DRAFT INITIAL STUDY AND
MITIGATED NEGATIVE DECLARATION

PLANADA COMMUNITY SERVICES DISTRICT

WASTEWATER COLLECTION SYSTEM UPGRADE



PLANADA

APRIL 2019

DRAFT INITIAL STUDY AND MITIGATED NEGATIVE DECLARATION

PLANADA WASTEWATER COLLECTION SYSTEM UPGRADE

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Project #PL160350

NOTICE OF PUBLIC HEARING AND INTENT TO ADOPT A MITIGATED NEGATIVE DECLARATION

PLEASE BE ADVISED that the Planada Community Services District (CSD) Board of Directors will consider adopting the Mitigated Negative Declaration at a meeting of the Board tentatively to be held on Tuesday, May 28, 2019, or as soon thereafter as may be possible. The meeting will be held at 6:30 PM in the Planada Community Services District office at 103 Live Oak Street, Planada, CA 95365.

Project Name

Planada Wastewater Collection System Upgrade

Project Location

The unincorporated Community of Planada in Merced County.

Project Description

The CSD has proposed sewer line improvements that will address aging infrastructure and prevent unsanitary conditions for the Community and surrounding area (Project). The improvements to the sewer line consist of a combination between the Traditional Method and the Trenchless Methods such as pipe bursting or cured-in-place pipe. The Community currently operates 28,867 linear feet of sewer line. Possibly all segments may require replacement or repair, but it is anticipated that only specific segments of the network will need replacement. Most of the repair is anticipated to occur in-ground, which does not necessitate excavation. These portions will be abandoned in-place and capped at both ends, with new pipe installed parallel to the existing pipelines. The complete removal of old pipes would be unnecessary and cost prohibitive, so the only pipes that would be removed would be short segments that intersect with newly installed pipelines. Construction would begin in 2019 and will be undertaken in phases yet to be determined, but likely will occur every two to three years over a maximum ten-year duration, depending on available funding.

The document and documents referenced in the Initial Study/Mitigated Negative Declaration are available for review at the Planada Community Services District office at 103 Live Oak Street, Planada, CA 95365, and at the Merced County Library – Merced Branch located at 2100 O Street, Merced, CA.

As mandated by the California Environmental Quality Act (CEQA), the public review period for this document is 30 days (CEQA Section 15073[b]). The public review period began on April 26, 2019 and ends on May 28, 2019. For further information, please contact Desmond Johnston at (209) 723-2066.

Table of Contents

Acronyms and Abbreviations ..... *iii*

Mitigated Negative Declaration *1*

SECTION 1 - Introduction *1-1*

1.1 - Overview 1-1
1.2 - California Environmental Quality Act 1-1
1.3 - Impact Terminology 1-1
1.4 - Document Organization and Contents 1-6
1.5 - Incorporated by Reference 1-6

SECTION 2 - Project Description *2-1*

2.1 - Introduction 2-1
2.2 - Project Location 2-1
2.3 - Project Objectives 2-1
2.4 - Site Characteristics 2-1
2.5 - Background and Need for the Project 2-1
2.6 - Project Description 2-2
2.7 - Project Environment and Setting 2-4

SECTION 3 - Initial Study *3-1*

3.1 - Environmental Checklist 3-1
3.2 - Environmental Factors Potentially Affected 3-2
3.3 - Determination 3-2
3.4 - Evaluation of Environmental Impacts 3-4
3.4.1 - Aesthetics 3-6
3.4.2 - Agriculture and Forestry Resources 3-9
3.4.3 - Air Quality 3-13
3.4.4 - Biological Resources 3-18
3.4.5 - Cultural resources 3-33
3.4.6 - Energy 3-37
3.4.7 - Geology and Soils 3-40
3.4.8 - Greenhouse Gas Emissions 3-47
3.4.9 - Hazards and Hazardous Materials 3-53
3.4.10 - Hydrology and Water Quality 3-59
3.4.11 - Land Use and Planning 3-66
3.4.12 - Mineral Resources 3-70
3.4.13 - Noise 3-72
3.4.14 - Population and Housing 3-74
3.4.15 - Public Services 3-76

3.4.16 - Recreation 3-80
3.4.17 - Transportation 3-82
3.4.18 - Tribal Cultural Resources 3-85
3.4.19 - Utilities and Service Systems 3-87
3.4.20 - Wildfire 3-90
3.4.21 - Mandatory Findings of Significance 3-93

SECTION 4 - List of Preparers 4-1

4.1 - Lead Agency 4-1
4.2 - Consultant - QK 4-1

SECTION 5 - Bibliography 5-1

SECTION 6 - Mitigation Monitoring and Reporting Program 6-1

Appendices

Appendix A – Air Quality Impact Analysis/Greenhouse Gases Analysis
Appendix B – Cultural Resources
Appendix C – Biological Assessment Report

List of Figures

Figure 1-1 Regional Location Map 1-2
Figure 1-2 Planada Community Services District Boundary 1-3
Figure 1-3 Planada Community Plan Area 1-4
Figure 1-4 Existing Sewer Pipe Network 1-5
Figure 3.4.2-1 Williamson Act Land Use Contract 3-11
Figure 3.4.4-1 Vegetation Communities within the BSA 3-21
Figure 3.4.7-1 Soil Types in Project Area 3-45
Figure 3.4.9-1 Oil / Gas Wells and Pipelines 3-55
Figure 3.4.10-1 FEMA Flood Map 3-65
Figure 3.4.11-1 Community Plan Land Use Designations 3-68
Figure 3.4.11-2 County Zone Districts 3-69

List of Tables

Table 3.4.4-1 Special-Status Species with Potential to Occur On Site 3-23
Table 3.4.8-1 Consistency with Applicable Scoping Plan Reduction Measures 3-50

ACRONYMS AND ABBREVIATIONS

AB	Assembly Bill
ac	Acre
ADWF	Average Daily Wastewater Flow
afy	Acre-Foot per
APN	Assessor's Parcel Number
AQAP	Air Quality Attainment Plan
ATCM	Airborne Toxic Control Measure
BAU	Business-As-Usual
BMPs	Best Management Practices
CAA	Clean Air Act
CARB	California Air Resources Board
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CH4	Methane
CNDDB	California Natural Diversity Database
CO2	Carbon dioxide
CRECs	Controlled Recognized Environmental Concerns
CWA	Clean Water Act
dB	Decibels
DNL	Day-Night Average Level
DOC	Department of Conservation
DOGGR	Department of Oil, Gas, and Geothermal Resources
DTSC	Department of Toxic Substance Control
EIR	Environmental Impact Report
EOADP	Extreme Ozone Attainment Demonstration Plan
EPA	U.S. Environmental Protection Agency
ESA	Environmental Site Assessment
ESAs	Environmentally Sensitive Areas
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FMMP	Farmland Mapping and Monitoring Program
g	Acceleration of Gravity
GAMAQI	Guide to Assessing and Mitigating Air Quality Impacts
GHGs	Greenhouse Gases
HAPs	Hazardous Air Pollutants
HCFCs	Halogenated Fluorocarbons
HCP	Habitat Conservation Plan
HFCs	Hydrofluorocarbons
HREC	Historical Recognized Environmental Concerns
HVAC	Heating, Ventilation, and Air Conditioning
IS	Initial Study
IS/MND	Initial Study/Mitigated Negative Declaration
ITE	Institute of Transportation Engineers

LOS	Level of Service
MBTA	Migratory Bird Treaty Act
MDB&M	Mount Diablo Base and Meridian
MGD	Million Gallons per Day
MM	Mitigation Measure
MND	Mitigated Negative Declaration
MTCO2e	Metric Tons Carbon Dioxide Equivalent
N2O	Nitrous Oxide
NAHC	Native American Heritage Commission
NOx	Oxide of Nitrogen
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
NSR	New Source Review
O3	Ozone
OCPs	Organochlorine Pesticides
PEA	Preliminary Environmental Assessment
PFCs	Perfluorinated Carbons
PM2.5	Particulate Matter Less than 2.5 Microns
PM10	Particulate Matter Less than 10 Microns
PRC	Public Resources Code
ROG	Reactive Organic Gases
RSLs	Residential Screening Levels
RTIF	Regional Traffic Impact Fee
RWQCB	Regional Water Quality Control Board
SEI	Soils Engineering, Inc.
SF6	Sulfur Hexafluoride
SJVAB	San Joaquin Valley Air Basin
SJVAPCD	San Joaquin Valley Air Pollution Control District
SPAL	Small Project Analysis Level
SWP	State Water Project
SWPPP	Stormwater Pollution Prevention Plan
USACE	United States Army Corps of Engineers
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
UWMP	Urban Water Management Plan
VMT	Vehicle Miles Traveled
WSA	Water Supply Assessment
OCPs	Organochlorine Pesticides

MITIGATED NEGATIVE DECLARATION

As Lead Agency under the California Environmental Quality Act (CEQA), the Planada Community Services District reviewed the Project described below to determine whether it could have a significant effect on the environment because of its development. In accordance with CEQA Guidelines Section 15382, "[s]ignificant effect on the environment" means a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the Project, including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance.

Project Name

Planada Wastewater Collection System Upgrade

Project Location

The unincorporated Community of Planada in Merced County.

Project Description

The Planada Community Services District (CSD) has proposed sewer line improvements that will address aging infrastructure and prevent unsanitary conditions for the Community and surrounding area (Project). The improvements to the sewer line consist of a combination between the Traditional Method and the Trenchless Methods such as pipe bursting or cured-in-place pipe. The Community currently operates 28,867 linear feet of sewer line, but only specific segments of the network are expected to need replacement. It is possible that the entire piping system north of Miles Creek will need to be replaced as further investigation and site work reveal deterioration. Most of the repair is anticipated to occur in-ground, which does not necessitate excavation. These portions will be abandoned in-place and capped at both ends, with new pipe installed parallel to the existing pipelines. The complete removal of old pipes would be unnecessary and cost prohibitive, so the only pipes that would be removed would be short segments that intersect with newly installed pipelines.

Construction would begin in 2019 and may be undertaken in two- to three-year phases that will occur every two to three years, depending on available funding, over a maximum duration of ten years.

Mailing Address and Phone Number of Contact Person

Planada Community Services District
103 Live Oak Street
P.O. Box 905
Planada, CA 95365
Contact Person: Daniel Chavez, District Manager
Phone: (209) 382-0213

Findings

As Lead Agency, the Planada CSD finds that the Project will not have a significant effect on the environment. The Environmental Checklist (CEQA Guidelines Appendix G) or Initial Study (IS) (see *Section 3 - Environmental Checklist*) identified one or more potentially significant effects on the environment, but revisions to the Project have been made before the release of this Mitigated Negative Declaration (MND) or mitigation measures would be implemented that reduce all potentially significant impacts to less than significant levels. The Lead Agency further finds that there is no substantial evidence that this Project would have a significant effect on the environment.

Mitigation Measures Included in the Project to Avoid Potentially Significant Effects

MM BIO-1: Prior to start of ground disturbance, a qualified biologist knowledgeable on the identification of Sanford's arrowhead should conduct a pedestrian survey of areas of appropriate habitat for this species within the Project area to determine if it is present. Surveys for Sanford's arrowhead would be limited to Miles Creek and Planada Canal. Surveys should be conducted during the bloom period for the species. Multiple surveys may be needed and should be phased with construction of the Project such that they are conducted during the bloom periods immediately prior to start of ground disturbance. If the species is not identified during the survey(s), no further action is required.

If the species is observed within the disturbance footprint, the biologist will identify those locations in the field using pin flags or other methods of marking to inform the contractor. Those areas should be avoided where possible. If only one or two individuals cannot be avoided, no further efforts are needed. If a larger population is present and cannot be avoided, the Project proponent will contact the CDFW at least 10 days prior to disturbance to allow for the collection of seed from these plant species (the construction schedule will proceed whether the CDFW collects seed or not).

MM BIO-2: Within 14 days of the start of Project activities in any specific area, a pre-activity survey should be conducted by a qualified biologist knowledgeable in the identification of these species. The surveys should cover the Project site plus a 500-foot buffer. Pedestrian surveys achieving 100-percent visual coverage should be conducted. Multiple surveys are anticipated to be needed, which would be phased with construction of the Project. If no evidence of these species is detected, no further action is required.

MM BIO-3: If dens/burrows that could support any of these species are discovered during the pre-activity surveys conducted under MM BIO-2, the avoidance buffers outlined below should be established. No work would occur within these buffers unless the biologist approves and monitors the activity.

San Joaquin Kit Fox

- Potential Den – 50 feet
- Atypical Den – 50 feet (includes pipes and other man-made structures)

- Known Den – 100 Feet
- Natal/Pupping Den – 500 feet

Badger
- Potential Den – None
- Natal/Pupping Den – 100 feet

Burrowing Owl (active burrows)
- April 1 – October 15 – 500 feet
- October 16 – March 31 – 100 feet

MM BIO-4: The following avoidance and minimization measures should be implemented during all phases of the Project to reduce the potential for impact from the Project. They are modified from the *U.S. Fish and Wildlife Service Standardized Recommendations for Protection of the Endangered San Joaquin Kit Fox Prior to or During Ground Disturbance* (Appendix F; USFWS 2011) and apply to all three species.

- Project-related vehicles should observe a daytime speed limit of 20 mph throughout the site in all Project areas, except on county roads and State and Federal highways. Night-time construction speed limits should be 10 mph.
- Off-road traffic outside of designated Project areas should be prohibited.
- All Project activities should occur during daylight hours.
- To prevent inadvertent entrapment of kit foxes or other animals during construction of the Project, all excavated, steep-walled holes or trenches more than two-feet deep should be covered at the close of each working day by plywood or similar materials. If the trenches cannot be closed, one or more escape ramps constructed of earthen-fill or wooden planks shall be installed.
- Before holes or trenches are filled, they should be thoroughly inspected for trapped animals. If at any time a trapped or injured kit fox is discovered, the USFWS and the CDFW should be contacted before proceeding with the work.
- In the case of trapped animals, escape ramps or structures should be installed immediately to allow the animal(s) to escape, or the USFWS should be contacted for guidance.
- All construction pipes, culverts, or similar structures with a diameter of four inches or greater that are stored at a construction site for one or more overnight periods should be thoroughly inspected for kit foxes and burrowing owls before the pipe is subsequently buried, capped, or otherwise used or moved in any way. If a kit fox or burrowing owl is discovered inside a pipe, that section of pipe should not be moved until the USFWS has been consulted. If necessary, and under the direct supervision of the biologist, the pipe may be moved only once to remove it from the path of construction activity, until the fox or owl has escaped.
- All food-related trash items such as wrappers, cans, bottles, and food scraps should be disposed of in securely closed containers and removed at least once a week from a construction or Project site.
- No firearms shall be allowed on the Project site.

- No pets, such as dogs or cats, should be permitted on the Project site.
- Use of rodenticides and herbicides in Project areas should be restricted.
- A representative shall be appointed by the Project proponent who will be the contact source for any employee or contractor who might inadvertently kill or injure a kit fox, burrowing owl or badger or who finds a dead, injured or entrapped kit fox, burrowing owl or badger. The representative will be identified during the employee education program and their name and telephone number shall be provided to the Service.
- An employee education program should be developed and presented to Project personnel. The program should consist of a brief presentation by persons knowledgeable in kit fox, burrowing owl, and badger biology, as well as Sanford's arrowhead, and the legislative protections in place. The program should include the following: A description of each species natural history and habitat needs; a report of the occurrence of each species in the Project area; an explanation of the status of each species and its protections under Federal and State laws; and a list of measures being taken to reduce impacts to each species during Project construction and implementation. A fact sheet conveying this information should be prepared for distribution to the previously referenced people and anyone else who may enter the Project site.
- Upon completion of the Project, all areas subject to temporary ground disturbances (including storage and staging areas, temporary roads, pipeline corridors, etc.) should be re-contoured if necessary, and revegetated to promote restoration of the area to pre-Project conditions. An area subject to "temporary" disturbance means any area that is disturbed during the Project, but after Project completion will not be subject to further disturbance and has the potential to be revegetated.
- Any Project personnel who are responsible for inadvertently killing or injuring one of these species should immediately report the incident to their representative. This representative should contact the CDFW and USFWS immediately in the case of a dead, injured or entrapped kit fox.
- The Sacramento Fish and Wildlife Office and CDFW shall be notified in writing within three working days of the accidental death or injury to a San Joaquin kit fox during Project related activities. Notification must include the date, time, and location of the incident or of the finding of a dead or injured animal and any other pertinent information.
- New sightings of kit fox shall be reported to the California Natural Diversity Database (CNDDB). A copy of the reporting form and a topographic map clearly marked with the location of where the kit fox was observed should also be provided to the USFWS.

MM BIO-5: If Project activities must occur during the nesting season (February 15 to August 31), pre-activity nesting bird surveys should be conducted within seven days prior to the start of construction at the construction site plus a 250-foot buffer for song birds and a 500-foot buffer for raptors (other than Swainson's hawk). The surveys should be phased with construction of the Project. If no active nests are found, no further action is required; however, note that nests may become active at any time throughout the summer, including when construction activities are occurring. If active nests are found during the survey or at any time during construction of the Project, an avoidance buffer ranging from 50 feet to 350

feet may be required, as determined by a qualified biologist. The avoidance buffer will remain in place until the biologist has determined that the young are no longer reliant on the nest. Work may occur within the avoidance buffer under the approval and guidance of the biologist. The biologist should have the ability to stop construction if nesting adults show sign of distress.

MM BIO-6: If Project activities must occur during the nesting season (February 15 to August 31), pre-activity surveys should be conducted for Swainson's hawk nests within 14 days prior to the start of construction. The surveys would be conducted on the Project site plus a 0.5-mile buffer. The surveys should be phased with construction of the Project. The survey will be conducted in accordance with the methodology outlined in existing protocols and should be phased with construction of the Project. Note that Swainson's hawks may establish a nest at any time from February through June; multiple Swainson's hawks nest surveys may be necessary in one season at the direction of a qualified biologist, depending on the timing of Project construction. If no Swainson's hawk nests are found, no further action is required.

MM BIO-7: If an active Swainson's hawk nest is discovered at any time within 0.5 mile of active construction, a qualified biologist will complete an assessment of the potential for current construction activities to impact the nest. The assessment will consider the type of construction activities, the location of construction relative to the nest, the visibility of construction activities from the nest location, and other existing disturbances in the area that are not related to construction activities of this Project. Based on this assessment, the biologist will determine if construction activities can proceed, and if nest monitoring will be required. Minimally, construction activities should not occur within 100 feet of an active nest and may require monitoring if within 500 feet of an active nest. These buffers may need to increase depending on the sensitivity of the nest location.

MM CUL-1: If prehistoric or historic-era cultural materials are encountered during construction activities, all work in the immediate vicinity of the find shall halt until a qualified archaeologist can evaluate the find and make recommendations. Cultural resource materials may include prehistoric resources such as flaked and ground stone tools and debris, shell, bone, ceramics, and fire-affected rock as well as historic resources such as glass, metal, wood, brick, or structural remnants. If the qualified archaeologist determines that the discovery represents a potentially significant cultural resource, additional investigations may be required to mitigate adverse impacts from Project implementation. These additional studies may include avoidance, testing, and evaluation or data recovery excavation. Implementation of the mitigation measure below would ensure that the proposed Project would not cause a substantial adverse change in the significance of a historical resource. Therefore, the Project would have a less than significant impact with incorporation of mitigation measures.

MM CUL-2: If human remains are discovered during construction or operational activities, further excavation or disturbance shall be prohibited pursuant to Section 7050.5 of the California Health and Safety Code. The specific protocol, guidelines, and channels of communication outlined by the Native American Heritage Commission, in accordance with Section 7050.5 of the Health and Safety Code, Section 5097.98 of the Public Resources Code

(Chapter 1492, Statutes of 1982, Senate Bill 297), and Senate Bill 447 (Chapter 44, Statutes of 1987), shall be followed. Section 7050.5(c) shall guide the potential Native American involvement, in the event of discovery of human remains, at the direction of the Merced County Coroner.

MM GEO-1: Prior to ground disturbance, an Erosion Control Plan for construction activities will be prepared that describes the Best Management Practices (BMPs) that will be incorporated to reduce the potential for soil erosion and loss of top soil. The BMPs could include soil stabilizers and silt fencing as well as other measures.

MM HYD-1: Prior to construction, the Planada CSD shall submit an approved copy of: 1) the approved Storm Water Pollution Prevention Plan (SWPPP) and 2) the Notice of Intent (NOI) to comply with the General National Pollutant Discharge Elimination System (NPDES) from the Central Valley Regional Water Quality Control Board. The requirements of the SWPPP and NPDES shall be incorporated into design specifications and construction contracts. Recommended BMPs for the construction phase may include the following:

- Stockpiling and disposing of demolition debris, concrete, and soil properly;
- Protecting existing storm drain inlets and stabilizing disturbed areas;
- Implementing erosion controls;
- Properly managing construction materials; and
- Managing waste, aggressively controlling litter, and implementing sediment controls.

MM HYD-2: The Planada CSD shall limit grading to the minimum area necessary for construction and operation of the Project. Final grading plans shall include BMPs to limit on-site and off-site erosion.

SECTION 1 - INTRODUCTION

1.1 - Overview

The Planada CSD is proposing sewer line improvements that will address aging infrastructure and prevent unsanitary conditions for the Community of Planada and surrounding area.

1.2 - California Environmental Quality Act

The Planada CSD is the Lead Agency for this Project pursuant to the CEQA Guidelines (Public Resources Code Section 15000 et seq.). The Environmental Checklist (CEQA Guidelines Appendix G) or Initial Study (IS) (see *Section 3 – Initial Study*) provides analysis that examines the potential environmental effects of the construction and operation of the Project. Section 15063 of the CEQA Guidelines requires the Lead Agency to prepare an IS to determine whether a discretionary project will have a significant effect on the environment. A Mitigated Negative Declaration (MND) is appropriate when an IS has been prepared and a determination can be made that no significant environmental effects will occur because revisions to the Project have been made or mitigation measures will be implemented that reduce all potentially significant impacts to less than significant levels. The content of an MND is the same as a Negative Declaration, with the addition of identified mitigation measures and a Mitigation Monitoring and Reporting Program (MMRP) (see *Section 6 – Mitigation Monitoring and Reporting Program*).

Based on the IS, the Lead Agency has determined that the environmental review for the proposed application can be completed with an MND.

1.3 - Impact Terminology

The following terminology is used to describe the level of significance of impacts.

- A finding of "no impact" is appropriate if the analysis concludes that the Project would not affect a topic area in any way.
- An impact is considered "less than significant" if the analysis concludes that it would cause no substantial adverse change to the environment and requires no mitigation.
- An impact is considered "less than significant with mitigation incorporated" if the analysis concludes that it would cause no substantial adverse change to the environment with the inclusion of environmental commitments that have been agreed to by the applicant.
- An impact is considered "potentially significant" if the analysis concludes that it could have a substantial adverse effect on the environment.



Figure 1-1
Regional Location Map

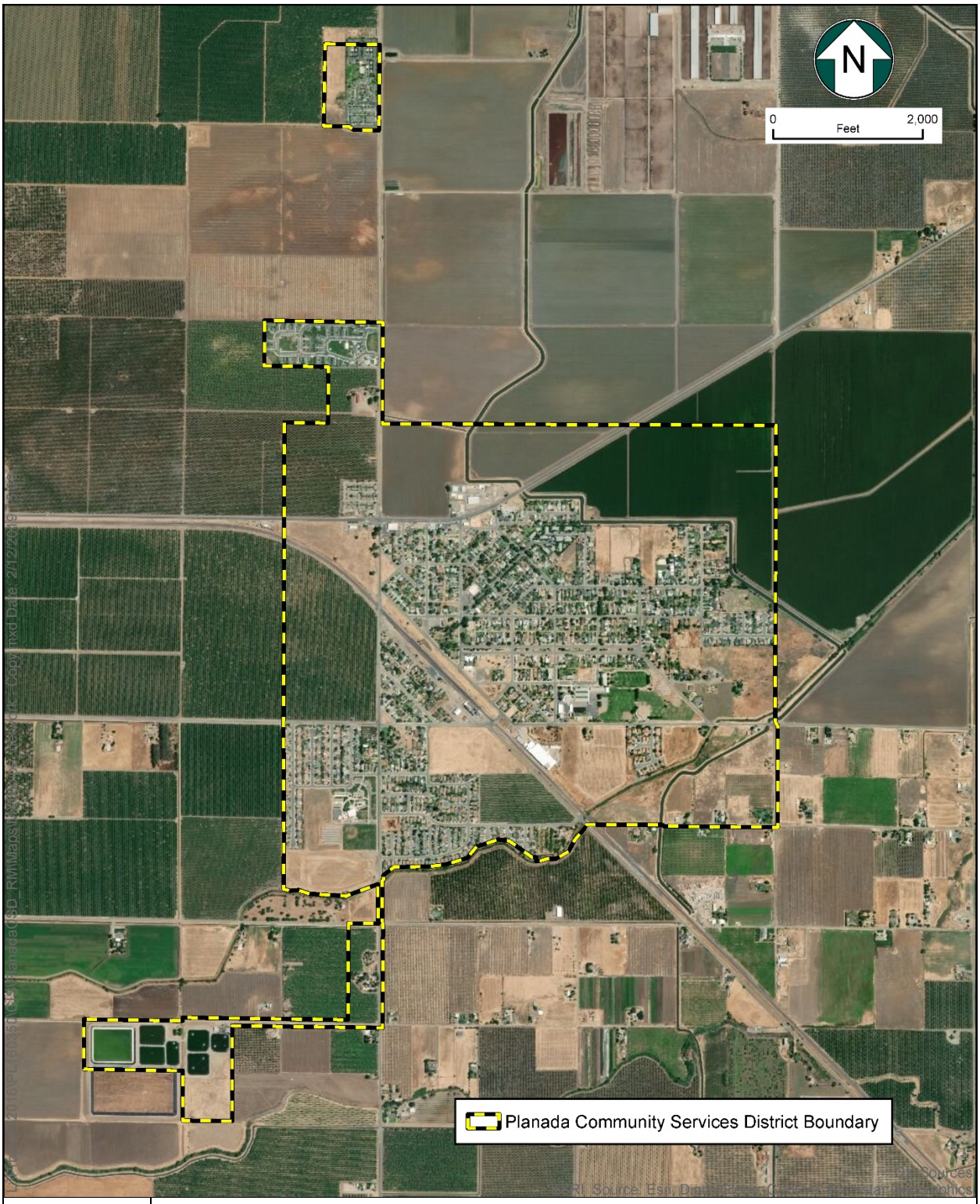

Figure 1-2
Planada Community Services District Boundary

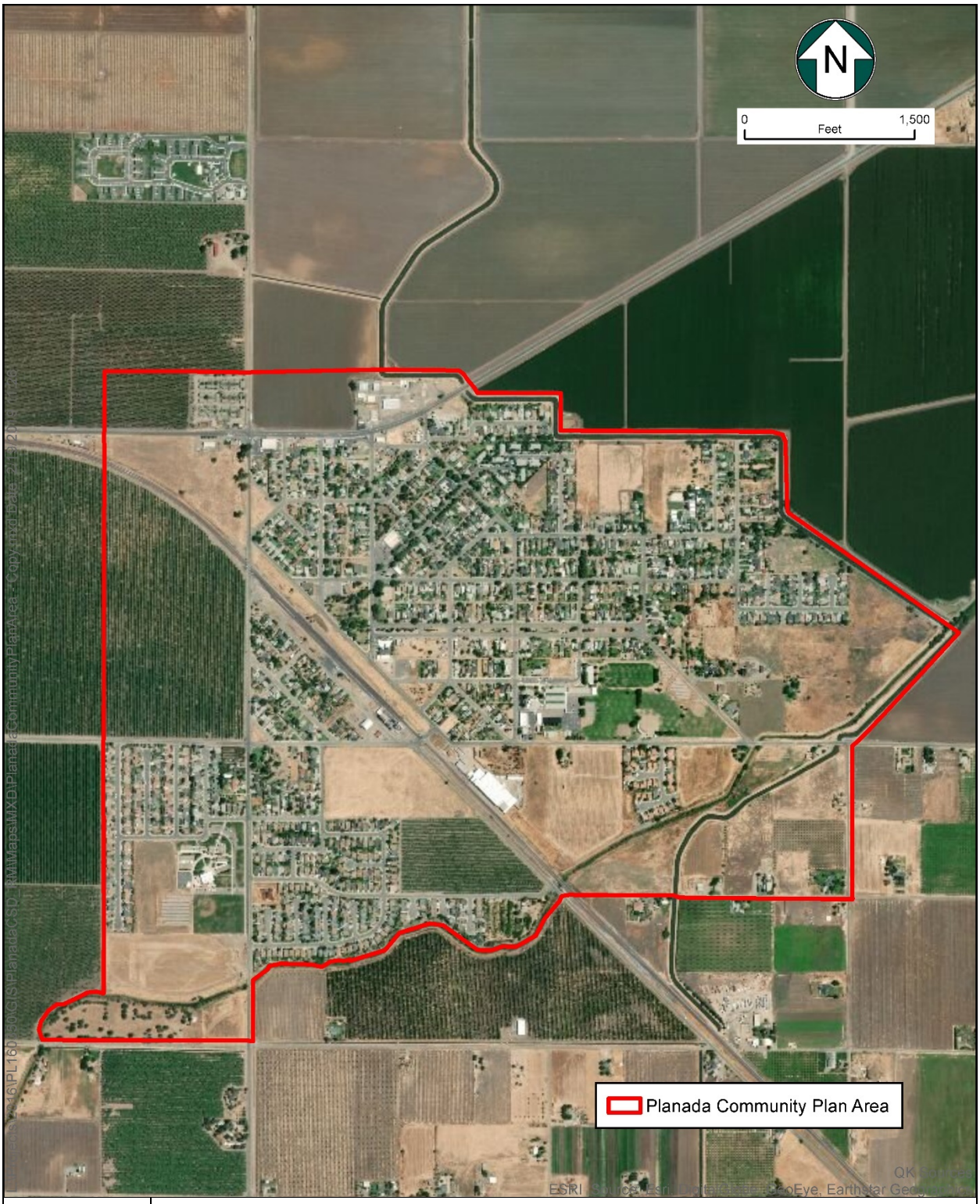

Figure 1-3
Planada Community Plan Area

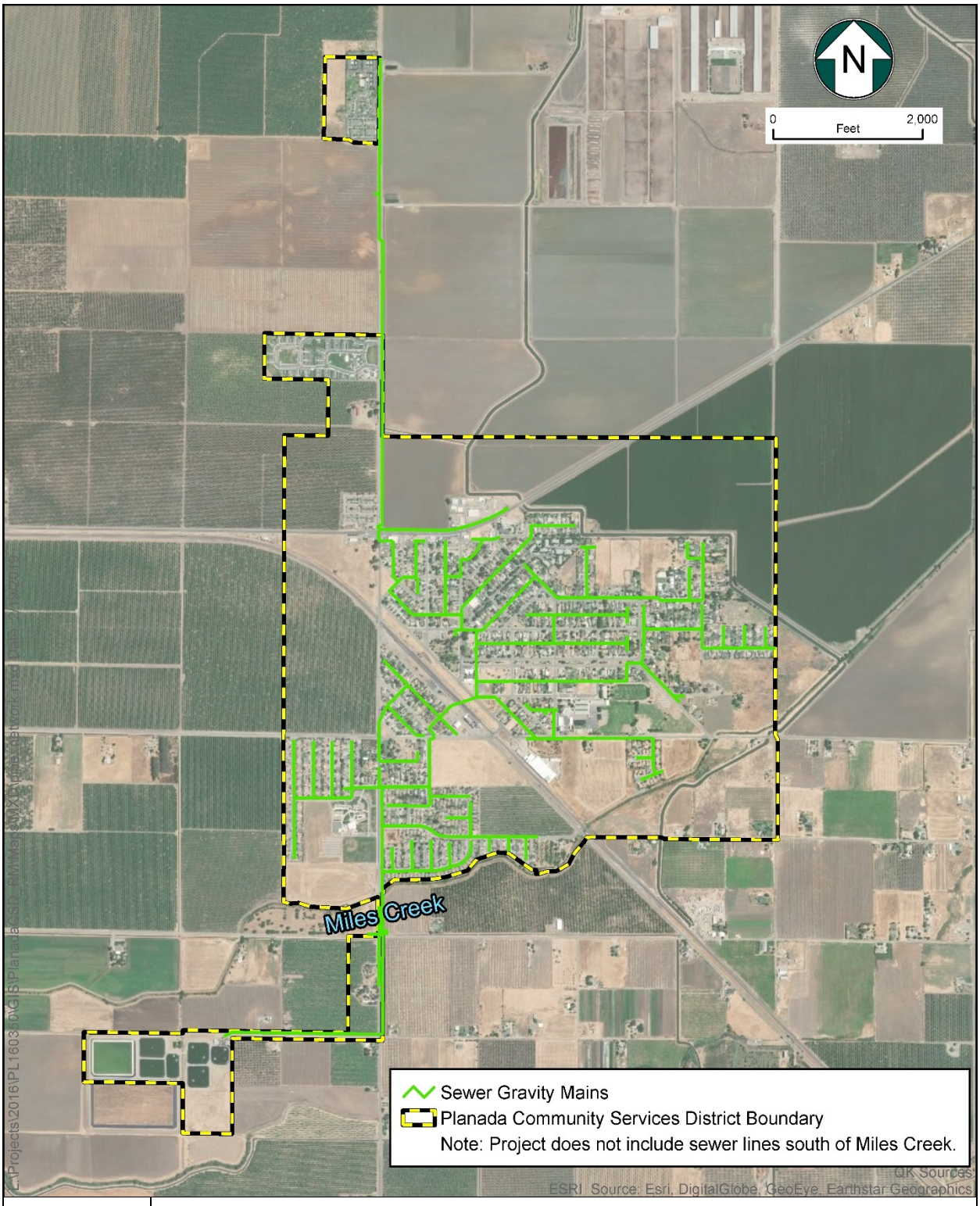

Figure 1-4
Existing Sewer Pipe Network

1.4 - Document Organization and Contents

The content and format of this IS/MND is designed to meet the requirements of CEQA. The report contains the following sections:

- *Section 1 – Introduction:* This section provides an overview of CEQA requirements, intended uses of the IS/MND, document organization, and a list of regulations that have been incorporated by reference.
- *Section 2– Project Description:* This section describes the Project and provides data on the site's location.
- *Section 3 – Initial Study:* This section contains the evaluation of 18 different environmental resource factors contained in Appendix G of the CEQA Guidelines. Each environmental resource factor is analyzed to determine whether the proposed Project would have an impact. One of four findings is made which include: no impact, less than significant impact, less than significant with mitigation, or significant and unavoidable. If the evaluation results in a finding of significant and unavoidable for any of the 20 environmental resource factors, then an Environmental Impact Report will be required.
- *Section 4 – List of Preparers:* This section identifies the individuals who prepared the IS/MND.
- *Section 5 – Bibliography:* This section contains a full list of references that were used in the preparation of this IS/MND.
- *Section 6 – Mitigation Monitoring and Reporting Program:* This section contains the Mitigation Monitoring and Reporting Program.

1.5 - Incorporated by Reference

The following documents and/or regulations are incorporated into this IS/MND by reference:

- Planada Community Plan; and
- Merced County Zoning Code.

SECTION 2 - PROJECT DESCRIPTION

2.1 - Introduction

The Planada Community Services District (CSD) is proposing to identify and repair aging sewer pipelines segments that serve the residents of the unincorporated Community of Planada in Merced County, California. Figure 1-1 is a map of the regional location of the Project.

2.2 - Project Location

The Planada CSD is located in and adjacent to the unincorporated Community of Planada (Community) in eastern Merced County, California. Planada is located approximately four miles east of the City of Merced on Highway 140.

2.3 - Project Objectives

The objectives for this Project are to identify and repair sewer pipeline segments that require replacement, maintain level of sewer service for Planada residents, and avoid unsanitary conditions created by dilapidated pipeline infrastructure.

2.4 - Site Characteristics

The proposed Project site consists of the linear distance of all sewer lines throughout the Planada CSD up to the north side of Miles Creek at the south end of the service area. The sewer trunk conveyance will not need rehabilitation across or south of Miles Creek. The CSD covers 945 acres (Figure 1-2, Planada CSD); including the adopted County of Merced Community Plan Area (Figure 1-3, Planada Community Plan Area), as well as two farm labor camps north of Highway 140, and a couple of rural residences. The most common land use designations in the Community Plan Area are Low and Medium Density Residential (County of Merced, 2017). The Community Plan Area's eastern boundary is formed in part by the Merced Irrigation District's Planada Canal.

2.5 - Background and Need for the Project

The Planada CSD provides local water and sewer services to the Planada Community Plan Area and several rural houses, including two farm labor camps (County of Merced, 2017). The wastewater collection system includes two lift stations and one treatment plant. The wastewater collection facility uses a gravity collection/main-lift system to move sewage to the Wastewater Treatment Plant (WWTP) which treats and discharges disinfected secondary effluent (Draft Feasibility Report, 2019). The District provides wastewater service to approximately 1,811 connections, although some connections serve multiple units on a parcel, and the District estimates 1,383 dwelling units were served as of 2015. The WWTP is located approximately 0.5 mile south of the Community Plan Area and treats approximately 0.35 mgd per day (Planada CSD Municipal Services Review, 2015).

The current sewer network includes many pipes that were installed over 70 years ago and many require improvements. Pipelines in the network are made of various materials. Most of the pipes in the system that require improvement are made of concrete, are approaching the end of their serviceable life, and are showing surface aggregate projecting through the interior of the pipe. Cracks, fractures, and obstructions are all factors that could lead to broken pipes. The risks resulting from broken pipes, and the potential for this occurring in the Project area, is further described below.

The majority of the CSD's sewer lines were installed in the 1940's and 50's, and most of these lines were manufactured using Portland Cement Concrete (PCC). These PCC sewer lines are susceptible to corrosion because of the combined action of hydrogen sulfide gas and bacteria on the walls of the pipe, resulting in the formation of sulfuric acid. The sulfuric acid breaks down the cement in the PCC and decreases the structural integrity of the pipelines. Video inspections have shown that the crown of the pipe in some areas is almost completely gone. If this issue is not addressed, sudden and disastrous pipe failures could happen in the future; possibly resulting in sewer overflows.

Potential exposure to the drinking water supply. Water travels over the surface of the land and through the ground dissolving naturally occurring minerals, sometimes radioactive material, and picks up substances resulting from the presence of animals or from human activity (Merced, 2016). Some contaminants that may be present in source water because of sewer systems include microbial contaminants and organic chemical contaminants. The Community currently receives its groundwater supply from the San Joaquin Valley Groundwater Basin (Merced Subbasin) through six active wells. If sewer line failures are not prevented, sewer leakage or overflow could result, contaminating the groundwater from which the Community draws its water.

2.6 - Project Description

The CSD has proposed sewer line improvements that will address aging infrastructure and prevent unsanitary conditions for the Community and the two farm labor camps (Project). The improvements to the sewer line consist of a combination of the Traditional Method and the Trenchless Methods such as pipe bursting or cured-in place pipe. The CSD currently operates 28,867 linear feet of sewer line within its service area, shown on Figure 1-4, Existing Wastewater Collection System. As investigation and site work move forward, it may be determined that the entire pipe system will require replacement, but at this time only specific segments of the network are expected to need rehabilitation.

Much of the repair is anticipated to occur in-place and may not necessitate excavation. Some portions can be abandoned in-place and capped at both ends, with new pipe installed parallel to the existing pipelines. The complete removal of old pipes would be unnecessary and cost prohibitive, so the only pipes that would be removed would be short segments that intersect with newly installed pipelines. Other segments can be repaired by bursting in-place with horizontal insertion of new pipe. Other segments are expected to need no repair.

Construction is anticipated to begin in 2019 and will be undertaken in over a maximum 10-year period. The work should progress in four general phases, but specific phasing of areas will depend on the levels of deterioration and on available funding. Activities involved in sewer line replacements are expected to include grubbing/land clearing, excavation/grading, sub-grading, and paving. These activities are anticipated to require up to 40 employees at any given time, each working eight-hour workdays.

The diameter of existing pipes range from six inches to 15 inches, and will be replaced with pipes of the same size in most cases. Some lines will increase in size where currently deficient but will not be sized to accommodate growth in the Community beyond what is anticipated by the County's adopted Community Plan.

In instances where excavation is required, there would be a three-foot to four-foot wide trench, and a total 20-foot-wide activity footprint related to staging and temporary soil stockpiling. The maximum depth of excavation would be seven feet, and maximum height of construction activity related to backhoe digging would be 10 feet. The maximum area of excavation, assuming a four-foot wide trench throughout the entire sewer network, would be 2.65 acres, which is not anticipated. There will be a temporary construction staging area within the fenced wastewater treatment plant compound. Other small and short-duration staging areas in close proximity to pipeline work, if needed, would be on existing paved areas. The potential Project site area, including above and below surface activity, if the entire network required retrofitting, would encompass approximately 13.25 acres within the Planada Community Services District boundary.

The Project site is located within Section 27, Township 7 South, Range 15 East, Mount Diablo Base and Meridian (MDB&M), within the Planada U.S. Geological Survey (USGS) 7.5-minute topographic quadrangle.

Vehicles and equipment that may be needed to support the sewer line repair project could include:

- Forklifts;
- Tractors/Loaders/Backhoes;
- Concrete/Industrial Saws;
- Excavators;
- Plate Compactors;
- Bulldozers;
- Loaders;
- Signal Boards;
- Air Compressors;
- Cement and Mortar Mixers;
- Cranes;
- Generator Sets;
- Welders;

- Pavers; and
- Rollers.

2.7 - Project Environment and Setting

Planada is a small, primarily residential unincorporated Community surrounded by rural agricultural operations typical of Merced County. The Community largely serves as a bedroom community for families working in the City of Merced, as well as home for agricultural workers. The majority of the Project site and surrounding area is developed for agricultural and urban uses.

The topography of the Project area is relatively flat with elevational ranges from roughly 230 to 240 feet above mean sea level. Planada Canal is present on the northern and eastern boundaries of the Community, and Miles Creek flows northeast to southwest along the southern side of the Community. The Burlington Northern Santa Fe Railroad is situated in the western portion of the Community.

Scattered rural residences are present throughout the area, primarily to the south. Some small parcels of non-native grassland habitat are scattered throughout the area, which are generally associated with these rural residences or other undeveloped lots on the outskirts of the Community.

Planada is within the Merced County portion of the San Joaquin Valley Air Basin (SJVAB). The air quality of the San Joaquin Valley is directly related to the ability of the atmosphere to dilute and transport pollutants. The climate and meteorology within the Valley are conducive to the creation and entrapment of air pollution. Air pollution within the Valley is, in part, a result of the enclosed air basins, which experience long periods of inversion, a relatively light wind flow, and a generous amount of sunlight. The SJVAB is comprised of eight counties: San Joaquin, Stanislaus, Merced, Madera, Fresno, Kings, Tulare, and central and western Kern. The Basin periodically exceeds State and/or Federal standards for levels of ozone and fine particulate matter.

The San Joaquin Valley, approximately 25,000 square miles, is a broad structural trough bordered by the Sierra Nevada Mountains on the east, the Coast Ranges on the west and the Transverse Range on the south. Groundwater occurrence is directly related to the regional geology and soils. Fresh groundwater is principally contained in the unconsolidated continental deposits of the Pliocene to the Holocene age, which extend to depths ranging from less than 100 to more than 3,000 feet.

The Community of Planada experiences a Mediterranean Climate Zone characterized by sparse rainfall occurring mainly in the winter. The average annual temperatures in Planada range from a low of 47.8 degrees Fahrenheit to a high of 76.8 degrees Fahrenheit. Summer high temperatures can reach up to 97 degrees, while winter low temperatures can fall to 36 degrees Fahrenheit. Rainfall varies widely from year to year, with an annual average of 14.5 inches (County of Merced, 2016). Most of the native vegetation in the Community area has

been replaced by irrigated agriculture, other cropland, and/or grazing land. The dominant soils in the region are Marguerite silt clay loam, Porterville clay, and Wyman clay loam.

SECTION 3 - INITIAL STUDY

3.1 - Environmental Checklist

1. **Project Title:**

   Planada Wastewater Collection System Upgrade

2. **Lead Agency Name and Address:**

   Planada Community Services District
   P.O. Box 905
   103 Live Oak Street, Planada CA 95365

3. **Contact Person and Phone Number:**

   Daniel Chavez, District Manager
   (209) 382-0213

4. **Project Location:**

   The unincorporated Community of Planada in Merced County

5. **General Plan Designation and Zoning:**

   A comprehensive list of Land Use and Zoning Designations can be found in the Planada Community Plan (County of Merced, 2017).

6. **Description of Project:**

   Please see Section 2.

7. **Surrounding Land Uses and Setting:**

   Agricultural cultivation to the west and south, undeveloped land to the north and east.

8. **Other Public Agencies Whose Approval may be Required:**

   - San Joaquin Valley Air Pollution Control District
   - Central Valley Regional Water Quality Control Board
   - California State Water Resources Control Board
   - California Department of Fish and Wildlife

3.2 - Environmental Factors Potentially Affected

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

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

3.3 - Determination

On the basis of this initial evaluation:

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

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

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

☐ I find that the proposed Project MAY have a “potentially significant impact” or “potentially significant unless mitigated” impact on the environment, but at least one effect (a) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and (b) has been addressed by mitigation measures based on the

earlier analysis as described on attached sheets. An ENVIRONMENT IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

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

Signature	Date
Daniel Chavez, District Manager	Planada CSD

3.4 - Evaluation of Environmental Impacts

1. A brief explanation is required for all answers except "No Impact" answers that are adequately supported by the information sources a Lead Agency cites in the parentheses following each question. A "No Impact" answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g., the Project falls outside a fault rupture zone). A "No Impact" answer should be explained where it is based on project-specific factors as well as general standards (e.g., the Project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis).

2. All answers must take account of the whole action involved, including off site as well as on site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.

3. Once the Lead Agency has determined that a particular physical impact may occur, then the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. "Potentially Significant Impact" is appropriate if there is substantial evidence that an effect may be significant. If there are one or more "Potentially Significant Impact" entries when the determination is made, an EIR is required.

4. "Negative Declaration: Less Than Significant with Mitigation Incorporated" applies where the incorporation of mitigation measures has reduced an effect from "Potentially Significant Impact" to a "Less Than Significant Impact." The Lead Agency must describe the mitigation measures, and briefly explain how they reduce the effect to a less than significant level (mitigation measures from "Earlier Analyses," as described in (5) below, may be cross-referenced).

5. Earlier analyses may be used where, pursuant to the tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or negative declaration. Section 15063(c)(3)(D). In this case, a brief discussion should identify the following:

    a. Earlier Analysis Used. Identify and state where they are available for review.

    b. Impacts Adequately Addressed. Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis.

    c. Mitigation Measures. For effects that are "Less than Significant with Mitigation Measures Incorporated," describe the mitigation measures which were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the Project.

6. Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., General Plans, Zoning Ordinances). Reference to a previously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated.

7. Supporting Information Sources: A source list should be attached, and other sources used or individuals contacted should be cited in the discussion.

8. This is only a suggested form, and lead agencies are free to use different formats; however, lead agencies should normally address the questions from this checklist that are relevant to a project's environmental effects in whatever format is selected.

9. The explanation of each issue should identify:

    a. the significance criteria or threshold, if any, used to evaluate each question; and

    b. the mitigation measure identified, if any, to reduce the impact to less than significance.

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

Discussion

Impact #3.4.1a – Except as provided in Public Resources Code Section 21099, would the Project have a substantial adverse effect on a scenic vista?

The proposed site is located in an area that has been developed for urban and agricultural purposes. The Project consists of excavating and replacing subsurface pipe networks throughout the Community. Most of the repairs would occur on roads, so construction activities would occupy roadways and obstruct the typical urban viewshed. However, these obstructions are temporary and intermittent. There are no roads or features in the area designated as scenic resources in the County General Plan (Merced County, 2013). The site is not within or in the vicinity of a State, city, or county identified scenic vista or scenic highway corridor. Furthermore, development of the Project would not block or preclude views to any area containing important or what would be considered visually appealing landforms. Therefore, no scenic vistas will be impacted by construction of this Project. The Project does not lie near or within a State Designated or Eligible State Scenic Highway (California Department of Transportation, 2011). Further, the Project does not include the removal of trees determined to be scenic or of scenic value, the destruction of rock

outcroppings or degradation of any historic building. Therefore, no scenic resources will be affected. The Project will not result in development that is substantially different than surrounding land uses.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be *less than significant*.

Impact #3.4.1b – Except as provided in Public Resources Code Section 21099, would the Project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a State Scenic Highway?

See Impact #3.4.1a, above.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be *less than significant*.

Impact #3.4.1c – Except as provided in Public Resources Code Section 21099, in non-urbanized areas, would the Project substantially degrade the existing visual character or quality of public views of the site and its surroundings? If the Project is in an urbanized area, would the Project conflict with applicable zoning and other regulations governing scenic quality?

The Project is in an area that is developed for predominantly urban uses. Construction of the Project would result in degradation of the existing visual character of the area, but these impacts would be localized and temporary. The Project's operation would not change or degrade the visual character of the site. Therefore, it would not result in a substantial impact to the visual quality of the area.

See also discussion of Impact #3.4.1a, above.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be *less than significant*.

Impact #3.4.1d – Except as provided in Public Resources Code Section 21099, would the Project create a new source of substantial light or glare that would adversely affect day or nighttime views in the area?

Construction of the proposed Project would generally occur during daytime hours, typically from 7:00 a.m. to 6:00 p.m. All lighting would be directed downward and shielded to focus illumination on the desired work areas only and prevent light spillage onto adjacent properties. Because lighting used to illuminate work areas would be shielded, focused downward, and turned off by 6:00 p.m., the potential for lighting to adversely affect any surrounding area is minimal. Increased truck traffic and the transport of construction materials to the Project site would temporarily increase glare conditions during construction. However, this increase in glare would be minimal. Construction activity would focus on specific areas on the sites, and any sources of glare would not be stationary for a prolonged period of time. Therefore, construction of the proposed Project would not create a new source of substantial glare that would affect daytime views in the area.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be ***less than significant.***

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact

3.4.2 - AGRICULTURE AND FORESTRY RESOURCES

In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the State's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment Project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the Project:

a.	Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to nonagricultural use?	☐	☐	☐	☒
b.	Conflict with existing zoning for agricultural use or a Williamson Act Contract?	☐	☐	☐	☒
c.	Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))?	☐	☐	☐	☒
d.	Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒
e.	Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	☒

Discussion

Impact #3.4.2a – Would the Project 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?

The proposed Project would not convert any agricultural land non-agricultural uses. The Project would include the excavation and replacement of subsurface sewer pipes that do not

extend beyond the existing road infrastructure in Planada. There exists some State-designated Prime Farmland in the outskirts of the Planada CSD, but these areas will not be affected by the Project. There exists no Williamson Act Contract in the Project area. Construction activities will not necessitate the conversion of existing agriculture or areas designated as Prime Farmland to non-agricultural uses. Therefore, there would be no impact to State-designated Farmland as a result of the proposed Project.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

There would be ***no impact.***

Impact #3.4.2b – Would the Project conflict with existing zoning for agricultural use or a Williamson Act Contract?

See Impact #3.4.2a, above.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be ***less than significant***.

Impact #3.4.2c – Would the Project conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))?

The Public Resources Code Section 12220 (g) and Section 4526 defines "Forest land" as land that can support 10-percent native tree cover 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. There are no forest lands identified on the Project site or within its vicinity; therefore, there would be no conflict with or impacts to zoning for forest land or timber land. The Project would not result in the loss or conversion of forest land to a non-forest use.

MITIGATION MEASURE(S)

No mitigation is required.

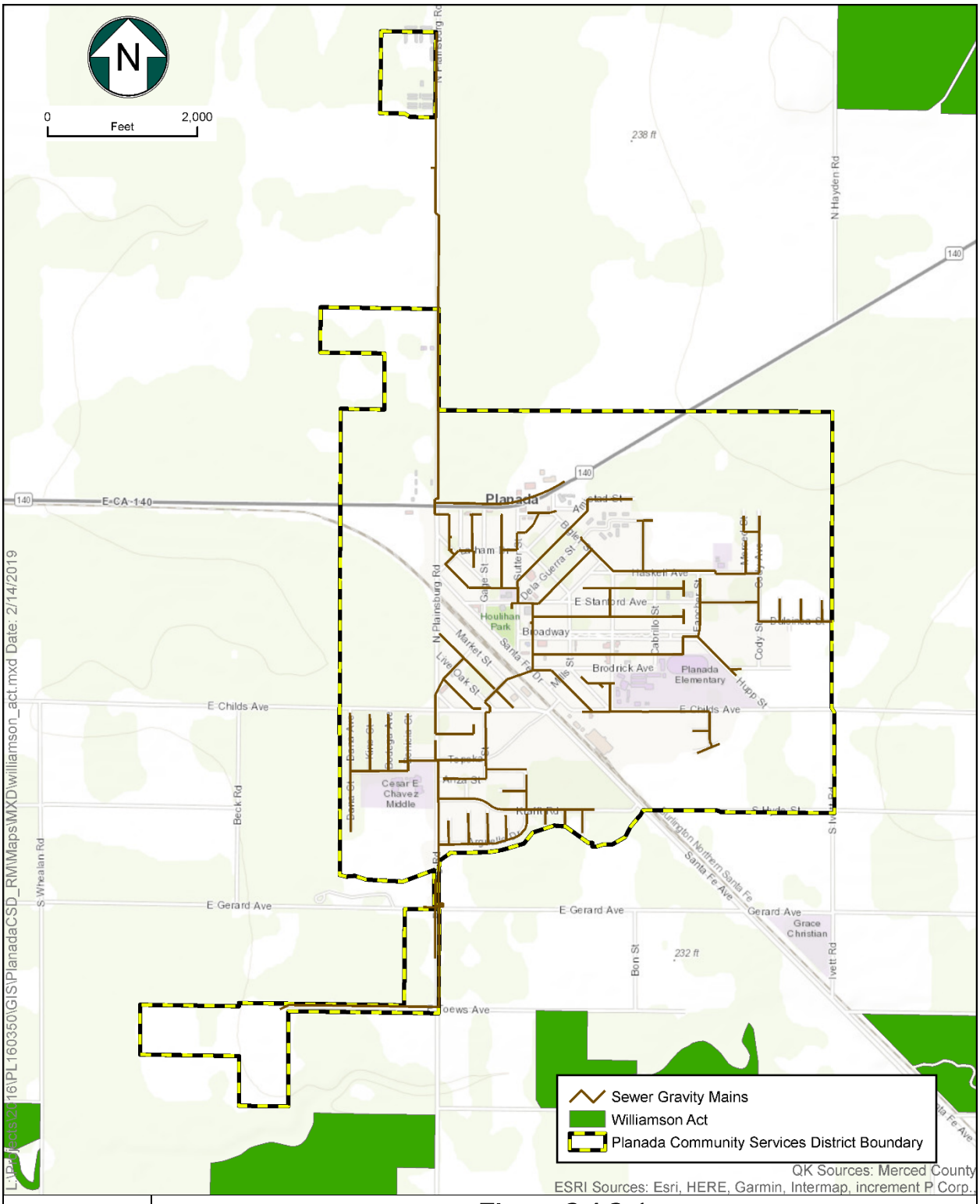

Figure 3.4.2-1
Williamson Act Land Use Contract

LEVEL OF SIGNIFICANCE

There would be ***no impact***.

Impact #3.4.2d – Would the Project result in the loss of forest land or conversion of forest land to non-forest use?

See discussion of Impact #3.4.2c, above.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

There would be ***no impact***.

Impact #3.4.2e – Would the Project involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?

See discussion of Impacts #3.4.2a and #3.4.2c, above.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

There would be ***no impact***.

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact

3.4.3 - AIR QUALITY

Where available, the significance criteria established by the applicable Air Quality Management District or Air Pollution Control District may be relied upon to make the following determinations. Would the Project:

a.	Conflict with or obstruct implementation of the applicable Air Quality Plan?	☐	☐	☐	☒
b.	Result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is non-attainment under an applicable Federal or State Ambient Air Quality Standard?	☐	☐	☒	☐
c.	Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐
e.	Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	☐	☐	☒	☐

Discussion

The following analysis is based primarily on an Air Quality Impact Analysis (VRPA Technologies, 2018) prepared in accordance with the San Joaquin Valley Air Pollution Control District's (SJVAPCDs) instructions which are included in the District's *Guide for Assessing and Mitigating Air Quality Impacts* (GAMAQI) (SJVAPCD 2015) for the Project. In addition to providing an assessment of the Project's impacts to air quality and GHGs, the AQIA includes a detailed description of the regulatory environment as it relates to air quality.

Impact #3.4.3a – Would the Project conflict with or obstruct implementation of the applicable Air Quality Plan?

The primary way of determining consistency with the Air Quality Plan's (AQP's) assumptions is determining consistency with the applicable General Plan to ensure that the Project's population density and land use are consistent with the growth assumptions used in the AQPs for the air basin.

As required by California law, city and county General Plans contain a Land Use Element that details the types and quantities of land uses that the city or county estimates will be needed for future growth, and that designate locations for land uses to regulate growth. MCAG uses the growth projections and land use information in adopted General Plans to estimate future average daily trips and then VMT, which are then provided to SJVAPCD to estimate future

emissions in the AQPs. Existing and future pollutant emissions computed in the AQP are based on land uses from area General Plans. AQPs detail the control measures and emission reductions required for reaching attainment of the air standards.

The applicable General Plan for the Project is the Merced County 2030 General Plan, which was adopted in 2012. The Project is consistent with the currently adopted General Plan for the Planada Community and is therefore consistent with the population growth and VMT applied in the Plan. Therefore, the Project is consistent with the growth assumptions used in the applicable AQPs. As a result, the Project will not conflict with or obstruct implementation of any Air Quality Plans.

Control Measures

The AQAPs contain a number of control measures, including the rules outlined by the SJVAPCD. The control measures in the AQAP are enforceable requirements. The Project would comply with all of the SJVAPCD's applicable rules and regulations. Therefore, the Project complies with this criterion.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

There would be *no impact*.

Impact #3.4.3b – Would the Project result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is non-attainment under an applicable Federal or State Ambient Air Quality Standard?

The Merced County area is nonattainment for Federal and State air quality standards for ozone and nonattainment for Federal and State standards for PM2.5. Merced County is also nonattainment for State standards for PM10. The SJVAPCD has prepared the 2016 and 2013 Ozone Plans, 2007 PM10 Maintenance Plan, and 2012 PM2.5 Plan to achieve Federal and State standards for improved air quality in the SJVAB regarding ozone and PM. Individual projects contribute cumulatively to a region's nonattainment status and inconsistency with any of the Plans would be considered a cumulatively adverse air quality impact.

Project specific emissions that exceed the thresholds of significance for criteria pollutants would be expected to result in a cumulatively considerable net increase of any criteria pollutant for which the County is in non-attainment under applicable Federal or State Ambient Air Quality Standards. It should be noted that a project isn't characterized as cumulatively insignificant when project emissions fall below thresholds of significance. As discussed in Section 3.1, the SJVAPCD has established thresholds of significance for determining environmental significance which are provided in Table 6.

Per CEQA Guidelines §15064(h)(3) a Lead Agency may determine that a project's incremental contribution to a cumulative effect is not cumulatively considerable if the project will comply with the requirements in a previously approved plan or mitigation program, including, but not limited to an Air Quality Attainment or Maintenance Plan that provides specific requirements that will avoid or substantially lessen the cumulative problem within the geographic area in which the Project is located (SJVAPCD, 2015).

AIR QUALITY PLAN

As noted above, the SJVAPCD has prepared the 2016 and 2013 Ozone Plans, 2007 PM10 Maintenance Plan, and 2012 PM2.5 Plan to achieve Federal and State standards for improved air quality in the SJVAB regarding ozone and PM. Existing and future pollutant emissions computed in the AQP are based on land uses from area General Plans. The AQP details the control measures and emission reductions required for reaching attainment of the air standards.

The applicable General Plan for the Project is the Merced County 2030 General Plan, which was adopted in 2012. The Project is consistent with the currently adopted General Plan for the Planada Community and is therefore consistent with the population growth and VMT applied in the Plan. Therefore, the Project is consistent with the growth assumptions used in the applicable AQP. As a result, the Project will not conflict with or obstruct implementation of any Air Quality Plans.

OZONE/PARTICULATE MATTER

Project emissions would not exceed the project-level significance thresholds for ozone precursors ROG and NOx or PM10 and PM2.5 during construction and operation. The SJVAPCD considers projects that exceed the project-level thresholds of significance as cumulatively significant. The Project's emissions would not combine with other sources in the SJVAB to make a cumulatively considerable contribution to a violation of the ozone standards. Therefore, this impact is less than significant. As such, there would not be a significant contribution to health effects from ozone and particulate matter.

Based on the assessment above, the Project will not result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is non-attainment under an applicable Federal or State Ambient Air Quality Standard (including releasing emissions which exceed quantitative thresholds for ozone precursors) and any impacts would be less than significant.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be *less than significant*.

Impact #3.4.3c – Would the Project expose sensitive receptors to substantial pollutant concentrations?

Sensitive receptors refer to those segments of the population most susceptible to poor air quality (i.e., children, the elderly, and those with pre-existing serious health problems affected by air quality). Land uses that have the greatest potential to attract these types of sensitive receptors include schools, parks, playgrounds, daycare centers, nursing homes, hospitals, and residential communities.

The first step in evaluating the potential for impacts to sensitive receptors for TAC's from the Project is to perform a screening level analysis. For Type A projects, one type of screening tool is found in the *CARB Handbook: Air Quality and Land Use Handbook: A Community Perspective*. This handbook includes recommended buffer distances associated with various types of common sources. Since the proposed Project does not correspond with the characteristics of these source categories, a health risk assessment is not needed at this time. Therefore, the Project will not expose sensitive receptors to substantial pollutant concentrations and any impacts would be less than significant.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be ***less than significant***.

Impact #3.4.3d – Would the Project result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

The SJVAPCD requires that an analysis of potential odor impacts be conducted for the following two situations:

- Generators – projects that would potentially generate odorous emissions proposed to be located near existing sensitive receptor or other land uses where people may congregate; and
- Receivers – residential or other sensitive receptor projects or other projects built for the intent of attracting people located near existing odor sources.

The proposed Project will not generate odorous emissions given the nature or characteristics of the Project. As a result, the Project will not be evaluated for its potential to place odor sources near existing sensitive receptors. It should be noted that the proposed Project will not generate emissions associated with long-term emissions given the nature of the Project. All operations associated with the Project will cease upon completion of the repairs (construction) associated with the Planada wastewater collection system.

The intensity of an odor source's operations and its proximity to sensitive receptors influences the potential significance of odor emissions. The SJVAPCD has identified some

common types of facilities that have been known to produce odors in the SJVAB. The types of facilities that are known to produce odors do not correspond with the specific characteristics of the Project.

Based on the assessment above, the Project will not generate potential odorous emissions or attract receivers and other sensitive receptors near existing odor sources. Therefore, no mitigation is needed.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be *less than significant*.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact

3.4.4 - BIOLOGICAL RESOURCES

Would the Project:

a.	Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	☐	☒	☐	☐
b.	Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	☐	☐	☒	☐
c.	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?	☐	☐	☐	☒
d.	Interfere substantially with the movement of any native resident or migratory fish or wildlife species, or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☒	☐
e.	Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☐	☒
f.	Conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or State habitat conservation plan?	☐	☐	☐	☒

The information in this section is summarized from a Biological Assessment Report prepared for the Project. These technical reports can be found in Appendix C.

The analysis below was developed based on a review of existing literature and databases and a site visit conducted on November 14, 2018. A full description of the methodology can be found in the technical reports.

For the purposes of this evaluation, the entire CSD is considered the Biological Study Area (BSA).

Environmental Setting

PHYSICAL SETTING

Topography, climate, and land use are described above. The BSA is underlain by five soil types: Marguerite Silty Clay Loam, zero to one percent slopes, Porterville Clay, zero to three percent slopes, Burchell Silty Clay Loam, zero to one percent slopes, Wyman Clay Loam, zero to three percent slopes, and Honcut Silty Clay Loam, Channeled, zero to eight percent slopes. Two of these soils, the Burchell Silty Clay Loam and the Honcut Silty Clay loam, may be considered hydric in areas subject to flooding for long durations.

The BSA is located within the Middle San Joaquin-Lower Chowchilla (UC 18040001) watershed. Two drainages are present with in the BSA: Planada Canal and Miles Creek (Figure 3.4.4-1). Both have been channelized. Planada Canal is classified by the NWI as R4SBCx: riverine, intermittent, streambed, seasonally flooded, excavated (USFWS 2018c). Miles Creek is classified by the NWI as PEM1Cx: palustrine emergent persistent, seasonally flooded, excavated. Conditions observed during the site visit indicate these classifications are accurate within the BSA. Habitat within these drainages is discussed in Section 4.2.5.

The majority of the BSA is located within a FEMA one-percent annual chance flood hazard zone, with very small portions in the west and south located within a FEMA 0.2-percent annual chance flood hazard zone (Figure 3.4.10-1; FEMA 2018).

VEGETATION

Five habitat types were observed within the BSA: urban, agriculture, and non-native grassland, ruderal, and waterways.

Urban

Urban is not a habitat described by Holland (1986) but is a subcategory of Developed Habitats in the CWHR. The majority of the BSA is comprised of urban habitat (approximately 409.8 acres) which includes paved roads and parking lots, residences, commercial and industrial buildings (and associated dirt parking lots where present), parks, schools, and the railroad corridor (Figure 3.4.4-1). Vegetation in most of this habitat consisted of ornamental herbs (grass lawns and weeds), shrubs and hedges, and non-native trees.

Agriculture

Agricultural habitats are present on approximately 120.9 acres of the BSA and occur primarily along the edges of the BSA (Figure 3.4.4-1). Agricultural habitats are not described by Holland (1986) but are broken down into subcategories of Developed Habitats in the CWHR based on crop type. CWHR agricultural habitats within the BSA include deciduous orchard (primarily almonds), irrigated grain crops (primarily corn), and dryland grain

crops. The dryland grain crops were associated with individual property owners with livestock, rather than large commercial growers.

Non-Native Grassland

Non-native grasslands are present on approximately 183.9 acres of the BSA (Figure 3.4.4.1). Non-native grassland is described by Holland (1986) as dense to sparse cover of annual grasses and forbs, usually on fine-textured, clay soils, found on valleys and foothills throughout most of the State. Occasional shrubs may be present but are not dominant. This habitat type coincides with the annual grassland described in the CWHR. At the time of the site visit most annual plant species were desiccated beyond identification, but bromes (*Bromus sp.*) and rye grasses (*Festuca sp.*) were present, and forbs such as prickly lettuce (*Lactuca serriola*) and Russian thistle (*Salsola tragus*) were identifiable. Much of the non-native grassland occurs on parcels that had not been developed for urban or agricultural uses. Based on the conditions observed on site and in historical aerial imagery, most of the non-native grasslands occurring in the BSA are subject to shallow disking at least once per year, likely for fire prevention.

Ruderal

Ruderal is not a habitat described by Holland (1986) but does correspond with barren habitats described in the CWHR. Ruderal habitats are generally barren or very sparsely vegetated, usually due to repeated disturbance. Ruderal habitats covered approximately 2.4 acres of the BSA and were mapped in a few areas adjacent to roads (Figure 3.4.4-1).

Waterways

There are two major waterways within the BSA: Planada Canal and Miles Creek (Figure 3.4.4-1). They comprised approximately 30.7 acres of the BSA. Neither were easily accessible due to lack of access. Therefore, the following descriptions are based on observations from public access roads and review of historic aerial imagery.

The Planada Canal is located along the northern and eastern boundaries of the BSA, and crosses under Miles Creek at the eastern most edge of the BSA. Except for a few scattered trees, the Planada Canal is devoid of vegetation, suggesting intensive maintenance, and it routinely carries water for agricultural irrigation. Based on historic aerial imagery, the Planada Canal may go dry in the summer, likely associated with drought conditions (Google LLC 2018).

Miles Creek flows through the southeastern and southern portion of the BSA. Portions of it appear to have been channelized. It is heavily vegetated with grasses, herbs, shrubs, dense patches of vines, and large clusters of trees, and does appear to carry water intermittently, though not as consistently as the Planada Canal (Google LLC 2018). Freshwater emergent vegetation is present in portions of the creek. The habitat along Miles Creek does not

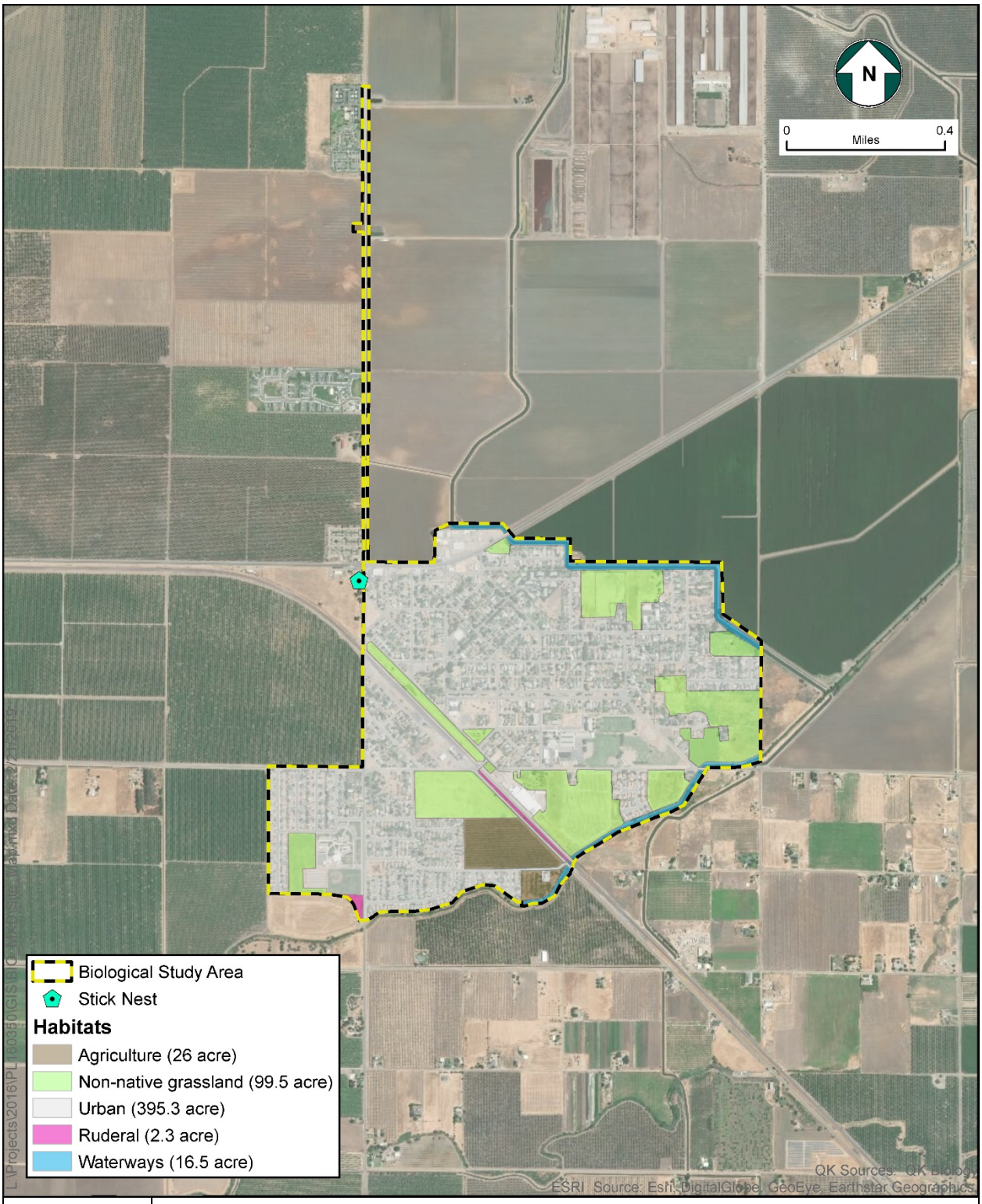

Figure 3.4.4-2
Vegetation Communities within the BSA
Wastewater Collection System Replacement Project
Planada, Merced County, California

correspond well with any of the Holland (1986) or CWHR habitats, but portions could be considered a type of willow riparian habitat, while others could be considered freshwater emergent wetland.

GENERAL WILDLIFE OBSERVATIONS

Wildlife activity observed during the reconnaissance site visit was normal for the time of day and the season during which the site visit was conducted. Species observed are common to urban and ruderal habitats, such as gophers (*Thomomys bottae*), California ground squirrels (*Otospermophilus beecheyi*), scrub jays (*Aphelocoma californica*), and house finches (*Haemorhous mexicanus*). One adult red-tailed hawk (*Buteo jamaicensis*) was observed perched in a large eucalyptus tree on the western side of the BSA (Figure 3.4.4-1). A stick nest was present in a nearby eucalyptus tree. One American kestrel (*Falco sparverius*) was observed perched on a power line surrounded by agricultural fields along the northern-most portion of the BSA. A complete list of all animals observed is presented in Appendix C.

Special-Status Species

There are seven special-status species with the potential to occur on the Project (Table 3.4.4-1). Of these, four species (two plants and two wildlife species) may be affected by the Project, but there are no species that would have the viability of their population threatened. The complete list of species evaluated for this Project as well as more detailed discussions of each of the species in Table 3.4.4-1 is included in the Biological Analysis Report in Appendix B.

Sensitive Plant Communities

The database and literature review identified one sensitive plant community documented within the vicinity of the BSA: Northern Hardpan Vernal Pool (CDFW 2018a). This habitat was not observed and would not be expected to be present because of the developed/disturbed nature of the BSA. The freshwater emergent wetland and riparian habitats associated with Miles Creek are also considered sensitive plant communities.

The BSA does not overlap any Federally-designated critical habitats (USFWS 2018a). The nearest critical habitat is for California tiger salamander (*Ambystoma californiense*), which is located approximately 1.8 miles to the east.

Jurisdictional Aquatic Resources

Based on review of NWI and aerial imagery, Miles Creek is a blue line drainage that flows into Hartely Slough, and then Owens Creek southwest of the City of Merced (Google LLC 2018, USWFS 2018c). Owens Creek then connects to Deep Slough, which eventually connects to the San Joaquin River on the west side of the Central Valley. The San Joaquin River flows north towards the Sacramento-San Joaquin Delta in the San Francisco Bay area, where it connects to the Pacific Ocean, a Traditional Navigable Water.

Table 3.4.4-1
Special-Status Species with Potential to Occur On Site

Scientific Name Common Name	Status Fed/State ESA CRPR/CDFW	Potentially Affected by Project? Yes/No	Viability Threat? Yes/No
Plants			
Sagittaria sanfordii Sanford's arrowhead	-/- 1B.2	No	No
Reptiles			
Actinemys [=Emys] marmorata western pond turtle	-/- SSC	No	No
Birds			
Athene cunicularia burrowing owl	-/- SSC	No	No
Buteo swainsoni Swainson's hawk	-/T	Yes	No
Falco columbarius merlin	-/- WL	No	No
Lanius ludovicianus loggerhead shrike	-/- SSC (nesting)	No	No
Mammals			
Antrozous pallidus pallid bat	-/- SSC	No	No
Eumops perotis californicus western mastiff bat	-/- SSC	No	No
Lasiurus blossevillii western red bat	-/- SSC	No	No
Lasiurus cinereus hoary bat	-/- State Special Animal	No	No
Taxidea taxus American badger	-/- SSC	No	No
Vulpes macrotis mutica San Joaquin kit fox	E/T	Yes	No

CRPR (California Rare Plant Rank):
- 1A Presumed Extinct in California
- 1B Rare, Threatened, or Endangered in California and elsewhere
- 2A Plants presumed extirpated in California, but more common elsewhere
- 2B Plants Rare, Threatened, or Endangered in California, but more common elsewhere

CRPR Threat Code Extension:
- .1 Seriously endangered in California (over 80% of occurrences threatened / high degree and immediacy of threat)
- .2 Fairly endangered in California (20-80% occurrences threatened)
- .3 Not very endangered in California (<20% of occurrences threatened)

- FE Federally Endangered
- FT Federally Threatened
- FC Federal Candidate Species
- FS Federally Sensitive
- SE State Endangered
- ST State Threatened
- SC State Candidate
- SS State Sensitive
- SSC State Species of Special Concern
- SFP State Fully Protected
- SR State Rare

Planada Canal is a blue line drainage that crosses and may be connected to Owens Creek south of the BSA (Google LLC 2018, USFWS 2018c). Its waters flow through other irrigation canals to the west, but these canals do not appear to connect to any natural features. Planada Canal also crosses and may be connected to Duck Slough, which flows across the Central Valley westward to Deep Slough. Water would then follow the same path described above for Miles Creek to the Pacific Ocean, a Traditional Navigable Water.

Based on a significant nexus to a Traditional Navigable Water, both Miles Creek and Planada Canal would be under the jurisdiction of the U.S. Army Corps of Engineers (USACE) as authorized by the Clean Water Act. Both drainages would also be under the regulatory authority of the Central Valley Regional Water Quality Control Board and the CDFW.

Discussion

Impact #3.4.4a – Would the Project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?

Special-Status Plant Species

Sanford's arrowhead is a CRPR 1B.2 species, indicating that it is considered rare, threatened, or endangered in California and elsewhere, and that it is moderately threatened in California (20-80 percent of occurrences threatened/moderate degree and immediacy of threat). This plant species is associated with aquatic habitats that can support emergent wetland species. Within the BSA, this species is expected to be limited to Miles Creek, and possibly Planada Canal, though it is unlikely to occur in the canal due to frequent maintenance by the local irrigation district, as evidenced by the lack of vegetation in this canal. Given the rare nature of this species, impacts to the species could be considered significant, particularly if multiple individuals are impacted. Impacting only one or two individuals would be considered less than significant.

Because Sanford's arrowhead would only be associated with wetland habitats, the potential for impact from the Project would be limited to the locations where existing sewer lines cross Miles Creek and the Planada Canal.

