Policy OSRC-7c:** Notify discretionary and ministerial permit applicants of possible requirements of Federal and State regulatory agencies related to jurisdictional wetlands or special status species.

- **Policy OSRC-7k:** Identify, preserve, and protect native trees and woodlands, minimize the removal of native trees and fragmentation of woodlands, and require any trees removed to be replaced.

- **Policy OSRC-7n:** Encourage landowners to voluntarily participate in a program that protects officially designated individual trees or groves that either have historical interest or significance or have outstanding size, age, rarity, shape or location.

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.

- **Objective OSRC-8.1:** Designate all streams shown on U.S. Geological Survey (USGS) 7.5 minute quadrangle topographic maps as of March 18, 2003, as Riparian Corridors and establish streamside conservation areas along these designated corridors.

- **Objective OSRC-8.2:** Provide standards for land use and development in streamside conservation areas that protect riparian vegetation, water resources and habitat values while considering the needs of residents, agriculture, businesses and other land users.

- **Objective OSRC-8.3:** Recognize and protect riparian functions and values of undesignated streams during review of discretionary projects.

    - **Policy OSRC-8a:** "Riparian Corridors" designated in the Open Space and Resource Conservation Element are classified as the "Russian River Riparian Corridor," "Flatland Riparian Corridors," and "Other Riparian Corridors."

    - **Policy OSRC-8e:** Prohibit, except as otherwise allowed, grading, vegetation removal, agricultural cultivation, structures, roads, utility lines, and parking lots within any streamside conservation area.

Sonoma County Municipal Code

Chapter 11—Construction Grading and Drainage Ordinance

The Sonoma County Construction Grading and Drainage Ordinance requires obtainment of a grading permit before commencing any construction grading or related work, including preparatory land clearing, vegetation removal, or other ground disturbance, except where exempted from permit requirements by Subsection C of the ordinance.

Article 14 of the Sonoma County Construction Grading and Drainage Ordinance lists standards for construction design. Best management practices related to the protection of biological resources include the following:

- Maintenance of natural and existing drainage patterns.
- Prohibition of the storage of materials that could contribute to pollution in or adjacent to a watercourse.
- Prohibition of the removal or disturbance of trees and other vegetation except in compliance with the following requirements:
    - The limits of work-related ground disturbance are clearly identified and delineated on the approved plans and specifications and defined and marked on the site to prevent damage to surrounding trees and other vegetation.
    - Trees and other vegetation within the limits of work-related ground disturbance that are to be retained are identified and protected from damage by marking, fencing, or other measures.
- Replanting disturbed surfaces in compliance with the approved plans and specifications and the following requirements:
    - Topsoil removed in preparation for construction grading and drainage stored on or near the site and protected to prevent soil loss while the work is underway. Topsoil shall not be stored on top of root systems of trees intended to be preserved. Topsoil shall be restored to disturbed surfaces prior to revegetation.
    - Mulching, seeding, planting of groundcover, shrubs, or trees, or other suitable stabilization measures to protect disturbed surfaces to minimize soil loss, and to maximize slope stability. Use of drought-tolerant, fire resistant native plant species is encouraged; use of invasive plant species is prohibited.
    - Revegetation as soon as practical after vegetation removal, but in all cases prior to final inspection.
- Construction grading set back fifty feet (50') from the high water mark of lakes, ponds, and reservoirs, unless a greater setback is required by the general plan or zoning code.
- Construction grading set back twenty-five feet (25') from the top of the higher bank of streams, unless a greater setback is required by the general plan or zoning code.
- Construction grading set back from wetlands in compliance with the requirements in [Table 3.4-3], unless a greater setback is required by the general plan or zoning code. The setback requirements do not apply where all necessary state and federal permits, approvals, or authorizations to fill the wetlands are obtained.

Table 3.4-3 Wetland Setback Requirements	
Type of Wetland	**Setback**
Wetland designated in the zoning code	100 feet from the delineated wetland boundary
All other wetlands	50 feet from the assessed wetland boundary, unless the wetland assessment recommends a different setback
Source: Article 14 of the Sonoma County Construction Grading and Drainage Ordinance	

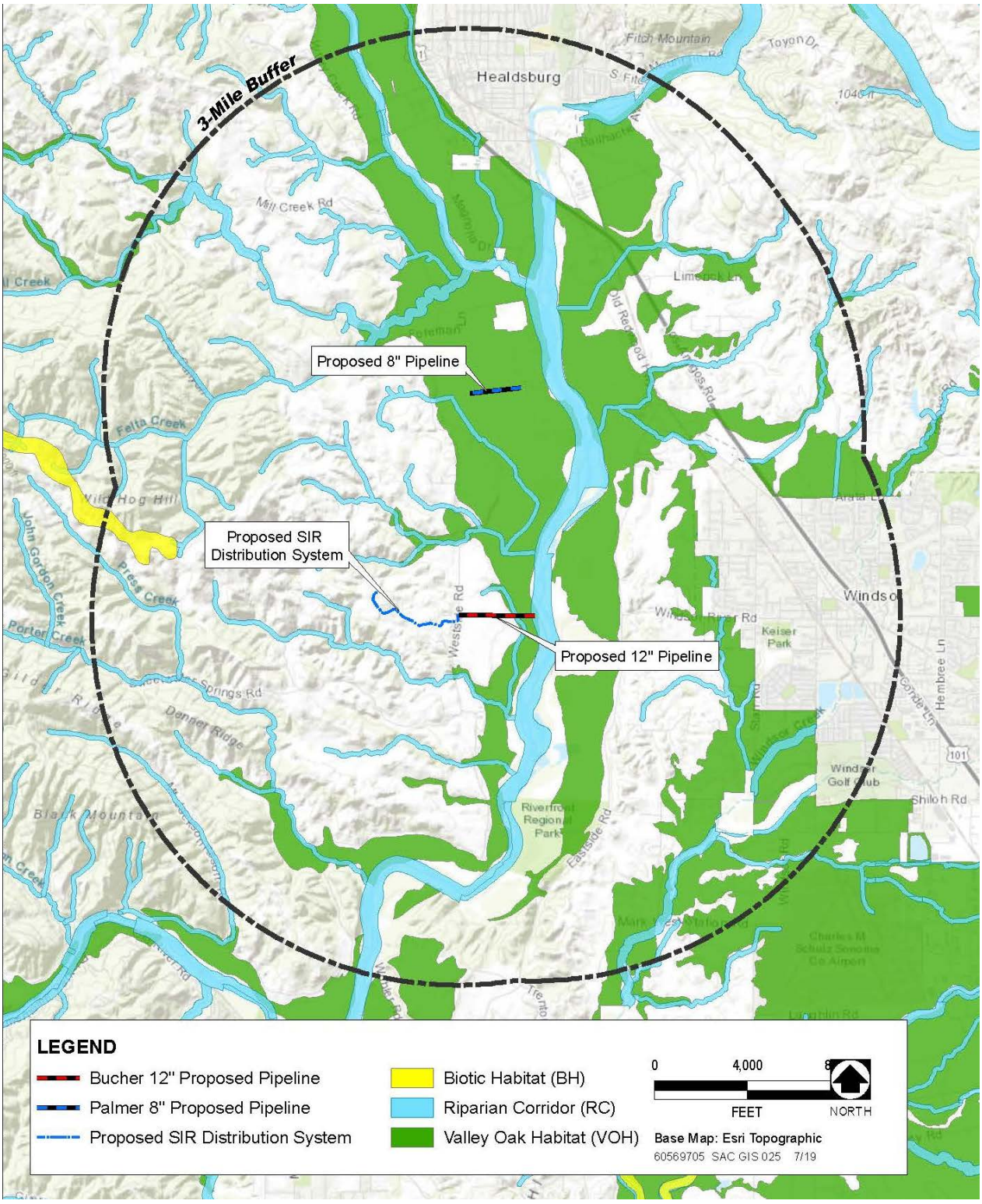
Chapter 26—Sonoma County Zoning Regulations

Articles 65, 66, and 67 of the Sonoma County Zoning Regulations are related to protection of biologicxal resources and are described briefly below.

- **Article 65—Riparian Corridor Combining Zone.** Sonoma County established the Riparian Corridor (RC) combining zone to protect biotic resource communities and habitat areas within and along riparian corridors. The RC combining zone applies to designated streams and includes the stream bed and bank and an adjacent streamside conservation area on each side of the stream as measured from the top of the higher bank. Approximate streamside conservation areas are indicated in the Sonoma County zoning database (Exhibit 3.4-3). Where the drip line of existing riparian trees with trunks located wholly or partially within the streamside conservation area extends beyond the streamside conservation area boundary, as indicated in the zoning database, the boundary would be increased to include the outer drip line of the riparian trees.

- **Article 66—Biotic Habitat Combining Zone.** The Biotic Habitat (BH) combining zone is applied to the areas that are designated as Biotic Habitat Areas in the Sonoma County General Plan Open Space and Resource Conservation Element (Exhibit 3.4-3). Requirements that may apply to properties within the BH combining zone include biotic resource assessment to develop mitigation measures where a discretionary project could adversely impact a designated critical habitat area, and design of building envelopes that avoid biotic habitat areas.

- **Article 67—Valley Oak Habitat Combining District.** To protect and enhance valley oaks and valley oak woodland in the Valley Oak Habitat (VOH) Combining District (Exhibit 3.4-3), Sonoma County requires mitigation to address the cutting down or removal of large valley oaks, or small valley oaks with a cumulative diameter at breast height greater than 60 inches. In addition, it requires that any development project in the VOH District that is subject to design review to also adopt measures to protect and enhance valley oaks in the project area.



Source: Sonoma County 2019

Exhibit 3.4-3 Sonoma County General Plan Riparian Corridor and Biotic Habitat Combining Zones and Valley Oak Habitat Combining District in the Vicinity of the 2018 Proposed Area

Chapter 36—Vineyard and Orchard Development and Agricultural Grading and Drainage Ordinance

The Sonoma County Vineyard and Orchard Development and Agricultural Grading and Drainage Ordinance (aka VESCO) requires that landowners apply for and obtain a Vineyard and Orchard Development Permit before commencing any vineyard or orchard development or related work, including preparatory land clearing, vegetation removal, or other ground disturbance, except where exempted from permit requirements by Subsection D (e.g., hobby vineyards, replanting, and inter-planting in existing vineyards/orchards). Section 36.04.010 of the VESCO requires a biotic resource assessment for any new vineyard or orchard planting, and a focused species assessment for any vineyard or orchard replanting within a designated critical habitat area. Article 16 (Standards) includes detailed requirements for the protection of wetlands and other aquatic resources, and limits the removal of trees and other vegetation.

3.4.4 SENSITIVE BIOLOGICAL RESOURCES

Sensitive biological resources include those that are afforded special protection through CEQA, the California Fish and Game Code (including but not limited to CESA), the ESA, and the CWA. Special-status species addressed in this section include plants and animals that are legally protected or that are otherwise considered sensitive by federal, state, or local resource conservation agencies and organizations. These include species that are state or federally listed as rare, threatened, or endangered; those considered as candidates or proposed for listing; species identified by CDFW or USFWS as species of concern; and plants considered by the California Native Plant Society (CNPS) to be rare, threatened, or endangered (Lists 1 and 2).

SPECIAL-STATUS SPECIES

This section provides current information on wildlife and plant species that have been afforded special recognition by federal, state, or local resource agencies and organizations (e.g., USFWS, CDFW, CNPS) and that have the potential to occur in the study area. The potential for occurrence of special-status species was assessed through a review of existing documentation supplemented with results of a reconnaissance-level field survey conducted by an AECOM biologist on October 18, 2018. Focused surveys for special-status species were not conducted for this project. The reconnaissance-level survey included a habitat evaluation for all potentially occurring special-status species. Special-status fish species are addressed in Section 3.3, "Fisheries Resources."

Special-Status Terrestrial Wildlife

AECOM biologists compiled a list of special-status wildlife species with potential to occur in the study area. The list was compiled using information obtained from the USFWS Information for Planning and Consultation database (USFWS 2018), and a search of the California Natural Diversity Database (CNDDB) (CDFW 2019) for the following local USGS 7.5-minute quadrangles: Warm Springs Dam, Geyserville, Jimtown, Healdsburg, Guerneville, Big Foot Mtn., Cloverdale, Asti, The Geysers, Whispering Pines, Mount St. Helena, Mark West Springs, Santa Rosa, Sebastopol, Camp Meeker, Duncans Mills, Cazadero, Fort Ross, and Tombs Creek (USGS 2013). Exhibit 3.4-4 shows the locations of special-status wildlife species identified in the CNDDB within a 3-mile radius of the project site.

Database search results initially identified a total of 21 special-status wildlife species in the regional vicinity of the study area. Of these, six species were determined to have no potential to occur in the study area because of a lack of habitat (e.g., perennial stream, vernal pool, seasonal wetland, North Coast coniferous forest, freshwater marsh, vertical cliffs), or the project area is outside of the species' range (e.g., Point Reyes peninsula).

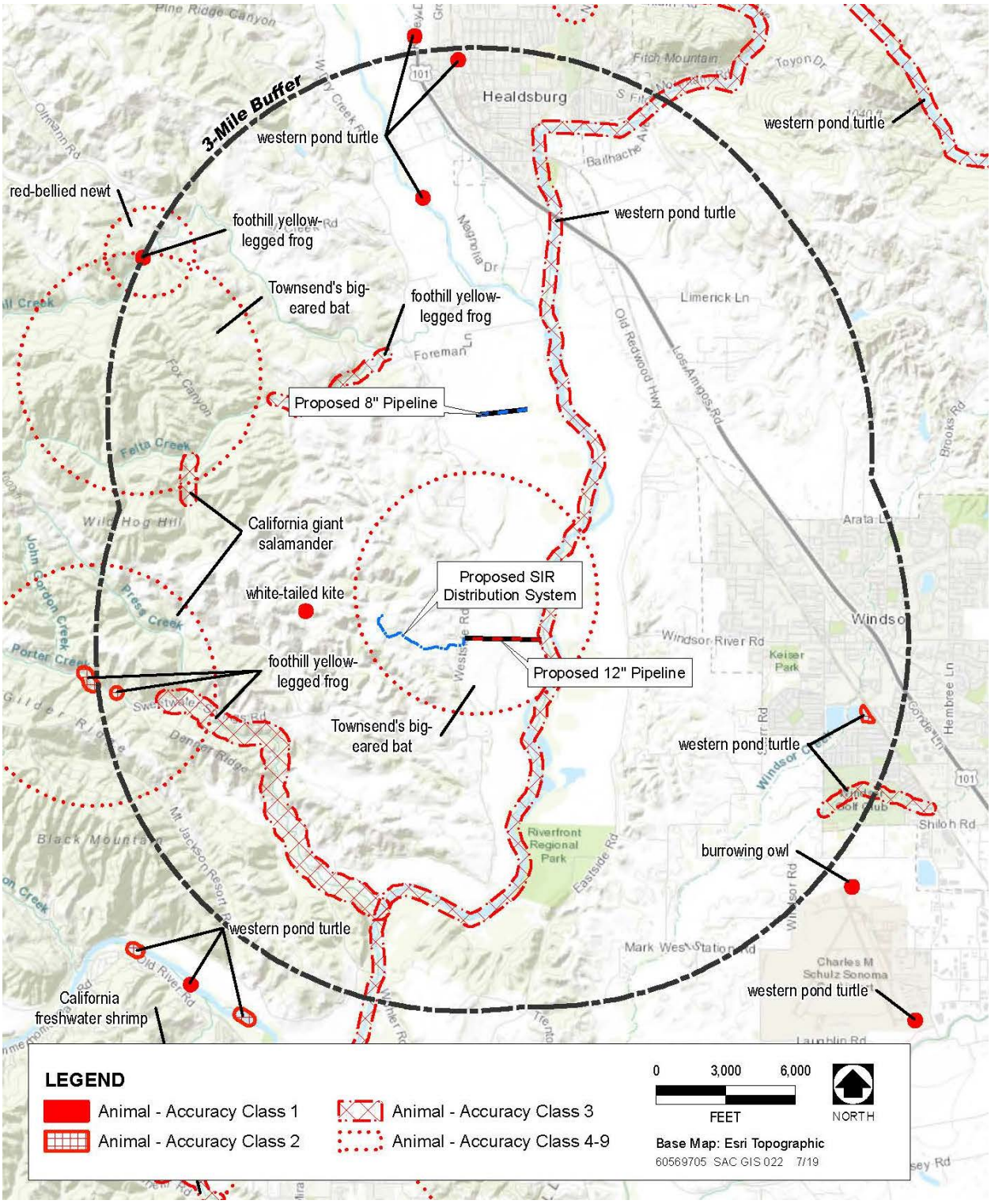
The remaining 15 special-status wildlife species have some potential to occur within the study area. CNDDB occurrences within 3 miles of the project site have been recorded for nine of the 15 species known or with some potential to occur in the study area (Exhibit 3.4-4). Some special-status wildlife records in the vicinity are associated with habitats (i.e., stream, vernal pool) that are not present in the study area and other species we determined to be unlikely to occur. This further limited the number of species with potential to occur. Table 3.4-4 provides descriptions of these species and information regarding their listing status, distribution, habitat requirements, and occurrence records since certification of the 2005 EIR, where applicable.

Information regarding the life history and ecology of special-status wildlife species with potential to occur in the study area is provided below for those species that were either not included in the 2005 EIR or have undergone revisions to taxonomic status, listing status, or range distribution since certification of the EIR.

California Red-Legged Frog

At the time of the certification of the 2005 EIR, the red-legged frog was divided into two subspecies: the California red-legged frog (formerly *R. aurora draytonii*) and the northern red-legged frog (formerly *R. aurora aurora*). Based on an understanding of the subspecies' ranges at the time, the northern red-legged frog was considered to potentially occur in the project area. Since then, research on the genetics of red-legged frogs indicates that the California red-legged frog and northern red-legged frog are two distinct species (*Rana draytonii* and *R. aurora*, respectively), with a narrow zone of overlap in southern Mendocino County (Shaffer et al. 2004). The USFWS recognizes the California red-legged frog as *R. draytonii* (USFWS 2010). Both the northern red-legged (*Rana aurora*) and California red-legged frog are CDFW species of special concern; and the California red-legged frog is federally listed as threatened. It is now understood that northern red-legged frog populations are distributed in the North Coast region (i.e., Mendocino County north to Del Norte County), while populations of California red-legged frog are found in the Coast Ranges from Mendocino County southward, as well as in the Sierra Nevada and Cascade mountain ranges. Therefore, the only species of red-legged frog that could occur in the project area is the California red-legged frog.

The California red-legged frog is typically found in lowlands or foothill areas near permanent sources of water with dense overhanging riparian vegetation, but may also be found in ephemeral creeks and drainages and in ponds that do not have riparian vegetation (USFWS 2002). In addition, California red-legged frogs are known to move long distances (up to 2 miles) over land between water sources during winter rains (Bulger et al. 2003). This species is known to occur in the region, with records concentrated in the south and west of Sonoma County (CDFW 2019). The nearest record of California red-legged frog is from seasonal pond habitat in the Austin Creek Redwoods State Reserve, 7 miles west of the study area (CDFW 2019). The certified EIR (2005) identified the Syar pond complex as containing suitable habitat for California red-legged frog. The



Source: CDFW 2019

Exhibit 3.4-4 Special-Status Wildlife within 3 Miles of the 2018 Study Area

Table 3.4-4
Special-Status Wildlife Species with Potential to Occur in the Biological Study Area

Scientific Name	Common Name	Listing Status[1]			Habitat Requirements & Distribution	Potential for Occurrence[2]
		Federal	State	CDFW		
Amphibians						
Rana boylii	Foothill yellow-legged frog	–	ST	SSC	Streams and rivers with rocky substrate and open, sunny banks, in forests, chaparral, and woodlands from sea level to 6,700 feet. Sometimes found in isolated pools, vegetated backwaters, and deep, shaded, spring-fed pools.	Could occur; suitable aquatic habitat in Syar pond north of future vineyard pipeline, and potentially suitable aquatic habitat for migrating adults in drainage ditch south of the proposed 12-inch recycled water pipeline. Upland habitats surrounding these aquatic features may also provide suitable dispersal habitat. There are 9 records of this species within 3 miles of the study area in various creeks, and in the Russian River (CDFW 2019).
Rana daytonii	California red-legged frog	FT	–	SSC	Occurs throughout California and northern Baja California. Lowlands and foothills in or near permanent sources of deep water with dense, shrubby or emergent riparian vegetation. Requires 11-20 weeks of permanent water for larval development. Must have access to estivation habitat.	Could occur; suitable aquatic habitat in Syar pond north of the proposed 8-inch recycled water pipeline, and potentially suitable aquatic habitat for migrating adults in drainage ditch south of the proposed 12-inch recycled water pipeline. Upland habitats surrounding these aquatic features may also provide suitable dispersal habitat. Nearest record is from Armstrong Redwoods State Reserve, approximately 7 miles west of the study area (CDFW 2019).
Reptiles						
Emys marmorata	Western pond turtle	–	–	SSC	Ponds, marshes, rivers, streams, and irrigation ditches, usually with aquatic vegetation, below 6,000 feet elevation. Needs basking sites and suitable upland habitat with sandy banks or grassy open fields up to 0.5km from water for egg-laying.	Could occur; suitable aquatic and upland habitat in and adjacent to Syar pond immediately north of the proposed 8-inch recycled water pipeline. The drainage ditch south of the proposed 12-inch recycled pipeline may also provide suitable dispersal and/or upland habitat. There are 10 records of this species within 3 miles of the study area in various pond and creek habitats, and the Russian River (CDFW 2019).

Table 3.4-4
Special-Status Wildlife Species with Potential to Occur in the Biological Study Area

Scientific Name	Common Name	Listing Status[1]			Habitat Requirements & Distribution	Potential for Occurrence[2]
		Federal	State	CDFW		
Birds						
Elanus leucurus (nesting)	White-tailed kite	–	–	FP	Nests in oak tree or willow near open foraging habitat: grasslands, meadows, and agricultural fields.	Could occur; nesting and foraging habitat exists in the study area. There are 2 records for this species within 3 miles of the study area in riparian and oak woodland habitats (CDFW 2019).
Pandion haliaetus (nesting)	Osprey	–	–	WL	Nests and forages near a large body of water.	Could occur; nests documented in the vicinity of the study area along the Russian River (CDFW 2019).
Mammals						
Antrozous pallidus	Pallid bat	–	–	SSC	Grasslands, shrublands, oak woodlands, forests; most common in open, dry habitats; individuals roost in rock crevices, cliffs, caves, mines, and hollows of oaks and redwoods, and under sloughing bark, and human structures (e.g., bridges, buildings).	Could occur; suitable roosting habitat (dry habitats with oak trees and human structures) present in the study area. There are 7 records of this species documented within 3 miles of the study area (CDFW 2019).
Corynorhinus townsendii	Townsend's big-eared bat	–	–	SSC	Colonial bat associated with coniferous forests, mixed meso-phytic forests, deserts, agricultural areas, native prairies, riparian communities, and coastal habitat types; individuals typically roost in caves and mines, but also in basal hollows of trees and human structures (e.g., bridges, buildings).	Could occur; suitable roosting habitat (human structures) present in the study area. There are 3 records of this species documented within 3 miles of the study area (CDFW 2019).
Lasiurus blossevillii	Western red bat	–	–	SSC	Solitary foliage-roosting bat associated with riparian habitat (particularly willows, cottonwoods, sycamore, and eucalyptus), but individuals also use orchards, agricultural, and sometimes urban environments.	Could occur; suitable roosting habitat (riparian trees) in and adjacent to study area. The nearest record of this species is from Blue Rock Quarry, approximately 6 miles southwest of the study area, detected from tree cavity/crevice and acoustic surveys conducted in 2003 (CDFW 2019).

Table 3.4-4
Special-Status Wildlife Species with Potential to Occur in the Biological Study Area

Scientific Name	Common Name	Listing Status[1]			Habitat Requirements & Distribution	Potential for Occurrence[2]
		Federal	State	CDFW		
Taxidea taxus	American badger	–	–	SSC	Open grasslands, agricultural areas, and woodland edges. Preys on burrowing rodents.	Could occur; suitable habitat immediately south and west of the proposed recycled water distribution system. Nearest records of this species are approximately 5 miles from study area, in grazed annual grassland, coastal prairie, and oak savanna habitats (CDFW 2019).

Notes:
CDFW = California Department of Fish and Wildlife; CNDDB = California Natural Diversity Database; DPS = distinct population segment

[1] Legal Status Definitions:
Federal Endangered Species Act:
FE = endangered
FT = threatened
FD = delisted
– = no status

California State Endangered Species Act:
SE = endangered
ST = threatened
C = candidate for listing

CDFW:
FP = fully protected
SSC = species of special concern (no formal protection other than CEQA consideration)
WL = watch listed
– = no status

[2] Potential for Occurrence:
Not likely to Occur: No occurrences of the species have been recorded within or immediately adjacent to the project site, and either habitat for the species is marginal or potentially suitable habitat may occur, but the species' current known range is restricted to areas far from the project site.
Could Occur: The project site is within the species' range, but no occurrences of the species have been recorded within the project site; however, suitable habitat for the species is present in the project site and recorded occurrences of the species are generally present in the vicinity.
Known to Occur: The project site is within the species' range, suitable habitat for the species is present, and the species has been recorded from within the project site.
Sources: USFWS 2019; CDFW 2019; data compiled by AECOM in 2019

Syar pond immediately north of the proposed 8-inch recycled water pipeline and the drainage ditch located south of the proposed 12-inch recycled water pipeline may provide suitable aquatic breeding and/or dispersal habitat for this species. Dispersing California red-legged frogs could also occur in uplands surrounding aquatic habitats during certain times of year when conditions are favorable (i.e., rainy winter nights).

Foothill Yellow-Legged Frog

In December 2016, the Center for Biological Diversity submitted a petition to the California Fish and Game Commission (Commission) to list the foothill yellow-legged frog as threatened pursuant to the CESA (Fish and Game Code Sections 2080 et seq.). The Commission voted to advance the species to candidacy on June 21, 2017, publishing its related findings on July 7, 2017 (Cal. Reg. Notice Register 2017, No. 27-Z, p. 986). During CESA candidacy, a species is afforded protections as a listed species and "take" is prohibited unless authorized by CDFW pursuant to Fish and Game Code Section 2080.1, 2081(a) or 2081(b), 2089.6, or 2835, or by the Commission pursuant to Fish and Game Code Section 2084. Take authorization issued pursuant to CESA requires project- and species-specific avoidance and minimization measures, as well as full mitigation for project related impacts.

As described in the certified EIR (2005), typical habitats for foothill yellow-legged frog are small to moderately sized streams with cobble substrate. However, recent research demonstrates that they may also be found in ponds (CDFW 2018a). Furthermore, foothill yellow-legged frogs are known to move among aquatic breeding, post breeding summer, and overwintering habitats. During the breeding season, foothill yellow-legged frogs will move across uplands from small streams to streams with wider pools, and sometimes isolated ponds, for breeding and egg-laying (CDFW 2018a). In Mendocino County, foothill yellow-legged frogs have been observed moving across uplands for up to 331 meters away from natal streams (average of 71.3 meters), often across urban settings (Cook 2012). The certified EIR (2005) identified streams and creeks in and near the project area as suitable habitat for the species. This species is known to occur in several small streams within 5 miles of the study area, including Porter Creek to the north, and Mark West Creek and Felta Creek to the south (CDFW 2019). The Syar pond immediately north of the proposed 8-inch recycled water pipeline and the drainage ditch located south of the proposed 12-inch recycled water pipeline may provide suitable aquatic breeding habitat for this species, with surrounding uplands potentially serving as dispersal habitat.

Townsend's Big-eared Bat

The Townsend's big-eared bat is a CDFW species of special concern. This species often forms roosts in caves, mines, and human structures. In the North Coast region, cavity-roosting bats are also known to use hollows in old-growth redwood trees as day and maternity roosts (Mazurek 2004). There are two records of Townsend's big-eared bat roost sites within 3 miles of the study area (CDFW 2019). The nearest occurrence is mapped within 1 mile of the proposed dairy/vineyard property pipeline extension and the SIR distribution system, consisting of 2 specimens collected from an unknown locality in 1948 and 1949 (CDFW 2019). The other record of Townsend's big-eared bats in the vicinity of the study area is the collection of 2 specimens from the attic of an old house in 1954, approximately 2.5 miles west of the proposed future vineyard pipeline (CDFW 2019). Suitable roosting habitat may be present in structures located in and near the study area, including barns and vacant buildings.

Western Red Bat

The western red bat (*Lasiurus blossevillii*) is a CDFW species of special concern. These bats roost in clumps of tree foliage and are strongly associated with riparian habitat. The nearest record of western red bat is approximately 6 miles southwest of the study area in mixed evergreen forest habitat within the Blue Rock Quarry (CDFW 2019). Suitable roosting habitat may be present in trees and riparian habitat located in and near the study area.

American Badger

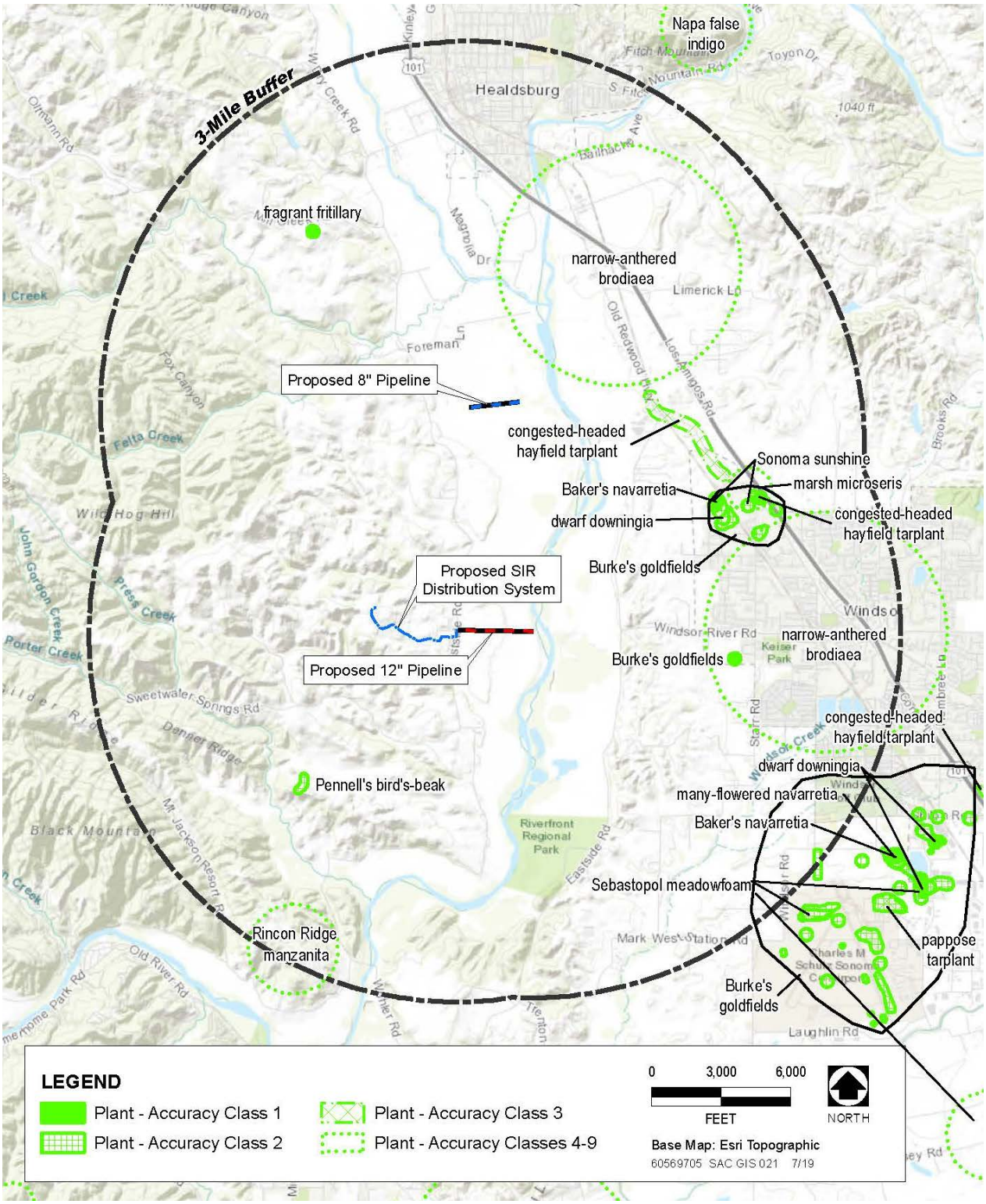
The American badger (*Taxidea taxus*) is a CDFW species of special concern. Badgers are found in grassland, agricultural, and woodland edge habitats where there are friable soils for the construction of underground burrows for denning and reproduction, and sufficient preferred prey items (e.g., ground squirrels and other fossorial mammals) (Zeiner et al. 1988–1990). Badgers are solitary and highly mobile, moving up to 20 kilometers (12.4 miles) per night, using new dens each night (Quinn 2015). The nearest records of this species are approximately 9 miles to the west and southwest of the study area, in oak woodland and grassland habitats (CDFW 2019). American badger may occur on suitable open grassland habitat in and near the study area, particularly to the west and south of the proposed dairy/vineyard property recycled water distribution system in annual grassland with an abundant population of pocket gophers.

Special-Status Plants

AECOM biologists compiled a list of special-status plant species with potential to occur in the study area and surrounding areas. The list was compiled using information provided in the USFWS Information for Planning and Consultation database (USFWS 2019), and a search of the CNDDB (CDFW 2019) and CNPS Rare Plant Inventory (CNPS 2019a) for the following local USGS 7.5-minute quadrangles (USGS 2013): Warm Springs Dam, Geyserville, Jimtown, Healdsburg, Guerneville, Big Foot Mtn., Cloverdale, Asti, The Geysers, Whispering Pines, Mount St. Helena, Mark West Springs, Santa Rosa, Sebastopol, Camp Meeker, Duncans Mills, Cazadero, Fort Ross, and Tombs Creek. Exhibit 3.4-5 shows the locations of special-status plant species identified in the CNDDB within a 3-mile radius of the project site.

Database search results initially identified a total of 109 special-status plant species in the region; of these, seven species have the potential to occur within the study area. The remaining 102 species have no potential to occur within the biological study area because they are restricted to elevations or habitats (e.g., serpentine soils, volcanic soils, gravel slopes, coastal dunes, coastal strand, coastal salt marsh, freshwater marsh, bogs/fens, montane forest, conifer forest, chaparral) that are not present in the study area. Table 3.4-5 provides descriptions of the seven special-status plant species that have potential to occur within the study area, and includes information regarding species' listing status, distribution, habitat requirements, and occurrence records since certification of the EIR, where applicable. There are two CNDDB records within 3 miles of the project site for two of the seven special-status plant species with some potential to occur in the project site (Exhibit 3.4-5). Other special-status plant records in the vicinity are associated with habitats (i.e., vernal pool, chaparral) that are not present in the study area.

The 2005 certified EIR determined that four of the seven special-status plant species listed in Table 3.4-5 could potentially occur in the project area, and includes detailed species information



Source: CDFW 2019

Exhibit 3.4-5 Special-Status Plants within 3 Miles of the 2018 Study Area

Table 3.4-5
Special-Status Plant Species with Potential to Occur in the Biological Study Area

Species		Blooming Period	Listing Status[1]			Habitat	Elevation Range (feet)	Potential for Occurrence[2]
Scientific Name	Common Name		Federal	State	CRPR			
Fritillaria liliacea	fragrant fritillary	February–April	–	–	1B.2	Cismontane woodland, coastal prairie, coastal scrub, and valley and foothill grassland habitats with heavy soil and open hills.	10-1,345	**Could occur;** suitable habitat (annual grassland and clay soils) present in the study area near the proposed recycled water distribution system. There is one record of this species within 3 miles of the study area, in grassland on a north-facing slope (CDFW 2019).
Hemizonia congesta ssp. *congesta*	hayfield tarweed	April–November	–	–	1B.2	Grassy sites and marsh edges in valley and foothill grassland; sometimes roadsides.	65-1,840	**Could occur;** suitable habitat (annual grassland, roadsides) present in the study area. There are 3 records of this species within 3 miles of the study area in grassland habitat (CDFW 2019).
Microseris paludosa	Marsh silverpuffs	April–June	–	–	1B.2	Moist grassland and open woodland.	15-1,165	**Could occur;** suitable habitat (moist grassland) present in the study area in irrigated pasture. There is one record of this species from vernal pool/meadow habitat within 3 miles of the study area (CDFW 2019).

Notes for Table 3.4-5

[1] Listing Status:

Federal Endangered Species Act Categories:

- FE = federally listed as endangered
- FT = federally listed as threatened.
- FD = federal delisted.
- – = no federal listing status.

California Endangered Species Act Categories:

- CE = California listed as endangered.
- CT = California listed as threatened.
- CR = California listed as rare
- – = no state listing status.

California Native Plant Society Listing Categories (not protected by any laws or regulations, but considered potentially significant under CEQA):

- 1A = plants presumed extirpated in California and either rare or extinct elsewhere.
- 1B = plants rare, threatened, or endangered in California and elsewhere.
- 2A = plants presumed extirpated in California, but common elsewhere.
- 2B = plants rare, threatened, or endangered in California but more common elsewhere.

California Rare Plant Rank Extensions:

- .1 = seriously endangered in California (>80 percent of occurrences are threatened and/or have high degree and immediacy of threat)
- .2 = fairly endangered in California (20–80 percent of occurrences are threatened)
- .3 = not very endangered in California

[2] Potential for Occurrence Definitions:

Not Likely to Occur: No occurrences of the species have been recorded within or immediately adjacent to the project site, and either habitat for the species is marginal or potentially suitable habitat may occur, but the species' current known range is restricted to areas outside of the project site.

Could Occur: The project site is within the species' range, and no occurrences of the species have been recorded within the project site; however, suitable habitat for the species is present and recorded occurrences of the species are generally present in the vicinity.

Known to Occur: The project site is within the species' range, suitable habitat for the species is present, and the species has been recorded from within the project site

Sources: CDFW 2019; CNPS 2019a; data compiled by AECOM in 2019

for each (i.e., marsh silverpuffs, Sonoma alepocurus, fragrant fritillary, and Jepson's linanthus). Information regarding the life history and ecology of the additional special-status plant species with potential to occur in the study area (i.e., hayfield tarweed) is provided below. Two additional species know to occur in the vicinity of the project (beaked Tracyina and showy Indian Clover) are not likely to occur in the project area (Connors 1994).

Hayfield Tarweed

Hayfield tarweed (*Hemizonia congesta* ssp. *congesta*) (CRPR List 1B.2), an annual herb, is a member of the composite family (*Asteraceae*) and blooms from April to November. It is found in northern coastal scrub and valley grassland habitats, usually in grassy sites or along marsh edges, and sometimes along roadsides, at elevations from approximately 65 to 1,840 feet amsl (Baldwin et. al. 2012; CNPS 2019a). This species is known from Lake, Mendocino, Marin, San Francisco, San Mateo, and Sonoma counties. Potential habitat for this species exists in grassland habitat and grassy roadsides within the study area.

SENSITIVE HABITATS AND SENSITIVE NATURAL COMMUNITIES

Sensitive habitats are those that are of special concern to resource agencies or that are afforded specific consideration through CEQA, Section 1602 of the California Fish and Game Code, or Section 404 of the CWA, as well as County and City ordinances, as discussed previously in Section 3.4.3, "Regulatory Setting Update." Sensitive habitats in the project area consist of oak woodland, riparian corridor, and wetlands and other waters, as described below.

Oak Woodland

Approximately 1.5 acre of native oak canopy, comprised of both oak woodland habitat and individual native oaks, was mapped within the study area. Because much of the study area is located within the Sonoma County Valley Oak Habitat (VOH) combining district (see Exhibit 3.4-3), Sonoma County may require mitigation for any proposed removal of native oak trees and additional measures to protect and enhance valley oak trees in the project area as part of the project.

Riparian Habitat

Riparian habitat is present within the drainage ditch to the south of the proposed 12-inch recycled water pipeline extension, along the banks of the Russian River to the east of the study area, and in the Syar Pond to the north of the study area. Riparian habitat is subject to CDFW jurisdiction under Section 1600 of the California Fish and Game Code.

The study area overlaps with the Riparian Corridor (RC) Combining Zone designated by Sonoma County (see Exhibit 3.4-3). The riparian corridors shown on Exhibit 3.4-3 are approximations based on historical stream data and may not be accurate (Sonoma County 2016). For example, based on results of the biological survey, the designated riparian corridor depicted on Exhibit 3.4-3 as crossing the proposed 12-inch recycled water pipeline from north to south no longer exists; this area has been converted to vineyards (see Exhibit 3.4-2, Land Cover Types). However, the Riparian Corridor associated with the Russian River to the east of the study area remains intact. The riparian corridors in the RC Combining Zone are associated with adjacent streamside conservation areas on each side of the stream, measured from the top of the higher bank and extending to the outer drip line of riparian trees, if present (Sonoma County 2016).

Wetlands and Other Waters

Wetlands are defined as those areas that are inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Jurisdictional wetlands must meet three wetland delineation criteria: hydrophytic vegetation, hydric soil types, and wetland hydrology. Like riparian woodlands, wetlands provide a water source for wildlife and typically support a diversity of species.

During the biological survey, a drainage ditch was observed to the south of the proposed 12-inch recycled water pipeline alignment. At the time of the survey, the western portion of the ditch exhibited flowing water and a prevalence of wetland vegetation. This ditch likely qualifies as a wetland according to the three-parameter USACE guidelines and may fall under the jurisdiction of USACE. If this wetland is considered isolated, USACE may not take jurisdiction over it; however, it may qualify as a water of the State under the Porter-Cologne Act and may therefore be subject to RWQCB jurisdiction. No additional wetlands were observed along the proposed pipeline alignments.

Sensitive Natural Communities

California natural communities are organized by CDFW and partner organizations, such as CNPS, based on vegetation type classification, and are ranked using the same system to assign global and state rarity ranks for plant and animal species in the CNDDB. Natural communities that are ranked S1–S3 are considered sensitive natural communities by CDFW, to be addressed in the environmental review processes (CDFW 2018b). The only vegetation community mapped within the study area that is also classified as a sensitive natural community is valley oak woodland, occurring in both upland (grassland) and riparian areas. Valley oak woodland is ranked S3 by CDFW, defined as vulnerable in the state because of a restricted range, relatively few populations, recent and widespread declines, or other factors making it vulnerable to extirpation (CDFW 2018b).

According to the *Manual of California Vegetation,* the valley oak woodland vegetation community is defined by valley oak comprising more than 50 percent relative cover in the tree canopy or more than 30 percent relative cover when other tree species, such as coast live oak or arroyo willow (*Salx lasiolepis*), are present (CNPS 2019b). The shrub layer is open to intermittent, and the herbaceous layer may be grassy (CNPS 2019b). In the study area, valley oak woodland is comprised of open canopy valley oak trees, sometimes co-dominating with coast live oak or arroyo willow, with no shrub layer and a grassy herbaceous understory.

Connectivity and Migration Corridors

Within the study area, areas along Westside Road and eastward are highly disturbed by the development of rural residences and installation and operation of vineyards and other agricultural facilities, while the western portions of the study area remain as relatively undeveloped open space grassland and oak woodland where wildlife is expected to move more freely. However, the primary movement corridors for wildlife in the vicinity of the study area are the Russian River and its tributaries.

Linkage Corridors

According to Penrod et al. (2000), the biological study area overlaps with the Russian River linkage corridor. This landscape linkage is considered a missing link because of existing barriers to animal movement in the region largely because of urban encroachment and vineyards (Penrod et al. 2000). The primary features identified as continuing to facilitate animal movement in the region include waterways and riparian corridors, with the Russian River specifically functioning as an important linkage corridor (Penrod et al. 2000).

Furthermore, the aquatic habitats within the Russian River, as well as numerous tributary creeks and streams, represent important migration corridors for anadromous fish, including several listed species, which are discussed in Section 3.3, "Fisheries Resources."

3.4.5 IMPACTS AND MITIGATION MEASURES

STANDARDS OF SIGNIFICANCE

Based on Appendix G of the State CEQA Guidelines, the project would have a significant impact on terrestrial biological resources if it would:

- have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations or by CDFW or USFWS;
- have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by CDFW or USFWS;
- have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means;
- 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;
- conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; or
- conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan.

EFFECTS FOUND NOT TO BE SIGNIFICANT

The proposed project would not result in the construction of any permanent features that would substantially interfere with the movement of migratory wildlife. No habitat conservation plan or natural community conservation plan have been adopted for the project site or the vicinity. Therefore, these issues are not discussed further in this section.

METHODOLOGY

This analysis focuses on impacts on biological resources that would result from , the construction and operation of the proposed pipeline extensions that would serve the future vineyard and dairy/vineyard properties, and the installation of distribution system facilities on the dairy/vineyard property. Where potential impacts were identified, the analysis considered the application of all adopted mitigation measures from the 2005 EIR.

Evaluation of potential impacts on biological resources was conducted by overlaying the proposed project footprint with maps on biological resources that occur in the project area based on data base searches and field surveys. The analysis also included a review of existing planning documents pertaining to the project area (e.g., the General Plan, the County Zoning Ordinance); a and reviews of aerial photographs and information from previously completed studies and analysis that addressed biological resources in the vicinity of the project area, including the 2005 EIR.

The following data sources also were reviewed during preparation of this section:

- The CNDDB (CDFW 2019)
- The CNPS database of Rare and Endangered Plants of California (CNPS 2019a)
- *City of Healdsburg Wastewater Treatment Plant Upgrade Project Draft Environmental Impact Report* (City of Healdsburg 2005)
- *Sonoma County General Plan 2020,* Open Space and Resource Conservation Element (Sonoma County 2016)

IMPACT ANALYSIS

Impact 3.4-1: Impacts on Special-Status Plants

Trenching would be required to install pipeline that would convey recycled water for irrigation reuse. The proposed 12-inch recycled water pipeline would require approximately 3,500 feet of trenching to extend the existing pipeline to the dairy/vineyard property. Construction of the 8-inch recycled water pipeline would require approximately 2,500 feet of trenching to extend the existing pipeline to future vineyard property. Ground disturbance related to installation of the **8-inch and 12-inch pipeline extensions** would be confined to existing access roads and other disturbed or developed areas. No special-status plants are expected to occur in these areas.

Another 3,400 feet of pipeline would be installed within dairy/vineyard property to facilitate a **recycled water distribution system** to 150 acres of irrigated pasture and 40 acres of vineyards, the majority of which would be installed along an existing access road associated with the dairy/vineyard property's dairy facilities where there is no potential habitat for special-status plants. A portion of this distribution system would be installed in annual grassland in the eastern portion of the property, near Westside Road, to connect to the dairy/vineyard property's recycled water pipeline extension. Although this area is dominated by nonnative grasses and is regularly disturbed by grazing and/or mowing, there is some potential for special-status plant species to occur, including fragrant fritillary, hayfield tarweed, and marsh silverpuffs. Clearing and grading

in this area to facilitate installation of recycled water distribution pipeline and associated infrastructure (i.e., concrete pad for pump) could result in impacts on special-status plants, if present. Direct impacts on special-status plant species could occur in a variety of ways, including removal of plants during construction, disruption of native seed banks, and alteration of soil conditions by clearing and grading. Because construction activities associated with installation of the recycled water distribution system in annual grassland habitat could potentially lead to the removal of or indirect impacts on special-status plant species, this impact would be ***potentially significant***.

Currently, a lack of available fresh water limits the irrigation window in pastures in the dairy/vineyard property's dairy to late spring. With the installation of recycled water distribution infrastructure, the dairy would be able to supply irrigation to pastures through the summer and produce green forage for dairy cattle during the dry season. If special status plant species occur in the pastures that could be subject to an extended wet season due to irrigation, these plants could be affected by irrigation if the irrigation adversely affected the habitat by making the soil too wet for the plants to persist or by otherwise changing soil or habitat conditons. This impact is potentially significant.

Mitigation Measure S3.4-1: Avoid Significant Impacts on Special-Status Plants

Before project implementation, the City shall conduct appropriately timed botanical surveys for all areas of construction-related ground disturbance and of all areas that could be subject to irrigation and provide suitable habitat for specials-status plants. Floristic surveys shall be conducted by a qualified botanist during the species' blooming period in accordance with methods described in CDFW's 2018 *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities* (CDFW 2018c).

If no special-status plants are found during focused surveys, the findings will be documented in a letter report to the City of Healdsburg, and no further mitigation would be required.

If special-status plants are found during focused surveys in the areas where pipelines will be installed, they should be avoided during construction. If impacts to special-status plant species can be avoided during construction, avoidance zones shall be included in construction drawings and the methods should be documented in a letter report to the City of Healdsburg. Locations of special-status plant populations clearly identified in the field for avoidance by staking or flagging before construction. No project activity would occur in the marked areas. If special-status plants are found in areas to be irrigated, the areas supporting the plants plus a 100 foot buffer zone shall be excluded from the area to be irrigated to avoid adverse effects on the plants from exposure to excessive moisture.

If special-status plants found during focused surveys cannot be completely avoided during construction or irrigation, informal consultation with CDFW shall be conducted to determine the appropriate measures for avoiding significant impacts to the plants. During this consultation, measures to protect the plants during construction shall be developed and implemented. These measures may include one or more of the following: erecting protective fencing (to avoid indirect impact), providing worker education, transplanting the plants to suitable nearby protected habitat, or locating and enhancing another off-site population of the species. The City or its

contractor shall implement the protective measures deemed suitable in informal consultation with CDFW.

Timing/Implementation: Before construction begins. Surveys would be conducted during the flowering periods for target plant species.

Enforcement/Monitoring: City of Healdsburg.

Implementing this mitigation measure would avoid or minimize potential impacts on special-status plants by identifying the presence of special-status plants and implementing measures to avoid or minimize significant impacts to any identified plants, thereby reducing the impact to ***less-than-significant***.

Impact 3.4-2: Temporary Loss or Indirect Loss of Habitat for California Red-Legged Frog, Foothill Yellow-Legged Frog, and Western Pond Turtle

The proposed pipeline extensions would be confined to roadways and grassland areas, and any impacts on existing vegetation would be temporary. Disturbed areas would be reclaimed immediately following the completion of construction activities in accordance with the Sonoma County Construction Grading and Drainage Ordinance.

Special-status amphibians and reptiles may be adversely affected by increased turbidity and reduced water quality when dust, sediment, and contaminants (e.g., fuel, lubricant, fertilizer) are released into aquatic habitats during construction-related soil disturbance activities. Potential indirect impacts on riparian habitat include accumulation of fugitive dust on vegetation during project construction which could negatively affect the health of riparian vegetation.

Similar impacts on aquatic habitat could occur during summer irrigation of nearby pastures and vineyards if excess discharge or runoff of recycled water is released from agricultural areas. In addition, moving water can transport sediment turbidity plumes or contaminants, creating the potential for effects on special-status aquatic species downstream of the construction and/or irrigation zones. However, the implementation of BMPs as provided in the project description and as required by the recycled water permit, including limited the application of recycled water to agronomic rates, which minimize the potenital for runoff. Therefore, the impact during project operations would be **less than signficant**.

Construction activities would be conducted to avoid direct impacts on aquatic features and riparian vegetation. However, indirect impacts on aquatic habitat and riparian vegetation could result in degradation of habitat for California red-legged frog, foothill yellow-legged frog, or western pond turtle; this impact would be ***potentially significant***.

Mitigation Measure S3.4-2: Avoid Indirect Impacts on Habitat for Special-status Amphibians and Reptiles

Before any construction activity, the City shall avoid and minimize indirect impacts on suitable aquatic and riparian habitat for special-status amphibians and reptiles by implementing 2005 EIR Mitigation Measure 3.4-7a, "Protect Waters of the United States, Wetlands, and Riparian Habitat." To avoid impacts on these habitats, a qualified biologist will be assigned to identify the locations of aquatic resources and riparian habitat and corresponding setbacks for avoidance. Riparian

setback requirements will be identified as appropriate (i.e., minimum 25-foot setback) on project maps in accordance with provisions in the certified EIR (2005), and to comply with Sonoma County Riparian Corridor Combining Zone streamside conservation setback requirements.

Measures to minimize erosion and runoff will be included in all drainage plans, in accordance with the Sonoma County Construction Grading and Drainage Ordinance. Appropriate runoff controls, such as berms, straw wattles, silt fencing, filtration systems, and sediment traps, will be implemented to control siltation and the potential discharge of pollutants.

Timing/Implementation: Before construction begins. Surveys would be conducted to identify the location of aquatic resources and riparian habitat.

Enforcement/Monitoring: City of Healdsburg.