Direct impacts could include the destruction or injury of individuals of the plant species. Spread of dust during construction could also cause an impact, but the potential for this is low as dust is commonly thrown up when vehicles travel over unpaved surfaces. Furthermore, the proposed Project would have a very limited disturbance footprint sufficient for removal and replacement of the existing sewer lines. Therefore, most suitable habitat would be avoided.

Indirect impacts would likely be limited to the spread of invasive, non-native species; however, such species are already prevalent in the area. No loss of habitat is anticipated as surface conditions would be returned to pre-project conditions once the pipeline is replaced.

MITIGATION MEASURE(S)

MM BIO-1 Pre-activity Surveys for Sanford's Arrowhead: Prior to start of ground disturbance, a qualified biologist knowledgeable on the identification of Sanford's arrowhead should conduct a pedestrian survey of areas of appropriate habitat for this species within the Project area to determine if it is present. Surveys for Sanford's arrowhead would be limited to Miles Creek and Planada Canal. Surveys should be conducted during the bloom period for the species. Multiple surveys may be needed and should be phased with construction of the Project such that they are conducted during the bloom periods immediately prior to start of ground disturbance. If the species is not identified during the survey(s), no further action is required.

If the species is observed within the disturbance footprint, the biologist will identify those locations in the field using pin flags or other methods of marking to inform the contractor. Those areas should be avoided where possible. If only one or two individuals cannot be avoided, no further efforts are needed. If a larger population is present and cannot be avoided, the Project proponent will contact the CDFW at least 10 days prior to disturbance to allow for the collection of seed from these plant species (the construction schedule will proceed whether the CDFW collects seed or not).

LEVEL OF SIGNIFICANCE

Impacts would be ***less than significant impact with mitigation incorporated.***

Special-Status Wildlife

WESTERN POND TURTLE

The western pond turtle is a State Species of Special Concern that is highly aquatic and may be found in Miles Creek. The species is less likely to be found in the Planada Canal because of a lack of vegetation, but the water present in Planada Canal may be important to pond turtles inhabiting Miles Creek when it is dry. The species would only be impacted if it occurs in Miles Creek where the sewer line crosses the creek next to Plainsburg Road. Direct impacts could include injury or death of individual turtles or destruction of nests buried along the creek corridor. No indirect effects are anticipated because pre-project conductions will be restored after the sewer line is replaced, and the section of pipeline crossing Miles Creek is expected to be replaced via jack-and-bore or some other subterranean method that avoids impacts to surface water and vegetation.

WESTERN BURROWING OWL

The western burrowing owl is a State Species of Special Concern that could occur within the BSA where suitable burrows are present, most likely in association with California ground squirrels. There are numerous areas of suitable habitat near the existing sewer line, particularly in the southern portions of the BSA. Direct impacts could include injury or death of individuals or nests if occupied burrows adjacent to the sewer line are damaged or destroyed. Noise and vibration from construction of the Project, plus the presence of

construction workers, could alter the normal behaviors of nesting adults, resulting in harm or death to eggs or nestlings. No indirect impacts are anticipated given the short-duration of construction in any given area and no loss of suitable habit would occur.

SWAINSON'S HAWK

The Swainson's hawk is a State Threatened Species. Trees sufficient to support nesting were observed in the outskirts of the BSA, particularly in the eastern and northwestern areas. A stick nest was observed in eucalyptus trees in the northwestern portion of the BSA; it is unknown which species constructed or has used this nest in the past because the observation was made outside of the nesting season. There is suitable foraging habitat within the non-native grasslands occurring in the BSA. Direct impacts to Swainson's hawk could occur if replacement of sewer lines occur near an active nest or adjacent to foraging habitat during the nesting season. No trees are expected to be removed, but noise and vibration from construction of the Project, plus the presence of construction workers, could alter the normal behaviors of nesting adults, resulting in harm or death to eggs or nestlings. No indirect impacts are anticipated given the short-duration of construction in any given area and no loss of suitable nesting or foraging habit would occur.

MERLIN

Merlins are a California Watch List species that only occurs in the region as winter transients. If they are found within the BSA, they would likely be located along Miles Creek where tree density is highest or in some of the more isolated tree stands next to undeveloped habitat. These areas would not be affected by the Project; therefore, there would be no impacts to merlins.

LOGGERHEAD SHRIKE

Loggerhead shrikes are a State Species of Special Concern that would most likely be found on the edges of the BSA where trees and large shrubs are present along Miles Creek or other parcels that contain non-native grassland. The sewer lines are not located in these areas; therefore, there would be no impacts to loggerhead shrikes.

PALLID BAT, WESTERN MASTIFF BAT, WESTERN RED BAT, HOARY BAT

The availability of roosts for these bat species are limited within the BSA. No trees are expected to be removed as a result of the Project. Most of the sewer lines are located under paved roads with housing on all sides. Individual bats may day roost in neighborhood trees, but large maternity roosts are not expected to be present. There is one sewer line crossing of Miles Creek next to the Plainsburg Road bridge. It is possible that some bats may use this bridge as a day roost, but replacement of the pipeline is not expected to impact this bridge. No impacts to bats are anticipated.

MITIGATION MEASURES

MM BIO-2 Pre-activity Surveys for San Joaquin Kit Fox, American Badger, and Burrowing Owl: Within 14 days of the start of Project activities in any specific area, a pre-activity survey should be conducted by a qualified biologist knowledgeable in the identification of these species. The surveys should cover the Project site plus a 500-foot buffer. Pedestrian surveys achieving 100-percent visual coverage should be conducted. Multiple surveys are anticipated to be needed, which would be phased with construction of the Project. If no evidence of these species is detected, no further action is required.

MM BIO-3 Avoidance of Burrows for San Joaquin Kit Fox, American Badger, and Burrowing: If dens/burrows that could support any of these species are discovered during the pre-activity surveys conducted under MM BIO-2, the avoidance buffers outlined below should be established. No work would occur within these buffers unless the biologist approves and monitors the activity.

San Joaquin Kit Fox
- Potential Den – 50 feet
- Atypical Den – 50 feet (includes pipes and other man-made structures)
- Known Den – 100 Feet
- Natal/Pupping Den – 500 feet

Badger
- Potential Den – None
- Natal/Pupping Den – 100 feet

Burrowing Owl (active burrows)
- April 1 – October 15 – 500 feet
- October 16 – March 31 – 100 feet

MM BIO-4 Avoidance and Minimization Measures for San Joaquin Kit Fox, American Badger, and Burrowing: The following avoidance and minimization measures should be implemented during all phases of the Project to reduce the potential for impact from the Project. They are modified from the *U.S. Fish and Wildlife Service Standardized Recommendations for Protection of the Endangered San Joaquin Kit Fox Prior to or During Ground Disturbance* (Appendix F; USFWS 2011) and apply to all three species.

- Project-related vehicles should observe a daytime speed limit of 20 mph throughout the site in all Project areas, except on county roads and State and Federal highways. Night-time construction speed limits should be 10 mph.
- Off-road traffic outside of designated Project areas should be prohibited.
- All Project activities should occur during daylight hours.
- To prevent inadvertent entrapment of kit foxes or other animals during construction of the Project, all excavated, steep-walled holes or trenches more than two-feet deep should be covered at the close of each working day by plywood or similar materials.

If the trenches cannot be closed, one or more escape ramps constructed of earthen-fill or wooden planks shall be installed.

- Before holes or trenches are filled, they should be thoroughly inspected for trapped animals. If at any time a trapped or injured kit fox is discovered, the USFWS and the CDFW should be contacted before proceeding with the work.
- In the case of trapped animals, escape ramps or structures should be installed immediately to allow the animal(s) to escape, or the USFWS should be contacted for guidance.
- All construction pipes, culverts, or similar structures with a diameter of four inches or greater that are stored at a construction site for one or more overnight periods should be thoroughly inspected for kit foxes and burrowing owls before the pipe is subsequently buried, capped, or otherwise used or moved in any way. If a kit fox or burrowing owl is discovered inside a pipe, that section of pipe should not be moved until the USFWS has been consulted. If necessary, and under the direct supervision of the biologist, the pipe may be moved only once to remove it from the path of construction activity, until the fox or owl has escaped.
- All food-related trash items such as wrappers, cans, bottles, and food scraps should be disposed of in securely closed containers and removed at least once a week from a construction or Project site.
- No firearms shall be allowed on the Project site.
- No pets, such as dogs or cats, should be permitted on the Project site.
- Use of rodenticides and herbicides in Project areas should be restricted.
- A representative shall be appointed by the Project proponent who will be the contact source for any employee or contractor who might inadvertently kill or injure a kit fox, burrowing owl or badger or who finds a dead, injured or entrapped kit fox, burrowing owl or badger. The representative will be identified during the employee education program and their name and telephone number shall be provided to the Service.
- An employee education program should be developed and presented to Project personnel. The program should consist of a brief presentation by persons knowledgeable in kit fox, burrowing owl, and badger biology, as well as Sanford's arrowhead, and the legislative protections in place. The program should include the following: A description of each species natural history and habitat needs; a report of the occurrence of each species in the Project area; an explanation of the status of each species and its protections under Federal and State laws; and a list of measures being taken to reduce impacts to each species during Project construction and implementation. A fact sheet conveying this information should be prepared for distribution to the previously referenced people and anyone else who may enter the Project site.
- Upon completion of the Project, all areas subject to temporary ground disturbances (including storage and staging areas, temporary roads, pipeline corridors, etc.) should be re-contoured if necessary, and revegetated to promote restoration of the area to pre-Project conditions. An area subject to "temporary" disturbance means any area that is disturbed during the Project, but after Project completion will not be subject to further disturbance and has the potential to be revegetated.

- Any Project personnel who are responsible for inadvertently killing or injuring one of these species should immediately report the incident to their representative. This representative should contact the CDFW and USFWS immediately in the case of a dead, injured or entrapped kit fox.
- The Sacramento Fish and Wildlife Office and CDFW shall be notified in writing within three working days of the accidental death or injury to a San Joaquin kit fox during Project related activities. Notification must include the date, time, and location of the incident or of the finding of a dead or injured animal and any other pertinent information.
- New sightings of kit fox shall be reported to the California Natural Diversity Database (CNDDB). A copy of the reporting form and a topographic map clearly marked with the location of where the kit fox was observed should also be provided to the USFWS.

MM BIO-5 Pre-activity Nesting Bird Surveys: If Project activities must occur during the nesting season (February 15 to August 31), pre-activity nesting bird surveys should be conducted within seven days prior to the start of construction at the construction site plus a 250-foot buffer for song birds and a 500-foot buffer for raptors (other than Swainson's hawk). The surveys should be phased with construction of the Project. If no active nests are found, no further action is required; however, note that nests may become active at any time throughout the summer, including when construction activities are occurring. If active nests are found during the survey or at any time during construction of the Project, an avoidance buffer ranging from 50 feet to 350 feet may be required, as determined by a qualified biologist. The avoidance buffer will remain in place until the biologist has determined that the young are no longer reliant on the nest. Work may occur within the avoidance buffer under the approval and guidance of the biologist. The biologist should have the ability to stop construction if nesting adults show sign of distress.

MM BIO-6 Pre-activity Surveys for Swainson's Hawk Nests: If Project activities must occur during the nesting season (February 15 to August 31), pre-activity surveys should be conducted for Swainson's hawk nests within 14 days prior to the start of construction. The surveys would be conducted on the Project site plus a 0.5-mile buffer. The surveys should be phased with construction of the Project. The survey will be conducted in accordance with the methodology outlined in existing protocols and should be phased with construction of the Project. Note that Swainson's hawks may establish a nest at any time from February through June; multiple Swainson's hawks nest surveys may be necessary in one season at the direction of a qualified biologist, depending on the timing of Project construction. If no Swainson's hawk nests are found, no further action is required.

MM BIO-7 Swainson's Hawk Nest Avoidance: If an active Swainson's hawk nest is discovered at any time within 0.5 mile of active construction, a qualified biologist will complete an assessment of the potential for current construction activities to impact the nest. The assessment will consider the type of construction activities, the location of construction relative to the nest, the visibility of construction activities from the nest location, and other existing disturbances in the area that are not related to construction activities of this Project. Based on this assessment, the biologist will determine if construction activities can proceed,

and if nest monitoring will be required. Minimally, construction activities should not occur within 100 feet of an active nest and may require monitoring if within 500 feet of an active nest. These buffers may need to increase depending on the sensitivity of the nest location.

LEVEL OF SIGNIFICANCE

Impacts would be *less than significant impact with mitigation incorporated*.

Impact #3.4.4b – Would the Project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?

The BSA does not overlap critical habitat. Potentially sensitive wetland and riparian habitat is present in Miles Creek. There is one sewer line crossing of Miles Creek along Plainsburg Road. Assuming this section of the pipeline is replaced using trenchless methods that would avoid disturbing the surface above the line, the Project would have no impacts to sensitive natural communities and no mitigation measures are required.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be *less than significant*.

Impact #3.4.4c – Would the Project 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?

The BSA encompasses Miles Creek along Plainsburg Road; however, the Project as proposed does not include any repair or modification of the sewer line where it crosses Miles Creek. As such, the Project would have no impacts to Federally-protected wetlands and no measures are required.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

There would be *no impact*.

Impact #3.4.4d – Would the Project 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?

The Project is located in a highly developed urban and agricultural area and would not result in loss of habitat. There is one sewer line crossing of Miles Creek along Plainsburg Road, and Miles Creek may serve as a local movement corridor. Furthermore, construction of the Project is expected to be of short duration at any given location, thereby reducing the potential for interrupting wildlife movements at Miles Creek. It is also anticipated that construction will occur during daylight hours, thereby avoiding any potential impacts due to night lighting spilling over into wildlife habitat. As such, the potential for impacts to wildlife movement are less than significant and no measures are required.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be *less than significant*.

Impact #3.4.4e – Would the Project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

The proposed Project does not conflict with the 2030 Merced County General Plan, and there are no biological ordinances applicable to the Project. The Project's impacts to biological resources will be temporary and no loss of habitat will occur. Furthermore, construction at any given location is expected to be of short-duration. Therefore, there are no impacts with respect to local policies and ordinances and no measures are required.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

There would be *no impact*.

Impact #3.4.4f – Would the Project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or State Habitat Conservation Plan?

The PG&E San Joaquin Valley Operations and Maintenance Habitat Conservation Plan is the only Conservation Plan overlying the proposed Project, but it does not apply to any projects that are not implemented by PG&E. As such, the proposed Project will not conflict with any adopted Habitat Conservation Plan, Natural Conservation Community Plan, or other approval local, regional, or State Habitat Conservation Plan. Therefore, there are no impacts and no measures are required.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

There would be *no impact*.

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

Discussion

This section is based on a Cultural Resource Report written by Applied Earthworks (Appendix B).

Impact #3.4.5a – Would the Project cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5?

As defined by CEQA Guidelines Section 15064.5, "historical resources" are:

- A resource listed in, or determined to be eligible by the State Historical Resources Commission, for listing in the California Register of Historical Resources (Public Resource Code Section 5024.1, Title 14 California Code of Regulations, Section 4850 et seq.).
- A resource included in a local register of historical resources, as defined in Section 5020.1(k) of the Public Resources Code or identified as significant in a historical resource survey meeting the requirements Section 5024.1(g) of the Public Resources Code, shall be presumed to be historically or culturally significant. Public agencies must treat any such resource as significant unless the preponderance of evidence demonstrates that it is not historically or culturally significant.
- Any object, building, structure, site, area, place, record, or manuscript which a Lead Agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California may be considered to be an historical resource, provided the Lead Agency's determination is supported by substantial evidence in light of the whole record. Generally, a resource shall be considered by the Lead Agency to be "historically significant" if the resource meets the criteria for listing on

the California Register of Historical Resources (Public Resources Code Section 5024.1, Title 14 CCR, Section 4852) including the following:

- Is associated with events that have made a significant contribution to the broad patterns of California's 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 creative individual, or possesses high artistic values; or
- Has yielded, or may be likely to yield, information important in prehistory or history.

The records search revealed that two previous investigations conducted within the Project site and 18 investigations have been conducted within a 0.5-mile radius of the Project site. Five cultural resources were identified within the Planada CSD boundary but are not in areas to be potentially affected by the Project.

On December 28, 2018 letters were mailed to each of the Native American tribes within the geographic area (see Appendix B). These tribes include the Amah Mutsun Tribal Band, the Dumna Wo-Wah Tribal Government, the North Valley Yokuts Tribe, and the Southern Sierra Miwuk Nation. The letters included a brief project description and location maps. Chairperson Valentin Lopez of the Amah Mutsun Tribal Band responded by telephone stating that the Project is outside the Band's tribal territory. To date, no other response has been received from any tribe.

The locations of an additional 17 historic-aged buildings and structures have been reported to CHRIS but lack further documentation. No other cultural or tribal resources were identified in the area potentially affected by the Project as a result of the NAHC Sacred Lands File search. Applied Earthworks conducted a buried site sensitivity assessment that revealed a low probability of encountering well-preserved cultural deposits in a primary context within the area potentially affected by the Project.

Due to the possible presence of undocumented tribal or cultural resources within the Project site, construction related impacts on tribal or cultural resources could be potentially significant prior to mitigation. Implementation of the following mitigation measure would require appropriate steps to preserve and/or document any previously undiscovered resources that may be encountered during construction activities, including human remains.

MITIGATION MEASURE(S)

MM CUL-1: If prehistoric or historic-era cultural materials are encountered during construction activities, all work in the immediate vicinity of the find shall halt until a qualified archaeologist can evaluate the find and make recommendations. Cultural resource materials may include prehistoric resources such as flaked and ground stone tools and debris, shell, bone, ceramics, and fire-affected rock as well as historic resources such as glass, metal, wood, brick, or structural remnants. If the qualified archaeologist determines that the discovery represents a potentially significant cultural resource, additional investigations

may be required to mitigate adverse impacts from Project implementation. These additional studies may include avoidance, testing, and evaluation or data recovery excavation. Implementation of the mitigation measure below would ensure that the proposed Project would not cause a substantial adverse change in the significance of a historical resource. Therefore, the Project would have a less than significant impact with incorporation of mitigation measures.

Level of Significance

Impact would be *less than significant with mitigation incorporated*.

Impact #3.4.5b – Would the Project cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines Section 15064.5?

See discussion of Impact #3.4.5a, above.

MITIGATION MEASURE(S)

Implementation of Mitigation Measures MM CUL-1.

LEVEL OF SIGNIFICANCE

Impacts would be *less than significant with mitigation incorporated*.

Impact #3.4.5c – Would the Project disturb any human remains, including those interred outside of formal cemeteries?

Although unlikely, subsurface construction activities, such as trenching and grading, associated with the proposed Project could potentially disturb previously undiscovered human burial sites. Accordingly, this is a potentially significant impact. Although considered unlikely subsurface construction activities could cause a potentially significant impact to previously undiscovered human burial sites. The records searches did not indicate the presence of human remains, burials, or cemeteries within the Project site. No human remains have been discovered at the Project site, and no burials or cemeteries are known to occur within the area of the site. However, construction would involve earth-disturbing activities, and it is still possible that human remains may be discovered, possibly in association with archaeological sites. Implementation of the below mitigation measure would ensure that the proposed Project would not directly or indirectly destroy previously unknown human remains. The proposed Project would not disturb any known human remains, including those interred outside of formal cemeteries. Therefore, the Project would have a less than significant impact with incorporation of mitigation measures.

MITIGATION MEASURE(S)

MM CUL-2: If human remains are discovered during construction or operational activities, further excavation or disturbance shall be prohibited pursuant to Section 7050.5 of the California Health and Safety Code. The specific protocol, guidelines, and channels of

communication outlined by the Native American Heritage Commission, in accordance with Section 7050.5 of the Health and Safety Code, Section 5097.98 of the Public Resources Code (Chapter 1492, Statutes of 1982, Senate Bill 297), and Senate Bill 447 (Chapter 44, Statutes of 1987), shall be followed. Section 7050.5(c) shall guide the potential Native American involvement, in the event of discovery of human remains, at the direction of the Merced County Coroner.

LEVEL OF SIGNIFICANCE

Impacts would be ***less than significant with mitigation incorporated***.

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

Discussion

Impact #3.4.6a – Would the Project result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during Project construction or operation?

Construction of the Project would increase energy consumption due to the operation of construction equipment. The increase in energy consumption associated with construction activities would be minimal in comparison to State-wide and regional consumption. Construction equipment and vehicles would be operated in accordance with all applicable rules and regulations thereby minimizing energy consumption associated with the construction equipment and vehicles primarily powered by nonrenewable fuels.

Increased energy consumption as a result of the Project is expected to be minimal to none.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

There would be ***no impact***.

Impact #3.4.6b – Would the Project conflict with or obstruct a State or local plan for renewable energy or energy efficiency?

Assembly Bill 32 (Health and Safety Code Sections 38500–38599), also known as the California Global Warming Solutions Act of 2006, commits the State to achieving year 2000 GHG emission levels by 2010 and year 1990 levels by 2020. To achieve these goals, AB 32 tasked the California Public Utilities Commission and the California Energy Commission with

providing information, analysis, and recommendations to the California Air Resources Board regarding ways to reduce GHG emissions in the electricity and natural gas utility sectors.

The California Green Building Standards Code (California Code of Regulations, Title 24, Part 11), commonly referred to as the CALGreen Code, went into effect on January 1, 2014, with energy provisions effective July 1, 2014. The 2013 CALGreen Code includes mandatory measures for non-residential development related to site development; water use; weather resistance and moisture management; construction waste reduction, disposal, and recycling; building maintenance and operation; pollutant control; indoor air quality; environmental comfort; and outdoor air quality. Mandatory measures for residential development pertain to green building; planning and design; energy efficiency; water efficiency and conservation; material conservation and resource efficiency; environmental quality; and installer and special inspector qualifications.

In 2009, the SJVAPCD adopted the following guidance documents applicable to projects within the San Joaquin Valley:

- Guidance for Valley Land-use Agencies in Addressing GHG Emission Impacts for New Projects under CEQA (SJVAPCD 2009); and
- District Policy: Addressing GHG Emission Impacts for Stationary Source Projects Under CEQA When Serving as the Lead Agency (SJVAPCD 2009).

This guidance and policy are the documents referenced in the SJVAPCD's Guidance for Assessing and Mitigating Air Quality Impacts adopted in March 2015 (SJVAPCD 2015). Consistent with the District Guidance and District Policy above, SJVAPCD (2015) acknowledges the current absence of numerical thresholds, and recommends a tiered approach to establish the significance of the GHG impacts on the environment:

- If a project complies with an approved GHG Emission Reduction Plan or GHG Mitigation Program which avoids or substantially reduces GHG emissions within the geographic area in which the project is located, then the project would be determined to have a less than significant individual and cumulative impact for GHG emissions;
- If a project does not comply with an approved GHG Emission Reduction Plan or mitigation program, then it would be required to implement Best Performance Standards (BPS); and
- If a project is not implementing BPS, then it should demonstrate that its GHG emissions would be reduced or mitigated by at least 29 percent compared to Business as Usual (BAU).

In the event that a local air district's guidance for addressing GHG impacts does not use numerical GHG emissions thresholds, at the Lead Agency's discretion, a neighboring air district's GHG thresholds may be used to determine impacts. On December 5, 2008, the South Coast Air Quality Management District (SCAQMD) Governing Board adopted the staff proposal for an interim GHG significance threshold for projects where the SCAQMD is Lead Agency. The SCAQMD guidance identifies a threshold of 10,000 MTCO2eq./year for GHG for construction emissions amortized over a 30-year project lifetime, plus annual operation

emissions. This threshold is often used by agencies, such as the California Public Utilities Commission, to evaluate GHG impacts in areas that do not have specific thresholds (CPUC 2015). Therefore, because this threshold has been established by the SCAQMD in an effort to control GHG emissions in the largest metropolitan area in the State of California, this threshold is considered a conservative approach for evaluating the significance of GHG emissions in a more rural area, such as Merced County.

Though the Project is under SJVAPCD jurisdiction, the SCAQMD GHG threshold provides some perspective on the GHG emissions generated by the Project. The Project will not generate operational emissions as noted above. However, in accordance with SCAQMD guidance, the Project's construction emissions were amortized over 30 years and compared to the 10,000 MTCO2eq./year criteria. Table 7 of the AQIA (Appendix A) shows GHG emissions associated with the construction phase of the Project. Construction emissions associated with the Project amortized over 30 years equates to 40.9 MTCO2eq, which is approximately 99.6 percent less than the threshold identified by the SCAQMD.

CARB's California GHG Emissions Inventory provides estimates of anthropogenic GHG emissions within California, as well as emissions associated with imported electricity; natural sources are not included in the inventory. California's GHG emissions for 2015 totaled approximately 440,400,000 MTCO2eq. The proposed Project's GHG emissions represents 0.000009 percent of the total GHG emissions for the State of California when compared to year 2015 emissions data.

Based on the assessment above, the Project will not conflict with or obstruct a State or local plan for renewable energy or energy efficiency. The proposed Project will not increase energy consumption associated with long-term (operational) activities beyond existing levels given the nature of the Project. All operations associated with the Project will cease upon completion of the repairs (construction) associated with the Planada wastewater collection system.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

There would be ***no impact***.

3.4.7 - GEOLOGY AND SOILS

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the Project:				
a. Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☒	☐
ii. Strong seismic ground shaking?	☐	☐	☒	☐
iii. Seismic-related ground failure, including liquefaction?	☐	☐	☒	☐
iv. Landslides?	☐	☐	☒	☐
b. Result in substantial soil erosion or the loss of topsoil?	☐	☒	☐	☐
c. Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the Project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?	☐	☐	☒	☐
d. Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?	☐	☐	☒	☐
e. Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems in areas where sewers are not available for the disposal of wastewater?	☐	☐	☐	☒

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
f.	Would the Project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☒	☒

Discussion

Impact #3.4.7a(i) – Would the Project 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?

The Project would improve aging sewer line infrastructure in the Planada Community Services District. The proposed construction and operation of the Project would not increase the potential exposure of persons living and working on the Project site to seismic events including risk of loss, injury, and death related to earthquakes and related hazards, which are described as follows:

It is general knowledge that the Merced County region is seismically active. Although the Planada CSD itself is not crossed by any known active or potentially active faults, it does have surrounding faults in various directions. The following are principal sources of seismic activity for the County of Merced: San Andreas fault to the west (approximately 15 miles from the Merced County line), Hayward and Calaveras faults to the northwest, White Wolf, Garlock and Sierra Nevada faults to the south, and the Bear Mountain Fault Zone is about five miles east of and parallel to the eastern border of Merced County. The only known fault inside the County of Merced is the "Ortigalita" or also known as "Telsa-Ortigalita Fault" located in the western quarter of the County. The Ortigalita Fault dissects the Coast Range in northwesterly direction, and even though it has not been active in historic times there is no guarantee it will not be active in the future. The maximum earthquake intensity expected to reach the Community of Planada is a moderate severity with moderate damage probable.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impact would be *less than significant*.

Impact #3.4.7a(ii) – Would the Project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving strong seismic ground shaking?

In the event of an earthquake on a nearby fault, it is likely that the Project site would experience ground shaking and expose people and structures associated with the Project, to ground shaking. There is documented evidence of six earthquakes that shook the area in 1872, 1906, 1952, 1966, 1984, and 1989. None of these earthquakes are reported to have caused death, but major structural damage occurred in Los Banos in 1906 with minor structural damage recorded throughout the County on other occasions.

Structures constructed as part of the Project would be required by State law to be constructed in accordance with all applicable International Building Code (IBC) and California Building Code (CBC) earthquake construction standards, including those relating to soil characteristics. Adherence to all applicable regulations would avoid any potential impacts to structures resulting from liquefaction at the Project site. Therefore, there would be less than significant.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be *less than significant*.

Impact #3.4.7a(iii) – Would the Project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving seismic-related ground failure, including liquefaction?

Liquefaction could result in local areas during a strong earthquake or seismic ground shaking where unconsolidated sediments and a high-water table coincide. The subsurface soils generally consist of clays and clay loams. These soils typically have a high moisture-holding capacity, frequent irrigation is not required and hazard for erosion is slight.

The Project would not expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving seismic-related ground failure including liquefaction. Structures constructed as part of the Project would be required by State law to be constructed in accordance with all applicable IBC and CBC earthquake construction standards, including those relating to soil characteristics. Adherence to all applicable regulations would avoid any potential impacts to structures resulting from liquefaction at the Project site. Therefore, there would be less than significant impacts as a result of ground failure and liquefaction.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be *less than significant*.

Impact #3.4.7a(iv) – Would the Project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving landslides?

There is no potential for rock fall and landslides to impact the site in the event of a major earthquake, as the proposed site and surrounding areas are flat and do not include dramatic elevation changes. Based on estimated maximum horizontal accelerations at the Project site, historical seismic and landslide activities in the Project area, and the soil types of the Project area, minor subsurface settlement may occur on site during a major earthquake and this is considered less than significant. The property is flat and there is a low potential for landslides. The site would not be subject to liquefaction impacts due to the depth of groundwater below ground surface.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be *less than significant*.

Impact #3.4.7b – Would the Project result in substantial soil erosion or the loss of topsoil?

Construction activities associated with the proposed Project would temporarily disrupt surface vegetation and/or soils that would expose these disturbed areas to erosion by wind and water. National Pollutant Discharge Elimination System (NPDES) stormwater permitting programs regulate stormwater quality from construction sites, which includes erosion and sedimentation. Under the NPDES permitting program, the preparation and implementation of a Stormwater Pollution Prevention Plan (SWPPP) are required for construction activities that would disturb an area of one acre or more. As noted in Section 3.4.10, *Hydrology and Water Quality*, Impact #3.4.10a., a SWPPP must identify potential sources of erosion or sedimentation that may be reasonably expected to affect the quality of stormwater discharges as well as identify and implement BMPs that ensure the reduction of these pollutants during stormwater discharges. Typical BMPs intended to control erosion include sand bags, detention basins, silt fencing, storm drain inlet protection, street sweeping, and monitoring of water bodies. Mitigation Measure MM HYD-1 requires the approval of a SWPPP to comply with the NPDES General Construction Permit from the Central Valley Regional Water Quality Control Board (RWQCB).

The Project would not increase the total area of impermeable surfaces in the Project area beyond those that currently exist. The soil types in the Project area are not especially susceptible to erosion, as discussed in the previous section. The Project would not result in substantial soil erosion or the loss of topsoil. Impacts would be less than significant with incorporation of mitigation measures.

MITIGATION MEASURE(S)

MM GEO-1: Prior to ground disturbance, an Erosion Control Plan for construction activities will be prepared that describes the Best Management Practices (BMPs) that will be incorporated to reduce the potential for soil erosion and loss of top soil. The BMPs could include soil stabilizers and silt fencing as well as other measures.

Implementation of Mitigation Measure MM HYD-1.

LEVEL OF SIGNIFICANCE

Impacts would be *less than significant with mitigation incorporated*.

Impact #3.4.7c – Would the Project 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?

There is no evidence of landslides on the Project site, and the Project site is not located in an unstable geologic unit or on soil that is considered unstable. The United States Department of Agriculture Natural Resources Conservation Service indicates that Porterville Clay, Marguerite Silty Clay Loam, and Wyman Clay Loam soil types underly the Project site (see Figure 3.4.7-1). These soils are not susceptible to subsidence with zero to five percent slopes. The proposed Project would not 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. Therefore, the Project would have a less than significant impact.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be *less than significant*.

Impact #3.4.7d – Would the Project be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?

Based on the type of soils encountered in the top five feet of soil in the Project area, it was determined that it is likely that no significant areas of highly expansive soils would be encountered. The Project would comply with all applicable requirements of the California Code of Regulations and the most recent California Building Standards Code that provides criteria for the appropriate design of buildings. The proposed Project would not be located on any identified expansive soils, as defined in the California Building Code. Therefore, the Project would have a less than significant impact.

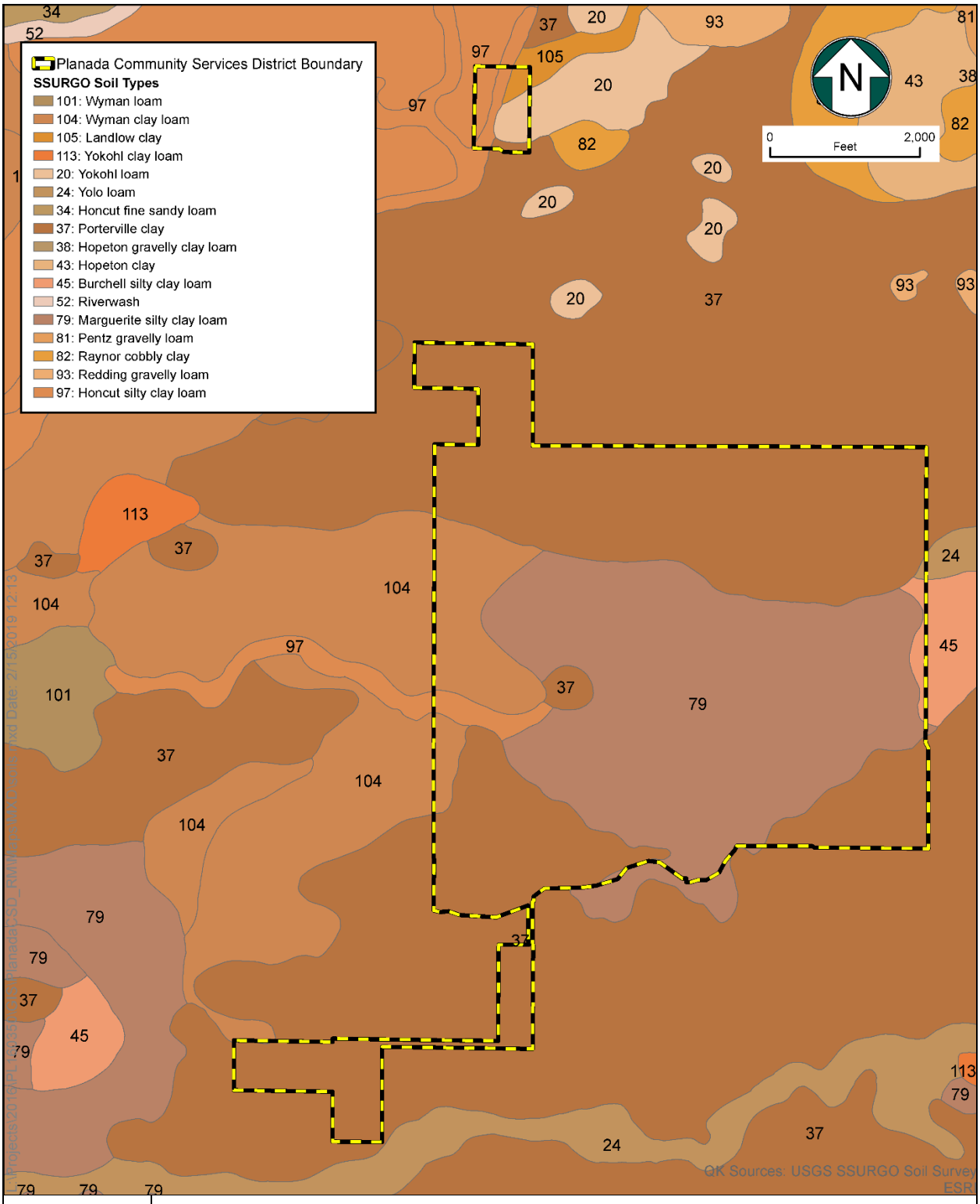

Figure 3.4.7-1
Soil Types in Project Area

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be *less than significant*.

Impact #3.4.7e – Would the Project have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems in areas where sewers are not available for the disposal of wastewater?

The proposed Project does not include the construction of additional infrastructure that would necessitate the usage of septic tanks. The existing and future system has been and will continue to be designed to meet all applicable State and local codes and regulations. Therefore, the Project would have a less than significant impact.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

There would be *no impact*.

Impact #3.4.7f – Would the Project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

The Project includes the excavation of roadways in order to replace aging sewer infrastructure. There are no known unique paleontological or geologic features in the Project site. Due to the urban nature of the Project site, there exists little potential of discovery of a previously unknown paleontological or geological resource in the Project area. Therefore, the Project would have a less than significant impact.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be *less than significant.*

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

Discussion

An air quality and greenhouse gas analysis report was relied upon in the analysis of impacts related to greenhouse gases (GHGs) (see Appendix A). This report was prepared in accordance with the SJVAPCDs guidelines and adopted policies of CARB.

In addition to providing an assessment of the Project's impacts to GHGs, the report includes a detailed description of the regulatory environment as it relates to GHGs.

GHGs are identified as any gas that absorbs infrared radiation in the atmosphere. GHGs include water vapor, carbon dioxide (CO2), methane (CH4), nitrous oxide (N2O), halogenated fluorocarbons (HCFCs), ozone (O3), perfluorinated carbons (PFCs), hydrofluorocarbons (HFCs), and sulfur hexafluoride (SF6). On December 7, 2009, the EPA issued an Endangerment Finding on the above referenced key well-mixed GHGs. These GHGs are considered "pollutants" under the Endangerment Finding. However, these findings do not themselves impose any requirements on industry or other entities.

The Global Warming Solutions Act [Assembly Bill (AB) 32] was passed by the California Legislature and signed into law by the Governor in 2006. AB 32 requires that GHGs emissions in 2020 be reduced to 1990 levels. GHGs rules and market mechanisms for emissions reduction were required to be in place as of January 2012.

Impact #3.4.8a – Would the Project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

In the event that a local air district's guidance for addressing GHG impacts does not use numerical GHG emissions thresholds, at the Lead Agency's discretion, a neighboring air district's GHG thresholds may be used to determine impacts. On December 5, 2008, the South Coast Air Quality Management District (SCAQMD) Governing Board adopted the staff proposal for an interim GHG significance threshold for projects where the SCAQMD is Lead

Agency. The SCAQMD guidance identifies a threshold of 10,000 MTCO2eq./year for GHG for construction emissions amortized over a 30-year project lifetime, plus annual operation emissions. This threshold is often used by agencies, such as the California Public Utilities Commission, to evaluate GHG impacts in areas that do not have specific thresholds (CPUC 2015). Therefore, because this threshold has been established by the SCAQMD in an effort to control GHG emissions in the largest metropolitan area in the State of California, this threshold is considered a conservative approach for evaluating the significance of GHG emissions in a more rural area, such as Merced County. Though the Project is under SJVAPCD jurisdiction, the SCAQMD GHG threshold provides some perspective on the GHG emissions generated by the Project. The Project will not generate operational emissions as noted above. However, in accordance with SCAQMD guidance, the Project's construction emissions were amortized over 30 years and compared to the 10,000 MTCO2eq./year criteria. Construction emissions associated with the Project amortized over 30 years equates to 40.9 MTCO2eq, which is approximately 99.6 percent less than the threshold identified by the SCAQMD.

CARB's California GHG Emissions Inventory provides estimates of anthropogenic GHG emissions within California, as well as emissions associated with imported electricity; natural sources are not included in the inventory. California's GHG emissions for 2015 totaled approximately 440,400,000 MTCO2eq. The proposed Project's GHG emissions represents 0.000009 percent of the total GHG emissions for the State of California when compared to year 2015 emissions data.

Based on the assessment above, the Project will not generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment. Therefore, any impacts would be less than significant.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be *less than significant*.

Impact #3.4.8b – Would the Project conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

SB 375 requires MPOs to adopt a SCS or APS that will prescribe land use allocation in that MPO's Regional Transportation Plan. CARB, in consultation with MPOs, has provided each affected region with reduction targets for GHGs emitted by passenger cars and light trucks in the region for the years 2020 and 2035. For the MCAG region, CARB set targets at five percent per capita decrease in 2020 and a 10 percent per capita decrease in 2035 from a base year of 2005. MCAG's 2014 RTP/SCS, which was adopted in 2016, projects that the Merced County region would achieve the prescribed emissions targets.

Executive Order B-30-15 establishes a California greenhouse gas reduction target of 40 percent below 1990 levels by 2030 to ensure California meets its target of reducing greenhouse gas emissions to 80 percent below 1990 levels by 2050. Executive Order B-30-15 requires MPOs to implement measures that will achieve reductions of greenhouse gas emissions to meet the 2030 and 2050 greenhouse gas emissions reductions targets.

As required by California law, city and county General Plans contain a Land Use Element that details the types and quantities of land uses that the city or county estimates will be needed for future growth, and that designate locations for land uses to regulate growth. MCAG uses the growth projections and land use information in adopted General Plans to estimate future average daily trips and then VMT, which are then provided to SJVAPCD to estimate future emissions in the AQPs. The applicable General Plan for the Project is the Merced County 2030 General Plan, which was adopted in 2012.

The proposed Project is consistent with the currently adopted General Plan for Merced County and the adopted 2014 RTP/SCS and is therefore consistent with the population growth and VMT applied in those plan documents. Therefore, the Project is consistent with the growth assumptions used in the applicable AQP. It should also be noted that yearly GHG emissions generated by the Project are approximately 99.6 percent less than the threshold identified by the SCAQMD. Based on the assessment above, the Project will not conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases. The Project further the achievement of the County's greenhouse gas reduction goals. Therefore, any impacts would be less than significant.

Scoping Plan

Emission reductions in California alone would not be able to stabilize the concentration of GHGs in the earth's atmosphere. However, California's actions set an example and drive progress towards a reduction in GHGs elsewhere. If other states and countries were to follow California's emission reduction targets, this could avoid medium or higher ranges of global temperature increases. Thus, severe consequences of climate change could also be avoided.

The CARB Governing Board approved a Climate Change Scoping Plan (CARB 2008). The Scoping Plan outlines the State's strategy to achieve the 2020 GHG emissions limit. The Scoping Plan "proposes a comprehensive set of actions designed to reduce overall GHG emissions in California, improve our environment, reduce our dependence on oil, diversify our energy sources, save energy, create new jobs, and enhance public health" (CARB 2008).

Project consistency with applicable strategies in the Scoping Plan is assessed in Table 3.4.8-1. As shown, the Project is consistent with the applicable strategies in the Scoping Plan.

Table 3.4.8-2
Consistency with Applicable Scoping Plan Reduction Measures

Scoping Plan Reduction Measure	Project Consistency or Reason Why Not Applicable
California Cap-and-Trade Program Linked to Western Climate Initiative. Implement a broad based California Cap-and-Trade program to provide a firm limit on emissions. Link the California cap–and-trade program with other Western Climate Initiative Partner programs to create a regional market system to achieve greater benefits for California.	Not Applicable. When this cap-and-trade system begins, products or services (such as electricity) would be covered and the cost of the cap-and-trade system would be transferred to the consumers.
California Light-Duty Vehicle Greenhouse Gas Standards. Implement adopted standards and planned second phase of the program. Align zero emission vehicle, alternative and renewable fuel and vehicle technology programs with long-term climate change goals.	Not Applicable. This is a statewide measure that cannot be implemented by a project applicant or Lead Agency. When this measure is initiated, the standards would be applicable to the light-duty vehicles that would access the Project site.
Energy Efficiency. Maximize energy efficiency building and appliance standards; pursue additional efficiency including new technologies, policy, and implementation mechanisms. Pursue comparable investment in energy efficiency from all retail providers of electricity in California	Consistent. This is a measure for the State to increase its energy efficiency standards. However, the applicant shall consider implementing Title 24 and Green Building Standards.
Renewable Portfolio Standard. Achieve 33% renewable energy mix statewide. Renewable energy sources include (but are not limited to) wind, solar, geothermal, small hydroelectric, biomass, anaerobic digestion, and landfill gas.	Not applicable. No new buildings are being built and energy consumption is not expected to increase.
Low Carbon Fuel Standard. Develop and adopt the Low Carbon Fuel Standard	Not Applicable. This is a statewide measure that cannot be implemented by a project applicant or Lead Agency. When this measure is initiated, the standard would be applicable to the fuel used by vehicles that would access the Project site.
Regional Transportation-Related Greenhouse Gas Targets. Develop regional greenhouse gas emissions reduction targets	Not Applicable. The Project is not related to developing GHG emission reduction targets.

Scoping Plan Reduction Measure	Project Consistency or Reason Why Not Applicable
for passenger vehicles. This measure refers to SB 375.	
Vehicle Efficiency Measures. Implement light duty vehicle efficiency measures.	Not Applicable. When this measure is initiated, the standards would be applicable to the light-duty vehicles that would access the Project site.
Goods Movement. Implement adopted regulations for the use of shore power for ships at berth. Improve efficiency in goods movement activities.	Not Applicable. The Project does not propose any changes to maritime, rail, or intermodal facilities or forms of transportation.
Million Solar Roofs Program. Install 3,000 MW of solar-electric capacity under California's existing solar programs.	Consistent. This measure is being implemented by various agencies throughout California. The applicant shall consider implementing Title 24 and Green Building Standards
Medium/Heavy-Duty Vehicles. Adopt medium and heavy-duty vehicle efficiency measures.	Not Applicable. This is a statewide measure that cannot be implemented by a project applicant or Lead Agency. When this measure is initiated, the standards would be applicable to vehicles that access the Project site.
Industrial Emissions. Require assessment of large industrial sources to determine whether individual sources within a facility can cost-effectively reduce greenhouse gas emissions and provide other pollution reduction co-benefits. Reduce greenhouse gas emissions from fugitive emissions from oil and gas extraction and gas transmission. Adopt and implement regulations to control fugitive methane emissions and reduce flaring at refineries.	Not Applicable. The Project is not an industrial land use.
High Speed Rail. Support implementation of a high-speed rail system.	Not Applicable. This is a statewide measure that cannot be implemented by a project applicant or the county.
Green Building Strategy. Expand the use of green building practices to reduce the carbon footprint of California's new and existing inventory of buildings.	Consistent. The State's goal is to increase the use of green building practices. The Project would implement some green building strategies through Project design features.

Scoping Plan Reduction Measure	Project Consistency or Reason Why Not Applicable
High Global Warming Potential Gases. Adopt measures to reduce high global warming potential gases.	Not Applicable. When this measure is initiated, it would be applicable to those gases that have high global warming potential that would be used by the Project (such as in air conditioning and refrigerators).
Recycling and Waste. Reduce methane emissions at landfills. Increase waste diversion, composting, and commercial recycling. Move toward zero-waste.	Not applicable. The Project would not contain a landfill.
Sustainable Forests. Preserve forest sequestration and encourage the use of forest biomass for sustainable energy generation.	Not Applicable. No forested lands exist on site.
Water. Continue efficiency programs and use cleaner energy sources to move and treat water.	Consistent. This is a measure for State and local agencies. The Project would implement water conservation features in its BMPs.
Agriculture. In the near-term, encourage investment in manure digesters and at the five-year Scoping Plan update determine if the program should be made mandatory by 2020.	Not Applicable. The proposed Project would not include agriculture.

Source: California Air Resources Board 2008.

In summary, the Project would not obstruct attainment of any of the goals established under AB 32. The Project would comply with all present and future regulatory measures developed in accordance with AB 32 and CARB's Scoping Plan. The proposed Project would incorporate a number of design features that would minimize GHG emissions beyond existing regulatory requirements. Such measures also are consistent with the California Air Pollution Control Officers Association paper and general guidance provided by the SJVAPCD.

With the incorporation of standard measures, Project design features, mitigation measures and applicable laws, the Project's forecasted emission of greenhouse gases has been determined to be less than significant.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be *less than significant*.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
3.4.9 - HAZARDS AND HAZARDOUS MATERIALS				
Would the Project:				
a. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☒	☐
b. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☒	☐
c. Emit hazardous emissions or involve handling hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☒	☐
d. Be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	☒
e. For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the Project result in a safety hazard or excessive noise for people residing or working in the Project area?	☐	☐	☐	☒
f. Impair implementation of, or physically interfere with, an adopted emergency response plan or emergency evacuation plan?	☐	☐	☒	☐
g. Expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires?	☐	☐	☐	☒

Discussion

Impact #3.4.9a – Would the Project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

The building and operation of an improved sewer line system would not involve the transport, use, and storage of large quantities of hazardous materials. Although construction of the Project would involve the transport and use of minor quantities of hazardous materials, such materials would be limited to fuels, oils, lubricants, hydraulic fluids, paints and solvents utilized at the Project site for construction purposes. Moreover, use of such materials would be temporary in nature and would cease upon completion of the Project.

The presence and use of these materials, which can be classified as hazardous materials, create the potential for accidental spillage and exposure of workers to these substances. Hazardous and non-hazardous wastes would likely be transported to and from the Project site during the construction phase of the proposed Project. Construction would involve the use of some hazardous materials, such as diesel fuel, hydraulic oil, grease, solvents, adhesives, paints, and other petroleum-based products, although these materials are commonly used during construction activities and would not be disposed of on the Project site. Replacement of the sewer pipes will occur in ground, and the existing pipe network will remain in the ground after the new pipes have been installed. The old pipes will be handled and stored in accordance with all applicable regulations to minimize potential public exposure. In addition, sanitary waste generated during construction would be managed by means of portable toilets, which would be located at reasonably accessible on-site locations.

No known historic oil activity has occurred on the site. The Project is not located within the boundaries of an oilfield. According to the Division of Oil, Gas and Geothermal Resources (DOGGR) records and maps, no abandoned oil wells are located on the site, and the nearest well is approximately three miles to the southwest of the site (see Figure 3.4.9-1). There are no properties in the vicinity of Planada that are on the Cortese List.

The proposed Project would not emit hazardous emissions. The Project would handle hazardous waste, yet this handling is essential to the function of the Planada Community Services District. Therefore, the Project would have a less than significant impact.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be *less than significant.*

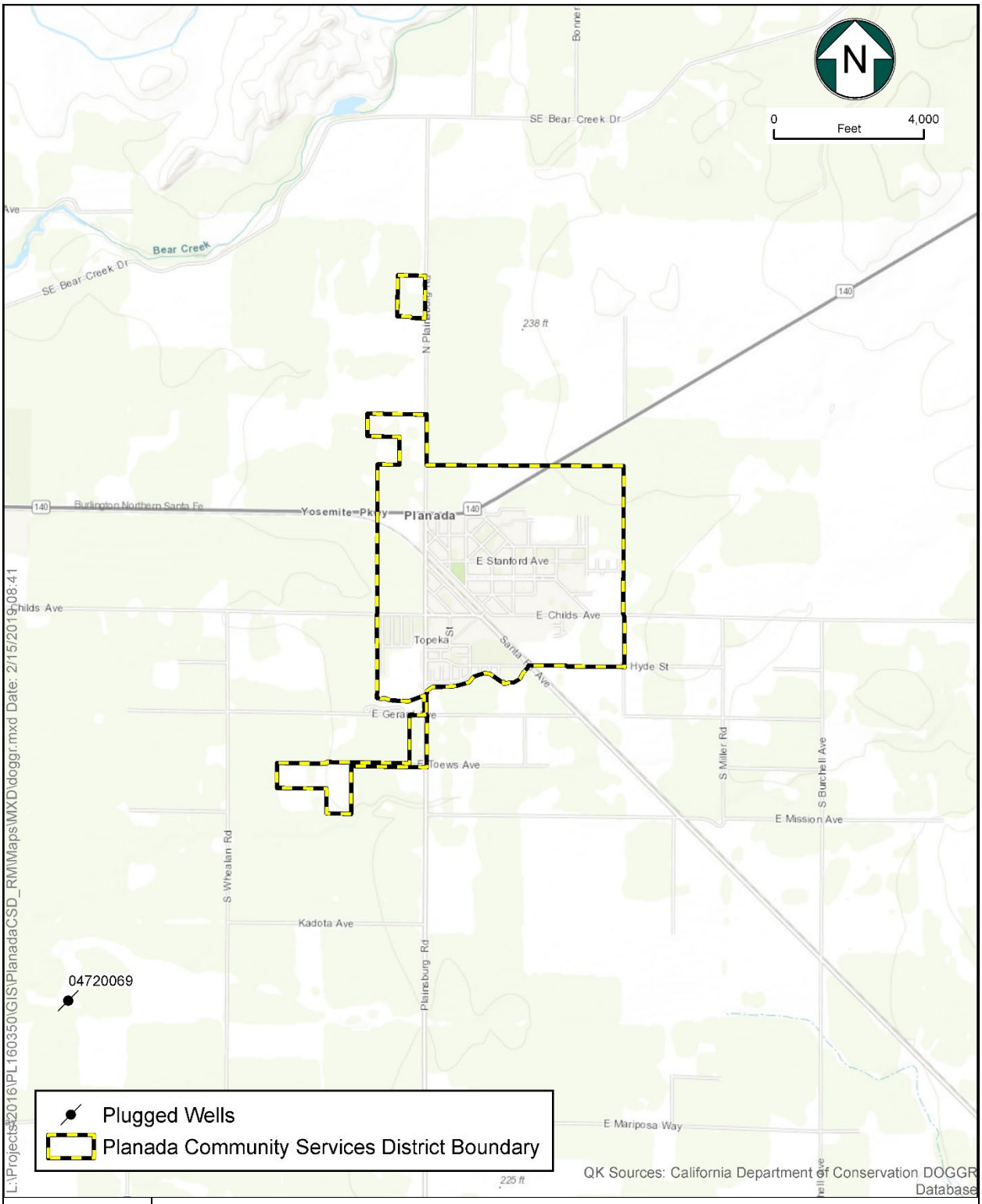

Figure 3.4.9-1
Oil / Gas Wells and Pipelines

Impact #3.4.9b – Would the Project create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?

The repair of a wastewater collection system contains inherent risk of upset and accident conditions that could potentially release hazardous materials into the environment. Replacement of the pipes will occur in-place and all applicable precautions will be taken to reduce the likelihood of an accident resulting in the release of hazardous materials in the environment. All contracts shall transport, store, handle, and dispose of construction-related hazardous materials consistent with relevant regulations and guidelines, including those recommended and enforced by Caltrans; the Central Valley RWQCB; Merced County Community and Economic Development Department and Merced County Environmental Health Department standards. It is also standard County practice to review site plans for all development proposals on a case-by-case basis, which further minimizes the potential for public exposure to hazardous materials. Implementation of the discussed management practices would result in a less than significant impact.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be *less than significant*.

Impact #3.4.9c – Would the Project emit hazardous emissions or involve handling hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

Planada has two elementary schools: Cesar E Chavez Middle School and Planada Elementary School. Both of these schools are adjacent to roadways that contain sewer pipes that may need to be replaced. The amount of hazardous emissions from the Project is less than significant, and all hazardous materials would be handled in accordance with applicable regulations during construction and operation of the proposed Project. Therefore, the impact is less than significant.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be *less than significant*.

Impact #3.4.9d – Would the Project be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?

An online search was conducted of the California Environmental Protection Agency (CAL EPA) website (Cal EPA, n.d.) for Cortese Act locations on or near the Project site. The Department of Toxic Substances Control (DTSC) website, indicated that there are no hazardous or toxic sites in the vicinity (within one mile) of the Project site (Department of Toxic Substances Control, 2015). The State Water Resources Control Board website indicated that there are no Permitted Underground Storage Tanks, Leaking Underground Storage Tanks, or any other cleanup sites on or in the vicinity (within one mile) of the Project site (California Water Resources Board, n.d.).

The Project is not located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and would not create a significant hazard to the public or the environment. The Project site is not within the immediate vicinity of a hazardous materials site and would not impact a listed site. Literature review of available Federal, State, and local database information systems was performed for the purpose of identifying known recognized environmental conditions present on the site and the nearby properties that have the potential to adversely impact the site. There is no data identifying any facilities within 0.25 mile of the site that might reasonably be anticipated to emit hazardous air emissions or handle hazardous materials, substances, or wastes that might affect the Project site. Therefore, the Project would have no impact.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

The Project would have *no impact*.

Impact #3.4.9e – For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the Project result in a safety hazard for excessive noise or people residing or working in the Project area?

There is no airport within two miles of the Project site. Therefore, there would be no impact.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

There would be *no impact.*

Impact #3.4.9f – Would the Project impair implementation of, or physically interfere with, an adopted emergency response plan or emergency evacuation plan?

The proposed Project is required to adhere to the standards set forth in the Uniform Fire Code, which identifies the design standards for emergency access during both the Project's construction and operational phases. The proposed Project would not inhibit the ability of local roadways to continue to accommodate emergency response and evacuation activities.

The proposed Project would not impair implementation of or physically interfere with an adopted Emergency Response Plan or Emergency Evacuation Plan. Therefore, the Project would have a less than significant impact.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be *less than significant.*

Impact #3.4.9g – Would the Project expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires?

The proposed Project is surrounded by a mix of urban, agricultural, and residential land uses but would not expose people or structures to a significant risk of loss, injury, or death involving wildland fires as there are no wildlands in the vicinity. According to the Hazard Map (see Figure 1-4), the Project site is not located within a hazard zone classified as Very High, High or Moderate for wildland fires. Construction and operation of the Project is not expected to increase the risk of wildfires on and adjacent to the Project site. The Project will also be required to comply with all applicable standards as required by the Merced County Fire Department.

The proposed Project would not expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands. Therefore, the Project would have a no impact.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

There would be *no impact*.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
3.4.10 - HYDROLOGY AND WATER QUALITY				
Would the Project:				
a. Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?	☐	☒	☐	☐
b. Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the Project may impede sustainable groundwater management of the basin?	☐	☐	☒	☐
c. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner that would:	☐	☐	☐	☐
i. Result in substantial erosion or siltation on-or off-site;	☐	☒	☐	☐
ii. Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?	☐	☒	☐	☐
iii. Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or?	☐	☒	☐	☐
iv. Impede or redirect flood flows?	☐	☒	☐	☐
d. In flood hazard, tsunami, or seiche zones, risk release of pollutants due to Project inundation?	☐	☒	☐	☐
e. Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	☐	☐	☐	☒

Discussion

Impact #3.4.10a – Would the Project violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality?

Construction of the Project would involve grubbing, land clearing, excavation, grading, and paving. During site grading and construction activities, areas of bare soil could be exposed to erosive forces that would otherwise not be present. Construction activities involving soil disturbance, excavation, cutting/filling, stockpiling, and grading activities could result in increased erosion and sedimentation to surface waters.

Additionally, accidental spills or disposal of potentially harmful materials used during construction or operation of the Project could possibly wash into and pollute surface water runoff. Materials that could potentially contaminate the construction area, or spill or leak, include lead-based paint flakes, diesel fuel, gasoline, lubrication oil, hydraulic fluid, antifreeze, transmission fluid, lubricating grease, and other fluids. A SWPPP for construction-related activities would include, but not be limited to, the following types of BMPs to minimize the potential for pollution related to material spills:

- Vehicles and equipment will be cleaned;
- Vehicle and equipment fueling and maintenance requirements will be established; and
- A spill containment and clean-up plan will be in place prior to and during construction activities.

In order to reduce potential impacts to water quality during construction activities, Mitigation Measure MM HYD-1 requires the Project proponent to file a Notice of Intent (NOI) to comply with the NPDES General Construction Permit and prepare a SWPPP. The Project SWPPP would include BMPs targeted at minimizing and controlling construction and post-construction runoff and erosion to the "maximum extent practicable." Mitigation Measure MM HYD-2 requires the District to limit grading to the minimum area necessary for construction and operation of the Project.

In order to reduce potential impacts to water quality during construction and operation activities, Mitigation Measures MM HYD-1 and MM HYD-2 would be required. With mitigation, the proposed Project would not violate any water quality standards or waste discharge requirements. Therefore, the Project would have a less than significant impact with incorporation of mitigation.

MITIGATION MEASURE(S)

MM HYD-1: Prior to construction, the District shall submit an approved copy of: 1) the approved Storm Water Pollution Prevention Plan (SWPPP) and 2) the Notice of Intent (NOI) to comply with the General National Pollutant Discharge Elimination System (NPDES) from the Central Valley Regional Water Quality Control Board. The requirements of the SWPPP

and NPDES shall be incorporated into design specifications and construction contracts. Recommended BMPs for the construction phase may include the following:

- Stockpiling and disposing of demolition debris, concrete, and soil properly;
- Protecting existing storm drain inlets and stabilizing disturbed areas;
- Implementing erosion controls;
- Properly managing construction materials; and
- Managing waste, aggressively controlling litter, and implementing sediment controls.

MM HYD-2: The District shall limit grading to the minimum area necessary for construction and operation of the Project. Final grading plans shall include BMPs to limit on-site and off-site erosion.

LEVEL OF SIGNIFICANCE

Impacts would be *less than significant with mitigation incorporated*.

Impact #3.4.10b – Would the Project substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the Project may impede sustainable groundwater management of the basin?

The replacement of portions of the sewer system in Planada would not increase the volume of water extracted from groundwater supplies or interfere with groundwater recharge in the area. The replacement pipes would be the same size as those currently in place and would therefore not increase the capacity of the wastewater treatment infrastructure. Therefore, the impact would be less than significant.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be *less than significant*.

Impact #3.4.10c(i) – Would the Project 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 that would result in substantial erosion or siltation on site or off site?

The rate and amount of surface runoff is determined by multiple factors, including the following: topography, the amount and intensity of precipitation, the amount of evaporation that occurs in the watershed and the amount of precipitation and water that infiltrates to the groundwater. The proposed Project would not alter the existing drainage pattern of the site because all pipe replacement will occur in ground and additional ground disturbance is not a component of the proposed Project.

As discussed in Impact #3.4.10a. above, potential impacts on water quality arising from erosion and sedimentation are expected to be localized and temporary during construction. Construction-related erosion and sedimentation impacts as a result of soil disturbance would be less than significant after implementation of an SWPPP (see Mitigation Measure MM HYD-1) and BMPs required by the NPDES. No drainages or other water bodies are present on the Project site, and therefore, the proposed Project would not change the course of any such drainages; however, erosion may occur on site during rain events or high winds. Mitigation Measure MM HYD-2 requires the District to limit grading to the minimum area necessary for construction and operation of the Project.

With mitigation, the Project would not substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation on or off site. Therefore, the Project would have a less than significant impact with incorporation of mitigation.

MITIGATION MEASURE(S)

Implementation of Mitigation Measures MM HYD-1 and MM HYD-2.

LEVEL OF SIGNIFICANCE

Impacts would be *less than significant with mitigation incorporated*.

Impact #3.4.10c(ii) – Would the Project 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 that would substantially increase the rate or amount of surface runoff in a manner which would result in flooding on or off site?

See Impact #3.4.10c(i) above.

MITIGATION MEASURE(S)

Implementation of Mitigation Measures MM HYD-1 and MM HYD-2.

LEVEL OF SIGNIFICANCE

Impacts would be *less than significant with mitigation incorporated*.

Impact #3.4.10c(iii) – Would the Project 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 that would 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?

See Impact #3.4.10c(i) above.

MITIGATION MEASURE(S)

Implementation of Mitigation Measures MM HYD-1 and MM HYD-2.

LEVEL OF SIGNIFICANCE

Impacts would be *less than significant with mitigation incorporated*.

Impact #3.4.10c(iv) – Would the Project 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 that would impede or redirect flood flows?

See Impact 3.4.10c(i) above.

MITIGATION MEASURE(S)

Implementation of Mitigation Measures MM HYD-1 and MM HYD-2.

LEVEL OF SIGNIFICANCE

Impacts would be *less than significant with mitigation incorporated*.

Impact #3.4.10d – Would the Project, in flood hazard, tsunami, or seiche zones, risk release of pollutants due to Project inundation?

The majority of the Planada Community Services District area is in a one-percent annual flood zone (See Figure 3-4). However, the proposed Project would not increase the risk of exposure to flood hazard beyond existing conditions because additional ground disturbance is not a component of the Project. The Project site is not near any oceans or standing bodies of water. Therefore, the Project would have a less than significant impact.

MITIGATION MEASURE(S)

Implementation of Mitigation Measures MM HYD-1 and MM HYD-2.

LEVEL OF SIGNIFICANCE

Impacts would be *less than significant with mitigation incorporated*.

Impact #3.4.10e – Would the Project conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

The Merced Integrated Regional Water Management Plan contains the following objectives relevant to the proposed Project:

- Meet all demands for all uses, including agriculture, urban, and environmental resource needs;

- Protect and improve water quality for all beneficial uses, consistent with the Basin Plan; and
- Address water-related needs of disadvantaged communities (DACs).

A Groundwater Sustainability Plan (GSP) is currently being developed by the Merced Subbasin Groundwater Sustainability Agency. As of January 28, 2019, the ninth stakeholder meeting had taken place in the process of developing the GSP. Their next meeting is planned for February 25, 2019.

The proposed Project would help the Planada CSD achieve the goals of the Merced Integrated Regional Water Management Plan by replacing aging sewer infrastructure and improving the level of service for Planada residents. Therefore, the Project would be consistent with applicable Water Quality Control Plans.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

There would be *no impact*.

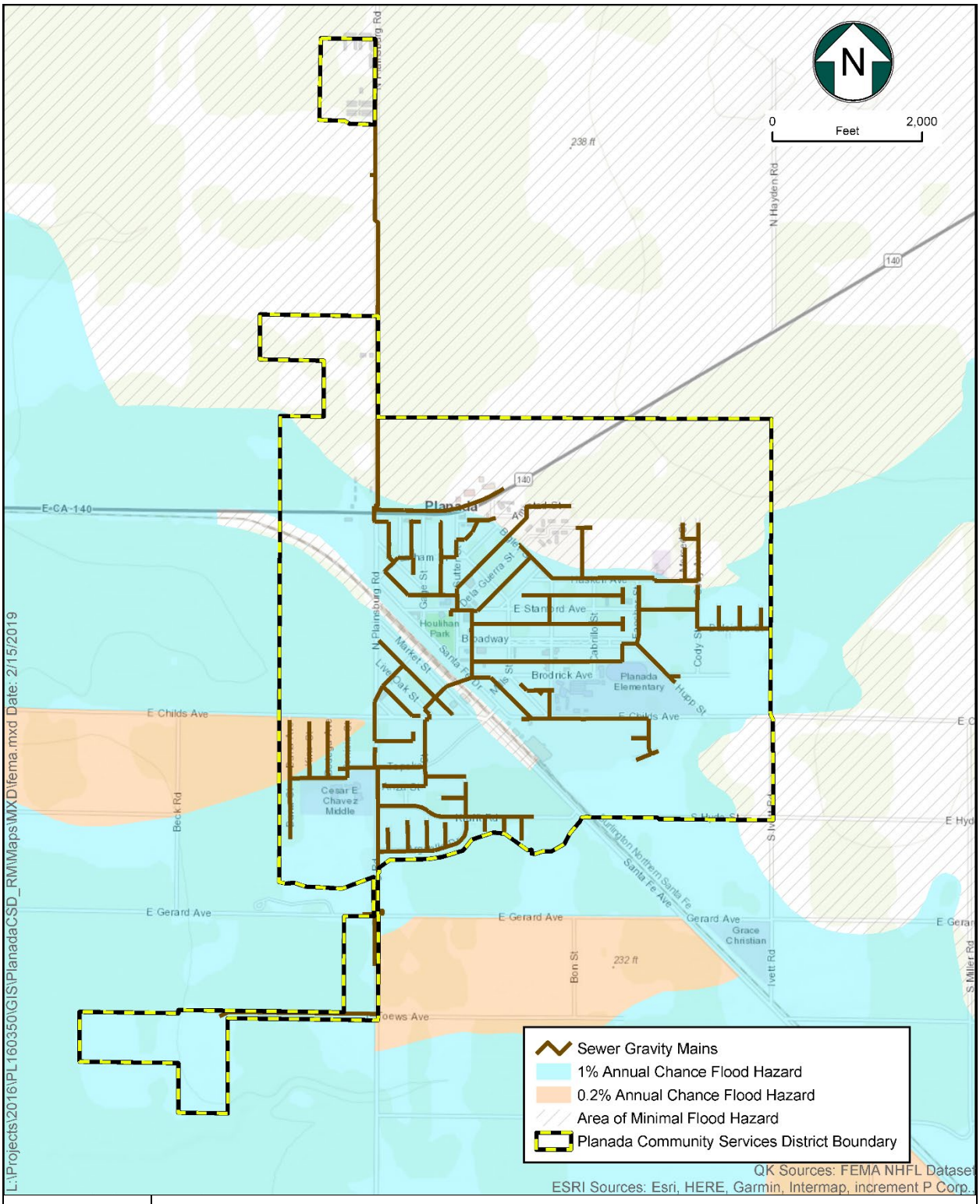

Figure 3.4.10-2
FEMA Flood Map

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

Discussion

Impact #3.4.11a – Would the Project physically divide an established community?

The proposed Project site consists of roadways throughout the Community of Planada. The proposed Project would not physically divide an established community. Therefore, the Project will have no impact.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

There would be ***no impact***.

Impact #3.4.11b – Would the Project 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?

The Project is substantially within the Planada Community Plan Area, with the exception on the existing farm labor housing, which designates the Project site as primarily Low Density Residential and Medium Density Residential. The Project involves the rehabilitation and repair of existing, dilapidated sewer lines. The proposed Project would not conflict with any applicable Land Use Plan, policy, or regulation of an agency with jurisdiction over the Project (including, but not limited to the General Plan, Specific Plan, Local Coastal Program, or Zoning Ordinance) adopted for the purpose of avoiding or mitigating an environmental effect. Therefore, the Project would have no impact.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

There would be *no impact*.

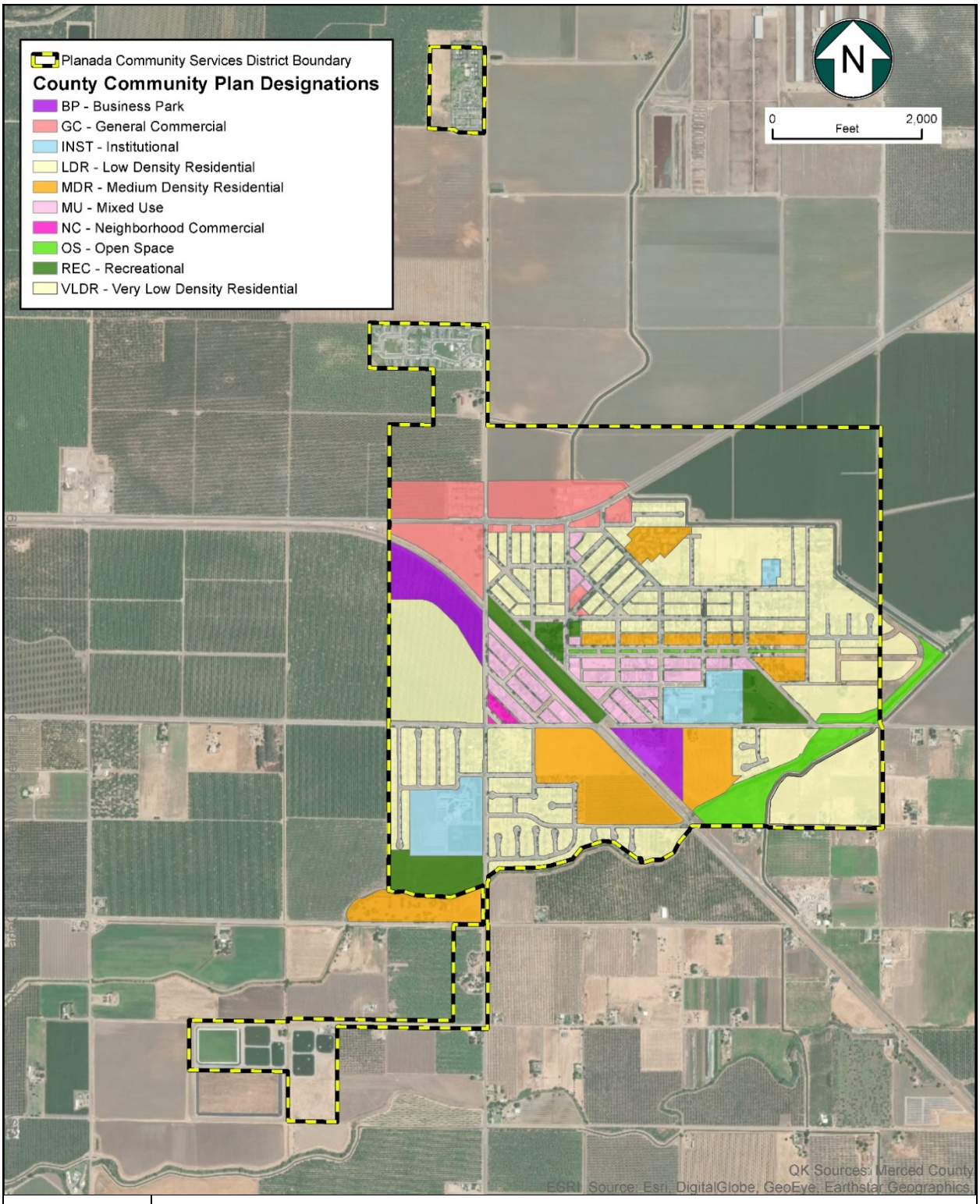

Figure 3.4.11-1
Community Plan Land Use Designations

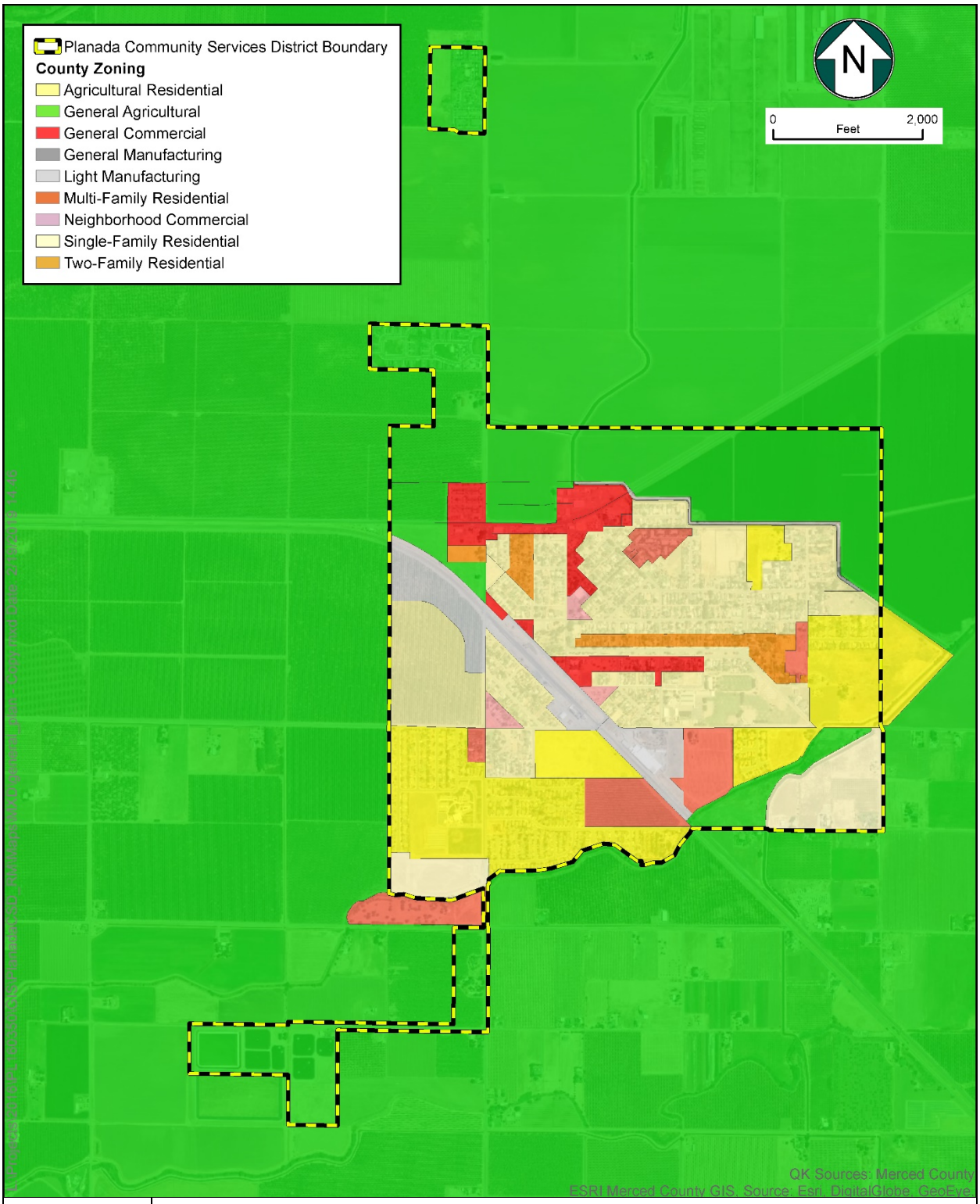

Figure 3.4.11-2
County Zone Districts

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less–than-Significant Impact	No Impact
3.4.12 - MINERAL RESOURCES					
Would the Project:					
a.	Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the State?	☐	☐	☐	☒
b.	Result in the loss of availability of a locally important mineral resource recovery site delineated on a local General Plan, Specific Plan, or other Land Use Plan?	☐	☐	☐	☒

Discussion

Impact #3.4.12a – Would the Project result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the State?

No current mineral extraction activities exist on the Project site nor are any mineral extraction activities included in the Project design. As illustrated in Figure 3.4.8-1, the Project site is not located in an oilfield and there are no known wells located on the site. The closest oil well is located approximately 2.5 miles to the southwest of the Project site. The proposed Project would not result in the loss of availability of mineral resources as the Project does not propose the extraction of mineral resources. Additionally, the proposed Project would not restrict the ability of mineral rights' holders in the area to exercise their legal rights to access surrounding sites for the exploration and/or extraction of underlying oil research or other natural resources.

The proposed Project would not result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the State. Therefore, there would be no impact.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

There would be *no impact*.

Impact #3.4.12b – Would the Project result in the loss of availability of a locally important mineral resource recovery site delineated on a local General Plan, Specific Plan, or other Land Use Plan?

As seen in Figures 3.4.11-1 and 3.4.11-2 in Section 3.4.11, *Land Use and Planning*, the proposed Project is not designated as a mineral recovery area by the Planada Community Plan. The Project would not alter any existing plans that protect mineral resources. As a result, the proposed Project would not interfere with mining operations and would not result in the loss of land designated for mineral and petroleum. As shown in Figure 3-3, the nearest oil well to the Project site is located approximately __ miles to the southwest.

The proposed Project would not result in the loss of availability of a locally-important mineral resource recovery site delineated on a local General Plan, Specific Plan or other Land Use Plan. Therefore, the Project would have no impact.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

There would be ***no impact***.

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

Discussion

Impact #3.4.13a – Would the Project 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?

The Planada Community Plan has noise policies within the Noise Element of the Plan (County of Merced, 2017). The Noise Element establishes noise level criteria in terms of the Day-Night Average Sound Level (L_{dn}) metric. The L_{dn} is the time-weighted energy average noise level used to compare the noisiness of neighborhoods. L_{dn} is a single number result that is calculated for a complete 24-hour period and usually made up of results taken at shorter intervals such as five minutes or one hour and then averaged over the whole 24 hours.

The Noise Element establishes a land use compatibility criterion of 65 L_{dn} for residential and educational uses.

As indicated in the foregoing discussion of the Project's noise impacts, because the Project construction and operation would generate noise levels below standards established in the Planada Community Plan or noise ordinance, and therefore the Project would have a less than significant impact.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be *less than significant*.

Impact #3.4.13b – Would the Project result in generation of excessive groundborne vibration or groundborne noise levels?

Construction activities in general can have the potential to create groundborne vibrations. However, based on the soil types found in the general Project vicinity, it is unlikely that any blasting or pile-driving would be required in connection with construction of the Project. Therefore, the potential for groundborne vibrations to occur as part of the construction of the Project is considered minimal. Further, operation of the Project would not contain any activities which would create groundborne vibrations. The proposed Project would not result in exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels. Therefore, the Project would have a less than significant impact.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be *less than significant*.

Impact #3.4.13c – 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, would the Project expose people residing or working in the Project area to excessive noise levels?

The Planada CSD area is not located in the vicinity of an airport, nor is it included within an Airport Land Use Plan. It is not located in the vicinity of a private airstrip. Therefore, development of the proposed Project would not expose people living in this area to excessive noise levels due to proximity to an airport, and no impact would occur.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

There would be *no impact*.

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

Discussion

This analysis relied upon the Planada Community Plan for evaluating the significance of the Project's impacts to Population and Housing issues outlined in this section.

Impact #3.4.14a – Would the Project induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?

The Project would include the replacement or repair of existing dilapidated sewer lines throughout the Community of Planada. This would provide a more reliable and safe sewer collection system for existing residents in Planada residents. The Project will not provide for sewer capacity beyond what is currently anticipated by the adopted Planada Community Plan.

New, clean and reliable pipes that are part of the proposed Project may provide for growth that is anticipated in the County General Plan and the Planada Community Plan but will not be sized to accommodate growth beyond that. Therefore, impacts of the Project would be less than significant.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be *less than significant*.

Impact #3.4.14b – Would the Project displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?

The proposed Project does not propose to displace any existing housing or people in the Project area nor would implementation of the Project require construction or replacement of housing.

In addition, it is anticipated that construction workers would come from the surrounding area and would not require new housing. The proposed Project would not displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere. Therefore, the Project would have no impact.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

There would be *no impact*.

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

Discussion

The replacement and upgrade of sewer lines is not anticipated to directly require the employment of additional fire fighters or law enforcement officers. The proposed Project was anticipated in the growth projections for the Planada Community Plan and therefore, the Project's public services needs have already been accounted for in projecting future public service needs for the city and county, including police and fire protection services. It is anticipated that existing and future public facilities and equipment would be able to maintain the current level of service. No other public services would be significantly affected by the Project.

Impact #3.4.15a(i) – Would the Project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or to other performance objectives for any of the public services - Fire Protection?

The Merced County Fire Department provides fire, rescue, and emergency medical services to the Community of Planada. Station 56 is located in Planada at the corner of Sutter Street and Broadway and is staffed 24 hours a day by a full-time Fire Captain or Fire Apparatus Engineer. Emergency response is augmented with volunteer firefighters. Current emergency response time within the Community area is one to three minutes.

As discussed above, the Project will repair or replace existing dilapidated sewer lines and will not be sized to allow for growth beyond what has been anticipated by the Planada Community Plan. Therefore, the Project would not increase the need for fire protection services beyond the baseline condition.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be *less than significant*.

Impact #3.4.15a(ii) – Would the Project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or to other performance objectives for any of the public services – Police Protection?

Law enforcement for the Community of Planada is provided by Merced County Sheriff Department as well as the California Highway Patrol. Emergency response time from the nearest office in the City of Merced is approximately ten minutes. In addition to the primary Sheriff facilities, there are Community Law Enforcement Offices (CLEO) which serve as hubs for community patrols. A CLEO station is located in Planada on Highway 140.

As discussed above, the Project will repair existing sewer lines and is not intended or sized to provide for growth. Any growth that may incidentally occur has been anticipated by the Planada Community Plan and the Project will not provide for growth beyond that. Therefore, the Project would not increase the need for law enforcement services beyond what is anticipated by the Planada Community Plan.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be *less than significant*.

Impact #3.4.15a(iii) – Would the Project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or to other performance objectives for any of the public services – Schools?

The replacement and upgrade of sewer lines is not anticipated to increase the population of existing schools or necessitate the construction of additional schools. The population of the Community of Planada will not increase beyond what the County has planned for. Therefore, there would be no impact.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

There would be ***no impact***.

Impact #3.4.15a(iv) – Would the Project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or to other performance objectives for any of the public services – Parks?

Houlihan Park is the only developed park available to all residents of Planada, besides recreational facilities at school sites. Over 10 additional acres of parkland are planned for development into recreational and/or open space to accommodate the needs of the Community. However, no additional parkland will be required or removed by the construction of the proposed Project. Therefore, there would be no impact.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

There would be ***no impact***.

Impact #3.4.15a(v) – Would the Project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or to other performance objectives for any of the public services – Other Public Facilities?

The Project would not induce the use of other public facilities such as libraries, courts, and other Merced County services.

The purpose of the proposed Project is to repair failing and potentially dangerous sewer lines, and not intended to facilitate growth. Any additional growth in Planada would be in accordance with the Planada Community Plan.

The proposed Project would not result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause a significant environmental impact, in order to maintain acceptable service ratios for any of the public services. Therefore, the Project would have a less than significant impact.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be *less than significant*.

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

Discussion

Impact #3.4.16a – Would the Project Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?

The proposed replacement and upgrade of sewer lines would not increase the use of existing neighborhood and regional parks. Existing parks would not be affected by the Project because the Planada Community Plan has anticipated the growth as well as the need for future parks to serve the anticipated population. Houlihan Park is the only developed park available to all residents of Planada, besides recreational facilities at school sites. Over 10 additional acres of parkland are planned for development into recreational and/or open space to accommodate the needs of the Community. The proposed Project would not increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated or require the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment. Therefore, the Project would have a less than significant impact.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be *less than significant*.

Impact #3.4.16b – Would the Project include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?

See Impact #3.4.16a, above.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be *less than significant*.

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

Discussion

The roadways providing the main circulation throughout the Planada CSD include the following:

Highway 140 is the only designated arterial in the Community of Planada. Highway 140 is a regional east-west route and a popular highway for tourists heading to Yosemite National Park and the Sierra Nevada. Today, Highway 140, as it passes through the Community, consists of a single travel lane in each direction, a continuous two-way left turn lane, and limited street improvements (curb, sidewalk, landscaping).

Plainsburg Road is designated as a major collector and is one of the major entrances into Planada. Childs Avenue is also designated as a major collector and provides access between the Community of Planada, the City of Merced, and Highway 99. Santa Fe Avenue is also designated as a major collector and is a two-lane street that runs along the western side of the Santa Fe Railroad corridor, linking Planada to Le Grand.

Impact #3.4.17a – Would the Project conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?

The Circulation Element of the Planada Community Plan outlines objectives, policies, and implementation measures related to transportation. The goal of the Circulation Element is to "provide a balanced, safe, and efficient circulation system for Planada."

The Merced County Bike Plan identifies a system of bike trails to be developed throughout the County. In the vicinity of Planada, Plainsburg Road, Highway 140 east of Plainsburg Road, Sutter Street, Santa Fe Drive and Santa Fe Avenue, and Childs Avenue west of Santa Fe Avenue are identified as components of the Bicycle Plan. In accordance with the Bicycle Plan, Class II bike lanes are to be implemented within these corridors.

The proposed Project would involve the temporary excavation of roadways throughout Planada in order to replace the existing sewer pipe infrastructure. Intermittent delays and service interruptions would be expected as a result of this temporary excavation but these delays are expected to be less than significant. Once operational, the Project would not generate traffic beyond current levels. Therefore, the Project would not conflict with any applicable Circulation Plan and impacts would be less than significant.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be *less than significant*.

Impact #3.4.17b – Would the Project conflict or be inconsistent with CEQA Guidelines Section 15064.3, Subdivision (b)?

See Impact #3.4.17a, above. The Project would not generate any additional trips beyond those needed for construction.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be *less than significant*.

Impact #3.4.17c – Would the Project substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

The Project would not introduce new curves and/or hazardous intersections into the Project vicinity. All roads surrounding the Project sites are straight and set in a grid pattern. No new design or features would be introduced that would result in transportation-related hazards or safety concerns. During construction at the proposed Project site, construction-related delivery trucks would be present. However, these trucks would be traveling along the existing, local roadways and would not interfere with access surrounding the site. Coupled with this, once construction is completed, trucks would cease to access the site. The

proposed Project would not result in an increase in hazards due to a design feature or incompatible use.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be *less than significant*.

Impact #3.4.17d – Would the Project result in inadequate emergency access?

The California Fire Code establishes standards by which emergency access may be determined.

As described above, the minimal increase of Project-related traffic would not cause a significant increase in congestion and would not reduce the existing LOS on area roads, which could indirectly affect emergency access. The Project is not expected to require closures of public roads, which could inhibit access by emergency vehicles. The proposed Project would not result in inadequate emergency access.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be *less than significant*.

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

Discussion

Impact #3.4.18a(i) – Would the Project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k)?

These questions were addressed in the discussion presented in Section 3.4.5 - *Cultural Resources.*

See discussion for Impact #3.4.5a.

MITIGATION MEASURE(S)

Implementation of Mitigation Measures MM CUL-1 and MM CUL-2.

LEVEL OF SIGNIFICANCE

Impacts would be *less than significant with mitigation incorporated*.

Impact #3.4.18a(ii) – Would the Project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is a resource determined by the Lead Agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the Lead Agency shall consider the significance of the resource to a California Native American tribe?

See discussion for Impacts #3.4.5a.

MITIGATION MEASURE(S)

Implementation of Mitigation Measures MM CUL-1 and MM CUL-2.

LEVEL OF SIGNIFICANCE

Impacts would be *less than significant with mitigation incorporated*.

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

Discussion

This analysis relied upon review of applicable requirements of the RWQCB- Central Valley as provided on their website and analysis provided by the Planada Community Plan EIR (County of Merced, 2017).

Impact #3.4.19a – Would the Project require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?

The repairs to the sewer collection system proposed by the Project are intended to address an existing deficiency and health safety issue. Any potential to allow for new residential

development as a result of removing impedance to design flows is incidental. The Project will not, in any case, provide for development beyond what is currently anticipated by the approved Community Plan The current flow of wastewater to the wastewater treatment plant operated by the Planada CSD is approximately 0.35 million gallons per day (mgd). To comply with the requirements of the RWCQB, the wastewater treatment plant has been undertaking improvements to increase level of service for Planada residents and maintain water quality.

The proposed Project would not require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, as these water infrastructure projects are already planned in the Planada Community Plan. Existing pipe diameters will be maintained when being replaced, or if increased in places, only to improve an existing deficiency. Therefore, the Project would have a less than significant impact.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be *less than significant*.

Impact #3.4.19b – Would the Project have sufficient water supplies available to serve the Project and reasonably foreseeable future development during normal, dry and multiple dry years?

The Project would not require additional allocation of water resources. The existing water supply of the Planada Community would be sufficient in order to both construct the Project and operate the Project after construction. Therefore, there would be no impact.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

There would be *no impact.*

Impact #3.4.19c – Would the Project result in a determination by the wastewater treatment provider that serves or may serve the Project that it has adequate capacity to serve the Project's projected demand in addition to the provider's existing commitments?

See discussion for Impact #3.4.19b.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

The Project would have a *less than significant impact*.

Impact #3.4.19d – Would the Project generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?

Solid waste services and facilities in Merced County are governed by the Merced County Solid Waste Regional Agency (MCSWRA). The MCSWRA owns and operates the Highway 59 landfill located approximately 25 miles northwest of the Project site, which stores waste generated in Planada. This landfill is a Class III landfill that occupies 610 acres and is permitted to receive 1,500 tons per day of solid waste. The remaining capacity of the landfill is almost 24,000 cubic yards. Implementation of the proposed Project would not result in the generation of additional solid waste in Planada. Therefore, the Highway 59 landfill has sufficient capacity to accommodate the proposed Project.

The Project, in compliance with Federal, State, and local statutes and regulations related to solid waste, would dispose of all waste generated on site at an approved solid waste facility (Highway 59 Landfill). The Project does not, and would not conflict with Federal, State, or local regulations related to solid waste. The proposed Project would be served by a landfill with sufficient permitted capacity to accommodate the Project's solid waste disposal needs in compliance with Federal, State, and local statutes and regulations related to solid waste. Therefore, the Project would have a less than significant impact.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be *less than significant impact*.

Impact #3.4.19e – Would the Project comply with Federal, State, and local management and reduction statutes and regulations related to solid waste?

See discussion for Impact #3.4.18d.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be *less than significant.*

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

Impact #3.4.20a – Would the Project substantially impair an adopted emergency response plan or emergency evacuation plan?

The Project would result in excavated roadways throughout the Community of Planada in order to repair sewer pipe infrastructure. This excavation could result in the disruption of typical levels of service in affected roadways. However, this disruption is temporary in nature and would therefore not significantly reduce accessibility of these roadways in the event of an emergency.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be *less than significant.*

Impact #3.4.20b – Would the Project 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?

According to the Planada Community Plan, Planada is not in a very high fire danger area (County of Merced, 2016). Portions of the Planada CSD contain grasses and the surrounding area mainly consists of agricultural operations, which can also present a fire risk. All construction under the proposed Project shall comply with current California Fire Code and county standards, which would minimize potential risks to wildfire exposure.

MITIGATION MEASURE(S)

No mitigation is required,

LEVEL OF SIGNIFICANCE

Impacts would be *less than significant.*

Impact #3.4.20c – Would the Project require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?

The Project would consist of the replacement of subsurface sewer pipes that currently exist in roadways throughout the Community of Planada. Additional infrastructure associated with the Project is not expected to be required, but if needed, would be minimal. There would be no additional exposure to fire risk as a result of infrastructure associated with the Project and would therefore have a less than significant impact on the environment.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be *less than significant.*

Impact #3.4.20d – Would the Project 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?

See discussion of Impact #3.4.10c(i) related to erosion impacts due to drainage changes. Due to the low risk of fire in the Planada CSD as a result of this Project and relatively flat

topography of the Project site, downslope or downstream flooding impacts due to runoff, post-fire slope instability, and/or drainage changes would be less than significant.

MITIGATION MEASURE(S)

Implementation of MM HYD-1 and MM HYD-2.

LEVEL OF SIGNIFICANCE

Impacts would be *less than significant with incorporated mitigation.*

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
3.4.21 - MANDATORY FINDINGS OF SIGNIFICANCE					
a.	Does the Project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory?	☐	☒	☐	☐
b.	Does the Project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)	☐	☒	☐	☐
c.	Does the Project have environmental effects that would cause substantial adverse effects on human beings, either directly or indirectly?	☐	☒	☐	☐

Discussion

Impact #3.4.21a – Does the Project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory?

As evaluated in this IS/MND, the proposed Project would not substantially degrade the quality of the environment; substantially reduce the habitat of a fish or wildlife species; cause a fish or wildlife population to drop below self-sustaining levels; threaten to eliminate a plant or animal community; reduce the number or restrict the range of an endangered, rare, or threatened species; or eliminate important examples of the major periods of California history or prehistory. With mitigation, the proposed Project would not have the potential to

degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory. Therefore, the Project would have a less than significant impact with mitigation incorporated.

MITIGATION MEASURE(S)

Implementation of Mitigation Measures MM BIO-1 through MM BIO-7.

LEVEL OF SIGNIFICANCE

The Project would have a ***less than significant impact with mitigation incorporated***.

Impact #3.4.21b - Does the Project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)?

As described in the impact analyses in Sections 3.14.1 through 3.4.20 of this IS/MND, any potentially significant impacts of the proposed Project would be reduced to a less than significant level following incorporation of the mitigation measures listed in Section 6, *Mitigation and Reporting Plan*. Projects completed in the past have also implemented mitigation as necessary. Accordingly, the proposed Project would not otherwise combine with impacts of related development to add considerably to any cumulative impacts in the region. With mitigation, the proposed Project would not have impacts that are individually limited, but cumulatively considerable. Therefore, the Project would have a less than cumulatively considerable impact with mitigation incorporated.

MITIGATION MEASURE(S)

Implementation of Mitigation Measures MM BIO-1 through MM BIO-7, MM CUL-1 and MM CUL-2, MM GEO-1, MM HYD-1, and MM HYD-2.

LEVEL OF SIGNIFICANCE

The Project would have a ***less than significant impact with mitigation incorporated***.

Impact #3.4.21c - Does the Project have environmental effects that would cause substantial adverse effects on human beings, either directly or indirectly?

All of the Project's impacts, both direct and indirect, that are attributable to the Project were identified and mitigated. As shown in Section 6, *Mitigation and Reporting Plan*, the District has agreed to implement mitigation substantially reducing or eliminating impacts from the Project. Therefore, the proposed Project would not either directly or indirectly cause substantial adverse effects on human beings because all potentially adverse direct impacts

of the proposed Project are identified as having no impact, less than significant impact, or less than significant impact with mitigation.

MITIGATION MEASURE(S)

Implementation of Mitigation Measures MM BIO-1 through MM BIO-7, MM CUL-1 and MM CUL-2, MM GEO-1, MM HYD-1, and MM HYD-2.

LEVEL OF SIGNIFICANCE

The Project would have a ***less than significant impact with mitigation incorporated***.

SECTION 4 - LIST OF PREPARERS

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4.2 - Consultant - QK

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- Jason Ellard, Transportation Engineer, Air Quality – VRPA Technologies, Inc.
- Diana Dyste, MA, RPA, Senior Archaeologist – Applied Earthworks, Inc.

SECTION 5 - BIBLIOGRAPHY

CA Department of Conservation. (2016). *FMMP.* Retrieved from http://www.conservation.ca.gov/dlrp/Pages/qh_maps.aspx

Cal EPA. (n.d.). *Cortese List (SuperFund Cleanup Site List)*. Retrieved March 9, 2016, from http://www.envirostor.dtsc.ca.gov/public/search.asp?cmd=search&reporttype=CORTESE&site_type=CSITES,OPEN,FUDS,CLOSE&status=ACT,BKLG,COM&reporttitle=HAZARDOUS+WASTE+AND+SUBSTANCES+SITE+LIST.

Cal Fire. (2006). *California Wildland Hazard Severity Zone Map Update.* Retrieved from Local Responsibility Area (LRA) Map: http://www.fire.ca.gov/fire_prevention/fire_prevention_wildland_statewide

California Department of Conservation. (2016, May). Retrieved from Important Farmland Finder: http://maps.conservation.ca.gov/ciff/ciff.html

California Department of Transportation. (2011). *California Scenic Highway Mapping System.*

California Water Resources Board. (n.d.). *GeoTracker*. Retrieved March 9, 2016, from https://geotracker.waterboards.ca.gov/map/?CMD=runreport&myaddress=desert+hot+springs%2C+ca

California Water Service. (2016). *2015 Urban Water Management Plan.*

County of Merced. (2016). *Draft Environmental Impact Report, 2016 Planada Community Plan.*

County of Merced. (2017). *Planada Community Plan.*

Department of Conservation Division of Oil, Gas & Geothermal Resources. (n.d.). *Division of Oil, Gas & Geothermal Resources (DOGGR).* Retrieved March 11, 2016, from Well Finder: http://maps.conservation.ca.gov/doggr/index.html#close

Department of Toxic Substances Control . (2015). EnviroStor. California, United States of America .

Insight Environmental/Trinity Consultants. (2018). *Air Quality Impact Analysis.*

Merced County. (2013). *2030 Merced County General Plan.*

Merced, C. O. (2016). Water Quality Report.

SJVAPCD. (2015). *Guide for Assessing and Mitigating Air Quality Impacts.*

Spencer, W.D., et al. (2010). *California Essential Habitat Connectivity Project - A Strategy for Conserving a Connected California.* Caltrans.

United States Fish and Wildlife Service. (2011). *Standardized Recommendations for Protection of the Endangered San Joaquin Kit Fox Prior to or During Ground Disturbance.*

US Fish and Wildlife Service. (1998). *Recovery Plan for Upland Species of the San Joaquin Valley, CA.*

VRPA Technologies. (2018). *Planada Wastewater Collection System Repair Project Air Quality and Greenhouse Gas Impact Assessment.*

SECTION 6 - MITIGATION MONITORING AND REPORTING PROGRAM

RESERVED

APPENDIX A
AIR QUALITY IMPACT ANALYSIS/GREENHOUSE GASES ANALYSIS

Planada Wastewater Collection System Repair Project

Air Quality & Greenhouse Gas Impact Assessment

February 2019

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Planada Wastewater Collection System Repair Project
Air Quality & Greenhouse Gas Impact Assessment

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Table of Contents

Section	Description	Page
	Executive Summary	E-1
1.0	Introduction	1
1.1	Description of the Region/Project	1
1.2	Regulatory	4
1.2.1	Federal Agencies	4
1.2.2	Federal Regulations	5
1.2.3	State Agencies	6
1.2.4	State Regulations	7
1.2.5	Regional Agencies	13
1.2.6	Regional Regulations	14
1.2.7	Local Plans	15
2.0	Environmental Setting	16
2.1	Geographical Locations	16
2.2	Topographic Conditions	16
2.3	Climate Conditions	16
2.4	Anthropogenic (Man-made) Sources	18
2.4.1	Motor Vehicles	19
2.4.2	Agricultural and Other Miscellaneous	20
2.4.3	Industrial Plants	20
2.5	San Joaquin Valley Air Basin Monitoring	20
2.6	Air Quality Standards	23
2.6.1	Ozone (1-hour and 8-hour)	23
2.6.2	Suspended PM (PM10 and PM2.5)	25
2.6.3	Carbon Monoxide (CO)	26
2.6.4	Nitrogen Dioxide (NO2)	27
2.6.5	Sulfur Dioxide (SO2)	29
2.6.6	Lead (Pb)	29
2.6.7	Toxic Air Contaminants (TAC)	29
2.6.8	Odors	32
2.6.9	Naturally Occurring Asbestos (NOA)	33
2.6.10	Greenhouse Gas Emissions	33

3.0 Air Quality Impacts 35
3.1 Methodology 35
3.1.1 Road Construction Emissions Model 35
3.2 Short-Term Impacts 36
3.3 Long Term Emissions 37
3.3.1 Greenhouse Gas Emissions 37
3.4 National Environmental Policy Act (NEPA) 38

4.0 Impact Determinations and Recommended Mitigation 40
4.1 Air Quality 40
4.1.1 Conflict with or obstruct implementation of the applicable air quality plan 40
4.1.2 Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard 41
4.1.3 Expose sensitive receptors to substantial pollutant concentrations 42
4.1.4 Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people 43
4.2 Greenhouse Gas Emissions 43
4.2.1 Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment 43
4.2.2 Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases 45

Appendices

Appendix A – Road Construction Emissions Model Worksheets

List of Tables

1	Ambient Air Quality Standards	9
2	Maximum Pollutant Levels at Merced's Coffee Street Monitoring Station	21
3	Merced County Attainment Status	22
4	Recommendations on Siting New Sensitive Land Uses Such As Residences, Schools, Daycare Centers, Playgrounds, or Medical Facilities	31
5	Screening Levels for Potential Odor Sources	33
6	SJVAPCD Air Quality Thresholds of Significance	35
7	Project Construction Emissions (tons/year)	37

List of Figures

1	Regional Location	2
2	Planada Community Services District	3
3	San Joaquin Valley Air Basin	8

Executive Summary

This Air Quality & Greenhouse Gas Impact Assessment has been prepared for the purpose of identifying potential air quality impacts that may result from the proposed Planada Wastewater Collection System Repair Project, hereinafter called "Project", which seeks to repair the sewer line system in the Planada community. The Project, which encompasses the community of Planada, is located approximately 7 miles east of the City of Merced in Merced County.

Merced County is located in one of the most polluted air basins in the country – the San Joaquin Valley Air Basin (SJVAB). The surrounding topography includes foothills and mountains to the east and west. These mountain ranges direct air circulation and dispersion patterns. Temperature inversions can trap air within the Valley, thereby preventing the vertical dispersal of air pollutants. In addition to topographic conditions, the local climate can also contribute to air quality problems. Climate in Merced County is classified as Mediterranean, with moist cool winters and dry warm summers.

Air quality within the Project area is addressed through the efforts of various federal, state, regional, and local government agencies. These agencies work jointly, as well as individually, to improve air quality through legislation, regulations, planning, policy-making, education, and a variety of programs.

IMPACTS

Short-Term (Construction) Emissions

Short-term impacts are mainly related to the construction phase of a project and are recognized to be short in duration. Construction air quality impacts are generally attributable to dust generated by equipment and vehicles. Fugitive dust is emitted both during construction activity and as a result of wind erosion over exposed earth surfaces. Clearing and earth moving activities do comprise major sources of construction dust emissions, but traffic and general disturbances of soil surfaces also generate significant dust emissions. Further, dust generation is dependent on soil type and soil moisture.

PM10 emissions can result from construction activities of the project. The SJVAPCD requires implementation of effective and comprehensive control measures, rather than a detailed quantification of emissions. The SJVAPCD has determined that compliance with Regulation VIII for all sites and other control measures will constitute sufficient mitigation to reduce PM10 impacts to a level considered less-than significant.

Ozone precursor emissions are also an impact of construction activities and can be quantified through calculations. Numerous variables factored into estimating total construction emission include: level of activity, length of construction period, number of pieces and types of equipment

in use, site characteristics, weather conditions, number of construction personnel, and amount of materials to be transported onsite or offsite. Additional exhaust emissions would be associated with the transport of workers and materials. Construction emissions from equipment expected to be used during the construction phase of the Project were estimated using the Road Construction Emissions Model.

Table E-1 shows the Road Construction Emissions Model estimated construction emissions that would be generated from development of the Project. Results of the analysis show that emissions generated from construction of the Project will not exceed the SJVAPCD emission thresholds.

Table E-1
Project Construction Emissions (tons/year)

Summary Report	CO	NO_X	ROG	SO_X	PM_{10}	$PM_{2.5}$	CO2e
Project Site Construction Emissions Per Year	7.01	6.57	0.77	0.01	0.53	0.37	1225.82
SJVAPCD Level of Significance	100	10	10	27	15	15	None
Does the Project Exceed Standard?	No	No	No	No	No	No	No

Source: Road Construction Emissions Model

Long-Term Emissions

Long-Term emissions from a project are generated primarily by mobile source (vehicle) emissions from a project's site and area sources such as maintenance equipment. It should be noted that the proposed Project will not generate emissions associated with long-term emissions given the nature of the Project. All operations associated with the Project will cease upon completion of the repairs (construction) associated with the Planada wastewater collection system. Therefore, operational emissions from the Project will be less than the applicable SJVAPCD emission thresholds for criteria pollutants.

1. Green House Gas Emissions

In the event that a local air district's guidance for addressing GHG impacts does not use numerical GHG emissions thresholds, at the lead agency's discretion, a neighboring air district's GHG thresholds may be used to determine impacts. On December 5, 2008, the South Coast Air Quality Management District (SCAQMD) Governing Board adopted the staff proposal for an interim GHG significance threshold for projects where the SCAQMD is lead agency. The SCAQMD guidance identifies a threshold of 10,000 MTCO2eq./year for GHG for construction emissions amortized over a 30-year project lifetime, plus annual operation emissions. This threshold is often used by agencies, such as the California Public Utilities Commission, to evaluate GHG impacts in areas that do not have specific thresholds (CPUC 2015). Therefore, because this threshold has been established by the SCAQMD in an effort to control GHG emissions in the largest metropolitan

area in the State of California, this threshold is considered a conservative approach for evaluating the significance of GHG emissions in a more rural area, such as Merced County. Though the Project is under SJVAPCD jurisdiction, the SCAQMD GHG threshold provides some perspective on the GHG emissions generated by the Project. The Project will not generate operational emissions as noted above. However, in accordance with SCAQMD guidance, the Project's construction emissions were amortized over 30-years and compared to the 10,000 MTCO2eq./year criteria. Table E-1 shows GHG emissions associated with the construction phase of the Project. Construction emissions associated with the Project amortized over 30-years equates to 40.9 MTCO2eq, which is approximately 99.6% less than the threshold identified by the SCAQMD.

2. National Environmental Policy Act (NEPA)

NEPA provides general information on the effects of federally funded projects. The Act was implemented by regulations included in the Code of Federal Regulations (40CFR6). The regulations require that projects requiring NEPA review seek to avoid or minimize adverse effects of proposed actions and to restore and enhance environmental quality as much as possible. As noted in Section 3.2 and 3.3, emissions generated from construction of the Project will not exceed the SJVAPCD emission thresholds. All operations associated with the Project will cease upon completion of the repairs (construction) associated with the Planada wastewater collection system.

According to NEPA Guidance, project's which meet the definition contained in 40 CFR 1508.4 (Categorical Exclusion) do not require any further NEPA approvals by the Federal Highway Administration since they do not individually or cumulatively have a significant effect on the environment. FHWA Guidance indicates that utility installations along or across a transportation facility meet the categorical exclusion requirements. As a result, the proposed Project will not individually or cumulatively have a significant effect on the environment.

CEQA ENVIRONMENTAL CHECKLIST

1. Air Quality

The following thresholds of significance are based on Appendix G of the CEQA Guidelines. The significance criteria established by the SJVAPCD is relied upon to make the following determinations. Would the project:

- ✓ Conflict with or obstruct implementation of the applicable air quality plan?

The primary way of determining consistency with the air quality plan's (AQP's) assumptions is determining consistency with the applicable General Plan to ensure that the Project's population density and land use are consistent with the growth assumptions used in the AQPs for the air basin.

As required by California law, city and county General Plans contain a Land Use Element that details the types and quantities of land uses that the city or county estimates will be needed for future growth, and that designate locations for land uses to regulate growth. MCAG uses the growth projections and land use information in adopted general plans to estimate future average daily trips and then VMT, which are then provided to SJVAPCD to estimate future emissions in the AQPs. Existing and future pollutant emissions computed in the AQP are based on land uses from area general plans. AQPs detail the control measures and emission reductions required for reaching attainment of the air standards.

The applicable General Plan for the project is the Merced County 2030 General Plan, which was adopted in 2012. The Project is consistent with the currently adopted General Plan for the Planada Community and is therefore consistent with the population growth and VMT applied in the plan. Therefore, the Project is consistent with the growth assumptions used in the applicable AQPs. As a result, the Project will not conflict with or obstruct implementation of any air quality plans. Therefore, no mitigation is needed.

- ✓ Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non- attainment under an applicable federal or state ambient air quality standard?

The Merced County area is nonattainment for Federal and State air quality standards for ozone and nonattainment for Federal and State standards for PM2.5. Merced County is also nonattainment for State standards for PM10. The SJVAPCD has prepared the 2016 and 2013 Ozone Plans, 2007 PM10 Maintenance Plan, and 2012 PM2.5 Plan to achieve Federal and State standards for improved air quality in the SJVAB regarding ozone and PM. Individual projects contribute cumulatively to a regions nonattainment status and inconsistency with any of the plans would be considered a cumulatively adverse air quality impact.

Project specific emissions that exceed the thresholds of significance for criteria pollutants would be expected to result in a cumulatively considerable net increase of any criteria pollutant for which the County is in non-attainment under applicable federal or state ambient air quality standards. It should be noted that a project isn't characterized as cumulatively insignificant when project emissions fall below thresholds of significance. As discussed in Section 3.1, the SJVAPCD has established thresholds of significance for determining environmental significance which are provided in Table 6.

Air Quality Plan

Tthe SJVAPCD has prepared the 2016 and 2013 Ozone Plans, 2007 PM10 Maintenance Plan, and 2012 PM2.5 Plan to achieve Federal and State standards for improved air quality in the SJVAB regarding ozone and PM. Existing and future pollutant emissions computed in the AQP are based on land uses from area general plans. The AQP details the control measures and emission reductions required for reaching attainment of the air standards.

The applicable General Plan for the project is the Merced County 2030 General Plan, which was adopted in 2012. The Project is consistent with the currently adopted General Plan for the Planada Community and is therefore consistent with the population growth and VMT applied in the plan. Therefore, the Project is consistent with the growth assumptions used in the applicable AQP. As a result, the Project will not conflict with or obstruct implementation of any air quality plans.

Ozone/Particulate Matter

As discussed above, Project emissions would not exceed the project-level significance thresholds for ozone precursors ROG and NOx or PM10 and PM2.5 during construction and operation. The SJVAPCD considers projects that exceed the project-level thresholds of significance as cumulatively significant. The Project's emissions would not combine with other sources in the SJVAB to make a cumulatively considerable contribution to a violation of the ozone standards. Therefore, this impact is less than significant. As such, there would not be a significant contribution to health effects from ozone and particulate matter.

Based on the assessment above, the Project will not result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors) and any impacts would be less than significant.

✓ Expose sensitive receptors to substantial pollutant concentrations?

Sensitive receptors refer to those segments of the population most susceptible to poor air quality (i.e., children, the elderly, and those with pre-existing serious health problems affected by air quality). Land uses that have the greatest potential to attract these types of sensitive receptors include schools, parks, playgrounds, daycare centers, nursing homes, hospitals, and residential communities.

The first step in evaluating the potential for impacts to sensitive receptors for TAC's from the Project is to perform a screening level analysis. For Type A Projects, one type of screening tool is found in the CARB Handbook: Air Quality and Land Use Handbook: A Community Perspective. This handbook includes a table (depicted in Table 4) with recommended buffer distances associated with various types of common sources. Since, the proposed Project does not correspond with the characteristics of the source categories included in Table 4, a health risk assessment is not needed at this time. Therefore, the Project will not expose sensitive receptors to substantial pollutant concentrations and any impacts would be less than significant.

- ✓ Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

The proposed Project will not generate odorous emissions given the nature or characteristics of the Project. As a result, the Project will not be evaluated for its potential to place odor sources near existing sensitive receptors. It should be noted that the proposed Project will not generate emissions associated with long-term emissions given the nature of the Project. All operations associated with the Project will cease upon completion of the repairs (construction) associated with the Planada wastewater collection system.

The intensity of an odor source's operations and its proximity to sensitive receptors influences the potential significance of odor emissions. The SJVAPCD has identified some common types of facilities that have been known to produce odors in the SJV Air Basin. The types of facilities that are known to produce odors are shown in Table 5 above along with a reasonable distance from the source within which, the degree of odors could possibly be significant. None of the facilities shown in Table 5 correspond with the specific characteristics of the Project.

Based on the assessment above, the Project will not generate potential odorous emissions or attract receivers and other sensitive receptors near existing odor sources. Therefore, no mitigation is needed.

2. *Greenhouse Gas Emissions*

The following thresholds of significance are based on Appendix G of the CEQA Guidelines. The significance criteria established by the SJVAPCD is relied upon to make the following determinations. Would the project:

- ✓ Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

In the event that a local air district's guidance for addressing GHG impacts does not use numerical GHG emissions thresholds, at the lead agency's discretion, a neighboring air district's GHG thresholds may be used to determine impacts. On December 5, 2008, the South Coast Air Quality Management District (SCAQMD) Governing Board adopted the staff proposal for an interim GHG significance threshold for projects where the SCAQMD is lead agency. The SCAQMD guidance identifies a threshold of 10,000 MTCO2eq./year for GHG for construction emissions amortized over a 30-year project lifetime, plus annual operation emissions. This threshold is often used by agencies, such as the California Public Utilities Commission, to evaluate GHG impacts in areas that do not have specific thresholds (CPUC 2015). Therefore, because this threshold has been established by the SCAQMD in an effort to control GHG emissions in the largest metropolitan area in the State of California, this threshold is considered a conservative approach for evaluating the significance of GHG emissions in a more rural area, such as Merced County. Though the Project is under SJVAPCD jurisdiction, the SCAQMD GHG threshold provides some perspective on the GHG emissions generated by the Project. The Project will not generate operational emissions as noted above. However, in accordance with SCAQMD guidance, the Project's construction emissions were amortized over 30-years and compared to the 10,000 MTCO2eq./year criteria. Table E-1 shows GHG emissions associated with the construction phase of the Project. Construction emissions associated with the Project amortized over 30-years equates to 40.9 MTCO2eq, which is approximately 99.6% less than the threshold identified by the SCAQMD.

CARB's California GHG Emissions Inventory provides estimates of anthropogenic GHG emissions within California, as well as emissions associated with imported electricity; natural sources are not included in the inventory. California's GHG emissions for 2015 totaled approximately 440,400,000 MTCO2eq. The proposed Project's GHG emissions represents 0.000009% of the total GHG emissions for the state of California when compared to year 2015 emissions data.

Based on the assessment above, the Project will not generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment. Therefore, any impacts would be less than significant. It should be noted that the proposed Project will not generate emissions associated with long-term emissions given the nature of the Project. All operations associated with the Project will cease upon completion of the repairs (construction) associated with the Planada wastewater collection system. Therefore, the Project's greenhouse emissions are not cumulatively considerable.

- ✓ Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

As required by California law, city and county General Plans contain a Land Use Element that details the types and quantities of land uses that the city or county estimates will be needed for

future growth, and that designate locations for land uses to regulate growth. MCAG uses the growth projections and land use information in adopted general plans to estimate future average daily trips and then VMT, which are then provided to SJVAPCD to estimate future emissions in the AQPs. The applicable General Plan for the project is the Merced County 2030 General Plan, which was adopted in 2012.

The proposed Project is consistent with the currently adopted General Plan for Merced County and the adopted 2014 RTP/SCS and is therefore consistent with the population growth and VMT applied in those plan documents. Therefore, the Project is consistent with the growth assumptions used in the applicable AQP. It should also be noted that yearly GHG emissions generated by the Project are approximately 99.6% less than the threshold identified by the SCAQMD (see the discussion for Impact 4.2.1 above).

Based on the assessment above, the Project will not conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases. The Project further the achievement of the County's greenhouse gas reduction goals. Therefore, any impacts would be less than significant.

1.0 Introduction

1.1 Description of the Region/Project

This Air Quality & Greenhouse Gas Impact Assessment has been prepared for the purpose of identifying potential air quality impacts that may result from the proposed Planada Wastewater Collection System Repair Project, hereinafter called "Project", which seeks to repair the sewer line system in the Planada community. The Project, which encompasses the community of Planada, is located approximately 7 miles east of the City of Merced in Merced County. The following is a list of alternatives for repairing the sewer line system.

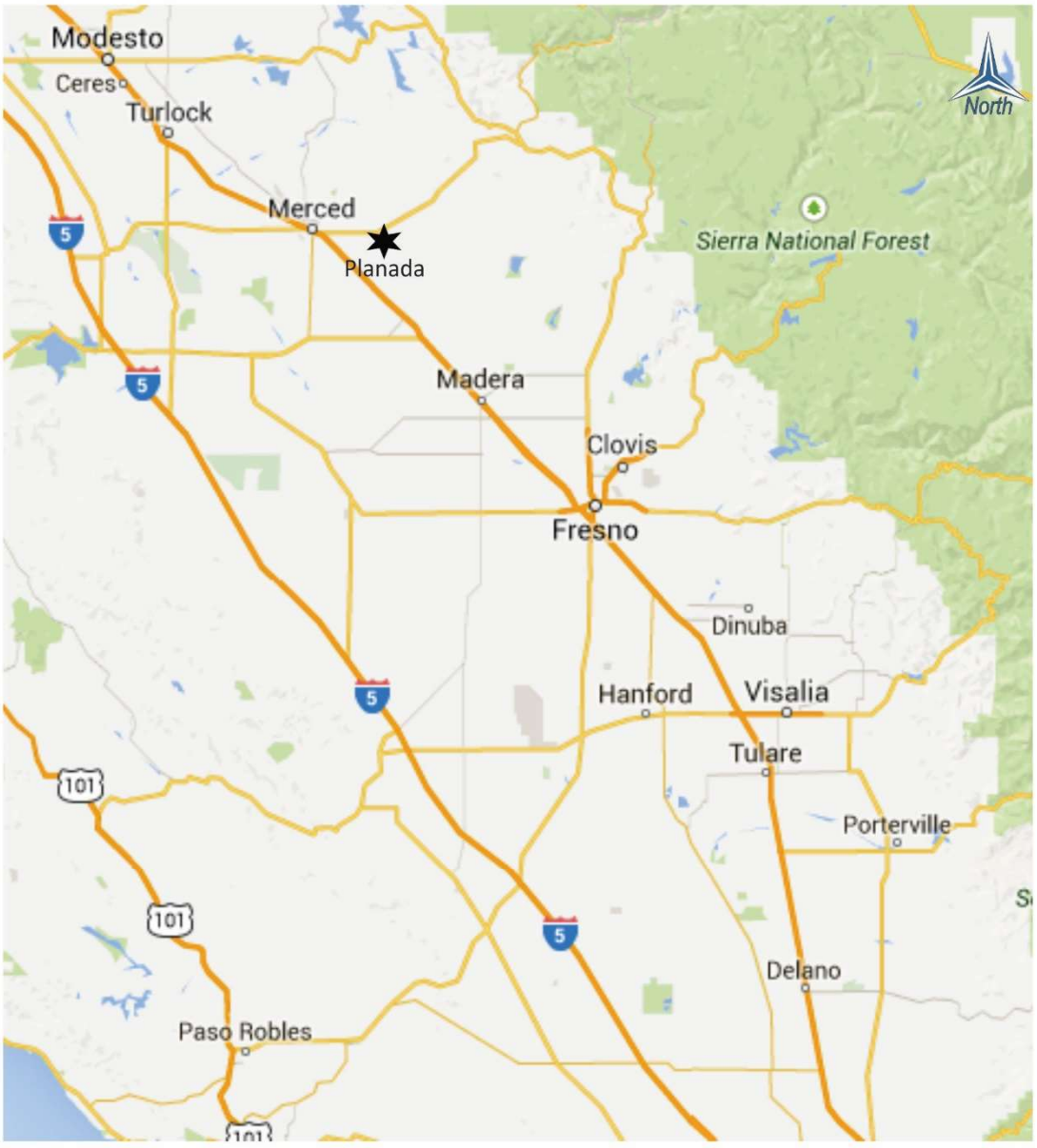
- ✓ Traditional/ trench method
- ✓ Pipe lining/ trenchless method
  - Cured-in place pipe (CIPP) method
    - Limitations include
      - Required bypass or diversion of flow
      - Curing can be difficult for long pipe segments
      - Must allow proper curing time
      - Faulty installation may be difficult to correct
      - Resin may settle at bottom of pipe
      - Reduces pipeline diameter
  - Pipe bursting system/ in-line expansion method
    - Limitations include
      - Required bypass or diversion of flow
      - Required insertion pit
      - Powerful/strong action can cause significant ground movement; not suitable for all soil types

The Project lies within the central portion of the San Joaquin Valley in Merced County. Figures 1 and 2 show the location of the Project along with major roadways and highways.

Merced County is located in one of the most polluted air basins in the country – the San Joaquin Valley Air Basin (SJVAB). The surrounding topography includes foothills and mountains to the east and west. These mountain ranges direct air circulation and dispersion patterns. Temperature inversions can trap air within the Valley, thereby preventing the vertical dispersal of air pollutants. In addition to topographic conditions, the local climate can also contribute to air quality problems. Climate in Merced County is classified as Mediterranean, with moist cool winters and dry warm summers.

Planada Wastewater Collection System Repair Project
Regional Location

Figure 1

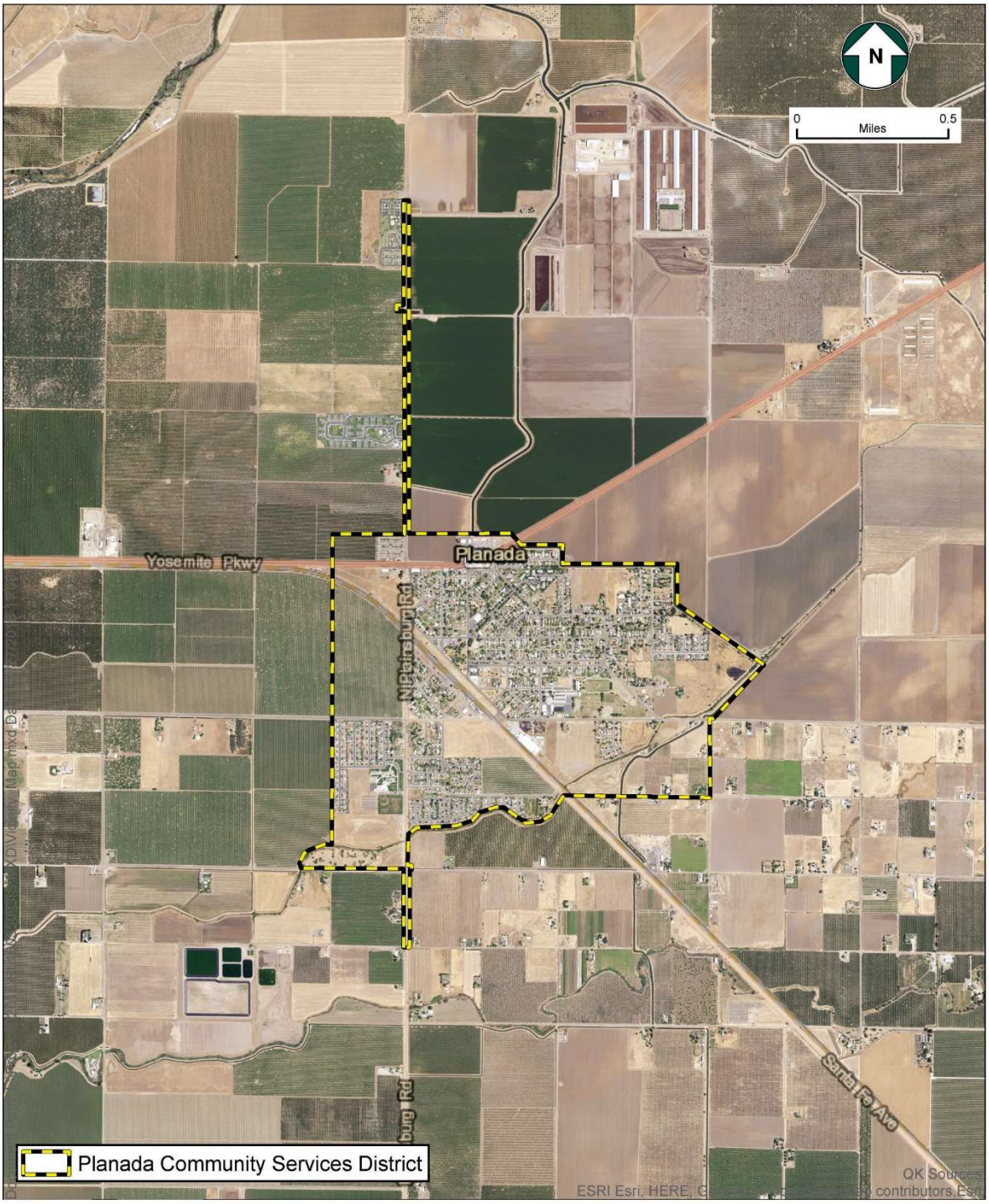


LEGEND

★ Project Location

VRPA TECHNOLOGIES, INC.

Planada Wastewater Collection System Repair **Figure 2**
Planada Community Services District



1.2 Regulatory

Air quality within the Project area is addressed through the efforts of various federal, state, regional, and local government agencies. These agencies work jointly, as well as individually, to improve air quality through legislation, regulations, planning, policy-making, education, and a variety of programs. The agencies primarily responsible for improving the air quality within Merced County are discussed below along with their individual responsibilities.

1.2.1 *Federal Agencies*

✓ **U.S. Environmental Protection Agency (EPA)**

The Federal Clean Air Bill first adopted in 1967 and periodically amended since then, established federal ambient air quality standards. A 1987 amendment to the Bill set a deadline for the attainment of these standards. That deadline has since passed. The other CAA Bill Amendments, passed in 1990, share responsibility with the State in reducing emissions from mobile sources. The U.S. Environmental Protection Agency (EPA) is responsible for enforcing the 1990 amendments.

The CAA and the national ambient air quality standards identify levels of air quality for six "criteria" pollutants, which are considered the maximum levels of ambient air pollutants considered safe, with an adequate margin of safety, to protect public health and welfare. The six criteria pollutants include ozone, carbon monoxide (CO), nitrogen dioxide, sulfur dioxide, particulate matter, and lead.

CAA Section 176(c) (42 U.S.C. 7506(c)) and EPA transportation conformity regulations (40 CFR 93 Subpart A) require that each new RTP and Transportation Improvement Program (TIP) be demonstrated to conform to the State Implementation Plan (SIP) before the RTP and TIP are approved by the Metropolitan planning organization (MPO) or accepted by the U.S. Department of Transportation (DOT). The conformity analysis is a federal requirement designed to demonstrate compliance with the National Ambient Air Quality Standards (NAAQS). However, because the State Implementation Plan (SIP) for particulate matter 10 microns or less in diameter (PM_{10}), particulate matter 2.5 microns or less in diameter ($PM_{2.5}$), and Ozone address attainment of both the State and federal standards, for these pollutants, demonstrating conformity to the federal standards is also an indication of progress toward attainment of the State standards. Compliance with the State air quality standards is provided on the pages following this federal conformity discussion.

The EPA approved San Joaquin Valley reclassification of the ozone (8-hour) designation to extreme nonattainment in the Federal Register on May 5, 2010, even though the San Joaquin Valley was initially classified as serious nonattainment for the 1997 8-hour ozone standard. In accordance with the CAA, EPA uses the design value at the time of standard promulgation to assign nonattainment areas to one of several classes that reflect the severity of the

nonattainment problem; classifications range from marginal nonattainment to extreme nonattainment. In the Federal Register on October 26, 2015, the EPA revised the primary and secondary standard to 0.070 parts per million (ppm) to provide increased public health protection against health effects associated with long- and short-term exposures. The previous ozone standard was set in 2010 at 0.075 ppm.

Merced County is located in a nonattainment area for the 8-hour ozone standard, 1997, 2006 and 2012 $PM_{2.5}$ standards, and has a maintenance plan for PM_{10} standard.

1.2.2 *Federal Regulations*

✓ **National Environmental Policy Act (NEPA)**

NEPA provides general information on the effects of federally funded projects. The Act was implemented by regulations included in the Code of Federal Regulations (40CFR6). The code requires careful consideration concerning environmental impacts of federal actions or plans, including projects that receive federal funds. The regulations address impacts on land uses and conflicts with state, regional, or local plans and policies, among others. They also require that projects requiring NEPA review seek to avoid or minimize adverse effects of proposed actions and to restore and enhance environmental quality as much as possible.

✓ **State Implementation Plan (SIP)/ Air Quality Management Plans (AQMPs)**

To ensure compliance with the NAAQS, EPA requires states to adopt SIP aimed at improving air quality in areas of nonattainment or a Maintenance Plan aimed at maintaining air quality in areas that have attained a given standard. New and previously submitted plans, programs, district rules, state regulations, and federal controls are included in the SIPs. Amendments made in 1990 to the federal CAA established deadlines for attainment based on an area's current air pollution levels. States must enact additional regulatory programs for nonattainment's areas in order to adhere with the CAA Section 172. In California, the SIPs must adhere to both the NAAQS and the California Ambient Air Quality Standards (CAAQS).

To ensure that State and federal air quality regulations are being met, Air Quality Management Plans (AQMPs) are required. AQMPs present scientific information and use analytical tools to identify a pathway towards attainment of NAAQS and CAAQS. The San Joaquin Valley Air Pollution Control District (SJVAPCD) develops the AQMPs for the region where the Merced County Association of Governments (MCAG) operates. The regional air districts begin the SIP process by submitting their AQMPs to the California Air Resources Board (CARB). CARB is responsible for revising the SIP and submitting it to EPA for approval. EPA then acts on the SIP in the Federal Register. The items included in the California SIP are listed in the Code of Federal Regulations Title 40, Chapter 1, Part 52, Subpart 7, Section 52.220.

1.2.3 *State Agencies*

✓ **California Air Resources Board (CARB)**

CARB is the agency responsible for coordination and oversight of State and local air pollution control programs in California and for implementing its own air quality legislation called the CCAA, adopted in 1988. CARB was created in 1967 from the merging of the California Motor Vehicle Pollution Control Board and the Bureau of Air Sanitation and its Laboratory.

CARB has primary responsibility in California to develop and implement air pollution control plans designed to achieve and maintain the NAAQS established by the EPA. Whereas CARB has primary responsibility and produces a major part of the SIP for pollution sources that are statewide in scope, it relies on the local air districts to provide additional strategies for sources under their jurisdiction. CARB combines its data with all local district data and submits the completed SIP to the EPA. The SIP consists of the emissions standards for vehicular sources and consumer products set by CARB, and attainment plans adopted by the Air Pollution Control Districts (APCDs) and Air Quality Management District's (AQMDs) and approved by CARB.

States may establish their own standards, provided the State standards are at least as stringent as the NAAQS. California has established California Ambient Air Quality Standards (CAAQS) pursuant to California Health and Safety Code (CH&SC) [§39606(b)] and its predecessor statutes.

The CH&SC [§39608] requires CARB to "identify" and "classify" each air basin in the State on a pollutant-by-pollutant basis. Subsequently, CARB designated areas in California as nonattainment based on violations of the CAAQSs. Designations and classifications specific to the San Joaquin Valley Air Basin (SJVAB) can be found in the next section of this document. Areas in the State were also classified based on severity of air pollution problems. For each nonattainment class, the CCAA specifies air quality management strategies that must be adopted. For all nonattainment categories, attainment plans are required to demonstrate a five-percent-per-year reduction in nonattainment air pollutants or their precursors, averaged every consecutive three-year period, unless an approved alternative measure of progress is developed. In addition, air districts in violation of CAAQS are required to prepare an Air Quality Attainment Plan (AQAP) that lays out a program to attain and maintain the CCAA mandates.

Other CARB duties include monitoring air quality. CARB has established and maintains, in conjunction with local APCDs and AQMDs, a network of sampling stations (called the State and Local Air Monitoring [SLAMS] network), which monitor the present pollutant levels in the ambient air.

Merced County is in the CARB-designated, SJVAB. A map of the SJVAB is provided in Figure 3. In addition to Merced County, the SJVAB includes Fresno, Kern, Kings, Madera, San Joaquin, Stanislaus, and Tulare Counties. Federal and State standards for criteria pollutants are provided in Table 1.

1.2.4 *State Regulations*

✓ **CARB Mobile-Source Regulation**

The State of California is responsible for controlling emissions from the operation of motor vehicles in the State. Rather than mandating the use of specific technology or the reliance on a specific fuel, CARB's motor vehicle standards specify the allowable grams of pollutant per mile driven. In other words, the regulations focus on the reductions needed rather than on the manner in which they are achieved.

✓ **California Clean Air Act**

The CCAA was first signed into law in 1988. The CCAA provides a comprehensive framework for air quality planning and regulation, and spells out, in statute, the state's air quality goals, planning and regulatory strategies, and performance. The CCAA establishes more stringent ambient air quality standards than those included in the Federal CAA. CARB is the agency responsible for administering the CCAA. CARB established ambient air quality standards pursuant to the CH&SC [§39606(b)], which are similar to the federal standards. The SJVAPCD is one of 35 AQMDs that have prepared air quality management plans to accomplish a five percent (5%) annual reduction in emissions documenting progress toward the State ambient air quality standards.

✓ **Tanner Air Toxics Act**

California regulates Toxic Air Contaminants (TACs) primarily through the Tanner Air Toxics Act (AB 1807) and the Air Toxics Hot Spots Information and Assessment Act of 1987 (AB 2588). The Tanner Act sets forth a formal procedure for CARB to designate substances as TACs. This includes research, public participation, and scientific peer review before CARB can designate a substance as a TAC. To date, CARB has identified more than 21 TACs and has adopted EPA's list of Hazardous Air Pollutants (HAPs) as TACs. Once a TAC is identified, CARB then adopts an Airborne Toxics Control Measure (ATCM) 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 (BACT) to minimize emissions.

Planada Wastewater Collection System Repair **Figure 3**
San Joaquin Valley Air Basin

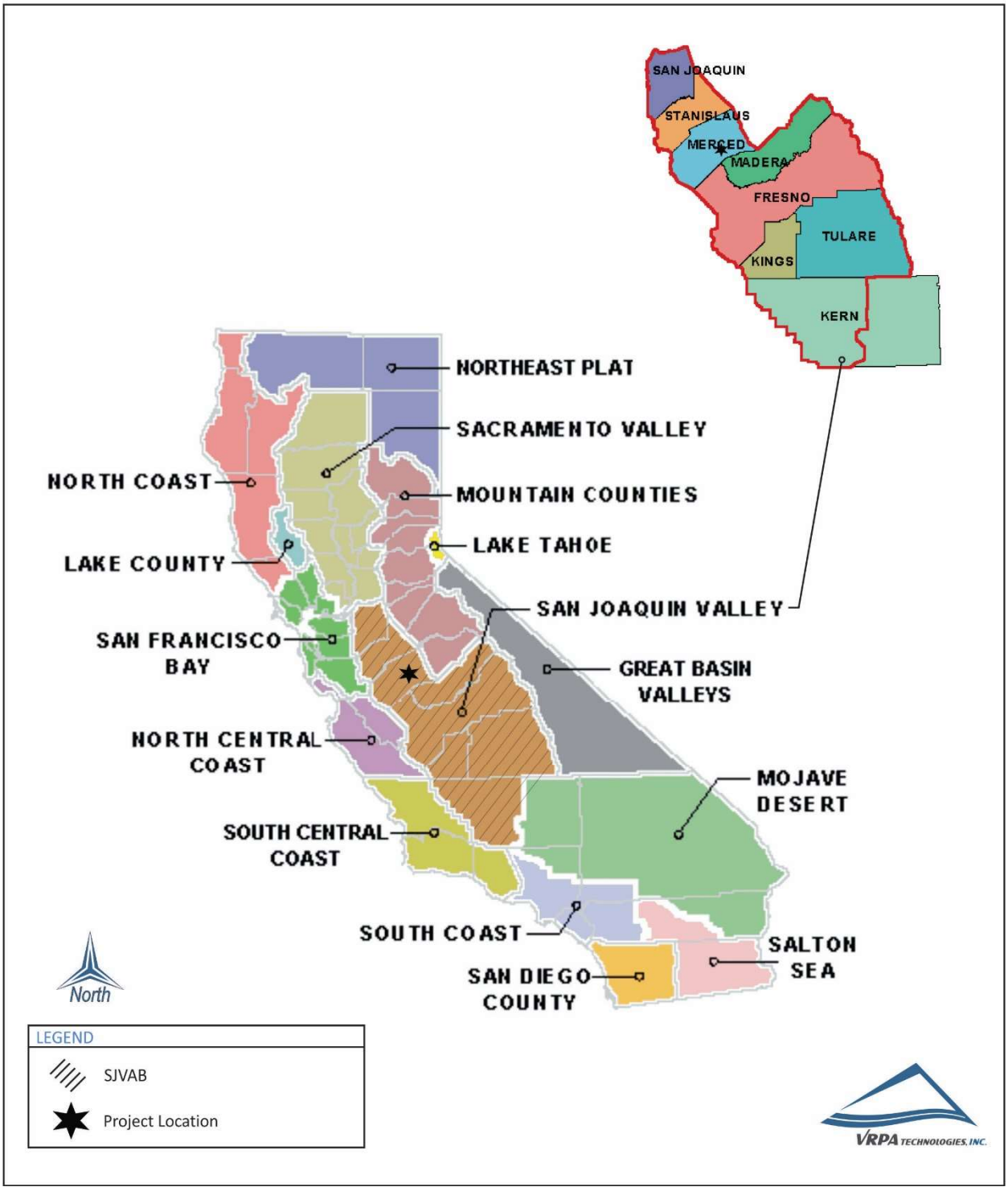


Table 1
Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards [1]		National Standards [2]		
		Concentration [3]	Method [4]	Primary [3,5]	Secondary [3,6]	Method [7]
Ozone (O_3) [8]	1 Hour	0.09 ppm (180 µg/m^3)	Ultraviolet Photometry	--	Same as Primary Standard	Ultraviolet Photometry
	8 Hour	0.070 ppm (137 µg/m^3)		0.070 ppm (137 µg/m^3)		
Respirable Particulate Matter (PM10) [9]	24 Hour	50 µg/m^3	Gravimetric or Beta Attenuation	150 µg/m^3	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	20 µg/m^3		--		
Fine Particulate Matter (PM2.5) [9]	24 Hour	--	--	35 µg/m^3	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	12 µg/m^3	Gravimetric or Beta Attenuation	12.0 µg/m^3	15 µg/m^3	
Carbon Monoxide (CO)	1 Hour	20 ppm (23 mg/m^3)	Non-Dispersive Infrared Photometry (NDIR)	35 ppm (40 mg/m^3)	--	Non-Dispersive Infrared Photometry (NDIR)
	8 Hour	9.0 ppm (10 mg/m^3)		9 ppm (10 mg/m^3)	--	
	8 Hour (Lake Tahoe)	6 ppm (7 mg/m^3)		--	--	
Nitrogen Dioxide (NO_2) [10]	1 Hour	0.18 ppm (339 µg/m^3)	Gas Phase Chemiluminescence	100 ppb (188 µg/m^3)	--	Gas Phase Chemiluminescence
	Annual Arithmetic Mean	0.030 ppm (57 µg/m^3)		0.053 ppm (100 µg/m^3)	Same as Primary Standard	
Sulfur Dioxide (SO_2) [11]	1 Hour	0.25 ppm (655 µg/m^3)	Ultraviolet Fluorescence	75 ppb (196 µg/m^3)	--	Ultraviolet Fluorescence; Spectrophotometry (Pararosaniline Method)
	3 Hour	--		--	0.5 ppm (1300 µg/m^3)	
	24 Hour	0.04 ppm (105 µg/m^3)		0.14 ppm (for cetain areas) [11]	--	
	Annual Arithmetic Mean	--		0.030 ppm (for cetain areas) [11]	--	
Lead [12,13]	30 Day Average	1.5 µg/m^3	Atomic Absorption	--	--	High Volume Sampler and Atomic Absorption
	Calendar Quarter	--		1.5 µg/m^3 (for certain areas)[11]	Same as Primary Standard	
	Rolling 3-Month Average	--		0.15 µg/m^3		
Visibility Reducing Particles [14]	8 Hour	See footnote 14	Beta Attenuation and Transmittance through Filter Tape	No National Standards		
Sulfates	24 Hour	25 µg/m^3	Ion Chromatography			
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m^3)	Ultraviolet Fluorescence			
Vinyl Chloride [12]	24 Hour	0.01 ppm (25 µg/m^3)	Gas Chromatography			

See footnotes on next page ...

Footnotes:

1. California standards for ozone, carbon monoxide (except 8-hour Lake Tahoe), sulfur dioxide (1 and 24 hour), nitrogen dioxide, and particulate matter (PM10, PM2.5, 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 three years, is equal to or less than the standard. For PM10, the 24 hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m3 is equal to or less than one. For PM2.5, the 24 hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. Contact the U.S. 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 upon a reference temperature of 25°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 which can be shown to the satisfaction of the 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 the U.S. EPA. An “equivalent method” of measurement may be used but must have a “consistent relationship to the reference method” and must be approved by the U.S. EPA.
8. On October 1, 2015, the national 8-hour ozone primary and secondary standards were lowered from 0.075 to 0.070 ppm.
9. On December 14, 2012, the national annual PM2.5 primary standard was lowered from 15 µg/m3 to 12.0 µg/m3. The existing national 24-hour PM2.5 standards (primary and secondary) were retained at 35 µg/m3, as was the annual secondary standard of 15 µg/m3. The existing 24-hour PM10 standards (primary and secondary) of 150 µg/m3 also were 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 ppb. Note that the national 1-hour standard is in units of parts per billion (ppb). California standards are in units of parts per million (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 SO2 standard 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 SO2 national standards (24-hour and annual) remain in effect until one 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 parts per billion (ppb). California standards are in units of parts per million (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. The 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/m3 as a quarterly average) remains in effect until one 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, the 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.

AB 2588 requires that existing facilities that emit toxic substances above a specified level prepare a toxic-emission inventory, prepare a risk assessment if emissions are significant, notify the public of significant risk levels, and prepare and implement risk reduction measures. CARB has adopted diesel exhaust control measures and more stringent emission standards for various on-road mobile sources of emissions, including transit buses and off-road diesel equipment (e.g., tractors, generators).

These rules and standards provide for:

- More stringent emission standards for some new urban bus engines, beginning with 2002 model year engines.
- Zero-emission bus demonstration and purchase requirements applicable to transit agencies
- Reporting requirements under which transit agencies must demonstrate compliance with the urban transit bus fleet rule.

✓ **California Environmental Quality Act (CEQA)**

CEQA defines a significant impact on the environment as a substantial, or potentially substantial, adverse change in the physical conditions within the area affected by the project. Land use is a required impact assessment category under CEQA. CEQA documents generally evaluate land use in terms of compatibility with the existing land uses and consistency with local general plans and other local land use controls (zoning, specific plans, etc.).

✓ **Assembly Bill 32 (California Global Warming Solutions Act of 2006)**

California passed the California Global Warming Solutions Act of 2006 (AB 32; California Health and Safety Code Division 25.5, Sections 38500 - 38599). AB 32 establishes regulatory, reporting, and market mechanisms to achieve quantifiable reductions in GHG emissions and establishes a cap on statewide GHG emissions. AB 32 requires that statewide GHG emissions be reduced to 1990 levels by 2020. This reduction will be accomplished by enforcing a statewide cap on GHG emissions that will be phased in starting in 2012. To effectively implement the cap, AB 32 directs CARB to develop and implement regulations to reduce statewide GHG emissions from stationary sources. AB 32 specifies that regulations adopted in response to AB 1493 should be used to address GHG emissions from vehicles. However, AB 32 also includes language stating that if the AB 1493 regulations cannot be implemented, then CARB should develop new regulations to control vehicle GHG emissions under the authorization of AB 32.

AB 32 requires CARB to adopt a quantified cap on GHG emissions representing 1990 emissions levels and disclose how it arrived at the cap; institute a schedule to meet the emissions cap; and develop tracking, reporting, and enforcement mechanisms to ensure that the state reduces GHG emissions enough to meet the cap. AB 32 also includes guidance on instituting emissions reductions in an economically efficient manner, along with conditions

to ensure that businesses and consumers are not unfairly affected by the reductions. Using these criteria to reduce statewide GHG emissions to 1990 levels by 2020 would represent an approximate 25 to 30 percent reduction in current emissions levels. However, CARB has discretionary authority to seek greater reductions in more significant and growing GHG sectors, such as transportation, as compared to other sectors that are not anticipated to significantly increase emissions. Under AB 32, CARB must adopt regulations by January 1, 2011 to achieve reductions in GHGs to meet the 1990 emission cap by 2020.

On December 11, 2008, CARB adopted its initial Scoping Plan, which functions as a roadmap of CARB's plans to achieve GHG reductions in California required by AB 32 through subsequently enacted regulations. CARB's 2017 Climate Change Scoping Plan builds on the efforts and plans encompassed in the initial Scoping Plan. The current plan has identified new policies and actions to accomplish the State's 2030 GHG limit.

✓ **Senate Bill 375**

SB 375, signed in September 2008 (Chapter 728, Statutes of 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 Alternative Planning Strategy (APS) that will prescribe land use allocation in that MPO's regional transportation plan. CARB, in consultation with MPOs, has provided each affected region with reduction targets for GHGs emitted by passenger cars and light trucks in the region for the years 2020 and 2035. For the Merced County Association of Governments (MCAG) region, CARB set targets at five (5) percent per capita decrease in 2020 and a ten (10) percent per capita decrease in 2035 from a base year of 2005.

This law also extends the minimum time period for the regional housing needs allocation cycle from five years to eight years for local governments located within an MPO that meets certain requirements. City or county land use policies (including general plans) are not required to be consistent with the regional transportation plan (and associated SCS or APS). However, new provisions of CEQA would incentivize (through streamlining and other provisions) qualified projects that are consistent with an approved SCS or APS, categorized as "transit priority projects."

✓ **Executive Order B-30-15**

Executive Order B-30-15, which was signed by Governor Brown in 2016, establishes a California greenhouse gas reduction target of 40 percent below 1990 levels by 2030 to ensure California meets its target of reducing greenhouse gas emissions to 80 percent below 1990 levels by 2050. Executive Order B-30-15 requires MPO's to implement measures that will achieve reductions of greenhouse gas emissions to meet the 2030 and 2050 greenhouse gas emissions reductions targets.

1.2.5 *Regional Agencies*

✓ **San Joaquin Valley Air Pollution Control District**

The SJVAPCD is the agency responsible for monitoring and regulating air pollutant emissions from stationary, area, and indirect sources within Merced County and throughout the SJVAB. The District also has responsibility for monitoring air quality and setting and enforcing limits for source emissions. CARB is the agency with the legal responsibility for regulating mobile source emissions. The District is precluded from such activities under State law.

The District was formed in mid-1991 and prepared and adopted the San Joaquin Valley Air Quality Attainment Plan (AQAP), dated January 30, 1992, in response to the requirements of the State CCAA. The CCAA requires each non-attainment district to reduce pertinent air contaminants by at least five percent (5%) per year until new, more stringent, 1988 State air quality standards are met.

Activities of the SJVAPCD include the preparation of plans for the attainment of ambient air quality standards, adoption and enforcement of rules and regulations concerning sources of air pollution, issuance of permits for stationary sources of air pollution, inspection of stationary sources of air pollution and response to citizen complaints, monitoring of ambient air quality and meteorological conditions, and implementation of programs and regulations required by the FCAA and CCAA.

The SJVAPCD has prepared the 2016 (8-hour) and 2013 (1-hour) Ozone Plans to achieve Federal and State standards for improved air quality in the SJVAB regarding ozone. The 2016 and 2013 Ozone Plan provides a comprehensive list of regulatory and incentive-based measures to reduce emissions of ozone and particulate matter precursors throughout the SJVAB. The 2016 and 2013 Ozone Plan calls for major advancements in pollution control technologies for mobile and stationary sources of air pollution. The 2013 Ozone Plan calls for a 75-percent reduction in ozone-forming oxides of nitrogen emissions. The 2013 Ozone Plan also addresses the remaining requirement under the 1979 revoked 1-hour ozone NAAQS.

The SJVAPCD has also prepared the *2007 PM10 Maintenance Plan and Request for Redesignation* (2007 PM10 Plan). On April 24, 2006, the SJVAPCD submitted a Request for Determination of PM10 Attainment for the Basin to the CARB. The CARB concurred with the request and submitted the request to the EPA on May 8, 2006. On October 30, 2006, the EPA issued a Final Rule determining that the Basin had attained the NAAQS for PM10. However, the EPA noted that the Final Rule did not constitute a redesignation to attainment until all of the FCAA requirements under Section 107(d)(3) were met.

The SJVAPCD has prepared the *2012 PM.2.5 Plan* to achieve Federal and State standards for improved air quality in the SJVAB. The *2012 PM.2.5 Plan* provides a comprehensive list of regulatory and incentive-based measures to reduce PM2.5.

In addition to the 2016 and *2013 Ozone Plan, the 2012 PM2.5 Plan,* and the *2007 PM10 Plan*, the SJVAPCD prepared the *Guide for Assessing and Mitigation Air Quality Impacts* (GAMAQI), dated March 19, 2015.

The GAMAQI is an advisory document that provides Lead Agencies, consultants, and project applicants with analysis guidance and uniform procedures for addressing air quality impacts in environmental documents. Local jurisdictions are not required to utilize the methodology outlined therein. This document describes the criteria that SJVAPCD uses when reviewing and commenting on the adequacy of environmental documents. It recommends thresholds for determining whether or not projects would have significant adverse environmental impacts, identifies methodologies for predicting project emissions and impacts, and identifies measures that can be used to avoid or reduce air quality impacts.

The SJVAPCD Plans identified above represent that SJVAPCD's plan to achieve both state and federal air quality standards. The regulations and incentives contained in these documents must be legally enforceable and permanent. These plans break emissions reductions and compliance into different emissions source categories.

1.2.6 *Regional Regulations*

The SJVAPCD has adopted numerous rules and regulations to implement its air quality plans. Following, are significant rules that will apply to the Project.

✓ **Regulation VIII – Fugitive PM10 Prohibitions**

Regulation VIII is comprised of District Rules 8011 through 8081, which are designed to reduce PM_{10} emissions (predominantly dust/dirt) generated by human activity, including construction and demolition activities, road construction, bulk materials storage, paved and unpaved roads, carryout and track out, landfill operations, etc. The proposed Project will be required to comply with this regulation. Regulation VIII control measures are provided below:

1. *All disturbed areas, including storage piles, which are not being actively utilized for construction purposes, shall be effectively stabilized of dust emissions using water, chemical stabilizer/suppressant, covered with a tarp or other suitable cover or vegetative ground cover.*
2. *All on-site unpaved roads and off-site unpaved access roads shall be effectively stabilized of dust emissions using water or chemical stabilizer/suppressant.*
3. *All land clearing, grubbing, scraping, excavation, land leveling, grading, cut & fill, and demolition activities shall be effectively controlled of fugitive dust emissions utilizing application of water or by presoaking.*
4. *When materials are transported off-site, all material shall be covered, or effectively wetted to limit visible dust emissions, and at least six inches of freeboard space from the top of the container shall be maintained.*

5. *All operations shall limit or expeditiously remove the accumulation of mud or dirt from adjacent public streets at the end of each workday. The use of dry rotary brushes is expressly prohibited except where preceded or accompanied by sufficient wetting to limit the visible dust emissions. Use of blower devices is expressly forbidden.*
6. *Following the addition of materials to, or the removal of materials from, the surface of outdoor storage piles, said piles shall be effectively stabilized of fugitive dust emissions utilizing sufficient water or chemical stabilizer/suppressant.*
7. *Within urban areas, track out shall be immediately removed when it extends 50 or more feet from the site and at the end of each workday.*

✓ **Rule 8021 – Construction, Demolition, Excavation, and Other Earthmoving Activities**

District Rule 8021 requires owners or operators of construction projects to submit a Dust Control Plan to the District if at any time the project involves non-residential developments of five or more acres of disturbed surface area or moving, depositing, or relocating of more than 2,500 cubic yards per day of bulk materials on at least three days of the project. The proposed project will meet these criteria and will be required to submit a Dust Control Plan to the District in order to comply with this rule.

✓ **Rule 4641 – Cutback, Slow Cure, and Emulsified Asphalt, Paving and Maintenance Operations**

If asphalt paving will be used, then paving operations of the proposed project will be subject to Rule 4641. This rule applies to the manufacture and use of cutback asphalt, slow cure asphalt and emulsified asphalt for paving and maintenance operations.

✓ **Rule 9510 – Indirect Source Review (ISR)**

The purpose of this rule is to fulfill the District's emission reduction commitments in the PM10 and Ozone Attainment Plans, achieve emission reductions from construction activities, and to provide a mechanism for reducing emissions from the construction of and use of development projects through off-site measures. The proposed Project will be required to comply with this regulation.

1.2.7 *Local Plans*

✓ **Merced County General Plan**

California State Law requires every city and county to adopt a comprehensive General Plan to guide its future development. The General Plan essentially serves as a "constitution for development"— the document that serves as the foundation for all land use decisions. The 2030 Merced County General Plan includes various elements, including air quality and greenhouse gases, that address local concerns and provides goals and policies to achieve its development goals.

2.0 Environmental Setting

This section describes existing air quality within the San Joaquin Valley Air Basin and in Merced County, including the identification of air pollutant standards, meteorological and topological conditions affecting air quality, and current air quality conditions. Air quality is described in relation to ambient air quality standards for criteria pollutants such as, ozone, carbon monoxide, and particulate matter. Air quality can be directly affected by the type and density of land use change and population growth in urban and rural areas.

2.1 Geographical Location

The SJVAB is comprised of eight counties: Fresno, Kern, Kings, Madera, Merced, San Joaquin, Stanislaus, and Tulare. Encompassing 24,840 square miles, the San Joaquin Valley is the second largest air basin in California. Cumulatively, counties within the Air Basin represent approximately 16 percent of the State's geographic area. The Air Basin is bordered by the Sierra Nevada Mountains on the east (8,000 to 14,492 feet in elevation), the Coastal Range on the west (4,500 feet in elevation), and the Tehachapi Mountains on the south (9,000 feet elevation). The San Joaquin Valley is open to the north extending to the Sacramento Valley Air Basin.

2.2 Topographic Conditions

Merced County is located within the San Joaquin Valley Air Basin [as determined by the California Air Resources Board (CARB)]. Air basins are geographic areas sharing a common "air shed." A description of the Air Basin in the County, as designated by CARB, is provided in paragraph below. Air pollution is directly related to the region's topographic features, which impact air movement within the Basin.

Wind patterns within the SJVAB result from marine air that generally flows into the Basin from the San Joaquin River Delta. The Coastal Range hinders wind access into the Valley from the west, the Tehachapi's prevent southerly passage of airflow, and the high Sierra Nevada Mountain Range provides a significant barrier to the east. These topographic features result in weak airflow that becomes restricted vertically by high barometric pressure over the Valley. As a result, the SJVAB is highly susceptible to pollutant accumulation over time. Most of the surrounding mountains are above the normal height of summer inversion layers (1,500-3,000 feet).

2.3 Climatic Conditions

Merced County is located in one of the most polluted air basins in the country. Temperature inversions can trap air within the Valley, thereby preventing the vertical dispersal of air pollutants. In addition to topographic conditions, the local climate can also contribute to air quality problems. Climate in Merced County is classified as Mediterranean, with moist cool winters and dry warm summers.