Implementing this mitigation measure would avoid or minimize potential impacts on aquatic resources and riparian habitat that could provide habitat for special-status amphibians and reptiles. By establishing sufficient buffer distances from any identifed aquatic resources or riparian habitat, in conjunction with implementing runoff controls in compliance with the Sonoma County Construction Grading and Drainage Ordinance, potential indirect construction effects on special status reptiles or amphibeans would be avoided or minimized. The impact with implementation of this mitigation measure would be ***less than significant***.

Impact 3.4-3: Impacts on California Red-Legged Frog, Foothill Yellow-Legged Frog, and Western Pond Turtle

California red-legged frog, foothill yellow-legged frog, and western pond turtle in aquatic habitats within the project site may experience adverse effects from project construction activities as a result of increased turbidity and reduced water quality when dust, sediment, and contaminants (i.e., fuels and lubricant fluids) are inadvertently released into aquatic habitats during soil disturbance, excavation, cutting/filling, stockpiling, and grading activities. In addition, direct adverse effects of project construction on these species may include trampling or crushing of dispersing adults and juveniles in terrestrial habitats by foot traffic, vehicles, and/or equipment. Such effects could occur during clearing and grading, installation of project infrastructure, and reclamation activities (i.e., backfilling). Based on the average distances traveled by California red-legged frogs, foothill yellow-legged frogs, and western pond turtles when they move overland, potential terrestrial habitat for these species may occur within 500 feet of suitable aquatic habitat. This distance reflects a conservative and reasonable approach to quantifying where special-status amphibians and reptiles may occur in uplands relative to the project footprint.

Grading, clearing, and other activities associated with project construction could result in direct and indirect impacts on special-status amphibian and reptile species. This impact would be ***potentially significant***.

Mitigation Measure S3.4-3a: Avoid and Minimize Impacts on Special-Status Amphibians and Reptiles

The City shall avoid and minimize impacts on California red-legged frog, foothill yellow-legged frog, and western pond turtle by implementing the following measures listed below:

- Before the start of any construction activity, the construction contractor shall develop a worker environmental awareness program subject to review and approval by the City of Healdsburg. Before the start of construction, the environmental training will be provided to all personnel working on the project site during construction and operation. Worker environmental awareness program training materials will be submitted to the City, for their review and approval before ground-disturbing activities begin. Once approved, all City, consultant, and construction personnel entering the project site will be trained before being allowed on-site. Training materials and briefings will include but not be limited to:

    - discussion of the federal ESA and CESA, the MBTA, and CWA; California Fish and Game Code Sections 3503, 3503.5, 3511, 3513, 3800(a), 4150, 4700, 5050, 5515, and 1602; and the Porter-Cologne Act, as applicable;

    - the consequences of noncompliance with these regulatory requirements;

    - specific conditions of any permits from regulatory and other agencies obtained for the project (e.g., USACE, North Coast RWQCB, USFWS, NMFS, CDFW, and the County);

    - identification and values of the special-status amphibian and reptile species to be protected, as well as their life history descriptions, habitat requirements during various life stages, and the species' protected status;

    - hazardous substance spill prevention and containment measures;

    - clear instructions that if any workers encounter a special-status species within or near the project site during construction, work shall halt and the project biologist and City shall be informed;

    - clear instructions regarding the scenarios in which permit conditions require the notification of specific agencies, the method for contacting the agencies, and the legally required time frames for such contact;

    - a contact person at the on-call biological services provider in the event of the discovery of dead or injured wildlife; and

    - review of any mitigation requirements related to biological resources.

- The City shall assign a qualified biologist to flag or fence aquatic habitats to clearly delineate the extent of construction. All crews will be provided a set of drawings showing the locations of aquatic habitats in and near the work area.

- Before issuance of a grading permit, the City shall consult with the State Water Resources Control Board and the North Coast RWQCB to acquire the appropriate regulatory approvals that may be necessary to obtain Section 401 water quality certification, a State Water Resources Control Board statewide National Pollutant Discharge Elimination System stormwater permit for general construction activity (Water Quality Order 2009-0009-DWQ), and any other necessary site-specific waste discharge requirements or waivers under the Porter-Cologne Act. The City shall prepare and submit the appropriate notices of intent and if

applicable prepare the storm water pollution prevention plan and any other necessary engineering plans and specifications for erosion and pollution prevention and control.

- **Timing/Implementation:** Before construction begins.

- Enforcement/Monitoring: City of Healdsburg.

Mitigation Measure S3.4-3b: Develop and Implement a Preconstruction Survey Plan for Special-Status Amphibians and Reptiles.

The City and its construction contractor shall implement preconstruction surveys as described below. The preconstruction survey plan will identify, at minimum, the following information for each special-status amphibian species and western pond turtle:

- The life stage(s) to be surveyed for

- Survey method(s)

- Timing of survey(s)

- Justification for timing and methodology of survey design (e.g., watershed characteristics, timing and rate of spring runoff, day length, average ambient air and water temperatures, local and seasonal conditions)

The City and its construction contractor shall conduct preconstruction surveys for special-status amphibians and western pond turtles. Preconstruction surveys shall include, at minimum, the following provisions:

- Surveys shall be conducted by a qualified biologist within 3–5 days before entering or working within suitable aquatic and/or upland habitat.

- Surveys shall be conducted within the boundaries of the proposed worksite plus a 500-foot buffer zone of the construction area.

- Surveys shall include a description of any standing or flowing water.

- Visual surveys for California red-legged frog, foothill yellow-legged frog, and western pond turtle.

- If special-status amphibians or reptiles are detected during the preconstruction survey, impacts shall be avoided by establishing an exclusion buffer of no less than 50 feet within which construction activities shall be prohibited. A qualified biologist shall be on-site during all nearby construction activities. If the biologist determines that the habitat is no longer occupied, construction may proceed within the exclusion buffer.

If avoidance is infeasible, the City and its construction contractor shall coordinate with CDFW and, if applicable, USFWS (i.e., for California red-legged frog) to passively relocate the special-status amphibian or reptile.

Timing/Implementation: Before construction begins.

Enforcement/Monitoring: CDFW, USFWS (as applicable), and City of Healdsburg.

The mitigation measures described above would avoid and minimize impacts on special-status amphibians and reptiles by identifying the locations of and habitat for these species with protective measures such as establishing construction exclusion zones and best management practices to avoid adverse effects on water quality. In addition, development of a worker awareness program would train construction employees in identifying sensitive species, and provide a clear process if sensitive species were observed onsite that would serve to avoid or minimize any impact (e.g., stop work and notify the designated oncall biologist). Implementing Mitigation Measures S3.4-3a through S3.4-3b would reduce this impact on special-status amphibian and reptile species to **less than significant**.

Impact 3.4-4: Impacts on Nesting Raptors

Construction of the recycled water pipeline extensions and dairy/vineyard property distribution system facilities generally would be confined to existing roadways, developed/disturbed areas, and annual grassland, and would not be expected to result in the removal of any trees. However, several large individual trees growing in association with roadways and buildings exist along the pipeline route, and additional suitable raptor nesting substrate exists in riparian forest/scrub habitat within 100 feet of the proposed recycled water pipeline extensions.

Activities associated with project construction could affect nesting raptors directly or indirectly, if conducted during the breeding season. A 16-foot-wide corridor would be necessary to construct the pipeline beneath large trees that could provide nesting habitat for raptors, and these trees may need be trimmed or removed. Potential direct impacts include the physical removal of or damage to an active nest in the process of performing construction activities such as grading or the removal of trees or other vegetation that might provide a nesting substrate. Potential indirect impacts on nesting raptors could occur if activity at nests is affected by visual, audible, or vibrational disturbance associated with construction activity.

Common raptor species such as the red-tailed hawk and American kestrel, and special-status raptor species that nest within or immediately adjacent to the project area, including white-tailed kite and osprey, may be subjected to this impact because suitable nesting habitat for these species is present in the project area. This impact would be **potentially significant**.

Mitigation Measure S3.4: Protect Nesting Raptors

The City and its construction contractor shall implement the following measures to protect nesting raptors:

- To the extent feasible, all grading and tree removal will occur outside the raptor nesting season (September through January). If grading or tree removal is avoided during the raptor nesting season, no further mitigation would be necessary. This measure applies to any heavy equipment activities that would occur within 500 feet of trees in or adjacent to the project area.

- If grading within 500 feet of trees or tree removal is proposed to take place during the raptor nesting season, a focused survey for raptor nests will be conducted by a qualified biologist during the nesting season to identify active nests in the project area. The survey would be conducted no more than 30 days before the beginning of grading or tree removal. The results of the survey would be summarized in a written report to be submitted to the City of Healdsburg before the beginning of grading.

- If active nests are found, no construction activity shall take place within 300 feet of the nest until the young have fledged (as determined by a qualified biologist). If no active nests are found during the focused survey, no further mitigation will be required.

Timing/Implementation: If construction occurs during the raptor nesting season (February through August), conduct surveys no more than 30 days before construction. See description above for additional information on timing.

Enforcement/Monitoring: City of Healdsburg

Implementing this mitigation measure would avoid or minimize potential impacts on nesting raptors by avoiding the nesting season and/or conducting surveys to identify and avoid construction activity within 300 feet of an active nest, thereby reducing the impact to ***less-than-significant***.

Impact 3.4-5: Impacts on Western Red Bat

Trees offering appropriate habitat features to support roosts for western red bat are present adjacent to project areas, including large valley oaks and riparian trees. Western red bats are a solitary species and typically roost alone in tree foliage year-round. However, during the maternity season, two or more female red bats and their young may be found roosting together.

Construction activities that would cause temporary disturbance to or permanent removal of an occupied western red bat roost could cause direct and indirect adverse effects on individual bats or small maternity groups. Potential adverse effects could include direct mortality during roost removal; degradation of physiological condition; and roost abandonment (Caltrans 2016). However, western red bats change roosts frequently and mothers can move their young; therefore, they would have the capacity to fly away from disturbance. None of the indirect adverse effects would be expected to cause mortality in large numbers of bats and would not be expected to cause a local bat population to drop below self-sustaining levels. This impact would be **less than significant**. No mitigation measures are required.

Impact 3.4-6: Impacts on American Badger

Project construction would temporarily disturb approximately 0.9 acres of annual grassland representing suitable habitat for American badger. Project construction could result in disturbance and forced dispersal of American badger from land clearing and grading, noise, and vehicular activity. However, given the availability of large expanses of suitable habitat to the north and west of the project area and the relatively small footprint of the proposed project activities in suitable habitat, combined with the highly mobile nature of the species, forced dispersal of individuals as a result of project disturbance would not be expected to cause a local population to

drop below self-sustaining levels. Thus, disturbance-related (indirect) impacts on American badger would be **less than significant** and no mitigation measures are required.

Impact 3.4-7: Impacts on Trees Subject to Sonoma County Valley Oak Habitat Combining District

A number of valley oak trees are present within or adjacent to the proposed recycled water pipeline extension alignments. Grading, trenching, drilling, stockpiling, and backfilling operations during pipeline installation could cause damage to tree roots that overlap with the 16-foot-wide construction footprint. The construction of the 8- and 12-inch transmission pipeline extensions and the irrigation system facilities within the 2018 Project Area would not require or result in the removal of any trees. However, construction activities could indirectly damage tree roots and potentially result in the loss of valley oak trees protected under Sonoma County Valley Oak Habitat Combining District. This impact would be ***potentially significant***.

Depending on the placement of the future transmission pipeline extension or any other new recycled water facilities within the 2018 Program Expansion Area, construction could result in removal of or damage to protected trees in this area. Similar to the proposed project activities, this impact is considered ***potentially significant***.

Mitigation Measure S3.4-7: Implement Requirements of the Sonoma County Valley Oak Habitat Combining District

For portions of the proposed pipeline extensions that fall within the Valley Oak Habitat Combining District as designated by the County of Sonoma, removal of any valley oak tree, or small valley oaks having a cumulative diameter at breast height greater than 60 inches, will be mitigated by implementing the measures outlined in Section 26-67-030 of the Sonoma County Zoning Ordinance. Consistent with the requirements of the Sonoma County Ordinance, compensation for loss of valley oak trees shall include one or more of the following requirements:

- retaining other valley oaks on the subject property;
- planting replacement valley oaks 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;
- a combination of measures two measures listed above; or
- paying an in-lieu fee, which shall be used exclusively for valley oak planting programs in the county.
- The specific requirements are specified in Table 26-67-030 of the County zoning ordinance. The applicable measures shall be undertaken and completed within 1 year after the valley oak or valley oaks are cut down or removed in accordance with guidelines established by resolution or ordinance of the board of supervisors.

Timing/Implementation: A qualified arborist shall conduct a tree survey before construction activities begin.

Enforcement/Monitoring: Sonoma County.

Implementing this mitigation measure would ensure compliance with the Sonoma County regulations that require compensation for any loss of protected tree species through onsite preservation, onsite or offsite replacement, or payment of an in-lieu fee to fund planting programs in Sonoma County. thereby reducing the impact on valley oak trees and oak woodland habitat to a ***less-than-significant*** level.

Impact 3.4-8: Impacts on Jurisdictional Waters of the United States, Wetlands, and Riparian Habitat

The proposed recycled water pipeline extensions and dairy/vineyard property distribution system facilities would be located in existing access roads and uplands (i.e., annual grassland and ruderal areas), and construction would not directly affect any wetlands, other waters of the United States, or associated riparian vegetation. However, construction and ongoing project activities (i.e., summer irrigation with recycled water) encroaching on aquatic features and riparian habitat have the potential to result in indirect impacts on vegetation, degradation of water quality, and/or changes in hydrology. Construction-related and operational spills, worker errors, and soil erosion in or near aquatic features are other potential sources of indirect impacts on waters of the United States and riparian habitat. Introduction of dust and settling of contaminants associated with vehicular emissions during project construction may also indirectly affect aquatic and riparian resources.

Because the construction activities could potentially affect jurisdictional waters of the United States, including wetlands, and riparian habitat, through indirect impacts such as degradation of water quality, this impact would be ***potentially significant***.

As detailed in Section 3.3 Fisheries Resources, the potential operational impacts of the project on Russian River relate to the reduction of inflow into the river once the seasonal discharge prohibition has been achieved through diversion into the recycled water system. The reduction in summer river flow associated with the project has the potential to impact riparian wetlands that exist along the lower Russian River corridor through the mechanism of hydrological interruption. Like most riverine wetlands, those along the Russian River receive their water from the river as determined by the infiltration rate at the boundary layer between the water and the riverbank. As detailed in Section 3.3, Fisheries Resources, under Impact 3.3-1, the less than 1 percent reduction in streamflow associated with the project will not significantly decrease the wetted width of the river or lower the water surface elevation, and thus, not substantially influence the water balance between the river and riparian wetland habitat. Consequently, the potential project impact on the extent or health of riparian wetlands along the Russian River is considered ***less than significant***.

Mitigation Measure S3.4-8a: Protect Waters of the United States, Wetlands, and Riparian Habitat from adverse effects due to water quality impacts

The City and its construction contractor shall avoid and minimize indirect impacts on waters of the United States, wetlands, and riparian habitat by implementing the following measures:

- Before any construction activity, a qualified biologist will be assigned to identify the locations of aquatic resources and riparian habitat and corresponding setbacks for avoidance. Identification of aquatic resources and riparian habitat for avoidance will be in addition to

and distinguished from any required construction boundary fencing or flagging. Riparian setback requirements will be identified as appropriate (i.e., minimum 25-foot setback) on project maps in accordance with provisions in the certified EIR (2005), and to comply with Sonoma County Riparian Corridor Combining Zone streamside conservation setback requirements. Streamside conservation areas will be established as indicated in the zoning database from the top of the highest bank, and increased to include the outer drip line of any riparian trees, if present.

- Measures to minimize erosion and runoff into the drainage ditch south of Hozz Road will be included in all drainage plans, in accordance with the Sonoma County *Construction Grading and Drainage Ordinance*. Appropriate runoff controls, such as berms, straw wattles, silt fencing, filtration systems, and sediment traps, will be implemented to control siltation and the potential discharge of pollutants.

- Direct impacts on USACE jurisdictional waters of the United States, including wetlands, and CDFW jurisdictional riparian habitat will be avoided. If direct impacts cannot be avoided because direct physical disturbance would occur in these habitats, then the City and its construction contractor shall implement the following measures:

    - Before project implementation, a formal delineation of jurisdictional waters of the United States, including wetlands and all riparian habitat, that would be directly affected by the proposed options will be made by qualified biologists using the USACE methodology for wetland delineations.

    - The City shall consult with USACE to determine whether the waters and wetlands occurring on-site that would be directly affected by construction activity fall under the jurisdiction of USACE. If it is determined that the waters and/or wetlands that will be directly impacted fall under USACE jurisdiction, a permit under Section 404 of the CWA would be required from USACE.

    - If a 404 permit is required, secure authorization for fill of jurisdictional areas from USACE via the Section 404 permitting process, and a Section 401 RWQCB certification for effects on water quality before construction begins.

    - RWQCB certification, pursuant to Section 401 of the CWA would likely be required for direct impacts on waters and wetlands on-site, including those waters and wetlands which are not considered under the jurisdiction of the USACE but would fall under jurisdiction of the state.

    - A CDFW streambed and lakebed alteration agreement would be required for construction in the bed, bank, or associated riparian vegetation of rivers and creeks in the project area.

    - If permits are needed, the City shall comply with the mitigation requirements of the permits. At a minimum, the acreage of jurisdictional habitat removed will be replaced or rehabilitated on a no-net-loss basis in accordance with USACE, RWQCB and CDFW regulations. Habitat restoration, rehabilitation, and replacement would be at a location and by methods agreeable to USACE, RWQCB, and CDFW.If needed as a results of permit requirements from USACE, CDFW, or RWQCB an on-site wetlands mitigation plan,

including a replacement ratio for habitat types agreed to by the agencies, would be developed by a qualified biologist. The mitigation plan would quantify the total jurisdictional acreage lost and describe creation/replacement ratios for acres filled, annual success criteria, potential mitigation sites, and monitoring and maintenance requirements. The plan would be prepared by a qualified wetland biologist pursuant to, and through consultation with the regulatory agency whose permit requirement is triggering the permit. Implementing the plan would create habitat to compensate for the loss of jurisdictional waters of the United States.

- Alternatively to onsite mitigation, the City may seek to purchase credit at a a local agency approved mitigation bank, if available.

Timing/Implementation: Permits (if needed due to direct impacts on wetland and riparian habitat) shall be obtained before construction activities begin.

Enforcement/Monitoring: USACE, North Coast RWQCB, CDFW, City of Healdsburg, and Sonoma County.

Implementing this mitigation measure would avoid or minimize potential indirect impacts on jurisdictional waters of the United States, wetlands, and riparian habitat by identifying the presence of such habitats and avoiding them during constrution. It would also mitigate for direct impacts to these habitat (if unavoidable) but obtaining permits and and developing appropriate mitigation plans with federal and state regulators where necessary, thus compensating for any effects on jurisdictional waters of the United States, including wetlands, and riparian habitat. Therefore indirect and direct impacts to these habitat would be reduced to a ***less-than-significant*** level.

Mitigation Measure S3.4-8b: Prevent Runoff of Recycled Water Applied to Irrigated Pasture

To avoid indirect impacts on jurisdictional waters of the United States, including wetlands, and riparian habitat as a result of runoff of summer irrigation water from pastures, develop a site-specific irrigation management plan as part of a recycled water use agreement between dairy/vineyard property and the City of Healdsburg before installation of a recycled water meter at the user's property. The irrigation management plan will ensure compliance with the General Order of the Regional Water Board, which requires use of recycled water at agronomic rates that consider soil, climate, and plant demand. The irrigation management plan will include provisions of the General Order, including general operating parameters, monitoring and reporting procedures, and methods to ensure compliance with Titles 17 and 22 of the California Code of Regulations. The irrigation management plan may include downloading evapotranspiration data from the local California Irrigation Management Information System Windsor Station No. 103 on a daily or weekly basis to better inform irrigation system operation. The irrigation management plan will also include the general parameters and limitations applicable to the project, summarized in Table 3.4-6.

Table 3.4-6 Irrigation Management Plan General Parameters and Limitations					
Irrigation Type	**Irrigation Months**	**Irrigation Schedule**	**Irrigation Method**	**Monthly Agronomic Rate (acre-ft/ac)**	**Annual Agronomic Rate (acre-ft/ac)**
Pasture	May–October	Daily, depending on demand	Sprinkler	0.02 to 0.76	3.08
Vineyard	April–September	Variable, generally weekly	Drip irrigation	0.03 to 0.19	0.75
Note: acre-ft/ac = acre-feet per acre Source: City of Healdsburg 2018					

Timing/Implementation: Before installation of a user's recycled water meter.

Enforcement/Monitoring: City of Healdsburg.

Implementing this mitigation measure would avoid or minimize potential indirect impacts on waters of the United States, wetlands, and riparian habitat by implementing an irrigation management plan that would limit runoff of recycled water, thereby reducing the impact to a ***less-than-significant*** level.

Impact 3.4-9: Impacts on Sensitive Natural Communities

The only sensitive natural community within the project site is valley oak woodland, which occurs in both upland and riparian habitats within and adjacent to the project footprint.

The entire alignment of the proposed 8-inch recycled water pipeline extension and the eastern portion of the proposed 12-inch recycled water pipeline extension overlap the Sonoma County VOH Combining District, and are located within 100 feet of riparian habitat. As discussed in sections above, direct and/or indirect impacts on individual oak trees and indirect impacts on riparian habitat (which includes valley oak woodland vegetation) may occur as a result of project construction activities; this impact would be ***potentially significant***. However, with implementation of existing measures to prevent soil erosion and protect oak woodland and riparian habitat (i.e., Mitigation Measure S3.4-3a, "Avoid and Minimize Impacts on Special-Status Amphibians and Reptiles"; Mitigation Measure S3.4-7, "Implement Requirements of the Sonoma County Valley Oak Combining District"; and 2005 EIR Mitigation Measure 3.4-8a, "Protect Waters of the United States, Wetlands, and Riparian Habitat"), impacts on the portions of the valley oak woodland sensitive natural community occurring in the VOH Combining District and in riparian habitat would be ***less than significant*** with mitigation.

The eastern portion of the proposed 12-inch recycled water pipeline extension and the entire dairy/vineyard property distribution system are outside of the VOH Combining District. In these areas, construction activities related to grading, stockpiling, trenching, and drilling could injure or damage oak tree roots and lead to a decline in health and/or size of the affected oak woodland vegetation. This impact would be ***potentially significant***.

Mitigation Measure S3.4-9: Protect Valley Oak Woodland Sensitive Natural Community in the Dairy/Vineyard Property Recycled Water Pipeline Extension and SIR Distribution System

The City and its construction contractor shall avoid and minimize impacts on valley oak woodland that occurs outside of the Sonoma County VOH Combining District to the greatest extent feasible.

Before the start of any construction activity, the City and its construction contractor shall protect the valley oak woodland sensitive natural community in and adjacent to the eastern extent of the proposed 12-inch recycled water pipeline extension and the entire dairy/vineyard property distribution system by implementing the following measures:

- Assign a qualified biologist to flag or fence valley oak woodland to clearly delineate the extent of construction. All crews will be provided a set of drawings showing the locations of valley oak woodland in and near the work area.

- Develop a worker environmental awareness program (introduced in Mitigation Measure S3.4-3a, "Avoid and Minimize Impacts on Special-Status Amphibians and Reptiles"), subject to review and approval by the City of Healdsburg in consultation with CDFW, to include specific information regarding the valley oak woodland sensitive natural community that occurs on the project site and that either would be affected or has been identified for avoidance; the locations and extent of the sensitive natural community; and methods of resource avoidance.

If impacts on valley oak woodland sensitive natural community cannot be avoided, then the City and its construction contractor shall compensate for any loss or damage to valley oak or other native trees within the valley oak woodland sensitive natural community (e.g., coast live oak) by implementing the mitigation measures outlined in Mitigation Measure S3.4-7, "Protect Trees Subject to Sonoma County Valley Oak Combining District," for all native tree species affected.

Timing/Implementation: A qualified arborist shall conduct a tree survey before construction activities begin.

Enforcement/Monitoring: Sonoma County.

Implementing this mitigation measure would avoid or minimize potential direct removal or indirect harm to to valley oaks and valley oak woodland sensitive natural community by providing compensation for any loss of any tree species protected under the Sonoma County Ordinance through onsite preservation, onsite or offsite replacement, or payment of an in-lieu fee to fund planting programs in Sonoma County, thereby reducing the impact to ***less-than-significant***.

3.5 EARTH RESOURCES

This section describes current conditions in the project area relative to geology, soils, seismicity, and paleontological resources. It also presents an analysis of the potential environmental impacts of the proposed project and identifies mitigation measures to reduce those impacts.

3.5.1 SUMMARY OF FINDINGS FROM THE CERTIFIED EIR

Table 3.5-1 identifies significant project impacts on earth resources, as presented in the certified EIR (2005), and the mitigation measures identified to reduce those impacts. Impacts for which the analysis in the certified EIR reached conclusions of less than significant or no impact are not listed here.

Table 3.5-1
Significant Impacts and Mitigation Measures Identified in the Certified EIR (2005)—Earth Resources

Impact	Mitigation Measures	Level of Significance Following Mitigation
Impact 3.5-2: Construction-Related Erosion		
Implementing the proposed options would require trenching, grading, and placement of fill materials during project construction. Soil disturbance associated with construction activities would increase the potential for ground instability and erosion, and the placement of fill could result in unstable soil conditions associated with loose or uncompacted fill materials.	**Mitigation Measure 3.5-2: Develop and Implement an Erosion Control Plan** The City of Healdsburg shall develop and implement an erosion control plan that specifies BMPs, such as use of sandbags and the covering of exposed soils, that would prevent construction pollutants from coming in contact with receiving waters and would minimize onsite erosion.	LS
Impact 3.5-3: Location of the Project on an Unstable Geologic Unit or Soil		
The topography in the project area varies from flat to hilly areas. The Foreman Lane/Mill Creek Road portion is located in a hilly area with moderate to high potential for landslides. Although the proposed system would be constructed in conformance with the CBC, landslides in this area could result in damage to project structures during operation.	**Mitigation Measure 3.5-3: Prepare Design-Level Geotechnical Study to Address Landslide Susceptibility** A design-level geotechnical study shall be completed for the project area before construction permits are issued. The study shall specifically address the susceptibility of the site to landslides and shall include recommendations applicable to earthwork and site preparation, such as buttressing toe slopes and avoiding certain hazardous locations more susceptible to landslides.	LS
Impact 3.5-4: Location of the Project on Expansive Soil		
Some project area soils, including those associated with the Foreman Lane/Mill Creek Road portion, have moderate to high shrink-swell potential. Although the proposed system would be constructed in conformance with the	**Mitigation Measure 3.5-4: Prepare Design-Level Geotechnical Study to Address Expansive Soils** A design-level geotechnical study shall be completed for the project area before construction permits are issued. The study shall specifically	LS

Table 3.5-1 Significant Impacts and Mitigation Measures Identified in the Certified EIR (2005)— Earth Resources		
Impact	**Mitigation Measures**	**Level of Significance Following Mitigation**
CBC, the shrinking and swelling of these soils could result in damage to project structures during operation.	address whether expansive soils are present in the project area and shall identify measures, such as use of artificial/imported fill, to address these soils where they occur.	
Notes: BMP = best management practice; CBC = California Building Code; EIR = environmental impact report; LS = less than significant Source: Data compiled by AECOM in 2019, based on the certified 2005 EIR for the City of Healdsburg Wastewater Treatment Plant Upgrade Project		

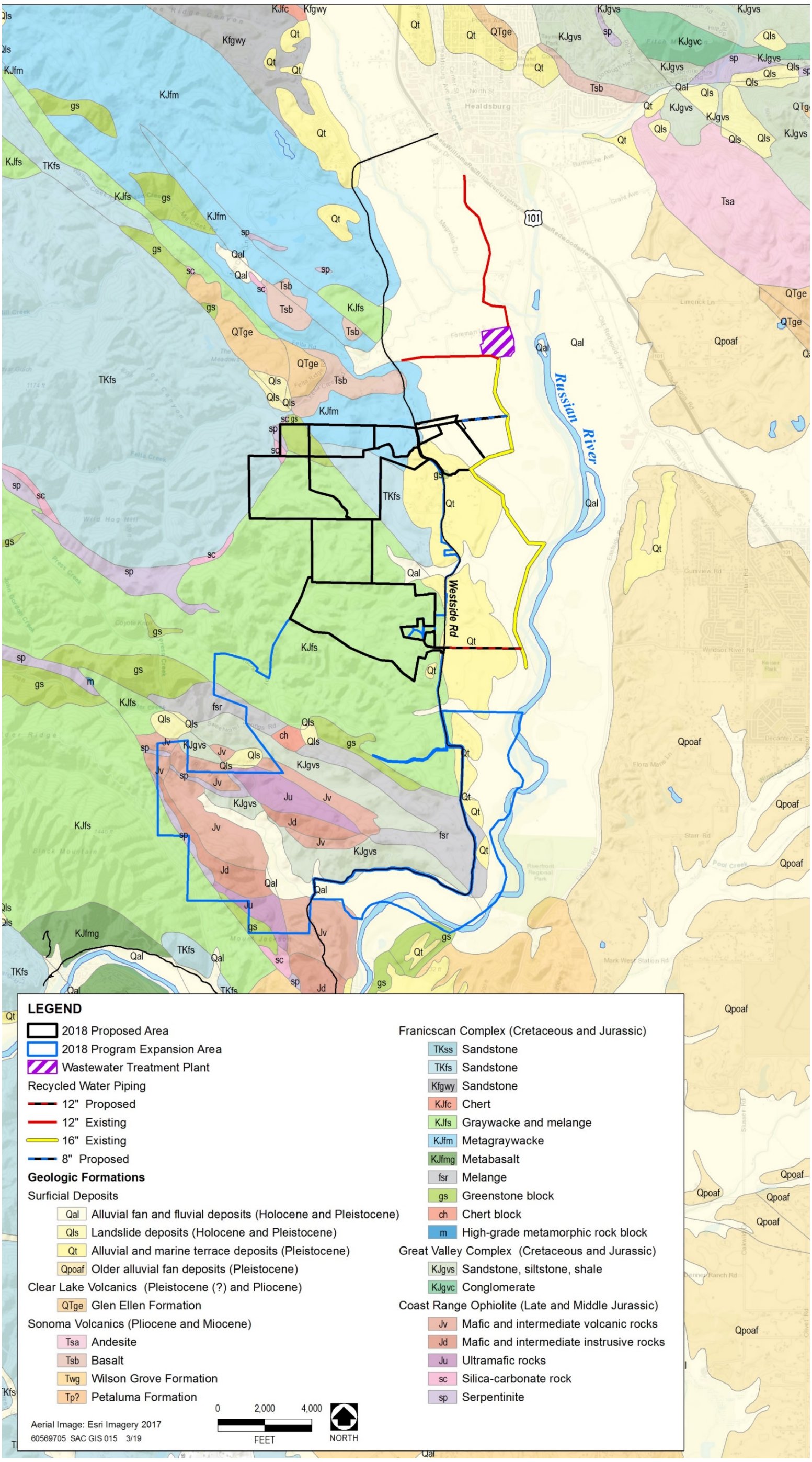
3.5.2 ENVIRONMENTAL SETTING UPDATE

GEOLOGY

Sonoma County, including the project area, is situated in the northern half of the Coast Ranges geomorphic province. The Coast Ranges geomorphic province consists of mountain ranges and valleys, which trend northwest, subparallel to the San Andreas fault.

The geology of the project area is complex. As shown in Exhibit 3.5-1, the water reclamation facility is located in a narrow valley through which the Russian River and Dry Creek flow. This valley is composed of recent, younger Holocene (11,700 years Before Present [B.P.] to present day) and older Pleistocene (2.6 million years B.P. to 11,700 years B.P.) sedimentary alluvial deposits derived from erosion of the surrounding mountains and from sediments deposited by river flows. The valley includes alluvial fan, floodplain, natural levee, and stream channel deposits. The youngest deposits are located immediately adjacent to present-day stream and river channels. Moving westward away from the Russian River toward the foothills, and increasing in elevation, older (Pleistocene) alluvial terrace deposits lie on flat surfaces cut into the bedrock. These terrace deposits are the remnants of an older alluvial system that have been lifted above present depositional levels by tectonic forces. The thickness of the terrace deposits ranges from a few feet to up to 200 feet below the ground surface.

As discussed in detail in Section 3.2, "Hydrology and Water Quality," the project area is located within the Santa Rosa Valley Groundwater Basin, Healdsburg Subbasin. The boundaries of the Healdsburg Subbasin are generally defined by the Holocene and Pleistocene alluvial and river channel deposits discussed above (DWR 2004). These deposits are located mostly on the east side of Westside Road. The youngest Holocene alluvial deposits provide most of the water supply for the city of Healdsburg. The older Pleistocene terrace deposits also provide groundwater, but to a lesser degree (DWR 2004).



Source: Blake et al. 2002

Exhibit 3.5-1 Geologic Formations in the Project Area

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The valley is bounded by the foothills and mountains of the Coast Ranges, which rise steeply from the valley floor with an elevation increase of nearly 1,500 feet in 5 miles, between the Russian River and Wild Hog Hill to the west. In the project area, the Coast Ranges are composed of the Late Jurassic–Early Cretaceous (161–99 million years B.P.) Franciscan Complex and Great Valley Complex (Healdsburg terrane). The Franciscan Complex consists of a series of terranes[1] composed of weakly to strongly metamorphosed graywacke, argillite, basalt, chert, limestone, and other rocks. Franciscan Complex rocks in the project area are derived from oceanic crust and sediment deposited by oceanic currents. The Great Valley Complex consists of (1) the Coast Range ophiolite, which in the project area consists of serpentinite, gabbro, diabase, basalt, and keratophyre (altered silicic volcanic rocks); and (2) the Great Valley Sequence, composed of sandstone, conglomerate, and shale. In the Healdsburg terrane, Lower Cretaceous conglomerate up to 9,800 feet thick has been deposited onto Upper Jurassic shale, which in turn overlies the Coast Range ophiolite (Blake et al. 2002). Groundwater in the Coast Ranges is held in tiny pores within the rock fractures. The quantity of groundwater varies greatly from well site to well site because of the small and unpredictable yields of the fractured rock system.

SOILS

Table 3.5-2 presents relevant characteristics of the soils in the 2018 Proposed Area. Exhibit 3.5-2 shows the distribution of soil types in the project area.

Table 3.5-2
Soil Characteristics—2018 Proposed Area

Soil Map Unit Name	Shrink-Swell Potential[1]	Permeability[2]	Drainage	Water Erosion Hazard[3]	Wind Erosion Hazard[4]	Hydrologic Group[5]
Proposed 8- and 12-Inch Water Pipelines						
Arbuckle gravelly sandy loam, 0 to 5% slopes	Low	Moderately high	Well drained	Low	5	C
Cortina very gravelly loam, 0 to 2% slopes	Low	High	Somewhat excessively drained	Low	7	A
Yolo loam, 0 to 10% slopes, moist	Low	Moderately high	Well drained	Moderate	6	B
Yolo sandy loam, overwash, 0 to 5% slopes	Low	High	Well drained	Low	3	B
Zamora silty clay loam, moist, 0 to 2% slopes	Moderate	Moderately high	Well drained	Moderate	6	C
Proposed Water Tank						
Yorkville clay loam, 30-50% slopes	High	Moderately low	Moderately well drained	Moderate	6	D
Proposed Booster Pump Station and Recycled Water Application						
Arbuckle gravelly sandy loam, 5 to 15% slopes	Low	Moderately high	Well drained	Low	5	C

[1] A geologic terrane is a fragment of the earth's crust that has broken off from one tectonic plate and accreted (added) to crust lying on another tectonic plate.

Table 3.5-2
Soil Characteristics—2018 Proposed Area

Soil Map Unit Name	Shrink-Swell Potential[1]	Permeability[2]	Drainage	Water Erosion Hazard[3]	Wind Erosion Hazard[4]	Hydrologic Group[5]
Cibo clay, 15 to 50% slopes	High	Moderately low	Well drained	Low	4	C
Guenoc gravelly silt loam, 5 to 30% slopes	Moderate	Moderately high	Well drained	Low	7	C
Hugo very gravelly loam, 50 to 75% slopes	Moderate	Moderately high	Well drained	Low	8	B
Josephine loam, 9 to 30% slopes	Moderate	High	Well drained	Low	7	B
Josephine loam, 30 to 50% slopes	Moderate	High	Well drained	Low	7	B
Josephine-Sites loams, 30 to 75% slopes	Moderate	High	Well drained	Moderate	6	C
Laughlin loam, 50 to 75% slopes	Moderate	Moderately high	Well drained	Moderate	6	C
Laughlin-Yorkville complex, 30 to 75 slopes	Moderate	Moderately high	Well drained	Moderate	6	C
Pleasanton gravelly loam, 2 to 5% slopes	Low	Moderately high	Well drained	Low	6	C
Sobrante loam, 15 to 30% slopes	Moderate	High	Well drained	Moderate	5	C
Yolo sandy loam, overwash, 0 to 5% slopes	Low	High	Well drained	Low	3	B
Yolo silt loam, 0 to 5% slopes	Low	Moderately high	Well drained	Moderate	6	B
Yorkville clay loam, 5 to 30% slopes	High	Moderately low	Moderately well drained	Moderate	6	D
Yorkville clay loam, 30 to 50% slopes	High	Moderately low	Moderately well drained	Moderate	6	D
Yorkville-Laughlin complex, 30 to 50% slopes	High	Moderately low	Moderately well drained	Moderate	6	D
Yorkville-Suther complex, 0 to 50% slopes	High	Moderately low	Moderately well drained	Moderate	6	D

Notes:

[1] Based on percentage of linear extensibility, shrink-swell potential ratings of "moderate" to "very high" can result in damage to buildings, roads, and other structures.

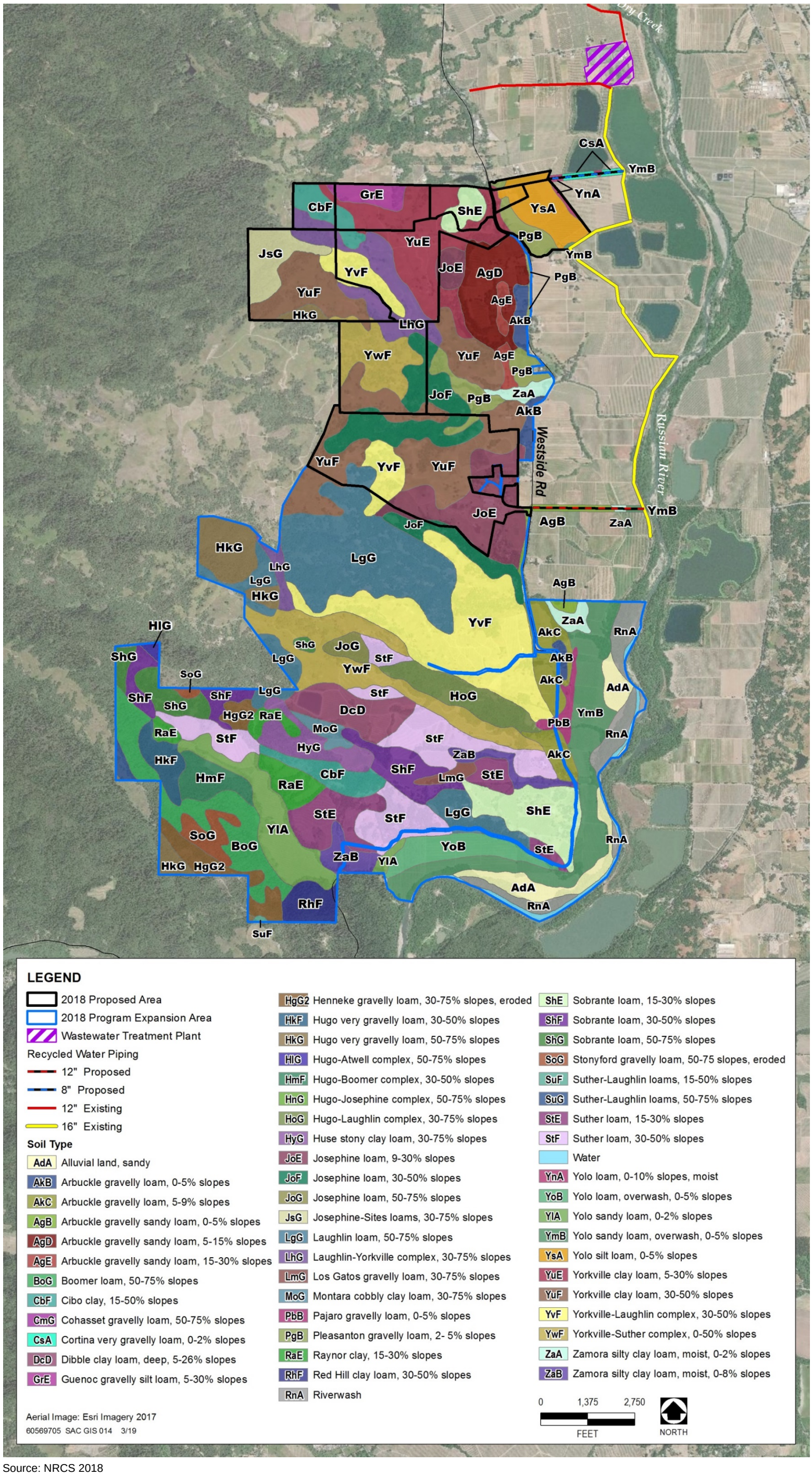
[2] Based on standard U.S. Natural Resources Conservation Service (NRCS) saturated hydraulic conductivity (Ksat) class limits. Ksat refers to the ease with which pores in a saturated soil transmit water.

[3] Based on the erosion factor "Kw whole soil," which is a measurement of relative soil susceptibility to sheet and rill erosion by water.

[4] Soils assigned to wind erodibility group 1 are the most susceptible to wind erosion, and those assigned to group 8 are the least susceptible.

[5] Group A soils = low runoff potential, Group B soils = low to medium runoff potential, Group C soils = medium to high runoff potential, Group D soils = high runoff potential.

Source: NRCS 2018



Source: NRCS 2018

Exhibit 3.5-2 Soils in the Project Area

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Expansive soils, which have a moderate to high clay content, shrink and swell as a result of moisture changes. They swell when wet and shrink when dry. According to Sonoma County Soil Survey data (NRCS 2018), soils in the 2018 Proposed Area where the booster pump station would be constructed have a moderate to high shrink-swell potential, whereas the areas where the recycled water lines would be installed generally have a low shrink-swell potential. In general, soils in the 2018 Proposed Area are well drained, have a low wind erosion hazard, a moderate water erosion hazard, and moderate to high stormwater runoff potential.

Implementing the project in the 2018 Program Expansion Area would permit an additional 3,540 acres of land to receive recycled water at a future date. Construction in the 2018 Program Expansion Area is currently anticipated to involve extending the proposed 12-inch water supply line to the south along Westside Road, to serve additional future recycled water users. The extended 12-inch water supply line along Westside Road in the 2018 Program Expansion Area would be installed in the same and substantially similar types of soils as those listed in Table 3.5-2. In general, these soils are well drained, have a moderate to high shrink-swell potential, low wind and moderate water erosion hazards, and moderate to high stormwater runoff potential (NRCS 2018).

NATURALLY OCCURRING ASBESTOS

"Asbestos" is a term applied to several types of naturally occurring fibrous materials found in rock formations throughout California. Exposure and disturbance of rock and soil that contains asbestos, particularly from construction activities, can release fibers to the air, resulting in exposure of the public to asbestos. People exposed to low levels of asbestos may be at elevated risk (e.g., above background rates) of lung cancer and mesothelioma. Asbestos is commonly found in ultramafic rock, including greenstone and serpentinite. Two forms of asbestos are associated with serpentinite: chrysotile asbestos and tremolite/actinolite asbestos. However, all types of asbestos are now considered hazardous and pose public health risks.

There are surficial outcrops of greenstone and serpentinite in both the 2018 Proposed Area and the 2018 Program Expansion Area (Exhibit 3.5-1). However, project-related construction activities, including the potential extension of the 12-inch recycled water pipeline along Westside Road in the 2018 Program Expansion Area, would not occur in either the greenstone or serpentinite outcrops. Thus, the project would not create a hazard related to naturally occurring asbestos, and this issue is not evaluated further in this SEIR.

SEISMICITY

The project area is seismically active. The Healdsburg and Hayward–Rodgers Creek faults are located approximately 3.5 miles east of the 2018 Proposed Area and 2018 Program Expansion Area. In October 1969, two earthquakes occurred on the Healdsburg Fault, with magnitudes of 5.6 and 5.7 (Wong and Bott 1995). The Rodgers Creek segment of the Hayward–Rodgers Creek Fault has shown evidence of activity during the Holocene epoch (i.e., 11,700 years B.P. to Present Day). In addition, fault creep along the Rodgers Creek segment is actively occurring. The results of a recent geologic investigation indicate that the Healdsburg Fault is likely an extension of the Hayward–Rodgers Creek Fault, and suggest that the Healdsburg and Rodgers Creek faults operate as a single integrated seismic source (Hecker and Loar 2018). The 2007 Working Group on California Earthquake Probabilities (2007 WGCEP 2008) has estimated a 31 percent probability

that an earthquake with a magnitude greater than 6.7 will occur along the Hayward–Rodgers Creek Fault by 2038. The projected maximum moment magnitude of an earthquake along the Rodgers Creek segment is 7.07.

Neither the 2018 Proposed Area nor the 2018 Program Expansion Area are located within or adjacent to an Alquist-Priolo Earthquake Fault Zone. The nearest fault zoned under the Alquist-Priolo Earthquake Fault Zoning Act (Alquist-Priolo Act) is the Hayward–Rodgers Creek, approximately 3.5 miles to the east (CGS 1983).

The primary earthquake hazards for the project area are the effects of ground shaking, liquefaction, subsidence and settlement, and landslides. The intensity of ground shaking depends on the distance from the earthquake's epicenter to the site, the magnitude of the earthquake, and the site's soil conditions. Ground motions from seismic activity can be estimated by probabilistic method at specified hazard levels and by site-specific design calculations using a computer model. The California Geological Survey's Probabilistic Seismic Hazards Assessment Model (CGS 2008) shows the estimated peak horizontal ground acceleration, a measure of the projected intensity of ground shaking from seismic events, at any given location. These estimates show a 1-in-10 probability that an earthquake within 50 years would result in a peak horizontal ground acceleration of approximately 0.472*g* (where *g* is a percentage of gravity) in the project vicinity, which indicates that a high level of seismic shaking is anticipated.

Liquefaction occurs when ground shaking from an earthquake causes a sediment layer saturated with groundwater to lose strength and take on the characteristics of fluids. Liquefaction is most likely to occur in low-lying areas where the substrate consists of poorly consolidated to unconsolidated water-saturated sediments, recent Holocene-age sediments, or deposits of artificial fill. Additional factors that determine the potential for liquefaction are the distance to an active seismic source and the depth to groundwater. Based on maps of liquefaction susceptibility prepared by Witter et al. (2006), Sonoma County (2016a) determined that the Healdsburg area east of Westside Road has moderate susceptibility to liquefaction. Portions of the 2018 Proposed Area and 2018 Program Expansion Area are on the east side of Westside Road. Because the area on the west side of Westside Road is underlain by bedrock and/or older, well-consolidated sedimentary deposits, this area is not susceptible to liquefaction.

Subsidence is the gradual settling or sudden sinking of the ground surface that results from subsurface movement of earth materials. Seismically induced settlement refers to the compaction of soils and alluvium caused by ground shaking. The area on the west side of Westside Road, including the proposed water tank and booster pump locations, consists of bedrock and/or older, well-consolidated alluvial formations that would not be subject to either subsidence or settlement. However, the portions of the 2018 Proposed Area and 2018 Program Expansion Area located on the east side of Westside Road are underlain by younger, unconsolidated alluvial sediments that could be subject to subsidence and settlement.

LANDSLIDES

Landslides can be described as the downslope movements of soil or rock materials. Landslides can be triggered by heavy rainfall, earthquakes, or human activities such as grading, construction, removal of vegetation, and changes in drainage. Landslide mapping prepared by Wentworth et al. (1997) indicates that the land area on the west side of Westside Road in the project vicinity

includes numerous historic landslide deposits. Thus, both the 2018 Proposed Area and the 2018 Program Expansion Area could be subject to landslide hazards.

PALEONTOLOGICAL RESOURCES

Paleontological Resource Inventory Methods

A stratigraphic inventory and a records search were completed to develop a baseline paleontological resource inventory of the planning area and vicinity by rock unit, and to assess the potential paleontological productivity of each rock unit. Geologic maps and reports covering the geology of the project work areas and vicinity were reviewed to determine the exposed rock units and delineate their respective areal distributions in the project area. Regional and local maps of surface geology and correlation of the various geologic units in the vicinity of the project area has been provided at a scale of 1:24,000 by Delattre (2011) and 1:100,000 by Blake et al. (2002). The literature review was supplemented by a records search conducted at the University of California, Berkeley Museum of Paleontology on March 26, 2019. Exhibit 3.5-1 shows the surficial geologic formations in the project vicinity based on geologic mapping prepared by Blake et al. (2002).

Paleontological Resource Assessment Criteria

The potential paleontological sensitivity of a project area can be assessed by identifying the paleontological importance of the rock units exposed there. A paleontologically sensitive rock unit is one that is rated high for potential paleontological productivity and is known to have produced unique, scientifically important fossils. The paleontological productivity rating of a rock unit exposed in a project area refers to the abundance and densities of fossil specimens, previously recorded fossil sites, or both in exposures of the rock unit. Exposures of a specific rock unit in a project area are likely to yield fossil remains representing particular species in quantities or densities similar to those previously recorded from the rock unit in other areas.

Paleontological Resources Sensitivity Assessment by Rock Unit

A paleontological resources sensitivity assessment was conducted for locations where construction activities would occur (i.e., water conveyance pipelines, booster pump station, and water tank). Table 3.5-3 presents the results of the assessment.