Ozone, classified as a "regional" pollutant, often afflicts areas downwind of the original source of precursor emissions. Ozone can be easily transported by winds from a source area. Peak ozone levels tend to be higher in the southern portion of the Valley, as the prevailing summer winds sweep precursors downwind of northern source areas before concentrations peak. The separate designations reflect the fact that ozone precursor transport depends on daily meteorological conditions.

Other primary pollutants, carbon monoxide (CO), for example, may form high concentrations when wind speed is low. During the winter, Merced County experiences cold temperatures and calm conditions that increase the likelihood of a climate conducive to high CO concentrations.

Precipitation and fog tend to reduce or limit some pollutant concentrations. Ozone needs sunlight for its formation, and clouds and fog block the required radiation. CO is slightly water-soluble, so precipitation and fog tends to "reduce" CO concentrations in the atmosphere. PM10 is somewhat "washed" from the atmosphere with precipitation. Precipitation in the San Joaquin Valley is strongly influenced by the position of the semi-permanent subtropical high-pressure belt located off the Pacific coast. In the winter, this high- pressure system moves southward, allowing Pacific storms to move through the San Joaquin Valley. These storms bring in moist, maritime air that produces considerable precipitation on the western, upslope side of the Coast Ranges. Significant precipitation also occurs on the western side of the Sierra Nevada. On the valley floor, however, there is some down slope flow from the Coast Ranges and the resultant evaporation of moisture from associated warming results in a minimum of precipitation. Nevertheless, the majority of the precipitation falling in the San Joaquin Valley is produced by those storms during the winter. Precipitation during the summer months is in the form of convective rain showers and is rare. It is usually associated with an influx of moisture into the San Joaquin Valley through the San Francisco area during an anomalous flow pattern in the lower layers of the atmosphere. Although the hourly rates of precipitation from these storms may be high, their rarity keeps monthly totals low.

Precipitation on the San Joaquin Valley floor and in the Sierra Nevada decreases from north to south. Stockton in the north receives about 20 inches of precipitation per year, Fresno in the center, receives about 10 inches per year, and Bakersfield at the southern end of the valley receives less than 6 inches per year. This is primarily because the Pacific storm track often passes through the northern part of the state while the southern part of the state remains protected by the Pacific High. Precipitation in the San Joaquin Valley Air Basin (SJVAB) is confined primarily to the winter months with some also occurring in late summer and fall. Average annual rainfall for the entire San Joaquin Valley is approximately 5 to 16 inches. Snowstorms, hailstorms, and ice storms occur infrequently in the San Joaquin Valley and severe occurrences of any of these are very rare.

The winds and unstable air conditions experienced during the passage of storms result in periods of low pollutant concentrations and excellent visibility. Between winter storms, high pressure

and light winds allow cold moist air to pool on the San Joaquin Valley floor. This creates strong low-level temperature inversions and very stable air conditions. This situation leads to the San Joaquin Valley's famous Tule Fogs. The formation of natural fog is caused by local cooling of the atmosphere until it is saturated (dew point temperature). This type of fog, known as radiation fog is more likely to occur inland. Cooling may also be accomplished by heat radiation losses or by horizontal movement of a mass of air over a colder surface. This second type of fog, known as advection fog, generally occurs along the coast.

Conditions favorable to fog formation are also conditions favorable to high concentrations of CO and PM10. Ozone levels are low during these periods because of the lack of sunlight to drive the photochemical reaction. Maximum CO concentrations tend to occur on clear, cold nights when a strong surface inversion is present and large numbers of fireplaces are in use. A secondary peak in CO concentrations occurs during morning commute hours when a large number of motorists are on the road and the surface inversion has not yet broken.

The water droplets in fog, however, can act as a sink for CO and nitrogen oxides (NOx), lowering pollutant concentrations. At the same time, fog could help in the formation of secondary particulates such as ammonium sulfate. These secondary particulates are believed to be a significant contributor of winter season violations of the PM10 and PM2.5 standards.

2.4 Anthropogenic (Man-made) Sources

In addition to climatic conditions (wind, lack of rain, etc.), air pollution can be caused by anthropogenic or man-made sources. Air pollution in the SJVAB can be directly attributed to human activities, which cause air pollutant emissions. Human causes of air pollution in the Valley consist of population growth, urbanization (gas-fired appliances, residential wood heaters, etc.), mobile sources (i.e., cars, trucks, airplanes, trains, etc.), oil production, agriculture, and other socioeconomic activities. The most significant factors, which are accelerating the decline of air quality in the SJVAB, are the Valley's rapid population growth and its associated increases in traffic, urbanization, and industrial activity.

Carbon monoxide emissions overwhelmingly come from mobile sources in the San Joaquin Valley; on-road vehicles contributed 34 percent, while other mobile vehicles, such as trains, planes, and off-road vehicles, contribute another 20 percent in 2012 according to emission projections from the CARB. Motor vehicles account for significant portions of regional gaseous and particulate emissions. Local large employers such as industrial plants can also generate substantial regional gaseous and particulate emissions. In addition, construction and agricultural activities can generate significant temporary gaseous and particulate emissions (dust, ash, smoke, etc.).

Ozone is the result of a photochemical reaction between Oxides of nitrogen (NOx) and Reactive Organic Gases (ROG). Mobile sources contribute 86 percent of all NOx emitted from anthropogenic sources in 2015 based on data provided in Appendix B of the Air District's 2016

Ozone Plan. In addition, mobile sources contribute 26 percent of all the ROG emitted from sources within the San Joaquin Valley.

The principal factors that affect air quality in and around Merced County are:

1. The sink effect, climatic subsidence and temperature inversions and low wind speeds
2. Automobile and truck travel
3. Increases in mobile and stationary pollutants generated by local urban growth

Automobiles, trucks, buses and other vehicles using hydrocarbon (HC) fuels release exhaust products into the air. Each vehicle by itself does not release large quantities; however, when considered as a group, the cumulative effect is significant.

Other sources may not seem to fit into any one of the major categories or they may seem to fit in a number of them. These could include agricultural uses, dirt roads, animal shelters; animal feed lots, chemical plants and industrial waste disposal, which may be a source of dust, odors, or other pollutants. For Merced County, this category includes several agriculturally related activities, such as plowing, harvesting, dusting with herbicides and pesticides and other related activities. Finally, industrial contaminants and their potential to produce various effects depend on the size and type of industry, pollution controls, local topography, and meteorological conditions. Major sources of industrial emissions in Merced County consist of agricultural production and processing operations, wine production, and marketing operations.

The primary contributors of PM10 emissions in the San Joaquin Valley are farming activities (22%) and road dust, both paved and unpaved (35%) in 2020 according to emission projections from the CARB. Fugitive windblown dust from “open” fields contributed 14 percent of the PM10.

The four major sources of air pollutant emissions in the SJVAB include industrial plants, motor vehicles, construction activities, and agricultural activities. Industrial plants account for significant portions of regional gaseous and particulate emissions. Motor vehicles, including those from large employers, generate substantial regional gaseous and particulate emissions. Finally, construction and agricultural activities can generate significant temporary gaseous and particulate emissions (dust, ash, smoke, etc.). In addition to these primary sources of air pollution, urban areas upwind from Merced County, including areas north and west of the San Joaquin Valley, can cause or generate emissions that are transported into Merced County. All four of the major pollutant sources affect ambient air quality throughout the Air Basin.

2.4.1 *Motor Vehicles*

Automobiles, trucks, buses and other vehicles using hydrocarbon fuels release exhaust products into the air. Each vehicle by itself does not release large quantities; however, when considered as a group, the cumulative effect is significant.

2.4.2 *Agricultural and Other Miscellaneous Activities*

Other sources may not seem to fit into any one of the major categories or they may seem to fit in a number of them. These could include agricultural uses, dirt roads, animal shelters, animal feed lots, chemical plants and industrial waste disposal, which may be a source of dust, odors, or other pollutants. For Merced County, this category includes several agriculturally related activities, such as plowing, harvesting, dusting with herbicides and pesticides and other related activities.

2.4.3 *Industrial Plants*

Industrial contaminants and their potential to produce various effects depend on the size and type of industry, pollution controls, local topography, and meteorological conditions. Major sources of industrial emissions in Merced County consist of agricultural production and processing operations, wine production, and marketing operations.

2.5 San Joaquin Valley Air Basin Monitoring

SJVAPCD and the CARB maintain numerous air quality monitoring sites throughout each County in the Air Basin to measure ozone, PM2.5, and PM10. It is important to note that the federal ozone 1-hour standard was revoked by the EPA and is no longer applicable for federal standards. The closest monitoring station to the Project is located at Merced's Coffee Street Monitoring Station. The stations monitor particulates, ozone, carbon monoxide, and nitrogen dioxide. Monitoring data for the most recent three years on record is summarized in Table 2.

Table 3 identifies the Merced County's attainment status. As indicated, the SJVAB is nonattainment for Ozone (1 hour and 8 hour) and PM. In accordance with the FCAA, EPA uses the design value at the time of standard promulgation to assign nonattainment areas to one of several classes that reflect the severity of the nonattainment problem; classifications range from marginal nonattainment to extreme nonattainment. The FCAA contains provisions for changing the classifications using factors such as clean air progress rates and requests from states to move areas to a higher classification.

On April 16, 2004 EPA issued a final rule classifying the SJVAB as extreme nonattainment for Ozone, effective May 17, 2004 (69 FR 20550). The (federal) 1-hour ozone standard was revoked on June 6, 2005. However, many of the requirements in the 1-hour attainment plan (SIP) continue to apply to the SJVAB. The current ozone plan is the (federal) 8-hour ozone plan adopted in 2007. The SJVAB was reclassified from a "serious" nonattainment area for the 8-hour ozone standard to "extreme' effective June 4, 2010.

Table 2
Maximum Pollutant Levels at Merced's Coffee Street Monitoring Station

Pollutant	Time Averaging	2014 Maximums	2015 Maximums	2016 Maximums	Standards National	Standards State
Ozone (O_3)	1 hour	0.100 ppm	0.102 ppm	0.097 ppm	-	0.09 ppm
Ozone (O_3)	8 hour	0.088 ppm	0.089 ppm	0.086 ppm	0.070 ppm	0.070 ppm
Nitrogen Dioxide (NO_2)	1 hour	54.0 ppb	35.0 ppb	35.4 ppb	100 ppb	0.18 ppm
Nitrogen Dioxide (NO_2)	Annual Average	*	*	6.0 ppb	0.053 ppm	0.030 ppm
Particulates (PM_{10})	24 hour	*	*	*	150 µg/m^3	50 µg/m^3
Particulates (PM_{10})	Federal Annual Arithmetic Mean	*	*	*	-	20 µg/m^3
Particulates ($PM_{2.5}$)	24 hour	64.5 µg/m^3	61.2 µg/m^3	43.0 µg/m^3	35 µg/m^3	-
Particulates ($PM_{2.5}$)	Federal Annual Arithmetic Mean	10.8 µg/m^3	12.7 µg/m^3	11.9 µg/m^3	12 µg/m^3	12 µg/m^3

Source: California Air Resources Board (ADAM) Air Pollution Summaries

* Means there was insufficient data available to determine the value.

Table 3
Merced County Attainment Status

Pollutant	Designation/Classification	
	Federal Standards	State Standards
Ozone - 1 Hour	Revoked in 2005	Nonattainment/Severe
Ozone - 8 Hour	Nonattainment/Extreme [a]	No State Standard
PM10	Attainment	Nonattainment
PM2.5	Nonattainment	Nonattainment
Carbon Monoxide	Unclassified/Attainment	Unclassified
Nitrogen Dioxide	Unclassified/Attainment	Attainment
Sulfur Dioxide	Unclassified	Attainment
Lead (Particulate)	Unclassified/Attainment	Attainment
Hydrogen Sulfide	No Federal Standard	Unclassified
Sulfates	No Federal Standard	Attainment
Visibility Reducing Particles	No Federal Standard	Unclassified

Source: ARB Website, 2018

a. Though the Valley was initially classified as serious nonattainment for the 1997 8-hour ozone standard, EPA approved Valley reclassification to extreme nonattainment in the Federal Register on May 5, 2010 (effective June 4, 2010).

Notes:

National Designation Categories

Non-Attainment Area: Any area that does not meet (or that contributes to ambient air quality in a nearby area that does not meet) the national primary or secondary ambient air quality standard for the pollutant.

Unclassified/Attainment Area: Any area that cannot be classified on the basis of available information as meeting or not meeting the national primary or secondary ambient air quality standard for the pollutant or meets the national primary or secondary ambient air quality standard for the pollutant.

State Designation Categories

Unclassified: A pollutant is designated unclassified if the data are incomplete and do not support a designation of attainment or non-attainment.

Attainment: A pollutant is designated attainment if the State standard for that pollutant was not violated at any site in the area during a three-year period.

Non-attainment: A pollutant is designated non-attainment if there was at least one violation of a State standard for that pollutant in the area.

Non-Attainment/Transitional: A subcategory of the non-attainment designation. An area is designated non-attainment/transitional to signify that the area is close to attaining the standard for the pollutant.

2.6 Air Quality Standards

The FCAA, first adopted in 1963, and periodically amended since then, established National Ambient Air Quality Standards (NAAQS). A set of 1977 amendments determined a deadline for the attainment of these standards. That deadline has since passed. Other CAA amendments, passed in 1990, share responsibility with the State in reducing emissions from mobile sources.

In 1988, the State of California passed the CCAA (State 1988 Statutes, Chapter 568), which set forth a program for achieving more stringent California Ambient Air Quality Standards. The CARB implements State ambient air quality standards, as required in the CCAA, and cooperates with the federal government in implementing pertinent sections of the FCAA Amendments (FCAAA). Further, CARB regulates vehicular emissions throughout the State. The SJVAPCD regulates stationary sources, as well as some mobile sources. Attainment of the more stringent State PM10 Air Quality Standards is not currently required.

The EPA uses six "criteria pollutants" as indicators of air quality and has established for each of them a maximum concentration above which adverse effects on human health may occur. These threshold concentrations are called the NAAQS.

The SJVAPCD operates regional air quality monitoring networks that provide information on average concentrations of pollutants for which State or federal agencies have established ambient air quality standards. Descriptions of nine pollutants of importance in Merced County follow.

2.6.1 *Ozone (1-hour and 8-hour)*

The most severe air quality problem in the Air Basin is the high level of ozone. Ozone occurs in two layers of the atmosphere. The layer surrounding the earth's surface is the troposphere. Here, ground level, or "bad" ozone, is an air pollutant that damages human health, vegetation, and many common materials. It is a key ingredient of urban smog. The troposphere extends to a level about 10 miles up, where it meets the second layer, the stratosphere. The stratospheric, or "good" ozone layer, extends upward from about 10 to 30 miles and protects life on earth from the sun's harmful ultraviolet rays.

"Bad" ozone is what is known as a photochemical pollutant. It needs reactive organic gases (ROG), NOx, and sunlight. ROG and NOx are emitted from various sources throughout Merced County. In order to reduce ozone concentrations, it is necessary to control the emissions of these ozone precursors.

Significant ozone formation generally requires an adequate amount of precursors in the atmosphere and several hours in a stable atmosphere with strong sunlight. High ozone concentrations can form over large regions when emissions from motor vehicles and stationary sources are carried hundreds of miles from their origins.

Ozone is a regional air pollutant. It is generated over a large area and is transported and spread by wind. Ozone, the primary constituent of smog, is the most complex, difficult to control, and pervasive of the criteria pollutants. Unlike other pollutants, ozone is not emitted directly into the air by specific sources. Ozone is created by sunlight acting on other air pollutants (called precursors), specifically NOx and ROG. Sources of precursor gases to the photochemical reaction that form ozone number in the thousands. Common sources include consumer products, gasoline vapors, chemical solvents, and combustion products of various fuels. Originating from gas stations, motor vehicles, large industrial facilities, and small businesses such as bakeries and dry cleaners, the ozone-forming chemical reactions often take place in another location, catalyzed by sunlight and heat. High ozone concentrations can form over large regions when emissions from motor vehicles and stationary sources are carried hundreds of miles from their origins. Approximately 50 million people lived in counties with air quality levels above the EPA's health-based national air quality standard in 1994. The highest levels of ozone were recorded in Los Angeles, closely followed by the San Joaquin Valley. High levels also persist in other heavily populated areas, including the Texas Gulf Coast and much of the Northeast.

While the ozone in the upper atmosphere absorbs harmful ultraviolet light, ground-level ozone is damaging to the tissues of plants, animals, and humans, as well as to a wide variety of inanimate materials such as plastics, metals, fabrics, rubber, and paints. Societal costs from ozone damage include increased medical costs, the loss of human and animal life, accelerated replacement of industrial equipment, and reduced crop yields.

- ***Health Effects***

  While ozone in the upper atmosphere protects the earth from harmful ultraviolet radiation, high concentrations of ground-level ozone can adversely affect the human respiratory system. Many respiratory ailments, as well as cardiovascular disease, are aggravated by exposure to high ozone levels. Ozone also damages natural ecosystems, such as: forests and foothill communities; agricultural crops; and some man-made materials, such as rubber, paint, and plastic. High levels of ozone may negatively affect immune systems, making people more susceptible to respiratory illnesses, including bronchitis and pneumonia. Ozone accelerates aging and exacerbates pre-existing asthma and bronchitis and, in cases with high concentrations, can lead to the development of asthma in active children. Active people, both children and adults, appear to be more at risk from ozone exposure than those with a low level of activity. Additionally, the elderly and those with respiratory disease are also considered sensitive populations for ozone.

  People who work or play outdoors are at a greater risk for harmful health effects from ozone. Children and adolescents are also at greater risk because they are more likely than adults to spend time engaged in vigorous activities. Research indicates that children under 12 years of age spend nearly twice as much time outdoors daily than adults. Teenagers spend at least twice as much time as adults in active sports and outdoor

activities. In addition, children inhale more air per pound of body weight than adults, and they breathe more rapidly than adults. Children are less likely than adults to notice their own symptoms and avoid harmful exposures.

Ozone is a powerful oxidant—it can be compared to household bleach, which can kill living cells (such as germs or human skin cells) upon contact. Ozone can damage the respiratory tract, causing inflammation and irritation, and it can induce symptoms such as coughing, chest tightness, shortness of breath, and worsening of asthmatic symptoms. Ozone in sufficient doses increases the permeability of lung cells, rendering them more susceptible to toxins and microorganisms. Exposure to levels of ozone above the current ambient air quality standard leads to lung inflammation and lung tissue damage and a reduction in the amount of air inhaled into the lungs.

The CARB found ozone standards in Merced County nonattainment of Federal and State standards.

2.6.2 *Suspended PM (PM10 and PM2.5)*

Particulate matter pollution consists of very small liquid and solid particles that remain suspended in the air for long periods. Some particles are large or concentrated enough to be seen as soot or smoke. Others are so small they can be detected only with an electron microscope. Particulate matter is a mixture of materials that can include smoke, soot, dust, salt, acids, and metals. Particulate matter is emitted from stationary and mobile sources, including diesel trucks and other motor vehicles; power plants; industrial processes; wood-burning stoves and fireplaces; wildfires; dust from roads, construction, landfills, and agriculture; and fugitive windblown dust. PM10 refers to particles less than or equal to 10 microns in aerodynamic diameter. PM2.5 refers to particles less than or equal to 2.5 microns in aerodynamic diameter and are a subset of PM10. Particulates of concern are those that are 10 microns or less in diameter. These are small enough to be inhaled, pass through the respiratory system and lodge in the lungs, possibly leading to adverse health effects.

In the western United States, there are sources of PM10 in both urban and rural areas. Because particles originate from a variety of sources, their chemical and physical compositions vary widely. The composition of PM10 and PM2.5 can also vary greatly with time, location, the sources of the material and meteorological conditions. Dust, sand, salt spray, metallic and mineral particles, pollen, smoke, mist, and acid fumes are the main components of PM10 and PM2.5. In addition to those listed previously, secondary particles can also be formed as precipitates from chemical and photochemical reactions of gaseous sulfur dioxide (SO2) and NOx in the atmosphere to create sulfates (SO4) and nitrates (NO3). Secondary particles are of greatest concern during the winter months where low inversion layers tend to trap the precursors of secondary particulates.

The District's 2008 PM2.5 Plan built upon the aggressive emission reduction strategy adopted in

the 2007 Ozone Plan and strives to bring the valley into attainment status for the 1997 NAAQS for PM2.5. The District's 2012 PM2.5 Plan provides multiple control strategies to reduce emissions of PM2.5 and other pollutants that form PM2.5. The plan's comprehensive control strategy includes regulatory actions, incentive programs, technology advancement, policy and legislative positions, public outreach, participation and communication, and additional strategies.

- ***Health Effects***

  PM10 and PM2.5 particles are small enough—about one-seventh the thickness of a human hair, or smaller—to be inhaled and lodged in the deepest parts of the lung where they evade the respiratory system's natural defenses. Health problems begin as the body reacts to these foreign particles. Acute and chronic health effects associated with high particulate levels include the aggravation of chronic respiratory diseases, heart and lung disease, and coughing, bronchitis, and respiratory illnesses in children. Recent mortality studies have shown a statistically significant direct association between mortality and daily concentrations of particulate matter in the air. Non-health-related effects include reduced visibility and soiling of buildings. PM10 can increase the number and severity of asthma attacks, cause or aggravate bronchitis and other lung diseases, and reduce the body's ability to fight infections. PM10 and PM2.5 can aggravate respiratory disease and cause lung damage, cancer, and premature death.

  Although particulate matter can cause health problems for everyone, certain people are especially vulnerable to adverse health effects of PM10. These "sensitive populations" include children, the elderly, exercising adults, and those suffering from chronic lung disease such as asthma or bronchitis. Of greatest concern are recent studies that link PM10 exposure to the premature death of people who already have heart and lung disease, especially the elderly. Acidic PM10 can also damage manmade materials and is a major cause of reduced visibility in many parts of the United States.

  The CARB found PM10 standards in Merced County in attainment of Federal standards and nonattainment for State standards. The CARB found PM2.5 standards in Merced County nonattainment of Federal and State standards.

2.6.3 *Carbon Monoxide (CO)*

Carbon monoxide (CO) is emitted by mobile and stationary sources as a result of incomplete combustion of hydrocarbons or other carbon-based fuels. CO is an odorless, colorless, poisonous gas that is highly reactive. CO is a byproduct of motor vehicle exhaust, contributes more than two thirds of all CO emissions nationwide. In cities, automobile exhaust can cause as much as 95 percent of all CO emissions. These emissions can result in high concentrations of CO, particularly in local areas with heavy traffic congestion. Other sources of CO emissions include industrial processes and fuel combustion in sources such as boilers and incinerators. Despite an overall

downward trend in concentrations and emissions of CO, some metropolitan areas still experience high levels of CO.

- ***Health Effects***

  CO enters the bloodstream and binds more readily to hemoglobin than oxygen, reducing the oxygen-carrying capacity of blood and thus reducing oxygen delivery to organs and tissues. The health threat from CO is most serious for those who suffer from cardiovascular disease. Healthy individuals are also affected but only at higher levels of exposure. At high concentrations, CO can cause heart difficulties in people with chronic diseases and can impair mental abilities. Exposure to elevated CO levels is associated with visual impairment, reduced work capacity, reduced manual dexterity, poor learning ability, difficulty performing complex tasks, and in prolonged, enclosed exposure, death.

  The adverse health effects associated with exposure to ambient and indoor concentrations of CO are related to the concentration of carboxyhemoglobin (COHb) in the blood. Health effects observed may include an early onset of cardiovascular disease; behavioral impairment; decreased exercise performance of young, healthy men; reduced birth weight; sudden infant death syndrome (SIDS); and increased daily mortality rate.

  Most of the studies evaluating adverse health effects of CO on the central nervous system examine high-level poisoning. Such poisoning results in symptoms ranging from common flu and cold symptoms (shortness of breath on mild exertion, mild headaches, and nausea) to unconsciousness and death.

  The CARB found CO standards in Merced County as unclassified/attainment of Federal standards and unclassified for State standards.

2.6.4 *Nitrogen Dioxide (NO2)*

Nitrogen oxides (NOx) is a family of highly reactive gases that are primary precursors to the formation of ground-level ozone and react in the atmosphere to form acid rain. NOx is emitted from combustion processes in which fuel is burned at high temperatures, principally from motor vehicle exhaust and stationary sources such as electric utilities and industrial boilers. A brownish gas, NOx is a strong oxidizing agent that reacts in the air to form corrosive nitric acid, as well as toxic organic nitrates.

- ***Health Effects***

  NOx is an ozone precursor that combines with Reactive Organic Gases (ROG) to form ozone. See the ozone section above for a discussion of the health effects of ozone.

  Direct inhalation of NOx can also cause a wide range of health effects. NOx can irritate the lungs, cause lung damage, and lower resistance to respiratory infections such as

influenza. Short-term exposures (e.g., less than 3 hours) to low levels of nitrogen dioxide (NO2) may lead to changes in airway responsiveness and lung function in individuals with preexisting respiratory illnesses. These exposures may also increase respiratory illnesses in children. Long-term exposures to NO2 may lead to increased susceptibility to respiratory infection and may cause irreversible alterations in lung structure. Other health effects associated with NOx are an increase in the incidence of chronic bronchitis and lung irritation. Chronic exposure to NO2 may lead to eye and mucus membrane aggravation, along with pulmonary dysfunction. NOx can cause fading of textile dyes and additives, deterioration of cotton and nylon, and corrosion of metals due to production of particulate nitrates. Airborne NOx can also impair visibility. NOx is a major component of acid deposition in California. NOx may affect both terrestrial and aquatic ecosystems. NOx in the air is a potentially significant contributor to a number of environmental effects such as acid rain and eutrophication in coastal waters. Eutrophication occurs when a body of water suffers an increase in nutrients that reduce the amount of oxygen in the water, producing an environment that is destructive to fish and other animal life.

NO2 is toxic to various animals as well as to humans. Its toxicity relates to its ability to combine with water to form nitric acid in the eye, lung, mucus membranes, and skin. Studies of the health impacts of NO2 include experimental studies on animals, controlled laboratory studies on humans, and observational studies.

In animals, long-term exposure to NOx increases susceptibility to respiratory infections, lowering their resistance to such diseases as pneumonia and influenza. Laboratory studies show susceptible humans, such as asthmatics, exposed to high concentrations of NO2, can suffer lung irritation and, potentially, lung damage. Epidemiological studies have also shown associations between NO2 concentrations and daily mortality from respiratory and cardiovascular causes as well as hospital admissions for respiratory conditions.

NOx contributes to a wide range of environmental effects both directly and when combined with other precursors in acid rain and ozone. Increased nitrogen inputs to terrestrial and wetland systems can lead to changes in plant species composition and diversity. Similarly, direct nitrogen inputs to aquatic ecosystems such as those found in estuarine and coastal waters can lead to eutrophication as discussed above. Nitrogen, alone or in acid rain, also can acidify soils and surface waters. Acidification of soils causes the loss of essential plant nutrients and increased levels of soluble aluminum, which is toxic to plants. Acidification of surface waters creates conditions of low pH and levels of aluminum that are toxic to fish and other aquatic organisms.

The CARB found NO2 standards in Merced County as unclassified/attainment of Federal standards and attainment for State standards.

2.6.5 *Sulfur Dioxide (SO2)*

The major source of sulfur dioxide (SO2) is the combustion of high-sulfur fuels for electricity generation, petroleum refining and shipping. High concentrations of SO2 can result in temporary breathing impairment for asthmatic children and adults who are active outdoors. Short-term exposures of asthmatic individuals to elevated SO2 levels during moderate activity may result in breathing difficulties that can be accompanied by symptoms such as wheezing, chest tightness, or shortness of breath. Other effects that have been associated with longer-term exposures to high concentrations of SO2, in conjunction with high levels of PM, include aggravation of existing cardiovascular disease, respiratory illness, and alterations in the lungs' defenses. SO2 also is a major precursor to PM2.5, which is a significant health concern and a main contributor to poor visibility. In humid atmospheres, sulfur oxides can react with vapor to produce sulfuric acid, a component of acid rain.

The CARB found SO2 standards in the Merced County as unclassified for Federal standards and attainment for State standards.

2.6.6 *Lead (Pb)*

Lead, a naturally occurring metal, can be a constituent of air, water, and the biosphere. Lead is neither created nor destroyed in the environment, so it essentially persists forever. Lead was used until recently to increase the octane rating in automobile fuel. Since the 1980s, lead has been phased out in gasoline, reduced in drinking water, reduced in industrial air pollution, and banned or limited in consumer products. Gasoline-powered automobile engines were a major source of airborne lead through the use of leaded fuels; however, the use of leaded fuel has been mostly phased out. Since this has occurred the ambient concentrations of lead have dropped dramatically.

Exposure to lead occurs mainly through inhalation of air and ingestion of lead in food, water, soil, or dust. It accumulates in the blood, bones, and soft tissues and can adversely affect the kidneys, liver, nervous system, and other organs. Excessive exposure to lead may cause neurological impairments such as seizures, mental retardation, and behavioral disorders. Even at low doses, lead exposure is associated with damage to the nervous systems of fetuses and young children. Effects on the nervous systems of children are one of the primary health risk concerns from lead. In high concentrations, children can even suffer irreversible brain damage and death. Children 6 years old and under are most at risk, because their bodies are growing quickly.

The CARB found Lead standards in Merced County as unclassified/attainment of Federal standards and attainment for State standards.

2.6.7 *Toxic Air Contaminants (TAC)*

In addition to the criteria pollutants discussed above, Toxic Air Contaminants (TAC) are another group of pollutants of concern. TAC are injurious in small quantities and are regulated despite

the absence of criteria documents. The identification, regulation and monitoring of TAC is relatively recent compared to that for criteria pollutants. Unlike criteria pollutants, TAC are regulated on the basis of risk rather than specification of safe levels of contamination. The ten TAC are acetaldehyde, benzene, 1,3-butadiene, carbon tetrachloride, hexavalent chromium, para-dichlorobenzene, formaldehyde, methylene chloride, perchloroethylene, and diesel particulate matter (diesel PM). Caltrans' guidance for transportation studies references the Federal Highway Administration (FHWA) memorandum titled "Interim Guidance on Air Toxic Analysis in NEPA Documents" which discusses emissions quantification of six "priority" compounds of 21 Mobile Source Air Toxics (MSAT) identified by the United States Environmental Protection Agency (USEPA). The six-diesel exhaust (particulate matter and organic gases), benzene, 1,3-butadiene, acetaldehyde, formaldehyde, and acrolein.

Some studies indicate that diesel PM poses the greatest health risk among the TAC listed above. A 10-year research program (California Air Resources Board 1998) demonstrated that diesel PM from diesel-fueled engines is a human carcinogen and that chronic (long-term) inhalation exposure to diesel PM poses a chronic health risk. In addition to increasing the risk of lung cancer, exposure to diesel exhaust can have other health effects. Diesel exhaust can irritate the eyes, nose, throat, and lungs, and it can cause coughs, headaches, lightheadedness, and nausea. Diesel exhaust is a major source of fine particulate pollution as well, and studies have linked elevated particle levels in the air to increased hospital admissions, emergency room visits, asthma attacks, and premature deaths among those suffering from respiratory problems.

Diesel PM differs from other TAC in that it is not a single substance but a complex mixture of hundreds of substances. Although diesel PM is emitted by diesel-fueled, internal combustion engines, the composition of the emissions varies, depending on engine type, operating conditions, fuel composition, lubricating oil, and whether an emission control system is present. Unlike the other TAC, however, no ambient monitoring data are available for diesel PM because no routine measurement method currently exists. The CARB has made preliminary concentration estimates based on a diesel PM exposure method. This method uses the CARB emissions inventory's PM10 database, ambient PM10 monitoring data, and the results from several studies to estimate concentrations of diesel PM. Table 4 depicts the CARB Handbook's recommended buffer distances associated with various types of common sources.

Existing air quality concerns within Merced County and the entire SJVAB are related to increases of regional criteria air pollutants (e.g., ozone and particulate matter), exposure to toxic air contaminants, odors, and increases in greenhouse gas emissions contributing to climate change. The primary source of ozone (smog) pollution is motor vehicles. Particulate matter is caused by dust, primarily dust generated from construction and grading activities, and smoke which is emitted from fireplaces, wood-burning stoves, and agricultural burning.

TABLE 4

Recommendations on Siting New Sensitive Land Uses Such As Residences, Schools, Daycare Centers, Playgrounds, or Medical Facilities*

SOURCE CATEGORY	ADVISORY RECOMMENDATIONS
Freeways and High-Traffic Roads [1]	- Avoid siting new sensitive land uses within 500 feet of a freeway, urban roads with 100,000 vehicles/day, or rural roads with 50,000 vehicles/day.
Distribution Centers	- Avoid siting new sensitive land uses within 1,000 feet of a distribution center (that accommodates more than 100 trucks per day, more than 40 trucks with operating transport refrigeration units (TRUs) per day, or where TRU unit operations exceed 300 hours per week). - Take into account the configuration of existing distribution centers and avoid locating residences and other new sensitive land uses near entry and exit points.
Rail Yards	- Avoid siting new sensitive land uses within 1,000 feet of a major service and maintenance rail yard. - Within one mile of a rail yard, consider possible siting limitations and mitigation approaches.
Ports	- Avoid siting of new sensitive land uses immediately downwind of ports in the most heavily impacted zones. Consult local air districts or the ARB on the status of pending analyses of health risks.
Refineries	- Avoid siting new sensitive land uses immediately downwind of petroleum refineries. Consult with local air districts and other local agencies to determine an appropriate separation.
Chrome Platers	- Avoid siting new sensitive land uses within 1,000 feet of a chrome plater.
Dry Cleaners Using Perchloroethylene	- Avoid siting new sensitive land uses within 300 feet of any dry cleaning operation. For operations with two or more machines, provide 500 feet. For operations with 3 or more machines, consult with the local air district. - Do not site new sensitive land uses in the same building with perchloroethylene dry cleaning operations.
Gasoline Dispensing Facilities	- Avoid siting new sensitive land uses within 300 feet of a large gas station (defined as a facility with a throughput of 3.6 million gallons per year or greater). A 50 foot separation is recommended for typical gas dispensing facilities.

1: The recommendation to avoid siting new sensitive land uses within 500 feet of a freeway was identified in CARB's Air Quality and Land Use Handbook published in 2005. CARB recently published a technical advisory to the Air Quality and Land Use Handbook indicating that new research has demonstrated promising strategies to reduce pollution exposure along transportation corridors.

*Notes:
• These recommendations are advisory. Land use agencies have to balance other considerations, including housing and transportation needs, economic development priorities, and other quality of life issues.
• Recommendations are based primarily on data showing that the air pollution exposures addressed here (i.e., localized) can be reduced as much as 80% with the recommended separation.
• The relative risk for these categories varies greatly (see Table 1-2). To determine the actual risk near a particular facility, a site-specific analysis would be required. Risk from diesel PM will decrease over time as cleaner technology phases in.
• These recommendations are designed to fill a gap where information about existing facilities may not be readily available and are not designed to substitute for more specific information if it exists. The recommended distances take into account other factors in addition to available health risk data (see individual category descriptions).
• Site-specific project design improvements may help reduce air pollution exposures and should also be considered when siting new sensitive land uses.
• This table does not imply that mixed residential and commercial development in general is incompatible. Rather it focuses on known problems like dry cleaners using perchloroethylene that can be addressed with reasonable preventative actions.
• A summary of the basis for the distance recommendations can be found in the ARB Handbook: Air Quality and Land Use Handbook: A Community Health Perspective.

Source: SJVAPCD 2018

2.6.8 *Odors*

Typically, odors are regarded as an annoyance rather than a health hazard. However, manifestations of a person's reaction to foul odors can range from psychological (e.g., irritation, anger, or anxiety) to physiological (e.g., circulatory and respiratory effects, nausea, vomiting, and headache).

With respect to odors, the human nose is the sole sensing device. The ability to detect odors varies considerably among the population and overall is quite subjective. Some individuals have the ability to smell minute quantities of specific substances; others may not have the same sensitivity but may have sensitivities 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 (e.g., from a fast-food restaurant) may be perfectly acceptable to another. It is also important to note that an unfamiliar odor is more easily detected and is more likely to cause complaints than a familiar one. This is because of the phenomenon known as odor fatigue, in which a person can become desensitized to almost any odor and recognition only occurs 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 and eventually becomes so low that the 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.

The intensity of an odor source's operations and its proximity to sensitive receptors influences the potential significance of odor emissions. The SJVAPCD has identified some common types of facilities that have been known to produce odors in the SJV Air Basin. The types of facilities that are known to produce odors are shown in Table 5 along with a reasonable distance from the source within which, the degree of odors could possibly be significant. Information presented in Table 5 will be used as a screening level of analysis for potential odor sources for the proposed project.

TABLE 5
Screening Levels for Potential Odor Sources

Type of Facility	Distance
Wastewater Treatment Facilities	2 miles
Sanitary Landfill	1 mile
Transfer Station	1 mile
Compositing Facility	1 mile
Petroleum Refinery	2 miles
Asphalt Batch Plant	1 mile
Chemical Manufacturing	1 mile
Fiberglass Manufacturing	1 mile
Painting/Coating Operations (e.g. auto body shops)	1 mile
Food Processing Facility	1 mile
Feed Lot/Dairy	1 mile
Rendering Plant	1 mile

Source: SJVAPCD 2018

2.6.9 *Naturally Occurring Asbestos (NOA)*

Asbestos is a term used for several types of naturally-occurring fibrous minerals found in many parts of California. The most common type of asbestos is chrysotile, but other types are also found in California. Asbestos is commonly found in ultramafic rock and near fault zones. The amount of asbestos that is typically present in these rocks ranges from less than 1% up to approximately 25% and sometimes more. It is released from ultramafic rock when it is broken or crushed. This can happen when cars drive over unpaved roads or driveways, which are surfaced with these rocks, when land is graded for building purposes, or at quarrying operations. Asbestos is also released naturally through weathering and erosion. Once released from the rock, asbestos can become airborne and may stay in the air for long periods of time. Asbestos is hazardous and can cause lung disease and cancer dependent upon the level of exposure. The longer a person is exposed to asbestos and the greater the intensity of the exposure, the greater the chances for a health problem.

The proposed Project's construction phase may cause asbestos to become airborne due to the construction activities that will occur on site. The Project would be required to submit a Dust Control Plan under the SJVAPCD's Rule 8021.

2.6.10 *Greenhouse Gas Emissions*

Gases that trap heat in the atmosphere are often called greenhouse gases. Some greenhouse gases such as carbon dioxide occur naturally and are emitted to the atmosphere through natural

processes and human activities. Other greenhouse gases (e.g., fluorinated gases) are created and emitted solely through human activities. The principal greenhouse gases that enter the atmosphere because of human activities are:

- **Carbon Dioxide (CO2):** Carbon dioxide enters the atmosphere through the burning of fossil fuels (oil, natural gas, and coal), solid waste, trees and wood products, and also as a result of other chemical reactions (e.g., manufacture of cement, asphalt paving, truck trips). Carbon dioxide is also removed from the atmosphere (or "sequestered") when it is absorbed by plants as part of the biological carbon cycle.
- **Methane (CH4):** Methane is emitted during the production and transport of coal, natural gas, and oil. Methane emissions also result from livestock and other agricultural practices and by the decay of organic waste in municipal solid waste landfills.
- **Nitrous Oxide (N2O):** Nitrous oxide is emitted during agricultural and industrial activities, as well as during combustion of fossil fuels and solid waste.
- **Fluorinated Gases:** Hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride are synthetic, powerful greenhouse gases that are emitted from a variety of industrial processes. Fluorinated gases are sometimes used as substitutes for ozone-depleting substances (i.e., CFCs, HCFCs, and halons). These gases are typically emitted in smaller quantities, but because they are potent greenhouse gases, they are sometimes referred to as High Global Warming Potential gases ("High GWP gases").

Various statewide and local initiatives to reduce California's contribution to GHG emissions have raised awareness that, even though the various contributors to and consequences of global climate change are not yet fully understood, global climate change is occurring. Every nation emits GHGs; therefore, global cooperation will be required to reduce the rate of GHG emissions.

3.0 Air-Quality Impacts

3.1 Methodology

The impact assessment for air quality focuses on potential effects the Project might have on air quality within the Merced County region. The SJVAPCD has established thresholds of significance for determining environmental significance. These thresholds separate a project's short-term emissions from its long-term emissions. The short-term emissions are mainly related to the construction phase of a project, which are recognized to be short in duration. The long-term emissions are primarily related to activities that occur as a result of Project operations. The Project will not generate any long-term emissions given the nature of the Project. Impacts will be evaluated both on the basis of CEQA Appendix G criteria and SJVAPCD significance criteria. The impacts to be evaluated will be those involving construction emissions of criteria pollutants. The SJVAPCD has established thresholds for certain pollutants shown in Table 6.

Table 6
SJVAPCD Air Quality Thresholds of Significance

Project Type	Ozone Precursor Emissions (tons/year)					
	CO	NO_X	ROG	SO_X	PM_{10}	$PM_{2.5}$
Construction Emissions	100	10	10	27	15	15
Operational Emissions (Permitted Equipment and Activities)	100	10	10	27	15	15
Operational Emissions (Non-Permitted Equipment and Activities)	100	10	10	27	15	15

Source: SJVAPCD 2018

3.1.1 *Road Construction Emissions Model*

The Sacramento Metropolitan Air Quality Management District's Road Construction Emissions Model, (commonly called "SacMetro") Version 8.1.0 calculates a linear-type project's emissions (such as a pipeline or roadway) by project phase over the entire construction period. The model can be used to estimate vehicle exhaust and fugitive dust emissions.

The model is an accurate and comprehensive tool for quantifying air quality impacts from pipeline and roadway projects throughout California. The model can be used for a variety of situations where an air quality analysis is necessary or desirable such as CEQA and NEPA documents, pre-project planning, compliance with local air quality rules and regulations, etc.

3.2 Short-Term Impacts

Short-term impacts are mainly related to the construction phase of a project and are recognized to be short in duration. Construction air quality impacts are generally attributable to dust and exhaust pollutants generated by equipment and vehicles. Fugitive dust is emitted both during construction activity and as a result of wind erosion over exposed earth surfaces. Clearing and earth moving activities do comprise major sources of construction dust emissions, but traffic and general disturbances of soil surfaces also generate significant dust emissions. Further, dust generation is dependent on soil type and soil moisture. Exhaust pollutants are the non-useable gaseous waste products produced during the combustion process. Engine exhaust contains CO, HC, and NOx pollutants which are harmful to the environment.

Adverse effects of construction activities cause increased dust-fall and locally elevated levels of total suspended particulate. Dust-fall can be a nuisance to neighboring properties or previously completed developments surrounding or within the Project area and may require frequent washing during the construction period.

PM10 emissions can result from construction activities of the project. The SJVAPCD requires implementation of effective and comprehensive control measures, rather than a detailed quantification of emissions. The SJVAPCD has determined that compliance with Regulation VIII for all sites and other control measures will constitute sufficient mitigation to reduce PM10 impacts to a level considered less-than significant.

Ozone precursor emissions are also an impact of construction activities and can be quantified through calculations. Numerous variables factored into estimating total construction emission include: level of activity, length of construction period, number of pieces and types of equipment in use, site characteristics, weather conditions, number of construction personnel, and amount of materials to be transported onsite or offsite. Additional exhaust emissions would be associated with the transport of workers and materials. Construction emissions from equipment expected to be used during the construction phase of the Project were estimated using the Road Construction Emissions Model.

Table 7 shows the Road Construction Emissions Model estimated construction emissions that would be generated from development of the entire Project. Results of the analysis show that emissions generated from construction of the Project will not exceed the SJVAPCD emission thresholds. It should be noted that the pipes will likely be replaced in sections; divided into 3-5 projects that would occur every couple of years.

Table 7
Project Construction Emissions (tons/year)

Summary Report	CO	NO_X	ROG	SO_X	PM_{10}	$PM_{2.5}$	CO2e
Project Site Construction Emissions Per Year	7.01	6.57	0.77	0.01	0.53	0.37	1225.82
SJVAPCD Level of Significance	100	10	10	27	15	15	None
Does the Project Exceed Standard?	No	No	No	No	No	No	No

Source: Road Construction Emissions Model

3.3 Long-Term Emissions

Long-Term emissions from a project are generated primarily by mobile source (vehicle) emissions from a project's site and area sources such as maintenance equipment. It should be noted that the proposed Project will not generate emissions associated with long-term emissions given the nature of the Project. All operations associated with the Project will cease upon completion of the repairs (construction) associated with the Planada wastewater collection system. Therefore, operational emissions from the Project will be less than the applicable SJVAPCD emission thresholds for criteria pollutants.

3.3.1 Greenhouse Gas Emissions

CARB, in consultation with MPOs, has provided each affected region with reduction targets for GHGs emitted by passenger cars and light trucks in the region for the years 2020 and 2035. For the MCAG region, CARB set targets at five (5) percent per capita decrease in 2020 and a ten (10) percent per capita decrease in 2035 from a base year of 2005. MCAG's 2014 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS), which was adopted in 2016, projects that the Merced County region would achieve the prescribed emissions targets.

In 2009, the SJVAPCD adopted the following guidance documents applicable to projects within the San Joaquin Valley:

- Guidance for Valley Land-use Agencies in Addressing GHG Emission Impacts for New Projects under CEQA (SJVAPCD 2009), and
- District Policy: Addressing GHG Emission Impacts for Stationary Source Projects Under CEQA When Serving as the Lead Agency (SJVAPCD 2009).

This guidance and policy are the reference documents referenced in the SJVAPCD's Guidance for Assessing and Mitigating Air Quality Impacts adopted in March 2015 (SJVAPCD 2015). Consistent with the District Guidance and District Policy above, SJVAPCD (2015) acknowledges the current absence of numerical thresholds, and recommends a tiered approach to establish the significance of the GHG impacts on the environment:

i. If a project complies with an approved GHG emission reduction plan or GHG mitigation program which avoids or substantially reduces GHG emissions within the geographic area in which the project is located, then the project would be determined to have a less than significant individual and cumulative impact for GHG emissions;
ii. If a project does not comply with an approved GHG emission reduction plan or mitigation program, then it would be required to implement Best Performance Standards (BPS); and
iii. If a project is not implementing BPS, then it should demonstrate that its GHG emissions would be reduced or mitigated by at least 29 percent compared to Business as Usual (BAU).

In the event that a local air district's guidance for addressing GHG impacts does not use numerical GHG emissions thresholds, at the lead agency's discretion, a neighboring air district's GHG thresholds may be used to determine impacts. On December 5, 2008, the South Coast Air Quality Management District (SCAQMD) Governing Board adopted the staff proposal for an interim GHG significance threshold for projects where the SCAQMD is lead agency. The SCAQMD guidance identifies a threshold of 10,000 MTCO2eq./year for GHG for construction emissions amortized over a 30-year project lifetime, plus annual operation emissions. This threshold is often used by agencies, such as the California Public Utilities Commission, to evaluate GHG impacts in areas that do not have specific thresholds (CPUC 2015). Therefore, because this threshold has been established by the SCAQMD in an effort to control GHG emissions in the largest metropolitan area in the State of California, this threshold is considered a conservative approach for evaluating the significance of GHG emissions in a more rural area, such as Merced County. Though the Project is under SJVAPCD jurisdiction, the SCAQMD GHG threshold provides some perspective on the GHG emissions generated by the Project. The Project will not generate operational emissions as noted above. However, in accordance with SCAQMD guidance, the Project's construction emissions were amortized over 30-years and compared to the 10,000 MTCO2eq./year criteria. Table 7 shows GHG emissions associated with the construction phase of the Project. Construction emissions associated with the Project amortized over 30-years equates to 40.9 MTCO2eq, which is approximately 99.6% less than the threshold identified by the SCAQMD.

3.4 National Environmental Policy Act (NEPA)

NEPA provides general information on the effects of federally funded projects. The Act was implemented by regulations included in the Code of Federal Regulations (40CFR6). The regulations require that projects requiring NEPA review seek to avoid or minimize adverse effects of proposed actions and to restore and enhance environmental quality as much as possible. As noted in Section 3.2 and 3.3 above, emissions generated from construction of the Project will not exceed the SJVAPCD emission thresholds. All operations associated with the Project will cease upon completion of the repairs (construction) associated with the Planada wastewater collection system.

According to NEPA Guidance, project's which meet the definition contained in 40 CFR 1508.4 (Categorical Exclusion) do not require any further NEPA approvals by the Federal Highway Administration since they do not individually or cumulatively have a significant effect on the environment. FHWA Guidance indicates that utility installations along or across a transportation facility meet the categorical exclusion requirements. As a result, the proposed Project will not individually or cumulatively have a significant effect on the environment.

4.0 Impact Determinations and Recommended Mitigation

In accordance with CEQA, the effects of a project are evaluated to determine if they will result in significant adverse impacts on the environment. The criteria used to determine the significance of an air quality or greenhouse gas impact are based on the following thresholds of significance, which come from Appendix G of the CEQA Guidelines. Accordingly, air quality or greenhouse gas impacts resulting from the Project are considered significant if the Project would result in:

Air Quality

a) Conflict with or obstruct implementation of the applicable air quality plan?
b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?
c) Expose sensitive receptors to substantial pollutant concentrations?
d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

Greenhouse Gas Emissions

a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

4.1 Air Quality

4.1.1 *Conflict with or obstruct implementation of the applicable air quality plan*

The primary way of determining consistency with the air quality plan's (AQP's) assumptions is determining consistency with the applicable General Plan to ensure that the Project's population density and land use are consistent with the growth assumptions used in the AQPs for the air basin.

As required by California law, city and county General Plans contain a Land Use Element that details the types and quantities of land uses that the city or county estimates will be needed for future growth, and that designate locations for land uses to regulate growth. MCAG uses the growth projections and land use information in adopted general plans to estimate future average daily trips and then VMT, which are then provided to SJVAPCD to estimate future emissions in the AQPs. Existing and future pollutant emissions computed in the AQP are based on land uses

from area general plans. AQPs detail the control measures and emission reductions required for reaching attainment of the air standards.

The applicable General Plan for the project is the Merced County 2030 General Plan, which was adopted in 2012. The Project is consistent with the currently adopted General Plan for the Planada Community and is therefore consistent with the population growth and VMT applied in the plan. Therefore, the Project is consistent with the growth assumptions used in the applicable AQPs. As a result, the Project will not conflict with or obstruct implementation of any air quality plans. Therefore, no mitigation is needed.

4.1.2 *Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard*

The Merced County area is nonattainment for Federal and State air quality standards for ozone and nonattainment for Federal and State standards for PM2.5. Merced County is also nonattainment for State standards for PM10. The SJVAPCD has prepared the 2016 and 2013 Ozone Plans, 2007 PM10 Maintenance Plan, and 2012 PM2.5 Plan to achieve Federal and State standards for improved air quality in the SJVAB regarding ozone and PM. Individual projects contribute cumulatively to a regions nonattainment status and inconsistency with any of the plans would be considered a cumulatively adverse air quality impact.

Project specific emissions that exceed the thresholds of significance for criteria pollutants would be expected to result in a cumulatively considerable net increase of any criteria pollutant for which the County is in non-attainment under applicable federal or state ambient air quality standards. It should be noted that a project isn't characterized as cumulatively insignificant when project emissions fall below thresholds of significance. As discussed in Section 3.1, the SJVAPCD has established thresholds of significance for determining environmental significance which are provided in Table 6.

Per CEQA Guidelines §15064(h)(3) a Lead Agency may determine that a project's incremental contribution to a cumulative effect is not cumulatively considerable if the project will comply with the requirements in a previously approved plan or mitigation program, including, but not limited to an air quality attainment or maintenance plan that provides specific requirements that will avoid or substantially lessen the cumulative problem within the geographic area in which the project is located.[1]

Air Quality Plan

As noted above, the SJVAPCD has prepared the 2016 and 2013 Ozone Plans, 2007 PM10

1 San Joaquin Valley Unified Air Pollution Control District – Guide for Assessing and Mitigating Air Quality Impacts, March 19, 2015.

Maintenance Plan, and 2012 PM2.5 Plan to achieve Federal and State standards for improved air quality in the SJVAB regarding ozone and PM. Existing and future pollutant emissions computed in the AQP are based on land uses from area general plans. The AQP details the control measures and emission reductions required for reaching attainment of the air standards.

The applicable General Plan for the project is the Merced County 2030 General Plan, which was adopted in 2012. The Project is consistent with the currently adopted General Plan for the Planada Community and is therefore consistent with the population growth and VMT applied in the plan. Therefore, the Project is consistent with the growth assumptions used in the applicable AQP. As a result, the Project will not conflict with or obstruct implementation of any air quality plans.

Ozone/Particulate Matter

As discussed above in Section 4.1.2, Project emissions would not exceed the project-level significance thresholds for ozone precursors ROG and NOx or PM10 and PM2.5 during construction and operation. The SJVAPCD considers projects that exceed the project-level thresholds of significance as cumulatively significant. The Project's emissions would not combine with other sources in the SJVAB to make a cumulatively considerable contribution to a violation of the ozone standards. Therefore, this impact is less than significant. As such, there would not be a significant contribution to health effects from ozone and particulate matter.

Based on the assessment above, the Project will not result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors) and any impacts would be less than significant.

4.1.3 *Expose sensitive receptors to substantial pollutant concentrations*

Sensitive receptors refer to those segments of the population most susceptible to poor air quality (i.e., children, the elderly, and those with pre-existing serious health problems affected by air quality). Land uses that have the greatest potential to attract these types of sensitive receptors include schools, parks, playgrounds, daycare centers, nursing homes, hospitals, and residential communities.

The first step in evaluating the potential for impacts to sensitive receptors for TAC's from the Project is to perform a screening level analysis. For Type A Projects, one type of screening tool is found in the CARB Handbook: Air Quality and Land Use Handbook: A Community Perspective. This handbook includes a table (depicted in Table 4) with recommended buffer distances associated with various types of common sources. Since, the proposed Project does not correspond with the characteristics of the source categories included in Table 4, a health risk assessment is not needed at this time. Therefore, the Project will not expose sensitive receptors

to substantial pollutant concentrations and any impacts would be less than significant.

4.1.4 *Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people*

The SJVAPCD requires that an analysis of potential odor impacts be conducted for the following two situations:

- ✓ Generators – projects that would potentially generate odorous emissions proposed to be located near existing sensitive receptors or other land uses where people may congregate, and

- ✓ Receivers – residential or other sensitive receptor projects or other projects built for the intent of attracting people located near existing odor sources.

The proposed Project will not generate odorous emissions given the nature or characteristics of the Project. As a result, the Project will not be evaluated for its potential to place odor sources near existing sensitive receptors. It should be noted that the proposed Project will not generate emissions associated with long-term emissions given the nature of the Project. All operations associated with the Project will cease upon completion of the repairs (construction) associated with the Planada wastewater collection system.

The intensity of an odor source's operations and its proximity to sensitive receptors influences the potential significance of odor emissions. The SJVAPCD has identified some common types of facilities that have been known to produce odors in the SJV Air Basin. The types of facilities that are known to produce odors are shown in Table 5 above along with a reasonable distance from the source within which, the degree of odors could possibly be significant. None of the facilities shown in Table 5 correspond with the specific characteristics of the Project.

Based on the assessment above, the Project will not generate potential odorous emissions or attract receivers and other sensitive receptors near existing odor sources. Therefore, no mitigation is needed.

4.2 Greenhouse Gas Emissions

4.2.1 *Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment*

In 2009, the SJVAPCD adopted the following guidance documents applicable to projects within the San Joaquin Valley:

- Guidance for Valley Land-use Agencies in Addressing GHG Emission Impacts for New Projects under CEQA (SJVAPCD 2009), and

- District Policy: Addressing GHG Emission Impacts for Stationary Source Projects Under CEQA When Serving as the Lead Agency (SJVAPCD 2009).

This guidance and policy are the reference documents referenced in the SJVAPCD's Guidance for Assessing and Mitigating Air Quality Impacts adopted in March 2015 (SJVAPCD 2015). Consistent with the District Guidance and District Policy above, SJVAPCD (2015) acknowledges the current absence of numerical thresholds, and recommends a tiered approach to establish the significance of the GHG impacts on the environment:

i. If a project complies with an approved GHG emission reduction plan or GHG mitigation program which avoids or substantially reduces GHG emissions within the geographic area in which the project is located, then the project would be determined to have a less than significant individual and cumulative impact for GHG emissions;
ii. If a project does not comply with an approved GHG emission reduction plan or mitigation program, then it would be required to implement Best Performance Standards (BPS); and
iii. If a project is not implementing BPS, then it should demonstrate that its GHG emissions would be reduced or mitigated by at least 29 percent compared to Business as Usual (BAU).

In the event that a local air district's guidance for addressing GHG impacts does not use numerical GHG emissions thresholds, at the lead agency's discretion, a neighboring air district's GHG thresholds may be used to determine impacts. On December 5, 2008, the South Coast Air Quality Management District (SCAQMD) Governing Board adopted the staff proposal for an interim GHG significance threshold for projects where the SCAQMD is lead agency. The SCAQMD guidance identifies a threshold of 10,000 MTCO2eq./year for GHG for construction emissions amortized over a 30-year project lifetime, plus annual operation emissions. This threshold is often used by agencies, such as the California Public Utilities Commission, to evaluate GHG impacts in areas that do not have specific thresholds (CPUC 2015). Therefore, because this threshold has been established by the SCAQMD in an effort to control GHG emissions in the largest metropolitan area in the State of California, this threshold is considered a conservative approach for evaluating the significance of GHG emissions in a more rural area, such as Merced County. Though the Project is under SJVAPCD jurisdiction, the SCAQMD GHG threshold provides some perspective on the GHG emissions generated by the Project. The Project will not generate operational emissions as noted above. However, in accordance with SCAQMD guidance, the Project's construction emissions were amortized over 30-years and compared to the 10,000 MTCO2eq./year criteria. Table 7 shows GHG emissions associated with the construction phase of the Project. Construction emissions associated with the Project amortized over 30-years equates to 40.9 MTCO2eq, which is approximately 99.6% less than the threshold identified by the SCAQMD.

CARB's California GHG Emissions Inventory provides estimates of anthropogenic GHG emissions within California, as well as emissions associated with imported electricity; natural sources are not included in the inventory. California's GHG emissions for 2015 totaled approximately 440,400,000 MTCO2eq. The proposed Project's GHG emissions represents 0.000009% of the total GHG emissions for the state of California when compared to year 2015 emissions data.

Based on the assessment above, the Project will not generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment. Therefore, any impacts would be less than significant. It should be noted that the proposed Project will not generate emissions associated with long-term emissions given the nature of the Project. All operations associated with the Project will cease upon completion of the repairs (construction) associated with the Planada wastewater collection system. Therefore, the Project's greenhouse emissions are not cumulatively considerable.

4.2.2 *Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases*

As noted previously, California passed the California Global Warming Solutions Act of 2006. AB 32 requires that statewide GHG emissions be reduced to 1990 levels by 2020. Under AB 32, CARB must adopt regulations by January 1, 2011 to achieve reductions in GHGs to meet the 1990 emission cap by 2020. On December 11, 2008, CARB adopted its initial Scoping Plan, which functions as a roadmap of CARB's plans to achieve GHG reductions in California required by AB 32 through subsequently enacted regulations. CARB's 2017 Climate Change Scoping Plan builds on the efforts and plans encompassed in the initial Scoping Plan.

SB 375 requires MPOs to adopt a SCS or APS that will prescribe land use allocation in that MPO's regional transportation plan. CARB, in consultation with MPOs, has provided each affected region with reduction targets for GHGs emitted by passenger cars and light trucks in the region for the years 2020 and 2035. For the MCAG region, CARB set targets at five (5) percent per capita decrease in 2020 and a ten (10) percent per capita decrease in 2035 from a base year of 2005. MCAG's 2014 RTP/SCS, which was adopted in 2016, projects that the Merced County region would achieve the prescribed emissions targets.

Executive Order B-30-15 establishes a California greenhouse gas reduction target of 40 percent below 1990 levels by 2030 to ensure California meets its target of reducing greenhouse gas emissions to 80 percent below 1990 levels by 2050. Executive Order B-30-15 requires MPO's to implement measures that will achieve reductions of greenhouse gas emissions to meet the 2030 and 2050 greenhouse gas emissions reductions targets.

As required by California law, city and county General Plans contain a Land Use Element that details the types and quantities of land uses that the city or county estimates will be needed for future growth, and that designate locations for land uses to regulate growth. MCAG uses the growth projections and land use information in adopted general plans to estimate future average daily trips and then VMT, which are then provided to SJVAPCD to estimate future emissions in the AQPs. The applicable General Plan for the project is the Merced County 2030 General Plan, which was adopted in 2012.

The proposed Project is consistent with the currently adopted General Plan for Merced County

and the adopted 2014 RTP/SCS and is therefore consistent with the population growth and VMT applied in those plan documents. Therefore, the Project is consistent with the growth assumptions used in the applicable AQP. It should also be noted that yearly GHG emissions generated by the Project are approximately 99.6% less than the threshold identified by the SCAQMD (see the discussion for Impact 4.2.1 above).

Based on the assessment above, the Project will not conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases. The Project further the achievement of the County's greenhouse gas reduction goals. Therefore, any impacts would be less than significant.

APPENDIX A

Road Construction Emissions Model Worksheets

Road Construction Emissions Model, Version 8.1.0

Daily Emission Estimates for -> Planada Wastewater Project

Project Phases (Pounds)	ROG (lbs/day)	CO (lbs/day)	NOx (lbs/day)	Total PM10 (lbs/day)	Exhaust PM10 (lbs/day)	Fugitive Dust PM10 (lbs/day)	Total PM2.5 (lbs/day)	Exhaust PM2.5 (lbs/day)	Fugitive Dust PM2.5 (lbs/day)	SOx (lbs/day)	CO2 (lbs/day)	CH4 (lbs/day)	N2O (lbs/day)	CO2e (lbs/day)
Grubbing/Land Clearing	0.91	10.58	6.77	1.10	0.60	0.50	0.57	0.46	0.10	0.02	2,273.39	0.28	0.03	2,289.89
Grading/Excavation	3.17	28.24	28.72	2.08	1.58	0.50	1.50	1.40	0.10	0.05	5,077.28	0.86	0.05	5,115.10
Drainage/Utilities/Sub-Grade	2.20	18.27	17.07	1.56	1.06	0.50	1.03	0.93	0.10	0.04	3,761.84	0.46	0.04	3,785.66
Paving	1.41	16.66	11.84	0.78	0.78	0.00	0.63	0.63	0.00	0.03	3,271.29	0.59	0.04	3,297.26
Maximum (pounds/day)	3.17	28.24	28.72	2.08	1.58	0.50	1.50	1.40	0.10	0.05	5,077.28	0.86	0.05	5,115.10
Total (tons/construction project)	0.77	7.01	6.57	0.53	0.39	0.14	0.37	0.34	0.03	0.01	1,341.64	0.21	0.01	1,351.22

Notes:

Project Start Year ->	2019
Project Length (months) ->	30
Total Project Area (acres) ->	29
Maximum Area Disturbed/Day (acres) ->	0
Water Truck Used? ->	Yes

	Total Material Imported/Exported Volume (yd^3/day)		Daily VMT (miles/day)			
Phase	Soil	Asphalt	Soil Hauling	Asphalt Hauling	Worker Commute	Water Truck
Grubbing/Land Clearing	0	0	0	0	1,600	40
Grading/Excavation	0	0	0	0	1,600	40
Drainage/Utilities/Sub-Grade	0	0	0	0	1,600	40
Paving	0	0	0	0	1,600	40

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

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

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

Total Emission Estimates by Phase for -> Planada Wastewater Project

Project Phases (Tons for all except CO2e. Metric tonnes for CO2e)	ROG (tons/phase)	CO (tons/phase)	NOx (tons/phase)	Total PM10 (tons/phase)	Exhaust PM10 (tons/phase)	Fugitive Dust PM10 (tons/phase)	Total PM2.5 (tons/phase)	Exhaust PM2.5 (tons/phase)	Fugitive Dust PM2.5 (tons/phase)	SOx (tons/phase)	CO2 (tons/phase)	CH4 (tons/phase)	N2O (tons/phase)	CO2e (MT/phase)
Grubbing/Land Clearing	0.03	0.35	0.22	0.04	0.02	0.02	0.02	0.02	0.00	0.00	75.02	0.01	0.00	68.55
Grading/Excavation	0.42	3.73	3.79	0.27	0.21	0.07	0.20	0.18	0.01	0.01	670.20	0.11	0.01	612.53
Drainage/Utilities/Sub-Grade	0.25	2.11	1.97	0.18	0.12	0.06	0.12	0.11	0.01	0.00	434.49	0.05	0.00	396.66
Paving	0.07	0.82	0.59	0.04	0.04	0.00	0.03	0.03	0.00	0.00	161.93	0.03	0.00	148.07
Maximum (tons/phase)	0.42	3.73	3.79	0.27	0.21	0.07	0.20	0.18	0.01	0.01	670.20	0.11	0.01	612.53
Total (tons/construction project)	0.77	7.01	6.57	0.53	0.39	0.14	0.37	0.34	0.03	0.01	1341.64	0.21	0.01	1,225.82

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

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

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

The CO2e emissions are reported as metric tons per phase.

Road Construction Emissions Model
Data Entry Worksheet

Version 8.1.0

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

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

SACRAMENTO METROPOLITAN AIR QUALITY MANAGEMENT DISTRICT

Input Type

Project Name	Planada Wastewater Project	
Construction Start Year	2019	Enter a Year between 2014 and 2025 (inclusive)
Project Type For 4: Other Linear Project Type, please provide project specific off-road equipment population and vehicle trip data	4	1) New Road Construction : Project to build a roadway from bare ground, which generally requires more site preparation than widening an existing roadway 2) Road Widening : Project to add a new lane to an existing roadway 3) Bridge/Overpass Construction : Project to build an elevated roadway, which generally requires some different equipment than a new roadway, such as a crane 4) Other Linear Project Type: Non-roadway project such as a pipeline, transmission line, or levee construction
Project Construction Time	30.00	months
Working Days per Month	22.00	days (assume 22 if unknown)
Predominant Soil/Site Type: Enter 1, 2, or 3 (for project within "Sacramento County", follow soil type selection instructions in cells E18 to E20 otherwise see instructions provided in cells J18 to J22)	1	1) Sand Gravel : Use for quaternary deposits (Delta/West County) 2) Weathered Rock-Earth : Use for Laguna formation (Jackson Highway area) or the Ione formation (Scott Road, Rancho Murieta) 3) Blasted Rock : Use for Salt Springs Slate or Copper Hill Volcanics (Folsom South of Highway 50, Rancho Murieta)
Project Length	12.05	miles
Total Project Area	29.20	acres
Maximum Area Disturbed/Day	0.05	acres
Water Trucks Used?	1	1. Yes 2. No

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

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

Material Hauling Quantity Input

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

Mitigation Options

On-road Fleet Emissions Mitigation		Select "2010 and Newer On-road Vehicles Fleet" option when the on-road heavy-duty truck fleet for the project will be limited to vehicles of model year 2010 or newer
Off-road Equipment Emissions Mitigation		Select "20% NOx and 45% Exhaust PM reduction" option if the project will be required to use a lower emitting off-road construction fleet. The SMAQMD Construction Mitigation Calculator can be used to confirm compliance with this mitigation measure (http://www.airquality.org/ceqa/mitigation.shtml). Select "Tier 4 Equipment" option if some or all off-road equipment used for the project meets CARB Tier 4 Standard

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

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

Construction Periods	User Override of Construction Months	Program Calculated Months	User Override of Phase Starting Date	Program Default Phase Starting Date
Grubbing/Land Clearing		3.00		1/1/2019
Grading/Excavation		12.00		4/3/2019
Drainage/Utilities/Sub-Grade		10.50		4/2/2020
Paving		4.50		2/16/2021
Totals (Months)	30			

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

Soil Hauling Emissions User Input	User Override of Miles/Round Trip	Program Estimate of Miles/Round Trip	User Override of Truck Round Trips/Day	Default Values Round Trips/Day	Calculated Daily VMT
Miles/round trip: Grubbing/Land Clearing	30.00			0	0.00
Miles/round trip: Grading/Excavation	30.00			0	0.00
Miles/round trip: Drainage/Utilities/Sub-Grade	30.00			0	0.00
Miles/round trip: Paving	30.00			0	0.00

Emission Rates	**ROG**	**CO**	**NOx**	**PM10**	**PM2.5**	**SOx**	**CO2**	**CH4**	**N2O**	**CO2e**
Grubbing/Land Clearing (grams/mile)	0.07	0.36	1.48	0.10	0.04	0.02	1,576.79	0.00	0.05	1,592.32
Grading/Excavation (grams/mile)	0.07	0.36	1.47	0.10	0.04	0.02	1,575.39	0.00	0.05	1,590.91
Draining/Utilities/Sub-Grade (grams/mile)	0.07	0.37	1.46	0.10	0.04	0.01	1,569.60	0.00	0.05	1,585.07
Paving (grams/mile)	0.07	0.37	1.43	0.10	0.04	0.01	1,559.57	0.00	0.05	1,574.93
Hauling Emissions	**ROG**	**CO**	**NOx**	**PM10**	**PM2.5**	**SOx**	**CO2**	**CH4**	**N2O**	**CO2e**
Pounds per day - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Grading/Excavation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grading/Excavation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total tons per construction project	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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

Asphalt Hauling Emissions User Input	User Override of Miles/Round Trip	Program Estimate of Miles/Round Trip	User Override of Truck Round Trips/Day	Default Values Round Trips/Day	Calculated Daily VMT
Miles/round trip: Grubbing/Land Clearing	30.00			0	0.00
Miles/round trip: Grading/Excavation	30.00			0	0.00
Miles/round trip: Drainage/Utilities/Sub-Grade	30.00			0	0.00
Miles/round trip: Paving	30.00			0	0.00

Emission Rates	**ROG**	**CO**	**NOx**	**PM10**	**PM2.5**	**SOx**	**CO2**	**CH4**	**N2O**	**CO2e**
Grubbing/Land Clearing (grams/mile)	0.07	0.36	1.48	0.10	0.04	0.02	1,576.79	0.00	0.05	1,592.32
Grading/Excavation (grams/mile)	0.07	0.36	1.47	0.10	0.04	0.02	1,575.39	0.00	0.05	1,590.91
Draining/Utilities/Sub-Grade (grams/mile)	0.07	0.37	1.46	0.10	0.04	0.01	1,569.60	0.00	0.05	1,585.07
Paving (grams/mile)	0.07	0.37	1.43	0.10	0.04	0.01	1,559.57	0.00	0.05	1,574.93
Emissions	**ROG**	**CO**	**NOx**	**PM10**	**PM2.5**	**SOx**	**CO2**	**CH4**	**N2O**	**CO2e**
Pounds per day - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Grading/Excavation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grading/Excavation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total tons per construction project	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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

Worker Commute Emissions User Input	User Override of Worker Commute Default Values	Default Values	Calculated Daily Trips	Calculated Daily VMT
Miles/ one-way trip	20			
One-way trips/day	2			
No. of employees: Grubbing/Land Clearing	40		80	1,600.00
No. of employees: Grading/Excavation	40		80	1,600.00
No. of employees: Drainage/Utilities/Sub-Grade	40		80	1,600.00
No. of employees: Paving	40		80	1,600.00

Emission Rates	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Grubbing/Land Clearing (grams/mile)	0.02	1.19	0.13	0.05	0.02	0.00	381.71	0.01	0.01	383.53
Grading/Excavation (grams/mile)	0.02	1.16	0.12	0.05	0.02	0.00	379.10	0.01	0.01	380.87
Draining/Utilities/Sub-Grade (grams/mile)	0.02	1.06	0.11	0.05	0.02	0.00	369.80	0.01	0.00	371.39
Paving (grams/mile)	0.02	0.99	0.10	0.05	0.02	0.00	360.03	0.01	0.00	361.48
Grubbing/Land Clearing (grams/trip)	1.08	2.86	0.23	0.00	0.00	0.00	85.97	0.01	0.01	89.17
Grading/Excavation (grams/trip)	1.06	2.78	0.22	0.00	0.00	0.00	85.48	0.01	0.01	88.58
Draining/Utilities/Sub-Grade (grams/trip)	0.99	2.51	0.20	0.00	0.00	0.00	83.72	0.01	0.01	86.48
Paving (grams/trip)	0.93	2.28	0.18	0.00	0.00	0.00	81.88	0.01	0.01	84.35
Emissions	**ROG**	**CO**	**NOx**	**PM10**	**PM2.5**	**SOx**	**CO2**	**CH4**	**N2O**	**CO2e**
Pounds per day - Grubbing/Land Clearing	0.28	4.70	0.49	0.17	0.07	0.01	1,361.59	0.04	0.02	1,368.59
Tons per const. Period - Grubbing/Land Clearing	0.01	0.16	0.02	0.01	0.00	0.00	44.93	0.00	0.00	45.16
Pounds per day - Grading/Excavation	0.27	4.59	0.48	0.17	0.07	0.01	1,352.30	0.04	0.02	1,359.09
Tons per const. Period - Grading/Excavation	0.04	0.61	0.06	0.02	0.01	0.00	178.50	0.00	0.00	179.40
Pounds per day - Drainage/Utilities/Sub-Grade	0.25	4.19	0.43	0.17	0.07	0.01	1,319.21	0.03	0.02	1,325.31
Tons per const. Period - Drainage/Utilities/Sub-Grade	0.03	0.48	0.05	0.02	0.01	0.00	152.37	0.00	0.00	153.07
Pounds per day - Paving	0.23	3.90	0.39	0.17	0.07	0.01	1,284.42	0.03	0.02	1,289.97
Tons per const. Period - Paving	0.01	0.19	0.02	0.01	0.00	0.00	63.58	0.00	0.00	63.85
Total tons per construction project	0.08	1.44	0.15	0.05	0.02	0.00	439.38	0.01	0.01	441.49

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

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

Emission Rates	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Grubbing/Land Clearing (grams/mile)	0.07	0.36	1.48	0.10	0.04	0.02	1,576.79	0.00	0.05	1,592.32
Grading/Excavation (grams/mile)	0.07	0.36	1.47	0.10	0.04	0.02	1,575.39	0.00	0.05	1,590.91
Draining/Utilities/Sub-Grade (grams/mile)	0.07	0.37	1.46	0.10	0.04	0.01	1,569.60	0.00	0.05	1,585.07
Paving (grams/mile)	0.07	0.37	1.43	0.10	0.04	0.01	1,559.57	0.00	0.05	1,574.93
Emissions	**ROG**	**CO**	**NOx**	**PM10**	**PM2.5**	**SOx**	**CO2**	**CH4**	**N2O**	**CO2e**
Pounds per day - Grubbing/Land Clearing	0.01	0.03	0.13	0.01	0.00	0.00	139.05	0.00	0.00	140.42
Tons per const. Period - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	4.59	0.00	0.00	4.63
Pounds per day - Grading/Excavation	0.01	0.03	0.13	0.01	0.00	0.00	138.93	0.00	0.00	140.29
Tons per const. Period - Grading/Excavation	0.00	0.00	0.02	0.00	0.00	0.00	18.34	0.00	0.00	18.52
Pounds per day - Drainage/Utilities/Sub-Grade	0.01	0.03	0.13	0.01	0.00	0.00	138.42	0.00	0.00	139.78
Tons per const. Period - Drainage/Utilities/Sub-Grade	0.00	0.00	0.01	0.00	0.00	0.00	15.99	0.00	0.00	16.14
Pounds per day - Paving	0.01	0.03	0.13	0.01	0.00	0.00	137.53	0.00	0.00	138.89
Tons per const. Period - Paving	0.00	0.00	0.01	0.00	0.00	0.00	6.81	0.00	0.00	6.87
Total tons per construction project	0.00	0.01	0.04	0.00	0.00	0.00	45.72	0.00	0.00	46.17

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

Fugitive Dust	User Override of Max Acreage Disturbed/Day	Default Maximum Acreage/Day	PM10 pounds/day	PM10 tons/per period	PM2.5 pounds/day	PM2.5 tons/per period
Fugitive Dust - Grubbing/Land Clearing	0.05		0.50	0.02	0.10	0.00
Fugitive Dust - Grading/Excavation	0.05		0.50	0.07	0.10	0.01
Fugitive Dust - Drainage/Utilities/Subgrade	0.05		0.50	0.06	0.10	0.01

Values in cells D183 through D216, D234 through D267, D285 through D318, and D336 through D369 are required when 'Other Project Type' is selected.