Table 3.5-3
Results of Paleontological Resources Sensitivity Assessment

Geologic Formation Name and Map Unit Abbreviation	Geologic Formation Age and Description	Summary Results of Literature and Records Search	Paleonto-logical Resource Sensitivity Rating
Alluvial fan and fluvial deposits (Qal)	Mixed Holocene (11,700 years B.P. to Present Day) and Pleistocene age (2.6 million years B.P. to 11,700 years B.P.). Alluvial fan deposits are composed of gravelly sand or	By definition, to be considered a unique paleontological resource, a fossil must be more than 11,700 years old. Holocene deposits contain only the remains of extant, modern taxa (if any resources are present), which are not considered "unique" paleontological resources.	High

Table 3.5-3 Results of Paleontological Resources Sensitivity Assessment			
Geologic Formation Name and Map Unit Abbreviation	**Geologic Formation Age and Description**	**Summary Results of Literature and Records Search**	**Paleonto-logical Resource Sensitivity Rating**
	sandy gravel that generally grade upward to sandy or silty clay. Also includes floodplain deposits, composed of medium to dark gray, dense, sandy to silty clay. Lenses of coarser material (silt, sand, and pebbles) may be locally present. Also includes stream channel deposits composed of poorly sorted to well-sorted sand, silt, silty sand, or sandy gravel with minor cobbles. Cobbles are more common in the mountain valleys.	Numerous vertebrate fossils have been recorded from Pleistocene-age sedimentary alluvial deposits throughout Sonoma, Marin, Mendocino, and Solano counties, as well as California's Central Valley (UCMP 2019). Most of these fossils have been recovered from the area around Petaluma. The closest Pleistocene-age vertebrate fossil (from an American mastodon) was recovered from the vicinity of Ducker Creek, approximately 12 miles southeast of the project area. Pleistocene alluvial deposits throughout Northern California are known to contain the remains of land mammals such as saber-toothed cat, mammoth, horse, camel, antelope, and hundreds of other species (UCMP 2019).	
Alluvial and marine terrace deposits (Qt)	Pleistocene age (2.6 million years B.P. to 11,700 years B.P.). Crudely bedded deposits of gravels, cobbles, and boulders within a sandy matrix. Coarse sand lenses may be locally present.	Numerous vertebrate fossils have been recorded from Pleistocene-age sedimentary alluvial deposits throughout Sonoma, Marin, Mendocino, and Solano counties, as well as California's Central Valley (UCMP 2019). Most of these fossils have been recovered from the area around Petaluma. The closest Pleistocene-age vertebrate fossil (from an American mastodon) was recovered from the vicinity of Ducker Creek, approximately 12 miles southeast of the project area. Pleistocene alluvial deposits throughout Northern California are known to contain the remains of land mammals such as saber-toothed cat, mammoth, horse, camel, antelope, and hundreds of other species (UCMP 2019).	High
Great Valley Sequence—sandstone, siltstone, and shale unit (member of Great Valley Complex) (KJgvs)	Early Cretaceous (145 to 99 million years B.P.). Weathered biotite- and muscovite-wacke and siltstone, dark-gray siltstone and shale, and pebble- to boulder-sized conglomerate.	The Great Valley Complex represents the accreted and deformed remnants of arc-related oceanic crust with a thick sequence of overlying turbidites,1 and is related in part to the North American continent. Because of the great depth below the ocean surface at which the oceanic crust formed, and because of the nature of the island arc remnants' accretion to the North American plate (during which the original sediments were crushed and metamorphosed), vertebrate fossils are rare.	Low

Table 3.5-3 Results of Paleontological Resources Sensitivity Assessment			
Geologic Formation Name and Map Unit Abbreviation	**Geologic Formation Age and Description**	**Summary Results of Literature and Records Search**	**Paleonto-logical Resource Sensitivity Rating**
Franciscan Complex—graywacke and mélange (KJfs)	Late Jurassic (161 to 145 million years B.P.). Weathered wacke and siltstone, shale, and slate. These rocks grade into a mélange consisting of a sheared argillite and graywacke matrix, enclosing blocks and lenses of sedimentary, metamorphic, and volcanic rocks.	The rocks of the Franciscan Complex in western Sonoma, northern Marin, and Southern Mendocino counties are mostly derived from Jurassic to Cretaceous oceanic crust and pelagic deposits overlain by turbidites.1 These Franciscan Complex rocks were accreted beneath the rocks of the Great Valley Complex. Because of the great depth below the ocean surface at which the oceanic crust formed, and because of the nature of the accretion of the oceanic plate sediments to the North American plate (during which the original sediments were crushed and metamorphosed), vertebrate fossils are not present.	Low
Franciscan Complex—mélange (fsr)	Late Jurassic (161 to 145 million years B.P.). Sheared argillite, graywacke, and minor green tuff matrix, enclosing blocks and lenses of graywacke, chert, metachert, greenstone, serpentinite, silica-carbonate rock, blueschist (metasediment and metabasalt), eclogite, amphibolite, limestone, and quartz-mica schist. Enclosed blocks and lenses range in size from pebbles to several hundred yards.	The rocks of the Franciscan Complex in western Sonoma, northern Marin, and Southern Mendocino counties area are mostly derived from Jurassic to Cretaceous oceanic crust and pelagic deposits overlain by turbidites.1 These Franciscan Complex rocks were accreted beneath the rocks of the Great Valley Complex. Because of the great depth below the ocean surface at which the oceanic crust formed, and because of the nature of the accretion of the oceanic plate sediments to the North American plate (during which the original sediments were crushed and metamorphosed), vertebrate fossils are not present.	Low
Notes: B.P. = Before Present; UCMP = University of California Museum of Paleontology 1 Turbidites are composed of sediments deposited by oceanic turbidity currents. Sources: Blake et al. 2002; Parkman 2006; UCMP 2019			

3.5.3 REGULATORY BACKGROUND UPDATE

FEDERAL PLANS, POLICIES, REGULATIONS, AND LAWS

Earthquake Hazards Reduction Act

In October 1977, the U.S. Congress passed the Earthquake Hazards Reduction Act to reduce risks to life and property from future earthquakes in the United States through the establishment and maintenance of an effective earthquake hazards reduction program. The act established the

National Earthquake Hazards Reduction Program (NEHRP). This program was substantially amended in November 1990 by the National Earthquake Hazards Reduction Program Act (NEHRPA), which refined the description of agency responsibilities, program goals, and objectives.

The NEHRP's mission is to improve understanding, characterization, and prediction of hazards and vulnerabilities; improve building codes and land use practices; reduce risks through post-earthquake investigations and education; develop and improve design and construction techniques; improve mitigation capacity; and accelerate application of research results. The NEHRPA designates the Federal Emergency Management Agency as the lead agency of the program and assigns several planning, coordination, and reporting responsibilities. Other NEHRPA agencies include the National Institute of Standards and Technology, National Science Foundation, and U.S. Geological Survey.

STATE PLANS, POLICIES, REGULATIONS, AND LAWS

Alquist-Priolo Earthquake Fault Zoning Act

The Alquist-Priolo Act (Public Resources Code Sections 2621–2630) was passed in 1972 to reduce the hazard of surface faulting to structures used for human occupancy. The main purpose of the law is to prevent the construction of buildings used for human occupancy on the surface trace of active faults. The law addresses only the hazard of surface fault rupture and is not directed toward other earthquake hazards. The Alquist-Priolo Act requires the State Geologist to establish regulatory zones known as Earthquake Fault Zones around the surface traces of active faults and to issue appropriate maps. (Before January 1, 1994, Earthquake Fault Zones were called Special Studies Zones.) The maps are distributed to all affected cities, counties, and state agencies for their use in planning efforts. Before a project can be permitted in a designated Alquist-Priolo Earthquake Fault Zone, cities and counties must require a geologic investigation to demonstrate that buildings intended for human occupancy would not be constructed across active faults.

Seismic Hazards Mapping Act

The Seismic Hazards Mapping Act of 1990 (Public Resources Code Sections 2690 through 2699.6) addresses earthquake hazards from nonsurface fault rupture, including liquefaction and seismically induced landslides. The act established a mapping program for areas that have the potential for liquefaction, landslides, strong ground shaking, or other earthquake and geologic hazards. The act also specifies that the lead agency may withhold development permits until geologic or soils investigations are conducted for specific sites and mitigation measures are incorporated into plans to reduce hazards associated with seismicity and unstable soils.

National Pollutant Discharge Elimination System Permit

As discussed in detail in Section 3.2, "Hydrology and Water Quality," the State Water Resources Control Board and North Coast Regional Water Quality Control Board have adopted specific National Pollutant Discharge Elimination System permits for a variety of activities that have the potential to discharge wastes (including sediment) to waters of the state. The State Water Resources Control Board's statewide storm water general permit for construction activity (Order 2009-009-DWQ as amended by Order No. 2012-0006-DWQ) is applicable to all construction activities that would disturb 1 acre or more of land. The National Pollutant Discharge Elimination

System permit's terms and conditions require an operator to obtain authorization to discharge stormwater and prepare a storm water pollution prevention plan that describes the control measures for water pollution, including sediment, in runoff during construction. The intent of a storm water pollution prevention plan is to describe the site-specific best management practices (BMPs) that will be implemented to control erosion and sedimentation and reduce pollutant loads into downstream water bodies.

California Building Standards Code

The State of California provides minimum standards for building design through the California Building Standards Code (CBC) (California Code of Regulations Title 24). The CBC also applies to building design and construction in the state and is based on the national Uniform Building Code (UBC), which is used widely throughout the country (generally adopted on a state-by-state or district-by-district basis). The CBC reflects California conditions and includes numerous regulations that are more detailed or more stringent than those found in the UBC. Where no other building codes apply, Chapter 29 of the California Code of Regulations regulates excavation, foundations, and retaining walls.

The state earthquake protection law (California Health and Safety Code, Section 19100 et seq.) requires that structures be designed to resist stresses produced by lateral forces caused by wind and earthquakes. The CBC requires that any structure designed for a project site undergo a seismic-design evaluation that assigns the structure to one of six categories, A–F; Category F structures require the most earthquake-resistant design. The CBC philosophy focuses on "collapse prevention," meaning that structures are to be designed to prevent collapse during the maximum level of ground shaking that could reasonably be expected to occur at a site. CBC Chapter 16 specifies exactly how each seismic-design category is to be determined on a site-specific basis, based on site-specific soil characteristics and proximity to potential seismic hazards.

Chapter 18 of the CBC regulates the excavation of foundations and retaining walls, as well as the preparation of a preliminary soil report, engineering geologic report, geotechnical report, and supplemental ground-response report. Chapter 18 also regulates the analysis of expansive soils and the determination of depth to the groundwater table. For structures in Seismic Design Category C, Chapter 18 requires analysis of slope instability, liquefaction, and surface rupture attributable to faulting or lateral spreading. For structures in Seismic Design Categories D, E, and F, Chapter 18 requires these same analyses plus an evaluation of lateral pressures on basement and retaining walls, liquefaction and loss of soil strength, and lateral movement or reduction of the foundation's soil-bearing capacity.

Chapter 18 also requires that mitigation measures be considered in structural design. Mitigation measures may include stabilizing the ground, selecting appropriate foundation types and depths, selecting appropriate structural systems to accommodate anticipated displacements, or using any combination of these measures. The potential for liquefaction and soil strength loss must be evaluated for site-specific peak-ground-acceleration magnitudes and source characteristics consistent with the design earthquake ground motions. The peak ground acceleration must be determined in a site-specific study, the contents of which are specified in CBC Chapter 18.

Finally, Appendix J of the CBC regulates grading activities, including drainage and erosion control, and construction on expansive soils, in areas subject to liquefaction, and on other unstable soils.

LOCAL PLANS, POLICIES, REGULATIONS, AND ORDINANCES

Sonoma County General Plan

The *Sonoma County General Plan 2020* (Sonoma County 2016b) identifies the following goals, objectives, and policies that are applicable to the proposed project.

Geologic and Seismic Hazards

Goal PS-1: Prevent unnecessary exposure of people and property to risks of damage or injury from earthquakes, landslides, and other geologic hazards.

- **Objective PS-1.2:** Regulate new development to reduce the risks of damage and injury from known geologic hazards to acceptable levels.
    - **Policy PS-1f:** Require and review geologic reports prior to decisions on any project which would subject property or persons to significant risks from the geologic hazards areas shown on Public Safety Element hazard maps and related file maps and source documents. Geologic reports shall describe the hazards and include mitigation measures to reduce risks to acceptable levels. Where appropriate, require an engineer's or geologist's certification that risks have been mitigated to an acceptable level and, if indicated, obtain indemnification or insurance from the engineer, geologist, or developer to minimize County exposure to liability.

Soils

Goal OSRC-11: Promote and encourage soil conservation and management practices that maintain the productivity of soil resources.

- **Objective OSRC-11.1:** Ensure that permitted uses are compatible with reducing potential damage due to soil erosion.
- **Objective OSRC-11.2:** Establish ways to prevent soil erosion and restore areas damaged by erosion.
    - **Policy OSRC-11a:** Design discretionary projects so that structures and roads are not located on slopes of 30 percent or greater. This requirement is not intended to make any existing parcel unbuildable if Health and Building requirements can be met.
    - **Policy OSRC-11b:** Include erosion control measures for any discretionary project involving construction or grading near waterways or on lands with slopes over 10 percent.
    - **Policy OSRC-11d:** Require a soil conservation program to reduce soil erosion impacts for discretionary projects that could increase waterway or hillside erosion. Design

improvements such as roads and driveways to retain natural vegetation and topography to the extent feasible.

- **Policy OSRC-11e:** Retain natural vegetation and topography to the extent economically feasible for any discretionary project improvements near waterways or in areas with a high risk of erosion as noted in the Sonoma County Soil Survey.

- **Policy OSRC-11f:** Prepare and submit to the Board of Supervisors an erosion and sediment control report.

- **Policy OSRC-11g:** Continue to enforce the Uniform Building Code to reduce erosion and slope instability problems.

Paleontological Resources

Objective OSRC-19.3: Encourage protection and preservation of archaeological and cultural resources by reviewing all development projects in archaeologically sensitive areas.

- **Policy OSRC-19j:** Develop an archaeological and paleontological resource protection program that provides:

  (1) Guidelines for land uses and development on parcels identified as containing such resources,

  (2) Standard project review procedures for protection of such resources when discovered during excavation and site disturbance, and

  (3) Educational materials for the building industry and the general public on the identification and protection of such resources.

City of Healdsburg General Plan

The *Healdsburg 2030 General Plan* (City of Healdsburg 2015) identifies the following goals and policies that are applicable to the proposed project.

Goal S-A: Prevention of the loss of lives, injuries, and property damage due to geologic hazards.

- **Policy S-A-2:** The City will ensure that public and private development in areas with significant geologic hazards are sited to minimize the exposure of structures and improvements to damage and to minimize the aggravation of off-site geologic hazards. Development may be clustered on lots smaller than required by the Zoning Ordinance to avoid areas with identified hazards.

Goal S-B: Prevention of the loss of lives, injury, and property damage and prevention of the disruption of essential services due to earthquake damage.

- **Policy S-B-2:** The City will ensure that all public facilities, such as buildings, water tanks, and reservoirs, are structurally sound and able to withstand seismic shaking and the effects of seismically-induced ground failure.

City of Healdsburg Grading and Erosion Control Ordinance

Chapter 17.36 of the City of Healdsburg Municipal Code regulates grading and erosion control. Projects involving ground-disturbing activities must comply with the conditions and the grading and erosion control requirements of this ordinance. Applying for a grading permit requires submitting a site plan, a grading map, and an erosion, sediment, and runoff control plan. The erosion, sediment, and runoff control plan must include the land treatment, structural measures, and timing requirements that would be implemented at the project site to effectively minimize soil erosion and sedimentation. The plan must also include appropriate construction site BMPs; the specific locations where BMPs will be installed; a maintenance schedule; and the rationale for selecting the BMPs, including soil loss calculations if necessary. All materials must be prepared by a registered civil engineer.

Professional Paleontological Guidelines

The Society of Vertebrate Paleontology (SVP), a national scientific organization of professional vertebrate paleontologists, has established standard guidelines that outline acceptable professional practices in the conduct of paleontological resource assessments and surveys, monitoring and mitigation, data and fossil recovery, sampling procedures, specimen preparation, analysis, and curation.

In its standard guidelines for assessment and mitigation of adverse impacts on paleontological resources, the SVP (1996) established three categories of sensitivity for paleontological resources: high, low, and undetermined. Areas where fossils have been previously found are considered to have a high sensitivity and a high potential to produce fossils. Areas that are not sedimentary in origin and have not been known to produce fossils in the past typically are considered to have low sensitivity. Areas that have not had any previous paleontological resource surveys or fossil finds are considered to be of undetermined sensitivity until surveys and mapping are performed to determine their sensitivity. After reconnaissance surveys, observation of exposed cuts, and possibly subsurface testing, a qualified paleontologist can determine whether the area of undetermined sensitivity should be categorized as having high or low sensitivity. In keeping with the SVP significance criteria, all vertebrate fossils are generally categorized as being of potentially significant scientific value.

3.5.4 Impacts and Mitigation Measures

Standards of Significance

Based on Appendix G of the State CEQA Guidelines, the project would have a significant impact on earth resources if it would:

- directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:
    - 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;
    - strong seismic ground shaking;

- seismic-related ground failure, including liquefaction; or
- landslides;

- result in substantial soil erosion or the loss of topsoil;
- 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;
- 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;
- have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater; or
- directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.

ISSUES NOT ADDRESSED FURTHER IN THIS EIR

Soil Suitability for Septic Systems—The proposed project does not require a wastewater treatment system. Temporary, portable restrooms would be provided during project-related construction activities. Thus, there would be no impact related to soil suitability for septic systems, and this issue is not evaluated further in this EIR.

METHODOLOGY

Evaluation of potential impacts related to geology, soils, and seismicity was based on a review of documents pertaining to the project site, including soil survey data, published geologic literature and maps, and aerial photographs. The information obtained from these sources was reviewed and summarized to document existing conditions and to identify the potential environmental effects of the proposed project.

Based on Appendix G of the State CEQA Guidelines, implementing the proposed project would result in a potentially significant impact on paleontological resources if it would directly or indirectly destroy a unique paleontological resource or site. A "unique paleontological resource or site" is one that is considered significant under the following professional paleontological standards.

An individual vertebrate fossil specimen may be considered unique or significant if it is identifiable and well preserved, and it meets one of the following criteria:

- a type specimen (i.e., the individual from which a species or subspecies has been described);
- a member of a rare species;

- a species that is part of a diverse assemblage (i.e., a site where more than one fossil has been discovered) wherein other species are also identifiable, and important information regarding life history of individuals can be drawn;

- a skeletal element different from, or a specimen more complete than, those now available for its species; or

- a complete specimen (i.e., all or substantially all of the entire skeleton is present).

The value or importance of different fossil groups varies depending on the age and depositional environment of the rock unit that contains the fossils, their rarity, the extent to which they have already been identified and documented, and the ability to recover similar materials under more controlled conditions (such as for a research project). Marine invertebrates generally are common, the fossil record is well developed and well documented, and they would generally not be considered a unique paleontological resource. Identifiable vertebrate marine and terrestrial fossils generally are considered scientifically important because they are relatively rare.

IMPACT ANALYSIS

Impact 3.5-1: Potential to Expose Structures to Seismic Activity and Related Ground Failure

The 2018 Proposed Area and 2018 Program Expansion Area are located in the vicinity of several active faults (Jennings and Bryant 2010). Seismic activity along the Healdsburg Fault, the Hayward–Rodgers Creek Fault, or any of the other active faults in the San Francisco Bay region could result in strong seismic ground shaking, which could cause structural damage to the proposed water pump station and water conveyance pipelines.

The proposed 8- and 12-inch recycled water conveyance pipelines in the 2018 Proposed Area, which would be located on the east side of Westside Road, could be exposed to hazards from liquefaction and seismically induced settlement in the event of a nearby moderate to major earthquake (Witter et al. 2006).

Strong seismic ground shaking and seismically related ground failure could occur at the project site; however, the City would be required to design project site structures in accordance with the standards of the current CBC, including California Building Code section on Earthquake Loads, 24 Cal. Code Reg. § 1613. In addition, the design of project facilities would comply with applicable City and Sonoma County policies regarding seismic and geologic hazards and public safety, including the City's *Public Works Standard Specifications and Details* (City of Healdsburg 2008). This impact would be ***less than significant***.

Mitigation Measures: No mitigation is required.

Impact 3.5-2: Construction-Related Erosion

Implementing the project would require trenching, grading, and placement of fill materials during construction. Soil disturbance during construction activities would increase the potential for erosion, particularly during the winter rainy season. However, Chapter 17.36.020 of the City of Healdsburg Municipal Code states that to prevent construction-related erosion, no grading is

allowed between October 1 and April 30 for construction projects on hillsides with slopes that are 10 percent or greater, unless the project is granted an exception by the City engineer. For an exception to be granted, the project must meet a suite of erosion control requirements set forth in the code, and must include on-site water quality monitoring to demonstrate the effectiveness of BMPs. Even if the project-related construction were confined to May 1 through September 30, construction activities could still result in soil erosion and associated sediment transport to downstream water bodies. This impact would be ***potentially significant***.

Mitigation Measure S3.5-2: Develop and Implement an Erosion Control Plan

As required by Chapter 17.36 of the City of Healdsburg Municipal Code, the City shall develop and implement an erosion control plan that specifies the land treatment, structural measures, and timing requirements that would be implemented at the project site to effectively minimize soil erosion and sedimentation. The plan shall also include appropriate construction site BMPs to prevent erosion and off-site sediment transport; the specific locations where BMPs will be installed; a maintenance schedule; and the rationale for selecting the BMPs. The plan shall be prepared by a registered civil engineer. Erosion and sediment control BMPs that could be used include, but are not limited to, detention basins, berms, swales, wattles, silt fencing, and covering stockpiled soils.

Timing/Implementation: During project design and construction.

Enforcement/Monitoring: City of Healdsburg.

Implementing this mitigation measure would reduce this potential earth resources impact to a ***less-than-significant*** level because an erosion control plan with site-specific BMPs would be implemented to limit erosion.

Impact 3.5-3: Location of the Project on an Unstable Geologic Unit or Soil

The best available predictor of the locations where landslide movement might occur in the future is the distribution of past movements. Landslides can be recognized from their distinctive topographic shapes, which can persist in the landscape for thousands of years. Most of the 2018 Proposed Area and the 2018 Program Expansion Area on the west side of Westside Road would be located on steep slopes and in mapped landslide deposits (Wentworth et al. 1997). Thus, the potential for additional landslides to occur in the future is high. The proposed 8- and 12-inch pipeline extensions on the east side of Westside Road would not be subject to landslides, and no impact related to landslides would result. The proposed facilities on the dairy/vineyard property and the 12-inch pipeline extension along Westside Road in the 2018 Program Expansion Area would be constructed in conformance with the CBC and with applicable City and Sonoma County policies regarding seismic and geologic hazards and public safety, including the City's *Public Works Standard Specifications and Details* (City of Healdsburg 2008). Still, landslides in this area could damage project structures during operation. This impact would be ***potentially significant***.

Mitigation Measure S3.5-3: Prepare a Design-Level Landslide Hazards Evaluation

A design-level landslide hazard evaluation shall be completed before construction permits are issued for all proposed facilities on the west side of Westside Road. The study shall specifically address the susceptibility of the site to landslides and shall include recommendations applicable

to earthwork and site preparation, such as buttressing toe slopes and avoiding certain hazardous locations more susceptible to landslides. The evaluation shall be prepared by a registered civil or geotechnical engineer. Measures included in the report shall be implemented as appropriate, based on specific site conditions.

Timing/Implementation: Before construction permits are issued.

Enforcement/Monitoring: City of Healdsburg.

Implementing this mitigation measure would reduce this potential earth resources impact to a ***less-than-significant*** level because site-specific design measures to reduce landslide hazards would be implemented.

Impact 3.5-4: Location of the Project on Expansive Soil

Based on NRCS (2018) soil survey data, as shown in Table 3.5-2, soils in the vicinity of the proposed 8- and 12-inch recycled water conveyance pipelines in the 2018 Proposed Area have a relatively low shrink-swell potential. Therefore, no significant impact related to expansive soils would result from construction and operation of these pipeline extensions. However, soils associated with the proposed booster pump station and the 12-inch extension of the proposed recycled water pipeline along Westside Road, have a moderate to high shrink-swell potential. The proposed facilities would be constructed in conformance with the CBC and with applicable City and Sonoma County policies related to building and grading standards for soils with expansive properties, including the City's *Public Works Standard Specifications and Details* (City of Healdsburg 2008). Still, the expansion potential of these soils could result in damage to project structures during operation. This impact would be ***potentially significant***.

Mitigation Measure S3.5-4: Prepare Design-Level Geotechnical Study to Address Expansive Soils

A design-level geotechnical study shall be completed for the project area before construction permits are issued. The study shall specifically address whether expansive soils are present in the project area and shall identify measures, such as use of artificial/imported fill or soil treatment with lime, to address these soils where they occur. Measures included in the report shall be implemented as appropriate, based on specific soil conditions.

Timing/Implementation: Before construction permits are issued.

Enforcement/Monitoring: City of Healdsburg.

Implementing this mitigation measure would reduce this potential earth resources impact by implementing a design-level geotechnical study that will (1) identify whether expansive soils are present and (2) identify measures to address such soils where they occur, thereby reducing the impact to a ***less-than-significant*** level.

Impact 3.5-5: Potential Damage to or Destruction of Unique Paleontological Resources

As discussed in detail in Table 3.5-3, project-related construction activities would occur in a variety of rock formations. Because of the nature and composition of the Franciscan Complex and

the Great Valley Sequence, these formations contain only invertebrate fossil specimens, which are not considered "unique" paleontological resources. These formations are considered to be of low paleontological sensitivity. Thus, earthmoving activities in the Franciscan Complex and the Great Valley Sequence—which includes most of the 12-inch recycled water pipeline extension in the 2018 Program Expansion Area—would have a less-than-significant impact on unique paleontological resources.

However, project-related construction activities associated with proposed water conveyance pipelines in both the 2018 Proposed Area and a portion of the 2018 Program Expansion Area, along with the proposed booster pump station, would occur within Pleistocene-age alluvial deposits. Pleistocene alluvial deposits throughout Northern and Central California (including Sonoma County) are known to contain the remains of land mammals such as saber-toothed cat, mammoth, horse, camel, antelope, and hundreds of other species. Therefore, the Pleistocene alluvial deposits are considered to be of high paleontological sensitivity. Earthmoving activities in these deposits could result in accidental damage to or destruction of unique paleontological resources. Therefore, this impact would be ***potentially significant*.**

Mitigation Measure S3.5-5: Conduct Construction Personnel Education, Stop Work if Paleontological Resources are Discovered, Assess the Significance of the Find, and Prepare and Implement a Recovery Plan, as Required.

To minimize the potential for destruction of or damage to potentially unique, scientifically important paleontological resources during project-related earthmoving activities associated with all water conveyance pipelines and the booster pump station, the City shall implement the following measures.

- Before the start of construction activities, construction personnel involved with earthmoving activities shall be informed of the possibility of encountering fossils, the appearance and types of fossils likely to be seen during construction activities, and proper notification procedures should fossils be encountered. This worker training may either be prepared and presented by an experienced field archaeologist at the same time as construction worker education on cultural resources, or prepared and presented separately by a qualified paleontologist.

- If paleontological resources are discovered during earthmoving activities, the construction crew shall notify the City and shall immediately cease work in the vicinity of the find. The City shall retain a qualified paleontologist to evaluate the resource and prepare a recovery plan in accordance with SVP (1996) guidelines. The recovery plan may include but is not limited to a field survey, construction monitoring, sampling and data recovery procedures, museum storage coordination for any specimen recovered, and a report of findings. Recommendations in the recovery plan that are determined by the City, as the CEQA lead agency, to be necessary and feasible shall be implemented before construction activities can resume at the site where the paleontological resources were discovered.

Timing/Implementation: Before construction permits are issued.

Enforcement/Monitoring: City of Healdsburg.

Implementing this mitigation measure would reduce this potential paleontological resources impact to a ***less-than-significant*** level because construction workers would be alerted to the

possibility of encountering paleontological resources and, in the event that resources were discovered, work would stop immediately and fossil specimens would be recovered and recorded and would undergo appropriate curation.

3.6 AIR QUALITY

This section summarizes existing air quality conditions and applicable regulations and analyzes potential short- and long-term impacts of the proposed project on air quality. The method used to analyze the project's anticipated short-term construction and long-term regional (operational) emissions of air pollutants and odors is consistent with recommendations made by the Northern Sonoma County Air Pollution Control District (NSCAPCD). In addition, mitigation measures are recommended, as necessary, to reduce potentially significant adverse air quality impacts.

3.6.1 SUMMARY OF FINDINGS FROM THE CERTIFIED EIR

Table 3.6-1 identifies significant project impacts on air quality, as presented in the certified EIR (2005), and the mitigation measures identified to reduce those impacts. Impacts for which the analysis in the certified EIR reached conclusions of less than significant or no impact are not listed here.

Table 3.6-1
Significant Impacts and Mitigation Measures Identified in the Certified EIR (2005)—Air Quality

Impact	Mitigation Measures	Level of Significance Following Mitigation
Impact 3.6-1: Generation of Temporary Emissions from Construction Activities		
This option would involve construction activities associated with the extensive trenching required for pipeline installation to transport treated wastewater to irrigation locations offsite. Pipeline installation and trenching would temporarily generate emissions of ROG, NO_X, and PM_{10} from a variety of construction operations.	**Mitigation Measure 3.6-1: Implement Air Quality Emission Control Measures** As recommended for use by the Northern Sonoma County Air Pollution Control District, the City shall require implementation of Bay Area Air Quality Management District-recommended Basic, Enhanced, and Optional Control Measures, as necessary, to reduce construction generated emissions. Construction activities are also required to comply with all applicable NSCAPCD rules and regulations, specifically Rule 485 regarding architectural coatings, Rule 430 regarding fugitive dust, and Rule 410 regarding visible emissions. Additional mitigation measures shall be implemented due to the mass excavation activities to reduce nitrogen oxides and visible emissions from heavy-duty diesel equipment. However, the northern portion of Sonoma County is designated as a nonattainment area for PM_{10} and thus project-generated emissions could contribute to further violations of air quality standards.	SU

Notes: EIR = environmental impact report; NO_X = oxides of nitrogen; NSCAPCD = Northern Sonoma County Air Pollution Control District; PM_{10} = particulate matter with an aerodynamic resistance diameter of 10 micrometers or less; ROG = reactive organic gases; SU = significant and unavoidable
Source: Data compiled by AECOM in 2019, based on the certified 2005 EIR for the City of Healdsburg Wastewater Treatment Plant Upgrade Project

3.6.2 ENVIRONMENTAL SETTING UPDATE

TOPOGRAPHY, METEOROLOGY, AND CLIMATE

The project site is located in the city of Healdsburg in Sonoma County, an area that falls within the jurisdiction of NSCAPCD. Northern Sonoma County is part of the North Coast Air Basin (NCAB), which also includes all of Del Norte, Humboldt, Mendocino, and Trinity counties. Air quality in this area is determined by such natural factors as topography, meteorology, and climate, in addition to the presence of existing air pollution sources and ambient conditions. These factors along with applicable regulations are discussed below.

The dominant effect on the regional climate comes from the strength and location of a semi-permanent, subtropical high-pressure cell over the Pacific Ocean. During the summer, this high-pressure cell is centered over the northeastern Pacific, resulting in stable meteorological conditions and a steady northwesterly wind flow. This northwesterly flow causes upwelling of cold ocean water to the surface, producing a band of cold water off the California coast. This cold water further cools the moisture-laden air approaching the coast from the Pacific Ocean, resulting in condensation and the presence of fog and stratus clouds along the Northern California coast. In the winter, the Pacific high-pressure cell weakens and shifts southward, resulting in wind flow offshore, the absence of upwelling, and the occurrence of storms. Weak inversions coupled with moderate winds result in low air pollution potential.

The local meteorology in this area is influenced by the topography of the Russian River Valley. The valley is long and narrow, approximately 5 miles wide at its northern end and 1 mile wide at its southern end. Generally, up-valley winds are strongest during summer afternoons while down-valley winds are strongest on clear winter nights. Prevailing winds typically follow the valley's north/south axis, although some upslope flow during the day and downslope flow during the night occur near the base of the mountains surrounding the valley. During the summer, average daily maximum temperatures approach 90 degrees Fahrenheit and minimum temperatures are in the mid-50s. Winter maximum temperatures are usually in the high 50s to the mid-60s, with minimum temperatures ranging from the mid-30s to low 40s.

Prevailing winds can transport locally and nonlocally generated pollutants northward into the Russian River Valley. When a warm layer of air traps cooler air close to the ground, a temperature inversion layer is the result. Such inversions create a ceiling over the area, hampering the dispersion of air pollutants by trapping them near the ground. Pollutants can be trapped and concentrated in the valley during these periods of stability. Local upslope and downslope air flows generated by the valley's surrounding mountains may also recirculate pollutants. During summer mornings and afternoons, these inversions are present over the project area. During the summer, longer daylight hours provide plentiful sunlight to fuel photochemical reactions between oxides of nitrogen (NO_X) and reactive organic gases (ROG), which result in ozone formation. In the winter, temperature inversions dominate during the night and early morning hours, but frequently dissipate by afternoon. The greatest wintertime pollution problems are from carbon monoxide (CO) and NO_X. High CO concentrations occur on winter days with strong surface inversions and light winds. Transport of CO is extremely limited.

EXISTING AMBIENT AIR QUALITY

The U.S. Environmental Protection Agency (EPA) and the California Air Resources Board (ARB) use monitoring data to designate areas according to their attainment status relative to the national ambient air quality standards (NAAQS) and California ambient air quality standards (CAAQS) for the "criteria" air pollutants. (See Section 3.6.3, "Regulatory Background Update," below for discussions of NAAQS, CAAQS, and criteria air pollutants.) EPA and ARB use these designations to identify areas with air quality problems and initiate planning efforts for improvement.

The three basic air quality designation categories are "nonattainment," "attainment," and "unclassified." The unclassified designation is used in areas that cannot be classified as meeting or not meeting the standards, based on available information. The California designations also include a subcategory of the nonattainment designation called "nonattainment-transitional." The nonattainment-transitional designation is given to nonattainment areas that are progressing and nearing attainment. Table 3.6-2 shows the NCAB's attainment designations for each criteria air pollutant.

Existing concentrations of criteria air pollutants are measured at several monitoring stations in the NCAB. The Healdsburg Airport (200a Heidelberg Way) and the Santa Rosa (Santa Rosa–103 Morris Street) stations are the closest to the project area with recent data for ozone, CO, NO_X, respirable particulate matter with an aerodynamic resistance diameter of 10 micrometers or less (PM_{10}), and fine particulate matter with an aerodynamic resistance diameter of 2.5 micrometers or less ($PM_{2.5}$). In general, the ambient air quality measurements from these stations are representative of the air quality in the project vicinity. Table 3.6-3 summarizes the air quality data from the most recent 3 years.

Ozone

Ozone is a photochemical oxidant, a substance whose oxygen combines chemically with another substance in the presence of sunlight, and the primary component of smog. Ozone is not directly emitted into the air, but is formed through complex chemical reactions between precursor emissions of ROG and NO_X in the presence of sunlight. ROG are volatile organic compounds that are photochemically reactive. ROG emissions result primarily from incomplete combustion and the evaporation of chemical solvents and fuels. NO_X are a group of gaseous compounds of nitrogen and oxygen that results from the combustion of fuels.

Ozone located in the upper atmosphere (stratosphere) acts in a beneficial manner by shielding the earth from harmful ultraviolet radiation that is emitted by the sun. However, ozone located in the lower atmosphere (troposphere) is a major health and environmental concern. Because sunlight and heat serve as catalysts for the reactions between ozone precursors, peak ozone concentrations typically occur during the summer in the Northern Hemisphere (EPA 2016a). In general, ozone concentrations over or near urban and rural areas reflect an interplay of emissions of ozone precursors, transport, meteorology, and atmospheric chemistry (Godish 1991).

Table 3.6-2
Ambient Air Quality Standards and Designations and Attainment Status in the North Coast Air Basin

Pollutant	Averaging Time	California [1]			National Standards [2]			
		Concentration [3]	Method [4]	Attainment Status	Primary [3,5]	Secondary [3,6]	Method [7]	Attainment Status
Ozone [8]	1-hour	0.09 ppm (180 µg/m³)	Ultraviolet Photometry	A	–	Same as Primary Standard	Ultraviolet Photometry	U/A
	8-hour	0.070 ppm (137 µg/m³)			0.070 ppm (137 µg/m³)			
Carbon Monoxide	1-hour	20 ppm (23 mg/m³)	Nondispersive Infrared Photometry	U	35 ppm (40 mg/m³)	–	Non-Dispersive Infrared Photometry	U/A
	8-hour	9.0 ppm (10 mg/m³)			9 ppm (10 mg/m³)			
	8-hour (Lake Tahoe)	6 ppm (7 mg/m³)		–	–	–		–
Nitrogen Dioxide [10]	Annual Arithmetic Mean	0.030 ppm (57 µg/m³)	Gas Phase Chemiluminescence	A	0.053 ppm (100 µg/m³)	–	Gas Phase Chemiluminescence	U/A
	1-hour	0.18 ppm (339 µg/m³)			100 ppb (188 µg/m³)	Same as Primary Standard		–
Sulfur Dioxide [11]	Annual Arithmetic Mean	–	Ultraviolet Fluorescence	–	0.030 ppm (for certain areas)[11]	–	Ultraviolet Fluorescence; Spectrophotometry (Pararosaniline Method)	U/A
	24-hour	0.04 ppm (105 µg/m³)		A	0.14 ppm (for certain areas) [11]	–		
	3-hour	–		–	–	0.5 ppm (1300 µg/m³)		
	1-hour	0.25 ppm (655 µg/m³)		A	75 ppb (196 µg/m³)	–		–
Respirable Particulate Matter (PM_{10}) [9]	Annual Arithmetic Mean	20 µg/m³	Gravimetric or Beta Attenuation	A	–	Same as Primary Standard	Inertial Separation and Gravimetric Analysis	U
	24-hour	50 µg/m³			150 µg/m³			
Fine Particulate Matter ($PM_{2.5}$) [9]	Annual Arithmetic Mean	12 µg/m³*	Gravimetric or Beta Attenuation	A	12.0 µg/m³	15 µg/m³	Inertial Separation and Gravimetric Analysis	U/A
	24-hour	–			35 µg/m³	Same as Primary Standard		
Lead [12, 13]	30-day Average	1.5 µg/m³	Atomic Absorption	A	–	–	High Volume Sampler and Atomic Absorption	–
	Calendar Quarter	–		–	1.5 µg/m³ (for certain areas)[12]	Same as Primary Standard		U/A
	Rolling 3-Month Average	–		–	0.15 µg/m³			
Sulfates	24-hour	25 µg/m³	Ion Chromatography	A	**No Federal Standards**			
Hydrogen Sulfide	1-hour	0.03 ppm (42 µg/m³)	Ultraviolet Fluorescence	U				
Vinyl Chloride[12]	24-hour	0.01 ppm (26 µg/m³)	Gas Chromatography	U				

Table 3.6-2
Ambient Air Quality Standards and Designations and Attainment Status in the North Coast Air Basin

Pollutant	Averaging Time	California [1]			National Standards [2]			
		Concentration [3]	Method [4]	Attainment Status	Primary [3,5]	Secondary [3,6]	Method [7]	Attainment Status
Visibility-Reducing Particle Matter[14]	8-hour	See footnote 14	Beta Attenuation and Transmittance through Filter Tape	U				

Notes: µg/m^3 = micrograms per cubic meter; A = attainment; $PM_{2.5}$ = particulate matter with an aerodynamic resistance diameter of 2.5 micrometers or less; PM_{10} = particulate matter with an aerodynamic resistance diameter of 10 micrometers or less; ppm = parts per million; U = unclassified; U/A = unclassified/attainment

[1] California standards for ozone, carbon monoxide (except 8-hour Lake Tahoe), sulfur dioxide (1- and 24-hour), nitrogen dioxide, and particulate matter (PM_{10}, $PM_{2.5}$, and visibility-reducing particles), are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.

[2] National standards (other than ozone, particulate matter, and those based on annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over 3 years, is equal to or less than the standard. For PM_{10}, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m^3 is equal to or less than 1. For $PM_{2.5}$, the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over 3 years, are equal to or less than the standard. Contact the U.S. Environmental Protection Agency (EPA) for further clarification and current national policies.

[3] Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based on a reference temperature of 25 degrees Celsius (°C) and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.

[4] Any equivalent measurement method that can be shown to the satisfaction of ARB to give equivalent results at or near the level of the air quality standard may be used.

[5] National Primary Standards: The levels of air quality necessary, with an adequate margin of safety, to protect the public health.

[6] National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

[7] Reference method as described by EPA. An "equivalent method" of measurement may be used but must have a "consistent relationship to the reference method" and must be approved by EPA.

[8] On October 1, 2015, the national 8-hour primary and secondary standards for ozone were lowered from 0.075 ppm to 0.070 ppm.

[9] On December 14, 2012, the national annual primary standard for $PM_{2.5}$ was lowered from 15 µg/m^3 to 12.0 µg/m^3. The existing national 24-hour $PM_{2.5}$ standards (primary and secondary) were retained at 35 µg/m^3, as was the annual secondary standard of 15 µg/m^3. The existing 24-hour PM_{10} standards (primary and secondary) of 150 µg/m^3 were also retained. The form of the annual primary and secondary standards is the annual mean, averaged over 3 years.

[10] To attain the 1-hour national standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 100 parts per billion (ppb). Note that the national 1-hour standard is in units of ppb. California standards are in units of ppm. To directly compare the national 1-hour standard to the California standards, the units can be converted from ppb to ppm. In this case, the national standard of 100 ppb is identical to 0.100 ppm.

[11] On June 2, 2010, a new 1-hour standard for sulfur dioxide was established and the existing 24-hour and annual primary standards were revoked. To attain the 1-hour national standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 ppb. The 1971 national standards (24-hour and annual) for sulfur dioxide remain in effect until 1 year after an area is designated for the 2010 standard, except that in areas designated nonattainment for the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved. Note that the 1-hour national standard is in units of ppb. California standards are in units of ppm. To directly compare the 1-hour national standard to the California standard, the units can be converted to ppm. In this case, the national standard of 75 ppb is identical to 0.075 ppm.

[12] ARB has identified lead and vinyl chloride as "toxic air contaminants" with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

[13] The national standard for lead was revised on October 15, 2008, to a rolling 3-month average. The 1978 lead standard (1.5 µg/m^3 as a quarterly average) remains in effect until 1 year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.

[14] In 1989, ARB converted both the general statewide 10-mile visibility standard and the Lake Tahoe 30-mile visibility standard to instrumental equivalents, which are "extinction of 0.23 per kilometer" and "extinction of 0.07 per kilometer" for the statewide and Lake Tahoe Air Basin standards, respectively.

Sources: ARB 2016, 2018

Table 3.6-3
Summary of Annual Ambient Air Quality Data (2015–2017)

	2015	2016	2017
OZONE Healdsburg–Municipal Airport 200a Heidelberg Way, Healdsburg, CA [1]			
State maximum 1-hour concentration (ppm)	0.072	0.072	0.083
State/national maximum 8-hour concentration (ppm)	0.064/0.063	0.066/0.066	0.069/0.069
Number of Days Standard Exceeded			
CAAQS 1-hour (>0.09 ppm)	0	0	0
CAAQS 8-hour (>0.070 ppm)/NAAQS 8-hour (>0.070 ppm)	0/0	0/0	0/0
NITROGEN DIOXIDE Sebastopol–103 Morris Street [2]			
State/national maximum 1-hour concentration (ppb)	36/36.8	31/31.8	34/34.5
State annual average/national annual average (ppb)	4/5	4/4	4/5
Number of Days Standard Exceeded			
CAAQS 1-hour	0	0	0
NAAQS 1-hour	0	0	0
RESPIRABLE PARTICULATE MATTER (PM10) Healdsburg–133 Matheson Street 3			
National maximum 24-hour concentration (µg/m³)	50.2	42.2	155.5
State maximum 24-hour concentration (µg/m³)	50.7	43.5	161.5
National annual average concentration (µg/m³)	14.5	13.8	17.0
State annual average concentration (µg/m³)	15.5	*	17.4
Measured Number of Days Standard Exceeded			
CAAQS 24-hour (>50 µg/m³)	1	0	7
NAAQS 24-hour (>150 µg/m³)	0	0	1
FINE PARTICULATE MATTER (PM2.5) Santa Rosa–103 Morris Street 2			
National maximum 24-hour concentration (µg/m³)	29.9	18.7	81.8
State maximum 24-hour concentration (µg/m³)	29.9	18.7	81.8
National annual average concentration (µg/m³)	6.7	4.6	8.0
State annual average concentration (µg/m³)	*	4.6	8.1
Measured Number of Days Standard Exceeded			
NAAQS 24-hour (>35 µg/m³)	0	0	4

Notes:
* = not available; µg/m³ = micrograms per cubic meter; CAAQS = California ambient air quality standard; NAAQS = national ambient air quality standard; $PM_{2.5}$ = particulate matter with an aerodynamic resistance diameter of 2.5 micrometers or less; PM_{10} = particulate matter with an aerodynamic resistance diameter of 10 micrometers or less; ppb = parts per billion; ppm = parts per million

[1] Healdsburg–Municipal Airport 200a Heidelberg Way monitoring station is approximately 3.65 miles north of the project site.
[2] Sebastopol–103 Morris Street monitoring station is approximately 17 miles south of the project site.
[3] Healdsburg–133 Matheson Street monitoring station is approximately 1.5 miles northeast of the project site.
Source: ARB 2019

The adverse health effects of exposure to ozone pertain primarily to the respiratory system. Scientific evidence indicates that ambient levels of ozone affect not only sensitive receptors, such as asthmatics and children, but healthy adults as well. Exposure to ambient levels of ozone ranging from 0.10 to 0.40 part per million (ppm) for 1–2 hours has been found to substantially alter lung functions by increasing respiratory rates and pulmonary resistance, decreasing tidal volumes, and impairing respiratory mechanics. Ambient levels of ozone exceeding 0.12 ppm are linked to such symptoms as throat dryness, chest tightness, headache, and nausea. In addition to these adverse health effects, evidence exists relating ozone exposure to an increase in the permeability of respiratory epithelia; such increased permeability increases the responsiveness of the respiratory system to challenges, and interferes with or inhibits the immune system's ability to defend against infection (EPA 2016b).

According to the *California Almanac of Emissions and Air Quality*, 2013 edition (ARB 2014), emissions of ozone precursors (ROG and NO_X) have decreased in the general area since 2000 and are projected to continue declining through 2035. Stricter motor vehicle controls have resulted in substantial reductions in NO_X and ROG emissions. Stationary-source emissions of ROG have declined in the past 20 years as new controls have been placed on fugitive emissions from oil refineries and new rules have been established for controlling ROG emissions from various industrial coatings and solvent operations.

Peak ozone values in the general area have declined approximately 17 percent during the last 20 years (ARB 2014). As shown in Table 3.6-3, the CAAQS and NAAQS were not exceeded in the past 3 years.

Carbon Monoxide

Carbon monoxide is a colorless, odorless, and poisonous gas produced by incomplete burning of carbon in fuels, primarily from mobile (transportation) sources of pollution. In fact, 77 percent of CO emissions nationwide are from mobile sources. The other 23 percent consist of CO emissions from wood-burning stoves, incinerators, and industrial sources.

CO enters the bloodstream through the lungs by combining with hemoglobin, which normally supplies oxygen to the cells. However, CO combines with hemoglobin much more readily than oxygen does, drastically reducing the amount of oxygen available to the cells. Adverse health effects of exposure to CO concentrations include dizziness, headaches, and fatigue. CO exposure is especially harmful to individuals who suffer from cardiovascular and respiratory diseases (EPA 2018a).

With respect to the CAAQS and NAAQS, northern Sonoma County is designated as an unclassified area and unclassified/attainment area, respectively, for the CO standards (Table 3.6-2). NSCAPCD does not operate CO monitoring stations; thus, historical ambient air quality data are not available for CO (ARB 2019).

According to the *California Almanac of Emissions and Air Quality*, 2013 edition (ARB 2014), CO emissions have been declining in the general area in the last 25 years. Motor vehicles and other mobile sources are the largest sources of CO emissions in the NCAB. With the introduction of new automotive emission controls, emissions from motor vehicles have been declining despite increases in vehicle miles traveled. Oil refineries, manufacturing, and electric generation contribute a large portion of the stationary-source CO emissions. Areawide CO emissions are primarily from residential fuel combustion (including wood), waste burning, and fires.

With respect to CO air quality trends, the peak CO indicator value is currently well below the standards (ARB 2014). In fact, neither the national nor the state standards have been exceeded in the general area since 1992. Based on emission projections, the area is expected to maintain an attainment status in the coming years.

Nitrogen Dioxide

Nitrogen dioxide (NO_2) is a brownish, highly reactive gas that is present in all urban environments. The major human-made sources of NO_2 are combustion devices, such as boilers, gas turbines, and mobile and stationary reciprocating internal combustion engines. Combustion

devices emit primarily nitric oxide, which reacts through oxidation in the atmosphere to form NO_2 (EPA 2018a). The combined emissions of nitric oxide and NO_2 are referred to as NO_X, which are reported as equivalent NO_2. Because NO_2 is formed and depleted by reactions associated with photochemical smog (ozone), the NO_2 concentration in a particular geographical area may not be representative of the local NO_X emission sources.

Inhalation is the most common route of exposure to NO_2. Because NO_2 has relatively low solubility in water, the principal site of toxicity is the lower respiratory tract. The severity of the adverse health effects depends primarily on the concentration inhaled rather than the duration of exposure. An individual may experience a variety of acute symptoms during or shortly after exposure: coughing, difficulty breathing, vomiting, headache, and eye irritation. After approximately 4–12 hours, an exposed individual may experience chemical pneumonitis or pulmonary edema with breathing abnormalities, cough, cyanosis, chest pain, and rapid heartbeat. Severe, symptomatic NO_2 intoxication after acute exposure has occasionally been linked with prolonged respiratory impairment, with such symptoms as chronic bronchitis and decreased lung function.

Northern Sonoma County is currently designated as an attainment or unclassified/attainment area for the applicable NO_2 standards (Table 3.6-2). As shown in Table 3.6-3, neither the national nor the state NO_2 standards were exceeded from 2015 to 2017.

Sulfur Dioxide

Sulfur dioxide (SO_2) is produced by such stationary sources as coal and oil combustion, steel mills, refineries, and pulp and paper mills. The major adverse health effects of SO_2 exposure pertain to the upper respiratory tract. SO_2 is a respiratory irritant, with constriction of the bronchioles occurring with inhalation of SO_2 at 5 ppm or more. On contact with the moist mucous membranes, SO_2 produces sulfurous acid, a direct irritant. The concentration is a more important determinant of respiratory effects than the duration of exposure. Exposure to high SO_2 concentrations may result in edema of the lungs or glottis and respiratory paralysis.

Northern Sonoma County is currently designated as an attainment and unclassified/attainment area for the applicable SO_2 standards (Table 3.6-2).

Particulate Matter

Respirable particulate matter with an aerodynamic diameter of 10 micrometers or less is referred to as PM_{10}. PM_{10} consists of particulate matter both emitted directly into the air (e.g., fugitive dust, soot, and smoke from mobile and stationary sources, construction operations, fires and natural windblown dust) and formed in the atmosphere by condensation and/or transformation of SO_2 and ROG (EPA 2018a). $PM_{2.5}$ is a subgroup of finer particles that have an aerodynamic diameter of 2.5 micrometers or less (ARB 2005).

The adverse health effects of PM_{10} depend on the specific composition of the particulate matter. For example, health effects may be associated with the "piggybacking effect," in which metals, polycyclic aromatic hydrocarbons, and other toxic substances are adsorbed onto fine particulate matter, or with fine dust particles of silica or asbestos. Generally, adverse health effects may result from both short-term and long-term exposure to elevated PM_{10} concentrations. These effects may include breathing and respiratory symptoms, aggravation of existing respiratory and

cardiovascular diseases, alterations to the immune system, carcinogenesis, and premature death (EPA 2018a). $PM_{2.5}$ poses an increased health risk because the particles can deposit deep in the lungs and contain substances that are particularly harmful to human health.

Northern Sonoma County is currently designated as an unclassified area for the national PM_{10} standard and an attainment area for the state standard (Table 3.6-2). For $PM_{2.5}$, this area is designated as unclassified/attainment for the NAAQS and attainment for the CAAQS.

The national PM_{10} standard was not exceeded in 2015 and 2016 and was exceeded once in 2017 (Table 3.6-3). The state PM_{10} standard was exceeded a total of eight times: once in 2015 and seven times in 2017. The national $PM_{2.5}$ standard was exceeded four times in 2017.

According to the *California Almanac of Emissions and Air Quality*, 2013 edition (ARB 2014), direct PM_{10} emissions in the general area are forecasted to increase slightly because of growth in emissions from areawide sources, primarily stationary sources and fugitive dust sources. Emissions of directly emitted PM_{10} from diesel mobile sources decreased by 32 percent from 2000 to 2010, after more stringent emission standards were adopted and cleaner burning diesel fuel was introduced.

Lead

Lead is a metal found naturally in the environment and in manufactured products. The major sources of lead emissions have historically been mobile and industrial sources. As a result of the phase-out of leaded gasoline, as discussed in detail below, metal processing is currently the primary source of lead emissions.

In the past, motor vehicle exhaust was the main contributor to ambient lead concentrations in the air. In the early 1970s, EPA set national regulations to gradually reduce the lead content of gasoline. In 1975, unleaded gasoline was introduced for motor vehicles equipped with catalytic converters. In December 1995, EPA banned the use of leaded gasoline in highway vehicles (EPA 2018a). In addition, ARB passed a regulation in 1976 that led to a phase-out of lead in gasoline over several years.

As a result of the regulatory efforts by EPA and ARB to remove lead from gasoline, emissions of lead from the transportation sector have declined dramatically (94 percent between 1980 and 1999), and levels of lead in the air decreased by 80 percent between 2010 and 2017 (EPA 2018b). This dramatic decline can be attributed to the move from leaded to unleaded gasoline (and the removal of lead from soldered cans) (EPA 2018a). However, because it was emitted in large amounts from vehicles when leaded gasoline was used, lead is present in many soils (especially urban soils) and can be resuspended into the air. The major sources of lead emissions today are metals processing, particularly lead smelters, and piston-engine aircraft operating on leaded aviation gasoline. Other stationary sources include waste incinerators, utilities, and lead-acid battery manufacturers.

Under the NAAQS, all areas of the state are currently designated as unclassified/attainment except Los Angeles County, which is classified as nonattainment. All areas of the state are currently designated as attainment for the state lead standard. Although the ambient lead standards are no longer violated, lead emissions from stationary sources still pose "hot spot" problems in some areas. As a result, ARB identified lead as a toxic air contaminant (ARB 2004).

Odors

The occurrence and severity of odor impacts depend on numerous factors, including the nature, frequency, and intensity of the source; wind speed and direction; and the presence of sensitive receptors. Typically, odors are generally regarded as an annoyance rather than a health hazard. However, a person's reaction to foul odors can range from the psychological (i.e., irritation, anger, or anxiety) to the physiological, including circulatory and respiratory effects, nausea, vomiting, and headache.

The ability to detect odors varies considerably among the population and overall is quite subjective. Some individuals can smell minute quantities of specific substances; others may not have the same sensitivity but may be sensitive to odors of other substances. In addition, people may have different reactions to the same odor; in fact, an odor that is offensive to one person may be perfectly acceptable to another. Also, it is important to note that an unfamiliar odor is more easily detected and more likely to cause complaints than a familiar one. This is attributable to the phenomenon known as odor fatigue, in which a person can become desensitized to almost any odor and recognition occurs only with an alteration in the intensity.