Off-Road Equipment Emissions

Grubbing/Land Clearing	Default Number of Vehicles	Override of Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected)	Default Equipment Tier	Type	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Override of Default Number of Vehicles	*Program-estimate*	Mitigation Option			pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
			Model Default Tier	Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Cranes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Crawler Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Excavators	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Forklifts	0.16	1.19	1.43	0.11	0.10	0.00	151.32	0.05	0.00	152.92
			Model Default Tier	Generator Sets	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Graders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other General Industrial Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other Material Handling Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pavers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pumps	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rollers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Signal Boards	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.00			Model Default Tier	Tractors/Loaders/Backhoes	0.47	4.65	4.72	0.32	0.29	0.01	621.43	0.20	0.01	627.97
			Model Default Tier	Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Welders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

User-Defined Off-road Equipment	If non-default vehicles are used, please provide information in 'Non-default Off-road Equipment' tab			ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Number of Vehicles	Equipment Tier	Type		pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Grubbing/Land Clearing	pounds per day		0.63	5.85	6.15	0.43	0.39	0.01	772.75	0.24	0.01	780.89
	Grubbing/Land Clearing	tons per phase		0.02	0.19	0.20	0.01	0.01	0.00	25.50	0.01	0.00	25.77

Grading/Excavation	Default Number of Vehicles	Override of Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected)	Mitigation Option Default		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Override of Default Number of Vehicles	*Program-estimate*		Equipment Tier	Type	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
			Model Default Tier	Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.00			Model Default Tier	Concrete/Industrial Saws	0.90	7.40	7.03	0.44	0.44	0.01	1,185.33	0.08	0.01	1,190.02
			Model Default Tier	Cranes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Crawler Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Excavators	0.26	3.37	2.70	0.13	0.12	0.01	524.41	0.17	0.00	529.97
			Model Default Tier	Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Generator Sets	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Graders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other General Industrial Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other Material Handling Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pavers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Plate Compactors	0.04	0.21	0.25	0.01	0.01	0.00	34.48	0.00	0.00	34.65
			Model Default Tier	Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pumps	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rollers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Rubber Tired Dozers	1.01	8.38	10.82	0.50	0.46	0.01	877.32	0.28	0.01	886.59
1.00			Model Default Tier	Rubber Tired Loaders	0.39	1.64	4.65	0.16	0.14	0.01	606.24	0.19	0.01	612.67
			Model Default Tier	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Signal Boards	0.06	0.30	0.36	0.01	0.01	0.00	49.31	0.01	0.00	49.56
			Model Default Tier	Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Tractors/Loaders/Backhoes	0.23	2.32	2.30	0.15	0.14	0.00	308.97	0.10	0.00	312.24
			Model Default Tier	Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Welders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

User-Defined Off-road Equipment	If non-default vehicles are used, please provide information in 'Non-default Off-road Equipment' tab		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Number of Vehicles	Equipment Tier	Type	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

			ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Grading/Excavation	pounds per day		2.89	23.62	28.11	1.40	1.33	0.04	3,586.05	0.83	0.03	3,615.71
Grading/Excavation	tons per phase		0.38	3.12	3.71	0.19	0.18	0.00	473.36	0.11	0.00	477.27

Drainage/Utilities/Subgrade	Default Number of Vehicles	Mitigation Option: Override of Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected)	Default		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Override of Default Number of Vehicles	*Program-estimate*		Equipment Tier		pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
			Model Default Tier	Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Air Compressors	0.32	2.44	2.21	0.14	0.14	0.00	375.26	0.03	0.00	376.82
			Model Default Tier	Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Cement and Mortar Mixers	0.06	0.31	0.37	0.01	0.01	0.00	50.52	0.01	0.00	50.77
			Model Default Tier	Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Cranes	0.44	2.05	5.20	0.21	0.20	0.01	546.69	0.18	0.00	552.58
			Model Default Tier	Crawler Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Excavators	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Forklifts	0.14	1.18	1.28	0.09	0.09	0.00	148.03	0.05	0.00	149.63
1.00			Model Default Tier	Generator Sets	0.39	3.70	3.43	0.19	0.19	0.01	623.04	0.03	0.00	625.30
			Model Default Tier	Graders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other General Industrial Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other Material Handling Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pavers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pumps	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rollers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Signal Boards	0.06	0.30	0.36	0.01	0.01	0.00	49.31	0.01	0.00	49.56
			Model Default Tier	Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Tractors/Loaders/Backhoes	0.21	2.30	2.10	0.13	0.12	0.00	303.89	0.10	0.00	307.16
			Model Default Tier	Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Welders	0.34	1.76	1.56	0.09	0.09	0.00	207.48	0.03	0.00	208.75

User-Defined Off-road Equipment	If non-default vehicles are used, please provide information in 'Non-default Off-road Equipment' tab			ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Number of Vehicles	Equipment Tier	Type		pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

			ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Drainage/Utilities/Sub-Grade	pounds per day		1.95	14.04	16.51	0.89	0.85	0.02	2,304.21	0.43	0.02	2,320.57
Drainage/Utilities/Sub-Grade	tons per phase		0.23	1.62	1.91	0.10	0.10	0.00	266.14	0.05	0.00	268.03

Paving	Default Number of Vehicles	Override of Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected)	Default		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Override of Default Number of Vehicles	*Program-estimate*		Equipment Tier	Type	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
			Model Default Tier	Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3.00			Model Default Tier	Cement and Mortar Mixers	0.18	0.93	1.10	0.04	0.04	0.00	151.55	0.02	0.00	152.32
			Model Default Tier	Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Cranes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Crawler Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Excavators	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Generator Sets	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Graders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other General Industrial Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other Material Handling Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Pavers	0.24	2.82	2.52	0.12	0.11	0.00	441.06	0.14	0.00	445.81
1.00			Model Default Tier	Paving Equipment	0.19	2.52	1.93	0.10	0.09	0.00	391.47	0.13	0.00	395.69
			Model Default Tier	Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pumps	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Rollers	0.19	1.90	1.95	0.12	0.11	0.00	257.27	0.08	0.00	260.04
			Model Default Tier	Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Signal Boards	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.00			Model Default Tier	Tractors/Loaders/Backhoes	0.38	4.57	3.83	0.23	0.21	0.01	608.00	0.20	0.01	614.55
			Model Default Tier	Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Welders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

User-Defined Off-road Equipment	If non-default vehicles are used, please provide information in 'Non-default Off-road Equipment' tab			ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Number of Vehicles	Equipment Tier	Type		pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

			ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Paving	pounds per day		1.18	12.73	11.32	0.60	0.56	0.02	1,849.35	0.56	0.02	1,868.41
Paving	tons per phase		0.06	0.63	0.56	0.03	0.03	0.00	91.54	0.03	0.00	92.49
Total Emissions all Phases (tons per construction period) =>			0.69	5.56	6.38	0.33	0.31	0.01	856.54	0.19	0.01	863.56

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

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

END OF DATA ENTRY SHEET

APPENDIX B
CULTURAL RESOURCES

Historic Property Identification Report for the Wastewater Collection System Repair Project, Planada Community Services District, Merced County, California

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February 2019
draft

USGS Planada 7.5-minute topographic quadrangle
27-acre APE, 100% surveyed
Keywords: Merced Irrigation District Vaughn Lateral Canal

MANAGEMENT SUMMARY

Applied EarthWorks, Inc. (Æ) performed a historic properties inventory for the Planada Community Services District (CSD) Wastewater Collection System Repair Project (Project) in Merced County, California. The Project will improve the existing CSD sewer infrastructure through the systematic noninvasive repair and/or replacement of pipelines. The Project will receive funding from the California State Water Resources Control Board Clean Water State Revolving Fund, a joint federal-state program. The Project thus requires compliance with Section 106 of the National Historic Preservation Act and the California Environmental Quality Act.

To meet federal and state standards, Æ completed a historic properties inventory under contract to QK Inc. to determine whether cultural resources are present within the Area of Potential Effects (APE). The investigation included a records search at the Central California Information Center (CCIC) of the California Historical Resources Information System (CHRIS) to identify previously recorded cultural resources and prior studies in the APE and surrounding 0.5-mile area; a search of the Native American Heritage Commission's (NAHC) Sacred Lands File to identify places of tribal importance in the APE and a request for tribal contact information; nongovernmental outreach to tribal representatives who may have information about the Project area; a buried site sensitivity assessment; and an archaeological and built-environment pedestrian survey of the APE.

The CCIC reported two prior cultural resource studies in the APE and 18 within the surrounding 0.5-mile area. The search identified one previously recorded cultural resource in the APE (P-24-001909, Merced Irrigation District) and eight previously recorded cultural resources within the surrounding 0.5-mile area. The locations of an additional 17 historic-aged buildings have been reported to the CHRIS, but they lack further documentation; all 17 cultural resources are in the surrounding 0.5-mile area. A search of the NAHC's Sacred Lands File and outreach to local tribal representatives did not result in the identification of sacred places or other areas of tribal importance within the APE. The buried site assessment revealed that the sedimentology and soils have moderate to high potential for harboring well-preserved archaeological deposits below the zone disturbed by agricultural and industrial development estimated to be 0–6 feet deep; however, given the extent of modern development within the APE, there is a low probability of encountering archaeological deposits in primary context during the proposed Project activities.

Æ identified a segment of the historic-era Merced Irrigation District Vaughn Lateral Canal during the pedestrian survey. Because Project activities will not occur in or near the canal, it was not evaluated for eligibility for inclusion in the California Register of Historical Resources (CRHR) or the National Register of Historic Places (NRHP). No other cultural resources were identified within the Project APE.

Consistent with state and federal statutes, Æ advises that if archaeological remains are encountered during Project activities within the APE, all activity within 50 feet of the find should be halted until a qualified archaeologist can identify the discovery and assess its significance. In addition, if human remains are uncovered during construction, the Merced County Coroner is to

be notified immediately and will arrange for proper treatment and disposition. If the remains are identified by the coroner to be Native American based on an assessment of the archaeological context, age, cultural associations, or biological traits, then California Health and Safety Code 7050.5 and Public Resource Code 5097.98 require that the coroner notify the NAHC within 24 hours of discovery. The NAHC will then identify the Most Likely Descendent, who will be afforded the opportunity to recommend treatment of the human remains following protocols in California Public Resources Code 5097.98.

A copy of this report will be transmitted to the CCIC for inclusion in the CHRIS. Field notes and photographs are on file at Æ's office in Fresno, California.

CONTENTS

1 INTRODUCTION 1
- 1.1 PROJECT DESCRIPTION 1
- 1.2 TERMINOLOGY 4
- 1.3 PROFESSIONAL QUALIFICATIONS 4
- 1.4 REPORT STRUCTURE 4

2 BACKGROUND 7
- 2.1 ENVIRONMENTAL SETTING 7
- 2.2 PREHISTORY 8
- 2.3 ETHNOGRAPHY 9
- 2.4 HISTORY 10
  - 2.4.1 Railroads in Merced County 11
  - 2.4.2 Community of Planada 12
  - 2.4.3 Merced Irrigation District 12

3 METHODS 13
- 3.1 RECORDS SEARCH 13
- 3.2 ARCHIVAL RESEARCH 13
- 3.3 NATIVE AMERICAN OUTREACH 13
- 3.4 BURIED SITE SENSITIVITY ASSESSMENT 13
- 3.5 PEDESTRIAN SURVEY 14

4 FINDINGS 15
- 4.1 RECORDS SEARCH 15
- 4.2 NATIVE AMERICAN OUTREACH 15
- 4.3 BURIED SITE SENSITIVITY ASSESSMENT 16
- 4.4 PEDESTRIAN SURVEY 17

5 SUMMARY AND CONCLUSIONS 23

6 REFERENCES 25

APPENDICES

A Personnel Qualifications
B Records Search Results
C Native American Outreach
D Cultural Resource Records

FIGURES

1-1 Project vicinity in Merced County, California....2
1-2 Project location on the USGS Planada, CA 7.5-minute topographic quadrangle....3
1-3 Aerial view of the APE....6

4-1 Survey coverage along Plainsburg Road....18
4-2 Survey coverage in the community of Planada....19
4-3 Survey coverage south of the community of Planada along Plainsburg Road....20
4-4 Survey conditions showing good visibility, looking west....21
4-5 Survey conditions showing fair visibility, looking northeast....21
4-6 Survey conditions showing poor visibility, looking east....22

1
INTRODUCTION

Applied EarthWorks, Inc. (Æ) performed a historic properties inventory for the Planada Community Services District (CSD) Wastewater Collection System Repair Project (Project) in Merced County, California (Figure 1-1). The Project is in Sections 22, 27, 33, and 34 of Township 7 South, Range 15 East of the U.S. Geological Survey (USGS) Planada 7.5-minute topographic quadrangle (Figure 1-2).

The Project will receive funding from the State Water Resources Control Board (SWRCB) Clean Water State Revolving Fund (SRF). The SWRCB's Environmental Review Process Guidelines, dated April 2015, supplement the California Environmental Act (CEQA) guidelines with specific requirements for environmental document review for wastewater treatment facility loans. However, they are not intended to supersede or replace CEQA guidelines. Additionally, because the SRF Program is partially funded by the U.S. Environmental Protection Agency (EPA), it is subject to Section 106 of the National Historic Preservation Act (NHPA). Both the NHPA (Chapter 36, Code of Federal Regulations Code of Federal Regulations [CFR], Part 800.1[a]) and CEQA (Public Resources Code [PRC] 21000[g]) mandate that government agencies consider the whether a proposed Project could cause a significant effect on the environment, including cultural resources.

1.1 PROJECT DESCRIPTION

The Planada CSD provides local water and sewer services to the Planada Community Plan Area and several rural residences, including two farm labor camps. The current sewer network includes pipes that were installed over 70 years ago that may require improvement. The CSD's Project objectives are to identify and repair sewer pipeline segments that require replacement, maintain a level of sewer service for Planada residents, and avoid unsanitary conditions created by dilapidated pipeline infrastructure. The improvements to the sewer line consist of a combination of the traditional method and the trenchless method, such as pipe bursting or cured-in-place pipe.

The CSD currently operates 28,867 linear feet of sewer line within its service area, but only specific segments of the network need replacement (Figure 1-2). Much of the repair would occur in place and is unlikely to require excavation. Some portions can be abandoned in situ and capped at both ends; new pipe will then be installed parallel to the existing pipelines. The complete removal of old pipes would be unnecessary and cost prohibitive, so the only pipes that would be removed would be short segments that intersect with newly installed pipelines. Other segments can be repaired by bursting in-place with horizontal insertion of new pipe. Various segments are expected not to need repair. Some lines will increase in size where currently deficient, per the County's adopted Community Plan.

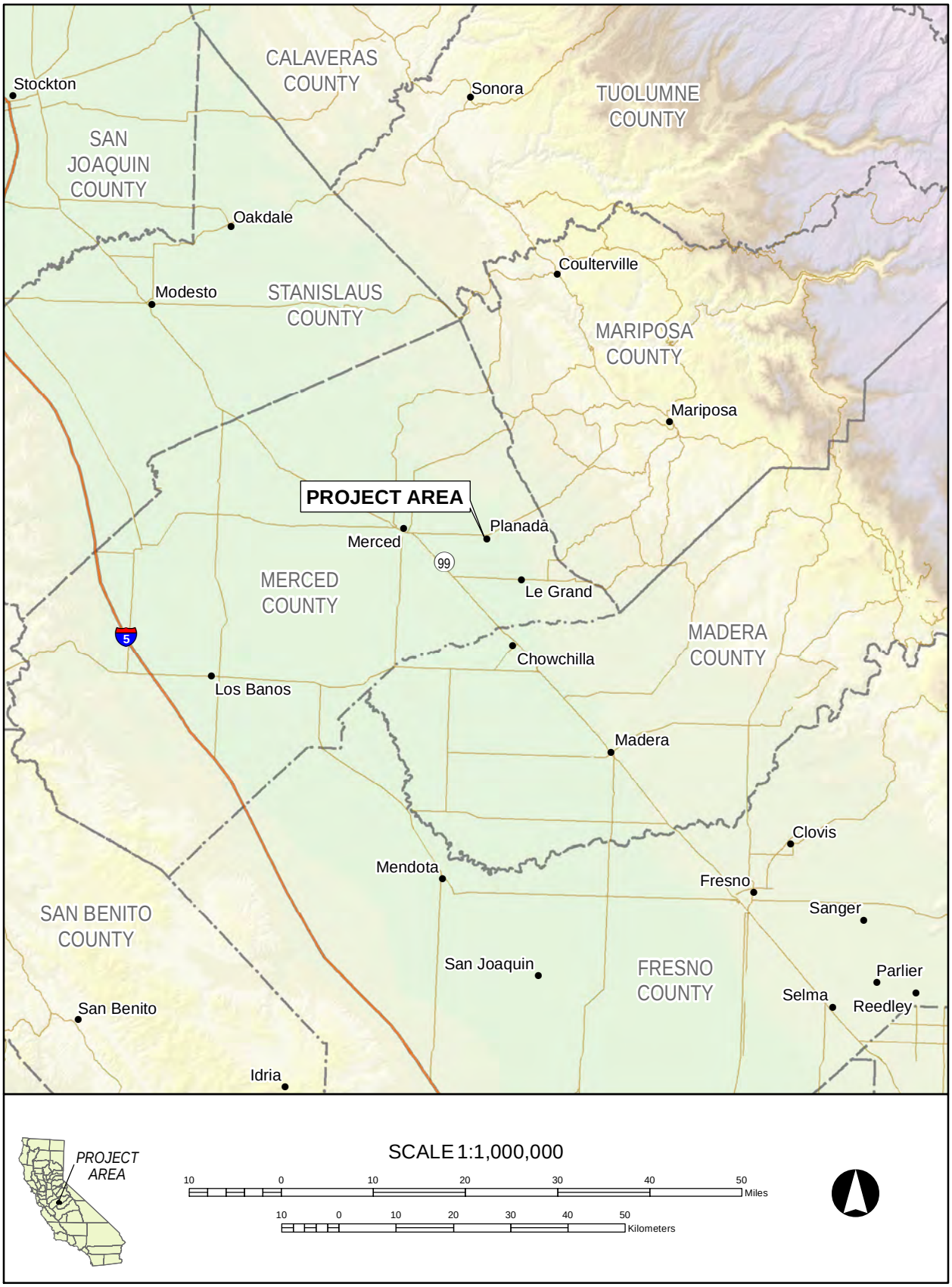


Figure 1-1 Project vicinity in Merced County, California.

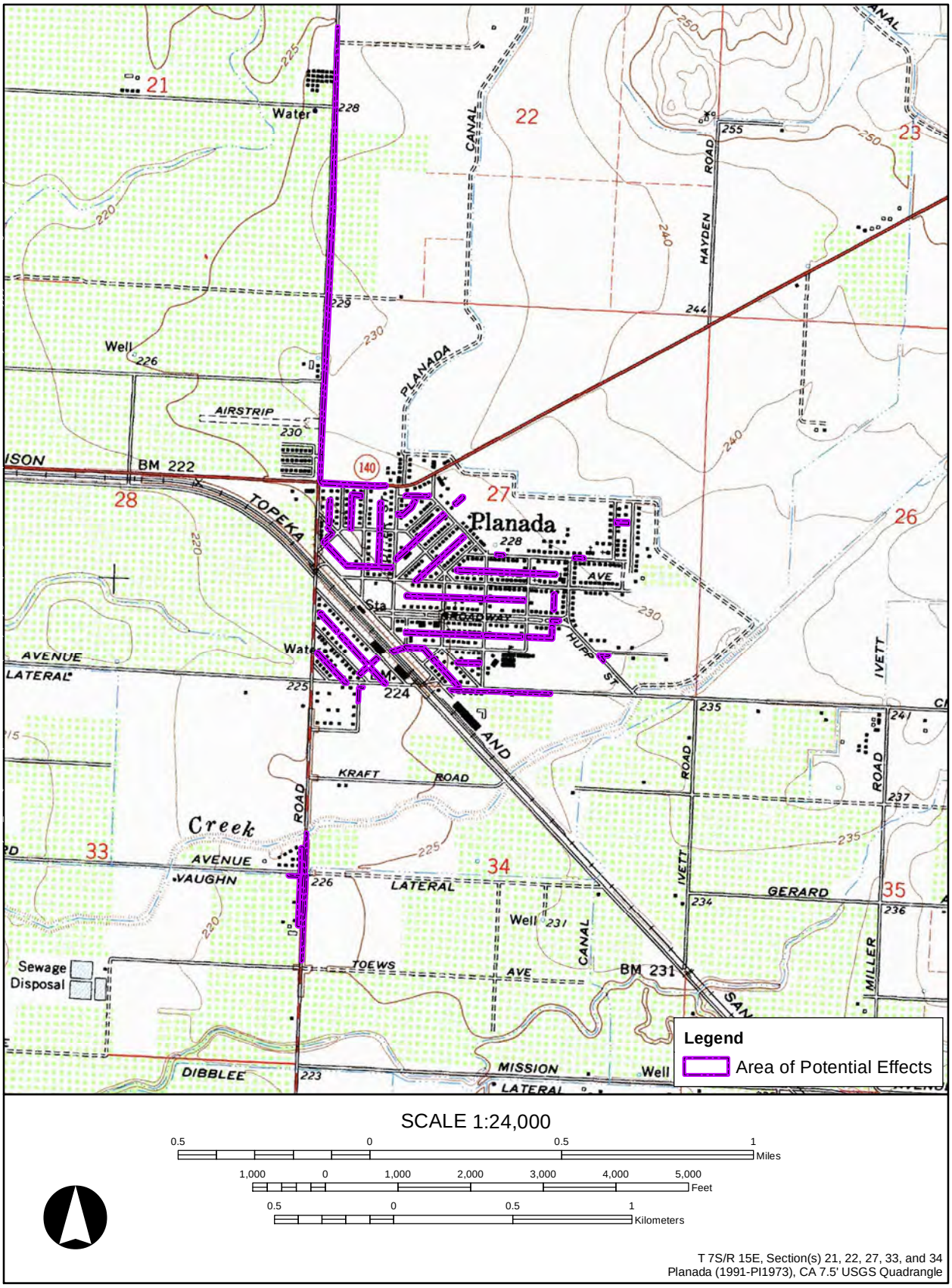


Figure 1-2 Project location on the USGS Planada, CA 7.5-minute topographic quadrangle.

Construction activities would include grubbing/land clearing, excavation/grading, subgrading, and paving. In instances where excavation is required, the trench would be 3–4 feet wide with a total 20-foot-wide activity footprint related to staging and temporary soil stockpiling. There will be a temporary construction staging area within the fenced wastewater treatment plant compound. Other small and short-duration staging areas, if needed, would occur on paved areas adjacent to pipeline work.

1.2 TERMINOLOGY

For the purposes of this report, a cultural resource is defined as a prehistoric or historical archaeological site, or a historical building, structure, or object. Consistent with 36 CFR 60.3, the term "historical" applies to archaeological artifacts and features as well as buildings, structures, or objects that are 50 years old or older. Exception to the 50-year criterion is rare but does occur (National Park Service 2002). The importance or significance of a cultural resource depends on whether it qualifies at the federal level for inclusion in the National Register of Historic Places (NRHP) or at the state or local level for inclusion in the California Register of Historical Resources (CRHR). Cultural resources determined eligible for inclusion in the NRHP are termed "historic properties," while those eligible for inclusion in the CRHR are called "historical resources" (36 CFR 800.16[l]; California Code of Regulations [CCR] 15064.5[a]). Under both statutes, the determination of eligibility for the NRHP or CRHR is based in part on the consideration of significance criteria as defined in 36 CFR 60.4 and 14 CCR 15064.5(a)(3), respectively.

To assist the CSD with its compliance efforts, and under subcontract to QK Inc., Æ completed a cultural resource inventory to identify potential historic properties and historical resources within the Project's Area of Potential Effects (APE). The APE is a three-dimensional geographic area within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, should they exist. The Project APE includes 27 acres that encompass all areas proposed for installation of project components as described in Section 1.1 (Figure 1-3). Project ground disturbance will not exceed a depth of 7 feet below the ground surface with a maximum vertical height not to exceed ground surface level.

1.3 PROFESSIONAL QUALIFICATIONS

Æ Senior Archaeologist Diana T. Dyste (M.A.), a Registered Professional Archaeologist (RPA 39362477), served as Project manager, providing technical and administrative oversight for all aspects of the Project. Dyste meets the Secretary of the Interior's Professional Qualification Standards in Archaeology and Ethnography. She co-authored this report with Staff Archaeologists Ward Stanley (B.A.) and Jessica Jones (B.A.). Stanley performed the pedestrian survey while Jones served as lead author of this report and prepared all GIS data, maps, and report graphics. Résumés for key personnel are provided in Appendix A.

1.4 REPORT STRUCTURE

This technical report has been prepared following the California Office of Historic Preservation (1990) standards outlined in *Archaeological Resource Management Reports (ARMR): Recommended Contents and Format* and fulfills the compliance requirements for NHPA Section

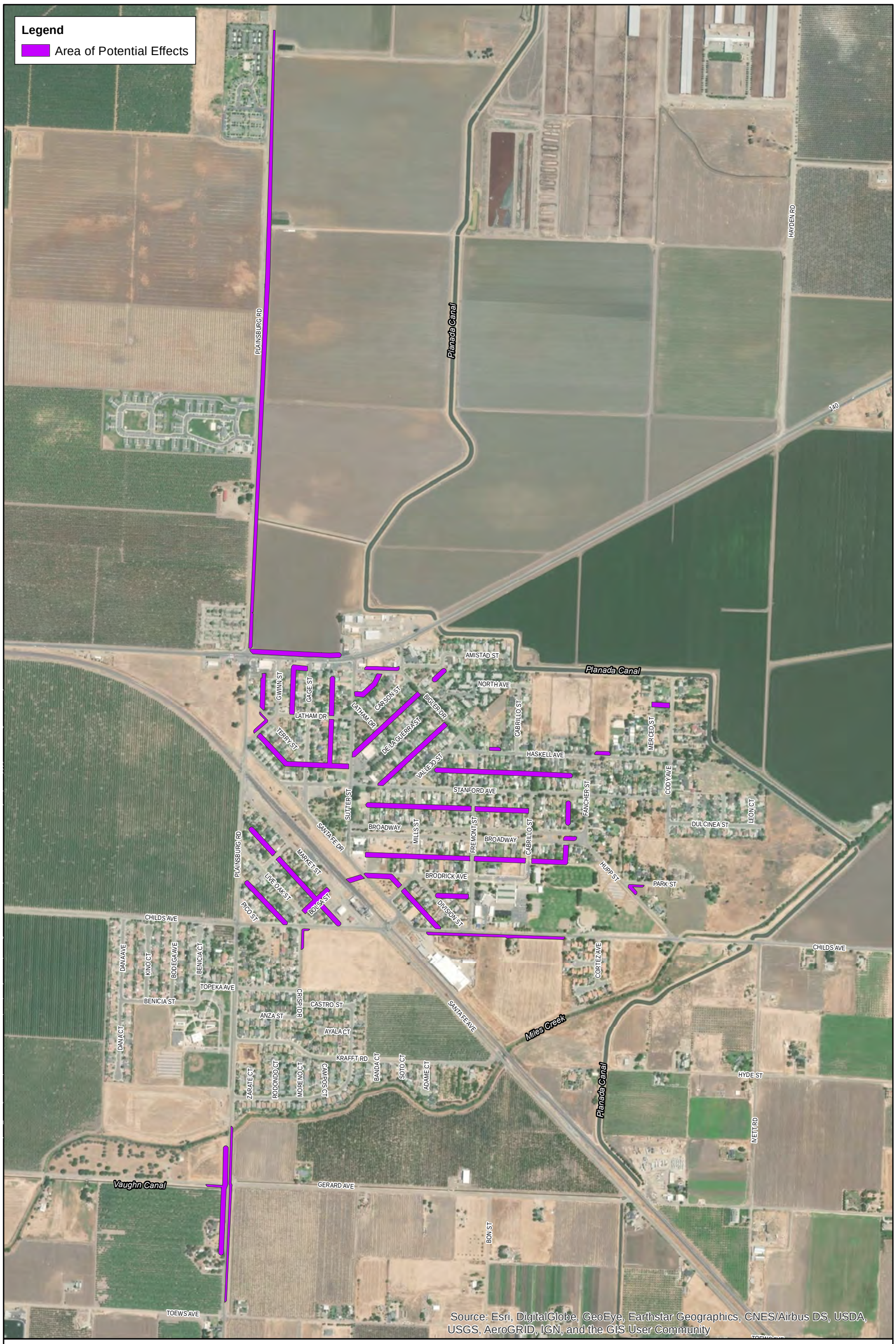


Figure 1-3 Aerial view of the APE.

106 as outlined by the SWRCB in *Overview of Section 106 of the National Historic Preservation Act Reporting Process for Drinking Water and Clean Water State Revolving Fund Applicants*.

Following this introduction, Chapter 2 describes the natural environment and provides a prehistoric and ethnographic overview for the APE and surrounding vicinity. Chapter 3 details the methods used for the records search, archival research, Native American outreach, and archaeological and built environment survey. Findings from *Æ*'s inventory are presented in Chapter 4, while Chapter 5 summarizes the study, discusses potential impacts, and provides management recommendations. A complete list of references cited is provided in Chapter 6. Appended to the report are the résumés of key personnel (Appendix A), the records search results (Appendix B), *Æ*'s nongovernmental Native American outreach (Appendix C), and California Department of Parks and Recreation (DPR) 523 series record forms for the newly recorded built environment resources (Appendix D).

2
BACKGROUND

2.1 ENVIRONMENTAL SETTING

The Project is in the San Joaquin Valley, the southern half of an elongated trough known as the Central Valley. The Central Valley is a 50-mile-wide lowland that extends approximately 450 miles south from the Cascade Range to the Tehachapi Mountains. The Central Valley is divided by two prominent hydrologic features, the Sacramento and San Joaquin rivers that drain into the San Francisco Bay. Between the Mesozoic and Cenozoic eras, the Central Valley served as a shallow marine embayment containing numerous lakes, primarily within the San Joaquin Valley (Norris and Webb 1990:412). As a result, the upper levels of the Central Valley floor are composed of deep alluvium and flood material. Below these strata are layers of marine and nonmarine rocks, including claystone, sandstone, shale, basalt, andesite, and serpentine. Waters began to diminish approximately 10 million years ago, eventually dwindling to the drainages, tributaries, and small lakes that characterized much of the Holocene Epoch (Hill 1984:28).

The San Joaquin Valley comprises two distinct hydrologic regions: the San Joaquin River and Tulare Basin (Department of Water Resources 2003). The San Joaquin hydrologic region is drained by the San Joaquin River. Before historic drainage projects and modern reclamation efforts, seasonal flooding produced extensive wetlands. Lakes, marshes, and sloughs once covered more than 5,000 square kilometers in the San Joaquin Valley (Moratto 1984:168). Riparian land within and surrounding the APE once provided rich habitat for plants and animals during prehistory and into the historic period. Common native plants included white, blue, and live oak (*Quercus* spp.) as well as walnut (*Juglans* sp.), cottonwood (*Populus fremontii*), willow (*Salix* sp.), and tule (*Schoenoplectus* sp.), especially hardstem bulrush (*Scirpus acutus*). Also prominent is cattail (*Typha* sp.) and various grasses, forbs, and sedges. A variety of animals lived in and around the Project area prior to the modern era, including mule deer (*Odocoileus hemionus*), white-tailed deer (*O. virginianus*), tule elk (*Cervus* sp.), pronghorn (*Antilocapra americana*), grizzly bears (*Ursus arctos californicus*), black bears (*U. americanus*), and mountain lions (*Puma concolor*) (Preston 1981:245–247).

Mammals commonly noted today and throughout history include the valley coyote (*Canis latrans*), bobcat (*Lynx rufus*), gray fox (*Urocyon cinereoargenteus*), kit fox (*Vulpes macrotis*), and rabbit (Leporidae). Avian species include American osprey (*Panidon* sp.), redwing blackbird (*Agelaius phoeniceus*), marsh hawk (*Circus cyaneus*), Nuttall's woodpecker (*Dryobates nuttallii*), western meadowlark (*Sturnella neglecta*), and quail (Odontophoridae). The lakes, rivers, and streams throughout the vicinity provided habitat for anadromous fish, including Chinook salmon (*Oncorhynchus tshawytscha*), white sturgeon (*Acipenser transmontanus*), Sacramento perch (*Archoplites interruptus*), and rainbow trout (*Oncorhynchus mykiss*) (Preston 1981:249). Potamodromous fish include thick-tailed chub (*Gila crassicauda*) and Sacramento sucker (*Catostomidae* sp.).

Agriculture, ranching, and damming of natural watercourses has spurred the replacement of native plants and animals with domesticated species. Urban development of the valley floor and adjacent foothill areas has further reduced available habitat for native flora and fauna. The Project area contains very few native plant and animal species because it has undergone extensive cultivation and residential development since the nineteenth century. For example, the thick-tailed chub was once a major dietary component for Native Americans in the Central Valley but is now extinct. Other native flora and fauna are extant in the Project area, albeit in exponentially smaller populations.

2.2 PREHISTORY

The San Joaquin Valley prehistoric record is among the least understood of all regions in California. Reconstruction of past cultural patterns has been stymied by two key factors: geomorphology and human activity (Dillon 2002; Siefken 1999). The valley floor that encompasses the Project area has been inundated with thick alluvial deposits resulting from granitic and sedimentary outflow from the Merced River, particularly during mass flood events. This pattern has continued for millennia and has resulted in the burial of early- to mid-Holocene archaeological sites, estimated to be buried at depths up to 10 meters along the lower stretches of the San Joaquin Valley drainage systems (Moratto 1984:214). Thus, compared to other regions in the state, there is a paucity of research and a related lack of data from which to build a complete understanding of past human behavior specific to Merced County.

In addition, archaeological sites buried in shallow deposits (i.e., less than 6 feet below the ground surface) have been heavily impacted by agricultural, transportation, and urban development since the historic period. Development has effectively removed mounds and shallow subsurface cultural deposits that once existed in great numbers across the valley floor (Rosenthal et al. 2007). Most archaeological investigations in the San Joaquin Valley have occurred at mid-elevation sites along the Tulare River and in the vicinities of Tulare and Kaweah lakes, as well as to the east in the Sierra Nevada foothills.

Nevertheless, available data for sites in valley lacustrine environs and in the Sierra foothills east of the Project area (e.g., Lloyd et al. 2011) are helpful in identifying key cultural changes within the APE and surrounding area. The summary of cultural traits presented below is based on a review of San Joaquin Valley lacustrine, riverine, and valley floor site data discussed in Rosenthal et al. (2007), and foothill site data summarized by Lloyd et al. (2011). Cultural periods and accompanying dates (given as calibrated years before present [cal B.P.]) are based on Rosenthal et al. (2007:150–159), Moratto (1984:333), McGuire and Garfinkel (1980:49–53), and Bennyhoff and Fredrickson's unpublished chronologies (Fredrickson 1973, 1974).

The Paleo-Indian Period (13,500–10,500 cal B.P.) is represented by ephemeral lacustrine sites dominated by atlatl dart and spear projectile points. The earliest evidence of distinct valley and foothill cultural patterns appears during the Lower Archaic Period (10,500–7450 B.P.). Valley sites contain crescents and stemmed projectile points and reveal the consumption of freshwater fish, waterfowl, mussels, deer, and pronghorn. In contrast, foothills sites are dominated by dense ground stone and flaked stone assemblages with a diet narrowly focused on deer, pronghorn, and presumably nuts or seeds. The Middle Archaic (7450–2500 cal B.P.) includes the Lamont Phase (5950–3150 cal B.P.), a time when semipermanent villages first appear along river banks in

tandem with larger, more established lacustrine villages. Stone tools were used in abundance, meanwhile ground stone tool kits emerged along with long-distance trade and exchange networks focused on obsidian, shell beads, and ornaments. In the foothills, lithic and dietary patterns of the Lower Archaic continued.

New cultural patterns emerged during the Upper Archaic Period (2500–850 cal B.P.), especially during the Canebrake Phase (3150–1350 cal B.P.) when a distinct shift in burial practices occurred and geographic differences in site and artifact types appeared. The Sawtooth Phase (1350–650 cal B.P.) is marked by the sudden presence of mound sites in the valley. Widespread proliferation of specialized technology is evident, including new types of bone tools, projectile points, and ceremonial objects such as wands and blades. Paleoethnobotanical studies also suggest the use of labor-intensive and seasonally abundant resources, including acorns, pine nuts, salmon, and shellfish. Similarly, the Emergent Period (850 cal B.P.–Historic Era) is marked by continued variation in settlement and burial patterns across valley and foothill regions, coupled with the disappearance of atlatl and dart tool kits that are replaced with bow-and-arrow technology (i.e., small corner-notched and Desert series projectile points) at about 650 cal B.P. Fishing tool kits expanded to include more efficient harpoons, bone fishhooks, and gorge hooks. In the Tulare Basin, pottery obtained via trade appears as well as baked clay balls used for cooking and making carved clay effigies.

2.3 ETHNOGRAPHY

The Project is in the ancestral and ethnographic territory of the Northern Valley Yokuts (Golla 2011). At the time of first contact with the Spanish missionaries, the Northern Valley, Southern Valley, Delta, and Foothill Yokuts groups, collectively inhabited the San Joaquin Valley and the western foothills of the Sierra Nevada from just north of present-day Stockton southward to the Kern River (Golla 2011; Kroeber 1976). These groups spoke a language belonging to the broader Penutian family, which subsumes a relatively diverse assemblage of languages including Miwok, Costanoan, Maiduan, Wintuan and others (Golla 2011; Silverstein 1978). Compared to other Penutian languages, however, Yokuts dialects show considerable internal linguistic homogeneity, especially given the extent of its geographic distribution. Dialects differ minimally and were mutually intelligible, at least among speakers of contiguous groups. This relative lack of linguistic differentiation suggests that ancestors of the Yokuts entered California after the arrival and subsequent radiation of the more linguistically diverse Penutian groups such as the Miwok and Costanoan (Moratto 1984:554).

The Northern Valley Yokuts inhabited the marshy regions of the upper half of the San Joaquin Valley, from just south of the Merced River to where the San Joaquin River turns north toward the Sacramento–San Joaquin Delta region (Golla 2011:149; Wallace 1978b:462). Although ethnographic literature does not identify specific tribes or ethnohistoric villages in the APE, approximately 9 miles south of the APE the Chauchela Yokuts inhabited the Chowchilla River corridor (Latta 1999:156). Only three Chauchela villages are identified in the ethnographic record, including *Shehámneu*, which is identified 7–10 miles south of the Project near the Chowchilla River (Latta 1999:157).

The San Joaquin, Merced, and Chowchilla rivers and their tributaries were critical to sustaining the lifeways of the Northern Valley Yokuts near the APE. The riparian plant communities and

flow of freshwater provided humans with a source of constant food, building materials, and avenues of travel for small watercraft. Yokuts homes were constructed of tule reeds, and villages were situated near major waterways and built on low mounds to prevent spring flooding (Cook 1960; Gifford and Schenck 1926:132; Schenck and Dawson 1929:308; Wallace 1978b:465–466). Fish provided the major source of protein. Fall and spring spawning brought abundant supplies of salmon to the inhabitants along the San Joaquin and its tributaries (Baumhoff 1963:174; Cook 1960). The Yokuts diet was supplemented by various species of fowl (e.g., geese, ducks) that were attracted to the riverine environment. The Yokuts also relied on seasonally available acorns, which were harvested from groves of valley oak, processed using mortars and pestles, and then cooked as a gruel or bread. Awls from animal bone allowed the Yokuts to create a broad range of baskets that facilitated food storage and transportation.

The Northern Valley Yokuts enjoyed a particularly good relationship with the Costanoan, from whom they acquired mussel and abalone shells. Linguistic studies have identified shared words and phrases across Delta Yokuts, Miwok, and Costanoan tribes, which suggest that social and economic ties may have existed between these groups as well (Golla 2011:154). The Chauchela Yokuts, generally regarded as fiercely territorial, maintained an agreeable relationship with the Southern Sierra Miwok tribes to the east (Latta 1999:156–157). Intermarriage between the two groups was common, especially among Chauchela living in the easternmost margins of the valley (Latta 1999:157).

As with other Indian groups in California, the lifeways of the Northern Valley Yokuts were dramatically altered as a result of contact with early Spanish explorers and missionaries, miners, ranchers, and other European immigrants who entered the San Joaquin Valley after A.D. 1800. The introduction of European culture and new diseases resulted in a drastic reduction in Yokuts population size. However, there are at least 25 fluent-speaking groups of various Yokuts dialects alive today, including speakers of the Tule-Kaweah and Yawelmani (also known as Yowlumne) who mostly reside on the Tule River Reservation near Porterville, the Choynimni (also known as Choinumne) who live throughout the Kings River region, the Tachi who live at the Santa Rosa Rancheria near Lemoore, and Chuckchansi speakers who live near the Picayune and Table Mountain rancherias northeast of Fresno. Native Americans from these tribal groups have established language and culture schools and actively participate in master-apprentice language partnerships to ensure the continuity of their cultures and languages (Golla 2011:154).

2.4 HISTORY

The first Europeans known to have ventured into the San Joaquin Valley were Spanish soldiers led by Pedro Fages, who entered the valley through Tejon Pass in 1772 (Wallace 1978a:459). Other Europeans followed in 1806 when Lieutenant Gabriel Moraga led a group of Spanish explorers into the San Joaquin Valley to locate new lands for missions (Clough and Secrest 1984:25–27). It was on this expedition that Moraga gave the Merced River its official name (*El Rio de Nuestra Señora de la Mercedes* [River of Our Lady of Mercy]) when he and his troops reached its bank after a long hot trek through the valley. The expansion of missions in California ceased by the early 1820s as a result of Mexico's independence from Spain (Clough and Secrest 1984:26), and the Mexican government granted several large tracts of land (ranchos) to individuals during the 1830s and 1840s. The region remained sparsely populated, and the arid valley climate was not conducive to dry farming. Nevertheless, the establishment of the ranchos

not only provided the legal basis for property rights for years to come but also marked the beginnings of the Central Valley's first industry—cattle ranching.

The discovery of gold in the Sierra Nevada and the accession of California to the Union were watershed events in the history of the state and county. During the late 1840s and early 1850s, prospectors from across the nation and around the world flocked to California to mine the precious ore. The first settlements in the county emerged in the foothill areas along the Merced River and included Snelling and Forelorn Hope, later renamed Hopeton (Outcalt 1925:4).

Established in 1855, Merced County was carved out of the northwest portion of Mariposa County. The first county seat was at the Turner and Osborn Ranch on Mariposa Creek but shortly moved to the Snelling Ranch, where a courthouse was constructed in 1857. Except for fertile areas along the banks of the major waterways, the Central Valley remained largely undeveloped. To the speculators that came to the Sierra Nevada from San Francisco and other western ports, the valley probably represented little more than a dry stretch of land to be traversed before reaching the gold fields to the east. The momentum of the gold rush could not be sustained, and by the early 1850s most of the miners and the merchants who relied on their patronage began to look to other pursuits. With the coming of the railroad and the advent of intensive irrigation, the focus of the county shifted from the foothills to the valley. The founding of Merced in the early 1870s coincided with the arrival of the Central Pacific Railroad (later renamed the Southern Pacific).

Beginning in the 1870s, Merced County also saw a change in its economic leadership. Cattle ranching, which boomed during the 1850s and 1860s with the influx of miners and homesteaders to the valley, gave way to agriculture, specifically wheat farming. Throughout the valley, wealthy real estate moguls were applying a similar formula, purchasing large tracts of land for subdivision, referred to as "colonies," and selling the parcels to be used for small and medium-sized farming operations. Critical to the marketing and success of these colonies was the development of a reliable water conveyance system that could transform dry soils into arable land. A network of canals soon spread across the valley floor.

2.4.1 Railroads in Merced County

Until the 1860s, transportation within central California suffered from serious geographical burdens due of the state's mountainous terrain, few roads, and limited waterways. Consequently, the transport of goods and passengers was slow, expensive, and unreliable. This resulted in the isolation of the Central Valley, which was sparsely populated (Orsi 2005). In the spring of 1872, the Southern Pacific Railroad rolled into nearby Fresno County and established a stop on San Joaquin River at Sycamore, which had previously served as a dock for steamers and ferry crossing. Although the Southern Pacific Railroad was the first company to construct a rail line through the San Joaquin Valley, in 1895 a group of wealthy San Francisco investors began to lay out a secondary rail line, the San Francisco and San Joaquin Valley Railroad. This became known as the "Valley Division" route. The Burlington Northern Santa Fe Railroad route, a standard-gauge single track line, was constructed between 1895 and the early 1900s as part of the Atchison Topeka and Santa Fe Railway Valley Division route that connected Stockton to Bakersfield (Outcalt 1925:41). The route was accompanied by a private telegraph line that served

the railroad's needs (Smallwood 2009). The tracks have been used by Amtrak since the 1970s for passengers and freight.

2.4.2 Community of Planada

First settled by a small group of Swiss dairy farmers, the community of Planada was renamed from its original Southern Pacific Railroad name of "Whitton" to "Geneva" by 1896, and then later was renamed "Planada" by Guy M. Rush of Los Angeles during a naming contest held by community members and investor J. Harvey McCarthy in 1910 (Durham 1998). On January 11, 1911, McCarthy successfully incorporated the town and named himself president. McCarthy quickly turned to renowned landscape architect Wilbur David Cook of Los Angeles to help design a town that featured a central plaza with radiating roads and a town entrance marked by a rail depot (Lim 2016). After suffering a loss of trust due to infrastructural overspending, McCarthy lost his position as president and failed to further develop the community (Lim 2016). The community today is dominated by the agricultural industry and features a bank, school system, library, water system, chamber of commerce, and several stores in addition to a moderately sized residential area.

2.4.3 Merced Irrigation District

Emerging from the aggregation of various irrigation canals and ditches that were privately constructed between 1870 and 1922, the Merced Irrigation District (MID) formed as a public entity in 1919 (McSwain 1978). The MID quickly became the leading irrigation district in Merced County and was providing irrigation for roughly 180,000 acres of farmland by 1920 (McSwain 1978). Designed as a publicly owned company, the MID operated through the collection of taxes from landowners. Taxes were based on the crop type and acreage size. Ditch tenders were employed by the MID to maintain laterals and help reduce the frequency of conflicts between agricultural landowners. Plans for a dam began in 1921, and by 1927 the New Exchequer Dam was constructed on the Merced River with fully operational hydroelectric power facilities. Excess generated power was sold to San Joaquin Power and Light, providing another source of income for the company. Unfortunately for the MID, between the months of October and March the reservoir would remain empty, thus stopping the sale of excess hydroelectric power. Additionally, hydroelectric revenues dropped during a drought occurring between 1928 and 1932. The result was catastrophic for the MID, and by 1932 the district filed for bankruptcy. Through federal loans and Roosevelt's New Deal plan, the MID regained economic stability, and by 1930 the company was once again operational (Dice 2010). From 1935 to 1937 the MID gained access to funding through the New Deal's Reconstruction Finance Corporation, which allowed MID to line canals and laterals throughout its system. Today, the MID continues to manage a 1,000-square-mile watershed and provide energy services to residents of Merced County. The MID encompasses the APE, including one historic-era segment of the Vaughn Canal.

3
METHODS

3.1 RECORDS SEARCH

On November 21, 2018, Æ requested a records search from the Central California Information Center (CCIC) of the California Historical Resources Information System (CHRIS) at California State University, Stanislaus. The records search encompassed the Project APE as well as a 0.5-mile surrounding area. CCIC staff examined site records, files, maps, and other materials to identify previously recorded resources and prior surveys. Other background research sources included the OHP Historic Property Directory and California Inventory of Historical Resources; historical maps on file at the CCIC; and General Land Office and/or rancho plat maps (Appendix B).

3.2 ARCHIVAL RESEARCH

Æ conducted archival research to better understand the potential for historical deposits or built environment properties to exist within the Project APE. Æ used historical maps to identify areas within the APE where extant historic-aged buildings, structures, or objects might be present, or where archaeological deposits related to historic occupation of the area might exist. In addition, resources from Æ's in-house library and online data gathered via the Map Aerial Locator Tool (MALT) at the Henry Madden Library, California State University, Fresno, were utilized for preparation of Chapter 2 and cultural resource record forms in Appendix D.

3.3 NATIVE AMERICAN OUTREACH

On November 21, 2018, Æ sent an e-mail to the Native American Heritage Commission (NAHC) requesting a search of its Sacred Lands File and the contact information for local Native American tribal representatives who may have an interest in sharing information about the APE and surrounding area. The NAHC responded on December 4, 2018, with its findings and provided a list of Native American tribal representatives who had cultural affiliation with the Project area. Æ sent a letter describing the Project to each tribal representative asking for input regarding cultural resources in the APE. Tribal outreach letters were sent via the U.S. Postal Service on December 28, 2018. Sending information request letters and recording tribal responses are part of Æ's standard tribal outreach best practices for inventory reports. Tribal outreach is not intended to fulfill NHPA Section 106 or Assembly Bill (AB) 52 government-to-government Native American tribal consultation requirements. A record of correspondence with the NAHC and tribal contacts is included in Appendix C.

3.4 BURIED SITE SENSITIVITY ASSESSMENT

Æ conducted a geologic review of the APE to identify the potential for buried cultural resources. Sources consulted include geological maps, historical maps, geologic/sediment databases, geoarchaeological studies, and soil surveys for the APE. These sources provided information regarding the natural watercourses in the area as well as data about local soils and sediments,

parent rock formations, and historical vegetation. This information was used to estimate the age of the sediments surrounding the APE; consider the hydrologic and geologic forces that created and placed these sediments; consider the effects of soil salinity and alkalinity (pH level); and identify local historical disturbance of soils within the APE.

3.5 PEDESTRIAN SURVEY

On December 28 and 31, 2018, *Æ* Staff Archaeologist Ward Stanley conducted an archaeological and built environment survey of the 27-acre APE. Stanley surveyed the APE for prehistoric and historical cultural material as well as buildings, objects, or structures using parallel and meandering transects spaced no more than 5–10 meters apart. Private residential property and areas paved with concrete or asphalt were not subject to inspection. Stanley took photographs to document surface conditions within the APE using an Olympus TG-870 digital camera. He completed a photograph log and documented the presence or absence of cultural materials within the APE and other relevant information on a Survey Field Record. One cultural resource (P-24-001909) was identified and recorded on California DPR 523 Primary and Linear Feature Record forms (Appendix D). All photographs and field notes are on file at *Æ*'s office in Fresno, California.

4
FINDINGS

4.1 RECORDS SEARCH

On November 30, 2018, the CCIC responded to *Æ*'s records search request (Records Search File No. 10913I). The CCIC identified two previous investigations (ME-03628 and ME-08885) conducted within the APE and 18 investigations within a 0.5-mile radius of the APE (see Appendix B). The CCIC noted that the APE is within the historic-era MID (P-24-001909). Although no previously recorded contributing elements to the MID exist within the APE, the CHRIS recommended recording a segment of the Vaughn Canal that is in the APE. The MID was recommended eligible for inclusion in the NRHP by Dice and Lord (2010); however, subsequent review of Dice and Lord's evaluation resulted in a recommendation for further study and reevaluation as a potential historical district (ACE Environmental 2011).

Five cultural resources (P-24-000411, -000609, -001879, -001881, and -001909) were identified within the CSD boundary but are not in the APE. These include historic-era concrete foundations, a segment of the Planada Canal, the location of the former Planada Atchison Topeka Santa Fe Railroad station, a segment of the Burlington Northern Santa Fe Railroad track, and the Merced Irrigation District, respectfully. An additional three historic-era cultural resources are recorded in the surrounding 0.5-mile area outside the CSD boundary. Finally, the U.S. Department of Housing and Urban Development reported the addresses of 17 unrecorded historic-era buildings and structures in the surrounding 0.5-mile area to the CCIC but provided no documentation of these built environment resources.

4.2 NATIVE AMERICAN OUTREACH

In its December 4, 2018 response to *Æ*'s request, the NAHC stated that its search of the Sacred Lands File did not indicate the presence of places of tribal significance in the APE or surrounding 0.5-mile area (see Appendix C). The NAHC provided a list of tribal representatives and recommended communication with tribes to identify the location of any tribally important places in the APE and surrounding 0.5-mile area. Tribal representatives contacted include:

- Chairperson Valentin Lopez of the Amah Mutsun Tribal Band;
- Chairperson Robert Ledger Sr. of the Dumna Wo-Wah Tribal Government;
- Chairperson Katherine Erolinda Perez of the North Valley Yokuts Tribe; and
- Chairperson Bill Leonard of the Southern Sierra Miwuk Nation.

On December 28, 2018, *Æ* sent a letter to each tribal representative describing the Project and requesting information about tribally important places. Follow-up contact by e-mail and telephone was conducted on January 24, 2019. Chairperson Valentin Lopez of the Amah Mutsun Tribal Band responded by telephone stating that the Project is outside the band's tribal territory

and that, consequently, he has no additional information to provide. No responses from other tribal representatives have been received to date.

4.3 BURIED SITE SENSITIVITY ASSESSMENT

This section assesses the potential for intact buried archaeological deposits (primarily prehistoric deposits) within the vertical APE (not to exceed 7 feet below surface) and identifies the conditions affecting preservation of cultural materials, should any exist. Determining the general sensitivity for the presence of buried archaeological sites can be gauged by various factors, including the APE's distance from water, age of geological deposits, landform, ground slope, and soil types present (Rapp and Hill 2006; Waters 1992).

The potential for buried prehistoric resources increases greatly when water is in proximity. The major water sources closest to the APE are Miles Creek, located a 0.5 mile south of the community of Planada and cutting through the APE along a westerly trend across Plainsburg Road; Bear Creek, located less than 2 miles north and northwest of the APE; the Chowchilla River, approximately 10 miles south of the APE; and the Merced River, approximately 15 miles north of the APE. The proximity to and abundance of water sources prior to the channelization of natural watercourses during the historic period indicates greater potential for the presence of prehistoric cultural deposits but also suggests that such deposits are buried beneath deep alluvial strata. Smaller ephemeral freshwater sources, such as Miles and Bear creeks, likely drew people to the area in prehistory for hunting and gathering activities as well as short- and long-term settlement, especially near riparian zones.

Geologically, the APE is underlain by Tertiary (66–2.5 million years) and Quaternary (2.5 million years–present) deposits (Department of Water Resources 2004:2). The APE lies within the San Joaquin River Hydrologic Region, San Joaquin Valley Groundwater Basin, Merced Groundwater Subbasin (MGS). This subbasin contains older and younger alluvial deposits derived from igneous, sedimentary, and metamorphic parent material dating from the middle to late Pleistocene (approximately 50,000–11,500 cal B.P.) and Holocene age (11,500 cal B.P.–present) (High Speed Rail Authority 2011; Meyer et al. 2010:32, 41). Radiocarbon studies of Pleistocene deposits associated with the Merced River demonstrate that such sites are often capped by deep alluvial sediments dating to the Holocene. Depositional events do not appear to be associated with Tioga glacial advances. Instead archaeological sites of this time period were subject to burial from gradual sediment deposition through time resulting from mass flood events and the incremental effects of wind, rain, and soil freeze/thaw patterns across millennia (Meyer et al. 2010; Rapp and Hill 2006).

The APE is on a floodplain on an alluvial fan with old stream terraces near watercourses (High Speed Rail Authority 2011). The area is relatively flat as a result of human modification and has an approximate 0–15 percent slope (High Speed Rail Authority 2011; Soil Survey Staff 1997a, 1997b, 1997c, 2003a, 2003b). The Marguerite soil series dominates the APE and consists of marguerite silty clay loam (Soil Survey Staff 2019). Secondary soil types in the APE are located along Plainsburg Road and include Honcut silty clay loam, Landlow clay, Porterville clay, Wyman clay, and Yokohl loam (Soil Survey Staff 1997a, 1997b, 1997c, 2003a, 2003b). The Marguerite series is recorded to a maximum depth of 80 inches and is characterized as a silty clay loam that increases in clay content with depth. The duripan occurs below 80 inches. In general, all soils within the APE are classified as slightly acidic to slightly alkaline with pH

levels between 6.5 and 8.5. All soils are deep and well drained with a slow to moderately slow runoff. Permeability is moderate to slow across the APE. Together these soil characteristics make the area a prime landscape for agricultural practices and infrastructural development. Soils are nonsaline to very slightly saline (0–2 millimhos per centimeter).

Activities that can cause total or partial destruction of archaeological deposits include natural disaster such as mass flooding or earthquakes, bioturbation caused by ground-dwelling animals, and human activity such as infrastructural development or agricultural activities (e.g., plowing or using a disc cultivator). Farmers over the last century significantly modified soils in the APE, both through mechanical disturbance and chemical additives that have been utilized to increase rooting depth of agricultural crops and water infiltration into the soil. This may include leveling the soil mechanically followed by deep ripping to break up the clay and duripan horizons. All these actions can result in partial to complete loss of archaeological data in primary context along the vertical or horizontal axis.

Neutral and alkaline soils (pH 7 and higher) with low salinity tend to preserve all classes of archaeological materials, whereas acidic soils (pH 0–6) or well-drained soils with high saline content typically accelerate decomposition of organic materials and metal artifacts (Kibblewhite et al. 2015). Acidic soils with high to very high drainage often deteriorate and severely fragment bone and can fully dissolve organic materials such as basketry or cordage. In addition, long-term use of insecticides and fungicides, which is common in agricultural fields, intensifies the chemical breakdown of bone, shell, and other organic cultural deposits (Kibblewhite et al. 2015).

In general, given that the Project lies in proximity to several creeks and rivers, and is situated on older alluvial fans or along old stream terraces, there is moderate to high potential that prehistoric archaeological materials would be found deeply buried within the vertical APE. If prehistoric cultural materials were to exist, the available data about the local geology and sedimentology, along with the fact that much of the APE has been subject to infrastructural development and improvement for the past 100 years, suggests poor preservation within the zone of impact (0–6 feet below the ground surface). In addition, deep well-drained soils with slow runoff likely have created conditions that allow for the moderate to rapid decay of organic cultural material below the ground surface. Because Planada does not experience cycles of freezing and thawing, which would otherwise cause ceramic, lithic, and ground stone artifacts to shift significantly along a horizontal axis, it is expected that these artifacts types, if present, would retain primary horizontal context (Rapp and Hill 2006). That being said, the likelihood of discovering intact buried archaeological deposits between 0 and 6 feet below surface is extremely low.

4.4 PEDESTRIAN SURVEY

Æ's field technician surveyed the APE for archaeological and built environment resources on December 28 and 31, 2018 (Figures 4-1–4-3). The 27-acre APE includes discontiguous segments of the 28,867-foot-long CSD system corridors that are 50 feet (15 meters) wide, consisting of road shoulders, the edges of agricultural fields, unpaved two-track alleys, and empty lots. Ground visibility along unpaved road shoulders and edges of agricultural fields was good (Figure 4-4). Visibility was fair (approximately 50 percent) along unnamed alleys and in agricultural fields where it was compromised by grass and vegetation (Figure 4-5). Ground

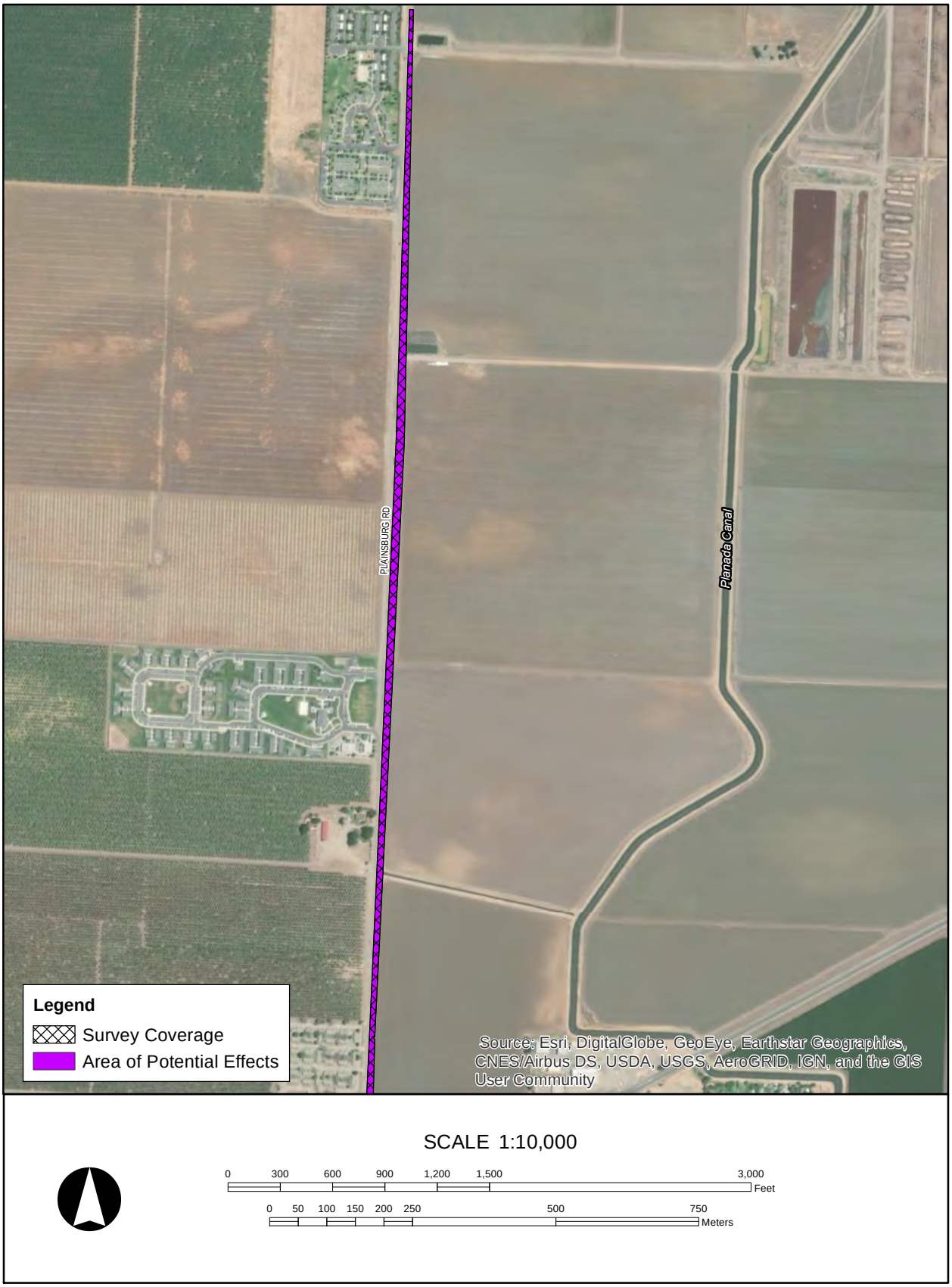


Figure 4-1 Survey coverage along Plainsburg Road.

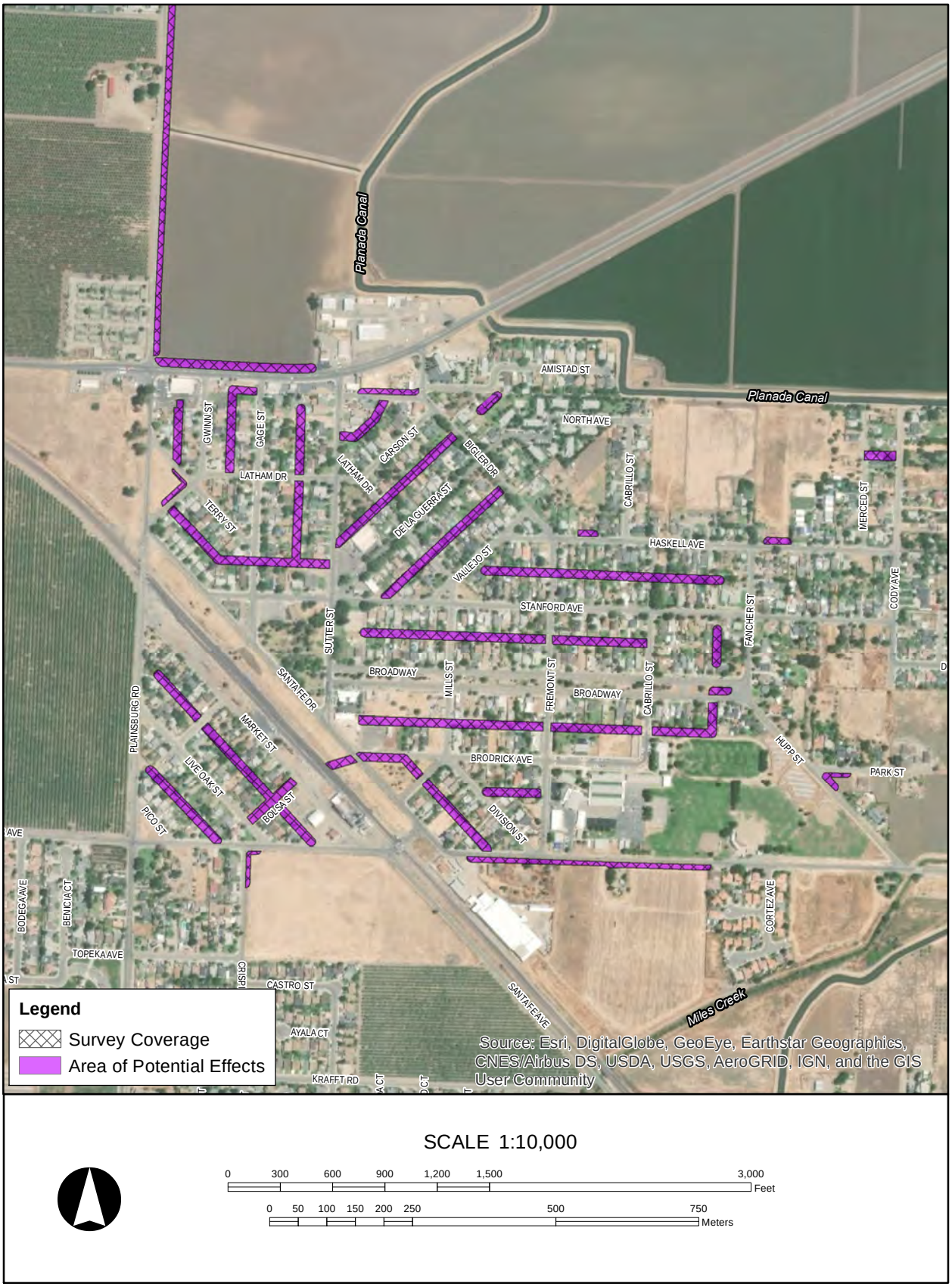


Figure 4-2 Survey coverage in the community of Planada.

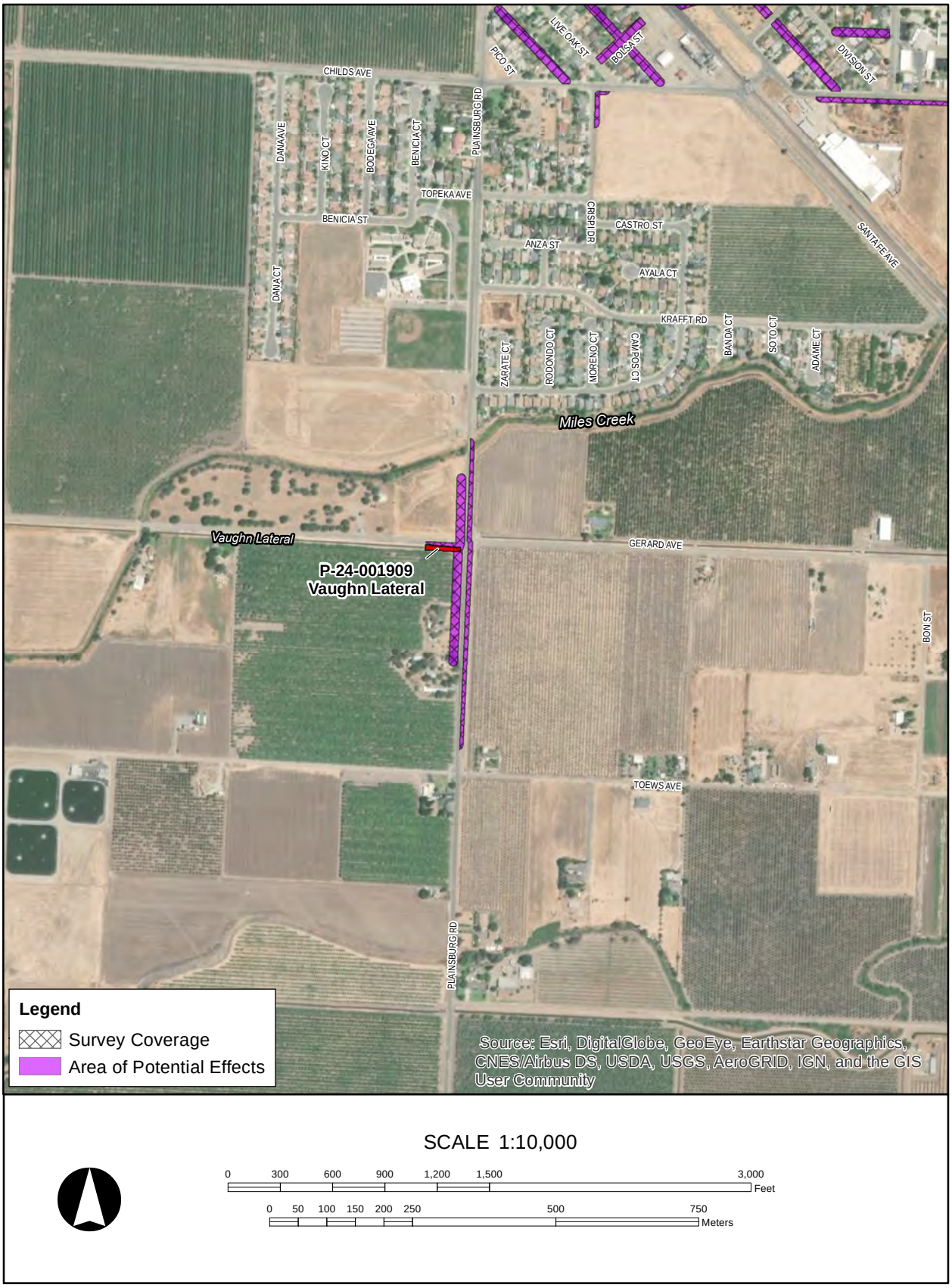


Figure 4-3 Survey coverage south of the community of Planada along Plainsburg Road.



Figure 4-4 Survey conditions showing good visibility, looking west.



Figure 4-5 Survey conditions showing fair visibility, looking northeast.

visibility was poorest (10–20 percent) within vacant lots and adjacent to railroad grades due to complete grass cover (Figure 4-6). Æ did not survey road shoulders, roads, or sidewalks covered in pavement or concrete where ground visibility was completely obscured. In addition, Æ did not survey privately owned property between Amistad Street and Bigler Drive.



Figure 4-6 Survey conditions showing poor visibility, looking east.

A previously recorded segment of the Burlington Northern Santa Fe Railroad (P-24-001881) was observed outside the APE but adjacent to one survey corridor at the southern end of the APE (Figure 4-2). A segment of the MID Vaughn Canal Lateral within the APE was identified and recorded (Figure 4-3). The recorded segment is a lateral off the Vaughn Canal that runs east to west. The 200-foot-long recorded segment of the lateral is at the southwest corner of Plainsburg Road and Gerard Avenue. Æ observed a 4-foot-diameter galvanized culvert at its east end that serves to transport water underneath Plainsburg Road. The concrete-lined canal has a maximum top width of 42 feet bank to bank. The canal was filled with water at the time of recording, which prevented accurate measurement of its depth. Two levees present on either side of the canal are 12 feet wide and 3 feet tall. Æ did not observe additional features along the recorded segment or formal access roads, although tracks from 4 by 4 all-terrain vehicles were noted. The Vaughn Canal Lateral is part of the previously recorded MID; thus, Æ updated the existing site record for P-24-001909 to record its location within the APE.

No other cultural resources (e.g., archaeological sites, features, isolated artifacts, historic-era buildings or structures) were identified within the APE.

5
SUMMARY AND CONCLUSIONS

Æ performed a historic properties inventory for the Planada CSD Sewer Collection System Repair Project in Merced County. The CSD proposes to repair an aging sewer system by installing a new sewer line parallel to the existing line. As a subconsultant to QK Inc., Æ conducted a cultural resource inventory of the APE to determine if archaeological or historical built environment cultural resources are present within the Project APE. Accordingly, Æ performed background research, obtained a records search from the CCIC of the CHRIS, requested a search of the NAHC Sacred Lands File, contacted local tribal representatives, assessed the sensitivity of the APE for buried cultural resources, and conducted an intensive pedestrian archaeological and built environment survey of the APE.

The CCIC reported two prior cultural studies in the APE and 18 within the surrounding 0.5-mile area. The search revealed that the APE is within the historic-era MID boundary but did not identify previously recorded segments of the MID or other cultural resources within the APE. Five previously recorded cultural resources within the CSD boundary and three other cultural resources were noted in the surrounding 0.5-mile area. The locations of an additional 17 historic-aged buildings and structures have been reported to the CHRIS but lack further documentation; all 17 cultural resources are in the surrounding 0.5-mile area (see Appendix B). No other cultural or tribal resources were identified in the APE as a result of the NAHC Sacred Lands File search. Æ's buried site sensitivity assessment revealed that there is a low probability of encountering well-preserved cultural deposits in a primary context within the APE.

A segment of the Vaughn Canal, a component of the MID, is present in the APE. Project activities are not planned for the immediate area below, above, or adjacent to the Vaughn Canal, and therefore a CRHR or NRHP eligibility evaluation of the canal was not completed as part of this study.

Consistent with state and federal statutes and regulations, Æ recommends that in the event of discovery of archaeological remains during Project development or ground-disturbing activities in the APE, all work within 50 feet of the find should be halted until a qualified archaeologist can identify the discovery and assess its significance. In addition, if human remains are uncovered during construction, the Merced County Coroner is to be notified to investigate the remains and arrange proper treatment and disposition. If the remains are identified on the basis of archaeological context, age, cultural associations, or biological traits to be those of a Native American, California Health and Safety Code 7050.5 requires that the coroner notify the NAHC within 24 hours of discovery. The NAHC will then identify the Most Likely Descendent, who will be afforded the opportunity to recommend means for treatment of the human remains following guidelines set forth in California PRC 5097.98.

6
REFERENCES

ACE Environmental, LLC

2011 *Cultural Resource Records Search and Site Survey, Vista Tower Site, Livingston High School, 1617 Main Street, Livingston, Merced County, California.* On file, California Historical Resources Information System, Southern San Joaquin Valley Information Center, California State University, Bakersfield.

Baumhoff, Martin A.

1963 Ecological Determinants of Aboriginal California Populations. *University of California Publications in American Archaeology and Ethnology* 49(2):155–236. Berkeley.

Clough, Charles W., and William B. Secrest Jr.

1984 *Fresno County, the Pioneer Years: From the Beginnings to 1900,* edited by Bobbye Sisk Temple. Panorama West Books, Fresno, California.

Cook, Sherburne F.

1960 Colonial Expeditions to the Interior of California: Central Valley, 1800–1820. *University of California Anthropological Records* 16(6):239–292. Berkeley.

Department of Water Resources

2003 *California's Groundwater* (Update). Electronic document, https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/Groundwater-Management/Bulletin-118/Files/Statewide-Reports/Bulletin_118_Update_2003.pdf. Department of Water Resources Bulletin 118.

2004 San Joaquin Valley Groundwater Basin, Merced Subbasin. Electronic document, file:///H:/QK%20Inc%20(Quad%20Knopf)/3972%20Planada%20Water/Report/Background%20Research/B118_2003_BasinDescription_5_022_04.pdf, accessed February 12, 2018. Department of Water Resources Bulletin 118.

Dice, Michael H.

2010 *National Register of Historic Places Evaluation of P# 24-001909.* Michael Brandman Associates, San Bernardino, California. Prepared for the City of Merced.

Dice, Michael, and K. Lord

2010 *Section 106 Cultural Resource Impact Analysis for the McCoy Lateral and Garibaldi Lateral Project, Merced Irrigation District, County of Merced, California.* Draft. Michael Brandman Associates, San Bernardino, California.

Dillon, Brian D.

2002 California Paleoindians: Lack of Evidence, or Evidence of Lack? In *Essays in California Archaeology: A Memorial to Franklin Fenenga,* edited by William J.

Wallace and Frances A. Riddell, pp. 110–128. Contributions of the University of California Archaeological Research Facility No. 60. Berkeley.

Durham, David L.
1998 *California's Geographic Names: A Gazetteer of Historic and Modern Names of the State*. Word Dancer Press, Clovis, California.

Fredrickson, David A.
1973 *Early Cultures of the North Coast Ranges, California.* Ph.D. dissertation, Department of Anthropology, University of California, Davis.

1974 Cultural Diversity in Early Central California: A View from the North Coast Ranges. *Journal of California Anthropology* 1(1):41–53.

Gifford, Edward W., and W. Egbert Schenck
1926 Archaeology of the Southern San Joaquin Valley, California. *University of California Publications in American Archaeology and Ethnology* 23(1):1–122.

Golla, Victor
2011 Yokuts. In *California Indian Languages,* pp. 147–248. University of California Press, Berkeley and Los Angeles.

High Speed Rail Authority
2011 *Final Environmental Impact Report/Statement: Merced to Fresno*, https://www.hsr.ca.gov/Programs/Environmental_Planning/final_merced_fresno.html, accessed February 12, 2019.

Hill, Mary
1984 *California Landscape.* California Natural History Guide 48. University of California Press, Berkeley.

Kibblewhite, Mark, Gergely Tóth, and Tamás Hermann
2015 Predicting the Preservation of Cultural Artefacts and Buried Materials in the Soil. *Science of the Total Environment* 529:249–263.

Kroeber, Alfred L.
1976 *Handbook of the Indians of California.* Dover, New York. Originally published 1925, Bureau of American Ethnology Bulletin 78, Smithsonian Institution, Washington, D.C.

Latta, Frank F.
1999 *Handbook of Yokuts Indians*. 50th anniversary ed. Brewer's Historical Press, Exeter, California, and Coyote Press, Salinas, California.

Lim, Sarah
2019 *Looking Back at When All Roads Ran to Planada*, https://www.mercedsunstar.com/living/liv-columns-blogs/sarah-lim-museum-notes/article69468237.html, accessed January 28, 2019. Merced Sun-Star.

Lloyd, Jay B., Mary Clark Baloian, Douglas R. Harro, and Rebecca L. McKim
2011 *Archaeological Testing and National Register of Historic Places Eligibility Evaluation of CA-TUL-1400/2025/2066 (FS 05-13-52-0013/33/184), Upper Coffee Camp Recreation Site, Western Divide Ranger District, Sequoia National Forest, Tulare County, California.* Applied EarthWorks, Inc., Fresno, California. Submitted to USDA Forest Service, Sequoia National Forest, Porterville, California.

McGuire, Kelly R., and Alan P. Garfinkel
1980 *Archaeological Investigation in the Southern Sierra Nevada: The Bear Mountain Segment of the Pacific Crest Trail.* U.S. Bureau of Land Management, Cultural Resources Publications, Bakersfield, California.

McSwain, Kenneth R.
1978 *History of the Merced Irrigation District*. Merced Irrigation District, Merced, California.

Meyer, Jack, D. Craig Young, and Jeffery S. Rosenthal
2010 *A Geoarchaeological Overview and Assessment of Caltrans Districts 6 and 9: Cultural Resources Inventory of Caltrans District 6/9 Rural Conventional Highways*. EA 06-0A7408. Far Western Anthropological Research Group, Inc., Davis, California. Submitted to California Department of Transportation, District 6, Fresno.

Moratto, Michael J.
1984 *California Archaeology.* Academic Press, Orlando, Florida.

National Park Service
2002 *How to Apply the National Register Criteria for Evaluation.* Revised for the Internet, http://www.cr.nps.gov/nr/publications/bulletins/nrb15/. National Register Bulletin 15. U.S. Department of the Interior, National Park Service, Cultural Resources Division, Washington, D.C.