Quality and intensity are two properties present in any odor. The quality of an odor indicates the nature of the smell experience. For instance, if a person describes an odor as flowery or sweet, then the person is describing the quality of the odor. Intensity refers to the strength of the odor. For example, a person may use the word "strong" to describe the intensity of an odor. Odor intensity depends on the odorant concentration in the air. When an odorous sample is progressively diluted, the odorant concentration decreases. As this occurs, the odor intensity weakens, eventually becoming so low that detection or recognition of the odor is quite difficult. At some point during dilution, the concentration of the odorant reaches a detection threshold. An odorant concentration below the detection threshold means that the concentration in the air is not detectable by the average human.

Odors from domestic wastewater are typically result from anaerobic biological activity in the sewer collection and wastewater treatment systems. Odors are most prevalent during warm-weather conditions (i.e., approximately 70 degrees Fahrenheit and higher), which favor a more rapid multiplication of the anaerobic bacteria. In addition, sewage containing industrial wastes may have odor problems compounded by organic gases from waste chemicals added to the sewer system. The anaerobic decomposition of compounds containing nitrogen and sulfur results in a number of gases, including hydrogen sulfide, ammonia, and methane, along with a variety of other volatile compounds. Although many different combinations of compounds can occur at any given time, the most offensive odors associated with domestic wastewater are typically generated by emissions of hydrogen sulfide gas. The elements of a wastewater treatment facility most likely to generate odors typically include storage areas in which wastewater influent (i.e., untreated wastewater) or solids are open to the air and/or stored for extended periods of time.

The City has received few complaints about odors from its wastewater treatment plant (fewer than five) in the last 4 years. The complaints have been associated primarily with cleaning of the chlorine contact chamber, which requires dewatering the chamber to clean out accumulated sediment. This sediment consists primarily of dead algae from the settling ponds. Odors have also been attributed to cycling of flow within the treatment process to move stored volumes into the plant for treatment.

3.6.3 REGULATORY BACKGROUND UPDATE

Such agencies as NSCAPCD, ARB, and EPA regulate air quality in northern Sonoma County with respect to criteria and toxic air pollutants/contaminants. Each of these agencies develops rules, regulations, policies, and/or goals to attain the goals or directives imposed through legislation. Although EPA's regulations may not be superseded, both state and local regulations may be more stringent.

FEDERAL PLANS, POLICIES, REGULATIONS, AND LAWS

U.S. Environmental Protection Agency

At the federal level, EPA has been charged with implementing national air quality programs. EPA's air quality mandates are drawn primarily from the federal Clean Air Act (CAA), which was enacted in 1963 and amended in 1970, 1977, and 1990. The CAA required EPA to establish primary and secondary NAAQS, as discussed previously (Table 3.6-2). The CAA also required each state to prepare an air quality control plan, referred to as a state implementation plan (SIP). The federal Clean Air Act Amendments of 1990 (CAAA) added requirements for states with nonattainment areas to revise their SIPs to incorporate additional control measures to reduce air pollution. The SIP is modified periodically to reflect the latest emissions inventories, planning documents, and rules and regulations of the air basins as reported by their jurisdictional agencies.

EPA has responsibility for reviewing all SIPs to determine whether they conform to the mandates of the federal CAAA and determine whether implementing the SIPs will achieve air quality goals. If EPA determines a SIP to be inadequate, a federal implementation plan that imposes additional control measures may be prepared for the nonattainment area. Failure to submit an approvable SIP or to implement the plan within the mandated time frame may result in the application of sanctions to transportation funding and stationary air pollution sources in the air basin.

EPA (like ARB) focuses on the following air pollutants as indicators of ambient air quality: ozone, CO, NO_2, SO_2, PM, and lead. Because these are the most prevalent air pollutants known to be harmful to human health and extensive health-effects criteria documents are available, these pollutants are commonly referred to as "criteria air pollutants." EPA has established primary and secondary NAAQS for ozone, CO, NO_2, SO_2, PM_{10}, $PM_{2.5}$, and lead. The primary standards protect public health and the secondary standards protect public welfare. Table 3.6-2 lists the NAAQS for each criteria air pollutant.

Federal Hazardous Air Pollutant Program

Title III of the CAA requires EPA to promulgate national emissions standards for hazardous air pollutants. Federal law uses the term "hazardous air pollutants" (HAPs) to refer to the same types of compounds that are considered toxic air contaminants (TACs) under state law. Both terms encompass essentially the same compounds. This EIR section will primarily use the term "TACs" to refer to these pollutants.

TACs are contaminants that result in increased mortality or a serious illness, or pose a present or potential hazard to human health. Health effects of TACs may include cancer, birth defects, and immune system and neurological damage. TACs can be separated into carcinogens and noncarcinogens based on the nature of the physiological degradation associated with exposure to

the pollutant. Regulators assume that carcinogens have no safe threshold below which health impacts will not occur. By contrast, noncarcinogenic TACs have a safe level at which it is generally assumed that no negative health impacts will occur. These levels are determined on a pollutant-by-pollutant basis.

TACs are not considered criteria air pollutants; thus, they are not specifically addressed through the setting of ambient air quality standards. Instead, EPA (like ARB) regulates TACs through federal and state regulations that generally require pollutant sources to use the maximum or best available control technology to limit emissions. These rules, along with rules set forth by NSCAPCD, establish the regulatory framework for TACs in the project area. However, enforcing the NAAQS and CAAQS to control criteria pollutants, such as ozone and particulate matter, can reduce airborne emissions of TACs. For example, controlling emissions of volatile organic compounds to attain the ozone standard can substantially reduce emissions of TACs from stationary sources.

The national emissions standards for HAPs established for major sources may differ from those for area sources. (Major sources are stationary sources with the potential to emit more than 10 tons per year of any HAP or more than 25 tons per year of any combination of HAPs; all other sources are considered area sources.) The standards were promulgated in two phases. In the first phase (1992–2000), EPA developed technology-based emissions standards designed to produce the maximum emissions reduction achievable. These standards are generally referred to as requiring maximum available control technology. For area sources, the standards may be different, based on generally available control technology. In the second phase (2001–2008), EPA was required to promulgate health risk–based emissions standards where deemed necessary to address risks that remained after implementation of the technology-based national emissions standards for HAPs.

The CAA required EPA to promulgate vehicle or fuel standards containing reasonable requirements to control toxic emissions of, at minimum, benzene and formaldehyde. Performance criteria were established to limit mobile-source emissions of toxics, including benzene, formaldehyde, and 1,3-butadiene. In addition, CAA Section 219 required the use of reformulated gasoline in selected U.S. cities (those with the most severe ozone nonattainment conditions) to further reduce mobile-source emissions.

STATE PLANS, POLICIES, REGULATIONS, AND LAWS

California Air Resources Board

ARB is responsible for coordinating and overseeing state and local air pollution control programs in California and for implementing the California Clean Air Act (CCAA). The CCAA, adopted in 1988, requires all air districts in the state to endeavor to achieve and maintain the CAAQS by the earliest practical date. The act specifies that districts should particularly focus on reducing emissions from transportation and areawide emission sources and authorizes districts to regulate indirect sources.

ARB has primary responsibility for developing and implementing air pollution control plans to achieve and maintain the NAAQS. In addition, ARB has established CAAQS for the criteria air pollutants, sulfates, hydrogen sulfide, vinyl chloride, and visibility-reducing particulate matter. In most cases, the CAAQS are more stringent than the NAAQS. Table 3.6-3 lists the CAAQS along with the NAAQS. ARB is primarily responsible for statewide pollution sources and produces a

major part of the SIP. However, local air districts are still relied upon to provide additional strategies for sources under their jurisdiction. ARB combines these data and submits the completed SIP to EPA.

Other ARB duties include monitoring air quality (in conjunction with air monitoring networks maintained by air pollution control and air quality management districts); establishing the CAAQS; determining and updating area designations and maps; and setting emissions standards for new mobile sources, consumer products, small utility engines, and off-road vehicles.

State and Local Toxic Air Contaminant Programs

California regulates TACs primarily through the Tanner Air Toxics Act (Assembly Bill 1807) and the Air Toxics Hot Spots Information and Assessment Act of 1987 (Assembly Bill 2588). The Tanner Air Toxics Act sets forth a formal procedure for ARB to designate substances as TACs. Research, public participation, and scientific peer review must occur before ARB can designate a substance as a TAC. To date, ARB has identified more than 21 TACs and adopted EPA's list of HAPs as TACs. Most recently, diesel exhaust particulate was added to ARB's list of TACs.

Once a TAC is identified, ARB adopts an airborne toxics control measure for sources that emit that particular TAC. If there is a safe threshold for a substance at which there is no toxic effect, the control measure must reduce exposure below that threshold. If there is no safe threshold, the measure must incorporate best available control technology to minimize emissions. None of the TACs identified by ARB have a safe threshold.

The Hot Spots Act requires existing facilities that emit toxic substances above specified level to:

- prepare an inventory of toxic emissions,
- prepare a risk assessment if emissions are significant,
- notify the public of significant risk levels, and
- prepare and implement risk reduction measures.

LOCAL PLANS, POLICIES, REGULATIONS, AND ORDINANCES

Northern Sonoma County Air Pollution Control District

NSCAPCD is the primary local agency regulating air quality for northern Sonoma County. The district attains and maintains air quality conditions in the county through a comprehensive program of planning, regulation, enforcement, technical innovation, and promotion of the understanding of air quality issues. The clean-air strategy of NSCAPCD involves preparing plans, when required, for the attainment of ambient air quality standards; adopting and enforcing rules and regulations governing sources of air pollution; and issuing permits for stationary sources of air pollution. NSCAPCD also inspects stationary sources of air pollution and responds to citizen complaints, monitors ambient air quality and meteorological conditions, and implements programs and regulations required by the CAA, CAAA, and CCAA.

Toxic Air Contaminants

At the local level, air pollution control or management districts may adopt and enforce ARB's control measures. Under NSCAPCD rules, all sources possessing the potential to emit TACs must

obtain permits from the district. Permits may be granted to these operations if they are constructed and operated in accordance with applicable regulations, including new-source review standards and air toxics control measures. NSCAPCD implements several programs to limit emissions of and public exposure to TACs. The district prioritizes TAC-emitting stationary sources based on the quantity and toxicity of their TAC emissions and the proximity of their facilities to sensitive receptors.

Odors

NSCAPCD has adopted Rule 400 (Nuisance), which addresses emissions of odors. This rule states that air contaminants shall not be discharged in quantities sufficient to constitute a public nuisance to any considerable number of the people or that would endanger the comfort or repose of any people. According to NSCAPCD, for an odor to be considered a nuisance, a complaint must be submitted by a significant number of the public (more than one person), and the odor problem must be verifiable by the district upon inspection.

Sonoma County General Plan 2020

The following goal, objectives, and policies in the Open Space and Resource Conservation Element of the *Sonoma County General Plan* 2020 (Sonoma County 2016) are relevant to the proposed project:

Goal OSRC-16: Preserve and maintain good air quality and provide for an air quality standard that will protect human health and preclude crop, plant, and property damage in accordance with the requirements of the Federal and State Clean Air Acts.

- **Objective OSRC-16.1:** Minimize air pollution and greenhouse gas emissions.
- **Objective OSRC-16.2:** Encourage reduced motor vehicle use as a means of reducing resultant air pollution.
    - **Policy RC-13a:** Require that commercial and industrial development projects be designed to minimize air emissions. Reduce direct emissions by decreasing the need for space heating.
    - **Policy OSRC-16c:** Refer projects to the local air quality districts for their review.
    - **Policy OSRC-16d:** Review proposed changes in land use designations for potential deterioration of air quality and deny them unless they are consistent with the air quality levels projected in the general plan EIR.
    - **Policy OSRC-16i:** Ensure that any proposed new sources of toxic air contaminants or odors provide adequate buffers to protect sensitive receptors and comply with applicable health standards. Promote land use compatibility for new development by using buffering techniques such as landscaping, setbacks, and screening in areas where such land uses abut one another.
    - **Policy OSRC-16j:** Require consideration of odor impacts when evaluating discretionary land uses and development projects near wastewater treatment plant or similar uses.

Healdsburg 2030 General Plan

The following goal, policies, and implementation measure in the *Healdsburg 2030 General Plan* (City of Healdsburg 2015) is relevant to the proposed project:

Goal NR-F: Protection and improvement of air quality in the Healdsburg area.

- **Policy NR-F-1:** The City will encourage the use of transit systems and other alternatives to automobile use.

- **Policy NR-F-3:** The City will seek to minimize particulate matter emissions from wood-burning fireplaces and stoves, and construction activities.

    - **Implementation Measure NR-28:** Require the use of best management practices, such as those promulgated by the Bay Area Air Quality Management District, during construction to minimize emissions.

3.6.4 Impacts and Mitigation Measures

Standards of Significance

Based on Appendix G of the State CEQA Guidelines, the project would have a significant impact on air quality if it would:

- conflict with or obstruct implementation of the applicable air quality plan,

- result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard,

- expose sensitive receptors to substantial pollutant concentrations, or

- result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.

The following sections present the methodology and impact analysis for the 2018 Proposed Area and 2018 Program Expansion Area.

Methodology

Construction activities are temporary, short-term sources of emissions. Sources of construction-related emissions of criteria air pollutants include construction equipment exhaust; construction-related trips by workers and delivery and haul truck trips; and fugitive dust from site preparation and trenching activities.

Construction-related emissions were estimated using the California Emissions Estimator Model (CalEEMod) Version 2016.3.2. CalEEMod allows the user to enter project-specific construction information, such as the construction schedule, the types and number of construction equipment, and the number and length of off-site motor vehicle trips. As discussed in more detail in Chapter

2, "Project Description," the proposed project includes both specific projects and programmatic components. For the air quality analysis in this SEIR, project-level and programmatic components were analyzed separately and are discussed in more detail below.

Project-Level Analysis

As detailed in Section 2.5, "Project Characteristics," the project-level components of the proposed project consist of extending the existing recycled water transmission pipelines along two alignments totaling approximately 6,000 linear feet and constructing a recycled water distribution system within the 2018 Proposed Area. Construction of the project-level components is anticipated to begin in April 2020 and would last approximately 16 weeks. Extension of the existing transmission pipelines along the two alignments would include trenching activities for a 12-inch-diameter pipeline and 8-inch-diameter pipeline. Construction of the recycled water distribution system would include trenching activities for a 4- to 6-inch-diameter pipeline and a small pad-mounted booster pump station.

Based on information provided by the City, construction of the 8- and 12-inch-diameter pipelines is anticipated to occur over 11 weeks and would include the use of a water truck, excavators, and a bulldozer. The estimated construction workforce is a maximum of six workers per day. The analysis assumed that minimal grading would be needed, and that approximately 30 cubic yards of aggregate base would be imported and 30 cubic yards of spoils would be exported, resulting in approximately 12 one-way haul truck trips for the 12-inch pipeline. In addition, the analysis assumed that approximately 46 one-way trips would be required to deliver the construction equipment and pipe materials.

Construction of the recycled water distribution system is anticipated to occur over approximately 30 days and would include the use of a trencher, water truck, plate compactor, backhoe, dump truck, cement truck, and air compressor. The estimated construction workforce is a maximum of four workers per day. The analysis assumed that approximately 16 trips would be required to deliver the construction equipment and pipe materials. Additional details are available in Appendix D. After construction, operational activities for the project-level components would be limited to periodic maintenance and inspection activities that are not anticipated to increase substantially beyond existing conditions.

Programmatic Analysis

As detailed in Section 2.5, "Project Characteristics," the programmatic components of the proposed project would include extending the 12-inch-diameter pipeline by up to 3.5 miles to serve additional users in the 2018 Program Expansion Area in the future. Extension of the 12-inch-diameter pipeline was assumed to commence in 2020. This assumption is conservative: The extension would likely begin later than 2020, and exhaust emissions from construction equipment decrease over time as stricter standards take effect. Thus, advancements in engine technology, retrofits, and turnover in the equipment fleet are expected to result in lower levels of emissions as construction occurs in later years.

In addition, operation of the proposed project would make the temporary recycled water truck hauling program permanent. The analysis in this SEIR assumes that with this program made permanent, the number of truck trips and total amount of recycled water obtained under the truck hauling program would double from current levels. Thus, haul truck trips would be

anticipated to increase by approximately six trucks per day, or 12 one-way haul truck trips, for an approximate total of 10–20 round trips per day in the next 20 years. Water haul trucks were conservatively assumed to all be heavy-heavy duty trucks and to travel approximately 14.4 miles each way. The haul trip length was calculated based on the average distance to the two primary customers. Additional details are available in Appendix D.

IMPACT ANALYSIS

Impact 3.6-1: Conflict with or Obstruction of the Applicable Air Quality Plan.

Air quality plans describe the air pollution control strategies to be implemented by a city, county, or regional air district. The primary purpose of an air quality plan is to bring an area that does not attain the NAAQS and CAAQS (shown in Table 3.6-2) into compliance with those standards pursuant to the requirements of the CAA and CCAA. The NCAB is classified as attainment or unclassified for all criteria pollutants under the NAAQS and CAAQS (Table 3.6-2). Thus, NSCAPCD is not required to prepare or implement an air quality plan and no air quality plans apply to the proposed project.

Further, the objective of the proposed project is to expand recycled water activities to provide beneficial use of the reclaimed water via landscape irrigation, agricultural irrigation, and construction uses. As discussed in Section 3.1, "Land Use Consistency, Agriculture, and Forestry Resources," the storage of recycled water in existing ponds and the use of recycled water for irrigation do not constitute land use changes, and the proposed project would be consistent with the land use designations identified in the *Sonoma County General Plan 2020*. As such, the proposed project would be consistent with the air quality levels projected in the Sonoma County General Plan EIR (Policy OSRC-16d).

The proposed project would not conflict with any attainment plan and would be consistent with the general plan, and construction-related emissions would be temporary and operational activities would be minimal. Therefore, this impact would be **less than significant**.

Mitigation Measures: No mitigation is required.

Impact 3.6-2: Cumulatively Considerable Net Increase in a Criteria Pollutant for Which the Region is Nonattainment.

Construction

Construction of the proposed project would generate temporary emissions of ROG, NO_X, CO, PM_{10}, and $PM_{2.5}$. ROG, NO_X, and CO are emitted primarily in mobile equipment exhaust, including off-road construction equipment and on-road motor vehicles. Emissions of fugitive dust (PM_{10} and $PM_{2.5}$) are associated primarily with activities such as site preparation and trenching. Such emissions vary as a function of such factors as soil silt content, soil moisture, wind speed, acreage of the disturbance area, and miles traveled by construction vehicles.

Typically, where available, the lead agency or applicable air pollution control district establishes significance thresholds for emissions from the construction and operational activities of new development projects. These significance thresholds are relied on to make significance determinations. The thresholds are designed to identify projects that would result in significant

levels of air pollution and to assist the region in attaining or maintaining the applicable federal and state ambient air quality standards. Because the ambient air quality standards were established using health-based criteria to protect the public with a margin of safety from adverse health impacts from exposure to air pollution, the significance thresholds can also be used to assess project emissions and inform the project's impacts on regional air quality and health risks under CEQA.

Neither NSCAPCD nor the City of Healdsburg has established explicit numerical thresholds of significance for construction or operational activities. However, to provide additional context and place the proposed project's emissions in perspective, this analysis included a review of guidelines and thresholds established by surrounding air districts and a quantitative analysis of construction-related and operational emissions by the proposed project. The surrounding air districts are BAAQMD, the Mendocino County Air Quality Management District, and the Yolo-Solano Air Quality Management District. Table 3.6-4 presents the air quality significance thresholds adopted by these surrounding air districts.

Table 3.6-4
Air Quality Significance Thresholds for Surrounding Air Districts

Air District and Threshold Type		ROG	NO_X	CO	PM_{10}	$PM_{2.5}$
BAAQMD	Average Daily Emissions Thresholds (Construction and Operations)	54 lb/day	54 lb/day	N/A	82 lb/day *	54 lb/day *
	Maximum Annual Emissions Thresholds (Operations)	10 tpy	10 tpy	N/A	15 tpy	10 tpy
MCAQMD	Average Daily Emissions Thresholds (Construction)	54 lb/day	54 lb/day	N/A	82 lb/day *	54 lb/day *
	Average Daily Emissions Thresholds (Indirect Mobile-Source Operational Emissions)	180 lb/day	42 lb/day	690 b/day	80 lb/day	N/A
YSAQMD	Construction and Operations Thresholds	10 tpy	10 tpy	See footnote 1	80 lb/day	N/A

Notes: BAAQMD = Bay Area Air Quality Management District; CO = carbon monoxide; lb/day = pounds per day; MCAQMD = Mendocino County Air Quality Management District; N/A = not applicable; NO_X = oxides of nitrogen; $PM_{2.5}$ = particulate matter with an aerodynamic resistance diameter of 2.5 micrometers or less; PM_{10} = particulate matter with an aerodynamic resistance diameter of 10 micrometers or less; ROG = reactive organic gases; tpy = tons per year; YSAQMD = Yolo-Solano Air Quality Management District

* For construction activities, thresholds for PM_{10} and $PM_{2.5}$ apply to construction exhaust emissions only. Fugitive PM_{10} and $PM_{2.5}$ are less than significant with application of Best Management Practices.

[1] Violation of a state ambient air quality standard for CO.

Sources: BAAQMD 2017; MCAQMD 2010, 2013; YSAQMD 2007

Although the attainment statuses for the air basins and air districts listed in Table 3.6-4 vary from the attainment status of the NCAB, the thresholds are presented for informational purposes. Table 3.6-5 presents construction-related (unmitigated) emissions associated with the proposed project.

Table 3.6-5 Unmitigated Construction-Related Emissions from the Proposed Project [1]					
Maximum Daily Emissions	**ROG**	**NO_X**	**CO**	**PM_{10} [2]**	**$PM_{2.5}$ [2]**
12-Inch Pipeline—Future Vineyard Property (lb/day)	1.46	14.15	11.21	3.82	2.28
8-Inch Pipeline—Dairy/Vineyard Property (lb/day)	1.46	14.00	11.18	4.34	2.34
Diary/Vineyard Irrigation Facilities (lb/day)	2.72	24.45	17.54	1.80	1.16
Programmatic Analysis (lb/day)	1.34	13.04	11.60	3.84	2.30
Annual Emissions	**ROG**	**NO_X**	**CO**	**PM10[2]**	**PM2.5[2]**
Project-Level 2020 (tpy)	0.08	0.77	0.58	0.09	0.06
Programmatic Analysis 2020 (tpy)	0.07	0.65	0.58	0.19	0.11
Programmatic Analysis 2021 (tpy)	0.04	0.37	0.35	0.12	0.07

Notes: CO = carbon monoxide; lb/day = pounds per day; NO_X = oxides of nitrogen; $PM_{2.5}$ = particulate matter with an aerodynamic resistance diameter of 2.5 micrometers or less; PM_{10} = particulate matter with an aerodynamic resistance diameter of 10 micrometers or less; ROG = reactive organic gases; tpy = tons per year

[1] PM_{10} and $PM_{2.5}$ emissions do not account for fugitive dust reductions associated with implementation of Mitigation Measure 3.6-2 as listed below.

[2] PM_{10} and $PM_{2.5}$ construction-related emissions include exhaust and fugitive dust emissions.

Source: Estimated by AECOM in 2019. See Appendix D for additional details.

As shown in Table 3.6-5, construction-related emissions associated with the project-level and programmatic components of the analysis would be substantially less than any of the thresholds adopted by the surrounding air districts, which were developed to assist the region in attaining or maintaining the applicable NAAQS and CAAQS.

The City of Healdsburg has not established explicit numerical thresholds of significance for construction activities. However, Implementation Measure NR-28 in the City's general plan requires the use of best management practices, such as those promulgated by the Bay Area Air Quality Management District (BAAQMD), during construction to minimize emissions. Because the required control measures are not currently incorporated into the proposed project, this analysis conservatively assumes that the project's short-term construction emissions could result in or contribute to a violation of air quality standards. As a result, this impact would be **potentially significant**.

Mitigation Measure S3.6-2: Implement Air Quality Emissions Control Measures during Construction.

In accordance with the BAAQMD CEQA Guidelines (BAAQMD 2017), as recommended for use by NSCAPCD and the City of Healdsburg, the City and its construction contractor shall implement the following mitigation, which includes BAAQMD-recommended Basic Construction Mitigation Measures Recommended for All Proposed Projects, as applicable to reduce construction-generated emissions. Construction activities shall also comply with all applicable NSCAPCD rules and regulations, specifically Rule 485 regarding architectural coatings, Rule 430 regarding fugitive dust, and Rule 410 regarding visible emissions.

- All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day.

- All haul trucks transporting soil, sand, or other loose material off-site shall be covered.

- All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.

- All vehicle speeds on unpaved roads shall be limited to 15 miles per hour (mph).

- All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used.

- Idling times shall be minimized either by shutting equipment off when not in use or by reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations). Clear signage shall be provided for construction workers at all access points.

- All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation.

- A publicly visible sign shall be posted with the telephone number and person to contact at the City regarding dust complaints. This person shall respond and take corrective action within 48 hours. The air district's phone number shall also be visible to ensure compliance with applicable regulations.

Timing/Implementation: Before and during all construction activities, as applicable.

Enforcement/Monitoring: City of Healdsburg and NSCAPCD.

Mitigation Measure S3.6-2 would reduce emissions from construction activities by requiring the use of fugitive dust suppression techniques and best practices for operation of construction equipment. Mitigation Measure S3.6-2 contains emission reduction measures such as watering exposed surfaces twice per day, limiting vehicle speeds on unpaved roads to 15 mph, and minimizing idling times. Based on the Western Regional Air Partnership's Fugitive Dust Handbook, the dust suppression techniques of applying water to exposed surfaces twice per day and limiting on-site vehicle speeds to 15 mph have the potential to reduce particulate matter emissions by approximately 55 and 57 percent, respectively (WRAP 2006). As a result, implementing this mitigation measure would reduce the air quality impact of the project to a **less-than-significant** level.

Operations

After construction, the proposed project's operational activities would emit pollutants primarily from mobile sources, as the project would not require additional employees or include the long-term operation of any major stationary or area sources. As discussed previously, operation of the project-level components would consist of minimal maintenance and inspection activities.

Operational activities associated with the programmatic analysis would include the continuation of haul truck trips in the City's water hauling program. The City has conservatively estimated that the number of truck trips may double to 10–20 per day in the next 20 years. To present a worst-case scenario for this air quality analysis, the operational emissions assume that the 20 round trips per day for water hauling would begin in 2021. This assumption is conservative: The increase in water hauling truck trips is projected to occur in the next 20 years, and exhaust emissions from truck fleets decrease over time as stricter standards take effect. Thus, advancements in engine technology, retrofits, and turnover in the equipment fleet are expected to result in lower levels of emissions in later years. Table 3.6-6 shows the operational emissions associated with the project-level and programmatic components of the proposed project.

Table 3.6-6
Operational Emissions

	ROG	NO_X	CO	PM_{10}	$PM_{2.5}$
Maximum Daily Emissions (lb/day)	0.24	8.81	1.89	0.52	0.16
Annual Emissions (tpy)	0.04	1.60	0.33	0.09	0.03

Notes: CO = carbon monoxide; lb/day = pounds per day; NO_X = oxides of nitrogen; $PM_{2.5}$ = particulate matter with an aerodynamic resistance diameter of 2.5 micrometers or less; PM_{10} = particulate matter with an aerodynamic resistance diameter of 10 micrometers or less; ROG = reactive organic gases; tpy = tons per year
Source: Estimated by AECOM in 2019. See Appendix D for additional details.

As noted previously, northern Sonoma County is designated as an attainment or unclassified area for all criteria air pollutants under the NAAQS and CAAQS. Regardless, as shown in Table 3.6-6, operational emissions associated with the project-level and programmatic components of the project would be substantially less than any of the thresholds adopted by the surrounding air districts (see Table 3.6-4), which are developed to assist the region in attaining or maintaining the applicable NAAQS and CAAQS. Therefore, the impact of project operations on air quality would be **less than significant**.

Mitigation Measures: No mitigation is required.

Impact 3.6-3: Exposure of Sensitive Receptors to Substantial Pollutant Concentrations.

Some members of the population are especially sensitive to air pollutant emissions and should be given special consideration when evaluating projects' impacts on air quality. These people include children, older adults, and persons with preexisting respiratory or cardiovascular illness, and athletes and others who engage in frequent exercise. As such, sensitive receptors generally include residences, schools, playgrounds, child care centers, athletic facilities, long-term health care facilities, rehabilitation centers, convalescent centers, and retirement homes.

The project site is located in a primarily agricultural area, and not in the immediate vicinity of any sensitive receptors. The nearest sensitive receptors in the project area are rural and scattered residences east and west of Westside Road. Table 3.6-7 identifies the nearest sensitive receptors to the proposed project components.

Table 3.6-7 Nearest Sensitive Receptors to the Construction Sites	
Component	**Distance to Receptor (feet)**
8-Inch Pipeline—Future Vineyard Property	900
12-Inch Pipeline—Dairy/Vineyard Property	700
Irrigation Facilities on Dairy/Vineyard Property	3,500
Source: Data compiled by AECOM in 2019	

Criteria Pollutants

As shown in Tables 3.6-5 and 3.6-6, construction and operation of the proposed project would result in relatively low emissions of criteria pollutants compared to the thresholds from the surrounding air districts listed in Table 3.6-4. The thresholds of significance were designed to identify projects that would result in significant levels of air pollution and to assist the region in attaining the applicable NAAQS and CAAQS, which were established using health-based criteria to protect the public with a margin of safety from adverse health impacts caused by exposure to air pollution. As explained previously, the region is identified as an attainment or unclassified area for all criteria pollutants, and the proposed project's construction-related and operational emissions of criteria air pollutant emissions would be relatively low compared to the thresholds established by other lead agencies.

As stated in the *amicus curiae* filed by the South Coast Air Quality Management District (SCAQMD) in the *Sierra Club v. County of Fresno and Friant Ranch, L.P.* ruling in April 2015, the effect of a single project's criteria pollutant emissions to regional air quality may be limited. For example, "a project emitting only 10 tons per year of NO_X and [ROG] is small enough that its regional impact on ambient ozone levels may not be detected in the regional air quality models" (SCAQMD 2015). Further, in the case of particulate matter emissions, ARB has stated that the $PM_{2.5}$ health impact methodology is not suited for small projects and may yield unreliable results because of various uncertainties, such as the representativeness of the population and specific sources of particulate matter and corresponding health impacts (SCAQMD 2015).

Given the distance to the nearest sensitive receptors and the level of emissions generated by the proposed project, sensitive receptors would not be exposed to substantial concentrations of criteria pollutants. This impact would be **less than significant**.

Toxic Air Contaminants

In addition to criteria air pollutants, construction of the proposed project would generate TAC emissions, specifically diesel particulate matter emitted during operation of heavy-duty construction equipment. The Office of Environmental Health Hazard Assessment (OEHHA) of the California Environmental Protection Agency developed the *Guidance Manual for Preparation of Health Risk Assessments* (OEHHA 2015). The dose to which receptors are exposed is the primary factor used to determine health risk. Dose is a function of the concentration of a substance or substances in the environment and the extent of a person's exposure to the substance. Dose is positively correlated with time, meaning that a longer exposure period would result in a higher exposure level for the maximally exposed individual. Thus, the risks estimated for a maximally exposed individual are higher if a fixed exposure occurs over a longer period of time. According to OEHHA methodology, health effects from carcinogenic TACs are usually described in terms of individual cancer risk, which is based on a 30-year lifetime exposure to TACs.

Because of uncertainty in assessing cancer risk from very short-term exposures, OEHHA does not recommend assessing the cancer risk for construction of projects lasting less than 2 months at the nearest residential receptor. Construction of the 12-inch-diameter pipeline, 8-inch-diameter pipeline, and dairy/vineyard's irrigation facilities is anticipated to last approximately 6 weeks, 5 weeks, and 30 days, respectively. Because construction activities for the proposed project are anticipated to last less than 2 months at the nearest sensitive receptors, and would cease following completion of the project, the overall exposure period would not meet the requirements for assessing cancer risk (OEHHA 2015).

Construction activities for the programmatic components are assumed to last approximately 8 months. Therefore, the total exposure period for construction activities would be approximately 2 percent of the total exposure period used for typical calculations of residential health risk (i.e., 30 years). In addition, construction emissions would occur intermittently throughout the day, not as a constant plume of emissions from the project site.

Further, studies by Zhu et al. (2002) have found that concentrations of particulate matter tend to be reduced substantially (by approximately 70–80 percent) at a distance of 500 feet from emissions sources (e.g., freeways or large distribution centers). Based on the anticipated construction schedule, the distance to surrounding sensitive receptors (as shown in Table 3.6-7), and the highly dispersive nature of diesel particulate matter emissions, it can be reasonably assumed that constructing the proposed project would not expose sensitive receptors to substantial pollutant concentrations.

After construction, operational sources of TAC emissions would be limited to mobile sources used for water haul truck trips. The City has conservatively estimated that the number of truck trips required may double to 10–20 per day in the next 20 years. Such an increase would not generate a substantial increase in TAC emissions. In addition, over time, replacing older haul trucks will result in a vehicle fleet that produces substantially less TACs than under current conditions (BAAQMD 2017). Therefore, this impact would be **less than significant**.

Carbon Monoxide Hotspots

An area's CO concentration is a direct function of motor vehicle activity, particularly during peak commute hours, and meteorological conditions. Under specific meteorological conditions, CO concentrations may reach unhealthy levels with respect to local sensitive land uses, such as residential areas, schools, preschools, playgrounds, and hospitals. As a result, air districts typically recommend analyzing CO emissions at a local level, rather than a regional level.

Overall traffic volumes and their effect on the volume-to-capacity ratio affect the ability of a roadway or intersection to result in a CO hot spot. Other agencies throughout the state have provided estimates of traffic volumes that could result in a CO hot spot. The BAAQMD CEQA Guidelines (BAAQMD 2017) suggest that a project would not result in a CO impact if project traffic would not increase traffic volumes at affected intersections to more than 44,000 vehicles per hour. As discussed in more detail in Section 3.9, "Transportation," the proposed project would not cause a substantial increase in traffic relative to the existing traffic load and capacity of the street system. Further, the additional 10–20 truckloads per day would occur over multiple routes, thereby limiting effects on any one roadway.

Therefore, implementing the proposed project would not expose any sensitive receptors to substantial pollutant concentrations. This impact would be **less than significant**.

Mitigation Measures: No mitigation is required.

Impact 3.6-5: Emissions Leading to Odors that Would Adversely Affect a Substantial Number of People.

The occurrence and severity of odor impacts depend on numerous factors: the nature, frequency, and intensity of the source; wind speed and direction; and the presence of sensitive receptors. Although offensive odors rarely cause any physical harm, they still can be very unpleasant, and they can generate citizen complaints to local governments and regulatory agencies.

Potential construction-related sources of odors include diesel construction equipment that would emit exhaust. However, because of the amount and types of equipment, the temporary nature of these emissions, and the highly diffusive properties of diesel exhaust, nearby receptors would not be affected by diesel exhaust odors generated during project construction. The proposed project would use typical construction techniques, and the odors would be temporary and typical of most construction sites.

After construction, operation of the proposed project would not introduce any new stationary odor sources to the project area. An additional 1,160 acres of land could receive recycled water (2018 Proposed Area) and an additional 3,540 acres could receive recycled water at a future date (2018 Program Expansion Area). Storage and percolation ponds for tertiary-treated effluent do not tend to generate substantial odors because the effluent would be fully oxidized with greatly reduced content of remaining organic content susceptible to odor creation compared to existing conditions. Potential odors during operations would be limited to diesel exhaust odors associated with the continuation of water haul truck trips in the City's water hauling program. However, water haul trucks are not anticipated to idle in the immediate vicinity of any receptors for an extended period of time. Because of the highly diffusive properties of diesel exhaust, such odors would be temporary. Consequently, implementing the proposed project would not result in other emissions. As a result, this impact would be **less than significant**.

Mitigation Measures: No mitigation is required.

3.7 NOISE

This section summarizes regulations applicable to the proposed project and describes ambient noise conditions in the project area. It also presents an analysis of potential impacts of the proposed project from short-term construction and long-term operational noise sources. Mitigation measures are recommended, as necessary, to reduce significant noise impacts.

3.7.1 SUMMARY OF FINDINGS FROM THE CERTIFIED EIR

Table 3.7-1 identifies significant project impacts related to noise, as presented in the certified EIR (2005), and the mitigation measures identified to reduce those impacts. Impacts for which the analysis in the certified EIR reached conclusions of less than significant or no impact are not listed here.

Table 3.7-1
Significant Impacts and Mitigation Measures Identified in the Certified EIR (2005)—Noise

Impact	Mitigation Measures	Level of Significance Following Mitigation
Impact 3.7-1: Generation of Temporary Construction Noise Levels		
Implementation of the proposed project would involve construction activities associated with the extensive trenching required for pipeline installation to transport treated wastewater to irrigation locations offsite. Activities would include site grading, clearing, and excavation. The temporary construction noise associated with onsite equipment could potentially expose sensitive receptors to noise levels in excess of the applicable noise standard and/or result in a noticeable increase in ambient noise levels, and construction activities could exceed daytime hour noise standards.	**Mitigation Measure 3.7-1: Implement Noise Control Measures** The City and the general construction contractor shall implement the following measures to reduce construction-generated noise: • Construction equipment shall be properly maintained and equipped with noise control devices, such as mufflers and shrouds, in accordance with manufacturers' specifications. • Construction activities involved with the proposed project shall be limited to the hours between 7:30 a.m. and 6 p.m. Monday through Saturday, excluding legal holidays. • Construction staging areas shall be located as far from noise-sensitive uses as is feasible. • For the pond excavators, temporary berms shall be placed between construction site boundary and existing sensitive receptors, when construction would occur continuously in the same location for more than 30 days. • Shut down construction equipment when not in use for more than 30 minutes.	LS

Notes: City = City of Healdsburg; EIR = environmental impact report; LS = less than significant
Source: Data compiled by AECOM in 2019, based on the certified 2005 EIR for the City of Healdsburg Wastewater Treatment Plant Upgrade Project

3.7.2 ENVIRONMENTAL SETTING UPDATE

ACOUSTIC FUNDAMENTALS

Noise is generally defined as sound that is loud, disagreeable, or unexpected. Sound, as described in more detail below, is mechanical energy transmitted through a medium (e.g., air) in the form of a wave from a disturbance or vibration.

Sound Properties

A sound wave is introduced into a medium by a vibrating object. The vibrating object is the source of the disturbance that moves through the medium. The source could be vibrating vocal cords, the string and soundboard of a guitar, or the diaphragm of a radio speaker. Regardless of the type of source creating the sound wave, the particles of the medium through which the sound moves are vibrating in a back-and-forth motion at a given frequency (i.e., pitch).

The frequency of a wave is determined by how often the particles vibrate when a wave passes through the medium. It is measured as the number of complete back-and-forth vibrations of a particle per unit of time. If a particle of air undergoes 1,000 longitudinal vibrations in 2 seconds, then the frequency of the wave would be 500 vibrations per second. A commonly used unit for frequency is Hertz (Hz).

Each particle of the medium vibrates because of the motion of its nearest neighbor. The first particle begins vibrating, at, say, 500 Hz and sets the second particle of the medium into motion at the same frequency. The second particle begins vibrating at 500 Hz and thus sets the third particle into motion at 500 Hz. The process continues throughout the medium until each particle of the medium vibrates at the same frequency, which is equal to the frequency of the original source. Subsequently, a guitar string vibrating at 500 Hz will set the air particles in the room vibrating at the same frequency, which carries a sound signal to the ear of a listener that is detected as a 500-Hz sound wave.

The back-and-forth vibration motion of the particles of the medium is not the only observable phenomenon occurring at a given frequency. Because a sound wave is a pressure wave, a detector can be used to detect oscillations in pressure from high pressure to low pressure and back to high pressure. As the compression (high-pressure) and rarefaction (low-pressure) disturbances move through the medium, they reach the detector at a given frequency. For example, the compression and rarefaction disturbances reach the detector 500 times per second if the frequency of the wave is 500 Hz. Thus, the frequency of a sound wave refers not only to the number of back-and-forth vibrations of the particles per unit of time, but to the number of compression or rarefaction disturbances that pass a given point per unit of time.

A detector can be used to detect the frequency of these pressure oscillations over a given period. The period of the sound wave can be found by measuring the time between successive high-pressure points (corresponding to the compressions) or the time between successive low-pressure points (corresponding to the rarefactions). The frequency is simply the reciprocal of the period. Thus, an inverse relationship exists: As frequency increases, the period decreases and vice versa.

As mentioned previously, a wave is an energy transport phenomenon that transports energy along a medium. The amount of energy carried by a wave is related to the amplitude (i.e., loudness) of

the wave. A high-energy wave is characterized by high amplitude; a low-energy wave is characterized by low amplitude. The amplitude of a wave refers to the maximum amount of displacement of a particle from its rest position. The energy transported by a wave is directly proportional to the square of the amplitude of the wave. This means that a doubling of the amplitude of a wave is indicative of a quadrupling of the energy transported by the wave. A tripling of the amplitude of a wave is indicative of a ninefold increase in the amount of energy transported by the wave.

Sound and the Human Ear

Because of the ability of the human ear to detect a wide range of sound pressure fluctuations, sound pressure levels are expressed in logarithmic units called decibels (dB). The sound pressure level in decibels is calculated by taking the log of the ratio between the actual sound pressure and the reference sound pressure squared. The reference sound pressure is considered the absolute hearing threshold (Caltrans 2013a).

In addition, because the human ear is not equally sensitive to all sound frequencies, a specific frequency-dependent rating scale was devised to relate noise to human sensitivity. An A-weighted dB (dBA) scale performs this compensation by discriminating against frequencies in a manner approximating the sensitivity of the human ear. The basis for compensation is the faintest sound audible to the average ear at the frequency of maximum sensitivity. This A-weighted dB scale has been chosen by most authorities for regulation of environmental noise. Table 3.7-2 lists typical indoor and outdoor noise levels.

Sound Propagation

As sound (noise) propagates from the source to the receptor, the attenuation—the manner of noise reduction relative to distance—depends on such factors as the inverse square law, surface characteristics, atmospheric conditions, and the presence of physical barriers. The inverse square law describes the attenuation attributable to the pattern in which sound travels from the source to the receptor. Sound travels uniformly outward from a point source in a spherical pattern with an attenuation rate, generally, of 6 dBA per doubling of distance (dBA/DD). In other words, sound decreases by 6 dBA each time the distance between the noise source and the receptor is doubled.

However, from a line source (e.g., road), sound travels uniformly outward in a cylindrical pattern with an attenuation rate, generally, of 3 dBA/DD. The characteristics of the surface between the source and the receptor may further absorb and/or reflect sound, thus resulting in a different attenuation rate. Atmospheric conditions such as wind speed, temperature, and humidity may also affect noise levels. Furthermore, the presence of a barrier between the source and the receptor may attenuate noise levels. The actual amount of attenuation depends on the barrier size and the frequency of the noise. A noise barrier may be any natural or human-made feature, such as a hill, tree, building, wall, or berm (Caltrans 2013a).

Table 3.7-2 Typical Indoor/Outdoor Noise Levels and Common Environmental Noise Sources		
Common Outdoor Activities	**Noise Level (dBA)**	**Common Indoor Activities**
	— 110 —	Rock band
Jet fly-over at 1,000 feet		
	— 100 —	
Gas lawn mower at 3 feet		
	— 90 —	
Diesel truck at 50 feet at 50 mph		Food blender at 3 feet
	— 80 —	Garbage disposal at 3 feet
Noisy urban area, daytime		
Gas lawn mower, 100 feet	**— 70 —**	Vacuum cleaner at 10 feet
Commercial area		Normal speech at 3 feet
Heavy traffic at 300 feet	**— 60 —**	
		Large business office
Quiet urban daytime	**— 50 —**	Dishwasher, next room
Quiet urban nighttime	**— 40 —**	Theater, large conference room (background)
Quiet suburban nighttime		
	— 30 —	Library
Quiet rural nighttime		Bedroom at night, concert hall (background)
	— 20 —	
		Broadcast/recording studio
	— 10 —	
Lowest threshold of human hearing	**— 0 —**	Lowest threshold of human hearing
Source: Caltrans 2013a		

Noise Descriptors

The proper descriptor for noise from a specific source depends on the spatial and temporal distribution, duration, and fluctuation of the noise. The following are the noise descriptors most often encountered when dealing with traffic, community, and environmental noise (Caltrans 2013a):

- *L_{max} (maximum noise level):* The maximum instantaneous noise level during a specific period of time. The L_{max} may also be referred to as the "peak (noise) level."
- *L_{min} (minimum noise level):* The minimum instantaneous noise level during a specific period of time.
- *L_n (statistical descriptor):* The noise level exceeded "n" percent of a specific period of time.

- *L_{eq} (equivalent noise level):* The average noise level. The instantaneous noise levels during a specific period of time in dBA are converted to relative energy values. From the sum of the relative energy values, average energy value is calculated, which is then converted back to dBA to determine the L_{eq}.

- *L_{dn} (day-night noise level):* The 24-hour L_{eq} with a 10 dBA "penalty" for the noise-sensitive hours between 10:00 p.m. and 6:00 a.m. The L_{dn} attempts to account for the fact that noise during this specific period of time is a potential source of disturbance with respect to normal sleeping hours.

- *CNEL (community noise equivalent level):* The CNEL is similar to the L_{dn} described above, but with an additional 4.77 dBA "penalty" for the noise-sensitive hours between 7:00 p.m. and 10:00 p.m., which are typically reserved for relaxation, conversation, reading, and television. If using the same 24-hour noise data, the CNEL is typically about 0.5 dBA higher than the L_{dn}.

Negative Effects of Noise on Humans

Negative effects of noise exposure include physical damage to the human auditory system, interference, and disease. Exposure to noise may result in physical damage to the auditory system, which may lead to gradual or traumatic hearing loss. Gradual hearing loss is attributable to sustained exposure to moderately high noise levels over a period of time, while traumatic hearing loss is attributable to sudden exposure to extremely high noise levels over a short period. However, both gradual and traumatic hearing loss may result in permanent hearing damage. In addition, noise may interfere with or interrupt sleep, relaxation, recreation, and communication. Although most interference may be classified as annoying, the inability to hear a warning signal may be considered dangerous. Noise may also contribute to diseases associated with stress, such as hypertension, anxiety, and heart disease. The degree to which noise contributes to such diseases depends on the noise frequency, bandwidth, level, and exposure time (Caltrans 2013a).

EXISTING NOISE ENVIRONMENT

Existing Noise-Sensitive Land Uses

Noise-sensitive land uses generally consist of those uses where noise exposure would result in adverse effects, and uses for which quiet is an essential element of their intended purpose. Residential dwellings are of primary concern because of the potential for increased and prolonged exposure of individuals to both interior and exterior noise.

Noise-sensitive land uses in the project area are rural and scattered residences east and west of Westside Road. The principal noise source near the project area is vehicular traffic on nearby roadways. Intermittent noise from surrounding agricultural operations and noise from train and aircraft pass-bys also contribute, to a lesser extent, to the existing noise environment. The *Sonoma County General Plan* reports that existing ambient noise levels along Westside Road near the project site are 60 dB L_{dn} at 65 feet from the roadway centerline (Sonoma County 2019).

The nearest noise-sensitive land uses to the proposed project facilities are 900 feet from Westside Road. The 60 dB L_{dn} noise level at 65 feet from traffic on Westside Road would attenuate to 49 dB L_{dn} at 900 feet. Therefore, the existing ambient noise level at the nearest noise-sensitive uses to the project site is estimated to be 49 dB L_{dn}.

Existing noise sources at the City of Healdsburg Wastewater Treatment Plant (WWTP) include various motors and pumps used to operate primary ponds and the influent/effluent pump station. Most of the noisiest equipment (e.g., influent/effluent pumps) is enclosed in a concrete structure below ground or equipped with noise reduction features. Healdsburg Municipal Airport, the nearest public/private airport, is located approximately 5 miles north of the WWTP.

3.7.3 Regulatory Background Update

Federal Plans, Policies, Regulations, and Laws

No federal plans, policies, regulations, or laws related to noise are applicable to the proposed project.

State Plans, Policies, Regulations, and Laws

The State of California has adopted noise standards in areas of regulation not preempted by the federal government. State standards regulate the noise levels of motor vehicles and freeway noise that affects classrooms; set standards for control of sound transmission and occupational noise; and identify noise insulation standards. The state has also developed land use compatibility guidelines for community noise environments, as discussed below.

The *State of California General Plan Guidelines* (OPR 2017), published by the Governor's Office of Planning and Research (OPR), provides guidance for the acceptability of projects within specific CNEL/L_{dn} contours. Table 3.7-3 presents acceptable and unacceptable community noise exposure limits for various land use categories:

- Generally, residential uses are considered acceptable in areas where exterior noise levels do not exceed 60 dBA CNEL/L_{dn}.
- Residential uses are normally unacceptable in areas exceeding 70 dBA L_{dn} and acceptable or conditionally acceptable within 55–70 dBA L_{dn}.
- Commercial/professional office buildings and businesses are normally acceptable in areas up to 70 dBA CNEL and normally unacceptable in areas exceeding 75 dBA CNEL.
- Between 67.5 and 77.5 dBA CNEL, commercial uses are conditionally acceptable, depending on the noise insulation features and the noise reduction requirements.

The guidelines also present adjustment factors that may be used to arrive at noise acceptability standards that reflect the noise control goals of the community, the particular community's sensitivity to noise, and the community's assessment of the relative importance of noise pollution.

Table 3.7-3 Land Use Noise Compatibility Guidelines				
Land Use Category	**Community Noise Exposure (L_{dn} or CNEL, dBA)**			
	Normally Acceptable[1]	**Conditionally Acceptable[2]**	**Normally Unacceptable[3]**	**Clearly Unacceptable[4]**
Residential-Low Density Single Family, Duplex, Mobile Home	<60	55-70	70-75	75+
Residential-Multiple Family	<65	60-70	70-75	75+
Transient Lodging, Motel, Hotel	<65	60-70	70-80	80+
School, Library, Church, Hospital, Nursing Home	<70	60-70	70-80	80+
Auditorium, Concert Hall, Amphitheater		<70	65+	
Sports Arenas, Outdoor Spectator Sports		<75	70+	
Playground, Neighborhood Park	<70		67.5-75	72.5+
Golf Courses, Stable, Water Recreation, Cemetery	<75		70-80	80+
Office Building, Business Commercial and Professional	<70	67.5-77.5	75+	
Industrial, Manufacturing, Utilities, Agriculture	<75	70-80	75+	

[1] Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.

[2] New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice.

[3] New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design. Outdoor areas must be shielded.

[4] New construction or development should generally not be undertaken.

Source: OPR 2017

LOCAL PLANS, POLICIES, REGULATIONS, AND ORDINANCES

Sonoma County General Plan

The Noise Element of the *Sonoma County General Plan,* adopted by the Board of Supervisors in 2008 and last amended in 2012 (Sonoma County 2012), is intended to provide ways by which to reduce existing and future noise conflicts. The following goals and policies apply to portions of the project site located within the unincorporated area of Sonoma County:

Goal NE-1c: Protect people from the adverse effects of exposure to excessive noise and to achieve an environment in which people and land uses may function without impairment from noise.

- **Policy NE-1c:** Control non-transportation-related noise from new projects. The total noise level resulting from new sources and ambient noise shall not exceed the standards in Table NE-2 [Table 3.7-4 in this SEIR] as measured at the exterior property line of any affected residential land use. Exceptions are limited to the following:

1. If the ambient noise level exceeds the standards in Table NE-2 [Table 3.7-4 in this SEIR], adjust the standard to equal the ambient level.

2. Reduce the applicable standards in Table NE-2 [Table 3.7-4 in this SEIR] by 5 dBA for simple tone noises, noises consisting primarily of speech or music, or recurring impulsive noises.

3. Reduce the applicable standards in Table NE-2 [Table 3.7-4 in this SEIR] by 5 dBA if the standards exceed the ambient level by 10 dB or more.

Policy NE-1c indicates that the noise standards apply to the exterior property line of the affected residential land use. For assessment of noise impacts under CEQA, it is Sonoma County's practice to apply these standards to outdoor activity areas that are used on a regular basis.