Norris, Robert M., and Robert W. Webb
1990 *Geology of California.* 2nd ed. John Wiley & Sons, New York.

Office of Historic Preservation
1990 *Archaeological Resource Management Reports (ARMR): Recommended Contents and Format.* Electronic document, http://ohp.parks.ca.gov/pages/1054/files/armr.pdf, accessed September 15, 2016. California Department of Parks and Recreation, Office of Historic Preservation, Sacramento.

Orsi, Richard J.
2005 *Sunset Limited: The Southern Pacific Railroad and the Development of the American West, 1850–1930.* University of California Press, Berkeley.

Outcalt, John
1925 *History of Merced County, California.* Historic Record Company, Los Angeles.

Preston, William L.
1981 *Vanishing Landscapes: Land and Life in the Tulare Lake Basin.* University of California Press, Berkeley.

Rapp, George, and Christopher L. Hill
2006 Sediments, Soils, and Environmental Interpretations. In *Geoarchaeology: The Earth Science Approach to Archaeological Interpretation.* 2nd ed. Yale University Press, New Haven and London.

Rosenthal, Jeffrey S., Gregory G. White, and Mark Q. Sutton
2007 The Central Valley: A View from the Catbird's Seat. In *California Prehistory: Colonization, Culture, and Complexity,* edited by Terry L. Jones and Kathryn A. Klar, pp. 147–163. AltaMira Press, Lanham, Maryland.

Schenck, W. E., and E. J. Dawson
1929 Archaeology of the Northern San Joaquin Valley. Berkeley: University of California Publications in American Archaeology and Ethnology 25(4):289-413.

Siefken, N.
1999 *Archaeological of the Redtfeldt Mound (CA-KIN-66), Tulare Basin, California.* Master's thesis, Department of Sociology and Anthropology, California State University, Bakersfield.

Silverstein, Michael
1978 Yokuts: Introduction. In *California,* edited by Robert F. Heizer, pp. 446–447. Handbook of North American Indians, Vol. 8, William C. Sturtevant, general editor. Smithsonian Institution, Washington, D.C.

Smallwood, Josh
2009 P#24-001881 Cultural Site Record. On file, California Historical Resources Information System, Southern San Joaquin Valley Information Center, California State University, Bakersfield.

Soil Survey Staff
1997a Official Soil Series Description: Landlow Series, https://soilseries.sc.egov.usda.gov/OSD_Docs/L/LANDLOW.html accessed February 10, 2019. U.S. Department of Agriculture, Natural Resources Conservation Service, National Cooperative Soil Survey.

1997b Official Soil Series Description: Porterville Series, https://soilseries.sc.egov.usda.gov/OSD_Docs/P/PORTERVILLE.html, accessed February 10, 2019. U.S. Department of Agriculture, Natural Resources Conservation Service, National Cooperative Soil Survey.

1997c Official Soil Series Description: Yokohl Series, https://soilseries.sc.egov.usda.gov/OSD_Docs/Y/YOKOHL.html February 10, 2019. U.S. Department of Agriculture, Natural Resources Conservation Service, National Cooperative Soil Survey.

2003a Official Soil Series Description: Honcut Series, https://soilseries.sc.egov.usda.gov/OSD_Docs/H/HONCUT.html, accessed February 10, 2019. U.S. Department of Agriculture, Natural Resources Conservation Service, National Cooperative Soil Survey.

2003b Official Soil Series Description: Wyman Series, https://soilseries.sc.egov.usda.gov/OSD_Docs/W/WYMAN.html, accessed February 10, 2019. U.S. Department of Agriculture, Natural Resources Conservation Service, National Cooperative Soil Survey.

2019 Map Unit Description: Marguerite silty clay loam, 0 to 1 percent slopes—Merced Area, California. Web Soil Survey, accessed February 10, 2019. U.S. Department of Agriculture, Natural Resources Conservation Service.

Wallace, William J.

1978a Northern Valley Yokuts. In *California*, edited by Robert F. Heizer, pp. 462–470. Handbook of North American Indians, Vol. 8, William C. Sturtevant, general editor. Smithsonian Institution, Washington, D.C.

1978b Southern Valley Yokuts. In *California*, edited by Robert F. Heizer, pp. 448–461. Handbook of North American Indians, Vol. 8, William C. Sturtevant, general editor. Smithsonian Institution, Washington, D.C.

Waters, Michael R.

1992 Principles of Geoarchaeology: A North American Perspective. University of Arizona Press, Tucson.

APPENDIX A

Personnel Qualifications

DIANA TERESA DYSTE

Senior Archaeologist

Areas of Expertise

- Cultural resource management
- Ethnography
- Tribal consultation
- Zooarchaeological, paleoethnobotanical, and lithics analysis

Years of Experience

- 18

Education

Ph.D., Anthropology/Feminist Studies, University of California, Santa Barbara, 2018

M.A., Anthropology (Archaeology/ Cultural Resource Management emphasis), University of California, Santa Barbara, 2010

B.A., Anthropology, University of California, Santa Barbara, 2002

A.A., Liberal Arts and Sciences, Ventura College, 1999

Registrations/Certifications

- Registered Professional Archaeologist 39362477

Professional Affiliations

- American Anthropological Association
- American Cultural Resources Association
- Santa Barbara Museum of Natural History
- Society for American Archaeology
- Society for California Archaeology
- World Archaeological Congress

Professional Experience

2018–	Senior Archaeologist, Applied EarthWorks, Inc., Fresno, California
2015–2018	Interim Cultural Resources Supervisor and Senior Archaeologist/Ethnographer, Aspen Environmental Group
2007–2009	Archaeologist (GS-9), U.S. Department of Agriculture, Los Padres National Forest
2005–2007	Archaeologist (GS-7), U.S. Department of Agriculture, Los Padres National Forest
2004–2005	Archaeological Contractor, Padre, Inc., Ventura, California
2000–2005	Archaeologist (GS-4/5), U.S. Department of Agriculture, Los Padres National Forest

Technical Qualifications

Ms. Dyste has 18 years of experience in cultural resources management and meets the Secretary of the Interior's qualification criteria as an archaeologist and ethnographer. She has extensive experience preparing environmental documents and managing complex projects pursuant to applicable federal, state, and local regulations. Her work includes senior review or prime authorship of cultural resources documents for National Historical Preservation Act Section 106, National Environmental Policy Act, and California Environmental Quality Act compliance, including public and tribal comment and response; development of research designs; design and implementation of cultural resources plans. Ms. Dyste is qualified to conduct archaeological survey, including the supervision of small to large sized field crews, as well as zooarchaeological, paleoethnobotanical, lithics, and ethnographic analyses. She is able to analyze cultural spatial patterns via use of Total Station and Geographic Information Systems software. Ms. Dyste's Assembly Bill 52 and NHPA Section 106 tribal consultation services are informed by her knowledge and training in Native American jurisprudence, cultural sensitivity training, and graduate seminars in Native American environmental law, indigenous research methodologies, and community-based Participatory Action Research with tribal and special interest groups. She has project experience in coastal, highlands, grasslands, desert, and remote mountain settings across the state of California, although her academic region of specialty is in central and southern California with a focus on Salinan, Esselan, northern/interior/coastal Chumash prehistoric and modern political tribal groups. Ms. Dyste is a native Spanish speaker and assists clients with the translation of English to Spanish signage and public notices.

JESSICA JONES

GIS Technician/Staff Archaeologist

Areas of Expertise

- Geographic Information Systems (GIS) in archaeology
- Computer-generated maps and graphics
- Archaeological survey and excavation

Years of Experience

- 5

Education

B.A., Anthropology, California State University, Sacramento, 2013

Archaeological Technician Certificate, Anthropology Department, Fresno City College, Fresno, California, 2011

Professional Experience

2015–	Geographic Information Systems (GIS) Technician/Staff Archaeologist, Applied EarthWorks, Inc., Fresno, California
2012–2013	Laboratory Technician (volunteer), Archaeological Research Center, California State University, Sacramento
2009–2010	Laboratory Technician (volunteer), Fresno City College, Fresno, California

Technical Qualifications

As a staff archaeologist, Ms. Jones performs archival research, pedestrian archaeological and built environment survey, site recordation, and excavation on projects throughout the Central Valley and Sierra Nevada foothills. She also is a primary author or contributor for cultural resource inventory reports and is familiar with the preparation of California Department of Parks and Recreation cultural resource record forms (DPR 523 series) and California Department of Transportation documents. In her role as a GIS technician, Ms. Jones serves as cartographer and has participated in large and small projects involving both prehistoric and historic-era cultural resources. Using ESRI ArcGIS software, she has prepared maps and illustrations for documentation and technical reports encompassing archaeological and built environment resources for a variety of projects in California and Oregon. Additionally, she assists in the management and maintenance of the company's GPS data/units and cultural resources database system. She has extensive experience volunteering in archaeological repositories and is well versed in laboratory methodology related to the processing, cataloging, and management of archaeological collections.

WARD STANLEY

Staff Archaeologist

Areas of Expertise

- California archaeology—Sierra Nevada
- Survey, excavation, and Geographic Information System applications
- Project administration support

Years of Experience

- 11

Education

B.A., Kansas State University, 2008

Registrations/Certifications

Wildland Firefighter Qualified (Arduous)

Professional Experience

2015–	Staff Archaeologist, Applied EarthWorks, Inc., Fresno, California
2011–2017	Archaeological Field Technician/Crew Supervisor, Sierra National Forest and Lassen National Forest
2009–2011	Archaeological Field Technician/Crew Supervisor, Malheur National Forest
2008–	Archaeological Field Technician, Plumas National Forest

Technical Qualifications

Mr. Stanley's archaeological experience includes survey, archaeological testing, data recovery excavation, and documentation of both prehistoric and historical resources in the Central Valley and Sierra National Forest in California. He has supervised field crews for several large-scale projects for the Sierra, Lassen, and Malheur National Forests. This work included prefield research, pedestrian survey, site recording, and report preparation. Mr. Stanley is knowledgeable about Section 106 of the National Historic Preservation Act and associated regulations and processes, and working with local Native American tribes. He is well versed in the use of Geographic Information System (GIS) applications, including those for data gathering and modeling, and has prepared maps using ESRI ArcGIS software for use in technical reports and in the field. In addition to working for the Sierra National Forest, he has served as lead archaeological resource advisor on three separate wildland fires and was responsible for coordinating protection of archaeological resources from suppression efforts. Additionally, he produced assessment damage reports for all fires. For Applied EarthWorks, Mr. Stanley has served as field supervisor for implementation of the Crane Valley Hydroelectric Power Project Historic Properties Management Plan, which includes monitoring of impacts to resources and implementing management measures to avoid or minimize adverse effects to historic properties within the Crane Valley Archaeological District.

APPENDIX B

Records Search

CENTRAL CALIFORNIA INFORMATION CENTER

California Historical Resources Information System
Department of Anthropology – California State University, Stanislaus
One University Circle, Turlock, California 95382
(209) 667-3307

Alpine, Calaveras, Mariposa, Merced, San Joaquin, Stanislaus & Tuolumne Counties

Date: 11/30/2018

CCaIC Records Search File No.: 10913I
Re: Project: Planada Water
Access and Use Agreement No.: 116

Mary Baloian
Applied Earthworks, Inc.
1391 W. Shaw Avenue, Ste. C
Fresno, CA 93711 Email: mbaloian@appliedearthworks.com

Dear Ms. Baloian,

The Central California Information Center received your record search request for the project area referenced above, located on the Planada USGS 7.5' quadrangle in Merced County. The following reflects the results of the records search for the project area and a one-half-mile radius:

As per data currently available at the CCaIC, the locations of resources and reports are provided in the following format: ☐ custom GIS maps ☒ shapefiles ☐ hand-drawn maps

Summary Data:

Resources within project area:	5 recorded resources reported to the CCaIC: Primary #P-24-000411, 609, 1879, 1881, and 1909. Vaughn Lateral Canal has not been recorded. Please also see the enclosed HPDF page for 17 evaluated Planada properties; no associated documents on file at the IC.
Resources within ½-mile radius:	1 resource falls within the search radius but is only recorded at a point outside the search area: P-24-000610. Ivett and Dibblee Lateral Canals have not been recorded.
Reports within project area:	18 reported: ME-00692, 1776, 2000, 2083, 2087, 2089, 2390, 2930, 3628, 3995, 4681, 6704, 6955, 7045, 7994, 8017, 8682, 8885. (ME-07704 is added to the database printouts and the excel file only to reference association with the first record for P-24-001909)
Reports within ½-mile radius:	2 reported: ME-00654, 6441.

Resource Database Printout (list): pdf ☒ enclosed ☐ not requested ☐ nothing listed

Resource Database Printout (details): pdf ☒ enclosed ☐ not requested ☐ nothing listed

Resource Digital Database Records (spreadsheet): ☒ enclosed ☐ not requested ☐ nothing listed

Resource Record Copies: pdfs for 6 resources ☒ enclosed ☐ not requested ☐ nothing listed

Resource Shapefiles: shapes for the 5 resources in GIS in the search radius ☒ enclosed

Report Database Printout (list): pdf ☒ enclosed ☐ not requested ☐ nothing listed

Report Database Printout (details): pdf ☒ enclosed ☐ not requested ☐ nothing listed

Report Digital Database Records (spreadsheet): ☒ enclosed ☐ not requested ☐ nothing listed

Report Copies: ☐ enclosed ☒ not requested ☐ nothing listed

Report Shapefiles: shapes for 20 studies ☒ enclosed ☐ not requested ☐ nothing listed

OHP Historic Properties Directory (3-20-2014): ☒ enclosed ☐ not requested ☐ nothing listed

Pdf pages attached:
Pages 9-10 (attached to record P-24-001881): entries for BNSF Railroad
Page 33 (see pdf "Other historic information"): entries for Planada—no documents (records or reports) on file for these. The FHWA entries are likely associated with a Caltrans report (HPSR/HRER/HASR?) for a SR 140 project that we do not have on file (report ME-3628 is an ASR for a SR 140 project, but does not mention any of these properties).

Archaeological Determinations of Eligibility (4-05-2012): ☒ nothing listed

CA Inventory of Historic Resources (1976): ☐ enclosed ☐ not requested ☒ nothing listed

Caltrans Bridge Survey: ☐ enclosed ☐ not requested ☐ nothing listed

No bridges from this inventory are currently plotted on our maps in this area; but the Caltrans inventory for Local Agency and State Bridges (District 10) can be viewed online should bridges be identified on the ground: http://www.dot.ca.gov/hq/structur/strmaint/

Ethnographic Information: not available ☐ enclosed ☐ not requested ☐ nothing listed

Historical Literature: pdf ("Other historic information") ☒ enclosed

History of Merced County (Clark 1973:55): short entry for Planada.

Historical Maps: pdf ("Other historic information") ☒ enclosed

1961 Planada USGS 7.5'
(other historic maps can be found at usgs.gov)

Local Inventories: not available ☐ enclosed ☐ not requested ☐ nothing listed

GLO and/or Rancho Plat Maps: pdf ("Other historic information") ☒ enclosed

GLO Plat T7S/R15E Sheet #44-478 Dated 1853-54

Shipwreck Inventory: ☒ not available at CCIC; please go to

http://shipwrecks.slc.ca.gov/ShipwrecksDatabase/Shipwrecks_Database.asp

Soil Survey Maps: ☒ not available at CCIC; please go to

http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx

Resources known to have value to local cultural groups:
None have been formally reported to the CCaIC.

Please forward a copy of any resulting reports from this project to the office as soon as possible. Due to the sensitive nature of archaeological site location data, we ask that you do not include resource location maps and resource location descriptions in your report if the report is for public distribution. If you have any questions regarding the results presented herein, please contact the office at the phone number listed above.

The provision of CHRIS Data via this records search response does not in any way constitute public disclosure of records otherwise exempt from disclosure under the California Public Records Act or any other law, including, but not limited to, records related to archeological site information maintained by or on behalf of, or in the possession of, the State of California, Department of Parks and Recreation, State Historic Preservation Officer, Office of Historic Preservation, or the State Historical Resources Commission.

Due to processing delays and other factors, not all of the historical resource reports and resource records that have been submitted to the Office of Historic Preservation are available via this records search. Additional information may be available through the federal, state, and local agencies that produced or paid for historical resource management work in the search area. Additionally, Native American tribes have historical resource information not in the CHRIS Inventory, and you should contact the California Native American Heritage Commission for information on local/regional tribal contacts.

Should you require any additional information for the above referenced project, reference the record search number listed above when making inquiries. Requests made after initial invoicing will result in the preparation of a separate invoice.

Thank you for using the California Historical Resources Information System (CHRIS).

Note: Billing will be transmitted separately via email by our Financial Services office* ($480.90), payable within 60 days of receipt of the invoice.

Sincerely,

Robin Hards

Robin Hards, Assistant Research Technician
Central California Information Center
California Historical Resources Information System

*Invoice to: Laurie Marroquin, Financial Services (lamarroquin@csustan.edu or MSR270@csustan.edu)

Report List

Report No.	Other IDs	Year	Author(s)	Title	Affiliation	Resources
ME-00654	NADB-R - 1361451	1977	Napton, L. K. and E. A. Greathouse	Archaeological Survey of the Planada Water Treatment Plant.	Calif. State Univ., Stanislaus Inst. for Arch. Research; for Larsen, Ohlinger, and Jones	
ME-00692	NADB-R - 1361492	1991	Syda, K.	Cultural Resources Investigation for the Proposed New Century Park and New Century Estates, Merced County, California.	Par Environmental Services, Inc., for New Century Construction	
ME-01776	NADB-R - 1361399	1991	Dougherty, J. W. and R. Werner	An Archaeological Survey of the Proposed Sunrise Terrace #2 Subdivision Near Planada in Merced County, California.	Archaeological Services Inc., for Self-Help Enterprises	
ME-02000	NADB-R - 1360601; Other - 90-174	1991	Peak and Associates, Inc.	Cultural Resource Assessment of the Planada Garden Apartments; Merced County, California. (FMHA 901018A).	Peak & Associates, Inc., for CBM Capital Resources, Inc.	24-000411
ME-02083	NADB-R - 1360592	1993	Napton, L. K.	Cultural Resources Investigations of the Proposed Ranchito Planada Apartments Project (3 acres), Merced County, California.	CSU Stanislaus, Institute for Archaeological Research; for PAM Development	
ME-02087	NADB-R - 1360610	1993	Peak & Associates, Inc.	Cultural Resource Assessment of the Planada Senior Apartment Complex, Planada, Merced County, California.	Peak & Associates, Inc., for R & R Development Company	
ME-02089	NADB-R - 1360612	1993	Peak & Associates, Inc.	Cultural Resource Assessment of the Planada Multi-Family Apartment Complex, Planada, Merced County, California.	Peak & Associates, Inc., for R & R Development	
ME-02390	NADB-R - 1361243	1994	Varner, D. M.	An Archaeological Study of Property for the Proposed Middle School Site, Planada School District, Merced County, California.	Varner Associates, for Michael Paoli and Associates	
ME-02930	NADB-R - 1366248	1996	Jensen, Peter	Archaeological Inventory Survey; Tracy to Fresno Longhaul Fiberoptics Data Transmission Line, Portions of Fresno, Madera, Merced, Stanislaus, and San Joaquin Counties, California.	Jensen & Associates; for North State Resources, Inc.	39-000088, 39-000098, 39-000104
ME-03628	Caltrans - 06A0182, Task order 07; NADB-R - 1363588	1999	Pierce, W.	An Archaeological Survey Report for a Proposed Rehabilitation of State Route 140 Between Highway 99 and the Mariposa County Line, Merced County, California (10-MER-140, KP 57.6/80.9, PM 35.8/50.3).	Archaeological Research Center, CSU Sacramento; for Caltrans District 10	24-000606, 24-000607, 24-000608, 24-000609, 24-000610

Report List

Report No.	Other IDs	Year	Author(s)	Title	Affiliation	Resources
ME-03995	NADB-R - 1366234	2000	Nelson, W. J.	Cultural Resource Survey for the Level (3) Communications Long Haul Fiber Optics Project; Segment WS04: Sacramento to Bakersfield.	Far Western Anthropological Research Group, Inc., for Parsons Brinckerhoff Network Services	39-000002, 39-000321, 39-000354, 50-000001, 50-000439
ME-04681	NADB-R - 1364597	2002	Varner, Dudley	A Cultural Resource Study of the Bear Creek Orchards Housing Project in Planada, Merced County, California.	Varner Associates, Fresno, California, for Self-Help Enterprises, Visalia, CA	
ME-06441	NADB-R - 1366656	2007	Varner, D. M.	A Cultural Resource Study for the Planada Community Service District, Merced County, California.	Varner Associates, for Planada Community Services District and for Self Help Enterprises	
ME-06704	NADB-R - 1366944	2008	Losee, C.	Letter Report RE: Cultural Resources Investigations for AT&T Project CN2412-A "Glen Davis Ball Park", East Childs Ave., East of Fremont Street, Planada, Merced County, California 95365, EBI Project #61082047.	Archaeological Resources Technology, for EBI Consulting	
ME-06955	NADB-R - 1367262	2009	Tang, B.	Historic Property Survey Report, 10-Merced-BNSF RR, PM 1039.9 to 1056.4, Le Grand to Merced, CA Double Track Project. [includes HRER--Tang and Smallwood, 2009; and ASR--Hogan and Smallwood, 2009]	CRM TECH; for State of California Dept. of Transportation, Division of Rail	24-000648, 24-001877, 24-001878, 24-001879, 24-001880, 24-001881
ME-07045	NADB-R - 1367342	2009	Billat, L.	New Tower ("NT") Submission Packet FCC Form 620 Project Name: Planada Elementary Project #: SAC-065D (9525 E. Brodrick Avenue, Planada).	Earth Touch, Inc., for Metro PCS	
X ME-07704	NADB-R - 1368076	2011	Michael Brandman Associates	Section 106 Cultural Resources Assessment for the Garibaldi Lateral and McCoy Lateral Project, Merced Irrigation District, County of Merced, California (Revised).	Michael Brandman Associates; for MID; Fremming, Parson, and Pecchenino Consulting Civil Engineers; BUR also in consultation?	24-001909, 24-001910, 24-001911
ME-07994		2014	Leuchtmann, Amy	FCC Wireless Telecommunications Bureau New Tower ("NT") Submission Packet. Project Name: Planada Old East. Project Address: Broadway Ave. @ Santa Fe Ave., Merced County, CA 95365	HDR; prepared for BNSF Railway	

X Study is associated with the first record submitted for proposed MID District, P-24-001909; actual study area not in this radius. No shapefile attached; excel entry and db printouts provided for ref.

Report List

Report No.	Other IDs	Year	Author(s)	Title	Affiliation	Resources
ME-08017		2014	Allan, J. M.	Letter Report RE: NAHC Consultation, Merced County Pedestrian Sidewalks Infill, Merced County, CA (City of Delhi, Dos Palos, Hilmar, Le Grand, Planada, and Winton).	William Self Associates; for GPA Consulting	
ME-08682	Other - Ensite	2016	Etheridge, J., and A. Travers	EBI Consulting Archaeological Survey Report, Planada/Ensite #29148, 9290 E. Central Yosemite Highway, Planada, Merced County, California 95365	EBI Consulting for Verizon Wireless	
ME-08885		2016	Peak & Associates, Inc.	Cultural Resources Assessment for the Planada Self-Help Housing Project, Planada, Merced County, California	Peak & Associates, Inc., for Adrienne Graham, AICP, CEQA and NEPA Services	

Resource List

	Primary No.	Trinomial	Other IDs	Type	Age	Attribute codes	Recorded by	Reports
	P-24-000411	CA-MER-000321H	Other - PA-90-145; Resource Name - PA-90-145	Site	Historic	AH02	1990 (MILLER, J., Peak & Associates, Inc.)	ME-02000
	P-24-000609	CA-MER-000366H	Resource Name - Planada Canal	Structure	Historic	HP20	1999 (Wendy Pierce, R. Bethard, T. Overly, N. Stevens, Archaeological Resource Center)	ME-03628
X	P-24-000610	CA-MER-000367H	Resource Name - Unnamed canal/Irrigation Ditch	Structure	Historic	HP20	1999 (Wendy Pierce, R. Bethard, . Overly N. Stevens, Archaeological Research Center, CSUS)	ME-03628
	P-24-001879		Resource Name - CRM TECH 2312-3H; Resource Name - Former site of Planada ATSF station	Site	Historic	AH03; AH16	2009 (Josh Smallwood, CRM TECH)	ME-06955
	P-24-001881		Resource Name - Burlington Northern Santa Fe Railroad; Resource Name - Atchison, Topeka & Santa Fe Railroad; OHP Property Number - 130531; OHP PRN - FHWA050324D	Structure	Historic	HP11; HP37	2002 (F. Lortie, Caltrans District 10); 2009 (J. Smallwood, CRM Tech)	ME-06955, ME-07352, ME-08026
	P-24-001909		Resource Name - Merced Irrigation District (proposed historic district)	District	Historic	HP11; HP20; HP21; HP22	2007 (M. Bunse, S. J. Melvin, JRP Historical Consulting); 2010 (Michael H. Dice, Michael Brandman Associates); 2010 (Michael H. Dice, Michael Brandman Associates); 2011 (Shannon L. Loftus, ACE Environmental)	ME-06468, ME-07488, ME-07704, ME-07959, ME-08192, ME-08548, ME-08598, ME-08678

X Resource falls within search radius but is only recorded outside of it.
No shapefile attached; resource record, excel entry, and db listing provided.

PROPERTY-NUMBER	PRIMARY-#	STREET.ADDRESS.....	NAMES.....	CITY.NAME.....	OWN	YR-C	OHP PROG..	PRG-REFERENCE-NUMBER	STAT-DAT	NRS	CRIT
							PROJ.REVW.	FHWA010924C	12/18/01	2S2	AC
056640	24-000651	SR 59	BRIDGE #39-61	(VIC) MERCED	S	1921	HIST.SURV.	5340-0006-0000		7R	
056638	24-000649	SR 99	BRIDGE #39-57L	(VIC) MERCED	S	1919	HIST.SURV.	5340-0009-0000		7R	
056636	24-000647	SR 99	BRIDGE #39-6L	(VIC) MERCED	S	1914	HIST.SURV.	5340-0007-0000		7R	
056639	24-000650	SR 99	BRIDGE #39-59L	(VIC) MERCED	S	1922	HIST.SURV.	5340-0005-0000		7R	
056633	24-000644	SR 99	BRIDGE #39-1L	(VIC) MERCED	S	1919	HIST.SURV.	5340-0008 0000		7R	
056634	24-000645	SR 99	BRIDGE #39-2L	(VIC) MERCED	S	1915	HIST.SURV.	5340-0002-0000		7R	
056646	24-000657	SR 99	BRIDGE #39-108L	(VIC) MERCED	S	1926	HIST.SURV.	5340-0003-0000		7R	
056635	24 000646	SR 99	BRIDGE #39-4L	(VIC) MERCED	S	1914	HIST.SURV.	5340 0004-0000		7R	
124981	24-001717		STOLLINGS HOUSE AND COTTAGE	PLANADA	P	1920	HIST.RES.	DOE-24-00-0003-0000	02/03/00	6Y	
							PROJ.REVW.	FHWA991223A	02/03/00	6Y	
124983	24-001718		PLANADA AUTO PARTS	PLANADA	P	1940	HIST.RES.	DOE-24-00-0005-0000	02/03/00	6Y	
							PROJ.REVW.	FHWA991223A	02/03/00	6Y	
124987	24-001719	9317 AMISTAD ST	SACRED HEART CATHOLIC CHURCH	PLANADA	P	1956	HIST.RES.	DOE-24-00-0008-0000	02/03/00	6Y	
							PROJ.REVW.	FHWA991223A	02/03/00	6Y	
150464		465 CARSON ST		PLANADA	P	1942	HIST.RES.	DOE-24-04-0020-0000	07/14/04	6Y	
							PROJ.REVW.	HUD040610H	07/14/04	6Y	
175463		9314 E BROADWAY		PLANADA	P	1950	PROJ.REVW.	HUD090202I	02/25/09	6Y	
124979	24-001720	8973 E HWY 140	EL CAMPO MARKET AND CAR TRADERS US	PLANADA	P	1927	HIST.RES.	DOE-24-00-0001-0000	02/03/00	6Y	
							PROJ.REVW.	FHWA991223A	02/03/00	6Y	
124982	24-001721	9075 E HWY 140	YOSEMITE AUTO CARE	PLANADA	P	1959	HIST.RES.	DOE-24-00-0004-0000	06/26/00	6Y	
							PROJ.REVW.	FHWA991223A	06/26/00	6Y	
124988	24-001722	9184 E HWY 140	FROSTY KING	PLANADA	P	1958	HIST.RES.	DOE-24-00-0009-0000	02/03/00	6Y	
							PROJ.REVW.	FHWA991223A	02/03/00	6Y	
124989	24 001723	9200 E HWY 140	SUPER WAY MARKET-HARDWARE-GASOLINE	PLANADA	P	1957	HIST.RES.	DOE-24-00-0009-0000	02/03/00	6Y	
							PROJ.REVW.	FHWA991223A	02/03/00	6Y	
125150	24-001724	9215 E HWY 140	PLANADA PLAZA	PLANADA	P	1964	HIST.RES.	DOE-24-00-0011-0000	02/03/00	6Y	
124990	24-001725	9290 E HWY 140	WALLACE TRANSPORT WAREHOUSE AND SH	PLANADA	P	1977	HIST.RES.	DOE-24-00-0010-0000	02/03/00	6Y	
							PROJ.REVW.	FHWA991223A	02/03/00	6Y	
124984	24-001726	515 GAGE ST	KIMBRO'S KOUNTRY KORNER	PLANADA	P	1949	HIST.RES.	DOE-24-00-0006-0000	02/03/00	6Y	
							PROJ.REVW.	FHWA991223A	02/03/00	6Y	
190669		9403 HASKELL ST		PLANADA	P	1942	PROJ.REVW.	HUD120822A	08/22/12	6Y	
124980	24-001727	531 N PLAINSBURG RD	PLANADA VILLAGE	PLANADA	M	1961	HIST.RES.	DOE-24-00-0002-0000	06/26/00	6Y	
							PROJ.REVW.	FHWA991223A	06/26/00	6Y	
184663		9393 STANFORD AVE		PLANADA	P	1944	PROJ.REVW.	HUD110812G	08/18/11	6Y	
175129		9503 STANFORD AVE		PLANADA	P	1925	PROJ.REVW.	HUD090217M	03/18/09	6Y	
124985	24-001728	507 WATTS ST	METAL SIDED SHOP AND JUNKYARD	PLANADA	P	1964	HIST.RES.	DOE-24-00-0007-0000	02/03/00	6Y	
							PROJ.REVW.	FHWA991223A	02/03/00	6Y	
103373	24-000078		BASALT HILL FIRE LOOKOUT STATION	(VIC) SANTA NELLA	S	1947	ST.AG.5024	ST.AG.-3540-0066	09/18/96	4CM	AD
090817	24-000634		SNELLING COMMUNITY RECREATION HALL	SNELLING	C	1871	HIST.RES.	SPHI-MER-001	06/02/67	7L	
090819	24-000635		G.B. NEIGHBORS HOME	SNELLING	U	1870	HIST.RES.	SPHI-MER-004	06/02/67	7L	
130788			MERCED RIVER BRIDGE/ BRIDGE 39-71	SNELLING	S	1953	HIST.RES.	DOE 24-01-0014-0000	04/05/01	6Y	
							PROJ.REVW.	FHWA010312A	04/05/01	6Y	
058219	24-000639	MAIN ST	SNELLING COURTHOUSE	SNELLING	C	1857	HIST.SURV.	5369-0006-0000		3S	
							HIST.RES.	SHL-0409-0000	11/15/48	7L	
058216	04-000733 731	SR 59	BRIDGE #39-70	(VIC) SNELLING	S	1921	HIST.SURV.	5369-0003-0000		7R	
058215	24-000730	SR 59	BRIDGE #39-86	(VIC) SNELLING	S	1922	HIST.SURV.	5369-0002 0000		7R	
058218	24-000732	SR 59	BRIDGE #39-109	(VIC) SNELLING	S	1925	HIST.SURV.	5369-0005-0000		7R	
058217	24-000729	SR 59	BRIDGE #39-87	(VIC) SNELLING	S	1926	HIST.SURV.	5369-0004 0000		7R	
058214	24-000731 733	SR 59	BRIDGE #39-69 replaced	(VIC) SNELLING	S	1916	HIST.SURV.	5369 0001-0000		7R	

HUD projects - no docs on file

FHWA entries - no recs + prob. assoc'd w/ Caltrans report NOF @ IC

@ SR 59

HRI forms not on file

Historical Topographic Maps and Aerial Images Consulted

Date	Name	Author	Reference	Notes
1918	Planada, CA 1:31,680	U.S. Geological Survey	1918 *Planada, Calif.* , 1:31,680 scale. U.S. National Geologic Map Database, Historical Topographic Map Collection (topoView), https://ngmdb.usgs.gov/topoview/, accessed January 8, 2019.	Northern Burlington railroad is present through the soutwest edge of Planada. City layout shows the outward "radiating" street design off the railroad as envisioned by the city's founder J. Harvey McCarthy. The Planada Canal is not present. Scattered residences noted. General landscape surrounding the PA is interlaced with small creeks and sloughs from the eastern foothills.
1918 (1943)	Planada, CA 1:31,680	U.S. Geological Survey	1943 *Planada, Calif.,* 1:31,680 Scale. U.S. National Geologic Map Databases, Historical Topographic Map Collection (topoView), https://ngmdb.usgs.gov/topoview/, accessed January 17, 2019.	No significant changes from the original 1918 map.
1948	Planada, CA 1:24,000	U.S. Geological Survey	1948 *Planada, Calif.* , 1:24,000 scale. U.S. National Geologic Map Database, Historical Topographic Map Collection (topoView), https://ngmdb.usgs.gov/topoview/, accessed January 17, 2019.	Planada Canal symbolized and named. Sections of Miles Creek have been channelized and land to NW and S of Planada is depicted as agricultural. The town center has grown internally, with at least double the number of structures since the 1943 map. Railraod alignment has not changes. Highway 140 clearly visible. Vaugn canal not visible or labeled.
1961 (1963)	Planada, CA 1:24,000	U.S. Geological Survey	1963 *Planada, Calif.* , 1:24,000 scale. U.S. National Geologic Map Database, Historical Topographic Map Collection (topoView), https://ngmdb.usgs.gov/topoview/, accessed January 17, 2019.	City structures continue to multiply and the city begins radiating southwest of the railroad grade. Vaughn Canal clearly visible and labeled. No other significant changes.
1961 (1984)	Planada, CA 1:24,000	U.S. Geological Survey	1984 Planada, Calif., 1:24,000 scale. U.S. National Geologic Map Database, Historical Topographic Map Collection (topoView), https://ngmdb.usgs.gov/topoview/, accessed January 17, 2019.	City boundaries relatively unchanged. Landscape is still primarily agricultural.
1950	1950 ABF-2G-123, Kern County, California Aerial Survey	Agricultural Adjustment Administration	1950 Kern County, California, Aerial Survey 1950 ABF-2G-123, https://digitized.library.fresnostate.edu/digital/collection/aerial/id/32668, accessed through Map and Aerial Locator Tool (MALT), Henry Madden Library, California State University, Fresno, January 17, 2019.	About 1/2 to 3/4 of town area appears to have structres. Portions of blocks and and some entire blocks are vacant and undeveloped. Vaughn Canal visible.

APPENDIX C

Native American Outreach

Native American Outreach Log

Planada CSD Wastewater Collection System Repair Project

Organization	Name	Position	Letter	E-mail	Phone	Summary of Contact
Native American Heritage Commission	Sharaya Souza	Staff Services Analyst		11/21/2018 and 12/4/18		Request sent and response received - JJ.
Amah Mutsun Tribal Band	Valentin Lopez	Chairperson	12/28/18	01/24/19	01/24/19	Outreach letter sent - CS. Follow up email did not go through, but I spoke with Chairperson Lopez on the phone. He stated that Planada is outside of the tribal band's traditional terriory and that he had no information to provide regarding our project area - JJ.
Dumna Wo-Wah Tribal Government	Robert Ledger Sr.	Chairperson	12/28/18	01/24/19		Outreach letter and email sent - CS.
North Valley Yokuts Tribe	Katherine Erolinda Perez	Chairperson	12/28/18	01/24/19		Outreach letter and email sent - CS.
Southern Sierra Miwuk Nation	Bill Leonard	Chairperson	12/28/18		01/24/19	Outreach letter sent. No email available. - CS. Called and left message - JJ.

NATIVE AMERICAN HERITAGE COMMISSION
Environmental and Cultural Department
1550 Harbor Blvd., Suite 100
West Sacramento, CA 95691
(916) 373-3710

December 4, 2018

Diana Dyste
Applied Earth Works

Sent by Email: ddyste@appliedearthworks.com
Number of Pages: 2

RE: Planada Water Infrastructure, Planada, Merced County

Dear Ms. Dyste:

A record search of the Native American Heritage Commission (NAHC) *Sacred Lands File* was completed for the area of potential project effect (APE) referenced above with negative results**. Please note that the absence of specific site information in the *Sacred Lands File* does not indicate the absence of Native American cultural resources in any APE.**

I suggest you contact all of those listed, if they cannot supply information, they might recommend others with specific knowledge. The list should provide a starting place to locate areas of potential adverse impact within the APE. **By contacting all those on the list, your organization will be better able to respond to claims of failure to consult.** If a response has not been received within two weeks of notification, the NAHC requests that you follow-up with a telephone call to ensure that the project information has been received.

If you receive notification of change of addresses and phone numbers from any of these individuals or groups, please notify me. With your assistance we are able to assure that our lists contain current information. If you have any questions or need additional information, please contact via email: Sharaya.Souza@nahc.ca.gov.

Sincerely,

Sharaya Souza
Staff Services Analyst
(916) 573-0168

Native American Heritage Commission
Native American Contacts List
12/4//2018

Amah Mutsun Tribal Band
Valentin Lopez, Chairperson
P.O. Box 5272
Galt ,CA 95632
vlopez@amahmutsun.org
(916) 743-5833

Ohlone/Costanoan
Northern Valley Yokuts

Dumna Wo-Wah Tribal Goverment
Robert Ledger SR., Chairperson
2191 West Pico Ave.
Fresno ,CA 93705
ledgerrobert@ymail.com
(559) 540-6346

Dumna/Foothill Yokuts
Mono

North Valley Yokuts Tribe
Katherine Erolinda Perez, Chairperson
P.O. Box 717
Linden ,CA 95236
canutes@verizon.net
(209) 887-3415

Ohlone/Costanoan
Northern Valley Yokuts
Bay Miwok

Southern Sierra Miwuk Nation
Bill Leonard, Chairperson
P.O. Box 186
Mariposa ,CA 95338
(209) 628-8603 Office

Miwok
Pauite
Northern Valley Yokut

This list is current as of the date of this document and is based on the information available to the Commission on the date it was produced.

Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code,Section 5097.94 of the Public Resources Code, or Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native American Tribes for the proposed:
Planada Water Infrastructure, Planada, Merced County.

Applied EARTHWORKS Inc.

1391 W. Shaw Ave., Suite C
Fresno, CA 93711-3600
O: (559) 229-1856 | F: (559) 229-2019

December 28, 2018

Valentin Lopez, Chairperson
Amah Mutsun Tribal Band
P.O. Box 5272
Galt, CA 95632

RE: Planada Community Services District Sewer Collection System Improvement Project, Merced County, California

Dear Mr. Valentin Lopez,

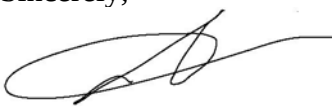
Applied EarthWorks, Inc. (*Æ*), under contract to QK Inc. (QK), is providing cultural resource services for the Planada Community Services District (CSD) Sewer Collection System Improvement Project (Project) in Merced County. The proposed project is the repair of an aging sewer system in the unincorporated town of Planada in Merced County. The sewer line is 28,867 feet long. The majority of the line will be abandoned in place and a new sewer line installed parallel to the existing line. The sewer system lies under street asphalt, beneath front yards, dirt-surfaced alleys, and in road shoulders in County road right-of-way. Some repairs may be accomplished without excavation using recent technology designed for that purpose, other sections of the sewer where connection to the former system is needed will be excavated. The Project is subject to environmental review in compliance with the California Environmental Quality Act (CEQA) and Section 106 of the National Historic Preservation Act (NHPA).

The Project's Area of Potential Effects (APE) is in Sections 27 and 34 of Township 7 South, Range 15 East, of the U.S. Geological Survey (USGS) Planada 7.5-minute topographic quadrangle (see attached map). A search of the Native American Heritage Commission's (NAHC) Sacred Lands File did not indicate the presence of cultural or tribal cultural resources in the immediate Project area or surrounding 0.5-mile area. *Æ* also requested a records search of the APE and surrounding 0.5-mile area at the California Historic Resources Information System (CHRIS), Central California Information Center (CCIC) at the California State University, Stanislaus. The records search did not identify previously recorded prehistoric archaeological resources within the APE or the surrounding 0.5-mile area. However, there were five previously recorded historic-era resources within the APE and one historic-era resource in the surrounding 0.5-mile area. An archaeological survey is in progress.

The NAHC provided your name and address as someone who might have an interest in sharing information regarding sacred sites, tribal cultural resources, or other resources of importance in the APE. Please note that all information shared with *Æ* regrading this Project is considered best practices for cultural resource inventories and is not government-to-government consultation under Assembly Bill 52. *Æ* understands and takes measures to protect the confidentiality of archaeological site locations, cemeteries, or sacred places, as required by law. *Æ* will not disclose locational information in any document available to the general public.

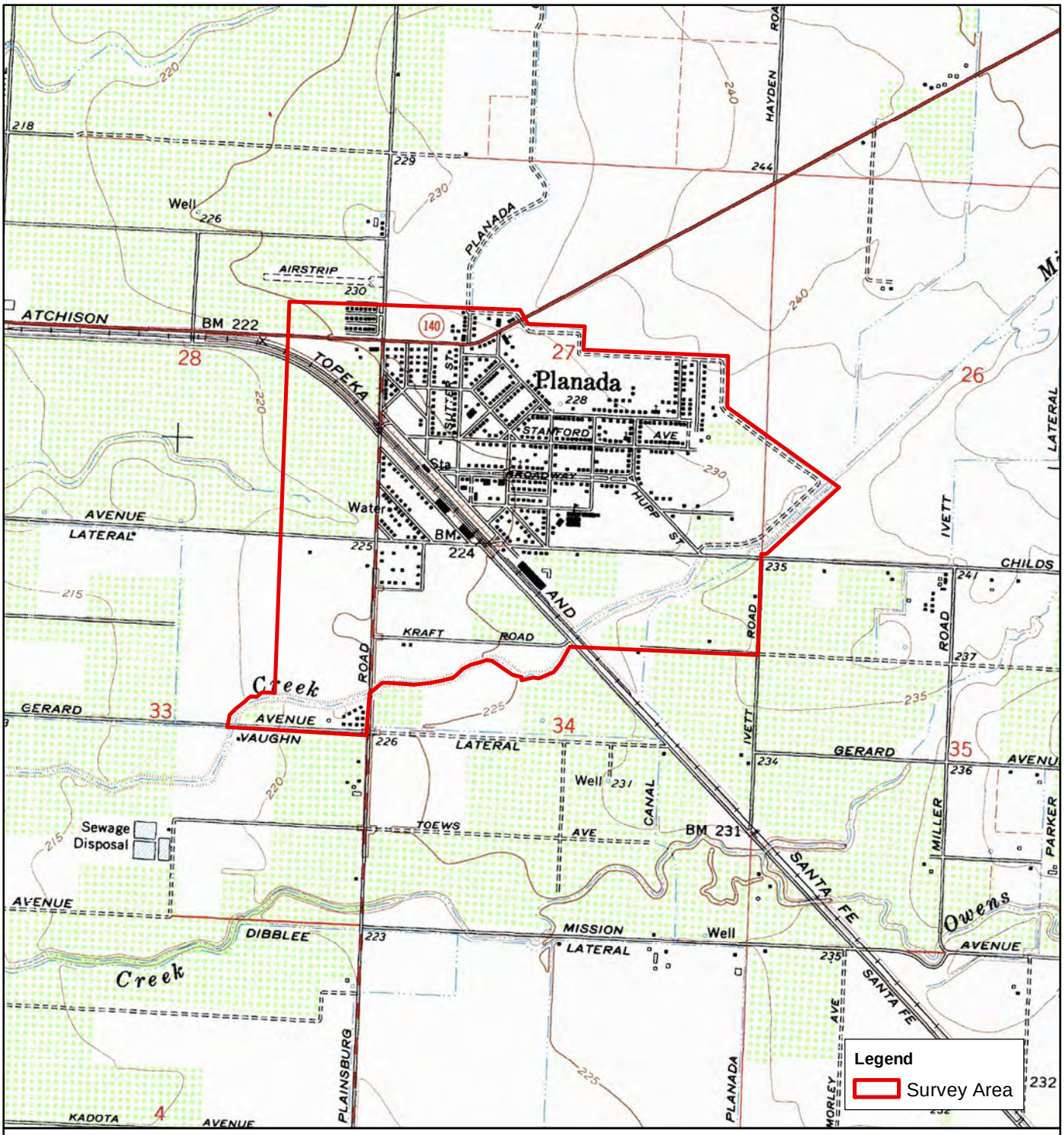
If there is information that you would like to share or would like more information about the project, please contact Diana Dyste by phone (559) 229-1856 x 23, email at ddyste@appliedearthworks.com, or send a letter to my attention using the address in the header above.

Sincerely,



Diana T. Dyste,
Senior Archaeologist

encl.: Project Map



NAHC location map for the *Planada Water Project - AE3972*.

Applied EARTHWORKS Inc.

1391 W. Shaw Ave., Suite C
Fresno, CA 93711-3600
O: (559) 229-1856 | F: (559) 229-2019

December 28, 2018

Robert Ledger Sr., Chairperson
Dumna Wo-Wah Tribal Government
2191 West Pico Ave.
Fresno, CA 93705

RE: Planada Community Services District Sewer Collection System Improvement Project, Merced County, California

Dear Mr. Robert Ledger Sr.,

Applied EarthWorks, Inc. (*Æ*), under contract to QK Inc. (QK), is providing cultural resource services for the Planada Community Services District (CSD) Sewer Collection System Improvement Project (Project) in Merced County. The proposed project is the repair of an aging sewer system in the unincorporated town of Planada in Merced County. The sewer line is 28,867 feet long. The majority of the line will be abandoned in place and a new sewer line installed parallel to the existing line. The sewer system lies under street asphalt, beneath front yards, dirt-surfaced alleys, and in road shoulders in County road right-of-way. Some repairs may be accomplished without excavation using recent technology designed for that purpose, other sections of the sewer where connection to the former system is needed will be excavated. The Project is subject to environmental review in compliance with the California Environmental Quality Act (CEQA) and Section 106 of the National Historic Preservation Act (NHPA).

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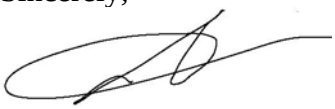
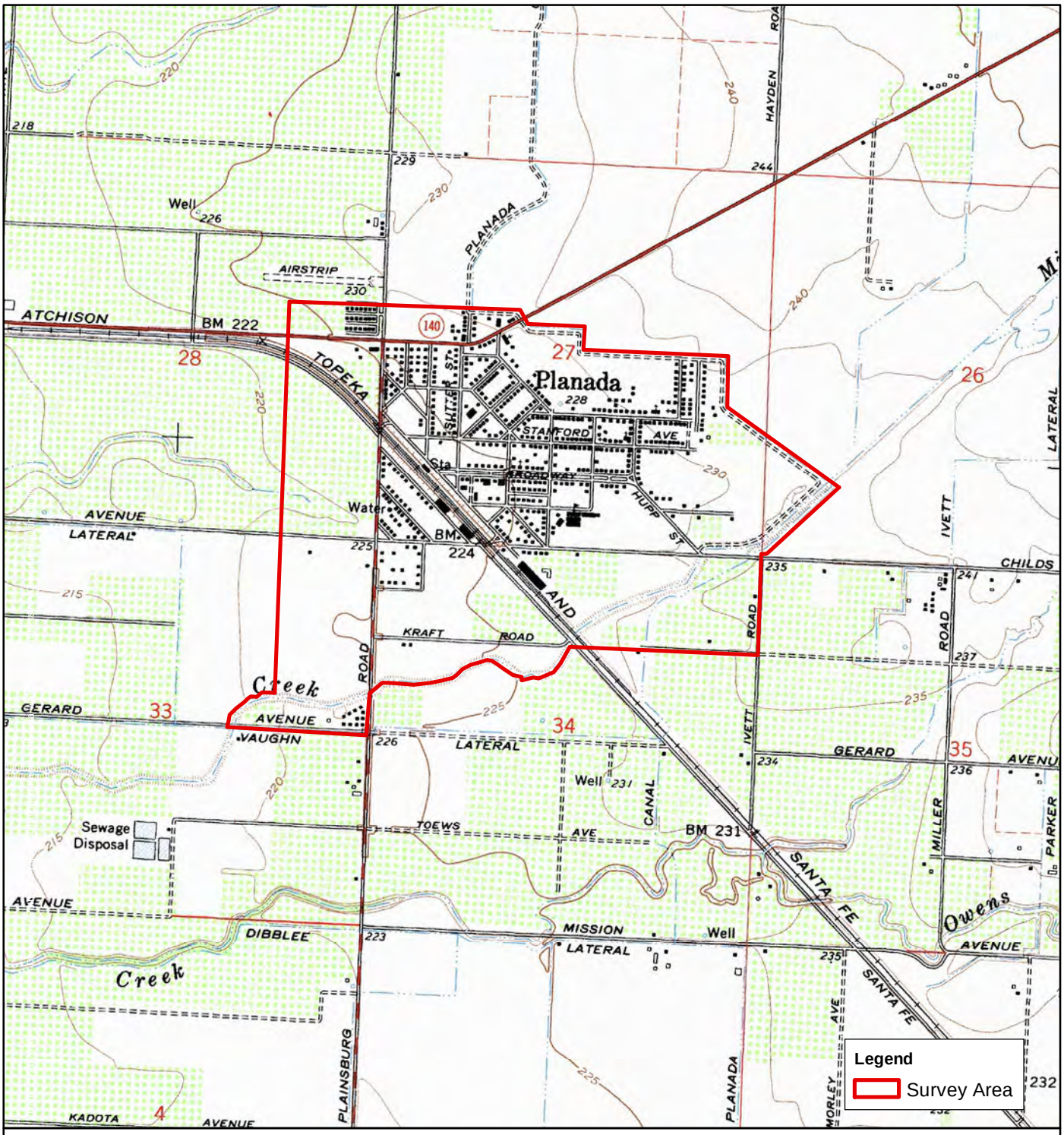


Diana T. Dyste,
Senior Archaeologist

encl.: Project Map



NAHC location map for the *Planada Water Project - AE3972*.

Applied EARTHWORKS Inc.

1391 W. Shaw Ave., Suite C
Fresno, CA 93711-3600
O: (559) 229-1856 | F: (559) 229-2019

December 28, 2018

Katherine Erolinda Perez, Chairperson
North Valley Yokuts Tribe
P.O. Box 717
Linden, CA 95236

RE: Planada Community Services District Sewer Collection System Improvement Project, Merced County, California

Dear Ms. Katherine Erolinda Perez,

Applied EarthWorks, Inc. (*Æ*), under contract to QK Inc. (QK), is providing cultural resource services for the Planada Community Services District (CSD) Sewer Collection System Improvement Project (Project) in Merced County. The proposed project is the repair of an aging sewer system in the unincorporated town of Planada in Merced County. The sewer line is 28,867 feet long. The majority of the line will be abandoned in place and a new sewer line installed parallel to the existing line. The sewer system lies under street asphalt, beneath front yards, dirt-surfaced alleys, and in road shoulders in County road right-of-way. Some repairs may be accomplished without excavation using recent technology designed for that purpose, other sections of the sewer where connection to the former system is needed will be excavated. The Project is subject to environmental review in compliance with the California Environmental Quality Act (CEQA) and Section 106 of the National Historic Preservation Act (NHPA).

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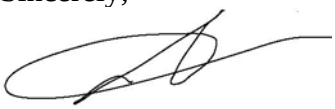
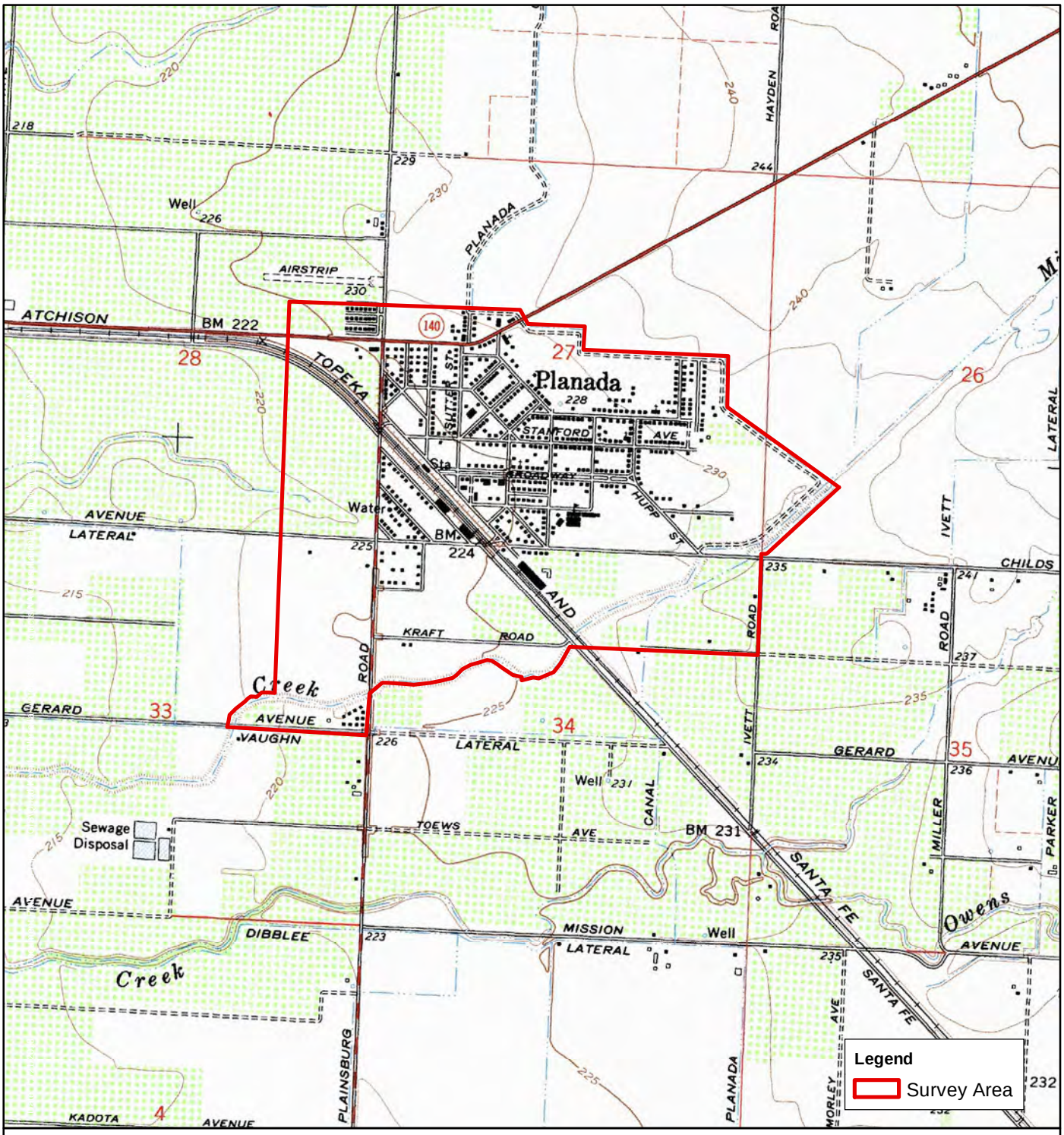


Diana T. Dyste,
Senior Archaeologist

encl.: Project Map



NAHC location map for the *Planada Water Project - AE3972*.

Applied EARTHWORKS Inc.

1391 W. Shaw Ave., Suite C
Fresno, CA 93711-3600
O: (559) 229-1856 | F: (559) 229-2019

December 28, 2018

Bill Leonard, Chairperson
Southern Sierra Miwuk Nation
P.O. Box 186
Mariposa, CA 95338

RE: Planada Community Services District Sewer Collection System Improvement Project, Merced County, California

Dear Mr. Bill Leonard,

Applied EarthWorks, Inc. (*Æ*), under contract to QK Inc. (QK), is providing cultural resource services for the Planada Community Services District (CSD) Sewer Collection System Improvement Project (Project) in Merced County. The proposed project is the repair of an aging sewer system in the unincorporated town of Planada in Merced County. The sewer line is 28,867 feet long. The majority of the line will be abandoned in place and a new sewer line installed parallel to the existing line. The sewer system lies under street asphalt, beneath front yards, dirt-surfaced alleys, and in road shoulders in County road right-of-way. Some repairs may be accomplished without excavation using recent technology designed for that purpose, other sections of the sewer where connection to the former system is needed will be excavated. The Project is subject to environmental review in compliance with the California Environmental Quality Act (CEQA) and Section 106 of the National Historic Preservation Act (NHPA).

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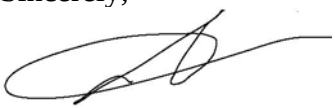
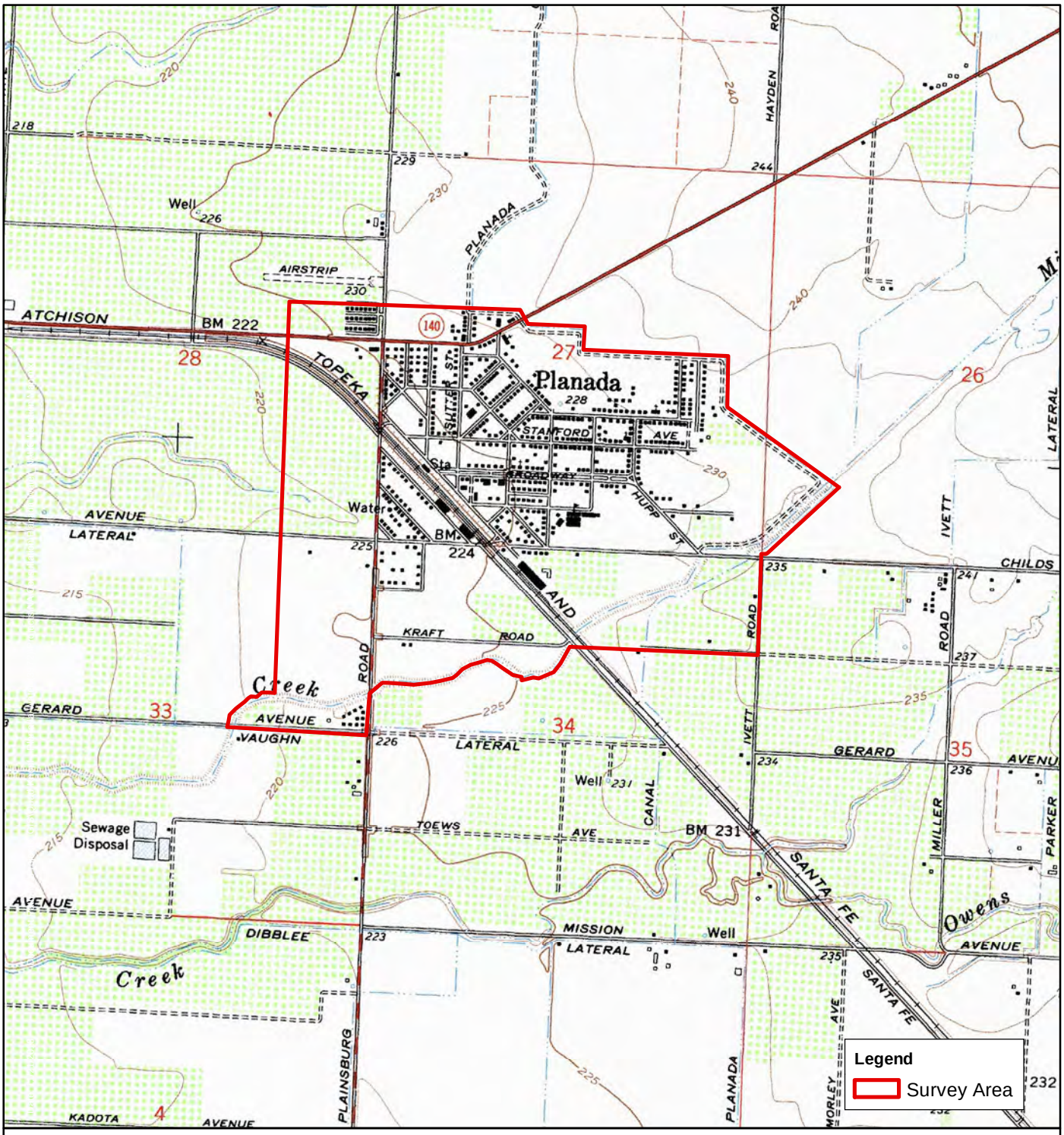


Diana T. Dyste,
Senior Archaeologist

encl.: Project Map



NAHC location map for the *Planada Water Project - AE3972*.

CONFIDENTIAL APPENDIX*
Not for Public Distribution

APPENDIX D

Cultural Resource Records

*Archaeological site location information is exempt from the Freedom of Information Act (FOIA) and California Public Records Act (CPRA).

State of California — The Resources Agency **Primary #** 24-001909
DEPARTMENT OF PARKS AND RECREATION **HRI #/Trinomial**

LINEAR FEATURE RECORD

L1. Historic and/or Common Name: Vaughn Lateral Canal, Merced Irrigation District

L2a. Portion Described: ☐ Entire Resource ☒ Segment ☐ Point Observation **Designation:** Segment 1

b. Location of point or segment: Southwest corner of Plainsburg and Gerard Road. The ditch runs east to west. **UTM:** NAD 83, Zone 10N; MD **B.M.**; 737097 **mE /** 4129371 **mN** (East End); 737095 **mE /** 4129350 **mN** (West End);

L3. Description: This section of the Vaughn Lateral Canal is 42 feet wide, including levees on either side of the canal, and is 4.5 feet deep. The ditch runs east to west and is concrete lined. A 4-foot-diameter galvanized culvert transports the water from the east end, below Plainsburg Road. The levees are 12 feet wide and 3 feet tall. The northern levee now sits flush with Gerard Road. The levees are currently being used for recreational purposes by 4 x 4 All-Terrain Vehicles (ATVs).

L4. Dimensions:

a. Top Width: 42 feet
b. Bottom Width: 3 feet (estimated)
c. Height or Depth: 4.5 feet
d. Length of Segment: 200 feet

L4e. Sketch or Cross Section ☐ attached **Facing:** ☒ none

L5. Associated Resources: Merced Irrigation District

L6. Setting: Semi-rural eastern Merced County.

L7. Integrity Considerations:

L8a. Photo, Map, or Drawing:



L8b. Description of Photo, Map, or Drawing: Looking west from intersection of Plainsburg Road and Gerard Street.

L9. Remarks: None

L10. Form Prepared By: W. Stanley
Applied EarthWorks, Inc.
1391 W. Shaw Ave. Ste, C
Fresno, CA 93711

L11. Date: 12/31/18

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

LOCATION MAP

Primary # 24-001909
HRI#
Trinomial

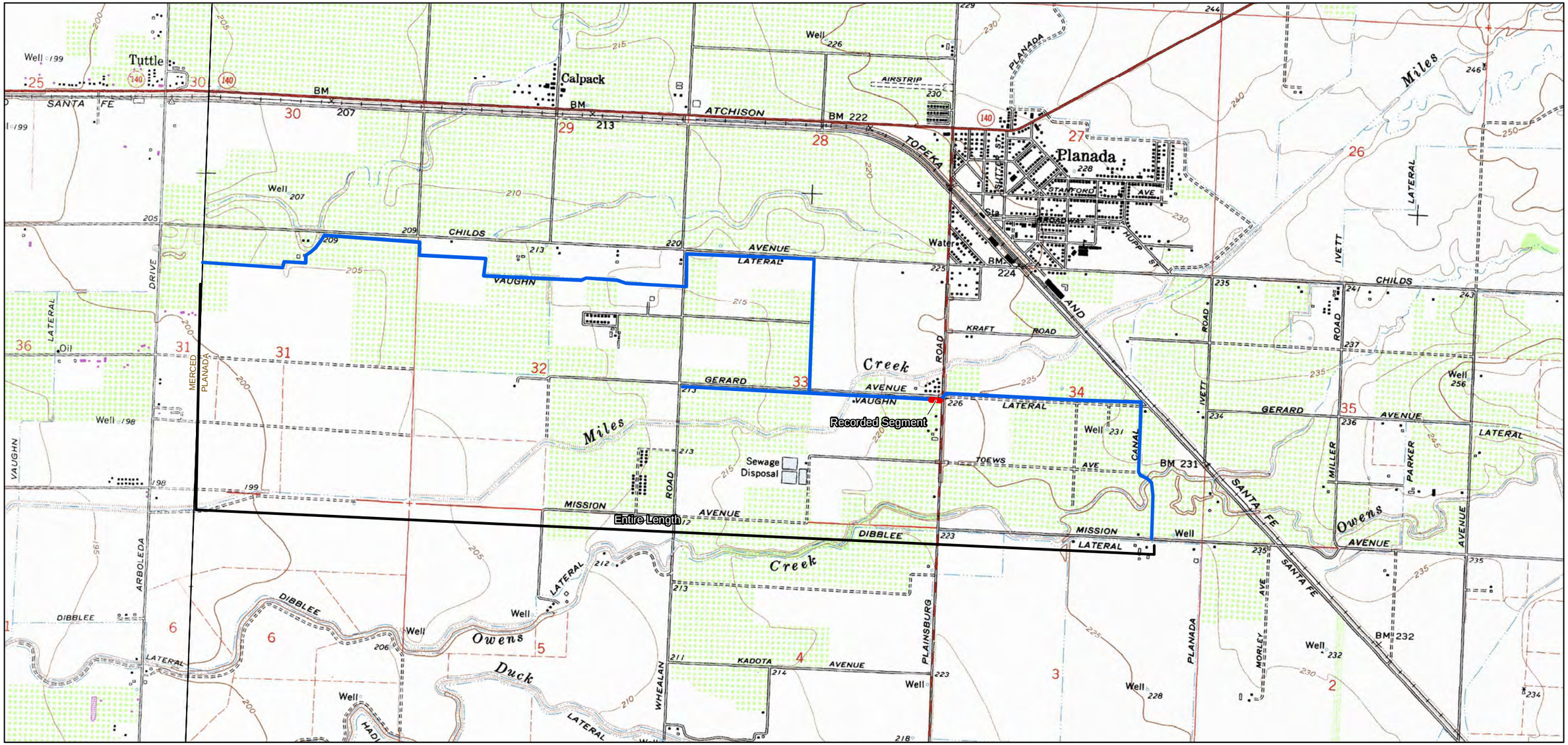
Page 2 **of** 2

Resource Name or #: Vaughn Lateral Canal, Merced Irrigation District

Scale: 1:24,000

Map Name: Planada (1991), CA, USGS 7.5' quadrangles

Date: 2015



SCALE 1:24,000

1 0.5 0 1 Miles

1,000 0 1,000 2,000 3,000 4,000 5,000 6,000 7,000 Feet

1 0.5 0 1 Kilometers

TRUE NORTH

APPENDIX C
BIOLOGICAL ASSESSMENT REPORT

BIOLOGICAL ANALYSIS REPORT/ BIOLOGICAL ASSESSMENT

PLANADA COMMUNITY SERVICES DISTRICT

WASTEWATER COLLECTION SYSTEM REPLACEMENT PROJECT



DECEMBER 2018

BIOLOGICAL ANALYSIS REPORT/ BIOLOGICAL ASSESSMENT

WASTEWATER COLLECTION SYSTEM REPLACEMENT PROJECT

Prepared for:

Planada Community Services District
103 Live Oak Street
PO Box 905
Planada, CA 95365
Contact Person: Daniel Chavez, District Manager
Phone: 209.382.0213

Consultant:

2816 Park Avenue
Merced, CA 95348
Contact: Spencer A. Supinger, P.E.
Phone: (209) 723-2066
Fax: (559) 733-7821

December 2018

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Project #PL160350

Table of Contents

Executive Summary *1*

Acronyms and Abbreviations *2*

SECTION 1 - Introduction *3*

1.1 - Project Location 3
1.2 - Project Description 3
1.3 - Purpose, Goals, and Objectives 4

SECTION 2 - Methods *7*

2.1 - Definition of Biological Study Area 7
2.2 - Definition of Special-Status Species 7
2.3 - Literature Review and Database Analysis 7
2.4 - Reconnaissance-level Field Surveys 8

SECTION 3 - Regulatory Setting *8*

SECTION 4 - Environmental Setting *10*

4.1 - Physical Characteristics 10
4.1.1 - Topography 10
4.1.2 - Climate 10
4.1.3 - Land Use 10
4.1.4 - Soils 11
4.1.5 - Hydrology 12
4.2 - Vegetation and Other Land Cover 12
4.2.1 - Urban 12
4.2.2 - Agriculture 16
4.2.3 - Non-Native Grassland 16
4.2.4 - Ruderal 16
4.2.5 - Waterways 16
4.3 - General Wildlife Observations 18

SECTION 5 - Special-Status Resources *19*

5.1 - Special-Status Species 19
5.1.1 - Special-Status Plant Species 20
5.1.2 - Special-Status Animal Species 21
5.2 - Sensitive Natural Communities 25
5.2.1 - Sensitive Plant Communities 25
5.2.2 - Critical Habitats 25

5.3 - Jurisdictional Aquatic Resources 25
5.4 - Wildlife Movement 26
5.5 - Resources Protected by Local Policies and Ordinances 27
5.6 - Habitat Conservation Plans 27

SECTION 6 - Impact Analysis and Avoidance, Minimization, and Mitigation Measures 27

6.1 - Special-Status Species 28
6.1.1 - Project Impacts to Special-Status Plant Species 28
6.1.2 - Project Impacts to Special-Status Animal Species 29
6.2 - Sensitive Natural Communities and Critical Habitat 35
6.3 - Jurisdictional Aquatic Resources 35
6.4 - Wildlife Movement 36
6.5 - Local Policies and Ordinances 36
6.6 - Adopted or Approved Plans 36

SECTION 7 - Limitations, Assumptions, and Use Reliance 37

SECTION 8 - References 38

SECTION 9 - List of Preparers 41

Appendices

Appendix A Regulatory Setting
Appendix B Representative Photographs
Appendix C Plants and Animals Observed On-Site
Appendix D Special-Status Species Evaluation Table
Appendix E U.S. Fish and Wildlife Service Standardized Recommendations for Protection of the Endangered San Joaquin Kit Fox Prior to or During Ground Disturbance (USFWS 2011)

List of Figures

Figure 1-1 Regional Map 5
Figure 1-2 Project Vicinity Map 6
Figure 4-1 Soils Mapped within the BSA 13
Figure 4-2 NWI and NHD Records of Aquatic Resources 14
Figure 4-3 FEMA Flood Zone Map 15
Figure 4-4 Vegetation Communities within the BSA 17

List of Tables

Table 1 Field Survey Personnel and Timing. 10
Table 2 Special-Status Species with Potential to Occur On-Site. 19

EXECUTIVE SUMMARY

Quad Knopf, Inc. (QK) has prepared this Biological Analysis Report (BAR) to evaluate the potential for special-status biological resources to be impacted by the proposed replacement of the existing wastewater collection system within the Planada Community Services District (CSD) in Planada, Merced County, California.

The CSD provides wastewater collection to a community of less than 10,000 individuals. The CSD is proposing to replace an existing wastewater collection system network throughout the CSD's coverage area. The majority of the CSD's pipelines were installed in the 1940's and 1950's and are reaching the end of their serviceable life. The CSD proposes to replace these pipes to prevent failures that could lead to wastewater leakage, which could create unsanitary conditions for the community of Planada. Methods for replacement may include trenching to expose pipelines for replacement or trenchless methods such as pipe bursting or cured-in-place pipe. The methods employed will be based on factors such as accessibility and soil conditions at each work location. Replacement of the pipelines is expected to occur over a 10-year period.

The results of a database and literature review and a reconnaissance site visit on November 14, 2018, determined that 12 special-status species have the potential to occur within the Biological Study Area (BSA): Sanford's arrowhead (*Sagittaria sanfordii*), western pond turtle (*Actinemys [=Emys] marmorata*), western burrowing owl (*Athene cunicularia*), Swainson's hawk (*Buteo swainsoni*), merlin (*Falco columbarius*), loggerhead shrike (*Lanius ludovicianus*), pallid bat (*Antrozous pallidus*), western mastiff bat (*Eumops perotis californicus*), western red bat (*Lasiurus blossevillii*), hoary bat (*Lasiurus cinereus*), American badger (*Taxidea taxus*), and San Joaquin kit fox (*Vulpes macrotis mutica*).

Based on the limited nature of the Project, only Sanford's arrowhead, western pond turtle, western burrowing owl, Swainson's hawk, American badger, and San Joaquin kit fox were determined to have a potential to be impacted by the Project. Direct impacts would be limited to injury or mortality of individual special-status species and or young during the breeding season. No indirect impacts would occur because disturbance to surface habitats would be minimal, of short duration, and temporary, with the Project site returned to pre-Project conditions at each location along the sewer line route.

Freshwater emergent and riparian habitats are present within Miles Creek, a drainage that is regulated by the California Department of Fish and Wildlife and the Central Valley Regional Water Quality Control Board, and likely the U.S. Army Corps of Engineers. The BSA encompasses Miles Creek along Plainsburg Road; however, the Project as proposed does not include any repair or modification of the sewer line where it crosses Miles Creek. As such, the Project would have no impacts to federally-protected wetlands and no measures are required.

Avoidance and minimization measures are prescribed which, when implemented, will reduce Project impacts to biological resources to a less than significant level.

ACRONYMS AND ABBREVIATIONS

BAR	Biological Analysis report
BIOS	Biogeography Information and Observation System
BSA	Biological Study Area
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CRPR	California Rare Plant Rank
CSD	Planada Community Services District
CWHR	California Wildlife Habitat Relationships
FEMA	Federal Emergency Management Agency
FESA	Federal Endangered Species Act
NEPA	National Environmental Policy Act
NHD	National Hydrography Dataset
NRCS	Natural Resources Conservation Service
NWI	National Wetlands Inventory
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey

SECTION 1 - INTRODUCTION

Quad Knopf, Inc. (QK) has prepared this Biological Analysis Report (BAR) to evaluate the potential for special-status biological resources to be impacted by the proposed replacement of the existing wastewater collection system within the Planada Community Services District (CSD) in Planada, Merced County, California.

1.1 - Project Location

The proposed Project is located within the Planada CSD, serving the unincorporated community of Planada in eastern Merced County, California (Figures 1-1 and 1-2). The community of Planada is located along State Route 140 approximately 10 miles east of the City of Merced on the eastern floor of the Central Valley. The foothills of the Sierra Nevada mountains begin approximately eight miles to the east. The general latitude and longitude for the CSD are 37.291861° and -120.317861° (datum WGS 84), and the CDS is located within the *Planada, California,* U.S. Geological Survey (USGS) 7.5-minute quadrangle.

1.2 - Project Description

The CSD has proposed sewer line improvements that will address aging infrastructure and prevent unsanitary conditions for the Community and the two farm labor camps (Project). The proposed Project site consists of the linear distance of all sewer lines throughout the Planada CSD up to the north side of Miles Creek at the south end of the service area. The improvements to the sewer line consist of a combination of the Traditional Method and the Trenchless methods such as pipe bursting or cured-in place pipe. The CSD currently operates 28,867 linear feet of sewer line within its service area, shown on Figure 1-2, but only specific segments of the network need replacement. Much of the repair is anticipated to occur in-place and may not necessitate excavation. Some portions can be abandoned in-place and capped at both ends, with new pipe installed parallel to the existing pipelines. The complete removal of old pipes would be unnecessary and cost prohibitive, so the only pipes that would be removed would be short segments that intersect with newly installed pipelines. Other segments can be repaired by bursting in-place with horizontal insertion of new pipe. Other segments are expected to need no repair.

Construction will begin in 2019 and will be undertaken in three to five phases every 2years, over a ten-year period, depending on available funding. Activities involved in sewer line replacements are expected to include grubbing/land clearing, excavation/grading, sub-grading, and paving. These activities are anticipated to require up to 40 employees at any given time, each working 8-hour workdays.

Some lines will increase in size where currently deficient but will not be sized to accommodate growth in the community beyond what is anticipated by the County's adopted Community Plan.

In instances where excavation is required, there would be a 3-foot to 4-foot wide trench, and a total 20'-wide activity footprint related to staging and temporary soil stockpiling. The

maximum depth of excavation would be seven feet, and maximum height of construction activity related to backhoe digging would be ten feet. The maximum area of excavation, assuming a 4-foot wide trench throughout the entire sewer network, would be 2.65 acres, which is not anticipated. There will be a temporary construction staging area within the fenced wastewater treatment plant compound. Other small and short-duration staging areas in close proximity to pipeline work, if needed, would be on existing paved areas. The potential project site area, including above and below surface activity, if the entire network required retrofitting, would encompass approximately 13.25 acres within the Planada Community Services District boundary.

The project site is located within Section 27, Township 7 South, Range 15 East, Mount Diablo Base and Meridian (MDB&M), within the Planada U.S. Geological Survey (USGS) 7.5-minute topographic quadrangle.

Vehicles and equipment that may be needed to support the sewer line repair project could include:

- Forklifts
- Tractors/Loaders/Backhoes
- Concrete/Industrial Saws
- Excavators
- Plate compactors
- Bulldozers
- Loaders
- Signal Boards
- Air Compressors
- Cement and Mortar Mixers
- Cranes
- Generator Sets
- Welders
- Pavers
- Rollers

1.3 - Purpose, Goals, and Objectives

The purpose of this BAR is to identify where potential special-status biological resources may occur within the CSD, determine how those resources may be impacted by the proposed Project, and recommend avoidance, minimization, and mitigation measures to reduce the potential for impact to a less than significant level. This BAR has been prepared to support an analysis of biological conditions as required by the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA), and to support regulatory permit applications, if needed.