Table 3.7-4
Maximum Allowable Exterior Noise Exposures for Nontransportation Noise Sources

Hourly Noise Metric, dBA	Cumulative Duration of Noise Event in Any 1-Hour Period (minutes)	Daytime (7 a.m. to 10 p.m.)	Nighttime (10 p.m. to 7 a.m.)
L50 (30 minutes in any hour)	30–60	50	45
L25 (15 minutes in any hour)	15–30	55	50
L08 (4 minutes, 48 seconds in any hour)	5–15	60	55
L02 (72 seconds in any hour)	1–5	65	60
Source: Sonoma County 2012			

Sonoma County Noise Ordinance

Section 9.56.050 of the Sonoma County Ordinance permits exceptions to the noise standards for construction activity that is limited to 8 a.m. to 6 p.m. Monday through Friday, 9 a.m. to 6 p.m. on Saturdays, and 10 a.m. to 6 p.m. on Sundays and holidays. However, the noise level at any point outside of the property line boundary of the project shall not exceed 90 dBA.

3.7.4 Impacts and Mitigation Measures

Standards of Significance

In addition to the guidelines and standards presented above, another consideration is the degradation of the existing ambient noise environment due to an increase in the ambient noise levels. With respect to noise levels, a 1-dBA increase is imperceptible, a 3-dBA increase is barely perceptible, a 6-dBA increase is clearly perceptible, and a 10-dBA increase is subjectively perceived as approximately twice as loud. As a result, for the purpose of the proposed project, a minimally perceptible increase of 3 dBA shall represent a significant increase in ambient noise levels.

Based on Appendix G of the State CEQA Guidelines, general standards for community ambient noise degradation, and the Sonoma County/City of Healdsburg standards identified above, the project would have a significant noise impact if it would result in:

- generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies;

- generation of excessive groundborne vibration or groundborne noise levels; or

- for a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, exposure of people residing or working in the project area to excessive noise levels.

Specifically, a significant noise impact would occur if:

- construction source noise levels would exceed the applicable standard or result in a noticeable increase of 3 dBA or greater for an extended period (e.g., an unusually long construction period) at noise-sensitive land uses,

- operational traffic source noise levels would exceed the applicable standard or result in a noticeable increase of 3 dBA or greater at noise-sensitive land uses, or

- operational stationary and/or area source (non-transportation) noise levels would exceed the applicable standard or result in a noticeable increase of 3 dBA or greater at noise-sensitive land uses.

EFFECTS FOUND NOT TO BE SIGNIFICANT

The project site is not located in the vicinity of a private airstrip or an airport land use plan or within 2 miles of a public airport or public-use airport, and the project would not expose people residing or working in the project area to excessive noise levels. Healdsburg Municipal Airport, the nearest public/private airport, is located approximately 5 miles north of the WWTP. Therefore, no impact would occur and no further discussion of this topic is provided in the impact analysis that follows.

METHODOLOGY

To assess potential short-term, temporary (i.e., construction-related) noise impacts, sensitive receptors and their relative exposure were identified. Noise levels of specific construction equipment were determined and resultant noise levels at those receptors (at given distances from the source) were calculated. Potential long-term (i.e., operational) mobile-, area-, and stationary-source noise were assessed based on site reconnaissance data and documented noise levels. Predicted noise levels were compared with applicable County standards for determination of significance.

IMPACT ANALYSIS

Impact 3.7-1: Generation of Temporary Construction Noise Levels

Construction of the proposed project would require extensive trenching for the installation of pipelines that would transport treated wastewater to irrigation locations off-site. As described in Chapter 2, "Project Description," the project would involve constructing two segments of pipeline

in the 2018 Proposed Area that would extend from the existing recycled water transmission pipelines: approximately 2,500 feet of 8-inch pipeline to serve the figure vineyard property and 3,500 feet of 12-inch pipeline to serve the diary/vineyard property. The nearest noise-sensitive uses to the construction sites for the proposed 8-inch and 12-inch pipeline extensions are approximately 900 feet and 700 feet to the west, respectively.

Constructing the two transmission pipeline extensions would involve site grading, clearing, and excavation. This work would require two excavators for trenching, pipe laying, and backfilling; one water truck for dust control and moisture conditioning of the soil; and one bulldozer for spoils control and backfilling. A plate tamper or impact rammer would compact the soil. Construction of the two separate transmission pipeline segments would most likely occur sequentially. However, to provide a conservative estimate of project impacts, construction of the irrigation facilities on the diary/vineyard property was assumed to occur concurrently with construction of the connecting transmission pipeline segment.

Simultaneous operation of the on-site construction equipment described above could generate combined intermittent noise levels of approximately 83 dBA at 50 feet from the project site. As a result, exterior noise levels at the nearest sensitive receptors approximately 700 feet and 900 feet from the construction sites would be 54 dBA and 52 dBA, respectively (Table 3.7-5). Therefore, without noise control measures, exterior noise levels at the nearest sensitive receptors attributable to project construction could exceed the 50 dBA daytime threshold specified in Table 3.7-4, and would exceed the existing ambient noise level of 49 dBA in the project area. As a result, this impact would be ***potentially significant***.

Table 3.7-5
Predicted Construction-Related Noise at the Nearest Sensitive Receptors to the Construction Sites

Option	Distance To Receptor (feet)	Predicted Noise Level (dBA)
8-inch Pipeline—figure vineyard property	900	52
12-inch Pipeline—diary/vineyard property	700	54
Irrigation Facilities on diary/vineyard property	3,500	37

See Appendix D for modeling results and detailed assumptions.
Source: Data compiled by AECOM in 2019

Mitigation Measure S3.7-1: Implement Noise Control Measures

The City and the general construction contractor shall implement the following measures to reduce construction-generated noise:

- Construction equipment shall be maintained properly and equipped with noise control devices, such as mufflers and shrouds, in accordance with manufacturers' specifications.
- Project construction activities shall be limited to 8 a.m. to 6 p.m. Monday through Friday, 9 a.m. to 6 p.m. on Saturdays, and 10 a.m. to 6 p.m. on Sundays and holidays.
- Construction staging areas shall be located as far from noise-sensitive uses as feasible.

- Construction equipment not being used for more than 30 minutes shall be shut down.

Timing/Implementation: Before and during all construction activities, specifically ground disturbance.

Enforcement/Monitoring: City of Healdsburg, Sonoma County, and the general contractor.

Implementing Mitigation Measure S3.7-1 would serve to minimize noise levels on adjacent land uses by ensuring the associated equipment is property maintained, operated only when necessary and within allowable hours, and by maximizing the distance between construction staging areas and nearby uses. This would reduce the impact of temporary construction noise to a ***less-than-significant*** level.

Potential impacts resulting from future program activities, including the construction of additional facilities within the 2018 Program Expansion area, are expected to have impacts similar to those analyzed above for the proposed project-specific activities. Confirmation of the accuracy of the above analysis and conclusions would occur during the design stage of any future projects, and prior to approval.

Impact 3.7-2: Generation of Long-Term Increases in Traffic Noise Levels

Implementing the proposed project would not require additional employees. WWTP employees would likely be required to make incidental trips to the facilities for inspections and/or maintenance. Limited maintenance and inspection activities are anticipated, and would occur only periodically. The most intensive activities are assumed to require fewer than 10 trips on any given day. The additional noise generated by light-duty vehicles accessing the properties would be negligible. The current recycled water hauling program requires approximately five to 10 truck trips per day; the City has conservatively estimated that the number of truck trips required may double to 10–20 per day in the next 20 years. In general, a doubling of the existing vehicle trips would result in a noticeable increase (e.g., 3 dB) in traffic noise. Because existing traffic volumes far exceed the anticipated increase in trips resulting from project implementation, the addition of 10-20 project-related truck trips per day to existing vehicular trips would not result in a significant noise increase along roadways in the project area. Thus, this impact would be ***less than significant***.

Mitigation Measures: No mitigation is required.

Potential impacts resulting from future program activities described in Chapter 2, Project Description, are expected to have impacts similar to those analyzed above for the proposed project activities. Confirmation of the accuracy of the analysis and conclusions provided above would occur during the design stage of future projects, and prior to approval.

Impact 3.7-3: Generation of Long-Term Increases in Stationary-Source Noise Levels

The proposed irrigation facilities on the diary/vineyard property would include a small booster pump station approximately 200 feet west of Westside Road and just south of Wohlenberg Road. The noise level from the proposed pump station was estimated to be 68 dB at 18 feet (Fuss, pers. comm., 2019). The estimated noise level at the nearest sensitive receptor (at least 500 feet away) would be less than 40 dB. Also, the pump station would operate during daytime hours only. Since

this source of noise would not exceed existing ambient noise levels, no significant noise impact would result from pump operation. Implementing the project would not require any additional stationary equipment. Thus, with respect to long-term increases in noise levels from stationary sources, ***no impact*** would result from project implementation.

Mitigation Measures: No mitigation is required.

Potential impacts resulting from future program activities described in Chapter 2, Project Description, are expected to have impacts similar to those analyzed above for the proposed project activities. Confirmation of the accuracy of the analysis and conclusions provided above would occur during the design stage of future projects, and prior to approval.

Impact 3.7-4: Generation of Excessive Groundborne Vibration or Groundborne Noise Levels

Movement and operation of the project's construction equipment may generate temporary groundborne vibration. The Federal Transit Administration (FTA) has developed criteria for human annoyance and the California Department of Transportation (Caltrans) has developed criteria for potential structural damage to adjacent buildings. These FTA and Caltrans standards are commonly applied as an industry standard to determine the impacts of project vibration relative to human annoyance and structural damage. FTA recommends that the vibration level remain less than 72 vibration decibels (VdB) at residential uses to avoid human annoyance (FTA 2018); Caltrans recommends staying below 0.3 inch per second (in/sec) peak particle velocity (PPV) at residential uses to avoid structural damage to newer buildings (Caltrans 2013b).

The vibration level associated with the use of a large bulldozer is 0.089 in/sec PPV (87 VdB) at 25 feet (FTA 2018). The nearest vibration-sensitive uses to the construction sites for the 8-inch and 12-inch pipeline extensions are approximately 900 feet and 700 feet to the west, respectively. At these distances, the most substantial vibration generated by project construction equipment would attenuate to less than 44 VdB and 0.002 in/sec PPV, less than the criteria of 72 VdB and 0.3 in/sec PPV recommended by FTA and Caltrans. The vibration generated by equipment is not anticipated to be excessive or significant. Also, long-term project operation would not include any major new sources of groundborne noise or vibration. Maintenance vehicles and water haul trucks would be restricted to existing public roadways, and the limited number of trips generated would not have the potential to substantially increase vibration levels at adjacent land uses. Therefore, short-term construction and long-term operation of the project would not expose persons to or generate excessive groundborne noise or vibration. For these reasons, this impact would be ***less than significant***.

Mitigation Measures: No mitigation is required.

Potential impacts resulting from future program activities described in Chapter 2, Project Description, are expected to have impacts similar to those analyzed above for the proposed project activities. Confirmation of the accuracy of the analysis and conclusions provided above would occur during the design stage of future projects, and prior to approval.

3.8 CULTURAL RESOURCES, INCLUDING TRIBAL CULTURAL RESOURCES

This section of the EIR discusses potential impacts of the proposed project on cultural resources, including tribal cultural resources (TCRs). Healdsburg and its vicinity are known to contain numerous traces of past human activity, ranging from early Native American sites and artifacts to the remains of historic-era agricultural and ranching activities. Such materials can be found at many locations on the landscape and, along with prehistoric and historic-era human remains and associated grave goods, are protected by various federal, state, and local statutes, including CEQA.

3.8.1 SUMMARY OF FINDINGS FROM THE CERTIFIED EIR

Table 3.8-1 identifies significant project impacts on cultural resources, as presented in the 2005 EIR, and the mitigation measures identified to reduce those impacts. Impacts for which the analysis in the 2005 EIR reached conclusions of less than significant without mitigation or no impact are not listed here. This table does not specifically account for impacts on TCRs because Appendix G of the State CEQA Guidelines did not list TCRs as a resource area requiring environmental analysis at the time the 2005 EIR was prepared.

Table 3.8-1
Significant Impacts and Mitigation Measures Identified in the Certified EIR (2005)—Cultural Resources

Impact	Mitigation Measures	Level of Significance Following Mitigation
Impact 3.8-2: Potential Impacts on Undocumented Cultural Resources		
Extensive trenching would be required to install pipeline for the seasonal irrigation reuse system and allow the transportation of treated wastewater to irrigation locations up to several miles from the WWTP. These construction activities have the potential to disturb undocumented cultural resources. The Foreman Lane/Taymam Park option extends through areas where numerous historic-era structures and buildings are present. The Foreman Lane/Mill Creek portion is planned for an area that includes a documented prehistoric site (P-49-002735) and at least one major stream crossing. Other portions of this option cross the Russian River in the vicinity of Dry Creek, a potentially sensitive area for prehistoric cultural resources.	**Mitigation Measure 3.8-2: Reduce Potential Impacts on Cultural Resources through Archaeological Monitoring Where Necessary.** Before construction or ground-disturbing activities are initiated, all construction personnel shall be alerted to the possibility of buried cultural resources. In the event potential historical, architectural, archaeological, or cultural resources are discovered during subsurface excavations at the site of construction, the following procedures will apply: 1. The Contractor must immediately notify the City's designated construction management engineer (Engineer) and stop any work which may jeopardize the find pending an investigation of its significance; 2. The Engineer will select a qualified archaeologist (such as through the Northwest Information Center at Sonoma State University or other official contact) and wait for an archaeologist to complete an evaluation of significance before continuing work in that area. 3. The Engineer will supply the contractor with a "Stop Work Order" directing the contractor to cease all portions of the work that the Engineer determines may impact the find. The "Stop Work Order" will be effective until a qualified archaeologist assesses the value of the potential cultural resources. The "Stop Work Order" will contain the following: a. A clear description of the work to be suspended;	LS

Table 3.8-1
Significant Impacts and Mitigation Measures Identified in the Certified EIR (2005)—Cultural Resources

Impact	Mitigation Measures	Level of Significance Following Mitigation
	b. Any instructions regarding issuance of further orders by the contractor for materials services; c. Guidance as to action to be taken regarding subcontractors; d. Any direction to the contractor to minimize costs; and e. Estimated duration of the temporary suspension. 4. If the archaeologist determines the potential find is a bona fide cultural resource, the Engineer may extend the duration of the "Stop Work Order" in writing, and if so the "Stop Work Order" will remain in effect and work subject to the "Stop Work Order" may not resume work until authorized by the Engineer. The archaeologist will determine the potential significance of the find(s) and will determine a course of action to reduce further impacts in accordance with CEQA standards. Such efforts may include no action, documentation, or testing and potential further subsurface investigation. The Engineer may use discretion to continue the work, regardless of the cultural resource find, if the Engineer determines that there are overriding considerations such as the instability of the excavation site, that there are weather or other conditions which would preclude leaving the site exposed, or if the site would be unsafe to workers who would retrieve cultural resource items. In addition, for the Foreman Lane/Tayman Park option, a qualified archaeologist must monitor all ground-disturbing activities in the vicinity of the designated historic district and in and along the outside edges of the cemetery. If cultural resources are documented on the property, they may need to be assessed further through additional documentary research and/or subsurface testing and excavation. In addition, for the Foreman Lane/Mill Creek Road option, a qualified archaeologist must monitor all ground-disturbing activities in the vicinity of the creek and river crossings and near the documented prehistoric site (P-49-002735). If cultural resources are documented on the property, they may need to be assessed further through additional documentary research and/or subsurface testing and excavation.	

Notes: CEQA = California Environmental Quality Act; City = City of Healdsburg; EIR = environmental impact report; LS = less than significant; WWTP = wastewater treatment plant

Source: Data compiled by AECOM in 2019, based on the certified 2005 EIR for the City of Healdsburg Wastewater Treatment Plant Upgrade Project

3.8.2 ENVIRONMENTAL SETTING UPDATE

CULTURAL CONTEXT

The cultural setting of Healdsburg and the surrounding region dates to the earliest best-dated migrations of humans into North America. Evidence of the presence of Paleo-Indian cultures (10,000 to 8000 years Before Present [BP]) in the area is sparse at best. However, sites dating to this period have been found near San Francisco Bay and in nearby Lake County, where high-quality sources of obsidian were frequently used by these early native peoples. Archaeological evidence from later prehistoric times is somewhat more apparent, indicating the development of cultural traits typical of the Pomo people who resided in the area and lived traditional life-ways until comparatively recent times.

Before the early 19th century and the Gold Rush, Healdsburg and the Sonoma County region was subject to few influences from the ever-increasing Euro-American presence. Coastal explorations throughout the 18th century never came as far inland as Healdsburg. Only one or two such journeys may have passed through what is now Sonoma County, including one by the Arguello-Ordaz party in 1821. That expedition did not focus on exploring remote Spanish territories, but was intended to investigate the rumored presence of English and American intruders in the region north of San Francisco.

Drastic cultural change began to take place by the mid-1800s, when Fort Ross was established on the Sonoma Coast, enabling more far-flung trading and exploratory expeditions into the interior regions. By the early 1840s, the Mexican government began to divide lands in the area into vast ranchos. The largest of these in the Sonoma County region was Rancho Sotoyome, granted to Henry Delano Fitch in 1841. After disaffected Gold Rush miners realized that a more stable and usually more profitable lives could be had based on farming and ranching, they began to settle illegally on Fitch's lands. One of those squatters was an Ohio entrepreneur, Harmon Heald.

Heald eventually gained legal title to portions of Rancho Sotoyome and constructed a store and post office in what is now downtown Healdsburg. Heald then laid out a town grid and sold lots for $15 each, a considerable amount for the period. He plotted the townsite complete with a central Spanish-style plaza, which remains one of the few examples of early California town planning still in existence. Such foresight led to formal incorporation of the city in 1867 and paved the way for Healdsburg to become the commercial and residential hub it is today.

The project area is located south of the city of Healdsburg and west of the Russian River. diary/vineyard property, which has been identified as an area of recycled-water reuse in the project area, was historically part of the Emily B. Hopkins property at the turn of the 20th century (Ricksecker and Walkup 1900). Osborne White and his wife Aileen Dowsett purchased the Hopkins property and other surrounding parcels to create their 11,000-acre White-O Ranch in 1930. The Whites developed the property to serve the diversified farming interests of Osborne White, who was also the director of the Sonoma County Farm Bureau at the time. The White-O Ranch was featured in the Golden Gate Bridge Edition issue of *The Press Democrat* as an "agricultural showplace of Sonoma County—a model farming enterprise recognized throughout the entire west for its achievements in production of purebred livestock and modern methods of farm management" (*The Press Democrat* 1937, 1947).

Starting in the 1940s, the Whites began to sell portions of their extensive ranch. The diary/vineyard property acquired 360 acres in 1958 and began a 50-cow dairy. More than 60 years later, the second and third generations of the diary/vineyard propertycontinue operating the dairy, and the family diversified operations in 1997 by planting Pinot Noir and Chardonnay grapevines. Today, more than 55 acres of vineyards are in production on the diary/vineyard property (Clover Sonoma 2019).

PREVIOUS CULTURAL RESOURCES STUDIES AND DOCUMENTED RESOURCES

The results of a records search conducted in October 2018 at the Northwest Information Center at Sonoma State University, Rohnert Park, indicate that more than 50 cultural resources studies have been conducted in and near the project area. None of these studies were conducted in the vicinity of the two proposed pipelines for the diary/vineyard and future vineyard properties. Less than 25 percent of the project area has been previously subjected to cultural resources investigations. Fourteen cultural resources were previously recorded within the project area that includes both the 2018 Proposed Area and the 2018 Program Expansion Area (Table 3.8-2).

Table 3.8-2
Cultural Resources Documented in the Project Area

Site #	Site Type(s)	Site Description	USGS Quadrangle(s)
P-49-594/Son-629	Prehistoric	Midden, lithics	Guerneville
P-49-598/Son-633	Prehistoric	Midden, lithics, groundstone	Healdsburg
P-49-629/Son-682	Prehistoric	Petroglyphs	Guerneville
P-49-1047/Son	Prehistoric	Midden, lithics	Guerneville
P-49-2124/Son-1386H	Historic	Dilapidated dwelling and outbuildings, 3101 Westside Road	Guerneville
P-49-2125/Son-1387H	Historic	Refuse dump	Guerneville
P-49-1305/Son-1400/H	Prehistoric/historic	Midden, lithics, bone, historic-era materials	Guerneville
P-49-1532/Son-1929	Prehistoric	Midden, lithics	Healdsburg
P-49-1534/Son-1931	Prehistoric	Lithics	Healdsburg
P-49-2735/Son-2300	Prehistoric	Lithics	Guerneville
P-49-3223/Son-2395H	Historic	Porter Ranch	Guerneville
P-49-3137	Historic	Grave of Reuben R. Harper	Healdsburg
P-49-4754	Historic	Truitt House, 3280 Westside Road	Healdsburg
C-912	Historic	diary/vineyard property (informal recording)	Guerneville, Healdsburg

Note: USGS = U.S. Geological Survey

Source: Data compiled by AECOM in 2019 based on 2018 search of Northwest Information Center, Sonoma State University, Rohnert Park, California (Northwest Information Center file #18-0699)

LITERATURE, HISTORICAL MAP, AND AERIAL PHOTOGRAPH REVIEW

In addition to conducting the above records search, the National Register of Historic Places (NRHP), and the California Register of Historical Resources (CRHR), cultural resources specialists

reviewed the California Office of Historic Preservation's Historic Properties directory data files, historical maps, and aerial photographs during preparation of this EIR. Aerial photographs from the early 1950s, 1968, 1971, and 1993 (Nationwide Environmental Title Search 2019) were reviewed online to identify cultural resources in the project area; no obvious resources are depicted or mapped in the locations of the two proposed pipelines.

NATIVE AMERICAN CONSULTATION

AECOM, on behalf of the City, contacted the Native American Heritage Commission (NAHC) in June 2018, to advise the commission of the proposed project. The NAHC responded on July 9, 2018, stating that its record search revealed no indication of the presence of Native American cultural resources in the immediate project area; however, the NAHC also recommended that the City contact the Native Americans on its list to verify these findings. On July 18, 2018, the City sent notification letters to the eight Native American tribes on the NAHC list, advising about the project and inviting them to participate in consultation regarding Tribal Cultural Resource

Pursuant to Assembly Bill (AB) 52. Most tribes responded within the 30-day consultation period that they had no concerns about the proposed project. However, the resulting documentation was lost in the Russian River flood event of February 2019, when the project engineers office flooded. Because the Haul Area was added to the project in the interim and the project is now undergoing a subsequent EIR rather than the previously identified supplemental EIR review.

AECOM sent a second letter to the NAHC in January 2019, informing the commission of the revisions to the project area and requesting a search of the Sacred Lands File for the expanded area and any information regarding known resources. In its reply dated January 22, 2019, the NAHC stated that the Sacred Lands File search was positive for the Healdsburg U.S. Geological Survey quadrangle, and that the Mishewal-Wappo Tribe of Alexander Valley should be contacted for further information. (The positive search result coincides with the addition of the Haul Area in the NAHC request.) The City re-sent the invitation letters to consult pursuant to AB52 to the Native American tribes on the NAHC list on April 23, 2019 to notify them of these changes. In addition, on May 20, 2019, , the City contacted Scott Gabaldon, Chairperson of the Mishewal-Wappo Tribe of Alexander Valley, to discuss the expanded project, request further information regarding the sensitive resources identified in the Sacred Lands File search, and identify any concerns the Tribe might have about the project. As of the date of publication of this draft SEIR, no written or verbal responses to these outreach efforts have been received that indicate any concern for tribal cultural resources in the 2018 Project Area, the 2018 Program Expansion Area, or the Haul Area.

FIELD INVESTIGATION AND RESULTS

A pedestrian reconnaissance survey of the proposed pipeline routes and the diary/vineyard property was conducted on October 18, 2018, by AECOM cultural resources staff who meet the professional qualifications listed in the Secretary of the Interior's Standards for Archaeology and History, and Architectural History. The survey was conducted to identify any surface evidence of archaeological materials and any built-environment resources in the project area that may be affected by the project. The cultural resources staff walked both pipeline alignments leading from the existing recycled-water transmission pipeline; they also investigated the proposed pipeline alignment on the diary/vineyard property and the approximate location of the pump station. No

other areas within the 2018 Proposed Area or 2018 Expansion Area were surveyed as no specific projects or facilities are proposed in these additional areas.

The results of the field survey identified three historic-age resources in the areas surveyed:

- the diary/vineyard property;
- a circa 1941 concrete culvert located on the east side of Westside Road, south of Hozz Road; and
- a barn located immediately north of the proposed future vineyard property pipeline, near the existing recycled-water transmission pipeline (approximately 0.5 mile south of the intersection of Cohn Road and Foreman Lane near the Water Reclamation Facility).

The resources were documented with photographs and notes. Although these three resources have not been determined eligible for listing under Section 15064.5 of the State CEQA Guidelines, the impact analysis that follows applies the conservative assumption that they are eligible resources. No prehistoric resources were identified during the field survey.

3.8.3 Regulatory Background Update

Cultural resources in California are protected by a number of federal, state, and local regulations and ordinances. The most frequently applied legislation consists of the provisions of CEQA that provide for the documentation and protection of significant prehistoric and historic resources.

Federal Plans, Policies, Regulations, and Laws

Section 106 of the National Historic Preservation Act (NHPA) requires federal agencies to take into account the effects of their actions on properties that are listed or may be eligible for listing in the NRHP, and to afford the Advisory Council on Historic Preservation a reasonable opportunity to comment. To determine whether an undertaking could affect NRHP-eligible properties, all cultural sites that could be affected must be inventoried and evaluated for inclusion in the NRHP.

The significance of an archaeological or historic-era resource under the NHPA guidelines is an important consideration in terms of their management. Listing or eligibility for listing in the NRHP is the primary consideration in determining whether a resource is subjected to further research and documentation.

The determination of whether a cultural resource is eligible for the NRHP is guided by the specific legal context of the site's significance as set out in Section 106 of the NHPA (U.S. Code Title 54, Section 306108), as amended. The NHPA authorizes the Secretary of the Interior to expand and maintain a National Register of districts, sites, buildings, structures, and objects of significance in American history, architecture, archaeology, engineering, and culture. A property may be listed in the NRHP if it meets the criteria for evaluation defined in Title 36, 60.4 of the Code of Federal Regulations:

The quality of significance in American history, architecture, archaeology, engineering and culture is present in districts, sites, buildings, structures and objects that possess integrity of location, design, setting, materials, workmanship, feeling and association and:

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

(b) That are associated with the lives of persons significant in our past; or

(c) That embody the distinctive characteristics of a type, period or method of construction, or that represent the work of a master, or that possess an artistic value, or that represent a significant and distinguishable entity whose components may lack individual distinction; or

(d) That have yielded, or may be likely to yield, information important in prehistory or history.

STATE PLANS, POLICIES, REGULATIONS, AND LAWS

Under CEQA, public agencies must take into the account the potential effects of their actions on cultural resources in California. An integral part of the consideration of such actions is the significance of resources when measured against the criteria outlined in the CRHR. Cultural resources eligible for listing are afforded degrees of protection that range from preservation to the mitigation of adverse impacts. The determination of whether historic-era and prehistoric sites in the study area are eligible for the CRHR is guided by the specific legal context of the site's significance as outlined in Public Resources Code (PRC) Sections 21083.2 and 21084.1 and State CEQA Guidelines (California Code of Regulations [CCR] Title 14) Section 15064.5. A cultural resource may be eligible for listing in the CRHR if it:

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.

In California, if a prehistoric or historic-era resource does not necessarily meet any of the four CRHR criteria but does meet the definition of a "unique" site as outlined in PRC Section 21083.2, it may still be treated as a significant resource. This is the case if the resource 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. It contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information.

2. It has a special and particular quality such as being the oldest of its type or the best available example of its type.

3. It is directly associated with a scientifically recognized important prehistoric or historic event.

CEQA also provides a measure of protection for Native American human remains. Any human remains encountered during ground-disturbing activities are required to be treated in accordance with CCR Title 14, Section 15064.5(e) (CEQA); PRC Section 5097.98; and Section 7050.5 of the California Health and Safety Code. California law protects Native American burials, skeletal remains, and associated grave goods regardless of their antiquity, and provides for the sensitive treatment and disposition of those remains.

Specifically, under Section 7050.5 of the California Health and Safety Code, if human remains are discovered or recognized in any location other than a dedicated cemetery, further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains is prohibited until the county coroner has determined whether the remains are subject to the coroner's authority. If the human remains are determined to be of Native American origin, the county coroner must contact the NAHC within 24 hours of this identification. An NAHC representative will then notify a Native American Most Likely Descendant to inspect the site and provide recommendations for the proper treatment of the remains and associated grave goods.

In addition, State CEQA Guidelines Section 15064.5 specifies the procedures to follow if human remains are discovered on nonfederal land. The disposition of Native American burials falls within the jurisdiction of the NAHC.

Assembly Bill 52, enacted in September 2014 and effective January 2015 (PRC Sections 21080.3.1 and 21080.3.2), established a formal consultation process with both federally recognized and non-federally recognized) California Native American Tribes to identify potential significant impacts on tribal cultural resources, as defined by the CEQA statute (PRC Section 21074). TCRs are defined as "sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe" that are included in or determined to be eligible for inclusion in the CRHR or the local register of historical resources, or that the lead agency, at its discretion and supported by substantial evidence, determines should be treated as a TCR.

Before the release of a negative declaration, mitigated negative declaration, or EIR for a proposed project, the lead agency must provide notice to any tribe that is traditionally and culturally affiliated with the geographic area of the project if the tribe has submitted a written request to be notified. The tribe must respond to the lead agency within 30 days of receiving the notification if it wishes to engage in consultation on the project. The lead agency must begin the consultation process within 30 days of receiving the request for consultation.

PRC Section 21080.3.2(a) identifies the following as potential consultation discussion topics:

- Type of environmental review necessary
- Significance of TCRs

- Significance of the project's impacts on the TCRs
- Project alternatives or appropriate measures for preservation
- Mitigation measures

Consultation is considered concluded when either (1) the parties agree to measures to mitigate or avoid a significant effect, if a significant effect exists, on a TCR; or (2) a party, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached.

If a California Native American Tribe has requested consultation pursuant to PRC Section 21080.3.1 and has failed to provide comments to the lead agency, or otherwise has failed to engage in the consultation process, or if the lead agency has complied with Section 21080.3.1(d) and the California Native American Tribe has failed to request consultation within 30 days, the lead agency may certify an EIR or adopt a mitigated negative declaration.

LOCAL PLANS, POLICIES, REGULATIONS, AND ORDINANCES

Sonoma County General Plan

The Open Space and Resource Conservation Element of the *Sonoma County General Plan 2020* (most recently amended August 9, 2016) (Sonoma County 2016) identifies objectives and policies intended to preserve documented and unrecorded historical and prehistoric cultural resources located in the county. Goal OSRC-19 is to "[p]rotect and preserve significant archaeological and historical sites that represent the ethnic, cultural, and economic groups that have lived and worked in Sonoma County, including Native American populations." The goal also seeks to "[p]reserve unique or historically significant heritage or landmark trees."

Policies designed to achieve the objectives of historic and archaeological preservation in the county call for the designation of historic districts and landmarks by the County Landmarks Commission and a review of development proposals in historic districts. Additional policies call for conducting cultural resource sensitivity studies, including consulting with appropriate Native American tribes and the Northwest Information Center, for discretionary projects and mitigating potential effects through survey and potentially further mitigation. Other preservation-oriented policies include the use of the Landmark Tree Ordinance to protect heritage trees; the pursuit of grant funding for the preparation and updating of historic resource inventories; and the designation of the County Landmarks Commission to administer a preservation program for the stabilization, rehabilitation, and restoration of historic structures.

City of Healdsburg General Plan

The Historic and Cultural Resources Element of the *City of Healdsburg 2030 General Plan* (as amended through January 2015) (City of Healdsburg 2015) includes goals and policies for identifying and preserving significant historic and Native American cultural resources located in the city. Specifically, the goals state they are intended to preserve and enhance "Healdsburg's historical heritage" (Goal HCR-A) and to protect and preserve "Healdsburg's Native American cultural places" (Goal HCR-B). The general plan emphasizes the continued implementation of the City's historical preservation ordinances and requires consultation with the Northwest Information Center before approval of public and private projects. Implementation of the City's cultural resource preservation efforts includes consultation with the NAHC for a Sacred Lands

File search and consultation with culturally affiliated Native American tribes concerning projects, as guided by the provisions of CEQA.

3.8.4 Impacts and Mitigation Measures

Standards of Significance

Based on Appendix G of the State CEQA Guidelines, the project would have a significant impact on cultural resources, including tribal cultural resources, if it would:

- cause a substantial adverse change in the significance of an archaeological resource or a historical resource as defined in Section 21083.2 of CEQA and Section 15064.5 of the State CEQA Guidelines, respectively;

- disturb any human remains, including those interred outside of dedicated cemeteries; or

- cause a substantial adverse change in the significance of a TCR, defined in PRC Section 21074 as either a site, feature, place, or 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 CRHR, or in a local register of historical resources as defined in PRC Section 5020.1(k); or

    - 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 PRC Section 5024.1. In applying the criteria set forth in subdivision (c) of PRC Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.

Section 15064.5 of the State CEQA Guidelines defines "substantial adverse change" as physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings.

CEQA Section 21083.2 defines "unique archaeological resource" as:

> [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 one or more 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.

Section 15064.5 of the State CEQA Guidelines defines "historical resource" as a resource:

- listed in, or determined to be eligible by the State Historical Resources Commission, for listing in the CRHR;
- listed in a local register of historic resources or as a significant resource in a historical resource survey; or
- considered to be "historically significant" by a lead agency as supported by substantial evidence in the record.

Generally, a resource shall be considered by the lead agency to be significant if it meets one or more of the following criteria:

- is associated with events that have made a significant contribution to the broad patterns of United States/California history and cultural heritage;
- is associated with the lives of persons important in our past;
- embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important individual; or
- has yielded, or may be likely to yield, information important in prehistory or history.

PRC Section 21080.3.1 defines "tribal cultural resources" as "sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe" that are included or determined to be eligible for inclusion in the CRHR or the local register of historical resources, or resources that the lead agency, at its discretion and supported by substantial evidence, determines should be treated as TCRs.

METHODOLOGY

The potential for impacts on documented and undocumented cultural resources in the project area and vicinity was determined following a review of the results of the records search conducted at the Northwest Information Center in 2018; a review of the literature, historical maps, and aerial photographs; consultation with the NAHC and local Native American tribes; and a reconnaissance cultural resources inventory of the proposed pipeline locations, including within the parcel boundaries of the diary/vineyard property. This inventory was conducted by an AECOM archaeologist. The proposed locations of pipelines and other related facilities were examined in detail to determine their potential to adversely affect known resources and areas likely to contain prehistoric or historic-era sites, features, artifacts, or human interments.

IMPACT ANALYSIS

The project may be implemented in areas where documented and unrecorded cultural resources may be present. Several resources are present in the project area, and the potential exists for the project to affect prehistoric or historic-era sites, features, or artifacts not recorded during surface surveys of the project area. Pipeline trenching and facility construction have the potential to adversely affect cultural resources. These impacts are outlined below for the three geographic

areas included in the proposed project: 2018 Proposed Area, 2018 Program Expansion Area, and the Recycled Water Haul Area. The discussion of tribal cultural resources provided below applies to all of these geographic areas.

Impact 3.8-1: Potential Impacts on Documented Cultural Resources and Tribal Cultural Resources

2018 Proposed Area

Trenching would be required to install two segments of pipeline that would extend from the existing recycled-water transmission pipelines: approximately 3,500 feet of 12-inch-diameter pipeline to the diary/vineyard property and approximately 2,500 feet of 8-inch-diameter pipeline to serve the planned vineyard development at the future vineyard property. The pipeline for the diary/vineyard property from the distribution pipe would be buried; a small pad-mounted booster pump station with maximum dimensions of approximately 5 feet high and 20 feet wide may need to be constructed approximately 200 feet west of Westside Road. No prehistoric resources have been identified in the vicinity of the proposed project facilities. Therefore, no impact on documented archaeological resources would occur.

The proposed project improvements would not result in a substantial adverse change to historical resources through the physical demolition, destruction, relocation, or alteration of a historical resource or its immediate surroundings such that the significance of an historical resource would be materially impaired. The final pipeline alignment would be designed to avoid the historic-era culvert identified on the east side of Westside Road, south of Hozz Road. The construction of a booster pump station would be a minor alteration to the diary/vineyard property for the continued use of the property for agriculture. This minor improvement would be consistent with other modern irrigation facilities already present for field and vineyard irrigation in support of the property's ongoing dairy operation, and would not change the character of the property's use or the physical features of the property. This impact of the project on historic-era built resources in the 2018 Project Area would be ***less than significant***. No mitigation is required.

The pipeline serving the future vineyard property from the distribution pipe would also be buried and would tie in with an existing pump house approximately 0.40 mile west of the distribution pipeline. No project-level improvements for the future vineyard property are currently proposed, but the owner plans to develop a vineyard at a future date. The proposed project pipeline that would serve the future vineyard property would be placed below an existing dirt roadway for most of its length, adjacent to the historic-era barn. The barn has not been formally recorded, but the proposed project would not result in a substantial adverse change through the physical demolition, destruction, relocation, or alteration of this historic-era resource or its immediate surroundings such that the significance of the resource would be materially impaired. This impact of the project on historic-era built resources in the 2018 Project Area would be ***less than significant***. No mitigation is required.

2018 Program Expansion Area

The 2018 Program Expansion Area encompasses approximately 3,540 acres of land generally surrounding the 2018 Project Area and bisected by Westside Road. No facilities or improvements are currently proposed to serve this area. However, the proposed extension of the recycled-water transmission pipeline to the diary/vineyard property could also be extended south along

Westside Road to serve additional users in the expansion area in the future. To serve additional future water users in the area, the 12-inch-diameter pipeline that would serve the diary/vineyard property could be extended a maximum of approximately 3.5 miles, with turnouts (service points) provided at intervals based on specific landowner requests for service.

If the pipeline along Westside Road were to be extended, two cultural resources near the west side of this thoroughfare may be affected by the pipeline: P-49-1532/CA-Son-1929, a prehistoric flake scatter with possible midden adjacent to Westside Road; and P-49-3137, the historic-era grave site of a Sonoma County pioneer, located approximately 130 feet west of Westside Road. In addition, three other cultural resources are documented in the 2018 Program Expansion Area. Among these are P-49-3137, which is a considerable distance from the road and could be easily avoided by any future pipeline. However, because of the sensitivity of resources along Westside Road in the 2018 Expansion Area, the impact on cultural resources in the 2018 Program Expansion Area would be ***potentially significant***.

Haul Area

The proposed project would make permanent the temporary delivery of recycled water authorized in the two addenda to the 2005 EIR that were prepared in 2014 and 2016. The existing delivery program, which is scheduled through the end of 2020, allows the use of recycled water on approximately 25,000 acres within a 103,000 acre area(the Haul Area) for seasonal irrigation via haul trucks and pipelines. Haulers can use the recycled water for urban landscape irrigation, vineyard irrigation, and construction purposes (although the use of recycled water for construction is not limited to the geographic Haul Area or the 2020 sunset).

The City currently has two fill stations for recycled-water haulers. Haulers gain access to the fill stations and recycled water through a permitting process. Haul trucks use existing roads; no facilities or improvements are proposed to serve this area. Rather, the proposed project would make the delivery program permanent. Because the project activities would use existing infrastructure, implementing the proposed project would have ***no impact*** on documented cultural resources in the Haul Area.

Tribal Cultural Resources

Prehistoric sites have been documented in the 2018 Proposed Area and the 2018 Program Expansion Area, but no TCRs have been identified to date in any of the project element areas through consultation with interested Native Americans to date. Therefore, the proposed project would have **no impact** on TCRs in these areas, and no mitigation is required. The NAHC search of the Sacred Lands File for the **Haul Area** was positive, and the Mishewal-Wappo Tribe of Alexander Valley was suggested as the tribe to contact for further information. On May 20, 2019, the City contacted Scott Gabaldon, Chairperson of the Mishewal-Wappo Tribe of Alexander Valley, to discuss the expanded project, request further information regarding the sensitive resources identified in the Sacred Lands File search, and identify any concerns the Tribe might have about the project. No issues of concern were identified as a result of these communications. Mr. Galbadon specifially indicated that no impact on tribal cultural resources would result from the continued hauling of recycled water with the approximately 103,000-acre Haul Area.

Mitigation Measure S3.8-1: Reduce Potential Impacts on Cultural Resources through Archaeological Monitoring and/or Testing, Where Necessary

If the pipeline along Westside Road is to be extended or any other subsurface ground disturbance is required in the project area, the City will retain a qualified archaeologist to conduct a cultural resources field survey before ground-disturbing activities. If a potentially affected cultural resource is identified, the qualified archaeologist shall assess the resources further by conducting additional archival research to determine the significance of the resource. If warranted by the field survey and research, the project design shall be refined to help ensure avoidance of the resource and archaeological monitoring of project construction activities in the vicinity of the resource shall be required.

Timing/Implementation: During project design and construction.

Enforcement/Monitoring: City of Healdsburg.

Implementing this mitigation measure would reduce potentially significant impacts on cultural resources in the 2018 Expansion Area to ***less-than-significant*** because the location and status of any potentially affected archaeological resources would first be confirmed. If warranted by a site-specific evaluation, the project design would be modified and construction activities would be monitored to help ensure that archaeological resources are avoided.

Impact 3.8-2: Potential Impacts on Undocumented Cultural Resources

2018 PROJECT AREA

The ground disturbance area for the diary/vineyard property and future vineyard pipelines would be approximately 5 feet deep. The pump station on the diary/vineyard property would be constructed at grade and would not require excavation. The pump station is proposed to be located approximately 200 feet west of Westside Road, near the trees that line the southern parcel boundary. Although no prehistoric cultural resources have been documented in the vicinity of these project activities, there are potential undocumented resources at the project site and vicinity that could be affected. Depending on the sensitivity of such resources, the proposed project could result in a ***potentially significant*** impact on undocumented cultural resources in the 2018 Proposed Area.

2018 PROGRAM EXPANSION AREA

No facilities or improvements are currently proposed for the 2018 Program Expansion Area. However, if the proposed recycled-water transmission pipeline to the diary/vineyard property were to be extended south along Westside Road to serve additional users in this area, ground disturbance for the 12-inch-diameter pipeline would occur along approximately 3.5 miles for a 5-foot-deep trench to accommodate the pipeline. Installing this extension pipeline or constructing other similar facilities would have a ***potentially significant*** impact on undocumented cultural resources in the 2018 Program Expansion Area.

The potential for the availability of the recycled water to induce land use changes is addressed in Section 3.1, "Land Use Consistency, Agriculture, and Forestry Resources," of this SEIR. Any indirect effects on cultural resources resulting from a change in land use and the associated ground disturbance would be subject to the review and approval of the local land use jurisdiction, including any applicable environmental review required under CEQA.

Haul Area

Because project activities would use existing infrastructure and no ground disturbance is planned, the proposed project would have ***no impact*** on undocumented cultural resources in the Haul Area. The potential for the availability of the recycled water to induce land use changes is addressed in Section 3.1, "Land Use Consistency, Agriculture, and Forestry Resources," of this SEIR. Any indirect effects on cultural resources resulting from a change in land use and the associated ground disturbance would be subject to the review and approval of the local land use jurisdiction, including any applicable environmental review required under CEQA.

Mitigation Measure S3.8-2: Reduce Potential Impacts on Cultural Resources through Archaeological Monitoring, Where Necessary

Before ground-disturbing activities are initiated, all construction personnel shall be alerted to the possibility of buried cultural resources, regulations protecting cultural resources and human remains, and the protocol to follow in case such resources are discovered. If potential historical, architectural, archaeological, or cultural resources are discovered during subsurface excavations at the site of construction, the following procedures shall apply:

1. The Contractor shall immediately notify the City's designated construction management engineer (Engineer) and shall stop any work that may jeopardize the discovery pending an investigation of its significance.

2. The Engineer shall select a qualified archaeologist to complete an evaluation of significance before continuing work in that area.

3. The Engineer shall supply the contractor with a "stop-work order" directing the contractor to cease all portions of the work that the Engineer determines may affect the discovery. The stop-work order shall be effective until a qualified archaeologist assesses the value of the potential cultural resources. The stop-work order shall contain the following:

    a. A clear description of the work to be suspended.

    b. Any instructions regarding issuance of further orders by the contractor for materials services.

    c. Guidance as to action to be taken regarding subcontractors.

    d. Any direction to the contractor to minimize costs.

    e. Estimated duration of the temporary suspension.

4. The archaeologist shall determine the potential significance of the discovery and shall determine a course of action to reduce further impacts in accordance with CEQA standards. Such efforts may include no action, documentation, or testing and potential further subsurface investigation.

Timing/Implementation: During all ground-disturbing activities.

Enforcement/Monitoring: The general contractor and its supervisory staff would be primarily responsible for observing the construction project for disturbance of cultural resources. If any resources are encountered, they would notify the City's Public Works Director.

Because previously undocumented cultural resources would be identified and protected, implementing this mitigation measure would reduce potential impacts on cultural resources and TCRs to a ***less-than-significant*** level.

Impact 3.8-3: Potential to Affect Unrecorded Human Remains

Although no evidence of prehistoric interment was identified in the 2018 Proposed Area and only one historic-era interment (P-49-3137) was identified in the 2018 Program Expansion Area, unmarked and undocumented subsurface human remains could still be present. Prehistoric Native American interments usually do not possess markers, and their discovery is often accidental. In light of the potential to uncover unknown or undocumented prehistoric Native American burials and historic-era interments, this impact would be ***potentially significant***.

Mitigation Measure S3.8-3: Stop Potentially Damaging Work if Human Remains Are Discovered during Construction, Assess the Significance of the Find, and Pursue Appropriate Management

California law recognizes the need to protect historic-era and Native American human burials, skeletal remains, and items associated with Native American interments from vandalism and inadvertent destruction. The procedures for the treatment of Native American human remains are contained in California Health and Safety Code Sections 7050.5 and 7052 and PRC Section 5097.

In accordance with the California Health and Safety Code, if human remains are uncovered during construction at the project site, the construction contractor shall immediately halt potentially damaging excavation and notify the City's designated representative. The City will immediately notify the Sonoma County coroner of the discovery. The coroner is required to examine all discoveries of human remains within 48 hours of receiving notice of a discovery on private or state lands (Health and Safety Code Section 7050.5[b]). If the coroner determines that the remains are those of a Native American, he or she must contact the NAHC by phone within 24 hours of making that determination (Health and Safety Code Section 7050[c]). After a Most Likely Descendant has been designated by the NAHC, the Most Likely Descendant, in consultation with the City's representative, will determine the ultimate disposition of the remains. The responsibilities of the City for acting upon notification of a discovery of Native American human remains are outlined in detail in PRC Section 5097.9.

Timing/Implementation: During all ground-disturbing activities.

Enforcement/Monitoring: The general contractor and its supervisory staff would be primarily responsible for monitoring the construction project for disturbance of cultural resources and TCRs. If any resources are encountered, they would notify the City's Public Works Director.

Because construction work would halt and unrecorded human remains would be treated properly, implementing this mitigation measure would reduce this impact to a ***less-than-significant*** level.

3.9 TRANSPORTATION

This section describes the existing setting in the project area as it relates to transportation. It also presents an analysis of potential environmental impacts of the proposed project and identifies mitigation measures to reduce the level of these impacts.

3.9.1 SUMMARY OF FINDINGS FROM THE CERTIFIED EIR

The EIR certified for the City of Healdsburg Wastewater Treatment Plant Upgrade Project in 2005 did not include a separate analysis of transportation impacts. This section has been prepared in part to respond to stakeholder input received on the current project.

3.9.2 ENVIRONMENTAL SETTING

The project site is accessible from existing local roadways. Main access to the project site would be provided by Westside Road (refer to Exhibit 2-2 in Chapter 2, "Project Description"). Each proposed extension of the recycled water transmission pipeline, as well as the distribution system at the dairy/vineyard property, would be accessed via Westside Road. This road also bisects the 2018 Program Expansion Area, and would provide the main access within this area. U.S. Highway 101 runs in a north-south direction to the east of the 2018 Proposed Area and 2018 Program Expansion Area, and bisects the approximately 103,000-acre recycled water haul area.

3.9.3 REGULATORY BACKGROUND

FEDERAL PLANS, POLICIES, REGULATIONS, AND LAWS

No federal plans, policies, regulations, or laws related to transportation are applicable to the proposed project.

STATE PLANS, POLICIES, REGULATIONS, AND LAWS

No state highways would be directly affected by project-related construction traffic. Limited construction vehicles may utilize U.S. Highway 101, but the specific construction routes have not been identified at this time. Similarly, trucks hauling recycled water could utilize U.S. Highway 101, but no specific routes are required for trucks transporting recycled water within the approximately 103,000-acre haul area. No state plans, policies, regulations, or laws are applicable to the proposed project.

LOCAL PLANS, POLICIES, REGULATIONS, AND ORDINANCES

Sonoma County Transportation Authority

Sonoma County Transportation Authority was formed through legislation enacted in 1990 to serve as the coordinating and advocacy agency for transportation funding for Sonoma County. Since 2004, the agency has administered Measure M funds generated in the county through a local sales tax for specific transportation projects. Sonoma County Transportation Authority partners with other agencies to improve transportation in the county, for programmed projects that include U.S. Highway 101 widening, local streets, transit, and bicycle and pedestrian facilities. The 2016 Comprehensive Transportation Plan for Sonoma County provides further guidance for

transportation planning and associated goals and policies (SCTA 2016). This plan focuses on the design and implementation of improvements to the county's circulation system, including roadways, bikeways, and rail service.

Sonoma County General Plan

Roads in the project area are under the jurisdiction of Sonoma County. The Circulation and Transit Element of the *Sonoma County General Plan 2020* (Sonoma County 2016) details Sonoma County's policies and regulations regarding the design, use, or obstruction of roadways. The following goals and objectives in the Circulation and Transit Element are most relevant to the project study area:

Goal CT-1: Provide a well-integrated and sustainable circulation and transit system that supports a city and community centered growth philosophy through a collaborative effort of all the Cities and the County.

- **Objective CT-3.8:** Increase the safety, convenience, and comfort of all pedestrians and bicyclists, by eliminating the potential obstacles to this mode choice that is associated with the lack of continuous and well-connected pedestrian walkways and bicycle facilities, and the lack of safe crossing facilities, especially focusing on short trips that could result in a decrease in automobile travel.

Goal CT-4: Provide and maintain a highway system capacity that serves projected highway travel demand at acceptable levels of service in keeping with the character of rural and urban communities.

- **Objective CT-4.1:** Maintain LOS C or better on roadway segments unless a lower LOS has been adopted.

- **Objective CT-4.2:** Maintain LOS D or better at roadway intersections.

- **Objective CT-4.3:** Allow the above levels of service to be exceeded if it is determined to be acceptable due to environmental or community values, or if the project(s) has an overriding public benefit that outweighs lower levels of service and increased congestion.

City of Healdsburg General Plan

No goals or policies in the *City of Healdsburg General Plan* related to transportation are applicable to the project.

3.9.4 Impacts and Mitigation Measures

Standards of Significance

Based on Appendix G of the State CEQA Guidelines, the project would have a significant transportation impact if it would:

- conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities;

- conflict or be inconsistent with State CEQA Guidelines Section 15064.3(b);
- substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment); or
- result in inadequate emergency access.

METHODOLOGY

Operation of the roadway system is typically described in terms of level of service (LOS). LOS is designated by the letters A–F, with A corresponding to the lowest level of congestion and F corresponding to the highest level of congestion. At LOS A, traffic is free-flowing at or above the speed limit. At LOS F, traffic is very slow, and each vehicle moves only when traffic around it moves. Traffic frequently slows and stops.

After completion of project construction, project operation would not result in substantial changes in the project area relative to existing conditions. Therefore, an analysis of project-related traffic impacts using LOS was not performed because LOS is used primarily for analyzing the long-term effects of projects on traffic flow. This analysis used the screening criterion recommended by the Institute of Transportation Engineers (ITE 1988) for assessing the effects of construction projects that create temporary traffic increases. To account for the large percentage of heavy trucks associated with typical construction projects, the Institute of Transportation Engineers recommends a threshold level of 50 or more new peak-direction (one-way) trips during the peak hour.

IMPACT ANALYSIS

Impact 3.9-1: Conflict with a Program, Plan, Ordinance, or Policy Addressing the Circulation System, Including Transit, Roadway, Bicycle, and Pedestrian Facilities.

Construction-Related Impacts

The project would result in a temporary, minimal increase in construction-related traffic during installation of the pipeline extensions and facilities in the 2018 Proposed Area. During each construction phase, equipment would be delivered in separate trips by a gooseneck trailer (four trips to deliver and four trips to remove the equipment). The larger diameter pipe materials (12-inch and 8-inch) would be delivered in loads of approximately 400 feet per load (15 truckloads); the smaller pipe (6-inch) would be delivered in loads of approximately 800 feet per load (five truckloads). An estimated six workers (one foreman, two laborers, and three operators) would be required during the construction of the project.

Up to approximately 26 truck trips per day would be required to transport crushed gravel to the site during project construction. (Assuming a passenger-car equivalent value of 2.0, this number of truck trips would be equivalent to 52 passenger-car trips per day.) The project would also require disposal of spoils and import of materials where the pipeline would cross Westside Road. The roadway would take about 30 cubic yards of aggregate base, which would require three 10-yard dump trucks. Another three dump trucks would be needed to dispose of the spoils. These six truck trips would occur over the course of 2 working days, resulting in three truck trips

(equivalent to six passenger-car trips per day, assuming a passenger-car equivalent value of 2.0). Construction workers' commutes would add approximately six total daily trips in each direction (i.e., 12 trips per day) on the area roadways.

In total, project construction activities may add as many as 70 trips per day to roadways in the project area over the course of the 8-hour work window. During the peak hour, a maximum of nine trips would be added to area roadways: three truck trips (equivalent to six passenger-car trips) and six worker trips.

Because the proposed project would not generate more than 50 new trips during the a.m. or p.m. peak hour, based on the ITE screening criteria the project would not cause a substantial increase in traffic relative to the existing traffic load and capacity of the street system (ITE 1988). Regardless, appropriate temporary traffic controls would be put in place, consistent with the construction BMP's described in Chapter 2, Project Description. Therefore, the project would not result in substantial trip-generated traffic congestion. Also, because construction traffic would be temporary, the proposed project would not result in long-term degradation of the performance of any roadway in the project vicinity. Therefore, proposed project would not conflict with adopted applicable policies or plans related to the performance of the circulation system. Based on the scale of the anticipated facilities under consideration for the 2018 Program Expansion Area, namely the potential extension of the 12-inch pipeline south along Westside Road, similar transportation effects are anticipated to result from future construction activities in this area. The daily intensity of activities during construction of this facility would be similar to that described above for the proposed 12-inch and 8-inch pipeline extensions. Further, these construction activities would also be subject to the BMP's described in Chapter 2, Project Description. This impact would **be less than significant**.

Operational Impacts

During project operations in the 2018 Proposed Area, periodic maintenance and inspection activities would generate fewer than 10 trips on any given day. This relatively low level of use would not adversely affect transportation and circulation on local roadways. The current recycled water hauling program requires approximately five to 10 truck trips per day; the City has conservatively estimated that the number of truck trips required may double to 10–20 per day in the next 20 years. An additional 10 truckloads per day would not result in a significant transportation effect. Multiple routes are available for truck transport within the approximately 103,000-acre haul area, thereby limiting effects on any one roadway.

Similar transportation impacts are anticipated to result from future project operational activities in the 2018 Program Expansion Area. Although project-level specifics are not currently defined for the activities in the 2018 Program Expansion Area, the associated maintenance activities would be similar to the project activities addressed above. That is, following construction of any additional facilities required to serve new customers in the 2018 Program Expansion Area, the periodic inspection activities and associated maintenance would generate a limited number of vehicle trips on a daily basis, and thus during the peak traffic hours. This impact would **be less than significant**.

Mitigation Measures: No mitigation is required.

Impact 3.9-2: Conflict or Inconsistency with State CEQA Guidelines Section 15064.3(b).

The proposed project could have a significant impact relative to Section 15064.3(b) of the State CEQA Guidelines if the project would generate work vehicle miles traveled per employee at a level that would exceed 15 percent less than the existing average work vehicle miles traveled per employee for the area in which the project is located.

However, as stated above (Impact 3.9-1), the change in operations and maintenance practices that would occur after completion of project construction would be minimal compared to existing conditions. Therefore, the additional vehicle miles traveled as a result of project implementation would not be substantial. Regardless, the potential environmental consequences of the anticipated increase in vehicle miles traveled are addressed in Section 3.6, Air Quality, and Section 3.10, Greenhouse Gases, Therefore, this impact would **be less than significant**.

Mitigation Measure: No mitigation is required.

Impact 3.9-3: Substantial Increase in Hazards Due to a Geometric Design Feature (e.g., Sharp Curves or Dangerous Intersections) or Incompatible Uses (e.g., Farm Equipment).

Construction-Related Impacts

Project construction vehicles and equipment would maneuver among the general-purpose vehicles on local roads, which could cause safety hazards. The presence of haul trucks and other on-road construction vehicles could increase hazard risks on existing roadways. In addition, construction of the proposed 12-inch pipeline that would serve the dairy/vineyard property would involve open-cut construction across Westside Road.

The risk of traffic safety hazards could increase because of the potential for:

- conflicts where construction vehicles enter a public right-of-way from the project work site;
- conflicts where road width is narrowed or a roadway is closed during construction activities, which could cause delays for emergency vehicles passing through the project area; or
- increased truck traffic (and the trucks' slower speeds and wider turning radii) during construction.

The use of large trucks to transport equipment and materials to and from the work site could also affect roadway conditions on the access routes by increasing the rate of roadway wear. The degree to which this impact would occur would depend on the design (pavement type and thickness) and the existing condition of the roadway. Major arterials and collectors are designed to accommodate a mix of vehicle types, including heavy trucks. Potential impacts on those roads are expected to be negligible. However, lower capacity roadways could be substantially affected if construction equipment were to use them.

The proposed project would result in temporary disruption to traffic flow, roadway wear and tear, removal or reduction of lanes, the presence of construction equipment in the public right-of-way, and localized increases in traffic congestion. As a result, drivers would be presented with unexpected driving conditions and obstacles, which could increase the occurrence of automobile

or haul truck accidents. Therefore, the impact of an increased traffic hazard risk created by project construction would be **potentially significant**.

Operational Impacts

Project operations would generate negligible traffic for maintenance operations. Typical traffic volumes would involve less than 10 trips per day associated with the inspection of facilities and monitoring of activities. In addition, the recycled water haul program is estimated to result in a doubling of the five to 10 truck trips per day currently generated by the existing program. This anticipated increase in traffic during project operations has no potential to substantial increase traffic safety hazards on area roadways, and **no impact** would result from project operations. No mitigation is required.

Mitigation Measure S3.9-3: Prepare and Implement a Traffic Control Plan.

Before construction begins, the City and/or its construction contractor shall prepare and implement a traffic control plan to minimize construction-related traffic safety hazards on affected roadways and ensure adequate access for emergency responders. The City and/or its contractor shall coordinate development and implementation of this plan with agencies with jurisdiction over the affected routes (e.g., Sonoma County), as appropriate. The traffic control plan shall, at minimum:

- Discuss work hours and haul routes, delineate work areas, and identify traffic control methods and plans for flagging.

- Determine the need to require workers to park personal vehicles at an approved staging area and take only necessary project vehicles to the work sites.

- Develop and implement a process for communicating with affected residents and landowners about the project before the start of construction. Public notification shall include posting notices and appropriate signage regarding construction activities. The written notification shall include the construction schedule, the exact location and duration of activities on each roadway (e.g., which roads/lanes and access points/driveways will be blocked on which days and for how long), and contact information for questions and complaints.

- Notify the public regarding alternative routes that may be available to avoid delays.

- Ensure that appropriate warning signs are posted in advance of construction activities, alerting bicyclists and pedestrians to any closures of nonmotorized facilities.

- Notify administrators of police and fire stations, ambulance service providers, and recreational facility managers regarding the timing, location, and duration of construction activities and the locations of detours and lane closures, where applicable. Maintain access for emergency vehicles in and/or adjacent to roadways affected by construction activities at all times.

- Require the repair and restoration of affected roadway rights-of-way to their original condition after construction is completed.

Timing/Implementation: Before and during all construction activities, specifically ground disturbance.

Enforcement/Monitoring: City of Healdsburg, Sonoma County, and the general contractor.

Implementing Mitigation Measure S3.9-3 would reduce the potentially significant construction impact associated with traffic hazards to a **less-than-significant** level because the traffic control plan would be used to develop detours to ensure acceptable traffic flow through and/or around the construction zone, minimize impacts on multimodal facilities by providing alternate routes for users of the facilities, and minimize traffic congestion.

Impact 3.9-4: Inadequate Emergency Access as a Result of Project Construction Activities.

Construction activities for the proposed project could reduce emergency access to roadways in the project area. Slow-moving trucks entering and exiting project site along Westside Road could delay the movement of emergency vehicles between Felta Road and Sweetwater Springs Road. In addition, open-cut construction would occur during installation of the proposed 12-inch pipeline across Westside Road. The project would be subject to standard environmental commitments regarding traffic safety as summarized in Chapter 2, "Project Description." However, this impact would be **potentially significant**.

Mitigation Measure: Implement Mitigation Measure S3.9-3.

Timing/Implementation: Before and during all construction activities, specifically ground disturbance.

Enforcement/Monitoring: City of Healdsburg, Sonoma County, and the general contractor.

Implementing Mitigation Measure S3.9-3 would reduce the potentially significant impact of project construction activities on emergency access to a **less-than-significant** level because the traffic control plan would be used to develop detours to ensure acceptable traffic flow through and/or around the construction zone, minimize impacts on multimodal facilities by providing alternate routes for users of the facilities, and minimize traffic congestion.

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3.10 GREENHOUSE GAS EMISSIONS

This section describes the existing setting as it relates to greenhouse gas (GHG) emissions. It also presents an analysis of the potential environmental impacts of the proposed project.

3.10.1 SUMMARY OF FINDINGS FROM THE CERTIFIED EIR

The certified EIR (2005) did not include a separate analysis of impacts related to GHG emissions.

3.10.2 ENVIRONMENTAL SETTING

SCIENTIFIC BASIS OF CLIMATE CHANGE

Certain gases in the earth's atmosphere, classified as GHGs, play a critical role in determining the earth's surface temperature. A portion of the solar radiation that enters the earth's atmosphere is absorbed by the earth's surface, and a smaller portion of this radiation is reflected back toward space. This infrared radiation (i.e., thermal heat) is absorbed by GHGs within the earth's atmosphere. As a result, infrared radiation released from the earth that otherwise would have escaped back into space is instead "trapped," resulting in a warming of the atmosphere. This phenomenon, known as the "greenhouse effect," is responsible for maintaining a habitable climate on the earth.

GHGs are present in the atmosphere naturally, are released by natural and anthropogenic sources, and are formed from secondary reactions taking place in the atmosphere. Natural sources of GHGs include the respiration of humans, animals, and plants; decomposition of organic matter; and evaporation from the oceans. Anthropogenic sources include the combustion of fossil fuels, waste treatment, and agricultural processes. The following are GHGs that are widely accepted as the principal contributors to human-induced global climate change:

- Carbon dioxide (CO_2)
- Methane (CH_4)
- Nitrous oxide (N_2O)
- Hydrofluorocarbons (HFCs)
- Perfluorocarbons (PFCs)
- Sulfur hexafluoride (SF_6)
- Nitrogen trifluoride (NF_3)

Emissions of CO_2 are byproducts of fossil fuel combustion. CH_4 is the main component of natural gas and is associated with agricultural practices and landfills. N_2O is a colorless GHG that results from industrial processes, vehicle emissions, and agricultural practices. HFCs are synthetic chemicals used as a substitute for chlorofluorocarbons in automobile air conditioners and refrigerants. PFCs are produced as a byproduct of various industrial processes associated with aluminum production and the manufacturing of semiconductors. SF_6 is an inorganic, odorless, colorless, nontoxic, nonflammable GHG used for insulation in electric power transmission and distribution equipment, and in semiconductor manufacturing. NF_3 is used in the electronics industry during the manufacturing of consumer items, including photovoltaic solar panels and liquid-crystal-display (i.e., LCD) television screens.

Global warming potential (GWP) is a concept developed to compare the ability of each GHG to trap heat in the atmosphere relative to CO_2. The GWP of a GHG is based on several factors, including the relative effectiveness of a gas to absorb infrared radiation and length of time (i.e., lifetime) that the gas remains in the atmosphere ("atmospheric lifetime"). The reference gas for GWP is CO_2; therefore, CO_2 has a GWP of 1. The other main GHGs that have been attributed to human activity include CH_4, which has a GWP of 28—this means that 1 ton of CH_4 has the same contribution to the greenhouse effect as approximately 28 tons of CO_2. N_2O has a GWP of 265 (EPA 2013). Thus, GHGs with lower emissions rates than CO_2 may still contribute to climate change because they are more effective at absorbing outgoing infrared radiation than CO_2 (i.e., high GWP). The concept of CO_2-equivalents (CO_2e) is used to account for the different GWP potentials of GHGs to absorb infrared radiation.

Although the exact lifetime of any particular GHG molecule is dependent on multiple variables, it is understood by scientists who study atmospheric chemistry that more CO_2 is emitted into the atmosphere than is sequestered by ocean uptake, vegetation, and other forms of sequestration. GHG emissions related to human activities have been determined as "extremely likely" to be responsible (indicating 95 percent certainty) for intensifying the greenhouse effect and leading to a trend of unnatural warming of the earth's atmosphere and oceans, with corresponding effects on global circulation patterns and climate (ARB 2014b). The quantity of GHGs that it takes to ultimately result in climate change is not precisely known; however, no single project is expected to measurably contribute to a noticeable incremental change in the global average temperature, or to a global, local, or microclimate. By their nature, evaluation of GHG emissions under CEQA is a cumulative study.

GHG Emission Sources

GHG emissions contributing to global climate change are attributable in large part to human activities associated with the transportation, industrial/manufacturing, electric utility, residential, commercial, and agricultural categories. Emissions of CO_2 are byproducts of fossil fuel combustion, and CH_4, a highly potent GHG, is the primary component in natural gas and is associated with agricultural practices and landfills. N_2O is also largely attributable to agricultural practices and soil management.

For purposes of accounting for and regulating GHG emissions, sources of GHG emissions are grouped into emission categories (sometimes called "sectors"). ARB identifies the following main GHG emission categories that account for most anthropogenic GHG emissions generated within California:

- *Transportation:* On-road motor vehicles, recreational vehicles, aviation, ships, and rail
- *Electric Power:* Use and production of electrical energy
- *Industrial:* Mainly stationary sources (e.g., boilers and engines) associated with process emissions
- *Commercial and Residential:* Area sources, such as landscape maintenance equipment, fireplaces, and consumption of natural gas for space and water heating

- *Agriculture:* Agricultural sources that include off-road farm equipment; irrigation pumps; crop residue burning (CO_2); and emissions from flooded soils, livestock waste, crop residue decomposition, and fertilizer volatilization (CH_4 and N_2O)

- *High GWP:* Refrigerants for stationary and mobile-source air conditioning and refrigeration, electrical insulation (e.g., SF_6), and various consumer products that use pressurized containers

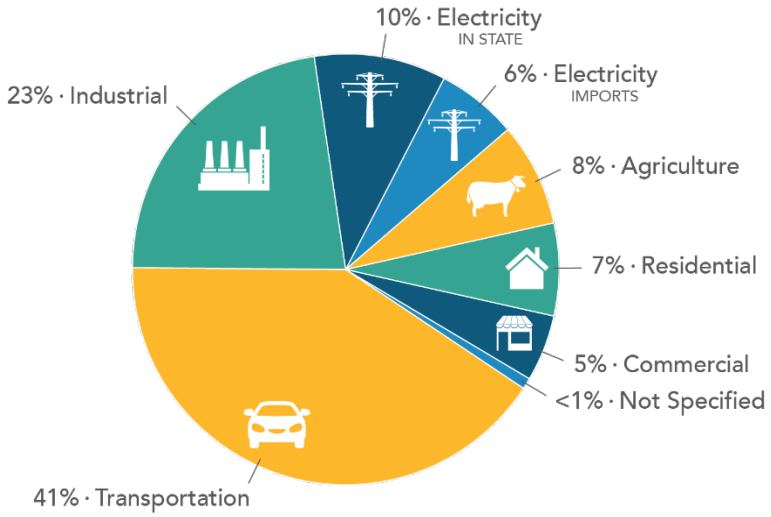
- *Recycling and Waste:* Waste management facilities and landfills; primary emissions are CO_2 from combustion and CH_4 from landfills and wastewater treatment

GHG Emissions Inventories

California

ARB performs an annual GHG inventory for emissions and sinks of the six major GHGs. California produced 429 million metric tons (MMT) CO_2e in 2016 (ARB 2018a). As shown in Exhibit 3.10-1, combustion of fossil fuel in the transportation category was the single largest source of California's GHG emissions in 2015, accounting for 41 percent of total GHG emissions in the state. The transportation category was followed by the industrial and electric power (including in-state and out-of-state sources) categories, which account for 23 and 16 percent of the state's total GHG emissions, respectively (ARB 2018a).

Exhibit 3.10-1
2016 California GHG Emissions by Economic Sector



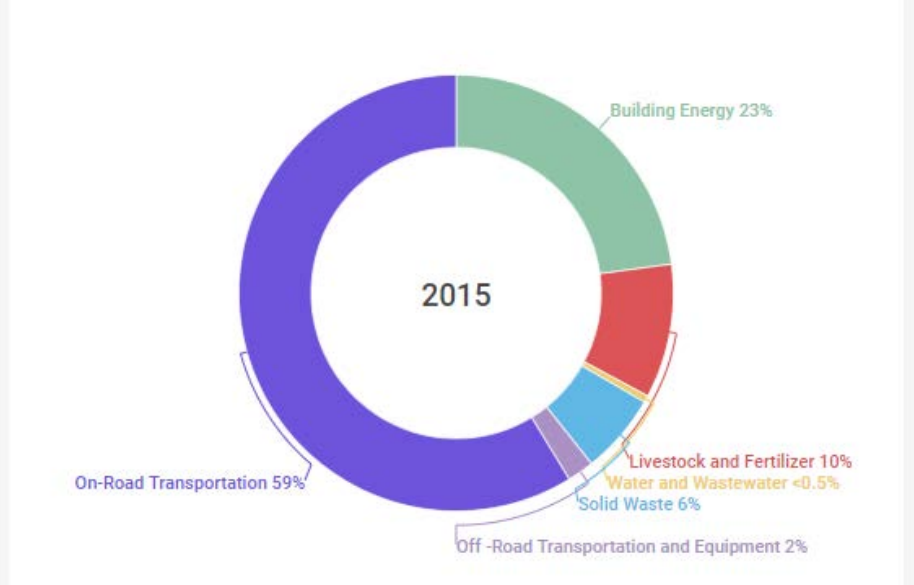
Source: ARB 2018a

Sonoma County Regional Climate Action Plan

Sonoma County's Regional Climate Protection Authority (RCPA), along with the nine incorporated jurisdictions of Sonoma County, and the County of Sonoma itself, created a Climate Action Plan (CAP) in July 2016. The CAP included a countywide GHG inventory for 2015. Sonoma County emissions in 2015 remained 9 percent below 1990 levels, while countywide population

grew 4 percent and gross domestic product (GDP) increased 22 percent. Sonoma County produced 3.62 MMT CO_2e in 2015 (RCPA 2018). As shown in Exhibit 3.10-2, the transportation category was the largest source of Sonoma County's emissions in 2015, accounting for 59 percent of total GHG emissions in the county. The transportation category was followed by building energy and livestock and fertilizer categories, which account for 23 and 10 percent of the County's total GHG emissions, respectively (RCPA 2018).

Exhibit 3.10-2
2015 Sonoma County GHG Emissions by Sector/



Source: RCPA 2018

CITY OF HEALDSBURG

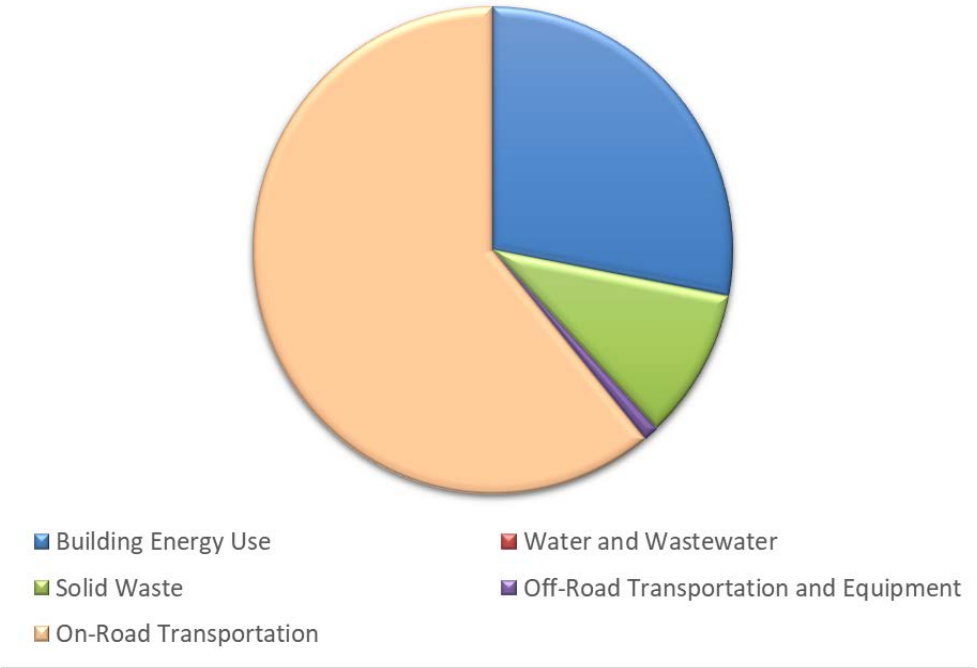
Sonoma County's RCPA and CAP, in its 2015 GHG Inventory Update, also included a breakdown of jurisdiction specific emissions. In 2015, the City of Healdsburg produced approximately 117,000 metric tons (MT) CO_2e. As shown in Exhibit 3.10-3, the transportation category was the largest source of the City's emissions in 2015, accounting for 61 percent of the total GHG emissions in the city. The transportation category was followed by building energy and solid waste categories, which account for 28 and 10 percent of the City's total GHG emissions, respectively (RCPA 2018).

3.10.3 REGULATORY BACKGROUND

FEDERAL PLANS, POLICIES, REGULATIONS, AND LAWS

EPA is the federal agency responsible for implementing the federal CAA. 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.

Exhibit 3.10-3
2015 City of Healdsburg GHG Emissions by Sector



Source: RCPA 2018

Greenhouse Gas Findings under the Federal Clean Air Act

On December 7, 2009, EPA signed two distinct findings regarding GHGs under Section 202(a) of the CAA:

- Endangerment Finding: The Administrator finds that the current and projected concentrations of the six key well-mixed greenhouse gases—CO_2, CH_4, N_2O, HFCs, PFCs, and SF_6—in the atmosphere threaten the public health and welfare of current and future generations.

- Cause or Contribute Finding: The Administrator finds that the combined emissions of these well-mixed greenhouse gases from new motor vehicles and new motor vehicle engines contribute to the greenhouse gas pollution which threatens public health and welfare.

Although these findings did not themselves impose any requirements on industries or other entities, this action was a prerequisite to finalizing EPA's *Proposed Greenhouse Gas Emission Standards for Light-Duty Vehicles*. On May 7, 2010, the final *Light-Duty Vehicle Greenhouse Gas Emissions Standards and Corporate Average Fuel Economy Standards* were published in the Federal Register (EPA and NHSTA 2010). Phase 1 of the emissions standards required vehicles from model years 2012 through 2016 to meet an estimated combined average emissions level of 250 grams of CO_2 per mile, which is equivalent to 35.5 miles per gallon if the automobile industry were to meet this CO_2 level solely through fuel economy improvements (EPA 2010).

On August 28, 2012, the U.S. Department of Transportation (USDOT) and EPA issued a joint Final Rulemaking requiring additional federal GHG and fuel economy standards for Phase 2 of the emissions standards for model year 2017 through 2025 passenger cars and light-duty trucks. The standards would require these vehicles to meet an estimated combined average emissions level of 163 grams of CO_2 per mile in model year 2025, which is equivalent to 54.5 miles per gallon if the improvements were made solely through fuel efficiency. However, on April 2, 2018, EPA issued a Mid-term Evaluation Final Determination, which finds that the model year 2022 through 2025 emissions standards are not appropriate and should be revised. This Mid-term Evaluation is not a final agency action; rather, this determination leads to initiation of a rulemaking to adopt new standards (EPA 2018). On April 5, 2019, California Governor Gavin Newsom's Administration and ARB filed a lawsuit against the National Highway Traffic Safety Administration (NHTSA) and EPA to compel the two federal agencies to provide the underlying data and analysis used to support a rollback of the federal vehicle emission standards. ARB estimates that, if California were required to follow the federal rollback proposal, global warming emissions could increase by almost 15 MMT per year by 2025 (California Office of Governor 2019).

In addition to the standards for light-duty vehicles, USDOT and EPA adopted complementary standards to reduce GHG emissions and improve the fuel efficiency of heavy-duty trucks and buses on September 15, 2011. The Phase 1 standards together form a comprehensive heavy-duty national program for all on-road vehicles rated at a gross vehicle weight at or above 8,500 pounds for model years 2014 through 2018. The standards will phase in with increasing stringency in each model year from 2014 through 2018. The EPA standards adopted for 2018 will represent an average per-vehicle reduction in GHG emissions of 17 percent for diesel vehicles and 12 percent for gasoline vehicles (EPA 2011). Building on the success of the Phase 1 standards, EPA and NHTSA finalized Phase 2 standards for medium- and heavy-duty vehicles through model year 2027. The Phase 2 standards are expected to lower CO_2 emissions by approximately 1.1 billion MT. On November 16, 2017, EPA released a proposed rule to repeal the emission standards for heavy-duty glider vehicles, glider engines, and glider kits (EPA 2017).

Mandatory Greenhouse Gas Reporting Rule

On September 22, 2009, EPA published the Final Mandatory Greenhouse Gas Reporting Rule (Reporting Rule) in the Federal Register. The Reporting Rule requires reporting of GHG data and other relevant information from fossil fuel and industrial GHG suppliers, vehicle and engine manufacturers, and all facilities that would emit 25,000 MT or more of CO_2e per year. Facility owners are required to submit an annual report with detailed calculations of facility GHG emissions on March 31 for emissions from the previous calendar year. The Reporting Rule also mandates recordkeeping and administrative requirements to enable EPA to verify the annual GHG emissions reports.

STATE PLANS, POLICIES, REGULATIONS, AND LAWS

ARB is the agency responsible for coordination and oversight of state and local air pollution control programs in California and for implementing the CCAA.

Assembly Bill 1493

AB 1493, signed in July 2002, requires ARB to develop and implement regulations to reduce automobile and light truck GHG emissions. These stricter emissions standards were designed to apply to automobiles and light trucks beginning with model year 2009. In June 2009, the EPA Administrator granted a CAA waiver of preemption to California. This waiver allowed California to implement its own GHG emissions standards for motor vehicles, beginning with model year 2009. California agencies worked with federal agencies to conduct joint rulemaking to reduce GHG emissions for passenger car model years 2017 through 2025.

Executive Order S-3-05

Executive Order S-3-05, signed in June 2005, proclaimed that California is vulnerable to the impacts of climate change. Executive Order S-3-05 declared that increased temperatures could reduce the Sierra Nevada's snowpack, further exacerbate California's air quality problems, and potentially cause a rise in sea levels. To combat those concerns, the executive order established total GHG emissions targets. 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. The statewide GHG emissions in 2000 were approximately 466 MMT CO_2e (ARB 2014a). In 2010, overall statewide GHG emissions were approximately 453 MMT CO_2e, exceeding the 2010 goal established by Executive Order S-3-05 (ARB 2014a). California is currently on track to reduce emissions to a level that would be below its 2020 climate target (ARB 2017).

Assembly Bill 32

In 2006, California passed the California Global Warming Solutions Act of 2006 (AB 32; California Health and Safety Code Division 25.5, Sections 38500, et seq.). AB 32 further details and puts into law the mid-term GHG reduction target established in Executive Order S-3-05: reduce GHG emissions to 1990 levels by 2020. AB 32 also identifies ARB as the state agency responsible for the design and implementation of emissions limits, regulations, and other measures to meet the target. AB 32 also established several programs to achieve GHG emissions reductions, including the Low Carbon Fuel Standard and the Cap-and-Trade program.

ARB Climate Change Scoping Plans

In December 2008, ARB adopted its *Climate Change Scoping Plan: A Framework for Change* (Scoping Plan), which contains the main strategies California will implement to achieve the required GHG reductions required by AB 32 (ARB 2008). The Scoping Plan also includes ARB-recommended GHG reductions for each emissions sector of California's GHG inventory. ARB further acknowledges that decisions about how land is used will have large impacts on the GHG emissions that will result from the transportation, housing, industry, forestry, water, agriculture, electricity, and natural gas emissions sectors.

ARB is required to update the Scoping Plan at least once every 5 years to evaluate progress and develop future inventories that may guide this process. ARB approved the First Update to the Climate Change Scoping Plan: Building on the Framework in June 2014 (ARB 2014b). The Scoping Plan update includes a status of the 2008 Scoping Plan measures and other federal, state, and

local efforts to reduce GHG emissions in California, and potential actions to further reduce GHG emissions by 2020.

In November 2017, ARB released the 2017 Climate Change Scoping Plan, which establishes a framework of action for California to reduce statewide emissions by 40 percent by 2030, compared to 1990 levels per SB 32 (discussed in more detail below) (ARB 2017). The 2017 Scoping Plan builds upon the framework established by the 2008 Scoping Plan and the 2014 Scoping Plan Update, while also identifying new, technologically feasible and cost-effective strategies to ensure that California meets its GHG reduction targets.

Executive Order S-1-07

Executive Order S-1-07, which was signed by then California Governor Arnold Schwarzenegger in 2007, proclaims that the transportation sector is the main source of GHG emissions in California, at more than 40 percent of statewide emissions. Executive Order S-1-07 establishes a goal that the carbon intensity of transportation fuels sold in California should be reduced by a minimum of 10 percent by 2020. ARB adopted the low carbon fuel standard (LCFS) on April 23, 2009. In November 2015, the Office of Administrative Law approved re-adoption of the LCFS.

Senate Bill 375

SB 375, signed in September 2008, aligns regional transportation planning efforts, regional GHG reduction targets, and land use and housing allocation. SB 375 requires Metropolitan Planning Organizations (MPOs) to adopt a Sustainable Communities Strategy (SCS) or an Alternative Planning Strategy (APS), which will prescribe land use allocation in that MPO's Regional Transportation Plan (RTP). On September 23, 2010, ARB adopted regional GHG targets for passenger vehicles and light trucks for 2020 and 2035 for the 18 MPOs in California. If MPOs do not meet the GHG reduction targets, transportation projects would not be eligible for funding programmed after January 1, 2012.

The Metropolitan Transportation Commission/Association of Bay Area Governments (MTC-ABAG) current GHG targets are per capita CO_2 emission reductions from passenger vehicles of 10 percent by 2020 and 19 percent by 2035 relative to 2005 levels (ARB 2018b). MTC-ABAG adopted Plan Bay Area 2040, which is the current version of the RTP/SCS in July 2017.

Senate Bill 97

SB 97 required the Governor's Office of Planning and Research to develop recommended amendments to the CEQA Guidelines for addressing GHG emissions. The amendments became effective on March 18, 2010.

In response to SB 97, the California Natural Resources Agency (CNRA) adopted amendments to the State CEQA Guidelines that require evaluation of GHG emissions or the effects of GHG emissions. The amendments, in Section 15064.4, provided that:

> (a) The determination of the significance of greenhouse gas emissions calls for a careful judgment by the lead agency consistent with the provisions in Section 15064. A lead agency should make a good-faith effort, based to the

extent possible on scientific and factual data, to describe, calculate, or estimate the amount of greenhouse gas emissions resulting from a project.

(b) A lead agency should consider the following factors, among others, when assessing the significance of impacts from greenhouse gas emissions on the environment:

(1) The extent to which the project may increase or reduce greenhouse gas emissions as compared to the existing environmental setting;

(2) Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project;

(3) The extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of greenhouse gas emissions. Such requirements must be adopted by the relevant public agency through a public review process and must reduce or mitigate the project's incremental contribution of greenhouse gas emissions.

The amendments also added Section 15126.4(c), Mitigation Measures Related to Greenhouse Gas Emissions. Generally, this State CEQA Guidelines section requires lead agencies to consider feasible means, supported by substantial evidence and subject to monitoring or reporting, of mitigating the significant effects of GHG emissions. Potential measures to mitigate the significant effects of GHG emissions are identified, including those outlined in Appendix F, Energy Conservation, of the State CEQA Guidelines (now incorporated into Appendix G of the CEQA Guidelines).

The amendments also added Section 15183.5, which provides standards for tiering and streamlining analysis of GHG emissions, including provisions for adoption of and reliance on GHG reduction plans.

Executive Order B-18-12

On April 25, 2015, Governor Edmund Brown issued an executive order establishing water consumption reduction goals by directing state agencies and departments to reduce their overall water use by 10 percent by 2015 and 20 percent by 2020.

Executive Order B-30-15, Senate Bill 32, and Assembly Bill 197

In April 2015, Governor Brown issued an executive order establishing a statewide GHG reduction goal of 40 percent below 1990 levels by 2030. The emissions reduction target acts as an interim goal between the AB 32 goal (i.e., achieve 1990 emission levels by 2020) and Governor Brown's Executive Order S-03-05 goal of reducing statewide emissions 80 percent below 1990 levels by 2050. In addition, the executive order aligns California's 2030 GHG reduction goal with the European Union's reduction target (i.e., 40 percent below 1990 levels by 2030) that was adopted in October 2014.

Executive Order B-30-15 was codified into statute by SB 32, establishing the statewide GHG reduction target of at least 40 percent below 1990 levels by 2030. The companion bill to SB 32, AB 197, provides additional direction to ARB on the adoption of strategies to reduce GHG emissions. For example, it requires annual posting of GHG, criteria, and toxic air contaminant data, requires protection of the State of California's most affected and disadvantaged communities, and directs ARB, in the development of each scoping plan, to identify the range of projected air pollution and GHG emissions reductions and the cost-effectiveness for each emissions reduction measure.

Senate Bills 1078 and 107, Executive Orders S-14-08 and S-21-09, and Senate Bills 350 and 100

California's Renewables Portfolio Standard (RPS) was established in 2002 under SB 1078 and accelerated in 2006 under SB 107, by requiring that 20 percent of electricity retail sales be served by renewable energy sources by 2010. Subsequent recommendations in California energy policy reports advocated a goal of 33 percent by 2020, and on November 17, 2008, then Governor Schwarzenegger signed Executive Order S-14-08 requiring retail sellers of electricity to serve 33 percent of their load with renewable energy by 2020. In April 2011, SB X1-2 codified Executive Order S-14-08, setting the new RPS targets at 20 percent by the end of 2013, 25 percent by the end of 2016, and 33 percent by the end of 2020 for all electricity retailers. Governor Brown signed SB 350 in October 2015, which extended the RPS target by requiring retail sellers to procure 50 percent of their electricity from renewable energy resources by 2030. This was followed by SB 100 in 2018, which further increased the RPS target to 60 percent by 2030 along with the requirement that all California's electricity come from carbon-free resources by 2045.

The City of Healdsburg Electric Utility Department currently exceeds the state-mandated RPS targets. In 2017, 77 percent of energy delivered by the City of Healdsburg Electric Utility Department throughout its service region was from non-GHG-generating sources. The City of Healdsburg also offers a Green Rate to customers who elect to purchase 100 percent of their power from renewable sources, which, in the case of the City of Healdsburg Electric Utility Department, is provided by geothermal sources (City of Healdsburg 2019a).

LOCAL PLANS, POLICIES, REGULATIONS, AND ORDINANCES

ARB also acknowledges that local governments have broad influence and, in some cases, exclusive jurisdiction over activities that contribute to significant direct and indirect GHG emissions through their planning and permitting processes, local ordinances, outreach and education efforts, and municipal operations.

Northern Sonoma County Air Pollution Control District

In Northern Sonoma County, NSCAPCD is the agency responsible for protecting public health and welfare through the administration of federal and state air quality laws and policies. On January 3, 2018, the NSCAPCD Board of Directors adopted a Resolution of Support to the Paris Climate Agreement and Commitment to State and Local Climate Mitigation Efforts (NSCAPCD 2018).

Sonoma County General Plan 2020

The Open Space and Resource Conservation Element (Section 7) of the *Sonoma County General Plan 2020* was last amended on August 9, 2016 (Sonoma County 2016). Section 7 addresses energy resource issues in two sections. The first section addresses how County citizens can reduce future energy demand through conservation and efficiency measures. The second issue addresses how the County can contribute to future energy supplies. The Water Resources Element of the *Sonoma County General Plan 2020* was adopted on September 23, 2008.

Goal OSRC-14: Promote energy conservation and contribute to energy demand reduction in the County.

- **Objective OSRC-14.4:** Reduce GHG emissions by 25 percent below 1990 levels by 2015.
    - **Policy OSRC-14g:** Develop a GHG Emissions Reduction Program, as a high priority, to include the following:
        - A methodology to measure baseline and future VMT and greenhouse gas emissions
        - Targets for various sectors including existing development and potential future development of commercial, industrial, residential, transportation, and utility sources
        - Collaboration with local, regional, and State agencies and other community groups to identify effective greenhouse gas reduction policies and programs in compliance with new State and Federal standards
        - Adoption of development policies or standards that substantially reduce emissions for new development
        - Creation of a task force of key department and agency staff to develop action plans, including identified capital improvements and other programs to reduce greenhouse gases and a funding mechanism for implementation
        - Monitoring and annual reporting of progress in meeting emission reduction targets
    - **Policy OSRC-14j:** Encourage the Sonoma County Water Agency and other water and wastewater service providers to reduce energy demand from their operations.

Goal OSRC-16: Preserve and maintain good air quality and provide for an air quality standard that will protect human health and preclude crop, plant and property damage in accordance with the requirements of the Federal and State Clean Air Acts.

- **Objective OSRC-16.1:** Minimize air pollution and greenhouse gas emissions.
- **Objective OSRC-16.2:** Encourage reduced motor vehicle use as a means of reducing resultant air pollution.

- **Implementation Open Space and Resource Conservation Program 25:** Greenhouse Gas Emissions Program Description: Develop a program to reduce greenhouse gas emissions in concert with State and Federal standards (Policy reference: OSRC-14g).

- **Objective CT-1.5:** Reduce greenhouse gas emissions by minimizing future increase in VMT, with an emphasis on shifting short trips by automobile to walking and bicycling trips.

- **Objective CT-2.6:** In areas designated for through traffic, use existing circulation and transit facilities more efficiently, especially highways, to reduce the amount of investment required in new or expanded facilities, reduce greenhouse gas emissions, and increase the energy efficiency of the transportation system.

Healdsburg 2030 General Plan

The following goal, policies, and implementation measures in the Natural Resources Element of the *Healdsburg 2030 General Plan* (City of Healdsburg 2015) are applicable to the proposed project:

Goal NR-E: Reduce GHG emissions and increase energy efficiency communitywide.

- **Policy NR-E-1:** The City will reduce greenhouse gas emissions produced communitywide.

- **Policy NR-E-2:** The City will reduce greenhouse gas emissions produced by internal municipal operations.

- **Policy NR-E-3:** The City will comply with California's Publicly Owned Electric Utilities' Principles Addressing Greenhouse Gas Reduction Goals.

- **Policy NR-E-4:** The City will support sustainable development and building practices and lead by example in municipal projects.

- **Policy NR-E-6:** The City will comply with state climate protection goals and programs to the maximum extent allowed by the City's jurisdictional authority.

    - **Implementation Measure NR-16:** Implement greenhouse gas emissions reduction measures adopted by the City Council.

    - **Implementation Measure NR-17:**

        - Develop a community greenhouse gases reduction plan, consistent with the State's reduction goals. The plan shall be reviewed and updated at least once per year to identify progress and incorporate new information, regulatory standards, and technologies.

        - Acquire all available energy efficiency and demand reduction resources that are cost-effective, reliable and feasible.

        - Pursue renewable energy supplies and non-greenhouse gas-emitting energy resources and clean fossil resources.

- Provide education for its customers on ways that they can reduce their greenhouse gas emissions and provide assistance where feasible.

- Implement Action Plan B of the City of Healdsburg Greenhouse Gas Emissions Reduction Action Plan Analysis to reduce greenhouse gas emissions related to municipal operations.

Regional Climate Protection Authority Climate Change Action Resolution

The City of Healdsburg, in collaboration with Sonoma County's RCPA, along with the other eight incorporated jurisdictions of Sonoma County, and the County of Sonoma itself, created a CAP. The CAP includes both regional measures (to be implemented by regional agencies with local government support) and local measures (to be implemented by local governments) to achieve target GHG emission reductions and adapt to climate change. The RCPA adopted the CAP in 2016 and was subsequently litigated. Unable to adopt the CAP, the RCPA adopted the Climate Change Action Resolution (Resolution). The Resolution is intended to help create countywide consistency and clear guidance about coordinated implementation of GHG reduction measures. The following Resolution goals would be applicable to the proposed project:

- reduce water consumption;
- Increase recycled water and greywater use; and
- Increase water and wastewater infrastructure efficiency

The following sections present the methodology and impact analysis for the 2018 Proposed Area and 2018 Program Expansion Area.

3.10.4 Impacts and Mitigation Measures

Standards of Significance

Based on Appendix G of the State CEQA Guidelines, the project would have a significant impact related to GHG emissions if it would:

- generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment; or

- conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

As stated in the CEQA Guidelines, these questions are "intended to encourage thoughtful assessment of impacts and do not necessarily represent thresholds of significance" (Title 14, Division 6, Chapter 3 Guidelines for Implementation of the CEQA, Appendix G, VII Greenhouse Gas Emissions). The CEQA Guidelines encourage but do not require lead agencies to adopt thresholds of significance (CEQA Guidelines, Section 15064.7). When developing these thresholds, and consistent with the December 2018 CEQA and Climate Change Advisory developed and published by the California Office of Planning and Research (OPR 2018), the Guidelines allow lead agencies to develop their own significance threshold and/or to consider thresholds of significance adopted or recommended by other public agencies, or recommended by experts, provided that

the thresholds are supported by substantial evidence. Individual lead agencies may also undertake a case-by-case approach for the use of significance thresholds for projects consistent with available guidance and current CEQA practice (OPR 2018).

The proposed project would expand the types of permitted use currently approved under the City's recycled water program and provide beneficial use of the reclaimed water via landscape irrigation, agricultural irrigation, and construction uses. As explained in more detail in the Impact Analysis below, construction and operation of the proposed project would generate GHG emissions. However, one of the benefits of increasing the use of recycled or reclaimed water, from an energy perspective, is the displacement of other, more energy-intensive, and thereby higher GHG intensity, water supplies (CEC 2005). Therefore, the increased use of recycled water is considered in several state and local plans as a GHG reduction measure. Due to the correlation between the generation of GHG emissions during construction and operations of the proposed project and certain measures and objectives in state and local plans (as listed in Section 3.10.3, Regulatory Background), this Impact Analysis combines the two CEQA Appendix G items into one discussion.

METHODOLOGY

This section describes the approach used to prepare the analysis of the potential effects of the project related to GHG emissions.

Construction

Construction-related activities are temporary, short-term sources of emissions. Sources of construction-related criteria air pollutant emissions include construction equipment exhaust and construction-related trips by workers and delivery and hauling truck trips.

Construction-related emissions were estimated using the California Emissions Estimator Model (CalEEMod) Version 2016.3.2. CalEEMod allows the user to enter project-specific construction information, such as the construction schedule, the types and number of construction equipment, and the number and length of off-site motor vehicle trips. As discussed in more detail in Section 2, Project Description, the proposed project includes both specific projects and programmatic components. For the purposes of the GHG emissions analysis in this SEIR, project-level and programmatic components were analyzed separately and are discussed in more detail below.

Project-Level Analysis

As detailed in Section 2.5, Project Characteristics, the project-level components of the proposed project consist of extension of the existing recycled water transmission pipelines along two alignments totaling approximately 6,000 linear feet and construction of a recycled water distribution system within the 2018 Proposed Area. Construction of the project-level components is anticipated to begin in April 2020 and last approximately 16 weeks. Extension of the existing transmission pipelines along the two alignments would include trenching activities for a 12-inch-diameter pipeline and an 8-inch-diameter pipeline. Construction of the recycled water distribution system would include trenching activities for a 4- to 6-inch-diameter pipeline and a small pad-mounted booster pump station.

Construction of the 8- and 12-inch-diameter pipelines is anticipated to occur over 11 weeks and include the use of a water truck, excavators, and a bulldozer. The estimated construction workforce is a maximum of six workers per day. The analysis assumed minimal grading would be needed and approximately 30 cubic yards of aggregate base would be imported and approximately 30 cubic yards of spoils would be exported, resulting in approximately 12 one-way haul truck trips for the 12-inch pipeline. In addition, the analysis assumed approximately 46 one-way material delivery trips would be required to deliver the construction equipment and pipe materials.

Construction of the recycled water distribution system is anticipated to occur over approximately 30 days and include the use of a trencher, water truck, plate compactor, backhoe, dump truck, cement truck, and air compressor. The estimated construction workforce is a maximum of four workers per day. The analysis assumed approximately 16 material delivery trips would be required to deliver the construction equipment and pipe materials. Additional details are available in Appendix D. After construction, operational activities under the project-level components would be limited to periodic maintenance and inspection activities that are not anticipated to increase substantially beyond existing conditions.

Programmatic Analysis

As detailed in Section 2.5, Project Characteristics, the programmatic components of the proposed project would include up to a 3.5-mile extension of the 12-inch-diameter pipeline to serve additional users within the expansion area in the future. Extension of the 12-inch-diameter pipeline was conservatively assumed to commence in 2020. This is a conservative approach given that the extension is likely to commence later than 2020, and considering that exhaust emissions from construction equipment fleet decrease over time as stricter standards take effect, advancements in engine technology, retrofits, and turnover in the equipment fleet are anticipated to result in lower levels of emissions as construction occurs in later years.

Operations

After construction, day-to-day activities associated with operation of the 2018 Proposed Area and 2018 Program Expansion Area would generate emissions from mobile and energy sources. Mobile-source emissions would be associated with the permanent recycled water truck haul program. Under the permanent water truck haul program, the analysis in this SEIR assumes the current number of truck trips and total recycled water obtained under this program would double from the current levels. Thus, the anticipated increase in haul truck trips would be approximately six trucks per day, or 12 one-way haul truck trips, for an approximate total of 10–20 round trips per day in the next 20 years. Water haul trucks were conservatively assumed to all be heavy-duty trucks and travel approximately 14.4 miles each way. Heavy-duty trucks typically have higher emission factors, and thereby higher emissions, than medium-duty trucks or light-duty trucks. Therefore, if haul truck trips are performed by trucks other than heavy-duty trucks, it is anticipated actual emissions would be less than presented in Table 3.10-2. The haul trip length was calculated based on the average distance to the two primary customers. Emissions associated with water hauling were calculated in CalEEMod, version 2016.3.2.

In addition to mobile sources, the increased electricity demand for the booster pump station and the recycled water system at build-out would generate indirect GHG emissions. The total electricity demand at build-out is anticipated to be approximately 320,625 kilowatt-hours (kWh)

per year. The analysis assumed electricity would be provided by the City of Healdsburg Electric Utilities Department. As discussed in more detail in Section 3.11, Energy, the City of Healdsburg Electric Utilities Department has two types of power mixes; the Healdsburg Standard Rate and the Healdsburg Green Rate. The Healdsburg Green Rate is sourced from 100 percent eligible renewable resources, whereas, the Standard Rate is sourced from 38 percent eligible renewable resources, 39 percent large hydroelectric resources, 17 percent natural gas, and 6 percent unspecified sources of power. The analysis conservatively assumed the recycled water system would utilize the Healdsburg Standard Rate. Additional details are available in Appendix D.

IMPACT ANALYSIS

Impact 3.10-1: GHG Emissions and Consistency with Applicable Plans, Policies, or Regulations.

Construction

Construction of the proposed project would generate GHG emissions associated primarily with heavy-duty off-road equipment usage, materials transport, and worker commutes during construction activities of the 2018 Proposed Area and 2018 Program Expansion Area.

Neither the NSCAPCD nor the City of Healdsburg has established explicit numerical thresholds of significance for construction-related or operational GHG emissions. To provide additional context and place the proposed project's emissions in perspective, this analysis reviewed guidelines and thresholds used by other public agencies and quantitatively analyzed construction-related and operational emissions associated with the proposed project for informational purposes. The most conservative threshold was included in the California Air Pollution Control Officers Association (CAPCOA) 2008 report, CEQA and Climate Change: Evaluating and Addressing Greenhouse Gas Emissions from Projects Subject to the California Environmental Quality Act. CAPCOA recommends a threshold of 900 MT CO_2e per year for any residential, commercial, or industrial project (CAPCOA 2008). In 2014, the Sacramento Metropolitan Air Quality Management District (SMAQMD) adopted a significance threshold for GHG emissions of 1,100 MT CO_2e per year that applies for construction and operational emissions (SMAQMD 2018). The Bay Area Air Quality Management District (BAAQMD), in its May 2017 CEQA guidelines, recommends a threshold of 1,100 MT CO2e per year for land use development projects and 10,000 MT CO2e per year threshold for stationary sources (BAAQMD 2017). Each of the significance thresholds developed by these other agencies is designed to establish the level of emissions for individual projects that would represent cumulatively considerable contribution to the significant cumulative impact of GHG emissions, based on the statewide framework established by AB 32, SB 32, and relevant executive orders addressing climate change effects. It is not the intent of the City of Healdsburg to adopt any of these other agencies' thresholds as emissions limits for this or other projects, but rather to provide this additional information to put the project-generated GHG emissions in the appropriate statewide context and consider the project's impacts pursuant to CEQA.

Table 3.10-1 presents construction-related GHG emissions associated with the proposed project.

Table 3.10-1 Construction-Related GHG Emissions	
Source	**MT CO_2e**
Project-Level Analysis	
12-inch Pipeline – Future Vineyard Property	33
8-inch Pipeline – Diary/vineyard property	27
Diary/vineyard property Irrigation Facilities	**60**
Programmatic Analysis – Extension of 12-inch Pipeline	
Programmatic Analysis 2020	90
Programmatic Analysis 2021	55
Total	**265**
Notes: Totals may not add due to rounding. MT CO_2e = metric tons carbon dioxide equivalents Source: Estimated by AECOM in 2019. See Appendix D for additional details.	

Operations

After construction, operational activities of the proposed project would generate emissions primarily from mobile and energy (i.e., electricity consumption) sources, as the proposed project would not require additional employees or include the long-term operation of any major stationary or area sources. Operation of the project-level components would consist of minimal maintenance and inspection activities. Operational activities associated with the programmatic analysis would include the continuation of water haul truck trips in the City's water hauling program. The City has conservatively estimated that the number of truck trips may double to 10–20 per day in the next 20 years. To present a worst-case scenario for the purposes of this GHG emissions analysis, the operational emissions assume the 20 roundtrips per day for water hauling would begin in 2021. This is a conservative approach, given that the increase in water hauling truck trips is projected to occur in the next 20 years, and considering that exhaust emissions from the truck fleet decrease over time as stricter standards take effect, fuel efficiency improves, and turnover in the equipment fleet is anticipated to result in lower levels of emissions in later years. In addition to mobile sources, indirect GHG emissions would also be generated by electricity consumption. The proposed project is anticipated to require approximately 320,625 kWh per year at build-out. The operational emissions associated with the proposed project are shown in Table 3.10-2.

Table 3.10-2 Operational GHG Emissions	
Source	**MT CO_2e/year**
Mobile	412
Energy	33
Total	**446**
Notes: Totals may not add due to rounding. MT CO_2e = metric tons carbon dioxide equivalents Source: Estimated by AECOM in 2019. See Appendix D for additional details.	

As shown in Tables 3.10-1 and 3.10-2, GHG emissions associated with the proposed project would be less than any of the thresholds adopted by other public agencies. Further, as the demand for water grows, more water is extracted, treated, and transported (sometimes over great distances), which can be energy-intensive and have a high carbon footprint. Recycling water on site or nearby reduces the energy needed, and thereby GHG emissions, to move water longer distances or pump water from deep within an aquifer (EPA 2019). As discussed in the CEC Final Staff Report Prepared in Support of the 2005 Integrated Energy Policy Report, recycled water is the least energy-intensive water supply option because it is a byproduct of existing secondary and tertiary wastewater treatment options (CEC 2005). Therefore, although it requires additional energy to treat wastewater for recycling, the amount of energy required to treat and/or transport other sources of water is generally much greater and produces higher GHG emissions. CAPCOA has estimated that use of reclaimed water instead of new potable water supplies for outdoor water uses has potential GHG savings of up to 40 percent in northern California (CAPCOA 2010).

As such, the increased use of recycled water is considered in several state and local plans as a GHG reduction measure. Although the proposed project would generate GHG emissions associated with construction and operation, the proposed project would increase the use of recycled water and GHG emissions would be cumulatively less than significant. The following sections discuss the proposed project's consistency with state and local plans, policies, and regulations adopted for the purpose of reducing GHG emissions.

Assembly Bill 32, Senate Bill 32, and Climate Change Scoping Plans

As discussed previously, the ARB Scoping Plans establish the framework of action for California to reduce statewide emissions per AB 32 and SB 32. As described in the 2008, 2014, and 2017 Scoping Plans, since water delivery is very energy-intensive, implementing programs that strongly support water conservation can reduce GHG emissions in the electricity sector by reducing the need for electricity to move, treat, and heat water. As such, the Scoping Plans include measures for water recycling efforts.

The 2014 Scoping Plan includes a measure that calls for modifying state and regional water board policies and permits to achieve conservation, water recycling, and wastewater-to-energy goals (ARB 2014b). The 2017 Scoping Plan states that, as California reduces GHG emissions, meeting new demands and sustaining prosperity requires increased water conservation and efficiency, improved coordination and management of various water supplies, and greater understanding of the water-energy nexus (ARB 2017). A key water sector recommendation in the ARB 2017 Scoping Plan includes encouraging water conservation and recycling. In addition, the ARB 2017 Scoping Plan includes a goal for developing and supporting more reliable water supplies for agriculture. Since the objective of the proposed project is to provide beneficial use of the reclaimed water via landscape irrigation and agriculture irrigation, the proposed project would not conflict with any of the above-mentioned measures and goals of the Scoping Plans.

Further, as discussed in Section 3.11, Energy, the project's electricity demand would be sourced by the City of Healdsburg Electric Utilities Department. The City of Healdsburg Electric Utilities Department provides electricity with a high renewable and carbon free content; it has exceeded California's RPS in 2017 by 13 percent (City of Healdsburg 2019b). Because the proposed project would be on the City of Healdsburg Electric Utilities Department grid, which has exceeded California's RPS, and because of the estimated emissions level attributable to the project, the

proposed project would not conflict with a state plan for renewable energy or energy efficiency. Thus, the proposed project would not conflict with AB 32, SB 32, or the ARB Scoping Plans.

City of Healdsburg Sustainability Targets and RCPA Climate Change Resolution

In addition, the proposed project would be consistent with the City of Healdsburg's energy conservation and sustainability targets, which include developing and increasing the use of reclaimed water and preserving the local water supply (City of Healdsburg 2019b). The proposed project would also be consistent with the RCPA Climate Change Action Resolution, which includes goals to increase recycled water and greywater use. Since the objective of the project is to provide beneficial use of the reclaimed water, the project would not generate GHG emissions that would have a cumulatively considerable contribution to the significant cumulative impact of global climate change or conflict with any plans, policies, or regulations adopted for the purpose of reducing GHG emissions.

For the reasons stated above, project implementation would not generate substantial GHG emissions or conflict with an applicable plan, policy, or regulation adopted to reduce GHG emissions. Therefore, this impact is **less than significant**.

Mitigation Measure: No mitigation is required.

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3.11 ENERGY

This section addresses energy use attributable to the proposed project. Below is a brief overview of federal, state, and local laws and regulations pertaining to energy. The analysis considers the primary uses of energy for the proposed project; the benefit of existing regulations that require energy-efficient construction and operation; and the potential for the proposed project to result in the wasteful, inefficient, and unnecessary consumption of energy.

3.11.1 SUMMARY OF FINDINGS FROM THE CERTIFIED EIR

The EIR certified for the City of Healdsburg Wastewater Treatment Plant Upgrade Project in 2005 did not include a separate analysis of energy impacts, although energy-related physical environmental effects were included in the air quality analysis.

3.11.2 ENVIRONMENTAL SETTING

ELECTRICAL AND NATURAL GAS SERVICES

In 2017, California generated a total of 292,039 gigawatt-hours of electricity, of which approximately 206,336 gigawatt-hours were generated in-state (CEC 2018).

The City of Healdsburg Electric Utility Department (Healdsburg Electric Utility Department) provides electrical service to the city of Healdsburg. The Healdsburg Electric Utility Department provides electric service to 5,793 meters and maintains the Badger Substation, 28 miles of underground and 28.3 miles of overhead high-voltage line, 1,220 power poles, more than 800 transformers, and 1,320 street lights. In 2017, the department delivered approximately 77 gigawatt-hours of electricity within its service area (CEC 2019a).

Pacific Gas and Electric Company (PG&E) provides natural gas service to the City of Healdsburg through portions of its approximately 42,000 miles of natural gas distribution pipelines. PG&E's total natural gas throughput was approximately 801 billion cubic feet in 2017 (PG&E 2018). In 2017, natural gas consumption in the PG&E service area totaled approximately 4,715 million therms (CEC 2019b), approximately 2 percent (113 million therms) of which was consumed by users in Sonoma County (CEC 2019c). The proposed project is not anticipated to consume natural gas.

ENERGY SOURCES

The Healdsburg Electric Utility Department provides power from a variety of sources: nuclear, hydroelectric, natural gas, and renewable energy resources such as wind, geothermal, biomass, solar, and small hydro. Table 3.11-1 presents the electrical power mix for the Healdsburg Electric Utility Department (City of Healdsburg 2019a). It is also noted that the City is planning to install solar panels on the ponds at the WRF, which would have the capacity to generate about 3.6 MW of power when operational.

In 2017, 77 percent of the energy delivered by the Healdsburg Electric Utility Department throughout its service region was from sources that do not generate greenhouse gases (GHGs). The City also offers a Green Rate to customers who elect to purchase 100 percent of their power from renewable sources, which, in the case of the Healdsburg Electric Utility Department, is

provided by geothermal sources. The Healdsburg Electric Utility Department exceeds the state-mandated Renewables Portfolio Standard requirement, as described below in Section 3.11.3, "Regulatory Background."

Table 3.11-1
City of Healdsburg Electric Utility Department Electrical Power Mix
(% of total power sources), 2017

Electrical Sources	Healdsburg Electric Utility Department	Healdsburg Electric Utility Department Green Rate
Nuclear	0	0
Large Hydroelectric	39	0
Renewable[1]	38	100
Natural Gas/Other	17	0
Other Unspecified[2]	6	0
Total	**100**	**100**

Notes:

[1] Renewable energy sources include wind, geothermal, biomass, solar, and small hydro. These energy sources are considered eligible to meet California's Renewables Portfolio Standard requirement of 33 percent renewable energy generation by 2020.

[2] "Other unspecified" sources refer to electricity that is not traceable to specific generation sources by any auditable contract.

Source: City of Healdsburg 2019a

ENERGY CONSERVATION AND RENEWABLE ENERGY PROGRAMS

The City of Healdsburg offers several energy efficiency programs and rebates to incentivize reduced energy consumption. These include residential and commercial rebate programs, as well as financing, tax credits, and other tax incentive programs. The programs are intended to help residential and commercial customers reduce their overall energy usage. In addition, the City is moving its municipal electric accounts to the Healdsburg Green Rate, which uses 100 percent clean, renewable energy from The Geysers, the world's largest geothermal field (City of Healdsburg 2019b).

ENERGY USE FOR TRANSPORTATION

Transportation is the largest energy-consuming sector in California, accounting for approximately 39 percent of all energy use in the state (EIA 2016a). More motor vehicles are registered in California than in any other state, and commute times in California are among the longest in the country (EIA 2018). The types of transportation fuel used have become diversified in California and elsewhere. Historically, gasoline and diesel fuel accounted for nearly all demand; now, however, numerous options are available, including ethanol, natural gas, electricity, and hydrogen. Despite advancements in alternative fuels and clean-vehicle technologies, gasoline and diesel remain the primary fuels used for transportation in California, with 15.1 billion gallons of gasoline and 4.2 billion gallons of diesel consumed in 2015 (CEC 2019d, 2019e).

The Sonoma County Transportation Authority (SCTA) prepared a comprehensive transportation plan, which found that travel demand in Sonoma County is forecast to increase 36 percent between 2016 and 2040 as a result of projected population and employment growth, with Healdsburg being one of the three cities showing the lowest likely growth rate (SCTA 2016). Programs in the SCTA Comprehensive Transportation Plan include shifting travel to active

transportation modes (e.g., bicycling, walking), which would help to manage overall fuel use for transportation.

3.11.3 Regulatory Background

The federal, state, and local regulatory background of energy plans, policies, regulations, and laws is presented below. Generally, these plans, policies, regulations, and laws do not directly apply to the proposed project, but are presented to provide context to the regulatory framework.

Federal Plans, Policies, Regulations, and Laws

Energy Policy and Conservation Act of 1975

The Energy Policy and Conservation Act of 1975 established the first fuel economy standards for on-road motor vehicles sold in the United States. The National Highway Traffic and Safety Administration is responsible for establishing standards for vehicles and revising the existing standards. The Corporate Average Fuel Economy program was created to determine vehicle manufacturers' compliance with the fuel economy standards. The U.S. Environmental Protection Agency (EPA) administers the testing program that generates the fuel economy data.

National Energy Act of 1978

The National Energy Act of 1978 includes the Public Utility Regulatory Policies Act (Public Law 95-617), Energy Tax Act (Public Law 95-318), National Energy Conservation Policy Act (Public Law 95-619), Power Plant and Industrial Fuel Use Act (Public Law 95-620), and Natural Gas Policy Act (Public Law 95-621).

The intent of the National Energy Act was to promote greater use of renewable energy, provide residential consumers with energy conservation audits to encourage slower growth of electricity demand, and promote fuel efficiency. The Public Utility Regulatory Policies Act created a market for nonutility electric power producers to permit independent power producers to connect to their lines and to pay for the electricity that was delivered.

The Energy Tax Act promoted fuel efficiency and renewable energy through taxes and tax credits. The National Energy Conservation Policy Act required utilities to provide residential consumers with energy conservation audits and other services to encourage slower growth of electricity demand.

Energy Policy Acts of 1992 and 2005

The Energy Policy Act of 1992 was enacted to reduce dependence on imported petroleum and improve air quality by addressing all aspects of energy supply and demand, including alternative fuels, renewable energy, and energy efficiency. This law requires certain federal, state, and local government and private fleets to purchase alternative fuel vehicles. The act also defines "alternative fuels" to include fuels such as ethanol, natural gas, propane, hydrogen, electricity, and biodiesel.

The Energy Policy Act of 2005 was enacted on August 8, 2005. This law set federal energy management requirements for energy-efficient product procurement, energy savings performance

contracts, building performance standards, renewable energy requirements, and use of alternative fuels. The Energy Policy Act of 2005 also amends existing regulations, including fuel economy testing procedures.

Energy Independence and Security Act of 2007

Signed into law in December 2007, the Energy Independence and Security Act was enacted to increase the production of clean renewable fuels; increase the efficiency of products, buildings, and vehicles; improve the federal government's energy performance; and increase U.S. energy security, develop renewable fuel production, and improve vehicle fuel economy. The Energy Independence and Security Act included the first increase in fuel economy standards for passenger cars since 1975. The act also included a new energy grant program for use by local governments in implementing energy-efficiency initiatives, as well as a variety of green building incentives and programs.

Executive Order 13514

On October 5, 2009, President Barack Obama signed Executive Order 13514, Federal Leadership in Environmental, Energy, and Economic Performance (Title 3, Section 13514 of the Code of Federal Regulations). The executive order set sustainability goals for federal agencies and focuses on improving their environmental, energy, and economic performance. The executive order required agencies to meet a number of energy, water, and waste reduction targets, including:

- 30 percent reduction in vehicle fleet petroleum use by 2020;
- 26 percent improvement in water efficiency by 2020;
- 50 percent recycling and waste diversion by 2015;
- 95 percent of all applicable contracts meeting sustainability requirements;
- implementation of the 2030 net-zero-energy building requirement;
- implementation of the stormwater provisions of the Energy Independence and Security Act of 2007, Section 438; and
- development of guidance for sustainable federal building locations in alignment with the Livability Principles put forward by the U.S. Department of Housing and Urban Development, U.S. Department of Transportation, and EPA.

Light-Duty Vehicle Greenhouse Gas Emission Standards and Corporate Average Fuel Economy Standards

On May 7, 2010, the final *Light-Duty Vehicle Greenhouse Gas Emissions Standards and Corporate Average Fuel Economy Standards* were published in the *Federal Register*. Phase 1 of the emissions standards required that model year 2012–2016 vehicles meet an estimated combined average emissions level of 250 grams of carbon dioxide (CO_2) per mile, which is equivalent to 35.5 miles per gallon if the automobile industry were to meet this CO_2 level solely through fuel economy improvements.

On August 28, 2012, the U.S. Department of Transportation and EPA issued a joint final rulemaking requiring additional federal GHG and fuel economy standards for Phase 2 of the emissions standards for model year 2017–2025 passenger cars and light-duty trucks. The standards would require these vehicles to meet an estimated combined average emissions level of 163 grams of CO_2 per mile in model year 2025, which is equivalent to 54.5 miles per gallon if the improvements were made solely through fuel efficiency. However, on April 2, 2018, EPA issued a midterm evaluation final determination that found that the model year 2022–2025 emissions standards are not appropriate and should be revised. This midterm evaluation is not a final agency action; rather, this determination led to the initiation of rulemaking to adopt new standards (EPA 2018a).

On April 5, 2019, the administration of California Governor Gavin Newsom and the California Air Resources Board filed a lawsuit against the National Highway Traffic and Safety Administration and EPA to compel the two federal agencies to provide the underlying data and analysis used to support a rollback of the federal vehicle emission standards. The California Air Resources Board estimates that if California were required to follow the federal rollback proposal, global warming emissions could increase by almost 15 million metric tons per year by 2025 (California Office of the Governor 2019).

Executive Order 13693

On March 19, 2015, President Barack Obama signed Executive Order 13693, Planning for Federal Sustainability in the Next Decade. The executive order sets a goal of reducing federal agencies' GHG emissions by 40 percent over the next decade. The executive order sets GHG reduction targets and sustainability goals for federal agencies, including the following:

- Each federal agency, including the Federal Highway Administration, Federal Transit Administration, and Federal Railroad Administration, must propose percentage reduction targets for agencywide GHG emissions reductions by the end of fiscal year 2025, relative to a fiscal year 2008 baseline.
- Each federal agency must establish sustainability goals, including:
    - promoting building energy conservation, efficiency, and management;
    - requiring the use of renewable and alternative energy for up to 25 percent of electric and thermal energy in federal buildings by fiscal year 2025;
    - requiring the use of renewable and alternative energy for up to 30 percent of total building energy consumption in federal buildings by fiscal year 2025;
    - improving the agency's water efficiency and management to reduce water consumption by 36 percent by fiscal year 2025;
    - improving the efficiency and management of the agency's vehicle fleet to reduce GHG emissions by 30 percent by fiscal year 2025;
    - promoting sustainable acquisition and procurement practices; and

- advancing waste prevention and pollution prevention by diverting at least 50 percent of nonhazardous solid waste.

Renewable Fuel Standard Program

Created by the Energy Policy Act of 2005, which amended the Clean Air Act, the Renewable Fuel Standard Program established requirements to replace certain volumes of petroleum-based fuels with renewable fuels. The four renewable fuel types accepted as part of the Renewable Fuel Standard Program are biomass-based diesel, cellulosic biofuel, advanced biofuel, and total renewable fuel. The 2007 Energy Independence and Security Act expanded the program and its requirements to include long-term goals of using 36 billion gallons of renewable fuels and extending annual renewable-fuel volume requirements to year 2022. "Obligated parties" such as refiners and importers of gasoline or diesel fuel must meet specific blending requirements for the four renewable fuel types. EPA implements the program in consultation with U.S. Departments of Agriculture and Energy. The obligated parties are required to demonstrate their compliance with the Renewable Fuel Standard Program.

STATE PLANS, POLICIES, REGULATIONS, AND LAWS

Senate Bills 1078 and 107, Executive Orders S-14-08 and S-21-09, and Senate Bills 350 and 100

Senate Bill (SB) 1078 (Chapter 516, Statutes of 2002) required retail sellers of electricity, including investor-owned utilities and community choice aggregators, to provide at least 20 percent of their supply from renewable sources by 2017. SB 107 (Chapter 464, Statutes of 2006) changed the target date to 2010.

Executive Order S-14-08 expanded the state's Renewables Portfolio Standard to 33 percent renewable power by 2020. Executive Order S-21-09 directs the California Air Resources Board, under its AB 32 authority, to enact regulations to help the state meet its Renewables Portfolio Standard goal of 33 percent renewable energy by 2020.

The 33 percent-by-2020 goal and requirements were codified in April 2011 with SB X1-2. This new Renewables Portfolio Standard applies to all electricity retailers in the state, including publicly owned utilities, investor-owned utilities, electricity service providers, and community choice aggregators. Consequently, PG&E, which would be the electricity provider for the proposed project, must meet the 33 percent goal by 2020. SB 350 (2015) increased the renewable-source requirement to 50 percent by 2030. This was followed by SB 100 in 2018, which further increased the Renewables Portfolio Standard to 60 percent by 2030 and added the requirement that all state's electricity come from carbon-free resources by 2045.

These requirements reduce the carbon content of electricity generation and would reduce GHG emissions associated with both existing and new development.

The California Public Utilities Commission reported that California's three largest investor-owned utilities collectively provided 36 percent of their 2017 retail electricity sales using renewable sources and are continuing progress toward meeting the future 2020 requirements (CPUC 2019).

California Green Building Standards Code

In January 2010, the State of California adopted the California Green Building Standards Code, which establishes mandatory green building standards for all buildings in California. The code covers five categories: planning and design, energy efficiency, water efficiency and conservation, material conservation and resource efficiency, and indoor environmental quality. These standards include a set of minimum requirements and more rigorous voluntary measures for new construction projects to achieve specific green building performance levels. This code went into effect as part of local jurisdictions' building codes on January 1, 2011.

The current (2016) California Green Building Code requires inspections of energy systems (e.g., furnace, air conditioner, and mechanical equipment) for nonresidential buildings larger than 10,000 square feet to ensure that all are working at their maximum capacity and according to their design efficiencies. In addition, the Green Building Code includes nonresidential voluntary measures that address building energy efficiency, water efficiency and conservation, and material/resource efficiency. Energy efficiency measures for the nonresidential voluntary measures are related to lighting systems, water heating in restaurants, renewable energy, and operation of elevators, escalators, and equipment.

LOCAL PLANS, POLICIES, REGULATIONS, AND ORDINANCES

Sonoma County General Plan 2020

The following goals, objective, and policy in the Open Space and Resource Conservation Element and Water Resources Element of the *Sonoma County General Plan 2020* (Sonoma County 2008, 2016) are relevant to the proposed project:

Goal OSRC-14: Promote energy conservation and contribute to energy demand reduction in the County.

- **Policy OSRC-14j:** Encourage the Sonoma County Water Agency and other water and wastewater service providers to reduce energy demand from their operations.

Goal WR-4: Increase the role of conservation and safe, beneficial reuse in meeting water supply needs of both urban and rural users.

- **Objective WR-4.1:** Increase the use of recycled water where it meets all applicable regulatory standards and is the appropriate quality and quantity of the intended use.

Healdsburg 2030 General Plan

The following goals and policies in the Public Services Element of the *Healdsburg 2030 General Plan* (City of Healdsburg 2015) are relevant to the proposed project:

Goal PS-A: An adequate level of service in the City's water system to meet the needs of existing and projected development.

- **Policy PS-A-9:** The City will pursue agricultural and urban reuse of recycled water in accordance with state law to minimize the use of potable water in serving existing and planned development.

Goal PS-C: An adequate level of service in the City's electrical system that meets the needs of existing and projected development.

- **Policy PS-C-1:** The City will plan, construct, and maintain facilities to provide adequate electrical service to existing and planned development.

- **Policy PS-C-2:** The City will continue to extend its feeder lines as necessary to serve planned development and to ensure reliable service.

- **Policy PS-C-3:** The City will promote energy conservation in its operations and private development, including programs to reduce dependency on fossil fuels.

    - **Implementation Measure PS-6:** Explore options and opportunities to expand urban and agricultural use of the City's recycled water. Seek grants and/or low-interest loans for the City's recycled water irrigation system.

Regional Climate Protection Authority Climate Change Action Resolution

The City of Healdsburg, acting in collaboration with Sonoma County's Regional Climate Authority along with Sonoma County's other eight incorporated jurisdictions and Sonoma County itself, created a climate action plan. The climate action plan includes both regional measures (to be implemented by regional agencies with local government support) and local measures (to be implemented by local governments) to achieve target GHG emission reductions and adapt to climate change. The Regional Climate Authority adopted the climate action plan in 2016 and was subsequently litigated. Although the Regional Climate Authority was unable to adopt the Climate Action Plan, the Climate Change Action Resolution (Resolution) is intended to help create countywide consistency and clear guidance about coordinated implementation of GHG reduction measures. The following goals in the Resolution are considered applicable to the proposed project:

- Reduce water consumption.
- Increase recycled water and greywater use.
- Increase water and wastewater infrastructure efficiency.

3.11.4 Impacts and Mitigation Measures

Standards of Significance

Based on Appendix G of the State CEQA Guidelines, the project would have a significant energy impact if it would:

- result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation; or

- conflict with or obstruct a state or local plan for renewable energy or energy efficiency.

METHODOLOGY

This section describes the approach used to prepare the analysis of the potential effects of the project related to energy. The evaluation of potential energy impacts and energy demand was calculated based on the California Emissions Estimator Model (CalEEMod), Version 2016.3.2; spreadsheet calculations using the Healdsburg Electric Utility Department's Power Content Label (City of Healdsburg 2019a); and energy consumption data and assumptions pertaining to the proposed project. (See Section 3.10, "Greenhouse Gas Emissions," for further discussion of CalEEMod and indirect GHG emissions associated with energy consumption.)

The project would also require transportation energy for worker trips, deliveries, and other purposes. Estimates of future transportation energy demand depend on a variety of factors, such as fuel prices, vehicle technologies and prices, regulatory requirements, and consumer demand and preferences. This section uses vehicle miles traveled information developed to support the air quality and GHG emissions analyses of this SEIR (Sections 3.6 and 3.10, respectively).

The proposed project would expand the types of uses currently approved under the City's recycled water program and would provide beneficial use of the reclaimed water via landscape irrigation, agricultural irrigation, and construction uses. As explained in more detail in the following impact analysis, the primary benefit of increasing the use of recycled or reclaimed water, from an energy perspective, is the displacement of other, more energy-intensive water supplies (CEC 2005). Therefore, the increased use of recycled water is considered in several state and local plans. Because of the correlation between energy consumption during construction and operation of the proposed project and potential conflicts with state and local plans, this impact analysis combines the two CEQA Appendix G items into one discussion.

IMPACT ANALYSIS

Impact 3.11-1: Consumption of Energy and Consistency with State or Local Plans for Renewable Energy or Energy Efficiency.

Energy efficiency is a possible indicator of environmental impacts. The actual adverse physical environmental effects of energy use and the efficiency of energy use are detailed throughout this SEIR in the environmental topic–specific sections. For example, the use of energy for transportation leads to air pollutant emissions, the impacts of which are addressed in Section 3.6, "Air Quality," of this SEIR. There is no physical environmental effect associated with energy use that is not addressed in the environmental topic–specific sections of this SEIR.

Construction-Related Energy Consumption

Implementing the proposed project would increase energy consumption for the duration of construction in the form of electricity, natural gas, and fossil fuels (e.g., gasoline, diesel fuel). The primary energy demands during construction would be associated with construction equipment and vehicle fueling. No demolition would occur in the 2018 Proposed Area. Construction in this area is anticipated to require only 60 cubic yards of import and export materials, and site preparation and trenching would not require substantial haul truck trips. Construction activities in the 2018 Program Expansion Area were assumed to include trenching for extension of the 12-inch-diameter pipeline. Energy in the form of fuel and electricity would be consumed by

construction vehicles and equipment operating on-site, trucks delivering equipment and supplies to the site, and construction workers driving to and from the site.

Tables 3.11-2 and 3.11-3 present the total fuel consumption anticipated for proposed construction activities in the 2018 Proposed Area and the 2018 Program Expansion Area, respectively. The information in these tables is based on the CalEEMod emissions calculations for proposed construction activities and application of the U.S. Energy Information Administration's CO_2 emissions coefficients (EIA 2016b) to estimate fuel consumption for construction activities. During the anticipated 16-week construction period, the 2018 Proposed Area would require a total of approximately 11,334 gallons of diesel and 579 gallons of gasoline. When amortized over an assumed project lifetime of 30 years, fuel consumption would equal approximately 378 gallons of diesel and 19 gallons of gasoline per year. During the anticipated 8-month construction period, the 2018 Program Expansion Area would require a total of approximately 13,220 gallons of diesel and 1,195 gallons of gasoline. When amortized over an assumed project lifetime of 30 years, fuel consumption would equal approximately 441 gallons of diesel and 40 gallons of gasoline per year.

Table 3.11-2
2018 Proposed Area: Construction Fuel Consumption, Total and Amortized over 30 Years

Phase	Source	MT CO_2e/ Year [a]	Fuel Type	Factor (MT CO_2/Gallon) [b]	Gallons/ Year
12-Inch Pipeline—Future Vineyard Property	Off-Road Equipment	29.10	Diesel	0.01016	2,865
	Hauling	1.79	Diesel	0.01016	177
	Workers	2.07	Gasoline	0.008887	233
8-Inch Pipeline—Dairy/Vineyard Property	Off-Road Equipment	24.41	Diesel	0.01016	2,403
	Hauling	0.99	Diesel	0.01016	98
	Workers	1.74	Gasoline	0.008887	196
Dairy/Vineyard PropertyIrrigation Facilities	Off-Road Equipment	58.05	Diesel	0.01016	5,713
	Hauling	0.80	Diesel	0.01016	79
	Workers	1.34	Gasoline	0.008887	150
			Total Gallons	**Diesel**	11,334
				Gasoline	579
			Amortized Demands (over 30 years)	**Diesel**	378
				Gasoline	19

Notes:
CO_2 = carbon dioxide; CO_2e = carbon dioxide equivalent; MT = metric tons
Assumed amortization period is 30 years, based on the typically assumed project lifetime. Air districts in California (e.g., Sacramento Metropolitan Air Quality Management District 2018, South Coast Air Quality Management District 2008, San Luis Obispo County Air Pollution Control District 2012) recommend amortizing GHG emissions from construction activities over a project's operational lifetime.
Sources: [a] Modeled by AECOM in 2019, [b] EIA 2016b

Table 3.11-3 2018 Program Expansion Area: Construction Fuel Consumption, Total and Amortized over 30 Years					
Phase	**Source**	**MT CO_2e/ Year [a]**	**Fuel Type**	**Factor (MT CO_2/ Gallon) [b]**	**Gallons/ Year**
12-Inch Pipeline Extension	Off-Road Equipment	126.61	Diesel	0.01016	12,461
	Hauling	7.71	Diesel	0.01016	758
	Workers	10.62	Gasoline	0.008887	1,195
			Total Gallons	**Diesel**	13,220
				Gasoline	1,195
			Amortized Demands (over 30 years)	**Diesel**	441
				Gasoline	40
Notes: CO_2 = carbon dioxide; CO_2e = carbon dioxide equivalent; MT = metric tons Assumed amortization period is 30 years, based upon the typically assumed project lifetime. Air districts in California (e.g., Sacramento Metropolitan Air Quality Management District 2014, South Coast Air Quality Management District 2008, San Luis Obispo County Air Pollution Control District 2012) recommend amortizing GHG emissions from construction activities over a project's operational lifetime. Sources: [a] Modeled by AECOM in 2019, [b] EIA 2016b					

The proposed project does not include unusual characteristics that would necessitate the use of less energy-efficient construction equipment than at comparable construction sites. Therefore, it is expected that fuel consumption associated with construction of the proposed project would not be any more inefficient, wasteful, or unnecessary than fuel consumption at other construction sites in the region.

Operational Energy Consumption

After construction, energy consumption for the project's operational activities would include additional electricity demand to pump the total volume of tertiary-treated water into the recycled water system at existing facilities and electricity demand at the proposed booster pump station.

Based on information provided by the City, total electricity demand for the recycled water system at buildout and the booster pump station would be approximately 320,625 kilowatt-hours per year (Table 3.11-4). To put this demand in context, this represents approximately 0.4 percent of the existing energy demand of the City of Healdsburg.

Table 3.11-4 Estimated Annual Electrical Demands	
	Electrical Demands (kWh/year)
Proposed Project	320,625
City of Healdsburg	77,000,000
Note: kWh = kilowatt-hours Sources: City of Healdsburg 2019c; CEC 2019a	

The project would also include transportation-related energy consumption for the extension of the recycled water truck haul program. The number of truck trips associated with irrigation use is estimated to increase by about 50 percent over the next 20 years if the temporary program is made permanent. To apply a conservative analysis for the potential impacts of indefinitely extending of this temporary haul program, this SEIR assumes that the current number of truck trips would double to 10–20 per day and the total amount of recycled water obtained would also double. Transportation fuel consumption for the water haul truck trips was estimated based on the vehicle miles traveled analysis developed for the air quality and GHG emissions sections of this SEIR (Sections 3.6 and 3.10, respectively).

Trip distances for the water haul truck trips are based on the average distance between the City's two primary customers. Based on this analysis, the high-end estimate of 20 truckloads per day is estimated to contribute 209,664 annual vehicle miles traveled. This is a conservative approach because the increase from the current number of haul truck trips is likely to occur over the next 20 years. The analysis also assumes that all water haul truck trips would be by diesel-fueled trucks. Table 3.11-5 shows the estimated diesel fuel consumption associated with 20 water haul truck trips.

Table 3.11-5
Estimated Annual Fuel Consumption for Project Operations in the 2018 Program Expansion Area

	Annual Vehicle Miles Traveled	Gas Type	Fuel Consumption (Gallons/Year)
Proposed Project	209,664	Diesel	243,450

Source: Estimated by AECOM in 2019.

Summary

Energy would be consumed through construction and operation in the 2018 Proposed Area and 2018 Program Expansion Area. Activities that would require energy consumption range from equipment operation, to electricity demand to pump water, to transportation during construction and operation. Table 3.11-6 summarizes the proposed project's total energy requirements. For comparison purposes, the table shows a conversion of all energy requirements to a common energy unit, British thermal units (Btu).

As shown in Table 3.11-6, construction and operation within the 2018 Proposed Area and 2018 Program Expansion Area and extension of the truck haul program would consume approximately 34,834 million Btu per year. As the demand for water grows, more water is extracted, treated, and transported, which can be energy-intensive. Recycling water on-site or nearby reduces the energy needed to move water longer distances or pump water from deep within an aquifer (EPA 2018b). As discussed in the California Energy Commission's final staff report prepared in support of the 2005 Integrated Energy Policy Report, recycled water is the least energy-intensive water supply option because it is a byproduct of existing secondary and tertiary wastewater treatment options (CEC 2005). Therefore, although treating wastewater for recycling requires additional energy, the amount of energy required to treat and/or transport other sources of water is generally much greater. Because the objective of the proposed project is to provide a beneficial use for reclaimed water, the project would not result in a potentially significant environmental impact due to

wasteful, inefficient, or unnecessary consumption of energy resources during project construction or operation.

Table 3.11-6
Summary of Proposed Project Energy Requirements
(2018 Proposed Area and 2018 Program Expansion Area)

Phase	Energy Requirement [a]	Unit	Annual Energy Consumption (MMBtu) [b]
Construction *(amortized over 30 years)*			
2018 Proposed Area			
Diesel	378	gallons/year	52
Gasoline	19	gallons/year	2
2018 Program Expansion Area			
Diesel	441	gallons/year	61
Gasoline	40	gallons/year	5
		Subtotal	*120*
Site Operations			
Electrical	320,625	KWh/year	1,094
Operational Transportation			
Diesel	243,450	gallons/year	33,619
		Total	***34,834***

Notes:
KWh/year = kilowatt-hours per year; MMBtu = million British thermal units
Totals may not add due to rounding.
Sources: [a] Estimated by AECOM in 2019, [b] EIA 2016b

As discussed in Section 3.11.2, the project's electricity demand would be sourced by the Healdsburg Electric Utilities Department. The department provides electricity with a high renewable and carbon-free content; it exceeded California's Renewables Portfolio Standards by 13 percent in 2017 (City of Healdsburg 2019b). Further, the City has converted its municipal electric accounts to the Healdsburg Green Rate, which is sourced from 100 percent renewable energy from the City's geothermal power plants. Because the proposed project would be on the Healdsburg Electric Utilities Department's grid, which has exceeded California's Renewables Portfolio Standards, the proposed project would not conflict with a state plan for renewable energy or energy efficiency.

In addition, the California Energy Commission, California Public Utilities Commission, and California Department of Water Resources have initiated a number of programs to increase supplies and reduce demand for electricity. The *California Water Plan Update 2005* (2005 Water Plan Update) established a strategic plan that prioritized resource measures to meet new load growth and other water supply challenges. The 2005 Water Plan Update mirrors the state's adopted loading order for electricity resources described in the California Energy Commission and California Public Utilities Commission's Energy Action Plan II, adopted in 2005. The first three strategies of the plans all concern the efficient use of existing resources. Because there are so few resources for new water, the increased use of recycled water is a major strategy in the state's water plan (CEC 2005).

Further, the proposed project would be consistent with the City of Healdsburg's energy conservation and sustainability targets, which include developing and increasing the use of reclaimed water and preserving the local water supply (City of Healdsburg 2019d). Therefore, the proposed project would not conflict with any state or local plan for renewable energy or energy efficiency. This impact would be **less than significant**.

Mitigation Measures: No mitigation is required.

3.12 WILDFIRE

The EIR certified for the City of Healdsburg WWTP Upgrade Project in 2005 did not address the potential impacts of wildfire because the EIR was prepared before the 2019 adoption of amendments to the State CEQA Guidelines pertaining to wildfire. As a result, this section of the SEIR is entirely new.

This section describes wildfire conditions and wildfire behavior, identifies the California Department of Forestry and Fire Protection (CAL FIRE) fire hazard severity zones for the 2018 Proposed Area and 2018 Program Expansion Area, and describes the CAL FIRE battalions that would provide first response to wildfires in the project area. Impacts are evaluated relative to the potential for the proposed project to exacerbate wildfire risks or expose people or structures to significant risks.

3.12.1 SUMMARY OF FINDINGS FROM THE CERTIFIED EIR

As stated previously, the EIR certified for the City of Healdsburg WWTP Upgrade Project in 2005 did not include an analysis of wildfire impacts.

3.12.2 ENVIRONMENTAL SETTING

WILDFIRE CONDITIONS

Sonoma County has a mixture of mountainous areas, rolling hills, broad flat river valleys, and bay flats. The valleys and foothills are predominantly in agricultural use, with some urbanized areas and a dense population. Approximately half of the county consists of rugged, rural areas with limited access, where most of the land is open space and timber/natural resource production areas (Sonoma County 2017).

CAL FIRE has rated more than half of Sonoma County as having a moderate or high fire hazard risk, and areas of very high fire risk are designated along the mountainous eastern range of Sonoma County (Sonoma County 2017; CAL FIRE 2017). Wildland fire season in Sonoma County spans the months of May through October; the potential for wildland fires is greatest in August, September, and October as vegetation dries out, humidity levels fall, and offshore winds blow. Except in areas immediately along the coast, the weather during fire season is generally warm and dry during the day, with peak summer day temperatures reaching 80–100 degrees Fahrenheit (°F), and relative humidity ranging between 20 and 35 percent. Coastal onshore flow, often accompanied by fog, frequently prevails after sunset, allowing the relative humidity level to recover at night in the warm inland areas (Fire Safe Sonoma 2016; Sonoma County 2017).

Between 2008 and 2015, approximately 24 percent of the wildfires in Sonoma County resulted from undetermined causes. Lightning strikes caused approximately 23 percent of the wildfires, followed by debris burning (13 percent) and electrical equipment (13 percent) (Sonoma County 2017). Equipment use, vehicle fires, campfires, careless smokers, and arson were other causes of wildfires (Sonoma County 2017; CAL FIRE 2017).

WILDFIRE BEHAVIOR

Wildland fire behavior is based on three primary factors: topography, weather, and fuels. This section briefly describes how each of these factors influences wildfire behavior and describes the topography, weather, and fuels in the 2018 Proposed Area and the 2018 Program Expansion Area.

Topography

Topographic features such as slope and aspect influence a fire's intensity, direction, and rate of spread. Fires burning in flat or gently sloping areas tend to burn more slowly and spread in wider ellipses than fires on steep slopes. Streams, rivers, and canyons can channel local diurnal and general winds, which can accelerate the fire's speed and affect its direction, especially during foehn (warm, dry, and usually strong) wind events.

The 2018 Proposed Area and 2018 Program Expansion Area are situated along the base of the Outer North Coast Ranges in the western portion of the Russian River Valley, approximately 3 miles south of Healdsburg in unincorporated Sonoma County. Westside Road runs north to south along the western edge of the Russian River floodplain and generally bisects the 2018 Proposed Area and 2018 Program Expansion Area. Most of the 2018 Proposed Area and 2018 Program Expansion Area on the west side of Westside Road would be located on steep slopes that range from approximately 160 feet to 300 feet above mean sea level.

Weather

Weather conditions influence the potential for fire ignition, rates of spread, intensity, and the direction(s) toward which a fire burns. Temperature, relative humidity, and wind are the variables used to predict fire behavior. In the 2018 Proposed Area and 2018 Program Expansion Area, average daily maximum temperatures during the summer months approach 90°F, and summer minimums are in the mid-50s. Winter maximums are usually in the high 50s to the mid-60s, with minimums ranging from the mid-30s to the low 40s. The area's mean annual precipitation is 42 inches, which falls entirely as rain during the winter and spring months. During the warmer months, fog regularly intrudes from the Petaluma Gap to the south and settles in the Russian River Valley, allowing the relative humidity level to recover at night.

Wind plays a role in the flammability of fuels by removing moisture through evaporation, preheating fuels in a fire's path, and increasing spotting distances (the distance at which a flying ember might ignite a spot fire). Winds blowing more than 20 feet above the ground can carry embers downwind, causing spot fires.

The topography of the Russian River Valley influences the project area's local meteorology. The valley is long and narrow, approximately 5 miles wide at its northern end and 1 mile wide at its southern end. The strongest up-valley winds generally occur during summer afternoons, and the strongest down-valley winds generally occur during clear, calm winter nights. Prevailing winds typically follow the valley's north/south axis, although some upslope flow during the day and downslope flow during the night occur near the base of the mountains that surround the valley.

Fuels

Vegetation usually provides most of the fuel that feeds wildfire. The volume, character, distribution, and arrangement of vegetation and the moisture content of fuels all greatly influence fire behavior. Vineyards are most prominent vegetation type in the 2018 Proposed Area and 2018 Program Expansion Area, followed by annual grassland, oak woodland, riparian forest/scrub, and irrigated pasture (see Section 3.4, "Terrestrial Biological Resources," for further discussion).

FIRE HAZARD SEVERITY ZONES IN THE PROJECT AREA

Fire hazard severity zones are measured qualitatively, based on vegetation, topography, weather, crown fire potential (a fire's tendency to burn upward into trees and tall brush), and ember production and movement within the area in question.

Fire prevention areas considered to be under state jurisdiction are referred to "State Responsibility Areas" or SRAs, and CAL FIRE is responsible for vegetation fires within SRA lands.[1] In general, SRA lands contain trees producing, or capable of producing, forest products; timber, brush, undergrowth, and grass, whether of commercial value or not, that provide watershed protection for irrigation or for domestic or industrial use; or lands in areas that are principally used, or are useful for, range or forage purposes.

CAL FIRE is required to define three fire hazard levels for SRAs: moderate, high, and very high. The areas west of Westside Road lie within an SRA (Exhibit 3.12-1). The 2018 Proposed Area is rated as a Moderate Fire Hazard Severity Zone and the 2018 Program Expansion Area is rated as both a Moderate Fire Hazard Severity Zone and a High Fire Hazard Severity Zone (CAL FIRE 2007).[2] As discussed below, CAL FIRE's Sonoma-Lake-Napa Unit is primarily responsible for responding to wildland fires.

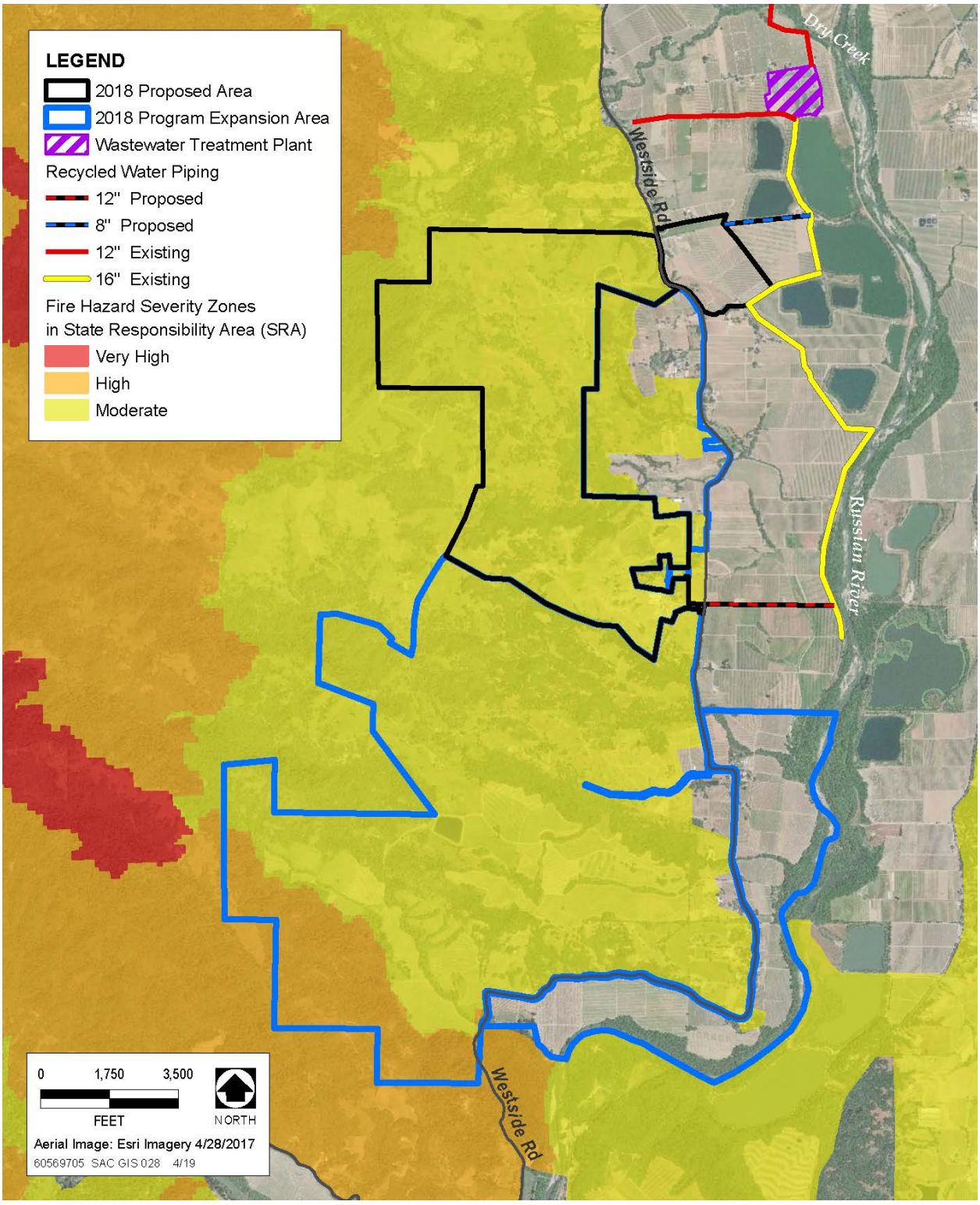
CALIFORNIA DEPARTMENT OF FORESTRY AND FIRE PROTECTION SERVICES

The project site is within the West Division of CAL FIRE's Sonoma-Lake-Napa Unit (CAL FIRE 2017). Sonoma County defines the West Division. The division encompasses 1.6 million acres, of which approximately 794,000 acres are SRA lands and 818,000 acres are Direct Protection Area lands, which includes federal lands more effectively managed by CAL FIRE (Fire Safe Sonoma 2016).

The West Division is divided into four battalions and consists of nine stations that house 14 engines and two dozers and the Sonoma Air Attack Base. The division employs approximately 115 fire suppression personnel during the fire season, with a reduced staff of approximately 50 during the rest of the year (CAL FIRE 2017).

[1] California Public Resources Code (PRC) Sections 4125–4127 define a State Responsibility Area as lands in which the financial responsibility for preventing and suppressing wildland fire resides with the State of California.

[2] CAL FIRE's Online Fire Hazard Severity Zone viewer was accessed on April 23, 2019, to confirm the hazard severity zone rating for the project area (http://egis.fire.ca.gov/FHSZ/).



Source: City of Healdsburg 2019. CAL FIRE 2007

Exhibit 3.14-1. Fire Hazard Severity Zones

The southern and southwestern portions of the 2018 Program Expansion Area lie within Battalion 1410, and the 2018 Proposed Area and the central portion of the 2018 Program Expansion Area are within Battalion 1413 (CAL FIRE 2017). These battalions are described below.

Battalion 1410

Battalion 1410 encompasses 274,000 acres and spans central Sonoma County from Bodega Bay to Mount St. Helena. Elevations in the Battalion 1410 service area range from sea level to more than 4,300 feet at the top of Mount St. Helena. This area has great geographic diversity, from the cool coast to the hot, dry slopes of Mount St. Helena. Landscape and settlement patterns are vastly different across the Battalion 1410 service area. In general, there are wood-frame homes and cabins in the coastal region and forested areas; dairy farms and vineyards in the Santa Rosa plain and the dry rolling hills of the Mayacamas Mountains; and urban development in and surrounding Windsor, Santa Rosa, and Sebastopol (Fire Safe Sonoma 2016).

Large portions of the county's Local Responsibility Areas and the county's largest city, Santa Rosa, are in the middle of the Battalion 1410 service area.[3] Fifteen local fire agencies operate in the service area, including five volunteer fire departments, seven fire protection districts, two city fire departments and one community service district (CAL FIRE 2017; Sonoma County 2016). Two CAL FIRE stations are in the Battalion 1410 service area. The Santa Rosa Station houses two engines and the Occidental Station houses one engine (CAL FIRE 2017).

Most wildfires in the Battalion 1410 service area have resulted from vehicle fires (25 percent), debris burning (20 percent), and undetermined causes (20 percent) (CAL FIRE 2017).

Battalion 1413

Battalion 1413 serves 273,000 acres in northeastern Sonoma County. The service area includes the cities of Healdsburg and Cloverdale and the community of Geyserville. In addition, the Geysers, located in a 30-square-mile area along the Sonoma County/Lake County border, and Warm Springs Dam, which forms Lake Sonoma, lie within the service area of Battalion 1413.

Four local fire agencies operate in the Battalion 1413 service area. These agencies encompass Healdsburg, Cloverdale, and Geyserville and Knights Valley (CAL FIRE 2017; Sonoma County 2016). CAL FIRE operates two stations in the Battalion 1413 service area: the Healdsburg Station, which houses two engines and a bulldozer, and the Cloverdale Station, which houses two engines (CAL FIRE 2017). During the fire season, CAL FIRE provides most of the area's paid firefighters.

Hot, dry conditions and steep slopes prevail in much of the Battalion 1413 service area, and this area has experienced the largest number of historic wildfires in Sonoma County. Proportionally, it contains the largest expanse of Very High Fire Severity Zone in the county. Although this area is largely rural, numerous homes are scattered throughout the battalion's service area. Some of the SRAs in the service area, such as the Fitch Mountain area near Healdsburg, are both densely vegetated and densely populated (CAL FIRE 2017).

[3] Local responsibility areas are areas under the jurisdiction of local entities (e.g., cities, counties).

Most wildfires in the Battalion 1413 service area have resulted from equipment use (24 percent), undetermined causes (24 percent), and vehicle fires (14 percent) (CAL FIRE 2017).

3.12.3 Regulatory Background

Federal Plans, Policies, Regulations, and Laws

No federal plans, policies, regulations, or laws related to wildfire hazards are applicable to the proposed project.

State Plans, Policies, Regulations, and Laws

California Fire Plan

The California Fire Plan is the statewide plan for reducing the risk of wildfire. The plan's basic principles are as follows:

- Involve the community in the fire management planning process.
- Assess public and private resources that could be damaged by wildfires.
- Develop pre-fire management solutions and implement cooperative programs to reduce the community's potential wildfire losses.

One of the more important objectives of the California Fire Plan pertains to pre-fire management solutions. Included within the realm of pre-management solutions are fuel breaks, the establishment of wildfire protection zones, and prescribed fires to reduce the availability of fire fuels. In addition, the plan recommends that clearance laws, zoning, and related fire safety requirements implemented by state and local authorities address fire-resistant construction standards, hazard reduction near structures, and infrastructure.

The California Fire Plan does not contain any specific requirements or regulations. It assesses current fire management practices and standards and recommends how best to improve the practices and standards in place.

California Public Resources Code

Section 4427

PRC Section 4427 limits the use of any motor, engine, boiler, stationary equipment, welding equipment, cutting torch, tarpot, or grinding device from which a spark, fire, or flame may originate, when the equipment is located on or near land covered by forest, brush, or grass. Before such equipment may be used, all flammable material, including snags, must be cleared away from the area around such operation for a distance of 10 feet. A serviceable round-point shovel with an overall length of not less than 46 inches and a backpack pump water-type fire extinguisher, fully equipped and ready for use, must be maintained in the immediate area during the operation.

Section 4431

PRC Section 4431 requires users of gasoline-fueled internal combustion–powered equipment operating within 25 feet of flammable material on or near land covered by forest, brush, or grass to have a tool for firefighting purposes at the immediate location of use. This requirement is limited to periods when burn permits are necessary. Under Section 4431, the Director of Forestry and Fire Protection specifies the type and size of fire extinguisher necessary to provide at least a minimum assurance of controlling fire caused by use of portable power tools during various climatic and fuel conditions.

Section 4442

PRC Section 4442 prohibits the use of internal combustion engines running on hydrocarbon fuels on any land covered by forest, brush, or grass unless the engine is equipped with a spark arrestor and is constructed, equipped, and maintained in good working order when traveling on any such land.[4]

LOCAL PLANS, POLICIES, REGULATIONS, AND ORDINANCES

Sonoma County General Plan

The Public Safety Element of the *Sonoma County General Plan 2020* (Sonoma County 2014) identifies the following goal, objective, and policy that are applicable to the proposed project.

Goal PS-3: Prevent unnecessary exposure of people and property to risks of damage or injury from wildland and structural fires.

- **Objective PS-3.3:** Use the Sonoma County Hazard Mitigation Plan to help reduce damages from wildland fire hazards.
    - **Policy PS-3f:** Encourage strong enforcement of State requirements for fire safety by the California Department of Forestry and Fire Protection.

3.12.4 IMPACTS AND MITIGATION MEASURES

STANDARDS OF SIGNIFICANCE

Based on Appendix G of the State CEQA Guidelines, the project would have a significant wildfire impact if it would be located in or near state responsibility areas or lands classified as very high fire hazard severity zones and would:

- substantially impair an adopted emergency response plan or emergency evacuation plan;

[4] A spark arrester is a device constructed of nonflammable materials used specifically to remove and retain carbon and other flammable particles larger than 0.0232 inch from the exhaust flow of an internal combustion engine that uses hydrocarbon fuels or that is qualified and rated by the U.S. Forest Service.

- due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire;

- require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines, or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts on the environment; or

- expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes.

EFFECTS FOUND NOT TO BE SIGNIFICANT

Project-related construction activities and land application of recycled water would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan, because emergency ingress and egress routes would remain open and unblocked during both construction and operation. The proposed project does not include installation or maintenance of associated infrastructure that may exacerbate fire risk or result in temporary or ongoing impacts on the environment. Therefore, these issues are not discussed further in this section.

The proposed project would not result in slope instability or drainage changes that would expose people of structures to significant risks. The City would implement best management practices and comply with regulatory requirements that prohibit application of recycled water on water-saturated or frozen ground; during periods of precipitation such that runoff is induced; or on slopes if runoff cannot be controlled. In accordance with the City's recycled water permit requirements outlined in Chapter 2, "Project Description", users of recycled water would prepare irrigation management plans to ensure that the recycled water would be applied at hydraulic agronomic rates to prevent runoff/ponding. Therefore, this issue is not discussed further in this section.

METHODOLOGY

This analysis of impacts of the proposed project related to wildfire hazards is based on a review of CAL FIRE's Fire Hazard Severity Zone map for Sonoma County (CAL FIRE 2007) and review of the following planning documents:

- *Sonoma County General Plan 2020, Public Safety Element* (Sonoma County 2014);
- *Sonoma County Hazard Mitigation Plan Update* (Sonoma County 2017);
- *Sonoma County Community Wildfire Protection Plan* (Fire Safe Sonoma 2016); and
- *Sonoma-Lake-Napa Unit Strategic Fire Plan* (CAL FIRE 2017).

Additional information regarding fuels, topography, and weather was obtained from Section 3.4, "Terrestrial Biological Resources"; Section 3.5, "Earth Resources"; and Section 3.6, "Air Quality," respectively.