Figure 1-1
Regional Map
Wastewater Collection System Replacement Project
Planada, Merced County, California

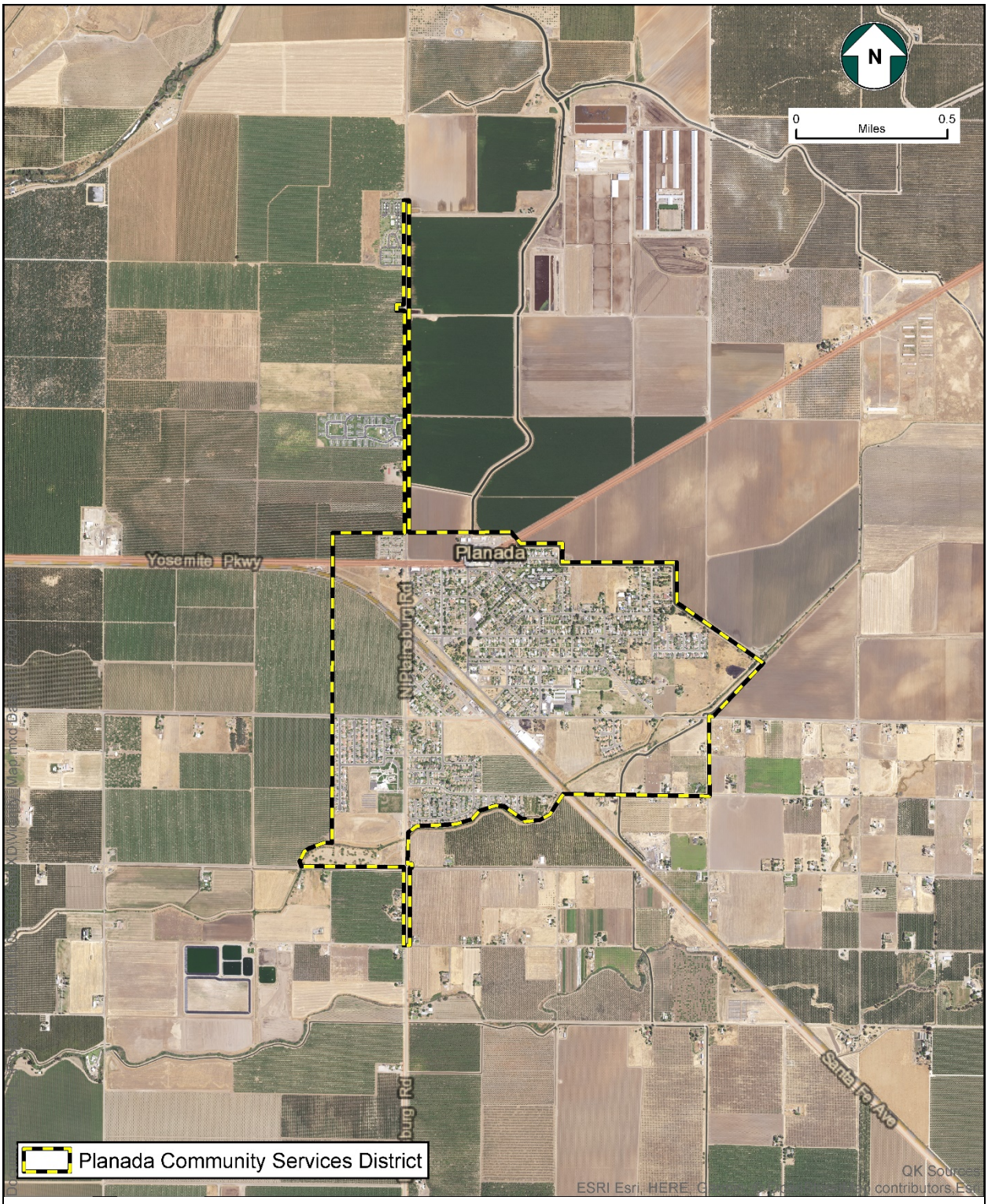

Figure 1-2
Project Vicinity Map
Wastewater Collection System Replacement Project
Planada, Merced County, California

SECTION 2 - METHODS

2.1 - Definition of Biological Study Area

The Biological Study Area (BSA) that was examined for this Project includes the entire CSD (Figure 1-2). This area would equate to the Action Area under NEPA. The Project site within the CSD is limited to the locations of the existing pipelines, plus a 25-foot buffer on each side.

2.2 - Definition of Special-Status Species

For the purposes of this report, special-status species include:

- Species listed as threatened or endangered under the Federal Endangered Species Act (FESA); species that are under review may be included if there is a reasonable expectation of listing within the life of the Project,
- Species listed as candidate, threatened, or endangered under the California Endangered Species Act (CESA),
- Species designated as Fully Protected, Species of Special Concern, or Watch List by the California Department of Fish and Wildlife (CDFW),
- Other species included on the CDFW's Special Animals List,
- Plant species with a California Rare Plant Rank (CRPR) in categories 1 or 2, *and*
- Species designated as locally important by the Local Agency and/or otherwise protected through ordinance or local policy.

2.3 - Literature Review and Database Analysis

The following sources were reviewed for information on special-status biological resources in the Project vicinity:

- CDFW's California Natural Diversity Database (CNDDB; CDFW 2018a)
- CDFW's Biogeographic Information and Observation System (BIOS; CDFW 2018)
- CDFW's California Wildlife Habitat Relationships (CWHR) System (Mayer and Laudenslayer 1988)
- California Native Plant Society (CNPS) Inventory of Rare and Endangered Plants of California (CNPS 2018)
- U.S. Fish and Wildlife Service's (USFWS) Information for Planning and Consultation system (USFWS 2018)
- USFWS Critical Habitat Mapper (USFWS 2018)
- USFWS National Wetlands Inventory (NWI; USFWS 2018)
- USGS National Hydrography Dataset (NHD; USGS 2018)
- Federal Emergency Management Agency (FEMA) flood zone maps (FEMA 2018)
- U.S. Department of Agriculture, Natural Resources Conservation Service (NRCS) Web Soil Survey (NRDC 2018)
- California Protected Areas Data Portal (GreenInfo Network 2018)

- Current and historical aerial imagery (Google LLC 2018)
- Topographic maps (USGS 2018)

For each of these data sources, the search was focused on the *Planada, California* USGS 7.5-minute quadrangle in which the Project is located, plus the surround eight (8) quadrangles: *Haystack Mountain, California*; *Indian Gulch, California*; *Owens Reservoir, California*; *Le Grand, California*; *Plainsburg, California; El Nido, California; Merced, California*; and *Yosemite Lake, California*. For the CNDDB, a 10-mile search radius was used.

The CNDDB provides element-specific spatial information on individually documented occurrences of special-status species and sensitive natural communities. Some of the information available for review in the CNDDB is still undergoing review by the CDFW; these records are identified as unprocessed data. The CNPS database provides similar information as the CNDDB, but at a much lower spatial resolution. Much of this information in these databases is obtained opportunistically and is often focused on protected lands or on lands where development has been proposed. Neither database represents a comprehensive survey for special-status resources in the region. As such, the absence of recorded occurrences in these databases at any specific location does not preclude the possibility that a special-status resource could be present. The NWI and Web Soil Survey provide comprehensive data, but at a low resolution requiring confirmation in the field.

The results of the database inquiries were reviewed to develop a list of special-status resources that may be present in the vicinity of the Project. This list was then evaluated against the existing conditions observed during the reconnaissance site visit of the BSA to determine which special-status resources have the potential to occur, and then the potential for impacts to those resources as a result of implementation of the Project.

2.4 - Reconnaissance-level Field Surveys

A reconnaissance-level site survey of the CSD was conducted to characterize the existing biological conditions of the Project site and the greater BSA. The site visit consisted of windshield surveys within the public right-of-way where the wastewater collection system is located. Occasional pedestrian transects were conducted along roadsides where habitat that would potentially support special-status resource was present. Adjacent parcels were visually scanned for potential special-status resources. The survey effort resulted in 100% visual coverage of the existing wastewater collection system Project area.

All plant and animal species encountered were recorded and identified to the lowest taxonomic level necessary to determine rarity. The locations of any special-status species encountered were documented using GPS. All other potential special-status biological resources, such as aquatic habitats, were also recorded.

SECTION 3 - REGULATORY SETTING

Regulated or sensitive resources that were studied and analyzed include special-status plant and animal species, nesting birds and raptors, sensitive plant communities, jurisdictional

waters and wetlands, wildlife movement areas, and locally protected resources, such as protected trees. Regulatory authority over biological resources is shared by federal, State, and local authorities. Primary authority for regulation of general biological resources lies within the land use control and planning authority of local jurisdictions (in this instance, the Merced County).

Potential impacts to biological resources were analyzed based on the following list of statutes. Summaries of these statues are provided in Appendix A.

- CEQA
- NEPA
- FESA
- CESA
- Federal Clean Water Act
- California Fish and Game Code
- Migratory Bird Treaty Act
- The Bald and Golden Eagle Protection Act
- Porter-Cologne Water Quality Control Act
- 2030 Merced County General Plan
- 2016 Planada Community Plan Final Environmental Impact Report

SECTION 4 - ENVIRONMENTAL SETTING

This section identifies the regional and local environmental setting of the Project and describes existing baseline conditions. The environmental setting of the BSA was documented during a site survey conducted by QK biologists (Table 1).

Table 1.
Field Survey Personnel and Timing.

Date	Personnel	Time	Weather Conditions	Survey Type
11/14/2018	C. Wingert, D. Ayers	0945-1145	54°F to 59°F, calm breeze, no clouds	Reconnaissance windshield

4.1 - Physical Characteristics

The majority of the BSA is developed for agricultural and urban uses and is situated in a region dominated by agricultural development on the east Central Valley floor. Physical characteristics are described in greater detail below. Representative photographs of the BSA are included in Appendix B.

4.1.1 - TOPOGRAPHY

The BSA is located on the eastern floor of the Central Valley, approximately eight miles west of the foothills of the Sierra Nevada (Google LLC 2018, USGS 2018). The topography of the CSD is relatively flat with elevational ranges from roughly 230 to 240 feet above mean sea level.

4.1.2 - CLIMATE

Planada is located in the eastern Central Valley, an area characterized by a Mediterranean climate of hot summers and wet, mild winters. Average high temperatures range from 54°F in January to 97°F in July, with daily temperatures exceeding 100°F several days in the summer (WWRC 2018). Average low temperatures range from 35°F in December to 60°F in July. Precipitation occurs primarily as rain, most of which falls from November to April. Precipitation may also occur as a dense fog during the winter known as Tule fog. Rain rarely falls during the summer months.

4.1.3 - LAND USE

Land uses surrounding the BSA is dominated by agriculture, primarily orchards and flood irrigated row crops (Google LLC 2018). State Route 140, a primary through road for visitors to Yosemite National Park, runs west-northeast along the north side of the community. Planada Canal is present on the northern and eastern boundaries of the community. Miles Creek flows northeast to southwest along the southern side of the community. The

Burlington Northern Santa Fe railroad is situated just inside the western portion of the community.

Scattered rural residences are present throughout the area, primarily to the south. Some small parcels of non-native grassland habitat are scattered throughout the area, which are generally associated with these rural residences or other undeveloped lots on the outskirts of the community.

4.1.4 - SOILS

The BSA is underlain by five soil types (Figure 4-1; NRCS 2018a, 2018b).

Marguerite Silty Clay Loam, 0 to 1 Percent Slopes

Marguerite Silty Clay Loam is a well-drained soil that formed from alluvium derived from metamorphic rock (NRCS 2018a). It is typically found near the bottom of alluvial fans and considered prime farmland if irrigated. This soil type is not prone to flooding or ponding. There is no official soil series description available for this soil type. This soil type is not considered hydric (NRCS 2018b).

Porterville Clay, 0 to 3 Percent Slopes

Porterville Clay is a well-drained soil that formed from alluvium derived from igneous rock (NRCS 2018a). It is typically found near the bottom of alluvial fans and foothills on gentle slopes and is considered prime farmland when irrigated. This soil type is not prone to flooding or ponding. This soil type is found at elevations below 2,000 feet and is associated with semi-arid Mediterranean climates. It is most commonly used for citrus orchards and range pastures. This soil type is not considered hydric (NRCS 2018b).

Burchell Silty Clay Loam, 0 to 1 Percent Slopes

Burchell Silty Clay Loam is a somewhat poorly drained soil that formed from alluvium derived from igneous and sedimentary rock (NRCS 2018a). It is typically found on fan remnants on nearly level to slightly depressional landforms and is considered prime farmland when irrigated. This soil type rarely floods or ponds. It is most often associated with Mediterranean climates and is commonly used for field crops and pasture. This soil type is considered hydric under criteria 2 and 4: found in Aquic suborders, great groups or subgroups, Albolls suborder, Historthels great group, Histoturbels great group, or Andic, Cumulic, Pachic, or Vitrandics subgroups; and is frequently flooded for long duration or very long duration during the group season (NRCS 2018b).

Wyman Clay Loam, 0 to 3 Percent Slopes

Wyman Clay Loam is a well-drained soil that formed from alluvium derived from volcanic rock on nearly level to strongly sloping terraces and alluvial fans (NRCS 2018a). It is not prone to flooding or ponding. Wyman soils are found at elevations below 2,500 feet in

association with Mediterranean climates. This soil type is used extensively for orchards and grains fields. This soil type is not considered hydric (NRCS 2018b).

Honcut Silty Clay Loam, Channeled, 0 to 8 Percent Slopes

Honcut Silty Clay Loam is a well-drained soil that originates from alluvium derived from igneous and metamorphic rock on floodplains and moderately sloping alluvial fans (NRCS 2018a). Honcut soils are found at elevations below 2,000 feet in association with Mediterranean climates. This soil type is highly productive when irrigated and is commonly used for orchards and grain crops (including dryland grain fields). This soil type is considered hydric under criteria 4: frequently flooded for long duration or very long duration during the growing season (NRCS 2018b).

4.1.5 - HYDROLOGY

The BSA is located within the Middle San Joaquin-Lower Chowchilla (UC 18040001) watershed. Two drainages are present with in the BSA: Planada Canal and Miles Creek (Figure 4-2). Both have been channelized. Planada Canal is classified by the NWI as R4SBCx: riverine, intermittent, streambed, seasonally flooded, excavated (USFWS 2018c). Miles Creek is classified by the NWI as PEM1Cx: palustrine emergent persistent, seasonally flooded, excavated. Conditions observed during the site visit indicate these classifications are accurate within the BSA. Habitat within these drainages is discussed in Section 4.2.5.

The majority of the BSA is located within a FEMA 1% annual chance flood hazard zone, with very small portions in the west and south located within a FEMA 0.2% annual chance flood hazard zone (Figure 4-3; FEMA 2018).

4.2 - Vegetation and Other Land Cover

Five habitat types were observed within the BSA: urban, agriculture, and non-native grassland, ruderal, and waterways. The habitats observed on-site have been described in the context of *Preliminary Descriptions of Terrestrial Natural Communities of California* (Holland 1986) and cross-referenced to the CWHR, where appropriate.

4.2.1 - URBAN

Urban is not a habitat described by Holland (1986) but is a subcategory of Developed Habitats in the CWHR. The majority of the BSA is comprised of urban habitat (approximately 409.8 acres) which includes paved roads and parking lots, residences, commercial and industrial buildings (and associated dirt parking lots where present), parks, schools, and the railroad corridor (Figure 4-4). Vegetation in most of this habitat consisted of ornamental herbs (grass lawns and weeds), shrubs and hedges, and non-native trees.

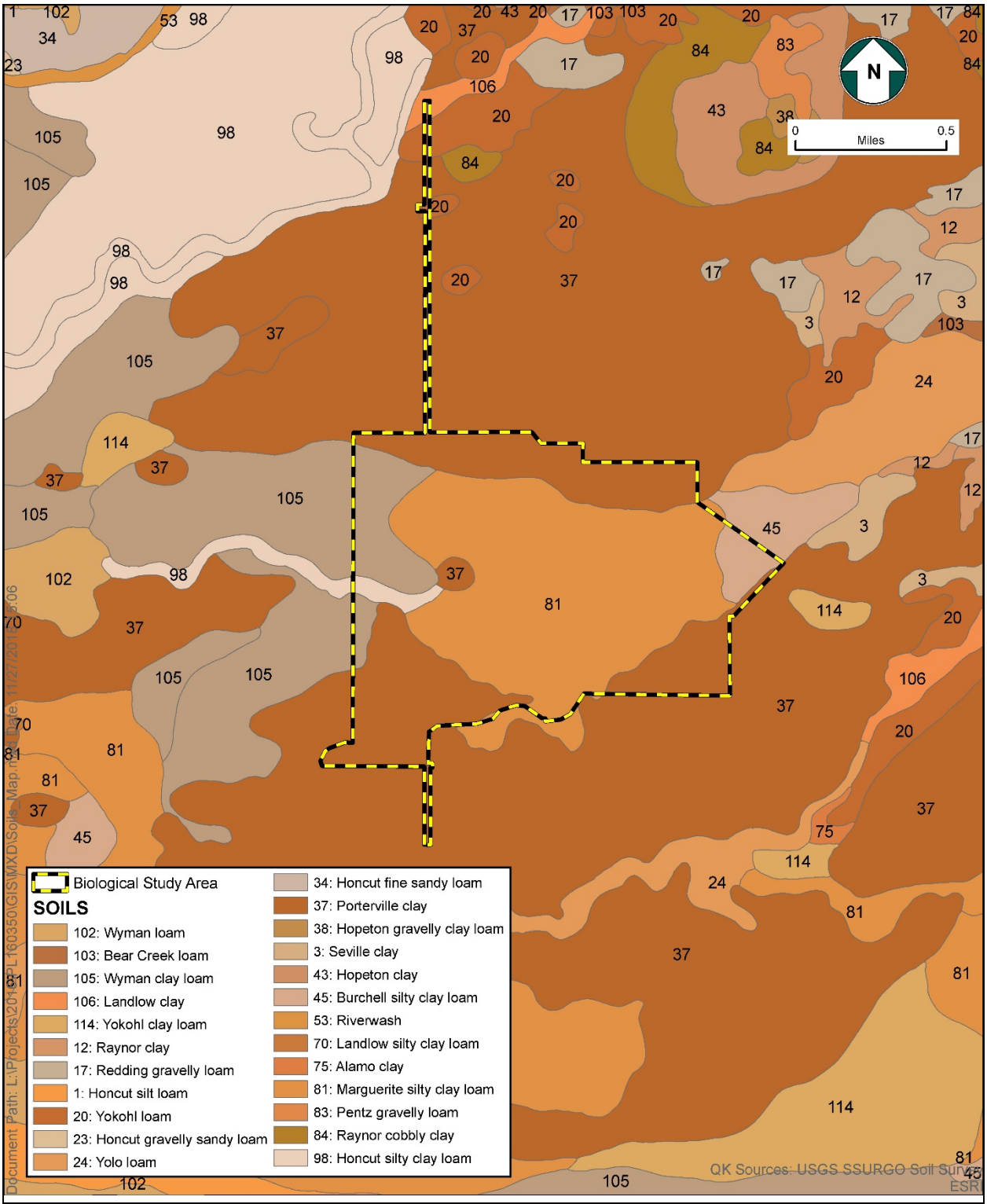

Figure 4-1
Soils Mapped within the BSA
Wastewater Collection System Replacement Project,
Planada, Merced County, California

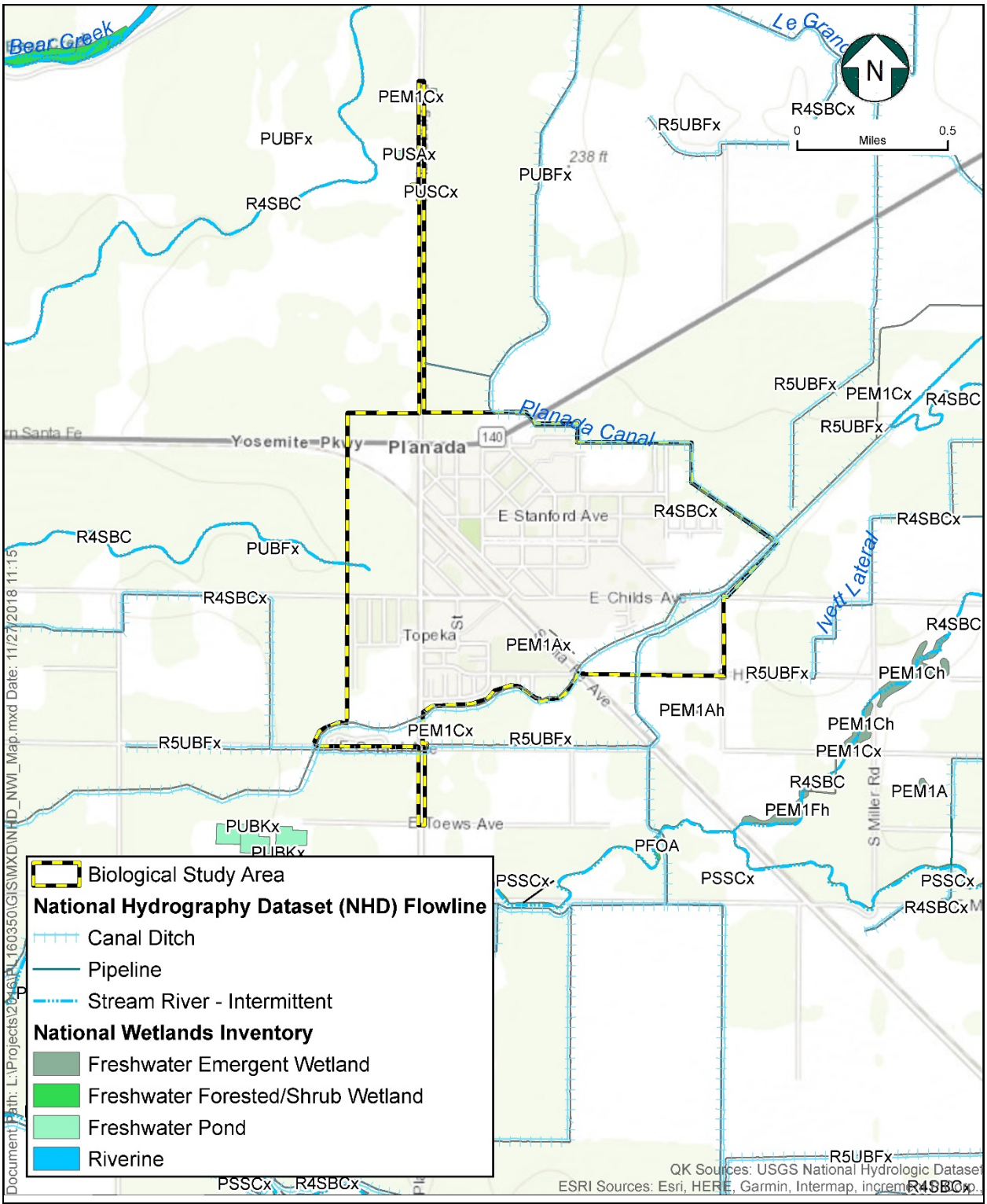

Figure 4-2
NWI and NHD Records of Aquatic Resources,
Wastewater Collection System Replacement Project,
Planada, Merced County, California

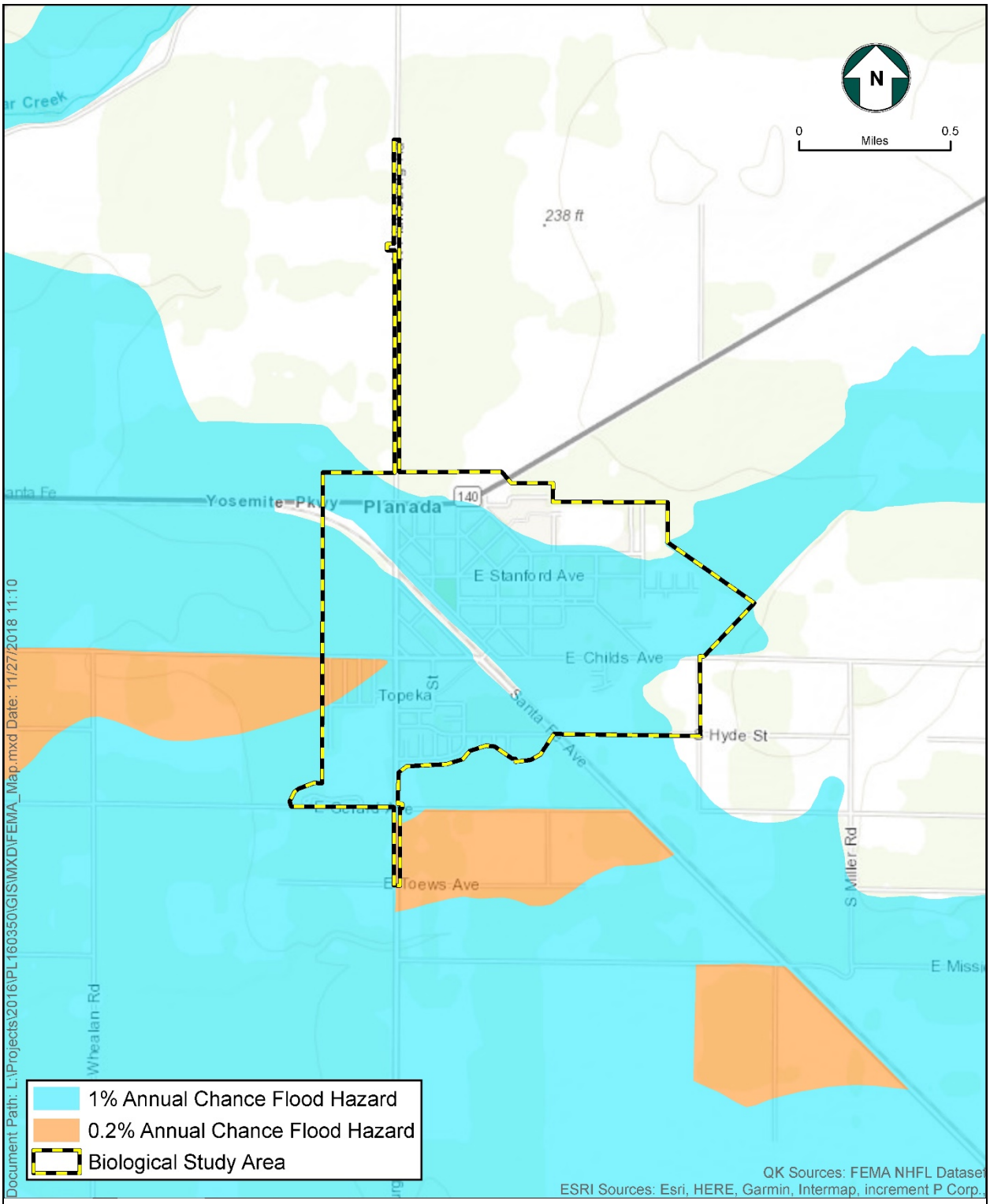

Figure 4-3
FEMA Flood Zone Map,
Wastewater Collection System Replacement Project,
Planada, Merced County, California

4.2.2 - AGRICULTURE

Agricultural habitats are present on approximately 120.9 acres of the BSA and occur primarily along the edges of the BSA (Figure 4-4). Agricultural habitats are not described by Holland (1986) but are broken down into subcategories of Developed Habitats in the CWHR based on crop type. CWHR agricultural habitats within the BSA include deciduous orchard (primarily almonds), irrigated grain crops (primarily corn), and dryland grain crops. The dryland grain crops were associated with individual property owners with livestock, rather than large commercial growers.

4.2.3 - NON-NATIVE GRASSLAND

Non-native grasslands are present on approximately 183.9 acres of the BSA (Figure 4-4). Non-native grassland is described by Holland (1986) as dense to sparse cover of annual grasses and forbs, usually on fine-textured, clay soils, found on valleys and foothills throughout most of the State. Occasional shrubs may be present but are not dominant. This habitat type coincides with the annual grassland described in the CWHR. At the time of the site visit most annual plant species were desiccated beyond identification, but bromes (*Bromus* sp.) and rye grasses (*Festuca* sp.) were present, and forbs such as prickly lettuce (*Lactuca serriola*) and Russian thistle (*Salsola tragus*) were identifiable. Much of the non-native grassland occurs on parcels that had not been developed for urban or agricultural uses. Based on the conditions observed on-site and in historical aerial imagery, most of the non-native grasslands occurring in the BSA are subject to shallow disking at least once per year, likely for fire prevention.

4.2.4 - RUDERAL

Ruderal is not a habitat described by Holland (1986) but does correspond with barren habitats described in the CWHR. Ruderal habitats are generally barren or very sparsely vegetated, usually due to repeated disturbance. Ruderal habitats covered approximately 2.4 acres of the BSA and were mapped in a few areas adjacent to roads (Figure 4-4).

4.2.5 - WATERWAYS

There are two major waterways within the BSA: Planada Canal and Miles Creek (Figure 4-4). They comprised approximately 30.7 acres of the BSA. Neither were easily accessible due to lack of access. Therefore, the following descriptions are based on observations from public access roads and review of historic aerial imagery.

The Planada Canal is located along the northern and eastern boundaries of the BSA, and crosses under Miles Creek at the eastern most edge of the BSA. Except for a few scattered trees, the Planada Canal is devoid of vegetation, suggesting intensive maintenance, and it routinely carries water for agricultural irrigation. Based on historic aerial imagery, the Planada Canal may go dry in the summer, likely associated with drought conditions (Google LLC 2018).

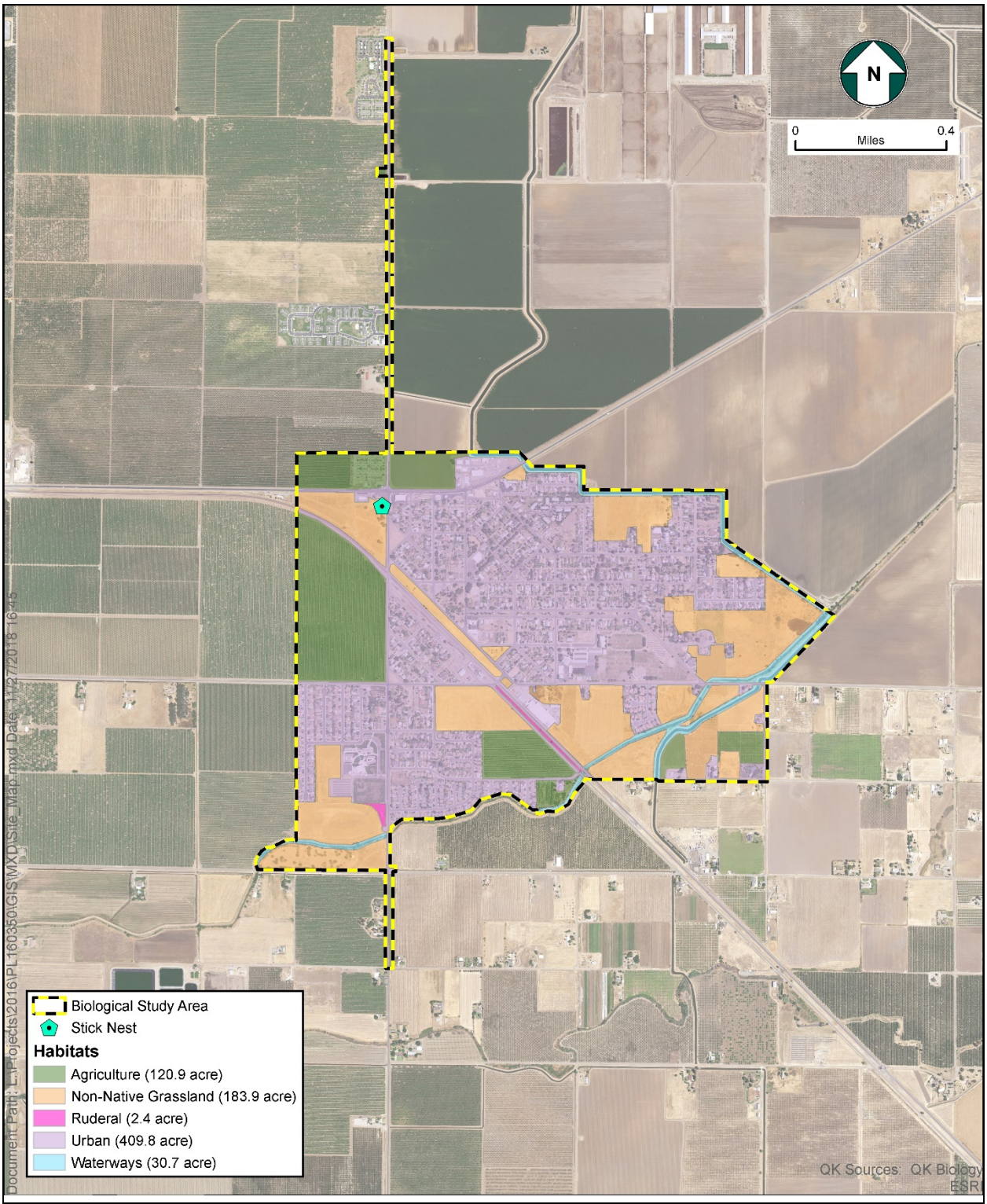

Figure 4-4
Vegetation Communities within the BSA
Wastewater Collection System Replacement Project
Planada, Merced County, California

Miles Creek flows through the southeastern and southern portion of the BSA. Portions of it appear to have been channelized. It is heavily vegetated with grasses, herbs, shrubs, dense patches of vines, and large clusters of trees, and does appear to carry water intermittently, though not as consistently as the Planada Canal (Google LLC 2018). Freshwater emergent vegetation is present in portions of the creek. The habitat along Miles Creek does not correspond well with any of the Holland (1986) or CWHR habitats, but portions could be considered a type of willow riparian habitat, while others could be considered freshwater emergent wetland.

4.3 - General Wildlife Observations

Wildlife activity observed during the reconnaissance site visit was normal for the time of day and the season during which the site visit was conducted. Species observed are common to urban and ruderal habitats, such as gophers (*Thomomys bottae*), California ground squirrels (*Otospermophilus beecheyi*), scrub jays (*Aphelocoma californica*), and house finches (*Haemorhous mexicanus*). One adult red-tailed hawk (*Buteo jamaicensis*) was observed perched in a large eucalyptus tree on the western side of the BSA (Figure 4-4). A stick nest was present in a nearby eucalyptus tree. One American kestrel (*Falco sparverius*) was observed perched on a power line surrounded by agricultural fields along the northern-most portion of the BSA. A complete list of all animals observed is presented in Appendix C.

SECTION 5 - SPECIAL-STATUS RESOURCES

Local, State, and federal agencies regulate special-status species and other sensitive biological resources and require an assessment of their presence or potential for presence to be on-site prior to the approval of proposed development on a property. This section discusses sensitive biological resources observed on the Project site and evaluates the potential for the Project site to support additional sensitive biological resources. Assessments for the potential occurrence of special-status species are based upon known ranges, habitat preferences for the species, species occurrence records from the CNDDB and CNPS, species occurrence records from other sites in the vicinity of the survey area, previous reports for the Project site, and the results of surveys of the Project site. The potential for each special-status species to occur in the study area was evaluated according to the following criteria:

- **No Potential**. Habitat on and adjacent to the site is clearly unsuitable to meet the needs of the species (foraging, breeding, cover, substrate, elevation, hydrology, plant community, site history, disturbance regime), and species would have been identifiable on-site if present (e.g., oak trees). Protocol surveys (if conducted) did not detect species.

- **Potential**. Conditions on the site may, in some way, support a portion of the species ecology (foraging, reproduction, movement/migration). Protocol surveys were conducted, but negative results do not exclude the potential for a species to occur.

- **Present**. Species was observed on the site or has been recorded (e.g., CNDDB, other reports) on the site recently (within the last 5 years).

5.1 - Special-Status Species

Table 2 presents the list of special-status plant and animal species determined to have potential to occur on-site and identifies if the Project may affect the species and threaten the viability of the species population. The complete list of species evaluated for this Project is included in Appendix D. Each species is further discussed in the subsections below.

Table 2.
Special-Status Species with Potential to Occur On-Site

Scientific Name Common Name	Status Fed/State ESA CRPR/CDFW	Potentially Affected by Project? Yes/No	Viability Threat? Yes/No
Plants			
Sagittaria sanfordii Sanford's arrowhead	-/- 1B.2	No	No
Reptiles			
Actinemys [=Emys] marmorata western pond turtle	-/- SSC	No	No

Scientific Name Common Name	Status Fed/State ESA CRPR/CDFW	Potentially Affected by Project? Yes/No	Viability Threat? Yes/No
Birds			
Athene cunicularia burrowing owl	-/- SSC	No	No
Buteo swainsoni Swainson's hawk	-/T	Yes	No
Falco columbarius merlin	-/- WL	No	No
Lanius ludovicianus loggerhead shrike	-/- SSC (nesting)	No	No
Mammals			
Antrozous pallidus pallid bat	-/- SSC	No	No
Eumops perotis californicus western mastiff bat	-/- SSC	No	No
Lasiurus blossevillii western red bat	-/- SSC	No	No
Lasiurus cinereus hoary bat	-/- State Special Animal	No	No
Taxidea taxus American badger	-/- SSC	No	No
Vulpes macrotis mutica San Joaquin kit fox	E/T	Yes	No

CRPR (California Rare Plant Rank):
- 1A Presumed Extinct in California
- 1B Rare, Threatened, or Endangered in California and elsewhere
- 2A Plants presumed extirpated in California, but more common elsewhere
- 2B Plants Rare, Threatened, or Endangered in California, but more common elsewhere

CRPR Threat Code Extension:
- .1 Seriously endangered in California (over 80% of occurrences threatened / high degree and immediacy of threat)
- .2 Fairly endangered in California (20-80% occurrences threatened)
- .3 Not very endangered in California (<20% of occurrences threatened)

- FE Federally Endangered
- FT Federally Threatened
- FC Federal Candidate Species
- FS Federally Sensitive
- SE State Endangered
- ST State Threatened
- SC State Candidate
- SS State Sensitive
- SSC State Species of Special Concern
- SFP State Fully Protected
- SR State Rare

5.1.1 - SPECIAL-STATUS PLANT SPECIES

The literature and database review identified 29 special-status plant species that are known or have a potential to occur within the vicinity of the Project (Appendix D). Of those, one (1) species was determined to have a potential to occur within the BSA based on the habitat conditions observed during the reconnaissance site visit and in aerial imagery (Table 2).

Sanford's Arrowhead

SAGITTARIA SANFORDII

Status: CRPR 1B.2

Sanford's arrowhead is a perennial rhizomatous herb associated with freshwater marshes and swamps and slow moving waterways (e.g., canals, sloughs, ponds), usually on sandy loam or clay soils. The known elevational range is from sea level to 2,130 feet. It has been documented throughout the Central Valley on the valley floor and surrounding foothills. Sanford's arrowhead is ranked as a CRPR List 1B.2 plant, indicating the species is fairly endangered in California with 20-80% of occurrences threatened. Within the BSA, Miles Creek has the potential to support this species.

5.1.2 - SPECIAL-STATUS ANIMAL SPECIES

The literature review identified 39 special-status animal species known or with a potential to occur in the vicinity of the Project (Appendix D). Of those, 11 were determined to have the potential to occur within the BSA based on the habitat conditions observed during the reconnaissance site visit and in aerial imagery (Table 2).

Western Pond Turtle

ACTINEMYS [=EMYS] MARMORATA

Status: State Species of Special Concern

Western pond turtles are highly aquatic and diurnally active, and are found in ponds, lakes, rivers, streams, creeks, marshes, and irrigation ditches with vegetation and rocky/muddy bottoms (Nafis 2018, Zeiner et al. 1988). A key component of suitable habitat for this species is basking areas near water, such as logs, rocks, vegetation mats, and vegetated banks. Western pond turtles are primarily found in freshwater but may enter brackish water and even seawater. They dig nests for egg-laying on land near water. The species is found throughout much of California, ranging from north of San Francisco Bay area south, including the Central Valley. Threats to the species include habitat loss, degradation, and fragmentation, particularly as aquatic habitats become developed or otherwise disturbed. Repeating drought conditions in California potentially lead to local extirpations, sometimes with little potential for natural recolonization, leading to a concern for this species continued existence in some areas.

Western Burrowing Owl

ATHENE CUNICULARIA

Status: State Species of Special Concern

Western burrowing owls are found through much of California, primarily in arid and semi-arid habitats, including deserts (Poulin et al. 2011, Zeiner et al. 1988). Burrowing owls are the only species of owl in North America that utilize subterranean burrows for nesting and shelter. They prefer open habitats with few scattered shrubs or trees. Burrows used by this species are created by other fossorial mammals, especially California ground squirrels. They are also the most diurnally active owl in North America, with peak activity levels during the

crepuscular periods (dawn and dusk). Burrowing owls are known to occur in developed habitats, including urban and agricultural habitats, provided there are burrows available in relatively undisturbed areas (e.g., canals, drainage basins, abandoned railroad tracks). They consume primarily small rodents and insects, with rodents being particularly important during the breed season. Diet will vary based on habitat conditions; the species has been observed hunting bats around parking lot light poles at night (Hoetker and Gobalet 1999). Primary threats to burrowing owls include habitat loss, degradation, and fragmentation, particularly where burrows are present (Poulin et al. 2011, Zeiner et al. 1988). Use of pesticides to reduce rodent and insect populations may threaten burrowing owls in urban and agricultural habitats caused by secondary poisoning transferred through their prey.

Within the BSA, suitable burrowing owl habitat is present in undeveloped lots subject to minimal disking, as well as along the banks and easements of Planada Canal and Miles Creek. The railroad corridor is active with frequent train traffic and likely not suitable for burrowing owls. Foraging habitat is abundant throughout much of the BSA, particularly on the outer edges of the BSA, as well as in the surrounding area.

Swainson's Hawk

BUTEO SWAINSONI

Status: State Threatened

Swainson's hawks occur in grassland, desert, and agricultural landscapes throughout the Central Valley and Antelope Valley (Bechard et al. 2010, Zeiner et al. 1988). Some hawks may be resident, especially in the southern portion of their range, while others may migrate between winter and breeding habitats. They prefer larger isolated trees or small woodlots for nesting, usually with grassland or dry-land grain fields nearby for foraging but have been known to nest in large eucalyptus trees along heavily traveled free-way corridors. Swainson's hawks forage in grassland, open scrub, pasture, and dryland grain agricultural habitats, primarily for rodents. Swainson's hawks do exhibit a moderate to high nest site fidelity for successful nest sites.

There are several large trees within the BSA that could support nesting by Swainson's hawk, and non-native grassland and dryland grain agricultural lands within the BSA and greater region provide suitable foraging habitat.

Merlin

FALCO COLUMBARIUS

Status: California Watch List

Merlins do not breed in California but are present as winter transients from September to May (Zeiner et al. 1988). They may be present in most of the western half of the State below 3,900 feet in open grasslands, savannahs, woodlands, coastlines, lakes, wetlands, and early successional stage habitats. They are rarely found in the Mojave Desert. Merlins prefer dense tree stands close to bodies of water for cover. They feed primarily on small birds. Threats likely include the reduction of bird prey species due to pesticides.

The dense clusters of riparian trees along Miles Creek appear to be the most suitable habitat for this species within the BSA.

Loggerhead Shrike

LANIUS LUDOVICIANUS

Status: State Species of Special Concern

The loggerhead shrike is a common year-round resident in lowlands and foothills throughout California, primarily in open grassland and pasture habitats with scattered perches (e.g., fence posts, utility lines, shrubs) (Zeiner et al. 1988). They primarily consume large insects but will also take small birds, reptiles and mammals. They typically nest in shrubs and trees in dense foliage less than 50 feet above the ground.

Suitable nesting and foraging habitat is located primarily within the edges of the BSA, especially along Miles Creek.

Pallid Bat

ANTROZOUS PALLIDUS

Status: State Species of Special Concern

Pallid bats occur throughout California in a wide variety of natural habitats from sea level up through mixed conifer forests (Zeiner et al. 1988). They are most often found in open, dry habitats with rocky areas for roosting. Day roosts typically consist of caves, crevices, mines, and occasionally hollow trees, buildings, and bridges, so long as the roost can protect them from high temperatures. Night roots usually consist of more open sites. Pallid bats feed mainly on insects and arachnids, and they need access to water. Maternity season is from early April to as late as August. This species is very sensitive to disturbance at its roosts.

Within the BSA, potential roosts may be present in some of the larger trees and taller buildings, and possibly the Plainsburg Road bridge over Miles Creek, but roost options appear to be very few.

Western Mastiff Bat

EUMOPS PEROTIS CALIFORNICUS

Status: State Species of Special Concern

Western mastiff bats occur in open, semi-arid to arid habitats, and urban habitats, throughout the southeastern San Joaquin Valley and Coast Ranges from Monterey County southward (Zeiner et al. 1988). They feed primarily on insects captured in flight. Roosts typically include cliff faces, high buildings, trees, and tunnels. Nursery roosts are most often found in tight crevices in rocks or buildings. Maternity season begins in March and generally ends in September.

Within the BSA, there may be suitable day and night roosts in some of the larger trees, though nursery roost options are lacking.

Western Red Bat

LASIURUS BLOSSEVILLII

Status: State Species of Special Concern

Western red bats are locally common from Shasta County south to the Mexican border, west of the Sierra Nevada and Cascade crests (Zeiner et al. 1988). They migrate between summer and winter ranges but may be found year-round in the Central Valley. They are most often found in forests and woodlands from sea level up through mixed conifer forest but are not found in deserts. Western red bats feed on insects over grasslands, shrublands, croplands, and open areas in forests and woodlands. They roost primarily in trees on the edges of habitats near streams, fields, or urban areas. They also require water. Their maternity season is from May through July.

Potential roost sites are present in trees within the edges of the BSA where grassland habitat is present, and along Miles Creek.

Hoary Bat

LASIURUS CINEREUS

Status: None; included on State Special Animals List

Hoary bats can be found anywhere in California from sea level to 13,200 feet (Zeiner et al. 1988). They winter on the coast and in southern California and breed inland north of their winter range. Hoary bats roosts in dense foliage on medium to large trees, usually along habitat edges or in habitat mosaics. A water sources is required. Their maternity season is from May through July, with nursery roosts occurring in woodlands and forests. They often forage with other bat species.

Suitable roosts may be present in trees along the edges of the BSA.

American Badger

TAXIDEA TAXUS

Status: State Species of Special Concern

American badgers occur most often in open, drier stages of grasslands, shrub, and forest habitats where friable soils are present (Zeiner et al. 1988). They dig burrows for cover and reproduction and can dig a new burrow every night. American badgers are nocturnally active and feed mostly on fossorial rodents, such as gophers and ground squirrels. Litters are born in March or April. They are somewhat tolerant of human activities but avoid cultivated agricultural habitats.

Suitable habitat is present in grasslands within the edges of the BSA and along the banks of Miles Creek above average water levels, though there is a lack of good connectivity to other areas of suitable habitat in the region.

San Joaquin Kit Fox

VULPES MACROTIS MUTICA

Status: Federally Endangered and State Threatened

San Joaquin kit foxes are a subspecies of kit fox that is endemic to the Central Valley of California (USFWS 1998, 2010). They are found primarily in the San Joaquin Valley, Carrizo Plain, and Cuyama Valley, as well as other small valleys in the western foothills of the Central Valley. They are only found west of the Sierra Nevada crest. They occupy arid to semi-arid grasslands, open shrublands, savannahs, and grazed lands with loose-textured soils. San Joaquin kit foxes are well-established in some urban areas and are highly adaptable to human-altered landscapes. They generally avoid intensively maintained agricultural land uses. San Joaquin kit foxes uses subterranean dens year-round for shelter and pup-rearing. They are nocturnally active but may be visible above ground near their dens during the day, particularly in the spring. The feed primarily on small mammals, but will consume a variety of prey, and will scavenge for human food.

Suitable habitat is present within the BSA in grassland and dry-land grain habitats, and along Miles Creek, Planada Canal, and the railroad corridor.

Nesting Birds

In addition to the special-status species above, habitat conditions within the BSA could support a range of nesting birds from ground nesting species, such as killdeer (*Charadrius vociferous*), to common song birds, such as house finch, to raptors, such as red-tailed hawks.

5.2 - Sensitive Natural Communities

5.2.1 - SENSITIVE PLANT COMMUNITIES

The database and literature review identified one sensitive plant community documented within the vicinity of the BSA: Northern Hardpan Vernal Pool (CDFW 2018a). This habitat was not observed and would not be expected to be present because of the developed/disturbed nature of the BSA. The freshwater emergent wetland and riparian habitats associated with Miles Creek are also considered sensitive plant communities.

5.2.2 - CRITICAL HABITATS

The BSA does not overlap any federally-designated critical habitats (USFWS 2018a). The nearest critical habitat is for California tiger salamander (*Ambystoma californiense*), which is located approximately 1.8 miles to the east.

5.3 - Jurisdictional Aquatic Resources

Based on review of NWI and aerial imagery, Miles Creek is a blue line drainage that flows into Hartely Slough, and then Owens Creek southwest of the City of Merced (Google LLC 2018, USWFS 2018c). Owens Creek then connects to Deep Slough, which eventually connects

to the San Joaquin River on the west side of the Central Valley. The San Joaquin River flows north towards the Sacramento-San Joaquin Delta in the San Francisco Bay area, where it connects to the Pacific Ocean, a Traditional Navigable Water.

Planada Canal is a blue line drainage that crosses and may be connected to Owens Creek south of the BSA (Google LLC 2018, USFWS 2018c). Its waters flows through other irrigation canals to the west, but these canals do not appear to connect to any natural features. Planada Canal also crosses and may be connected to Duck Slough, which flows across the Central Valley westward to Deep Slough. Water would then follow the same path described above for Miles Creek to the Pacific Ocean, a Traditional Navigable Water.

Based on a significant nexus to a Traditional Navigable Water, both Miles Creek and Planada Canal would be under the jurisdiction of the U.S. Army Corps of Engineers (USACE) as authorized by the Clean Water Act. Both drainages would also be under the regulatory authority of the Central Valley Regional Water Quality Control Board and the CDFW.

5.4 - Wildlife Movement

Wildlife movement corridors, also referred to as dispersal corridors or landscape linkages, are generally defined as linear features along which animals can travel from one habitat or resource area to another. Wildlife movement corridors can be large tracts of land that connect regionally important habitats that support wildlife in general, such as stop-over habitat that supports migrating birds or large contiguous natural habitats that support animals with very large home ranges (e.g., coyotes [*Canis latrans*], mule deer [*Odocoileus hemionus californicus*]). They can also be small scale movement corridors, such as riparian zones, that provide connectivity and cover to support movement at a local scale.

The BSA is located within the Northern Sierra Nevada Foothills wildlife linkage, as identified by the wildlife connectivity project conducted by the CDFW (Krause et al. 2015). The wildlife connectivity project evaluated the potential for wildlife connectivity using several common species known to occur in the region. Species for which this particular linkage was identified included black-tailed jackrabbit (*Lepus californicus*), Cooper's hawk (*Accipiter cooperii*), California ground squirrel, Heerman's kangaroo rat (*Dipodomys heermani*), California quail (*Callipepla californica*), gopher snake (*Pituophis catenifer*), lark sparrow (*Chondestes grammacus*), racer (*Coluber constrictor*), and yellow-billed magpie (*Pica nuttalli*). No other identified corridors or linkages overlap the BSA.

Within the BSA, Miles Creek is likely to provide the best habitat for local wildlife movements through the area, particularly for those species that are sensitive to human disturbance. The remaining portions of the BSA are highly developed for urban and agricultural uses, and while that may be compatible for species such as Cooper's hawk and California ground squirrel, most wildlife will tend to avoid these developed areas.

5.5 - Resources Protected by Local Policies and Ordinances

The Planada Community Plan does not specifically address preservation of biological resources; however, it was developed to comply with the 2030 Merced County General Plan, within which the Natural Resources Element contains numerous policies aimed at achieving Goal NR-1: Preserve and protect, through coordination with the public and private sectors, the biological resources of the County. Those policies are presented in Appendix A.

Planada is an unincorporated community and is, therefore, subject to Merced County ordinances. Merced County does not have any local ordinances for protection of biological resources.

5.6 - Habitat Conservation Plans

The BSA is located within the boundaries of the PG&E San Joaquin Valley Operations and Maintenance Habitat Conservation Plan; however, this plan applies only to PG&E projects and does not apply to the currently proposed Project. The BSA does not overlap any other habitat conservation plans.

SECTION 6 - IMPACT ANALYSIS AND AVOIDANCE, MINIMIZATION, AND MITIGATION MEASURES

This section provides an analysis of the potential for biological resources to be impacted by the proposed Project. The analysis has been developed using the CEQA Appendix G questions, but also provides sufficient information to support NEPA documentation.

The following impact analysis is based on the Project description, including the following assumptions:

- Implementation of the Project will occur in phases over a 10-year period.
- The Project includes replacement of existing lines only; there will be no new construction.
- All construction will occur during daylight hours.
- No trees will be removed.
- Surface conditions above the replaced line will be restored to pre-project conditions, resulting in no loss of habitat.
- The sewer line crossing Miles Creek at Plainsburg Road will be replaced via trenchless methods that avoid impacts to waters and habitats in the creek.
- Implementation of the Project may occur at any time of year.
- The area of disturbance will be limited to the pipeline plus 10 feet on either side.

6.1 - Special-Status Species

The proposed Project would have a significant effect on biological resources if it would:

a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.

6.1.1 - PROJECT IMPACTS TO SPECIAL-STATUS PLANT SPECIES

Impact Analysis

As discussed in Section 5, one special-status plant species was determined to have the potential to occur within the BSA based on the presence of suitable habitat and soil conditions: Sanford's arrowhead.

Sanford's arrowhead is a CRPR 1B.2 species, indicating that it is considered rare, threatened, or endangered in California and elsewhere, and that it is moderately threatened in California (20-80% of occurrences threatened/moderate degree and immediacy of threat). This plant species is associated with aquatic habitats that can support emergent wetland species. Within the BSA, this species is expected to be limited to Miles Creek, and possibly Planada Canal, though it is unlikely to occur in the canal due to frequent maintenance by the local irrigation district, as evidenced by the lack of vegetation in this canal. Given the rare nature of this species, impacts to the species could be considered significant, particularly if multiple individuals are impacted. Impacting only one or two individuals would be considered less than significant.

Because Sanford's arrowhead would only be associated with wetland habitats, the potential for impact from the project would be limited to the locations where existing sewer lines cross Miles Creek and the Planada Canal.

Direct impacts could include the destruction or injury of individuals of the plant species. Spread of dust during construction could also cause an impact, but the potential for this is low as dust is commonly thrown up when vehicles travel over unpaved surfaces. Furthermore, the proposed project would have a very limited disturbance footprint sufficient for removal and replacement of the existing sewer lines. Therefore, most suitable habitat would be avoided.

Indirect impacts would likely be limited to the spread of invasive, non-native species; however, such species are already prevalent in the area. No loss of habitat is anticipated as surface conditions would be returned to pre-project conditions once the pipeline is replaced.

Avoidance, Minimization, and Mitigation Measures

Due to the limited disturbance footprint for this Project, avoidance and minimization should be sufficient to reduce the level of significance. The following measures are recommended.

BIO-MM-1 Pre-activity Surveys for Sanford's Arrowhead. Prior to start of ground disturbance, a qualified biologist knowledgeable on the identification of Sanford's arrowhead should conduct a pedestrian survey of areas of appropriate habitat for this species within the Project area to determine if it is present. Surveys for Sanford's arrowhead would be limited to Miles Creek and Planada Canal. Surveys should be conducted during the bloom period for the species. Multiple surveys may be needed and should be phased with construction of the Project such that they are conducted during the bloom periods immediately prior to start of ground disturbance. If the species is not identified during the survey(s), no further action is required.

If the species is observed within the disturbance footprint, the biologist will identify those locations in the field using pin flags or other methods of marking to inform the contractor. Those areas should be avoided where possible. If only one or two individuals cannot be avoided, no further efforts are needed. If a larger population is present and cannot be avoided, the Project proponent will contact the CDFW at least 10 days prior to disturbance to allow for the collection of seed from these plant species (the construction schedule will proceed whether the CDFW collects seed or not).

Significance After Mitigation. Implementation of the mitigation measures above will reduce Project impacts to Sanford's arrowhead to a less than significant level.

6.1.2 - PROJECT IMPACTS TO SPECIAL-STATUS ANIMAL SPECIES

Western Pond Turtle

The western pond turtle is a State Species of Special Concern that is highly aquatic and may be found in Miles Creek. The species is less likely to be found in the Planada Canal because of a lack of vegetation, but the water present in Planada Canal may be important to pond turtles inhabiting Miles Creek when it is dry. The species would only be impacted if it occurs in Miles Creek where the sewer line crosses the creek next to Plainsburg Road. Direct impacts could include injury or death of individual turtles or destruction of nests buried along the creek corridor. No indirect effects are anticipated because pre-project conductions will be restored after the sewer line is replaced, and the section of pipeline crossing Miles Creek is expected to be replaced via jack-and-bore or some other subterranean method that avoids impacts to surface water and vegetation.

Western Burrowing Owl

The western burrowing owl is a State Species of Special Concern that could occur within the BSA where suitable burrows are present, most likely in association with California ground squirrels. There are numerous areas of suitable habitat near the existing sewer line, particularly in the southern portions of the BSA. Direct impacts could include injury or death of individuals or nests if occupied burrows adjacent to the sewer line are damaged or destroyed. Noise and vibration from construction of the Project, plus the presence of

construction workers, could alter the normal behaviors of nesting adults, resulting in harm or death to eggs or nestlings. No indirect impacts are anticipated given the short-duration of construction in any given area and no loss of suitable habit would occur.

Swainson's Hawk

The Swainson's hawk is a State Threatened species. Trees sufficient to support nesting were observed in the outskirts of the BSA, particularly in the eastern and northwestern areas. A stick nest was observed in eucalyptus trees in the northwestern portion of the BSA; it is unknown which species constructed or has used this nest in the past because the observation was made outside of the nesting season. There is suitable foraging habitat within the non-native grasslands occurring in the BSA. Direct impacts to Swainson's hawk could occur if replacement of sewer lines occur near an active nest or adjacent to foraging habitat during the nesting season. No trees are expected to be removed, but noise and vibration from construction of the Project, plus the presence of construction workers, could alter the normal behaviors of nesting adults, resulting in harm or death to eggs or nestlings. No indirect impacts are anticipated given the short-duration of construction in any given area and no loss of suitable nesting or foraging habit would occur.

Merlin

Merlins are a California Watch List species that only occurs in the region as winter transients. If they are found within the BSA, they would likely be located along Miles Creek where tree density is highest or in some of the more isolated tree stands next to undeveloped habitat. These areas would not be affected by the Project; therefore, there would be no impacts to merlins.

Loggerhead Shrike

Loggerhead shrikes are a State Species of Special Concern that would most likely be found on the edges of the BSA where trees and large shrubs are present along Miles Creek or other parcels that contain non-native grassland. The sewer lines are not located in these areas; therefore, there would be no impacts to loggerhead shrikes.

Pallid Bat, Western Mastiff Bat, Western Red Bat, Hoary Bat

The availability of roosts for these bat species are limited within the BSA. No trees are expected to be removed as a result of the Project. Most of the sewer lines are located under paved roads with housing on all sides. Individual bats may day roost in neighborhood trees, but large maternity roosts are not expected to be present. There is one sewer line crossing of Miles Creek next to the Plainsburg Road bridge. It is possible that some bats may use this bridge as a day roost, but replacement of the pipeline is not expected to impact this bridge. No impacts to bats are anticipated.

American Badger

The potential for American badgers to occur within the BSA is low because of the highly developed nature of the BSA and greater region, but there are some parcels containing suitable habitat, primarily along the edges of the BSA. Miles Creek may also provide suitable habitat. If badgers are present within the BSA, they could be directly impacted if replacement of sewer lines occurs near an active maternity den. Noise and vibration from construction of the Project, plus the presence of construction workers, could alter the normal behaviors of breeding adults, resulting in harm or death to young. No indirect impacts are anticipated because of the short-duration of construction in any given area and no loss of suitable habit would occur.

San Joaquin Kit Fox

As noted in Section 5, San Joaquin kit fox are highly adaptable to human-altered landscapes and could be found in the BSA, particularly on undeveloped parcels and along Miles Creek. They are very curious creatures that can cover large areas each night in search food. This increases the chance that they could encounter the construction area during foraging activities. This species would most likely be directly impacted by the Project through entrapment in open excavations or pipes. Direct impacts resulting in injury or death of pups could occur if an active natal den is located near the construction area, causing the adults to alter normal behaviors. Direct impacts by vehicles is a concern for San Joaquin kit foxes in urban environments, but the proposed Project would not be expected to cause an appreciable increase in traffic at night when the species is active.

Indirect impacts are not anticipated as surface conditions will be restored once replacement of the pipeline is complete, and no loss of suitable habitat would occur.

Nesting Birds

The BSA contains suitable habitat that could support a wide variety of nesting bird species protected under the Migratory Bird Treaty Act and the California Fish and Game Code. While no trees or shrubs are anticipated to be removed, Project activities adjacent to nesting birds could result in direct impacts to the nests from noise and vibration caused by construction activities. No indirect impacts are anticipated because no habitat will be lost.

Avoidance, Minimization, and Mitigation Measures

The limited disturbance footprint for this Project and the short duration of activities at any given location, coupled with implementation of avoidance and minimization should be sufficient to reduce impacts of the Project to special-status wildlife species to level that would be less than significant. The following measures are recommended.

BIO-MM-2 **Pre-activity Surveys for San Joaquin Kit Fox, American Badger, and Burrowing Owl**. Within 14 days of the start of Project activities in any specific area, a pre-activity survey should be conducted by a qualified biologist knowledgeable in

the identification of these species. The surveys should cover the Project site plus a 500-foot buffer. Pedestrian surveys achieving 100% visual coverage should be conducted. Multiple surveys are anticipated to be needed, which would be phased with construction of the Project. If no evidence of these species is detected, no further action is required.

BIO-MM-3 **Avoidance of Burrows for San Joaquin Kit Fox, American Badger, and Burrowing**. If dens/burrows that could support any of these species are discovered during the pre-activity surveys conducted under BIO-MM-2, the avoidance buffers outlined below should be established. No work would occur within these buffers unless the biologist approves and monitors the activity.

San Joaquin Kit Fox
- Potential Den – 50 feet
- Atypical Den – 50 feet (includes pipes and other man-made structures)
- Known Den – 100 Feet
- Natal/Pupping Den – 500 feet

Badger
- Potential Den – None
- Natal/Pupping Den – 100 feet

Burrowing Owl (active burrows)
- April 1 – October 15 – 500 feet
- October 16 – March 31 – 100 feet

BIO-MM-4 **Avoidance and Minimization Measures for San Joaquin Kit Fox, American Badger, and Burrowing**. The following avoidance and minimization measures should be implemented during all phases of the Project to reduce the potential for impact from the Project. They are modified from the *U.S. Fish and Wildlife Service Standardized Recommendations for Protection of the Endangered San Joaquin Kit Fox Prior to or During Ground Disturbance* (Appendix F; USFWS 2011) and apply to all three species.

- Project-related vehicles should observe a daytime speed limit of 20-mph throughout the site in all project areas, except on county roads and State and Federal highways. Night-time construction speed limits should be 10-mph.
- Off-road traffic outside of designated project areas should be prohibited.
- All project activities should occur during daylight hours.
- To prevent inadvertent entrapment of kit foxes or other animals during construction of the project, all excavated, steep-walled holes or trenches more than two (2) feet deep should be covered at the close of each working day by plywood or similar materials. If the trenches cannot be closed, one

or more escape ramps constructed of earthen-fill or wooden planks shall be installed.

- Before holes or trenches are filled, they should be thoroughly inspected for trapped animals. If at any time a trapped or injured kit fox is discovered, the USFWS and the CDFW should be contacted before proceeding with the work.
- In the case of trapped animals, escape ramps or structures should be installed immediately to allow the animal(s) to escape, or the USFWS should be contacted for guidance.
- All construction pipes, culverts, or similar structures with a diameter of 4 inches or greater that are stored at a construction site for one or more overnight periods should be thoroughly inspected for kit foxes and burrowing owls before the pipe is subsequently buried, capped, or otherwise used or moved in any way. If a kit fox or burrowing owl is discovered inside a pipe, that section of pipe should not be moved until the USFWS has been consulted. If necessary, and under the direct supervision of the biologist, the pipe may be moved only once to remove it from the path of construction activity, until the fox or owl has escaped.
- All food-related trash items such as wrappers, cans, bottles, and food scraps should be disposed of in securely closed containers and removed at least once a week from a construction or project site.
- No firearms shall be allowed on the project site.
- No pets, such as dogs or cats, should be permitted on the project site.
- Use of rodenticides and herbicides in project areas should be restricted.
- A representative shall be appointed by the project proponent who will be the contact source for any employee or contractor who might inadvertently kill or injure a kit fox, burrowing owl or badger or who finds a dead, injured or entrapped kit fox, burrowing owl or badger. The representative will be identified during the employee education program and their name and telephone number shall be provided to the Service.
- An employee education program should be developed and presented to project personnel. The program should consist of a brief presentation by persons knowledgeable in kit fox, burrowing owl, and badger biology, as well as Sanford's arrowhead, and the legislative protections in place. The program should include the following: A description of each species natural history and habitat needs; a report of the occurrence of each species in the project area; an explanation of the status of each species and its protections under federal and state laws; and a list of measures being taken to reduce impacts to each species during project construction and implementation. A fact sheet conveying this information should be prepared for distribution to the previously referenced people and anyone else who may enter the project site.
- Upon completion of the project, all areas subject to temporary ground disturbances (including storage and staging areas, temporary roads, pipeline corridors, etc.) should be re-contoured if necessary, and

revegetated to promote restoration of the area to pre- project conditions. An area subject to "temporary" disturbance means any area that is disturbed during the project, but after project completion will not be subject to further disturbance and has the potential to be revegetated.

- Any project personnel who are responsible for inadvertently killing or injuring one of these species should immediately report the incident to their representative. This representative should contact the CDFW and USFWS immediately in the case of a dead, injured or entrapped kit fox.
- The Sacramento Fish and Wildlife Office and CDFW shall be notified in writing within three working days of the accidental death or injury to a San Joaquin kit fox during project related activities. Notification must include the date, time, and location of the incident or of the finding of a dead or injured animal and any other pertinent information.
- New sightings of kit fox shall be reported to the California Natural Diversity Database (CNDDB). A copy of the reporting form and a topographic map clearly marked with the location of where the kit fox was observed should also be provided to the USFWS.

BIO-MM-5 **Pre-activity Nesting Bird Surveys**. If project activities must occur during the nesting season (February 15 to August 31), pre-activity nesting bird surveys should be conducted within seven (7) days prior to the start of construction at the construction site plus a 250-foot buffer for song birds and a 500-foot buffer for raptors (other than Swainson's hawk). The surveys should be phased with construction of the project. If no active nests are found, no further action is required; however, note that nests may become active at any time throughout the summer, including when construction activities are occurring. If active nests are found during the survey or at any time during construction of the project, an avoidance buffer ranging from 50 feet to 350 feet may be required, as determined by a qualified biologist. The avoidance buffer will remain in place until the biologist has determined that the young are no longer reliant on the nest. Work may occur within the avoidance buffer under the approval and guidance of the biologist. The biologist should have the ability to stop construction if nesting adults show sign of distress.

BIO-MM-6 **Pre-activity Surveys for Swainson's Hawk Nests**. If Project activities must occur during the nesting season (February 15 to August 31), pre-activity surveys should be conducted for Swainson's hawk nests within 14 days prior to the start of construction. The surveys would be conducted on the Project site plus a ½-mile buffer. The surveys should be phased with construction of the Project. The survey will be conducted in accordance with the methodology outlined in existing protocols and should phased with construction of the Project. Note that Swainson's hawks may establish a nest at any time from February through June; multiple Swainson's hawks nest surveys may be necessary in one season at the direction of a qualified biologist, depending on the timing of Project construction.

If no Swainson's hawk nests are found, no further action is required.

BIO-MM-7 **Swainson's Hawk Nest Avoidance.** If an active Swainson's hawk nest is discovered at any time within ½-mile of active construction, a qualified biologist will complete an assessment of the potential for current construction activities to impact the nest. The assessment will consider the type of construction activities, the location of construction relative to the nest, the visibility of construction activities from the nest location, and other existing disturbances in the area that are not related to construction activities of this Project. Based on this assessment, the biologist will determine if construction activities can proceed, and if nest monitoring will be required. Minimally, construction activities should not occur within 100 feet of an active nest and may require monitoring if within 500 feet of an active nest. These buffers may need to increase depending on the sensitivity of the nest location.

Significance After Mitigation. Implementation of the mitigation measures above will reduce the level of significance for special-status animal species to a less than significant level.

6.2 - Sensitive Natural Communities and Critical Habitat

The proposed Project would have a significant effect on biological resources if it would:

b) Have a substantial adverse impact on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or US Fish and Wildlife Service.

The BSA does not overlap critical habitat. Potentially sensitive wetland and riparian habitat is present in Miles Creek. There is one sewer line crossing of Miles Creek along Plainsburg Road. Assuming this section of the pipeline is replaced using trenchless methods that would avoid disturbing the surface above the line, the Project would have no impacts to sensitive natural communities and no measures are required.

6.3 - Jurisdictional Aquatic Resources

The proposed Project would have a significant effect on biological resources if it would:

c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.

The BSA encompasses Miles Creek along Plainsburg Road; however, the Project as proposed does not include any repair or modification of the sewer line where it crosses Miles Creek. As such, the Project would have no impacts to federally-protected wetlands and no measures are required.

6.4 - Wildlife Movement

The proposed Project would have a significant effect on biological resources if it would:

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

The Project is located in a highly developed urban and agricultural area and would not result in loss of habitat. There is one sewer line crossing of Miles Creek along Plainsburg Road, and Miles Creek may serve as a local movement corridor. Assuming this section of the pipeline is replaced using trenchless methods that would avoid disturbing the surface above the line, the Project would have no impacts to the creek itself. Furthermore, construction of the Project is expected to be of short duration at any given location, thereby reducing the potential for interrupting wildlife movements at Miles Creek. It is also anticipated that construction will occur during daylight hours, thereby avoiding any potential impacts due to night lighting spilling over into wildlife habitat. As such, the potential for impacts to wildlife movement are less than significant and no measures are required.

6.5 - Local Policies and Ordinances

The proposed Project would have a significant effect on biological resources if it would:

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

The proposed Project does not conflict with the 2030 Merced County General Plan, and there are no local ordinances applicable to the Project. The Project's impacts to biological resources will be temporary and no loss of habitat will occur. Furthermore, construction at any given location is expected to be of short-duration. Therefore, there are no impacts with respect to local policies and ordinances and no measures are required.

6.6 - Adopted or Approved Plans

The proposed Project would have a significant effect on biological resources if it would:

f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Conservation Community Plan, or other approved local, regional, or state habitat conservation plan.

The PG&E San Joaquin Valley Operations and Maintenance Habitat Conservation Plan is the only conservation plan overlying the proposed Project, but it does not apply to any projects that are not implemented by PG&E. As such, the proposed Project will not conflict with any adopted Habitat Conservation Plan, Natural Conservation Community Plan, or other approval local, regional, or state habitat conservation plan. Therefore, there are no impacts and no measures are required.

SECTION 7 - LIMITATIONS, ASSUMPTIONS, AND USE RELIANCE

This Biological Analysis Report has been performed in accordance with professionally accepted biological investigation practices conducted at this time and in this geographic area. The findings and opinions conveyed in this report are based on findings derived from site reconnaissance, jurisdictional areas, and specified historical and literature sources. The biological investigation is limited by the scope of work performed. Reconnaissance biological surveys for certain taxa may have been conducted as part of this assessment but were not performed during a particular blooming period, nesting period, or particular portion of the season when positive identifications of species presence would be certain. Therefore, the results of the surveys conducted cannot be considered definitive. The biological surveys are limited also by the environmental conditions present at the time of the surveys. In addition, general biological (or protocol) surveys do not guarantee that the organisms are not present and will not be discovered in the future within the site. In particular, mobile animal species could occupy the site on a transient basis or re-establish populations in the future. No other guarantees or warranties, expressed or implied, are provided.

SECTION 8 - REFERENCES

Baldwin, B.G. (Ed.), D.H. Goldman (Ed.), D. J. Keil (Ed.), R. Patterson (Ed.), T. J. Rosatti (Ed.), D. H. Wilken (Ed.). 2012. *The Jepson Manual: Vascular Plants of California, Second Edition, Thoroughly Revised and Expanded*. University of California Press. Berkeley, California.

Bechard, M. J., C. S. Houston, J. H. Saransola, and A. S. England. 2010. Swainson's Hawk (*Buteo swainsoni*), version 2.0. In The Birds of North America (A. F. Poole, Editor). Cornell Lab of Ornithology, Ithaca, NY, USA. https://doi.org/10.2173/bna.265

Bowers, N., R. Bowers, & K. Kaufman. 2004. *Mammals of North America*.

Burt, W.H., and R.P. Grossenheider. 1980. *A Field Guide to the Mammals of North American North of Mexico*. The Peterson Field Guide Series.

Calflora. 2018. *Information on wild California plants for conservation, education, and appreciation*. Berkeley, CA. Updated online and accessed via: www.calflora.org.

California Department of Fish and Wildlife. 2018a. California Natural Diversity Database (CNDDB) – Commercial version dated November 1, 2018. Retrieved November 13, 2018, from https://map.dfg.ca.gov/rarefind/view/RareFind.aspx.

CDFW. 2018b. Biogeographic Information and Observation System (BIOS). Retrieved November 13, 2018 from www.wildlife.ca.gov/data/BIOS

CDFW. 2018c. *Special Animals List*. Biogeographic Data Branch, California Natural Diversity Database. November 2018.

CDFW. 2018d. *Special Vascular Plants, Bryophytes, and Lichens List*. Biogeographic Data Branch, California Natural Diversity Database. November 2018.

California Native Plant Society. 2018. Inventory of Rare and Endangered Plants. V.7-08c-Interim 8-22-02. Updated online and accessed via: www.rareplants.cnps.org.

Federal Emergency Management Agency. 2018. FEMA flood map service center. Tulare County Unincorporated Areas. https://msc.fema.gov/portal/search#searchresultsanchor

Google LLC. 2018. Google Earth Pro.

Holland, Robert F. 1986. *Preliminary Descriptions of the Terrestrial Natural Communities of California*. California Department of Fish and Wildlife, Nongame Heritage Program. 156 pgs.

Hoetker, G. M. and K. W. Gobalet. 1999. *Predation on Mexican free-tailed bats by burrowing owls in California*. Journal of Raptor Research 33(4):333-335.

Krause, C. M., M. Gogol-Prokurat, and S. Bisrat. 2015. Wildlife connectivity across the northern Sierra Nevada foothills. Technical report to the California Wildlife Conservation Board on the northern Sierra Nevada foothills fine-scale connectivity analysis. January 2015. California Department of Fish and Wildlife, Biogeographic Data Branch, Conservation Analysis Unit.

Mayer, K. E., and W. F. Laudenslayer, Jr. 1988. *A guide to wildlife habitat of California*. State of California, Resources Agency, Department of Fish and Wildlife. Sacramento, CA 166 pp.

Merced County. 2013. 2030 Merced County General Plan. Board of Supervisors Resolution No. 2013-147. December 10, 2013. https://www.co.merced.ca.us/DocumentCenter/View/6766/2030-General-Plan?bidId=

Nafis, G. 2018. California Herps - A Guide to the Amphibians and Reptiles of California. Accessed November 2018.Available at: http://www.californiaherps.com/

Poulin, R. G., L. D. Todd, E. A. Haug, B. A. Millsap, and M. S. Martell. 2011. Burrowing Owl (*Athene cunicularia*), version 2.0. In The Birds of North America (A. F. Poole, Editor). Cornell Lab of Ornithology, Ithaca, NY, USA. https://doi.org/10.2173/bna.61

Sawyer, J. O., T. Keeler-Wolf, and J.M. Evens. 2009. *A Manual of California Vegetation, Second Edition. California Native Plant Society.* Sacramento, California.

Stebbins, R. C. 2003. *A Field Guide to Western Reptiles and Amphibians. 2nd ed*. Houghton-Mifflin Company. Boston, Massachusetts.

U.S. Geological Survey. 2018. National Hydrography Dataset. https://www.usgs.gov/core-science-systems/ngp/national-hydrography

United States Department of Agricultural, Natural Resources Conservation Service. 2018a. Web Soil Survey. Accessed November 13, 2018. Soil Survey Area: Merced Area, California (CA648). Available at: https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm.

United States Department of Agriculture, Natural Resources Conservation Service. 2018b. Lists of Hydric Soils. National Cooperative Soil Survey, U.S. Department of Agriculture. Accessed via: https://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/use/hydric/.

United States Fish and Wildlife Service (USFWS). 1973. The Endangered Species Act of 1973, as amended (16 U.S.C 1531 et seq.).

USFWS. 1998. *Recovery plan for upland species of the San Joaquin Valley, California*. Region 1. Portland, OR. 319 pp.

USFWS. 2010. *San Joaquin kit fox (Vulpes macrotis mutica) 5-year review: summary and evaluation*. Sacramento Fish and Wildlife Office, Sacramento, CA. 122 pp.

USFWS. 2011. *U.S. Fish and Wildlife Service standardized recommendations for protection of the endangered San Joaquin kit fox prior to or during ground disturbance*. January 2011. Sacramento Fish and Wildlife Office.