IMPACT ANALYSIS

Impact 3.12-1: Increased Risk of Wildland Fires.

The 2018 Proposed Area west of Westside Road and all of the 2018 Program Expansion Area are within a SRA. CAL FIRE identifies the 2018 Proposed Area as being in a Moderate Fire Hazard Severity Zone and the 2018 Program Expansion Area as being in both a Moderate Fire Hazard Severity Zone and a High Fire Hazard Severity Zone.

The alignments for the proposed 8- and 12-inch recycled water pipeline extensions in the 2018 Project Area, on the east side of Westside Road, are located within a Local Responsibility Area and the probability of wildland fire is low.

The dairy/vineyard property is located within an SRA and rated as a Moderate Fire Hazard Severity Zone (Exhibit 3.12-1). A portion of the recycled water pipeline would be installed within dairy/vineyard property , mostly along an existing access road associated with the dairy/vineyard's dairy facilities. However, a portion of the pipeline would be installed in annual grassland in the eastern portion of the property, near Westside Road, to connect to the dairy/vineyard's recycled water pipeline extension. Additional clearing and grading would occur in this area to facilitate associated infrastructure (i.e., a concrete pad for the pump).

Implementing the proposed project in the 2018 Program Expansion Area would permit an additional 3,540 acres of land to receive recycled water at a future date. However, the only new project-related construction in the 2018 Program Expansion Area would be to extend the proposed 12-inch water supply line to the south along Westside Road, to serve additional future users of recycled water. The 12-inch recycled water pipeline would be installed immediately adjacent to SRA areas rated as a Moderate Fire Hazard Severity Zone (Exhibit 3.12-1). Potential impacts resulting from other future program activities, including the construction of additional facilities within the 2018 Program Expansion area, are expected to have impacts similar to the project-specific activities. Confirmation of the accuracy of the analysis and conclusions provided herein would occur during the design stage of any future projects, and prior to approval.

Wildland fire season in Sonoma County spans May through October as vegetation dries out, humidity levels fall, and offshore winds blow. The use of construction equipment and diesel fuel could pose a wildfire risk because vehicle mufflers, combustion engines, gasoline-powered tools, and other equipment could produce a spark, fire, or flame. The City and its construction contractor would comply with all laws, plans, policies, and regulations related to fire safety and wildfire suppression identified in Section 3.12.3, "Regulatory Background." In addition, the following implementation measure would ensure that the City and its construction contractor would comprehensively apply the requirements identified in the California Public Resources Code during construction.

Implementation Measure 3.12-1: Implement Applicable Requirements of the California Public Resources Code during Construction.

The City of Healdsburg and its construction contractor shall:

- require removal of flammable materials to a distance of 10 feet from any equipment that could produce a spark, fire, or flame on days when burning permits are required (PRC Section 4427);

- provide firefighting equipment, including but not limited to backpack pump-type fire extinguishers filled with water, McLeod fire tools, and a sufficient number of shovels, during the period of highest fire danger (April 1–December 1) (PRC Section 4428); and

- prohibit the use of portable tools powered by gasoline-fueled internal combustion engines within 25 feet of flammable materials when burning permits are required (PRC Section 4431).

Strict adherence to Implementation Measure 3.12-1 would make the construction contractor responsible for monitoring and for implementing safety measures identified in the California Public Resources Code, thereby minimizing any risk of wildfires. Nonetheless, the project would introduce temporary construction activities that may create sparks or flames, representing a potential hazard that would exacerbate the risk of wildfire. Therefore, this impact would be **potentially significant**.

Mitigation Measure S3.12-1: Prepare and Implement a Fire Safety and Management Plan to Minimize Potential for Wildland Fires.

Before any construction permits are issued or construction activity begins, the City shall develop a fire protection plan, which the construction contractor shall implement during construction. The fire safety and management plan shall do all of the following:

- Require that light trucks and cars with factory-installed (type) mufflers be used only on roads where the roadway is cleared of vegetation. These vehicle types shall maintain their factory-installed (type) muffler in good condition.

- Ensure that equipment staging areas and worker parking areas are cleared of all extraneous flammable materials.

- Require that construction personnel be trained and equipped to extinguish small fires to prevent them from growing into more serious threats.

- Provide a list of key names and addresses identifying whom to alert in case of an emergency.

- Prohibit smoking in wildland areas, with smoking limited to paved areas or areas cleared of all vegetation.

Timing/Implementation: Before issuance of construction permits and plan implementation during construction.

Enforcement/Monitoring: City of Healdsburg.

Implementing this mitigation measure would reduce the potential for exacerbation of and exposure to wildland fires to a ***less-than-significant*** level because the City would prepare and implement a fire safety and management plan that would describe emergency fire precautions,

require that construction workers be trained in the use of firefighting equipment, and identify emergency notification procedures.

Subsequent to construction activities, operation of the expanded recycled water program primarily involves the application of irrigation water, which would present no additional risk related to wildfires. Haul trucks transporting recycled water would be limited to public roadways. In accordance with the City's permit requirements, these commercial haulers would be responsible for properly operating and maintaining the recycled water delivery trucks. Therefore, not substantial risk of wildfires is anticipated, and operational impacts would be **less than significant**.

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4 CUMULATIVE IMPACTS

4.1 INTRODUCTION

This SEIR provides an analysis of cumulative impacts of implementing the proposed project, as required by Section 15130 of the State CEQA Guidelines. Cumulative impacts are defined in State CEQA Guidelines Section 15355 as "two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts." A cumulative impact occurs from "the change in the environment which results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time" (State CEQA Guidelines Section 15355[b]).

Consistent with State CEQA Guidelines Section 15130(a), the discussion of cumulative impacts in this SEIR focuses on significant and potentially significant cumulative impacts. State CEQA Guidelines Section 15130(b), in part, provides the following:

> The discussion of cumulative impacts shall reflect the severity of the impacts and their likelihood of occurrence, but the discussion need not provide as great detail as is provided for the effects attributable to the project alone. The discussion should be guided by the standards of practicality and reasonableness, and should focus on the cumulative impact to which the identified other projects contribute rather than the attributes of other projects which do not contribute to the cumulative impact.

The following cumulative impact analysis is provided in conformance with State CEQA Guidelines requirements.

4.2 PROJECTS CONTRIBUTING TO POTENTIAL CUMULATIVE IMPACTS

The State CEQA Guidelines (Section 15130[b]) identify two basic methods for establishing the cumulative environment in which a project is to be considered: the use of a list of past, present, and reasonably anticipated future projects or the use of adopted projections from a general plan or other regional planning document. For this SEIR, the adopted projections from the *Healdsburg 2030 General Plan* and the *Sonoma County General Plan 2020* have been applied.

The *Sonoma County General Plan 2020* (General Plan) was adopted by the County Board of Supervisors on September 23, 2008. The General Plan is the blueprint for land use in unincorporated areas of Sonoma County. It includes maps showing where agricultural, residential, commercial, and other land uses will be located, and a series of policies that guide future decisions about growth, development, and conservation of resources through 2020. The lands included in the proposed 2018 Proposed Area and 2018 Program Expansion Area are designated in the General Plan for predominantly agricultural uses including Land Intensive Agriculture, Land Extensive Agriculture, and Resources and Rural Development. Permitted uses include agricultural production and services, management of natural resources, and very low-density residential development. The Healdsburg Planning Area as provided in the Land Use Element of the General Plan consists of the City of Healdsburg, the Town of Windsor, and the

unincorporated areas sounding these jurisdictions. Total population in this area was projected to grow to 51,460 by 2020, representing annual growth of approximately 1.2 percent over the planning period (Sonoma County 2008).

The potential physical changes from the proposed project activities would occur several miles south of the boundary of the City of Healdsburg. Nevertheless, it is noted that the Healdsburg General Plan EIR indicates that buildout under the General Plan would result in a population increase of 1,768 residents by 2025, for a total population of 13,968 in 2025. Further, the City is projected to retain its relative size within Sonoma County, which is approximately 5 percent of the County's population (City of Healdsburg 2009).

The EIR for the City of Healdsburg General Plan addressed full buildout under both the County General Plan and City General Plan. Future growth within the City and County is anticipated to occur through infill development and changes to the existing land through the conversion of vacant land and low-density uses to higher-density uses, or through conversions of existing land use (e.g., from agricultural to residential) (City of Healdsburg 2009). However, it is reasonably assumed that this future development would be consistent with the applicable general plan policies and zoning ordinances of the respective jurisdictions. The City of Healdsburg General Plan EIR also indicates that buildout under the general plan is projected to add 660 northbound and 689 southbound trips to the segment of U.S. 101 between Old Redwood Highway and Arcata Lane (City of Healdsburg 2009).

Because most of the project impacts identified in Chapter 3 are related to proposed construction activities, this analysis focuses the on the potential cumulative effects that could result from construction activities under general plan buildout, in combination with the proposed project. Potential operational impacts of the proposed project are limited primarily to hydrology and water quality. No other similar projects have been identified that could contribute to the hydrology and water effects analyzed in Chapter. However, in addition to the adopted projections from the general plans described above, potential cumulative impacts related to fisheries resources considers implementation of the Sonoma County Water Agency's Fish Habitat Flows and Water Rights Project (SCWA 2016). This project involves amendments to water rights permits, changes to instream flow requirements to improve rearing habitat and fish migration, and the addition of authorized points of water diversion. The project does not increase or change the quantity of water diverted.

4.3 Cumulative Impact Analysis

The following sections present a discussion of the cumulative impacts anticipated from implementing the proposed project, together with the related projects, for each of the environmental issue areas evaluated in this SEIR.

4.3.1 Land Use Consistency, Agriculture, and Forestry Resources

As with the proposed project, related projects relevant to the cumulative impact analysis have been or would be reviewed by the City and/or County for consistency with policies in the City and County general plans and other plans and for conformance with zoning standards.

As discussed in Section 3.1, Land Use Consistency, Agriculture, and Forestry Resources, aboveground components of the proposed project would be constructed in a rural area outside an established community and would not result in the physical division of an established community. No farmland would be converted to nonagricultural use and no conflict with a Williamson Act contract would result from project implementation. Further, no area affected by the project is not zoned for and does not include forest lands. Thus, the project would have no potential to contribute to a significant cumulative impact involving these issues.

The project-level analysis concluded that the proposed construction and operational activities would not result in any changes to land use and would be consistent with the applicable land use policies; no significant impact would result from project implementation. Therefore, no substantial contribution would occur to any potentially significant cumulative land use impact that would result from buildout under the Sonoma County or City of Healdsburg general plans. ***No significant cumulative impact*** would result from implementing the proposed project.

4.3.2 HYDROLOGY AND WATER QUALITY

Project construction activities in combination with other nearby projects developed in accordance with the *Sonoma County General Plan 2020* have the potential to result in offsite erosion and sedimentation affecting nearby surface waters. However, compliance with the standard NPDES requirements requiring implementation of a SWPPP and/or implementation of stormwater BMPs would serve to limit potential surface water quality impacts during construction, such that no significant cumulative impact would be expected. Furthermore, the limited scale and duration of project construction activities and the application of the applicable BMPs would ensure that the project's contribution to any cumulative impact would not be substantial (i.e., less than cumulatively considerable). No significant cumulative construction impact would occur.

Project operations analyzed in Section 3.2, Hydrology and Water Quality, identified potentially significant impacts on surface water and groundwater quality as a result of application of recycled water for agricultural purposes (irrigation and frost protection). However, no other similar projects have been identified in the project vicinity that have the potential to result in similar effects on groundwater and surface water quality. Therefore, no significant cumulative impact on surface or groundwater quality is anticipated. Further, the implementation of the BMPs provided in the applicable mitigation measures and/or the requirements of the pending Title 22 permit would limit the project's potential to impact surface or groundwater quality, such that no substantial contribution to any cumulative water quality impact would result. ***No significant cumulative impact*** would result from implementing the proposed project.

4.3.3 FISHERIES RESOURCES

As discussed in Section 3.3, Fisheries Resources, as a result of fully complying with the seasonal discharge prohibition, project implementation has the potential to result in a minor decrease in flow volumes in the Russian River during the prohibition period (May 15 to September 30). However, because the resulting decrease in river flow would be less than 1 percent, the analysis determined that the small reduction in river flow is not likely to substantially impact the habitat of special-status species that may be present and would have a negligible effect on fish habitat or migration.

SCWA's Fish Habitat Flows and Water Rights Project identified less-than-significant impacts on fisheries resources related to elevated water temperatures. As detailed in Section 3.3, the reduction in river flow resulting from full implementation of the seasonal discharge prohibition would tend to reduce water temperatures; however, due to the minor reduction in river flow and the more prominent factor of ambient air temperature, any change to water temperature would be negligible. Thus, the project would have no potential to substantially contribute to the anticipated increase in water temperatures resulting from implementing the SCWA project, and the ***no significant cumulative impact*** would result from project implementation. Other fisheries resources impacts associated with the SCWA project were identified as beneficial. Therefore, no other adverse cumulative impacts would result from implementing the proposed project.

4.3.4 TERRESTRIAL BIOLOGICAL RESOURCES

The proposed project would result in direct impacts on approximately 1 acre during construction. The resulting impacts on sensitive plants and animals, in combination with projects implemented in accordance with buildout of the City and County general plans, could result in potentially significant impacts on biological resources. The affected areas within which the proposed project facilities would be constructed primarily include existing vineyard roads and agricultural lands developed with dairy pastures. As discussed under Section 3.4, Terrestrial Biological Resources, Sonoma County imposes various requirements on new development projects that serve to protect biological resources. Various BMPs are codified in the grading and agricultural (vineyards and orchards) ordinance that serve to limit impacts on natural drainages, vegetation, trees, wetlands, and critical habitat. Compliance with these requirements and implementation of the various General Plan policies that serve to protect biological resources would limit the potential for significant project-level impacts, as well as cumulative impacts. Further, adherence to the prescribed mitigation measures detailed in Section 3.3 would further limit the project's contribution to any adverse cumulative impact to a less than cumulatively considerable level. Therefore, ***no significant cumulative impact*** on biological resources would result from implementation of the proposed project.

Operation of the proposed project would occur in accordance with ongoing agricultural practices. No significant project-level or cumulative impact on biological resources would result from project operations.

4.3.5 EARTH RESOURCES

As discussed in Section 3.5, Earth Resources, potential impacts of the project relate to soil erosion, expansive soils, landslides, and paleontological resources. These impacts would either be less than significant, or less than significant with implementation of the mitigation measures. Similar to other related projects that could contribute to potential cumulative effects, review and approval by Sonoma County and other permitting agencies would limit the potential for individual projects to result in adverse impacts related to these issues. Further, to the extent that any adverse impacts result from project implementation, the impact would be highly localized, and limited to the immediately surrounding area. For these reasons, no significant cumulative impact is anticipated. Moreover, the project's contribution to any potentially significant cumulative impact would not be substantial, and ***no significant cumulative impact*** would result from project implementation.

4.3.6 AIR QUALITY

As discussed in Section 4.6, Air Quality, the North Coast Air Basin within which the project facilities and activities are located is in attainment or not classified for all air pollutants regulated under the federal CAA and the CCAA. The contribution of individual projects developed as a result of buildout under the general plans of Sonoma County and the City of Healdsburg is unlikely to emit criteria pollutants in substantial quantities such that the current attainment or unclassified status would change as a result. Therefore, no significant cumulative air quality impact related to criteria pollutants and the implementation of clean air plans is anticipated. Moreover, the estimated emissions from the proposed project would not exceed any established thresholds applicable to the project, and are well below the thresholds established by nearby air districts to protect human health. Thus the project's contribution to any cumulative air quality impact would not be substantial, and ***no significant cumulative impact*** would result from project implementation.

The project-level analysis determined that impacts related to exposing sensitive receptors to pollutants and odors would not be significant, due to the limited scale of project activities and the lack of nearby sensitive receptors. The proposed project when considered with the limited cumulative development in the immediate project area is unlikely to result in any cumulative impact due to the localized nature of these effects. Furthermore, the project would not substantially contribute to any potential cumulative effect. ***No significant cumulative impact*** on on sensitive receptors would result from project implementation.

4.3.7 NOISE

Construction of the proposed project in combination with other construction activities occurring in accordance with the buildout under the *Sonoma County General Plan 2020* would have the potential to result in a significant cumulative impact. However, given the limited scale and duration of project activities, and that no other projects are anticipated to overlap with construction of the proposed project facilities, ***so significant cumulative noise or vibration impact*** would result from project construction.

Long-term noise levels resulting from project operations, including mobile sources and a pump station, represent a negligible contribution to any cumulative noise effects resulting from future development and associated population increases under the County General Plan**.** ***No significant long-term cumulative impact*** would result from project operations.

4.3.8 CULTURAL RESOURCES, INCLUDING TRIBAL CULTURAL RESOURCES

Because individual cultural resources are affected on a site-specific basis, the contribution to cultural resource impacts from implementation of the options would not be cumulatively significant. In addition, the implementation of mitigation measures described in Section 3.8, Cultural Resources, Including Tribal Cultural Resources, would ensure that impacts caused by implementation of the proposed project would be limited such that no substantial contribution to any cumulative impact would result. ***No significant cumulative impact*** would result from project implementation.

4.3.9 TRANSPORTATION

Buildout of the *Healdsburg 2030 General Plan* as analyzed in the General Plan EIR (City of Healdsburg 2009) concluded a significant and unavoidable cumulative impact would result from general plan buildout. Specifically, the contribution resulting from buildout of the City's general plan would add approximately 1,300 p.m. peak hour vehicles to U.S. Highway 101 and would be cumulatively considerable due to the increased delays that would result. As discussed in Section 3.9, Transportation, the project would generate limited vehicle and truck trips during both construction and operation. The limited scale and duration of project construction activities could temporarily exacerbate the identified cumulative impact on U.S. Highway 101, but the contribution would not be substantial and the effect would be temporary. Project operation would involve limited changes to the City's existing maintenance activities and generate a minimal number of vehicle trips. Further, a limited portion of the maintenance-related trips would likely travel along U.S. Highway 101, and the contribution would be negligible. Similarly, extension of the truck hauling program is estimated to result in approximately 10 additional truck trips per day. It is uncertain whether any of these future trips would travel along U.S. Highway 101. However, due to the limited number of daily trips anticipated, the contribution from the project to the identified significant cumulative effect on U.S. Highway 101 would not be cumulatively considerable, and ***no significant cumulative impact*** would result from project operations.

Potential traffic hazards and the effects on emergency access during project construction activities would be limited to the nearby project vicinity, and the associated impacts minimized through implementation of a Traffic Control Plan. Due to the temporary and local nature of these effects, no cumulatively considerable contribution to a cumulative effect is anticipated. ***No significant cumulative impact*** would result from project construction.

4.3.10 GREENHOUSE GAS EMISSIONS

Greenhouse gas impacts are by definition cumulative in nature, as no single project has the potential to result in a significant impact on the global climate. The analysis provided in Section 3.10, Greenhouse Gases, applies a cumulative approach to assessing the project's contribution to an ongoing cumulative impact. As concluded in Section 3.10, the proposed project would not generate substantial GHG emissions or conflict with an applicable plan, policy, or regulation adopted to reduce GHG emissions. Therefore, the project would not substantially contribute to cumulative GHG impacts. ***No significant cumulative impact*** would result from project implementation.

4.3.11 ENERGY

As documented in Section 3.11, Energy, project construction and operational activities would consume a relatively limited amount of energy compared to statewide totals and would do so in a manner that would not be wasteful or inefficient. Moreover, project implementation would reduce the typical energy demand associated with non-recycled water supplies. The project's energy demand would be supplied by City electrical supplies with a high level of renewable and carbon-free content, and would support the City's conservation and sustainability targets. Thus, to the extent that any significant cumulative energy impact would result from buildout under the County or City general plans, that project's contribution to any such impact would not be substantial. ***No significant cumulative impact*** would result from project implementation.

4.3.12 WILDFIRE

The risk of wildfires is well known in the project vicinity. Recent catastrophic wildfires in the project vicinity and elsewhere in the State of California have highlighted the need for proper planning and precautionary measures to limit wildfire risks. Identifying the specifics of any cumulative wildfire impact would require a degree of speculation. However, it can be reasonably assumed that future wildfires remain possible under cumulative conditions (i.e., buildout under the County and City general plans), and that the resulting effects would be significant. The project-level analysis determined that construction of the proposed facilities would result in a potentially significant impact related to wildfires. However, implementation of Mitigation Measure S3.12-1 detailed in Section 3.12, Wildfire, would reduce the project's impact to less-than-significant. Similarly, implementation of this mitigation measures and adherence to the applicable requirements of the California Public Resources Code would limit the project's contribution to any significant cumulative wildfire impact to a level that would not be cumulatively considerable (i.e., not a substantial contribution). Therefore***, no significant cumulative impact*** is anticipated as result of project implementation.

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5 ALTERNATIVES

5.1 INTRODUCTION TO ALTERNATIVES

The State CEQA Guidelines require that EIRs "describe a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives" (Section 15126.6[a]). The range of alternatives is governed by the "rule of reason," requiring evaluation of only those alternatives "necessary to permit a reasoned choice" (Section 15126.6[f]). The choice of alternatives shall be "limited to ones that would avoid or substantially lessen any of the significant effects" of implementing the proposed project (Section 15126.6[f]). CEQA further provides that an EIR "need not consider an alternative whose effect cannot be reasonably ascertained and whose implementation is remote and speculative" (Section 15126.6[f][3]). In addition to the principles for the selection of alternatives described above, CEQA further requires that an EIR (1) identify alternatives that were initially considered but then rejected from further consideration (Section 15126[c]) and (2) identify the "environmentally superior" alternative (Section 15126[e]).

CEQA requires that, among other alternatives, a "no project" alternative shall be evaluated in relation to the proposed project (State CEQA Guidelines Section 15126.6[e]). Moreover, the "no project" analysis must "discuss the existing conditions at the time…environmental analysis is commenced, as well as what would be reasonably expected to occur in the foreseeable future if the project were not approved, based on current plans and consistent with available infrastructure and community services" (State CEQA Guidelines Section 15126.6[e]).

As described in Chapter 1, Introduction, the City is under a mandate to avoid discharges from the Water Reclamation Facility (WRF) between May 15 and September 30 of each year. The proposed project is detailed in Chapter 2, Project Description. As identified in Table ES-1, Summary of Impacts and Mitigation Measures, and the individual impact analyses provided for each resource topic in Chapter 3 of this SEIR, construction and/or operation of the proposed project would result in potentially significant but mitigable environmental impacts in the following areas:

- Impact 3.2-1: Degradation of Surface Water Quality from the Use of Recycled Water for Landscape and Agricultural Irrigation
- Impact 3.2-2: Degradation of Surface Water Quality from the Use of Recycled Water for Agricultural Frost Protection
- Impact 3.2-3: Degradation of Groundwater Quality from the Use of Recycled Water for Landscape and Agricultural Irrigation
- Impact 3.2-4: Degradation of Groundwater Quality from the Use of Recycled Water for Agricultural Frost Protection
- Impact 3.2-5: Degradation of Surface Water Quality during Construction
- Impact 3.4-1: Impacts on Special-Status Plants

- Impact 3.4-2: Temporary Loss or Indirect Loss of Habitat for California Red-Legged Frog , Foothill Yellow-Legged Frog, and Western Pond Turtle
- Impact 3.4-3: Impacts on California Red-Legged Frog, Foothill Yellow-Legged Frog, and Western Pond Turtle
- Impact 3.4-4: Impacts on Nesting Raptors
- Impact 3.4-7: Impacts on Trees Subject to Sonoma County Valley Oak Habitat Combining District
- Impact 3.4-8: Impacts on Jurisdictional Waters of the United States, Wetlands, and Riparian Habitat
- Impact 3.4-9: Impacts on Sensitive Natural Communities
- Impact 3.5-2: Construction-Related Erosion
- Impact 3.5-3: Location of the Project on an Unstable Geologic Unit or Soil
- Impact 3.5-4: Location of the Project on Expansive Soil
- Impact 3.5-5: Potential Damage to or Destruction of Unique Paleontological Resources
- Impact 3.6-2: Cumulatively Considerable Net Increase in a Criteria Pollutant for Which the Region is in Nonattainment.
- Impact 3.7-1: Generation of Temporary Construction Noise Levels
- Impact 3.8-1: Potential Impacts on Documented Cultural Resources and Tribal Cultural Resources
- Impact 3.8-2: Potential Impacts on Undocumented Cultural Resources and Tribal Cultural Resources
- Impact 3.8-3: Potential to Affect Unrecorded Human Remains
- Impact 3.9-3: Substantial Increase in Hazards Due to a Geometric Design Feature (e.g., Sharp Curves or Dangerous Intersections) or Incompatible Uses (e.g., Farm Equipment)
- Impact 3.9-4: Inadequate Emergency Access as a Result of Project Construction Activities
- Impact 3.12-1: Increased Risk of Wildland Fires

No significant and unavoidable impacts have been identified as a result of implementing the proposed project.

5.2 APPROACH TO ALTERNATIVES ANALYSIS

As described in Chapter 2, Project Description, the objectives of the proposed project are:

- Meet North Coast RWQCB order requirement to avoid discharges to the Russian River during the annual period of May 15 through September 30.
- Expand the beneficial use of the reclaimed water via landscape irrigation, agricultural irrigation, and construction uses.
- Promote the perseveration and protection of existing groundwater and surface water sources.

The City used these CEQA project objectives as criteria to screen the alternatives that should be considered in this SEIR, and to determine whether the alternatives would avoid or substantially lessen any of the significant environmental impacts of the project (see Table ES-1 and Chapter 3). Alternatives to the proposed project that would construct facilities in alternate locations or provide beneficial reuse of the recycled water at different locations were considered in this evaluation. A *Compliance Feasibility Investigation* was prepared by the City that identified and compared alternatives to divert recycled water from being discharged during the prohibition period (City of Healdsburg 2018). In addition to the No Project alternative, the following alternatives were evaluated in the Feasibility Investigation:

- Agricultural Beneficial Reuse
- Urban Beneficial Reuse
- Geysers Pipeline Connection
- Stream Flow Augmentation

Agricultural Beneficial Reuse: This is the proposed project described in Chapter 2 of this SEIR.

Urban Beneficial Reuse: This alternative would provide recycled water for irrigation of parks, school play fields, and a cemetery. This alternative would require construction of approximately 16,800 feet of 12-inch-diameter recycled water pipeline, and 6,600 feet of 8-inch-diameter recycled water pipeline. The total volume of tertiary-treated water diverted into the recycled water system would reduce discharges from the WRF by approximately 33 MG annually.

Geysers Pipeline Connection: This alternative would divert the tertiary-treated water from the WRF into an existing 60-inch-diameter pressurized pipeline that conveys water to an injection well field located north and east of the City. The water from this well is used to produce geothermal steam that in turn produces electricity. To make a connection to the Geysers Pipeline, the City would need to construct approximately 200 feet of 8-inch-diameter pipeline and construct and operate a new booster pump station to force the recycled water into the pipeline. It is anticipated that connection to the Geysers Pipeline would be sufficient to use the entirety of the City's recycled water, some of which may be already allocated to irrigation reuse.

Stream Flow Augmentation: Under this alternative, the City would use its recycled water as a beneficial reuse to augment stream flow in the Russian River. This alternative would aid the Sonoma County Water Agency (SCWA) in retaining volume in Lake Mendocino during the summer months to allow for releases of colder water later in the year to benefit fish species.

Under this alternative, the City could return its treated effluent to the Russian River; the return flow would offset flows retained in Lake Mendocino while still maintaining flow downstream for recreation, municipal, and/or irrigation uses. It is anticipated that stream flow augmentation to the Russian River would be sufficient to use the entirety of the City's recycled water above what is already allocated to irrigation reuse.

As detailed below in Section 5.5, of these alternatives, only the Geysers Pipeline Connection would meet the basic objective of fully avoiding discharges to the Russian River during the seasonal prohibition period of May 15 through September 30. Therefore, of the potential action alternatives described above, only the Geysers Pipeline Connection alternative has been carried forward for analysis.

5.3 ENVIRONMENTAL IMPACTS OF ALTERNATIVES

To avoid unnecessary redundancy in the analysis, summary statements have been provided whenever possible to indicate whether the impacts of the alternatives are greater than, similar to, or less than those of the proposed project as evaluated in Chapter 3.

5.3.1 NO PROJECT ALTERNATIVE

DESCRIPTION

Under the No Project alternative, the facilities and activities described in Chapter 2, Project Description, would not be implemented. However, as described in the *Compliance Feasibility Investigation*, the No Project alternative would include additional facilities and an expansion of existing recycled water activities. Specifically, the No Project alternative includes additional storage at the WRF that would add approximately 15 MG to the recycled water storage capacity at the WRF. These additional storage facilities are currently under design and involve lining the process ponds at the WRF that were retired in 2008. Construction of the additional recycled water storage at the WRF is expected to be completed by the end of 2019. The total storage capacity at the WRF would increase from 25 MG to approximately 40 MG when complete. As a result, additional tertiary-treated water could be stored during the seasonal prohibition period and subsequently discharged outside of the prohibition period.

Aside from the additional storage to be provided in lined ponds, the No Project alternative would maintain the status quo of the existing recycled water facilities. At present, the City has built approximately 5,000 feet of 12-inch-diameter and 15,000 feet of 16-inch-diameter transmission mains as well as 20 turn-outs (service points) to deliver recycled water. This extent of infrastructure allows recycled water to reach approximately 960 acres of active vineyard and a few acres of non-vineyard agriculture. Thus, it is anticipated that additional customers could be added utilizing existing infrastructure, such that additional tertiary-treated water from the WRF could be diverted from discharge into the Basalt Pond (Russian River) and into the recycled water system.

Under the No Project alternative, the current program authorizing truck hauling of recycled water for irrigation would cease at the end of 2020. Consistent with state law, trucking of recycled water for construction activity would continue indefinitely.

According to the *Compliance Feasibility Investigation*, based on the existing and approved activities of the City's recycled water program, the volume of tertiary-treated water diverted from discharge into the Basalt Pond under the No Project alternative is estimated to be approximately 100 MG. To comply with the seasonal discharge prohibition, the City will need to divert approximately 138 MG in the near term and 193 MG in the long term. Because this alternative would not divert sufficient amounts of tertiary-treated water into storage or into the recycled water system, discharges of tertiary-treated water from the WRF into the Basalt Pond during the seasonal prohibition period would continue under the No Project alternative.

ENVIRONMENTAL IMPACTS

Land Use Consistency, Agriculture, and forestry resources

Under this alternative, no new recycled-water facilities would be constructed, but some new customers could be added to the existing recycled water program utilizing existing facilities. Construction of the lined ponds at the WRF would not have land use impacts on adjacent areas. Expanding the use of recycled water via existing facilities would have no significant impact on land use, agriculture, or forestry resources. Because no significant impacts related to these issues were identified in Chapter 3, the impact under the No Project alternative would be substantially similar to the proposed project.

Hydrology and Water Quality

The limited construction that would occur under the No Project alternative to line the ponds at the WRF would result in similar temporary, construction-related effects as the proposed project. Because the No Project alternative would not divert the full volume of recycled water from the WRF required to comply with the seasonal discharge prohibition, effluent would continue to be discharged to the Basalt Pond. However, because no change to the baseline water quality and hydrology conditions of the Russian River would occur under the No Project alternative, no CEQA impact would result. However, this alternative would not comply with the North County RWQCB seasonal discharge prohibition, which was established to address concerns about water quality of the Russian River.

The No Project alternative is expected to expand the use of recycled water for irrigation purposes by adding new customers via existing facilities. Therefore, the No Project alternative would have similar impacts on surface and groundwater quality identified for the proposed project, but potentially of less magnitude since less water would be supplied for irrigation. Irrigation activities under the No Project alternative would be subject to similar BMPs as the proposed project, which would result in a less-than-significant impact. As presented in Chapter 3, the impact of the proposed project with BMPs imposed as mitigation or as permit conditions would also be less than significant.

Fisheries Resources

Under the No Project alternative, the City would utilize existing facilities to maximize the volume of water diverted for irrigation and/or maximize storage of treated effluent during the seasonal prohibition period. Thus, similar to the propose project, the volume of Russian River flows would decrease compared to existing conditions due to the reduced discharges of tertiary-treated water into the Basalt Pond. However, the reduction in flow volume under the No Project alternative

would be less than under the proposed project, which is expected to ultimately achieve 100 percent of the required Basalt Pond discharge avoidance. Regardless, no significant fisheries resources impacts are anticipated to occur under the proposed project. Therefore, the impacts of the No Project alternative would be substantially similar to the proposed project.

Terrestrial Biological Resources

Construction under the No Project alternative would be limited to lining the existing ponds at the WRF. No significant impact on biological resources would be anticipated under the No Project alternative, as compared to the potentially significant impact on biological resources resulting from construction of the proposed project facilities. However, as noted in Chapter 3, the project's impact on biological resources would be reduced to less-than-significant with implementation of mitigation measures.

Earth Resources

The limited construction that would occur under the No Project alternative to line the existing ponds at the WRF would not be expected to result in an adverse effect related to geologic or soils hazards. The limited construction that would occur under the No Project alternative to line the existing ponds at the WRF would not be expected to affect paleontological resources, given the previously disturbed nature of the site and the fact that additional excavation of the ponds would not be necessary. Therefore, no significant impact would occur. In comparison, various potentially significant impacts would occur as a result of the proposed project, which would be reduced to a less-than-significant level with implementation of mitigation measures.

Air Quality

Relatively limited construction would occur under the No Project alternative, resulting in similar air quality impacts as the proposed project. The related operational activities would also be generally similar in scale as the proposed project, resulting in substantially similar operational impacts.

Noise

The limited construction that would occur under the No Project alternative to line the existing ponds at the WRF and the relatively remote location would not be expected to result in a significant noise impact during construction. In comparison, the potentially significant construction noise impact resulting from the proposed project would be mitigable to a less-than-significant level. Operational activities under both the No Project alternative and the proposed project would be similar, each resulting in no significant noise effects.

Cultural Resources, Including Tribal Cultural Resources

The limited construction that would occur under the No Project alternative to line the existing ponds at the WRF would not be expected to affect cultural resources, given the previously disturbed nature of the site. Therefore, no significant impact on cultural resources is anticipated. In comparison, the proposed project would result in potentially significant impacts on cultural resources, but these impacts would be mitigated to a less-than-significant level.

Transportation

Limited construction activity would occur under the No Project alternative to line the existing ponds at the WRF. Given the relatively remote nature of the site, the potentially significant traffic hazards and emergency access impacts identified under the proposed project would be avoided. However, implementation of mitigation measures identified in Chapter 3 would reduce the proposed project's impacts to less than significant.

Greenhouse Gas Emissions

The No Project alternative would involve limited construction activities and a modest increase in the volume of recycled water diverted for irrigation purposes. Because the magnitude and intensity of activities under the No Project alternative generally would be less than under the proposed project, GHG emissions would be reduced. However, the analysis provided in Chapter 3 indicates that no significant GHG impact would result from implementation of the proposed project. Therefore, the project impacts would be substantially similar to impacts under the No Project alternative.

Energy

Under the No Project alternative, the limited construction activities and modest increase in the volume of recycled water diverted for irrigation purposes would increase the demand for energy. However, similar to the project, the use of energy would not be considered wasteful or inefficient. And, as analyzed in Chapter 3, no significant energy impact is anticipated as a result of the proposed project. The impact under the No Project alternative and proposed project would be substantially similar.

Wildfire

Limited construction is anticipated under the No Project alternative. However, construction activities under the No Project alternative would not occur in or near a State Responsibility Area or within a high fire severity zone. Therefore, the potential for wildfire impacts during construction would be reduced compared to the proposed project. Regardless, as with the proposed project, adherence to required safety measures under the No Project alternative would limit any potential construction-related fire impact.

Ability to Accomplish Project Objectives

The No Project alternative would not attain the basic project objective of fully avoiding discharges during the seasonal prohibition period. The No Project alternative would not comply with the terms and conditions of the City's NPDES permit or cease and desist order. The No Project alternative would partially meet the objectives to expand the use of recycled water and promote the conservation of existing groundwater sources.

5.3.2 GEYSERS PIPELINE CONNECTION

DESCRIPTION

The Geysers Pipeline is an existing 60-inch-diameter transmission main that passes the west side of the City. The Geysers Pipeline was constructed under a project led by the City of Santa Rosa. Water in the Geysers Pipeline is currently pumped to a well field in the mountains north and east of the City of Healdsburg, where CalPine, Inc. injects the treated wastewater into wells and recovers geothermally-produced steam to generate electrical power. Because of the long distance and the increase in elevation of the wellfield compared to the City, the pressure in the pipeline near the City is approximately 600 pounds per square inch (psi).

Under this alternative, the recycled water from the City's WRF would be conveyed to the Geysers Pipeline for injection into groundwater wells. To make a connection to the Geysers Pipeline, the City would need to construct approximately 200 feet of 8-inch-diameter pipeline and construct and operate a new booster pump station to force the recycled water into the pipeline.

It is anticipated that connection to the Geysers Pipeline would be sufficient to use the entirety of the City's recycled water, some of which may be already allocated to irrigation reuse.

ENVIRONMENTAL IMPACTS

Land Use Consistency, Agriculture, and forestry resources

Under this alternative, no new recycled water facilities would be constructed and no new water customers would be added to the existing recycled water program. The approximately 200 feet of 8-inch pipeline and a booster pump station would have no potentially significantly impact on land use, agriculture, or forestry resources, due to the limited disturbance and remote location. However, because no significant impacts related to these issues were identified for the proposed project, the impact under this alternative would be substantially similar to the proposed project.

Hydrology and Water Quality

The limited construction that would occur under this alternative would result in similar temporary, construction-related effects as the proposed project, but substantially decreased in magnitude. Because this alternative does not involve the application of recycled water for irrigation, the potentially significant project impacts on groundwater and surface water quality would be avoided. However, as presented in Chapter 3, these potentially significant project impacts would be reduced to less-than-significant with the implementation of BMPs imposed as either mitigation or as permit conditions.

Fisheries Resources

Under this alternative, the City would divert the entire volume of treated water currently discharged to the Russian River, in full compliance with the seasonal discharge prohibition. Thus, the potential impacts on the Russian River due to the reduction in flow volume would be substantially similar, to those anticipated under the proposed project as detailed in Chapter 3. As noted in that analysis, the impact of the proposed project, and therefore of this alternative, would not be significant.

Terrestrial Biological Resources

Construction under this alternative would be limited to the approximately 200 feet of pipeline and a new booster pump station. While there is a potential for significant impacts on biological resources, this alternative would result in a substantial decrease in those impacts compared to the proposed project due to the limited scale of construction activities. However, as noted in Chapter 3, the project's impact on biological resources would be reduced to less-than-significant with the implementation of mitigation measures.

Earth Resources

The limited construction activities that would occur under this alternative would result in similar temporary, construction-related effects related to geology, soils, and paleontological resources as the proposed project, but substantially decreased in magnitude. However, the various potentially significant impacts anticipated to occur under the proposed project would be reduced to less-than-significant with implementation of mitigation measures.

Air Quality

The relatively limited construction that would occur under this alternative would result in a substantial decrease in air quality emissions as compared to the proposed project. As detailed in Chapter 3, the potentially significant air quality impact of project construction would be reduced to less-than-significant with implementation of mitigation measures.

Noise

The limited construction activity under this alternative and the relatively remote location would not be expected to result in a significant noise impact during construction, and thus would reduce the anticipated construction impact of the proposed project. However, the potentially significant construction noise impact resulting from the proposed project would be mitigated to less-than-significant. As with the proposed project, no significant noise impact would be anticipated under this alternative.

Cultural Resources, Including Tribal Cultural Resources

The limited construction that would occur under this alternative would substantially reduce the potential for adverse impacts on cultural resources compared to those identified for the proposed project. However, the proposed project's potentially significant impacts on cultural resources would be mitigated to less than significant.

Transportation

Given the limited construction activity that would occur under this alternative, along with the relatively remote nature of the site, the potentially significant traffic hazards and emergency access impacts identified for the proposed project would be avoided. However, implementation of mitigation measures identified in Chapter 3 would reduce the proposed project's impacts to less than significant.

Greenhouse Gas Emissions

This alternative would involve relatively limited construction activities compared to the proposed project, resulting in decreased GHG emissions under this alternative. However, the analysis provided in Chapter 3 indicates that no significant GHG impact would result from implementation of the proposed project.

Energy

Under this alternative, the limited construction activities would result in an increased demand for energy, but substantially less than under the proposed project. The booster pump station that would be constructed and operated under the proposed project and this alternative would increase energy demand; however, this alternative would facilitate the production of renewable energy. As with the proposed project, the use of energy would not be considered wasteful or inefficient, and a significant energy impact would not occur under this alternative or the proposed project.

Wildfire

The facilities under this alternative are not located in or near a State Responsibility Area or within a designated high fire severity zone. Therefore, no potential for significant wildfire impacts would result. Moreover, limited construction is anticipated under this alternative, and the reduced scale of construction activities would result in a proportionate decrease of fire risk. Therefore, this alternative would avoid the potentially significant wildfire impacts identified for the proposed project. With mitigation, the proposed project impact would be reduced to less than significant, but the project impact is still considered greater compared to this alternative. As with the proposed project, this alternative would adhere to required safety measures that limit the potential to result in fires during construction.

5.4 ALTERNATIVES CONSIDERED INFEASIBLE AND ELIMINATED FROM DETAILED CONSIDERATION

5.4.1 URBAN BENEFICIAL REUSE – GOLF TURF AND MUNICIPAL TURF

The Urban Beneficial Reuse alternative would bring recycled water into the City via a piped transmission main. Reuse would be focused on large, municipally-controlled turf areas. The targeted areas include parks, school play fields, and the cemetery. The golf course is the only area that uses raw water for irrigation instead of treated, potable water. To serve the urban municipal needs, the recycled water transmission main would be extended into the center of the City. Approximately 16,800 feet of 12-inch-diameter recycled water pipeline would be constructed along Matheson Street to serve the Tayman Park golf course, which would reuse approximately 23 MG of treated water for irrigation on an annual basis.

The municipal turf areas include parks, school playfields, and cemeteries that encompass approximately 27 acres. To serve these areas, an additional 700 feet of 4-inch-diameter recycled water conveyance pipeline would be needed to serve Badger Park. To serve the schools and cemetery, approximately 6,600 feet of 8-inch-diameter recycled water pipeline would be required

in University Street. An additional 11 MG could be diverted for urban municipal reuse through these facilities.

The cost to construct the required facilities to support implementation of this alternative was estimated to be approximately $18 million, resulting in a cost per MG of water diverted of approximately $300,000 to $350,000.

The City irrigates parks and playfields with potable water; the golf course is irrigated with raw water. The parks and playfields are managed by the Community Services Department, which purchases water from the City's Electric, Water, and Wastewater Department. The Water Department has experienced a decline in revenue because of reduced water sales overall due to drought conditions in recent years. Water consumption has not returned to pre-drought levels, largely due to the efficacy of water conservation measures. Consequently, revenues have not returned to pre-drought levels. The removal of the parks and playfields from the water sales would further reduce the water utility revenues. Due to this loss of revenue, construction costs, and limited potential to meet the City's need to comply with the seasonal discharge prohibition, the Urban Beneficial Reuse alternative is eliminated from further consideration.

5.4.2 Stream Flow Augmentation

Under this alternative, the City would use the recycled water from the WRF as a beneficial reuse by augmenting the flow of the Russian River. SCWA, in conjunction with the U.S. Army Corps of Engineers (USACE, controls the release of water from Lake Mendocino at the Coyote Valley Dam). The Russian River Biological Opinion (BiOP), prepared by SCWA and USACE, indicates that cooler water released later in the year is beneficial to fish species, particularly endangered salmonids. SCWA has proposed reducing flows in the Russian River to maintain deeper cooler water in Lake Mendocino into late summer/early fall. SCWA has prepared a draft environmental impact report for these low river flow practices (SCWA 2016).

To aid SCWA in retaining volume in Lake Mendocino during the summer months, the City could return its treated effluent to the Russian River. The return flow would offset flows retained in Lake Mendocino while still maintaining flow downstream for recreation, municipal use, and/or irrigation uses.

It is anticipated that stream flow augmentation to the Russian River would be sufficient to use the entirety of the City's recycled water above that already allocated to irrigation reuse.

Stream Flow Augmentation is anticipated to require no additional infrastructure. However, a change in the Basin Plan (North Coast RWQCB 2001) would be required. Recycled water has been identified by the California Governor as a valuable resource. However, under the current Basin Plan, tertiary-treated recycled water is considered a waste, for which the RWQCB enforces a discharge prohibition from May 15 through September 30. Therefore, this alternative is not feasible because it would require regulatory changes related to the classification and reuse of treated wastewater, at both the state and local levels, in order to implement. These changes would take many years, and may never, in fact, occur. A cost of $250,000 was assumed in the City's *Compliance Feasibility Investigation* to address the administrative effort that may be required to gain approval for stream flow augmentation. Stream flow augmentation may be permissible by the RWQCB if advanced treatment updgrades were implemented. This alternative is discussed immediately below.

5.4.3 ADVANCED WASTEWATER TREATMENT WITH REVERSE OSMOSIS OPTION

This alternative would involve upgrades to the existing WRF facilities to provide additional wastewater treatment improvements and further reduce the concentrations of wastes in wastewater treatment plant effluent. Reverse osmosis (RO) treatment technology can reduce total dissolved solids (TDS) and other contaminants in municipal wastewater. RO technology consists of high-pressure pumps that force wastewater through permeable membranes that effectively filter out the majority of contaminants such as TDS, pathogens, organic matter, and dissolved ions. RO systems operate most effectively on wastewater that has passed through microfiltration to remove the majority of filterable solid material. The water that does not pass through the membranes contains all of the inorganic salts and other contaminants that were rejected by the membranes. This high salt content brine must be further treated or disposed. The generation of brine in RO systems typically ranges in volume from 10 to 20 percent of the original wastewater inflow volume. Therefore, RO systems require an alternative means of disposal for the relatively large volume of brine. The opportunities for brine disposal could include evaporation ponds, solar ponds coupled with power generation facilities, deep well injection, or pipeline/hauling of brine to an acceptable surface water disposal site such as an ocean disposal outfall. Estimated capital costs for an RO plant would be $20 to $25 million. The annual operating costs for the RO facilities would be about $600,000. These cost are taken from the 2005 EIR and have not been updated for inflation.

An RO system would meet the basic project objectives and would help ensure very low constituent concentrations in all effluent produced. However, the development of RO technology is considered infeasible because of the much higher costs (even based on 2005 estimated capital cost) than conventional treatment and indirect environmental impacts associated with brine waste disposal. In addition, the high-capacity and high-pressure pumping systems require much larger quantities of energy than conventional wastewater treatment methods.

5.5 ENVIRONMENTALLY SUPERIOR ALTERNATIVE

The State CEQA Guidelines require identification of an environmentally superior alternative from among the proposed project and the alternatives evaluated. The No Project alternative would be environmentally superior to the proposed project as it would avoid or reduce most of the potentially significant project impacts identified in Chapter 3. However, the No Project alternative would not meet the City's primary objective of complying with the seasonal discharge prohibition, or fully meet the objectives of expanding the beneficial reuse of recycled water and preserving groundwater supplies.

Of the action alternatives evaluated in detail, the Geysers Pipeline Connection alternative would be superior to the proposed project because it would avoid or substantially lessen the impacts anticipated under the proposed project. This alternative would meet the primary objective of compliance with the seasonal discharge prohibition in the short term and long term. However, it would not meet the additional project objective to "expand the beneficial use of reclaimed water via landscape irrigation, agricultural irrigation, or construction uses" or fully meet the project objective to "promote the preservation and protection of existing groundwater and surface water sources." Further, it is not clear if the anticipated costs of this alternative would make it infeasible. According to the *Compliance Feasibility Investigation*, the estimated cost to implement this alternative is approximately $30 million, which includes about $3 million to construct the booster

pump station, and about $27 million for a proportionate share of the capacity cost of the existing pipeline. Given these costs, the proposed project is considered more feasible to implement than the Geysers Pipeline Connection alternative. In addition, the proposed project would fully meet the project objectives.

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6 OTHER CEQA-REQUIRED ANALYSIS

6.1 GROWTH-INDUCING IMPACTS

As required by CEQA, an EIR must discuss the ways in which the proposed project could directly or indirectly foster economic or population growth or the construction of additional housing and how that growth could, in turn, affect the environment (State CEQA Guidelines Section 15126[d). Growth can be induced in a number of ways, including by eliminating obstacles to growth and stimulating economic activity outside of the project. Potential growth inducement attributable to the proposed project would be related to the potential for increased availability of potable groundwater (resulting from replacement with recycled water for agricultural purposes) for other urban uses that could contribute to growth. In contrast, because recycled water is not suitable for consumption, no direct increase in population or housing would result from implementation of the proposed project-specific and programmatic components described in Chapter 2, Project Description.

Under CEQA, induced growth is not necessarily considered beneficial or detrimental. Induced growth is considered a significant impact only if it directly or indirectly affects the ability of agencies to provide needed public services or if it can be demonstrated that the potential growth could, in some other way, have a significant adverse effect on the environment.

As described in Chapter 2, the proposed project would expand the City of Healdsburg's Recycled Water Program to achieve compliance with the prohibition of discharges from the City's Water Reclamation Facility between May 15 and September 30. This would be achieved by increasing the total acreage where recycled water could be applied for irrigation, and expanding the types of crops that would be permitted under the program. As part of the 2018 Proposed Area, two recycled water transmission pipelines and a distribution system would be constructed, and as part of the 2018 Program Expansion Area, one recycled water transmission pipeline could be extended in the future. These improvements would facilitate the diversion of up to 73 million gallons annually into the recycled water system.

The recycled irrigation water provided by the project would primarily replace and conserve groundwater sources currently utilized as irrigation water and provided by groundwater wells. The current and proposed permitable uses of recycled irrigation water provided by the project can only be for urban landscape irrigation; agricultural uses including crop and vineyard irrigation, livestock watering, and frost protection; and construction purposes.

To the extent that recycled water replaces the consumption of potable groundwater sources, the physical supply of potable water in the project area would increase. Any increase in the potable water supply could remove physical a limit to growth. Based on average per-capita consumption data (City of Healdsburg 2017), the conservation of up to 73 million gallons of potable water annually would be sufficient to supply new development equivalent to several hundred new homes. However, several factors serve to limit the potential for the project to directly or indirectly induce growth.

First, most of the potable groundwater conserved would be available to a limited number of properties in the direct vicinity of the affected groundwater wells, and the additional supplies

would not be available for local or regional distribution. This factor would limit the potential for growth inducement resulting from any increased availability of potable groundwater supplies.

Second, development throughout the project area is controlled by existing land use regulations that limit unplanned growth. As described in Section 3.1, Land Use, most of the 2018 Proposed Area and 2018 Program Expansion Area are designated for agricultural or rural land uses by the Sonoma County General Plan and implementing zoning ordinance. As further analyzed in Section 3.1, Land Use, the proposed project activities are not anticipated to result in any substantial changes to existing land uses in the 2018 Proposed Area, 2018 Program Expansion Area, or Haul Area.

Finally, while the State of California and project region have been subject to recent droughts, water supplies have not been sufficiently limited such that new development has been precluded in the project region based on the lack of available potable water supply. Specifically, according to Sonoma County's *Urban Water Management Plan*, the water agency has adequate predicted supply through the year 2040, including through forecast dry years (SCWA 2016). Thus, an increase in the availability of potable water supplies resulting from project implementation is not likely to remove a physical limit to growth.

For the reason stated above, no substantial growth inducement is anticipated to result from project implementation, and the impact would be less than significant.

6.2 Significant and Unavoidable Impacts

CEQA requires that an EIR identify any significant impacts that cannot be reduced to a less-than-significant level through mitigation (State CEQA Guidelines Section 15126.2[b] and Public Resources Code Section 21000[b]). As detailed in Chapter 3, all potentially significant impacts of the project would be reduced to a less-than-significant level with the implementation of recommended mitigation measures. Thus, no significant and unavoidable impacts are anticipated as a result of project implementation.

6.3 Significant Irreversible Environmental Changes

The State CEQA Guidelines Section 15126(c) require that an EIR identify significant irreversible changes that would be caused by project implementation. Irreversible environmental changes are primarily related to the use of nonrenewable resources and the effects that this use could have on future generations. Irreversible effects result primarily from the use or destruction of a specific resource such as energy and minerals that cannot be replaced within a reasonable time frame.

Project-related construction would involve only minor amounts of energy and fuels for the proposed irrigation pipelines and booster pump station. Most of the project-related construction activities would occur in existing road right-of-ways, and therefore would not result in an irreversible loss of agricultural land or habitat. Furthermore, as detailed in Chapter 3, all potentially significant impacts of the project within the 2018 Proposed Area, 2018 Program Expansion Area, and Haul Area would be reduced to a less-than-significant level with the implementation of recommended mitigation measures. Thus, no significant irreversible environmental changes are anticipated as a result of project implementation.

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