USFWS. 2018a. Critical Habitat Portal. Available at: https://ecos.fws.gov/ecp/report/table/critical-habitat.html

USFWS. 2018b. Information for Planning and Consultation online project planning tool. Available at: https://ecos.fws.gov/ipac/

USFWS. 2018c. National Wetlands Inventory Wetlands Mapper. https://www.fws.gov/wetlands/data/mapper.html

Western Regional Climate Center. 2018. Cooperative Climatological Data Summaries, NOAA Cooperative Station Merced APO California (045532). https://wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca9367

Zeiner, D.C., W.F. Laudenslayer, Jr., K.E. Mayer, and M. White, eds. 1988. *California's Wildlife. Vol. I-III*. 1988-1990, with updates online. California Department of Fish and Wildlife, Sacramento, California. Accessed in November 2018 at: https://www.wildlife.ca.gov/Data/CWHR/Life-History-and-Range

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APPENDIX A

REGULATORY SETTING
PLANADA WASTEWATER COLLECTION SYSTEM REPLACEMENT PROJECT

Regulatory Setting

Federal Laws and Regulations

Federal Endangered Species Act of 1973 (USC, Title 16, Sections 1531 -1543)

The federal Endangered Species Act (FESA) and subsequent amendments provide guidance for the conservation of endangered and threatened species and the ecosystems upon which they depend. The FESA defines species as threatened or endangered and provides regulatory protection for listed species. The FESA provides a program for the conservation and recovery of threatened and endangered species as well as the protection of designated critical habitat that USFWS determines is required for the survival and recovery of listed species.

Section 9 lists actions that are prohibited under the FESA. Although take of a listed species is prohibited, it is allowed when it is incidental to an otherwise legal activity. Section 9 prohibits take of listed species of fish, wildlife, and plants without special exemption. The definition of "harm" includes significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns related to breeding, feeding, or shelter. "Harass" is defined as actions that create the likelihood of injury to listed species by disrupting normal behavioral patterns related to breeding, feeding, and shelter significantly.

Section 7 of the FESA requires federal agencies, in consultation with and assistance from the Secretary of the Interior or the Secretary of Commerce, as appropriate, to ensure that actions they authorize, fund, or carry out are not likely to jeopardize the continued existence of threatened or endangered species or result in the destruction of adverse modification of critical habitat for these species. The USFWS and National Marine Fisheries Service (NMFS) share responsibilities for administering the FESA. Regulations governing interagency cooperation under Section 7 are found in California Code of Regulations (CCR) Title 50, Part 402. If an activity could result in "take" of a listed species as an incident of an otherwise lawful activity, then a biological opinion can be issued with an incidental take statement that exempts the activity from FESA's take prohibitions. The AV Apollo Solar Project lacks federal funding or any other nexus to federal jurisdiction, and Section 7 does not apply.

Section 10 provides a means whereby a nonfederal action with the potential to result in take of a listed species can be allowed under an incidental take permit. Application procedures are found at CFR Title 50, Sections 13 and 17 for species under the jurisdiction of USFWS and CFR, Title 50, Sections 217, 220, and 222 for species under the jurisdiction of NMFS. Section 10 would apply to the Project if take of a species (as defined in Section 9) were determined to occur.

Section 4(a)(3) and (b)(2) of the FESA requires the designation of critical habitat to the maximum extent possible and prudent based on the best available scientific data and after considering the economic impacts of any designations. Critical habitat is defined in section 3(5)(A) of the FESA: 1) areas within the geographic range of a species that are occupied by individuals of that species and contain the primary constituent elements (physical and

biological features) essential to the conservation of the species, thus warranting special management consideration or protection; and 2) areas outside of the geographic range of a species at the time of listing but that are considered essential to the conservation of the species.

Migratory Bird Treaty Act (USC, Title 16, Sections 703 - 711)

The MBTA, first enacted in 1918, is a series of treaties that the United State has with Great Britain (on behalf of Canada), Mexico, Japan, and the former Soviet Union that provide for international migratory bird protection. The MBTA authorizes the Secretary of the Interior to regulate the taking of migratory birds. The act provides that it shall be unlawful, except as permitted by regulations, "to pursue, take, or kill any migratory bird, or any part, nest or egg of any such bird" (U.S. Code Title 16, Section 703). The MBTA currently includes several hundred species and includes all native birds.

BALD AND GOLDEN EAGLE PROTECTION ACT OF 1940 (USC, TITLE 16, SECTION *668)*

The Bald and Golden Eagle Protection Act (BGEPA) of 1940 protects bald eagles (*Haliaeetus leucoephalus*) and golden eagle (*Aquila chrysaetos*) by prohibiting the taking, possession, and commerce of these species and established civil penalties for violation of this act. Take of bald and golden eagles includes to "pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb." To disturb means to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, 1) injury to an eagle, 2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or 3) nest abandonment, by substantially inferring with normal breeding, feeding, or sheltering behavior. (Federal Register [FR], volume 72, page 31132; 50 CFR 22.3).

Federal Clean Water Act (USC, Title 33, Sections 1521 - 1376)

The Federal Clean Water Act (CWA) provides guidance for the restoration and maintenance of the chemical, physical, and biological integrity of the nation's waters. Section 401 requires that a Project applicant that is pursuing a federal license or permit allowing a discharge to waters of the U.S. to obtain State Certification of Water Quality, thereby ensuring that the discharge will comply with provisions of the CWA. The Regional Water Quality Control Board (RWQCB) administers the certification program in California. Section 402 establishes a permitting system for the discharge of any pollutant (except dredged or fill material) into waters of the U.S. Section 404 establishes a permit program administered by the United States Army Corps of Engineers (USACE) that regulates the discharge of the dredged or fill material into waters of the U.S., including wetlands. The USACA implementing regulations are found in CFR, Title 33, Sections 320 and 330. Guidelines for implementation are referred to as the Section 404(b)(1) Guidelines, which were developed by the United States Environmental Protection Agency (EPA) in conjunction with USACE (40 CFR 230). The guidelines allow the discharge of dredged or fill material into the aquatic system only if there is no practicable alternative that would have less adverse impacts.

Applicable State Laws and Regulations

California Environmental Quality Act (California Public Resources Code, Sections 21000 - 21178, and Title 14 CCR, Section 753, and Chapter 3, Sections 15000 - 15387)

The California Environmental Quality Act (CEQA) is California's broadest environmental law. CEQA helps guide the issuance of permits and approval of projects. Courts have interpreted CEQA to afford the fullest protection of the environment within the reasonable scope of the statutes. CEQA applies to all discretionary projects proposed to be conducted or approved by a State, County, or City agency, including private projects requiring discretionary government approval.

The purpose of CEQA is to disclose to the public the significant environmental effects of a proposed discretionary project; prevent or minimize damage to the environment through development of project alternatives, mitigation measures, and mitigation monitoring; disclose to the public the agency decision making process to approve discretionary projects; enhance public participation in the environmental review process; and improve interagency coordination.

State CEQA Guidelines Section 15380(b) provides that a species not listed on the federal or State list of protected species nonetheless may be considered rare or endangered for purposed of CEQA if the species can be shown to meet certain specified criteria. These criteria have been modeled after the definition in FESA and the section of the California Fish and Game Code dealing with rare or endangered plants or animals.

California Endangered Species Act (California Fish and Game Code Section 2050 et seq.)

The California Endangered Species Act (CESA) establishes the policy of the State to conserve, protect, restore, and enhance threatened or endangered species and their habitats. The CESA mandates that State agencies should not approve Projects that would jeopardize the continued existence of threatened or endangered species if reasonable and prudent alternatives are available that would avoid jeopardy. For Projects that would result in take of a species listed under the CESA, a project proponent would need to obtain a take permit under Section 2081(b). Alternatively, the CDFW has the option of issuing a Consistency Determination (Section 2080.1) for Projects that would affect a species listed under both the CESA and the FESA, as long as compliance with the FESA would satisfy the "fully mitigate" standard of CESA, and other applicable conditions.

Porter-Cologne Water Quality Control Act

Under Section 401 of the CWA, the RWQCB must certify that actions receiving authorization under Section 404 of the CWA also meet State water quality standards. The RWQCB regulates waters of the State under the authority of the Porter-Cologne Water Quality Control Act (Porter Cologne Act). The RWQCB requires Projects to avoid impacts to wetlands whenever feasible and requires that Projects do not result in a net loss of wetland acreage or a net loss of wetland function and values. The RWQCB typically requires compensatory mitigation for impacts to wetlands and/or waters of the State. The RWQCB has jurisdiction over waters

deemed 'isolated' or not subject to Section 404 jurisdiction under the Solid Waste Agency of Northern Cook County (SWANCC) decision. Dredging, filling, or excavation of isolated waters constitutes a discharge of waste into waters of the State, and such discharges are authorized through an Order of Waste Discharge (or waiver of discharge) from the RWQCB.

Various Sections of the California State and Fish and Game Code

SECTION 460 AND SECTIONS 4000-4003

Chapter 5 of the California Fish and Game Code (FGC) describes regulations concerning the take of furbearing mammals, including defining methods of take, seasons of take, bag and possession limits, and areas of the State where take is allowed. Section 4000-4003 defines furbearing mammals, and the issuance of permits by the Department. Sections 460 and 4000 identifies fisher, marten, river otter, desert kit fox and red fox as furbearing mammals, and Section 460 prohibits take of these species at any time. This section of the California Fish and Game Code (FGC) has historically been interpreted to apply to restriction on furbearer trapping permit but has recently been expanded by CDFW to apply to any forms of take and treated as if these species were listed under CESA.

SECTIONS 1600 THROUGH 1616

Under these sections of the FGC, a Project operator is required to notify CDFW prior to any Project that would divert, obstruct, or change the natural flow, bed, channel, or bank of any river, stream, or lake. Pursuant to the California Code of Regulations, a "stream" is defined as a body of water that flows at least periodically, or intermittently, through a bed or channel having banks and supporting fish or other aquatic life. Based on this definition, a watercourse with surface or subsurface flows that supports of has supported riparian vegetation is a stream and is subject to CDFW jurisdiction. Altered or artificial watercourses valuable to fish and wildlife are subject to CDFW jurisdiction. CDFW also has jurisdiction over dry washes that carry water during storm events. Preliminary notification and Project review generally occur during the environmental process. When an existing fish or wildlife resource may be substantially adversely affected, CDFW is required to propose reasonable Project changes to protect the resource. These modifications are formalized in a Streambed Alteration Agreement.

SECTIONS 3511, 4700, 5050, AND 5515

The protection of fully protected species is described in Sections 3511, 4700, 5050, and 5515 of the FGC. These statues prohibit take or possession of fully protected species. CDFW is unable to authorize incidental take of fully protected species, except as allowed for in an approved Natural Communities Conservation Plan (NCCP), or through direct legislative action.

SECTIONS 1900 THROUGH 1913 - NATIVE PLANT PROTECTION ACT

California's Native Plant Protection Act (NPPA) requires all State agencies to use their authority to carry out programs to conserve endangered and rare native plants. Provision of

the NPPA prohibit that taking of listed plants from the wild and require notification of CDFW at least ten days in advance of any change in land use. This allows CDFW to salvage listed plant species that otherwise would be destroyed. A Project proponent is required to conduct botanical inventories and consult with CDFW during Project planning to comply with the provisions of this act and sections of CEQA that apply to rare or endangered plants.

California Food and Agricultural Code Sections 800071 Through 80075 - California Desert Native Plant Protection Act

The California Desert Native Plant Protection Act affords protection to certain native desert plant species, including all species of the agave family (Agavacae), all species of the genus Prosopis, all species of the genus Cercidium, and makes the harvest, transport, sale, or possession of these species unlawful unless a permit it first obtained.

Local and Regional Laws, Regulations, and Policies

Merced County General Plan

Development within the community of Planada is governed by the Planada Community Plan, an update of which was adopted on March 28, 2017. There are no goals, policies, objectives within the Planada Community Plan that specifically address impacts to biological resources; however, the Final Environmental Impact Report for the Planada Community Plan (SCH# 2016031032) evaluated the impacts of implementation of the community plan under the goals and policies outlined in the Merced County General Plan Natural Resources Element.

Table A-1
2030 Merced County General Plan Natural Resources Element Goal and Policies

Goal	
Goal NR-1:	Preserve and protect, through coordination with the public and private sectors, the biological resources of the County.
Policies	
Policy NR-1.1 Habitat Protection (RDR/PSR)	Identify areas that have significant long-term habitat and wetland values including riparian corridors, wetlands, grasslands, rivers and waterways, oak woodlands, vernal pools, and wildlife movement and migration corridors, and provide information to landowners.
Policy NR-1.2 Protected Natural Lands (RDR/PSR)	Identify and support methods to increase the acreage of protected natural lands and special habitats, including but not limited to, wetlands, grasslands, vernal pools, and wildlife movement and migration corridors, potentially through the use of conservation easements.
Policy NR-1.3 Forest Protection (SO)	Preserve forests, particularly oak woodlands, to protect them from degradation, encroachment, or loss.

Policy NR-1.4 Important Vegetative Resource Protection (SO)	Minimize the removal of vegetative resources which stabilize slopes, reduce surface water runoff, erosion, and sedimentation.
Policy NR-1.5 Wetland and Riparian Habitat Buffer (PSR/RDR)	Identify wetlands and riparian habitat areas and designate a buffer zone around each area sufficient to protect them from degradation, encroachment, or loss.
Policy NR-1.6 Terrestrial Wildlife Mobility (SO)	Encourage property owners within or adjacent to designated habitat connectivity corridors that have been mapped or otherwise identified by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service to manage their lands in accordance with such mapping programs. In the planning and development of public works projects that could physically interfere with wildlife mobility, the County shall consult with the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service to determine the potential for such effects and implement any feasible mitigation measures.
Policy NR-1.7 Agricultural Practices (SO)	Encourage agricultural, commercial, and industrial uses and other related activities to consult with environmental groups in order to minimize adverse effects to important or sensitive biological resources.
Policy NR-1.8 Use of Native Plant Species for Landscaping (SO)	Encourage the use of native plant species in landscaping, and, where the County has discretion, require the use of native plant species for landscaping.
Policy NR-1.9 Rural to Urban Redesignations (MPSP)	Carefully consider the potential impacts on significant habitats from new development when redesignating land from a rural to an urban use.
Policy NR-1.10 Aquatic and Waterfowl Habitat Protection (MPSP)	Cooperate with local, State, and Federal water agencies in their efforts to protect significant aquatic and waterfowl habitats against excessive water withdrawals or other activities that would endanger or interrupt normal migratory patterns or aquatic habitats.
Policy NR-1.11 On-Going Habitat Protection and Monitoring (PSR)	Cooperate with local, State, and Federal agencies to ensure that adequate on-going protection and monitoring occurs adjacent to rare and endangered species habitats or within identified significant wetlands.
Policy NR-1.12 Wetland Avoidance (RDR/PSR/MPSP)	Avoid or minimize loss of existing wetland resources by careful placement and construction of any necessary new public utilities and facilities, including roads, railroads, high speed rail, sewage disposal ponds, gas lines, electrical lines, and water/wastewater systems.
Policy NR-1.13 Wetland Setbacks (RDR)	Require an appropriate setback, to be determined during the development review process, for developed and agricultural uses from the delineated edges of wetlands.

Policy NR-1.14 Temporary Residential Uses (RDR)	Ensure that buildings and structures approved for temporary residential use in significant wetland areas are not converted to permanent residential uses
Policy NR-1.15 Urban Forest Protection and Expansion (SO/MPSP)	Protect existing trees and encourage the planting of new trees in existing communities. Adopt an Oak Woodland Ordinance that requires trees larger than a specified diameter that are removed to accommodate development be replaced at a set ratio.
Policy NR-1.16 Hazardous Waste Residual Repository Location (RDR)	Require new hazardous waste residual repositories (e.g., contaminated soil facilities) to be located at least a mile from significant wetlands, designated sensitive species habitat, and State and Federal wildlife refuges and management areas.
Policy NR-1.17 Agency Coordination (MPSP/IGC/JP)	Consult with private, local, State, and Federal agencies to assist in the protection of biological resources and prevention of degradation, encroachment, or loss of resources managed by these agencies.
Policy NR-1.18 San Joaquin River Restoration Program Support (MPSP/SO)	Monitor the San Joaquin River Restoration Program efforts to ensure protection of landowners, local water agencies, and other third parties.
Policy NR-1.19 Merced River Restoration Program Support (MPSP/SO)	Support the restoration efforts for the Merced River consistent with the Merced River Corridor Restoration Plan.
Policy NR-1.20 Conservation Easements (SO/IGC/JP)	Encourage property owners to work with land trusts and State and Federal agencies to pursue voluntary conservation easements.
Policy NR-1.21 Special-Status Species Surveys and Mitigation (RDR/SO/IGC)	Incorporate the survey standards and mitigation requirements of state and federal resource management agencies for use in the County's review processes for both private and public projects.

Categories of Implementation Action/Tools
RDR – Regulation and Development Review
MPSP – Infrastructure and Service Master Plans, Strategies, and Programs
FB – Financing and Budgeting
PSR – Planning Studies and Reports
SO – County Services and Operations
IGC – Inter-Governmental Coordination
JP – Joint Partnerships with the Private Sector
PI – Public Information

Source: (Merced County 2013)

APPENDIX B

REPRESENTATIVE PHOTOGRAPHS OF THE *PLANADA WASTEWATER COLLECTION SYSTEM REPLACEMENT PROJECT*



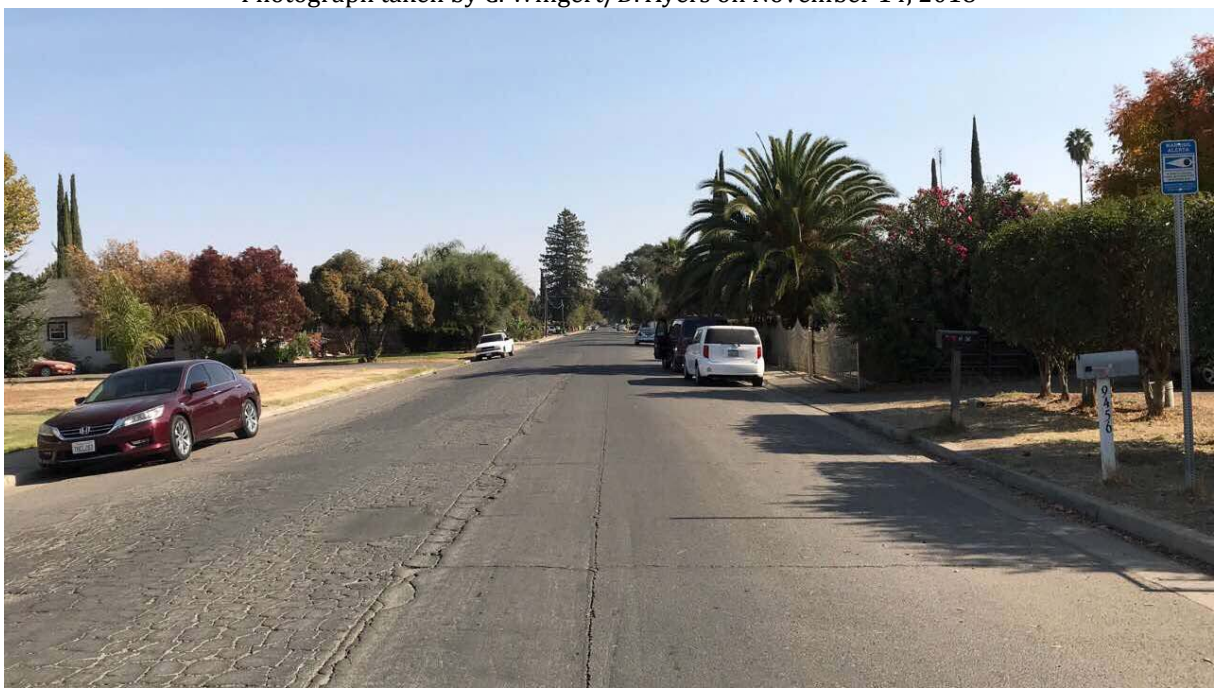
Photograph 1: View of northern-most extent of sewer line on Plainsburg Road
Looking south from Lat: 37.31314970° Long: -120.32482247°
Photograph taken by C. Wingert/D. Ayers on November 14, 2018.



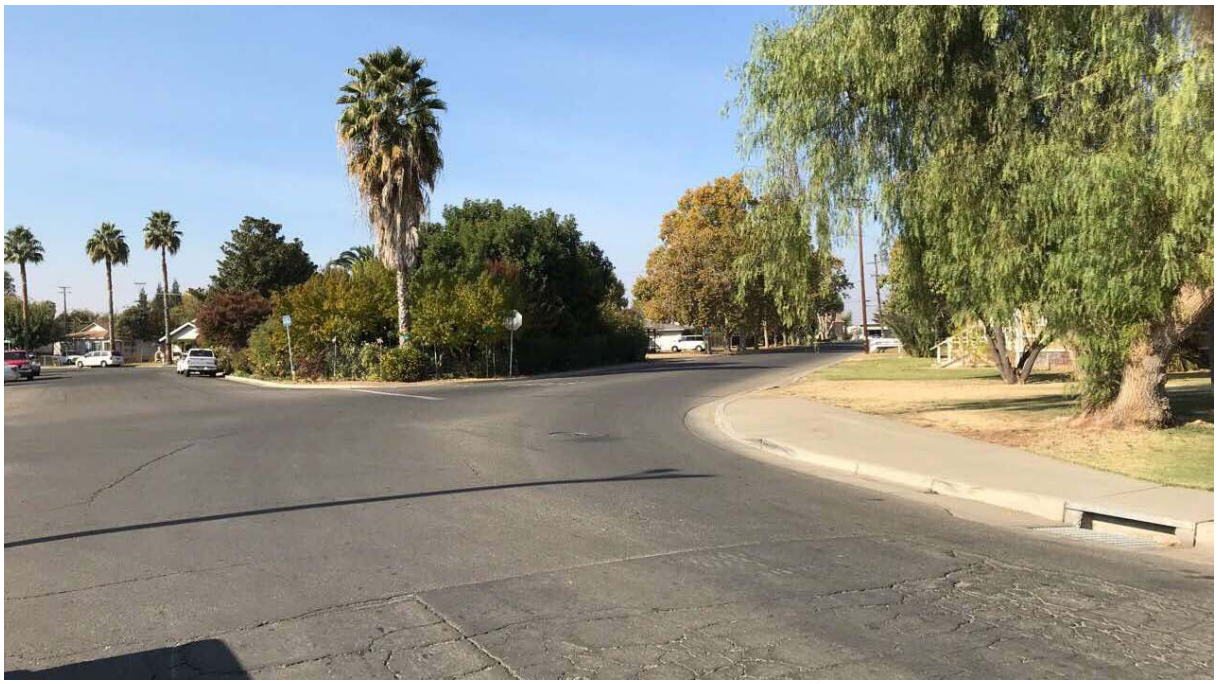
Photograph 2: View of sewer line along right shoulder of Santa Fe Drive
Looking southeast from Lat: 37.29242440° Long: -120.32424495°
Photograph taken by C. Wingert/D. Ayers on November 14, 2018



Photograph 3: View of non-native grassland habitat along Santa Fe Drive
Looking west from Lat: 37.29242440° Long: -120.32424495°
Photograph taken by C. Wingert/D. Ayers on November 14, 2018



Photograph 4: View of sewer line in urban habitat on Haskell Avenue
Looking east from Lat:37.29289846° Long: -120.31662111°
Photograph taken by C. Wingert/D. Ayers on November 14, 2018



Photograph 5: View of sewer line in urban habitat on Haskell Avenue
Looking west from Lat:37.29289846° Long: -120.31662111°
Photograph taken by C. Wingert/D. Ayers on November 14, 2018



Photograph 6: View of sewer line route through an alley in urban habitat
Look east from Lat: 37.29133009° Long: -120.31857218°
Photograph taken by C. Wingert/D. Ayers on November 14, 2018

APPENDIX C

PLANT AND ANIMAL SPECIES OBSERVED WITHIN THE BIOLOGICAL STUDY AREA
PLANADA WASTEWATER COLLECTION SYSTEM REPLACEMENT PROJECT

Table C-1
Plant Species Observed within the Biological Study Area on November 14, 2018.
Wastewater Collection System Replacement Project, Planada, Merced County, California

Scientific Name	Common Name	Status	Native or Introduced*
Trees			
Eucalyptus globulus	Blue gum	None	Introduced; Cal-IPC Limited
Multiple ornamentals		None	Introduced
Salix lasiolepis	arroyo willow	None	Native
Shrubs			
Rubus armeniacus Multiple ornamentals	Himalayan blackberry	none	
Herbs			
Juncus sp.	Rush		
Lactuca serriola	Prickly lettuce	None	Introduced; Cal-IPC Moderate
Salsola tragus	Russian thistle	None	Introduced; Cal-IPC Limited
Silybum marianum	milk thistle	None	Introduced;
Rumex sp.			
Multiple ornamentals			Introduced
Grasses			
Bromus sp.	bromes	None	Introduced; Cal-IPC Moderate
Festuca sp.	Rye grass	None	Introduced; Cal-IPC Moderate
Cynodon dactylon	Bermuda grass	None	Introduced; Cal-IPC Moderate

*Cal-IPC = California Invasive Plant Council.
Rating system: **High** = several ecological impacts; **Moderate** = substantial but not severe ecological impacts; **Limited** = minor ecological impacts or not enough information to justify higher score; **Alert** = species ranked as High or Moderate with limited distribution, but potential to spread; **Watch** = could pose a high risk of becoming invasive in the future.

Table C-2
Animal Species Observed within the Biological Study Area on November 14, 2018.
Wastewater Collection System Replacement Project, Planada, Merced County, California

Scientific Name	Common Name	Status	Native or Introduced
Birds			
Falco sparverius	American kestrel	None	Native
Aphelocoma californica	Scrub jay	None	Native
Euphagus cyanocephalus	Brewer's blackbird	None	Native
Haemorhous mexicanus	House finch	None	Native
Buteo jamaicensis	Red-tailed hawk	None	Native
Corvus brachyrhynchos	American crow	None	Native
Mammals			
Otospermophilus beecheyi	California ground squirrel	None	Native
Thomomys bottae	Pocket gopher	None	Native

APPENDIX D

SPECIAL-STATUS SPECIES EVALUATION TABLE
PLANADA WASTEWATER COLLECTION SYSTEM REPLACEMENT PROJECT

Table D-1
Special-Status Plant Species in the Regional Vicinity of the Project Site.
Planada Wastewater Collection System Replacement Project, Merced County, California

Scientific Name Common Name	Status Fed/State ESA CRPR/CDFW	Habitat Requirements	Potential to Occur	Rationale
Plants				
Agrostis hendersonii Henderson's bent grass	-/- 3.2	Annual herb; blooms April to June; valley and foothill grassland (mesic) and vernal pools; elevation ~230-1,000 feet; documented primarily on lower foothills.	None	Species is more commonly associated with lower foothills and not the valley floor. Site is also heavily disturbed by agricultural and urban development.
Atriplex cordulata var. *cordulata* heartscale	-/- 1B.2	Annual herb; blooms April to October; occurs on saline or alkaline soils in chenopod scrub, meadows and seeps, and valley and foothill grassland (also sandy soils in this habitat); elevation ~0 to 1,840 feet; documented on foothills, lower mountains, and Central Valley floor; threatened by trampling.	None	No suitable soils or moist habitats are present within the study area, which is dominated by agricultural and urban development.
Atriplex depressa brittlescale	-/- 1B.2	Annual herb; blooms April to October; occurs on alkaline and clay soils in chenopod scrub, meadows and seeps, playas, vernal pools, and valley and foothill grassland; elevation ~ 1 to 1050 feet; threatened by development, grazing, and trampling; documented on Central Valley floor, foothills, and lower mountains.	None	More common in moist habitats, which are absent on-site. Site dominated by agricultural and urban development with no suitable natural/undisturbed habitats present.
Atriplex minuscula lesser saltscale	-/- 1B.1	Annual herb; blooms May to October; occurs on alkaline and sandy soils in chenopod scrub, playas, and valley and foothill grassland; elevation ~50 to 655 feet; threatened by agriculture and solar energy development; documented primarily on Central Valley floor with some lower foothill occurrences	None	No suitable soils or habitats present. Site dominated by agricultural and urban development.

Scientific Name Common Name	Status Fed/State ESA CRPR/CDFW	Habitat Requirements	Potential to Occur	Rationale
Atriplex persistens vernal pool smallscale	-/- 1B.2	Annual herb; blooms June and August – October; restricted to alkaline vernal pools on the floor of the San Joaquin Valley and is endemic to California; elevation ~ 30 to 375 feet; threatened by agriculture and flood control activities; documented primarily on Central Valley floor.	None	No vernal pool habitat on-site.
Atriplex subtilis subtle orache	-/- 1B.2	Annual herb; blooms June, August, September, and possibly October; occurs on alkaline soils in valley and foothill grassland; elevation ~130 to 330 feet; threatened by agriculture and possibly solar energy development; documented primarily on Central Valley floor.	None	No suitable soils or habitats on-site. Site dominated by agricultural and urban development.
Calycadenia hooveri Hoover's calycadenia	-/- 2B.3	Annual herb; blooms July – September; occurs on rocky soils in cismontane woodland and valley and foothill grassland; elevation ~ 215-985 feet; threatened by development; documented primarily in eastern foothills of Central Valley.	None	No suitable soils or habitats on-site. Site dominated by agricultural and urban development.
Castilleja campestris var. *succulenta* succulent owl's clover	T/E 1B.2	Annual herb (hemiparasitic); blooms April – May, sometimes as early as March; occurs vernal pools, swales and some seasonal wetlands, often on acidic soils; elevation ~165-2,460 feet; threatened by urban and agricultural development, flood control, grazing, and trampling; documented primarily on eastern Central Valley floor and foothills from Fresno County north.	None	No suitable habitats on-site. Site dominated by agricultural and urban development.
Clarkia rostrata beaked clarkia	-/- 1B.3	Annual herb; blooms April – May; occurs in cismontane woodland and valley and foothill grassland; elevation ~195 to 1,640 feet; documented primarily in eastern Central Valley floor, foothills, and lower mountains in Merced, Mariposa, Stanislaus, and Tuolumne counties.	None	No suitable habitats on-site. Site dominated by agricultural and urban development.

Scientific Name Common Name	Status Fed/State ESA CRPR/CDFW	Habitat Requirements	Potential to Occur	Rationale
Convolvulus simulans small-flowered morning-glory	-/- 4.2	Annual herb; blooms March-July; occurs on clay soils, often on serpentinite seeps, in chaparral (openings), coastal scrub, and valley and foothill grassland; threatened by development and vehicles, and possibly non-native plants; elevation ~98-2430 feet; documented primarily on foothills on the eastern and western sides of the Central Valley, as well as in coastal counties.	None	No suitable soils or habitats on-site. Site dominated by agricultural and urban development.
Delphinium hansenii ssp. *ewanianum* Ewan's larkspur	-/- 4.2	Perennial herb; blooms March-May; occurs on rocky soils in cismontane woodland and valley and foothill grassland; elevation ~196-1970 feet; populations very local; threatened by development; documented primarily in Sierra Nevada foothills.	None	No suitable habitats on-site. Site dominated by agricultural and urban development.
Downingia pusilla dwarf downingia	-/- 2B.2	Annual herb; blooms March-May; occurs in vernal pools and in moist conditions in valley and foothill grasslands; elevation ~3-1460 feet; threatened by development, grazing, non-native plants, vehicles, and industrial forestry; documented primarily on Central Valley floor and foothills from Fresno County north, and in coastal mountains north of the Bay area.	None	No suitable habitats on-site. Site dominated by agricultural and urban development.
Eryngium spinosepalum spiny-sepaled button celery	-/- 1B.2	Annual or perennial herb; blooms April-June; occurs in vernal pools and moist areas in valley and foothill grasslands; elevation ~260-3200 feet; threatened by development, grazing, road maintenance, hydrological alterations, and agriculture; documented primarily in foothills of Sierra Nevada with scattered occurrences on Central Valley floor and western foothills and lower mountains.	None	No suitable habitats on-site. Site dominated by agricultural and urban development.
Fritillaria agrestis stinkbells	-/- 4.2	Perennial bulbiferous herb; blooms March-June; occurs on clay and sometimes serpentinite soils in chaparral, cismontane woodland, pinyon and juniper woodland, and valley and foothill grassland; elevation ~30-5100 feet; threatened by development, grazing, vehicles, and possibly non-native plants; most populations small; scattered occurrences throughout coast ranges and Sierra Nevada foothills.	None	No suitable habitats on-site. Site dominated by agricultural and urban development.

Scientific Name Common Name	Status Fed/State ESA CRPR/CDFW	Habitat Requirements	Potential to Occur	Rationale
Gratiola heterosepala Boggs Lake hedge-hyssop	-/E 1B.2	Annual herb; blooms April-August; occurs on clay soils in marshes, swamps (incl. lake margins), and vernal pools; elevation ~33 to 7,800 feet; threatened by agriculture, development, grazing, trampling, and vehicles; documented primarily in northern California north of Lodi, with scattered occurrences in foothills and mountains in Merced, Madera, and Fresno counties.	None	No suitable habitats on-site. Site dominated by agricultural and urban development.
Hesperevax caulescens hogwallow starfish	-/- 4.2	Annual herb; blooms March-June; occurs in shallow vernal pools and moist areas on clay in valley and foothill grassland, and sometimes in alkaline conditions; elevation ~0-1655 feet; threatened by development, agriculture and possibly overgrazing; several scattered documented occurrences throughout central and northern California.	None	No suitable habitats on-site. Site dominated by agricultural and urban development.
Lagophylla dichotoma forked hare-leaf	-/- 1B.1	Annual herb; blooms April-May; occurs in Cismontane woodland, and valley and foothill grassland, sometimes on clay soils; elevation ~147 to 1,100 feet; threatened by vehicles and non-native plants; documented primarily on Sierra Nevada foothills and margins of Central Valley floor from Fresno north.	None	No suitable habitats on-site. Site dominated by agricultural and urban development.
Naverretia myersii ssp. *myersii* pincushion navarretia	-/- 1B.2=1	Annual plant; blooms April-May; occurs in vernal pools, often in acidic conditions; elevation ~65 to 1,080 feet; threatened by development and possibly non-native plants; documented primarily on Sierra Nevada foothills from Merced County north.	None	No suitable habitats on-site. Site dominated by agricultural and urban development.
Naverretia nigelliformis ssp. *nigelliformis* adobe navarretia	-/- 4.2	Annual herb; blooms April-June; occurs on clay and sometimes serpentinite soils in vernally moist areas of valley and foothill grassland, and sometimes in vernal pools; elevation ~330-3300 feet; possibly threatened by grazing; documented primarily in scattered occurrences along the foothill margins of the Central Valley.	None	No suitable habitats on-site. Site dominated by agricultural and urban development.

Scientific Name Common Name	Status Fed/State ESA CRPR/CDFW	Habitat Requirements	Potential to Occur	Rationale
Navarretia nigelliformis ssp. *radians* shining navarretia	-/- 1B.2	Annual herb; blooms April-July, sometimes as early as March; occurs in cismontane woodland, valley and foothill grassland, and in vernal pools, occasionally on clay soils; elevation ~210 to 3,280 feet; threatened by development, and possibly grazing and non-native plants; documented primarily in Coast Ranges with several occurrences in Sierra Nevada foothills.	None	No suitable habitats on-site. Site dominated by agricultural and urban development.
Neostapfia colusana Colusa grass	T/E 1B.1	Annual herb; blooms from May-August; occurs in vernal pools, usually larger pools and on adobe soils; elevation ~16 to 650 feet; threatened by agriculture, development, overgrazing, hydrologic alterations, non-native plants, and habitat loss/fragmentation; documented primarily on Central Valley floor from Merced County northward.	None	No suitable habitats on-site. Site dominated by agricultural and urban development.
Orcuttia inaequalis San Joaquin Valley Orcutt grass	T/E 1B.1	Annual herb; blooms April to September; occurs in vernal pools; elevation ~32-2,500 feet; threatened by agricultural, development, overgrazing, channelization, and non-native plants; documented primarily on eastern Central Valley floor and foothills from Visalia north.	None	No suitable habitats on-site. Site dominated by agricultural and urban development.
Orcuttia pilosa hairy Orcutt grass	E/E 1B.1	Annual herb; blooms May to September; occurs in vernal pools; often in acidic and saline-alkaline soils; elevation `150 to 655 feet; threatened by agriculture, urbanization, overgrazing, non-native plants, and trampling; only known from a few locations on the Central Valley floor and lower foothills in Madera, Merced, and Stanislaus counties, and the very northern portion of the valley in Butte, Glenn, and Tehama counties.	None	No suitable habitats on-site. Site dominated by agricultural and urban development.
Pseudobahia bahiifolia Hartweg's golden sunburst	E/E 1B.1	Annual herb; blooms March-April; occurs on clay soils in cismontane woodland and valley and foothill grasslands often in acidic conditions; elevation ~45 to 500 feet; threatened by development, agricultural, overgrazing, and trampling; many occurrences very small; documented primarily in Sierra Nevada foothills and valley floor margins from Fresno County north.	None	No suitable habitats on-site. Site dominated by agricultural and urban development.

Scientific Name Common Name	Status Fed/State ESA CRPR/CDFW	Habitat Requirements	Potential to Occur	Rationale
Puccinellia simplex California alkali grass	-/- 1B.2	Annual herb; blooms March-May; occurs in vernally moist, alkaline conditions in chenopod scrub, meadows and seeps, valley and foothill grassland, and vernal pools, usually on sinks, flats, and lake margins; elevation ~6 to 3,050 feet; threatened by hydrological alterations, urbanization, agricultural conversion, development, and habitat fragmentation/disturbance; scattered documented occurrence throughout Central Valley, coast ranges, and Mohave desert.	None	No suitable habitats on-site. Site dominated by agricultural and urban development.
Sagittaria sanfordii Sanford's arrowhead	-/- 1B.2	Perennial rhizomatous herb (emergent); blooms May-October, sometimes into November; occurs in assorted shallow freshwater marshes and swamps, and slow-moving waterways, in sandy loam and clay soils; elevation ~0 to 2,130 feet; threatened by grazing, development, recreational activities, non-native plants, road widening, and channel alteration/maintenance; documented primarily throughout Central Valley on valley floor and surrounding foothills.	Yes	Could occur in Miles Creek and the Planada Canal.
Sidalcea keckii Keck's checkerbloom	E/- 1B.1	Annual herb; blooms April-May, sometimes June; occurs on serpentinite and clay soils in cismontane woodland and valley and foothill grassland; elevation ~246 to 2,132 feet; known from only three occurrences in Fresno and Merced counties (other occurrences are unconfirmed).	None	No suitable habitats on-site. Site dominated by agricultural and urban development.
Tuctoria greenei Greene's tuctoria	E/R 1B.1	Annual herb; blooms May-July, sometimes September; occurs in small or shallow vernal pools, primarily on Anita clay and Tuscan loam soils; elevation ~100 to 3510 feet; threatened by agriculture, urbanization, overgrazing, and habitat fragmentation; documented on Central Valley floor and surrounding foothills; many occurrences presumed extirpated.	None	No suitable habitats on-site. Site dominated by agricultural and urban development.
Invertebrates				

Scientific Name Common Name	Status Fed/State ESA CRPR/CDFW	Habitat Requirements	Potential to Occur	Rationale
Branchinecta conservatio conservancy fairy shrimp	E/-	Found in large, cool-water vernal pools with moderately turbid water that generally last until June; shrimp are generally present in vernal pools from early November to early April; average time to maturity is 49 days, but can be as little as 19 days in warmer pools; eggs laid in spring and persist through dry season as cysts; endemic to the Central Valley and surrounding foothills and mountains; only eight (8) known populations; threatened by habitat loss, degradation, and fragmentation, and interference with vernal pool hydrology.	None	No vernal pool habitat present.
Branchinecta lynchi vernal pool fairy shrimp	T/-	Occur a variety of vernal pool habitats that range from small, clear pools to large, turbid and alkaline pools; more common in pools less than 0.05 acre, typically as part of larger vernal pool complexes; adults active from early December to early May; pools must hold water for at least 18 days, the minimum to complete the life cycle if temperatures are optimal; eggs laid in spring and persist through dry season as cysts; current California distribution includes the Central Valley and coast ranges; threatened by habitat loss, degradation, and fragmentation, and interference with vernal pool hydrology.	None	No vernal pool habitat present.
Branchinecta mesovallensis midvalley fairy shrimp	-/-	Found in small, warmer, short-lived vernal pools and grass-bottomed swales less than 663 square feet; can reach maturity in as few as eight (8) days and complete multiple hatchings in a single rainy season; eggs laid in spring and persist through dry season as cysts; endemic to small portion of the Central Valley in Southeastern Sacramento, Southern Sierra Foothill, San Joaquin and Solano-Colusa Vernal Pool Regions; range may be larger as this species was only recently described; potential threatened by habitat loss, degradation, and fragmentation, and interference with vernal pool hydrology.	None	No vernal pool habitat present.

Scientific Name Common Name	Status Fed/State ESA CRPR/CDFW	Habitat Requirements	Potential to Occur	Rationale
Lepidurus packardi vernal pool tadpole shrimp	E/-	Occur in wide variety of ephemeral wetland habitats from 6.5 square feet to 88 acres in size; majority of occurrences found on High Terrace landforms and Redding and Corning soils; minimum 25 days to mature; average age to reproduction is 54 days; predators of vernal pool fairy shrimp; eggs laid in spring and persist through dry season as cysts; current distribution is in Central Valley and San Francisco Bay area; threatened by habitat loss, degradation, and fragmentation, and interference with vernal pool hydrology	None	No vernal pool habitat present.
Desmocerus californicus dimorphus valley elderberry longhorn beetle	T/-	Closely associated with elderberry shrubs (*Sambucus* sp.) for food and reproduction; usually along rivers and streams; eggs laid on bark, and larvae hatch and burrow into the stems; adults each elderberry leaves and flowers; stem diameter must be minimum one inch; exit holes in stems are most common methods for identification; ranges from southern Shasta County to Fresno County.	None	No elderberry shrubs observed and no riparian habitat present.
Linderiella occidentalis California linderiella	-/-	Most widely distributed fairy shrimp in California; found in vernal pools from 10.8 square feet to 13 acres supported by most land forms, geologic formations, and soil types; vernal pool types may include swales, ephemeral drainages, stock ponds, reservoirs, ditches, backhoe pits, and ruts caused by vehicular activities; minimum 31 days to maturity with average 43 days to reproduce; eggs laid in spring and persist through dry season as cysts; current distribution is from Central Valley and coast ranges; threatened by habitat loss, degradation, and fragmentation, and interference with vernal pool hydrology.	None	No vernal pool habitat present.

Scientific Name Common Name	Status Fed/State ESA CRPR/CDFW	Habitat Requirements	Potential to Occur	Rationale
Lytta molesta molestan blister beetle	-/-	Often found on flowers of native plant species; may be associated with dried vernal pools; adults are herbivorous, with many species feeding mostly on flowers, but some feed on foliage; distribution not well understood but known from Central Valley from Contra Costa County to Tulare and Kern Counties.	None	No vernal pool habitat or native flowering plant species present. Site dominated by agricultural and urban development.
Fish				
Entosphenus hubbsi Kern brook lamprey	-/- SSC	Only six isolated, documented populations: Friant-Kern Canal and lower reaches of Merced River, Kaweah River, Kings River, San Joaquin River, as well as Kings River above Pine Flat Reservoir and San Joaquin River between Millerton reservoir and Redinger Dam; possible 7th in the Sacramento River watershed; prefer silty backwaters of large rivers in foothill regions; coarse gravel-rubble substrate required for spawning; threatened by dams, agricultural impacts on canals, urbanization, instream mining, and non-native species.	None	No suitable river habitat present.
Hypomesus transpacificus delta smelt	T/E	Small fish endemic to the San Francisco Estuary and the larger Sacramento-San Joaquin Delta; moves between freshwater and low salinity water throughout year; most spawning happens in tidally influenced backwater sloughs and channel edgewaters; historical distribution did not extend beyond Mossdale on the San Joaquin River and Sacramento on the Sacramento River.	None	Project outside of species range and no suitable stream habitat present.
Mylopharodon conocephalus hardhead	-/- SSC	Found in small to large streams in low- to mid-elevation in relatively undisturbed habitats; also in lakes or reservoirs; found in clear, cool, deep streams with a slow but present flow; bottom feeders that focus on invertebrates and aquatic plant material from stream substrates; spawning typically on gravel and rocky substrates; widely distributed: Sacramento-San Joaquin and Russian River drainages, Pit River in Modoc County to Kern River; in San Joaquin drainage can be found in tributary streams but rarely in valley reaches of the river; absent from Cosumnes River.	None	Miles creek present along south side of CSD, but no permanent flows. Historic aerial imagery shows when water is present it is murky and filled with sediment, which is not suitable for this species.

Scientific Name Common Name	Status Fed/State ESA CRPR/CDFW	Habitat Requirements	Potential to Occur	Rationale
Oncorhynchus mykiss irideus pop. 11 steelhead – Central Valley DPS	T/-	Anadramous fish species, living in salt water but spawning in fresh water; spawn from December through April; spawn in small, cool streams and tributaries in gravel substrates; seven inch-minimum depth to support migration; ocean and spawning habitats must be connected.	None	No suitable stream or river habitat present.
Oncorhynchus tshawytscha pop. 13 chinook salmon – Central Valley fall/late fall-run ESU	-/- SSC	Anadramous fish species, living in salt water but spawning in fresh water; ESU includes June-December and October-April migration periods; primarily in Sacramento River and tributaries, as well as San Joaquin River south of confluence with Merced River; multiple threats such as dams, agriculture, estuary alteration, harvest, hatcheries.	None	No suitable stream or river habitat present.
Amphibians				
Ambystoma californiense California tiger salamander	T/T WL	Occurs in ephemeral pools or ponds that mimic them, and that remain inundated for 12 weeks or more; can occupy artificial ponds (ranch stock ponds) if ponds are allowed to go dry in the summer; requires nearby upland habitat containing small mammal burrows or crevices that provide refugia; restricted to grasslands and low foothills; lives underground most of the year.	None	No suitable vernal pool habitat present within or adjacent to study area.
Rana boylii foothill yellow-legged frog	-/CT SSC	Found in streams and rivers with rocky substrates and open, sunny banks, and sometimes isolated pools, vegetation backwaters, and deep, shaded spring-fed pools; forests, chaparral, woodlands; lays eggs on downstream side of rocks in shallow, slow-moving water; current distribution includes north coast, northern Sierra Nevada, foothills of southern Sierra Nevada mountains (almost extinct); elevation from sea level to 6,000 feet.	None	No suitable stream habitat present.

Scientific Name Common Name	Status Fed/State ESA CRPR/CDFW	Habitat Requirements	Potential to Occur	Rationale
Rana draytonii California red-legged frog	T/- SSC	Occurs primarily in and near ponds in forests, woodlands, grasslands, coastal scrub, and stream sides with plant cover; mostly in lower elevations; breeding habitat may be permanent or ephemeral; estivates in animal burrows or other moist refuges when ephemeral habitat is dry; endemic to California and northern Baja California; found throughout coastal California from Mendocino County south; inland distribution includes northern Sacramento Valley and foothills of Sierra Nevada south to Tulare County (possibly Kern County); elevation from sea level to 5,000 feet.	None	No suitable aquatic habitat present.
Spea hammondii western spadefoot	-/- SSC	Species relies on vernal pools for breeding where predators cannot become established; open areas with sand or gravelly soils in a variety of habitats: grasslands, coastal scrub, woodlands, chaparral, sandy washes, lowland river floodplains, alkali flats, foothills, and mountains; endemic to California and northern Baja California; distribution from Redding south throughout Central Valley and foothills, throughout South Coast Ranges into coastal southern California to Transverse mountains and Peninsular mountains; elevation from sea level to 4,500 feet.	None	No suitable vernal pool habitat present within or adjacent to study area.
Reptiles				
Actinemys [=Emys] marmorata western pond turtle	-/- SSC	Highly aquatic and diurnally active; found in ponds, lakes, rivers, streams, creeks, marshes, and irrigation ditches with vegetation and rocky/muddy bottoms; wide variety of habitats; need basking areas near water (logs, rocks, vegetation mats, banks); may enter brackish water and even seawater; digs nest on land near water; range from north of San Francisco Bay area south, including Central Valley.	Yes	Miles Creek on south side of CSD may provide suitable habitat when water is present.

Scientific Name Common Name	Status Fed/State ESA CRPR/CDFW	Habitat Requirements	Potential to Occur	Rationale
Gambelia silus [=sila] blunt-nosed leopard lizard	E/E FP	Occurs in semiarid habitats within the southern Central Valley and Cuyama Valley; habitats typically are flat and have large open areas with scattered shrubs for refuge; uses small mammal burrows for shelter; spends most of year underground, surfacing in spring/early summer to breed and eat; hatchlings surface in fall to eat; may interbreed with long-nosed leopard lizard in Cuyama Valley; threatened by habitat loss/fragmentation and drought; elevation from 100-2,400 feet.	None	No suitable undisturbed habitat present. Site dominated by agricultural and urban development.
Phrynosoma blainvillii Blainville's [=coast] horned lizard	-/- SSC	Prefers sandy/loose soils in grassland, forests, woodlands, and open chaparral; often found along sand washes and dirt roads with scattered shrubs for refuge; specialized in consuming ants; distribution includes coastal California from Baja California north to the Bay Area, southeastern desert regions, southern Central Valley flats and foothills and surrounding mounts on drier, warmer slopes; threatened by habitat loss/fragmentation and spread of invasive ant species displacing native prey; elevation from sea level to 8,000 feet.	None	No suitable habitat present. Site is dominated by agricultural and urban development.
Thamnophis gigas giant gartersnake	T/T	Highly aquatic snake found in marshes and sloughs, drainage canals, and irrigation ditches; prefers vegetation close to water for basking; does not venture more than 200 feet from aquatic habitat; elevation from sea level to 400 feet; endemic to California; currently ranges from Glenn County to southern edge of San Francisco Bay Delta, and from Merced County to northern Fresno County.	None	Miles Creek is the only stream within the BSA, but it does not hold water consistently throughout the year based on historic aerial imagery.
Birds				
Agelaius tricolor tricolored blackbird	-/CE SSC	Colonial breeder that prefers freshwater, emergent wetlands with tall, dense cattails or tules, but also thickets of willow, blackberry, wild rose, and tall herbs; breeding colonies are minimum ~50 pairs; forages in pastures, grain fields, and similar habitats near breeding areas.	None	No suitable wetland habitat present.

Scientific Name Common Name	Status Fed/State ESA CRPR/CDFW	Habitat Requirements	Potential to Occur	Rationale
Ardea Herodias great blue heron	-/-	Occurs in shallow estuaries, fresh and saline emergent wetlands, rivers, streams, lake and marine shores, croplands, pastures, and mountains above foothills; primary prey is small fish, but will consume rodents, amphibians, snakes, lizards, invertebrates, and birds; usually nests in colonies in tops of secluded large snags or live trees; fairly common year-round throughout most of California.	None	No suitable aquatic of upland habitat. Agricultural crops grown in BSA include orchards and corn.
Athene cunicularia burrowing owl	-/- SSC	Occupies variety of open, semi-arid to arid habitats throughout central and southern California, including desert regions; prefers open habitats with few shrubs or trees; most active around sunrise and sunset; utilizes burrows constructed by mammals year-round for shelter and nesting; well documented in urban areas where patches of undeveloped areas are present (e.g., canals, airports, drainage basins), and in areas of dense agricultural development where, particularly where canals provide burrow habitat; forages primarily for rodents and insects within several miles of burrow, usually in open grassy habitats if available; has been observed hunting bats and insects around parking lot lights; threats include development resulting in habitat loss/fragmentation.	Yes	Species could occur along banks Miles Creek or along the railroad corridor. May forage within area, including on undeveloped parcels within BSA, but unlikely to occupy these parcels as they appeared subjected to regular disking. Large undeveloped non-native grassland on eastern edge of the community could support them.
Buteo regalis ferruginous hawk	-/- WL	Does not breed in California; found in open grasslands in Central Valley, Coast Ranges, and Modoc Plateau; preys upon small mammals.	None	No suitable habitat present.

Scientific Name Common Name	Status Fed/State ESA CRPR/CDFW	Habitat Requirements	Potential to Occur	Rationale
Buteo swainsoni Swainson's hawk	-/T	Occurs in grassland, desert and agricultural landscapes in the Central Valley and Antelope Valley; hawks may be resident or migrant; breeds in stands with few trees in juniper-sage flats, riparian areas, and oak savannah; also observed breeding in large eucalyptus trees along freeways and in trees over rural residences surrounded by agriculture; may nest on ground if no suitable trees are available; nests are platform of sticks, bark, and fresh leaves at or near top of trees; breeds from late March to late August; forages in grassland, open scrub, and grain fields, primarily for rodents.	Yes	Stick nest observed in eucalyptus trees near intersection of Plainsburg Road and State Route 140. Large trees on edge of the community could support nests, and some undeveloped parcels within the community could support foraging. May also further venture out to forage in small pastures and grain fields in region.
Charadrius montanus mountain plover	-/- SSC	Does not breed in California; winter resident from September-March; occurs in grasslands, open sagebrush, and plowed fields throughout central and southern California, except desert regions; feeds on large insects, especially grasshoppers.	None	No suitable habitat present.
Circus hudsonius [=cyaneus] northern harrier	-/- SSC	Widely distributed; occurs in grasslands, lodgepole pine and alpine meadows, open rangelands, desert sinks, fresh and saltwater emergent wetlands, and coastal beach scrub/dune habitats; typically nests on the ground in dense vegetation, often on edges of marshes; feeds on small mammals, birds, frogs and other species; hunts on the wing by flying low over the ground, so open habitat is a requirement; threatened by habitat loss/fragementation/degredation.	None	No suitable habitat present.

Scientific Name Common Name	Status Fed/State ESA CRPR/CDFW	Habitat Requirements	Potential to Occur	Rationale
Falco columbarius merlin	-/- WL	Does not breed in California; winter resident from September to May; occurs in open grasslands, savannahs, woodlands, coastlines, lakes, wetlands, and early successional stage habitats; occurs in most of western half of state below 3,900 feet; prefers dense tree stands close to bodies of water for cover; rare in Mojave Desert; feeds primarily on small birds; threats likely include reduction of bird prey species due to pesticides.	Yes	May occur on edges of community where open, undeveloped grasslands are near groups of trees.
Haliaeetus leucocephalus bald eagle	D/E	Permanent resident; occurs in forested habitats near water; restricted to breeding mostly in Butte, Lake, Lassen, Modoc, Plumas, Shasta, Siskiyou, and Trinity counties; other scattered breeding occurrences throughout California; not found in high Sierra Nevada; common winter migrant near inland waters in southern California; feeds primarily on fish by swooping from hunting perches; will wade into shallow water to pursue fish; will pursue displaced small mammals in flooded fields; scavenges dead fish and other animals; nests in large, old-growth, or dominant live tree with open branchwork near open water; nests most often in stands with less than 40% canopy, usually in largest tree in stand.	None	No suitable habitat present.
Lanius ludovicianus loggerhead shrike	-/- SSC (nesting)	Common resident in lowlands and foothills throughout California; prefers open grassland/pasture habitats with scattered trees, fence posts, utility lines, shrubs, and other perches; primarily consumes large insects but will predator other small animals; nests in densely-foliaged shrub or tree less than 50 feet above ground.	Yes	Suitable nesting and foraging habitat present.

Scientific Name Common Name	Status Fed/State ESA CRPR/CDFW	Habitat Requirements	Potential to Occur	Rationale
Mammals				
Antrozous pallidus pallid bat	-/- SSC	Occurs throughout California in wide variety of habitats: grasslands, shrublands, woodlands, forests up through mixed conifer; most common in open, dry habitats with rocky areas for roosting; yearlong resident; feeds mainly on insects and arachnids on the ground or by gleaning; day roosts in caves, crevices, mines, and occasionally hollow trees and buildings, including bridges; night roosts in more open sites; maternity colonies form early April with young flying by July or August; needs water; very sensitive to disturbance of roosting sites.	Yes	Trees and buildings in BSA provide suitable roost habitat.
Dipodomys heermanni dixoni Merced kangaroo rat	-/-	Subspecies occurring on the east side of the San Joaquin Valley (Lower Sonoran Zone) in open, sandy or dusty grassland habitats; recorded at Snelling, near Merced Falls, and below Lagrange, in Merced and Stanislaus counties.	No	No suitable habitat present.
Eumops perotis californicus western mastiff bat	-/- SSC	Occurs in open, semi-arid to arid habitats throughout southeastern San Joaquin Valley and Coast Ranges from Monterey County southward; also in urban areas; feeds on insects captured in flight; roosts in cliff faces, high buildings, trees, and tunnels; nursery roosts most often in tight rock crevices or crevices in buildings; maternity season begins in March with young flying on their own by September.	Yes	Trees and buildings could provide suitable roosts
Lasiurus blossevillii western red bat	-/- SSC	Locally common in areas from Shasta County to Mexican border, west of the Sierra Nevada/Cascade crests; migrates between summer and winter ranges; roosts in forests and woodlands from sea level up through mixed conifer forests; not in deserts; feeds on insects over grasslands, shrublands, open woodlands and forests, and croplands; roosts primarily in trees on edge habitats near streams, fields, or urban areas, less often in shrubs; requires water; maternity season from late May through early July; usually does not roost with other bats; rabies is common in this species.	Yes	Suitable roosting and foraging habitat present.

Scientific Name Common Name	Status Fed/State ESA CRPR/CDFW	Habitat Requirements	Potential to Occur	Rationale
Lasiurus cinereus hoary bat	-/-	Can be found anywhere in California from sea level to 13,200 feet; winters on coast and in southern California; breeds inland and north of winter range; bear young in woodlands and forests; feeds primarily on moths; roosts in dense foliage of medium-large trees; requires water; prefer open habits or habitat mosaics; maternity season from mid-May through early July; forages with other bat species; high incidence of rabies.	Yes	Suitable roost trees present.
Myotis yumanensis Yuma mytois	-/-	Common throughout California except desert regions; wide variety of habitats from sea level to 11,000 feet; prefers open forests and woodlands with sources of water; forages for small fly insects over water sources; roosts in buildings, mines, caves, or crevices, occasionally in swallow nests and under bridges; large maternity colonies; maternity season from late May through June, sometimes August.	No	No suitable foraging habitat present.
Perognathus inornatus San Joaquin pocket mouse	-/-	Occurs in dry, open grasslands or scrublands on fine-textured soils in the Central (mostly west side) and Salinas valleys; elevation from 1,100 to 2,000 feet; feeds primarily on seeds; digs burrows for cover and breeding; nocturnal.	No	No suitable habitat present.
Taxidea taxus American badger	-/- SSC	Occurs mostly in open, drier stages of shrub, forest, and herbaceous habitats, with friable soils; feeds mostly on fossorial rodents; digs burrows for cover and reproduction; can dig new den each night; litters born mostly in March and April; somewhat tolerant of human activities but avoids cultivated agricultural habitats.	Yes	Suitable grassland habitat is present. Suitable prey (gophers and California ground squirrels) were observed during the reconnaissance site visit.

Scientific Name Common Name	Status Fed/State ESA CRPR/CDFW	Habitat Requirements	Potential to Occur	Rationale
Vulpes macrotis mutica San Joaquin kit fox	E/T	Endemic to the Central Valley; found primarily in San Joaquin Valley, Carrizo Plain, Salinas Valley, Cuyama Valley, and other small valleys in western foothills; occurs in arid to semi-arid grasslands, open shrublands, savannahs, and grazed lands with loose-textured soils; highly adaptable and documented in urban developed areas; uses burrows year-round for shelter, escape from predators, and rearing young; will use man-made structures, such as pipes, for denning; feeds primarily on small mammals, but will also consume birds, reptiles, insects, and scavenge for human food; intensively-maintained agricultural areas avoided; threatened by habitat loss and fragmentation, vehicle strikes, and disease; current mange outbreak in urban population in Bakersfield and in nearby natural areas.	Yes	Suitable habitat and prey base are present.

Sources: CDFW 2018a, CDFW 2018b, CDFW, 2018c, CDFW 2018d, CNPS 2018, USFWS 2018b, Zeiner et al. 1988.

CRPR (California Rare Plant Rank):
- 1A Presumed Extinct in California
- 1B Rare, Threatened, or Endangered in California and elsewhere
- 2A Plants presumed extirpated in California, but more common elsewhere
- 2B Plants Rare, Threatened, or Endangered in California, but more common elsewhere

CRPR Threat Code Extension:
- .1 Seriously endangered in California (over 80% of occurrences threatened / high degree and immediacy of threat)
- .2 Fairly endangered in California (20-80% occurrences threatened)
- .3 Not very endangered in California (<20% of occurrences threatened)

- FE Federally Endangered
- FT Federally Threatened
- FC Federal Candidate Species
- FS Federally Sensitive
- SE State Endangered
- ST State Threatened
- SC State Candidate
- SS State Sensitive
- SSC State Species of Special Concern
- SFP State Fully Protected
- SR State Rare
- WL Watch List

APPENDIX F

U.S. FISH AND WILDLIFE SERVICE STANDARDIZED RECOMMENDATIONS FOR PROTECTION OF THE ENDANGERED SAN JOAQUIN KIT FOX PRIOR TO OR DURING GROUND DISTURBANCE (USFWS 2011)

PLANADA WASTEWATER COLLECTION SYSTEM REPLACEMENT PROJECT

U.S. FISH AND WILDLIFE SERVICE STANDARDIZED RECOMMENDATIONS FOR PROTECTION OF THE ENDANGERED SAN JOAQUIN KIT FOX PRIOR TO OR DURING GROUND DISTURBANCE

Prepared by the Sacramento Fish and Wildlife Office
January 2011

INTRODUCTION

The following document includes many of the San Joaquin kit fox (*Vulpes macrotis mutica*) protection measures typically recommended by the U. S. Fish and Wildlife Service (Service), prior to and during ground disturbance activities. **However, incorporating relevant sections of these guidelines into the proposed project is not the only action required under the Endangered Species Act of 1973, as amended (Act) and does not preclude the need for section 7 consultation or a section 10 incidental take permit for the proposed project.** Project applicants should contact the Service in Sacramento to determine the full range of requirements that apply to your project; the address and telephone number are given at the end of this document. Implementation of the measures presented in this document may be necessary to avoid violating the provisions of the Act, including the prohibition against "take" (defined as killing, harming, or harassing a listed species, including actions that damage or destroy its habitat). These protection measures may also be required under the terms of a biological opinion pursuant to section 7 of the Act resulting in incidental take authorization (authorization), or an incidental take permit (permit) pursuant to section 10 of the Act. The specific measures implemented to protect kit fox for any given project shall be determined by the Service based upon the applicant's consultation with the Service.

The purpose of this document is to make information on kit fox protection strategies readily available and to help standardize the methods and definitions currently employed to achieve kit fox protection. The measures outlined in this document are subject to modification or revision at the discretion of the Service.

IS A PERMIT NECESSARY?

Certain acts need a permit from the Service which includes destruction of any known (occupied or unoccupied) or natal/pupping kit fox dens. Determination of the presence or absence of kit foxes and /or their dens should be made during the environmental review process. All surveys and monitoring described in this document must be conducted by a qualified biologist and these activities do not require a permit. A qualified biologist (biologist) means any person who has completed at least four years of university training in wildlife biology or a related science and/or has demonstrated field experience in the identification and life history of the San Joaquin kit fox. In addition, the biologist(s) must be able to identify coyote, red fox,

gray fox, and kit fox tracks, and to have seen a kit fox in the wild, at a zoo, or as a museum mount. Resumes of biologists should be submitted to the Service for review and approval prior to an6y survey or monitoring work occurring.

SMALL PROJECTS

Small projects are considered to be those projects with small foot prints, of approximately one acre or less, such as an individual in-fill oil well, communication tower, or bridge repairs. These projects must stand alone and not be part of, or in any way connected to larger projects (i.e., bridge repair or improvement to serve a future urban development). The Service recommends that on these small projects, the biologist survey the proposed project boundary and a 200-foot area outside of the project footprint to identify habitat features and utilize this information as guidance to situate the project to minimize or avoid impacts. If habitat features cannot be completely avoided, then surveys should be conducted and the Service should be contacted for technical assistance to determine the extent of possible take.

Preconstruction/preactivity surveys shall be conducted no less than 14 days and no more than 30 days prior to the beginning of ground disturbance and/or construction activities or any project activity likely to impact the San Joaquin kit fox. Kit foxes change dens four or five times during the summer months, and change natal dens one or two times per month (Morrell 1972). Surveys should identify kit fox habitat features on the project site and evaluate use by kit fox and, if possible, assess the potential impacts to the kit fox by the proposed activity. The status of all dens should be determined and mapped (see Survey Protocol). Written results of preconstruction/preactivity surveys must be received by the Service within five days after survey completion and prior to the start of ground disturbance and/or construction activities.

If a natal/pupping den is discovered within the project area or within 200-feet of the project boundary, the Service shall be immediately notified and under no circumstances should the den be disturbed or destroyed without prior authorization. If the preconstruction/preactivity survey reveals an active natal pupping or new information, the project applicant should contact the Service immediately to obtain the necessary take authorization/permit.

If the take authorization/permit has already been issued, then the biologist may proceed with den destruction within the project boundary, except natal/pupping den which may not be destroyed while occupied. A take authorization/permit is required to destroy these dens even after they are vacated. Protective exclusion zones can be placed around all known and potential dens which occur outside the project footprint (conversely, the project boundary can be demarcated, see den destruction section).

OTHER PROJECTS

It is likely that all other projects occurring within kit fox habitat will require a take authorization/permit from the Service. This determination would be made by the Service during the early evaluation process (see Survey Protocol). These other projects would include, but are not limited to: Linear projects; projects with large footprints such as urban development; and projects which in themselves may be small but have far reaching impacts (i.e., water storage or conveyance facilities that promote urban growth or agriculture, etc.).

The take authorization/permit issued by the Service may incorporate some or all of the protection measures presented in this document. The take authorization/permit may include measures specific to the needs of the project and those requirements supersede any requirements found in this document.

EXCLUSION ZONES

In order to avoid impacts, construction activities must avoid their dens. The configuration of exclusion zones around the kit fox dens should have a radius measured outward from the entrance or cluster of entrances due to the length of dens underground. The following distances are **minimums**, and if they cannot be followed the Service must be contacted. Adult and pup kit foxes are known to sometimes rest and play near the den entrance in the afternoon, but most above-ground activities begin near sunset and continue sporadically throughout the night. Den definitions are attached as Exhibit A.

Potential den**	50 feet
Atypical den**	50 feet
Known den*	100 feet
Natal/pupping den (occupied and unoccupied)	Service must be contacted

*Known den: To ensure protection, the exclusion zone should be demarcated by fencing that encircles each den at the appropriate distance and does not prevent access to the den by kit foxes. Acceptable fencing includes untreated wood particle-board, silt fencing, orange construction fencing or other fencing as approved by the Service as long as it has openings for kit fox ingress/egress and keeps humans and equipment out. Exclusion zone fencing should be maintained until all construction related or operational disturbances have been terminated. At that time, all fencing shall be removed to avoid attracting subsequent attention to the dens.

**Potential and Atypical dens: Placement of 4-5 flagged stakes 50 feet from the den entrance(s) will suffice to identify the den location; fencing will not be required, but the exclusion zone must be observed.

Only essential vehicle operation on existing roads and foot traffic should be permitted. Otherwise, all construction, vehicle operation, material storage, or any other type of surface-disturbing activity should be prohibited or greatly restricted within the exclusion zones.

DESTRUCTION OF DENS

Limited destruction of kit fox dens may be allowed, if avoidance is not a reasonable alternative, provided the following procedures are observed. The value to kit foxes of potential, known, and natal/pupping dens differ and therefore, each den type needs a different level of protection. **Destruction of any known or natal/pupping kit fox den requires take authorization/permit from the Service**.

Destruction of the den should be accomplished by careful excavation until it is certain that no kit foxes are inside. The den should be fully excavated, filled with dirt and compacted to ensure that kit foxes cannot reenter or use the den during the construction period. If at any point during excavation, a kit fox is discovered inside the den, the excavation activity shall cease immediately and monitoring of the den as described above should be resumed. Destruction of the den may be completed when in the judgment of the biologist, the animal has escaped, without further disturbance, from the partially destroyed den.

Natal/pupping dens: Natal or pupping dens which are occupied will not be destroyed until the pups and adults have vacated and then only after consultation with the Service. Therefore, project activities at some den sites may have to be postponed.

Known Dens: Known dens occurring within the footprint of the activity must be monitored for three days with tracking medium or an infra-red beam camera to determine the current use. If no kit fox activity is observed during this period, the den should be destroyed immediately to preclude subsequent use.

If kit fox activity is observed at the den during this period, the den should be monitored for at least five consecutive days from the time of the observation to allow any resident animal to move to another den during its normal activity. Use of the den can be discouraged during this period by partially plugging its entrances(s) with soil in such a manner that any resident animal can escape easily. Only when the den is determined to be unoccupied may the den be excavated under the direction of the biologist. If the animal is still present after five or more consecutive days of plugging and monitoring, the den may have to be excavated when, in the judgment of a biologist, it is temporarily vacant, for example during the animal's normal foraging activities.

The Service encourages hand excavation, but realizes that soil conditions may necessitate the use of excavating equipment. However, extreme caution must be exercised.

Potential Dens: If a take authorization/permit has been obtained from the Service, den destruction may proceed without monitoring, unless other restrictions were issued with the take authorization/permit. If no take authorization/permit has been issued, then potential dens should be monitored as if they were known dens. If any den was considered to be a potential den, but is later determined during monitoring or destruction to be currently, or previously used by kit fox (e.g., if kit fox sign is found inside), then all construction activities shall cease and the Service shall be notified immediately.

CONSTRUCTION AND ON-GOING OPERATIONAL REQUIREMENTS

Habitat subject to permanent and temporary construction disturbances and other types of ongoing project-related disturbance activities should be minimized by adhering to the following activities. Project designs should limit or cluster permanent project features to the smallest area possible while still permitting achievement of project goals. To minimize temporary disturbances, all project-related vehicle traffic should be restricted to established roads, construction areas, and other designated areas. These areas should also be included in preconstruction surveys and, to the extent possible, should be established in locations disturbed by previous activities to prevent further impacts.

1. Project-related vehicles should observe a daytime speed limit of 20-mph throughout the site in all project areas, except on county roads and State and Federal highways; this is particularly important at night when kit foxes are most active. Night-time construction should be minimized to the extent possible. However if it does occur, then the speed limit should be reduced to 10-mph. Off-road traffic outside of designated project areas should be prohibited.

2. To prevent inadvertent entrapment of kit foxes or other animals during the construction phase of a project, all excavated, steep-walled holes or trenches more than 2-feet deep should be covered at the close of each working day by plywood or similar materials. If the trenches cannot be closed, one or more escape ramps constructed of earthen-fill or wooden planks shall be installed. Before such holes or trenches are filled, they should be thoroughly inspected for trapped animals. If at any time a trapped or injured kit fox is discovered, the Service and the California Department of Fish and Game (CDFG) shall be contacted as noted under measure 13 referenced below.

3. Kit foxes are attracted to den-like structures such as pipes and may enter stored pipes and become trapped or injured. All construction pipes, culverts, or similar structures with a diameter of 4-inches or greater that are stored at a construction site for one or more overnight periods should be thoroughly inspected for kit foxes before the pipe is subsequently buried, capped, or otherwise used or moved in any way. If a kit fox is

discovered inside a pipe, that section of pipe should not be moved until the Service has been consulted. If necessary, and under the direct supervision of the biologist, the pipe may be moved only once to remove it from the path of construction activity, until the fox has escaped.

4. All food-related trash items such as wrappers, cans, bottles, and food scraps should be disposed of in securely closed containers and removed at least once a week from a construction or project site.

5. No firearms shall be allowed on the project site.

6. No pets, such as dogs or cats, should be permitted on the project site to prevent harassment, mortality of kit foxes, or destruction of dens.

7. Use of rodenticides and herbicides in project areas should be restricted. This is necessary to prevent primary or secondary poisoning of kit foxes and the depletion of prey populations on which they depend. All uses of such compounds should observe label and other restrictions mandated by the U.S. Environmental Protection Agency, California Department of Food and Agriculture, and other State and Federal legislation, as well as additional project-related restrictions deemed necessary by the Service. If rodent control must be conducted, zinc phosphide should be used because of a proven lower risk to kit fox.

8. A representative shall be appointed by the project proponent who will be the contact source for any employee or contractor who might inadvertently kill or injure a kit fox or who finds a dead, injured or entrapped kit fox. The representative will be identified during the employee education program and their name and telephone number shall be provided to the Service.

9. An employee education program should be conducted for any project that has anticipated impacts to kit fox or other endangered species. The program should consist of a brief presentation by persons knowledgeable in kit fox biology and legislative protection to explain endangered species concerns to contractors, their employees, and military and/or agency personnel involved in the project. The program should include the following: A description of the San Joaquin kit fox and its habitat needs; a report of the occurrence of kit fox in the project area; an explanation of the status of the species and its protection under the Endangered Species Act; and a list of measures being taken to reduce impacts to the species during project construction and implementation. A fact sheet conveying this information should be prepared for distribution to the previously referenced people and anyone else who may enter the project site.

10. Upon completion of the project, all areas subject to temporary ground disturbances, including storage and staging areas, temporary roads, pipeline corridors, etc. should be

re-contoured if necessary, and revegetated to promote restoration of the area to pre-project conditions. An area subject to "temporary" disturbance means any area that is disturbed during the project, but after project completion will not be subject to further disturbance and has the potential to be revegetated. Appropriate methods and plant species used to revegetate such areas should be determined on a site-specific basis in consultation with the Service, California Department of Fish and Game (CDFG), and revegetation experts.

11. In the case of trapped animals, escape ramps or structures should be installed immediately to allow the animal(s) to escape, or the Service should be contacted for guidance.

12. Any contractor, employee, or military or agency personnel who are responsible for inadvertently killing or injuring a San Joaquin kit fox shall immediately report the incident to their representative. This representative shall contact the CDFG immediately in the case of a dead, injured or entrapped kit fox. The CDFG contact for immediate assistance is State Dispatch at (916)445-0045. They will contact the local warden or Mr. Paul Hoffman, the wildlife biologist, at (530)934-9309. The Service should be contacted at the numbers below.

13. The Sacramento Fish and Wildlife Office and CDFG shall be notified in writing within three working days of the accidental death or injury to a San Joaquin kit fox during project related activities. Notification must include the date, time, and location of the incident or of the finding of a dead or injured animal and any other pertinent information. The Service contact is the Chief of the Division of Endangered Species, at the addresses and telephone numbers below. The CDFG contact is Mr. Paul Hoffman at 1701 Nimbus Road, Suite A, Rancho Cordova, California 95670, (530) 934-9309.

14. New sightings of kit fox shall be reported to the California Natural Diversity Database (CNDDB). A copy of the reporting form and a topographic map clearly marked with the location of where the kit fox was observed should also be provided to the Service at the address below.

Any project-related information required by the Service or questions concerning the above conditions or their implementation may be directed in writing to the U.S. Fish and Wildlife Service at:

Endangered Species Division
2800 Cottage Way, Suite W2605
Sacramento, California 95825-1846
(916) 414-6620 or (916) 414-6600

EXHIBIT "A" - DEFINITIONS

"Take" - Section 9 of the Endangered Species Act of 1973, as amended (Act) prohibits the "take" of any federally listed endangered species by any person (an individual, corporation, partnership, trust, association, etc.) subject to the jurisdiction of the United States. As defined in the Act, take means " . . . to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct". Thus, not only is a listed animal protected from activities such as hunting, but also from actions that damage or destroy its habitat.

"Dens" - San Joaquin kit fox dens may be located in areas of low, moderate, or steep topography. Den characteristics are listed below, however, the specific characteristics of individual dens may vary and occupied dens may lack some or all of these features. Therefore, caution must be exercised in determining the status of any den. Typical dens may include the following: (1) one or more entrances that are approximately 5 to 8 inches in diameter; (2) dirt berms adjacent to the entrances; (3) kit fox tracks, scat, or prey remains in the vicinity of the den; (4) matted vegetation adjacent to the den entrances; and (5) manmade features such as culverts, pipes, and canal banks.

"Known den" - Any existing natural den or manmade structure that is used or has been used at any time in the past by a San Joaquin kit fox. Evidence of use may include historical records, past or current radiotelemetry or spotlighting data, kit fox sign such as tracks, scat, and/or prey remains, or other reasonable proof that a given den is being or has been used by a kit fox. The Service discourages use of the terms "active" and "inactive" when referring to any kit fox den because a great percentage of occupied dens show no evidence of use, and because kit foxes change dens often, with the result that the status of a given den may change frequently and abruptly.

"Potential Den" - Any subterranean hole within the species' range that has entrances of appropriate dimensions for which available evidence is insufficient to conclude that it is being used or has been used by a kit fox. Potential dens shall include the following: (1) any suitable subterranean hole; or (2) any den or burrow of another species (e.g., coyote, badger, red fox, or ground squirrel) that otherwise has appropriate characteristics for kit fox use.

"Natal or Pupping Den" - Any den used by kit foxes to whelp and/or rear their pups. Natal/pupping dens may be larger with more numerous entrances than dens occupied exclusively by adults. These dens typically have more kit fox tracks, scat, and prey remains in the vicinity of the den, and may have a broader apron of matted dirt and/or vegetation at one or more entrances. A natal den, defined as a den in which kit fox pups are actually whelped but not necessarily reared, is a more restrictive version of the pupping den. In practice, however, it is difficult to distinguish between the two, therefore, for purposes of this definition either term applies.

"Atypical Den" - Any manmade structure which has been or is being occupied by a San Joaquin kit fox. Atypical dens may include pipes, culverts, and diggings beneath concrete slabs and buildings.

Engineering Design & Construction Management

Survey & GIS

Urban Design & Landscape Architecture

Biology & Environmental Permitting

Planning

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901 East Main Street
Visalia, California 93292
(559) 733-0440

601 Pollasky Avenue, Suite 301
Clovis, California 93612
(559) 449-2400

3400 Douglas Boulevard, Suite 190
Roseville, California 95661
(916) 784-7823

5080 California Avenue, Suite 220
Bakersfield, California 93309
(661) 616-2600

2816 Park Avenue
Merced, California 95348
(209) 723-2066

150 West Morton Avenue
Porterville, California 93257
(559) 781-2700

