

ROLLING HILLS WATER METER PROJECT

DRAFT INITIAL STUDY/MITIGATED NEGATIVE DECLARATION

OCTOBER 2022

SCH NO.

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State Water Resources Control Board

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ACRONYMS

AB	Assembly Bill
Act	Fish and Wildlife Conservation Act
APE	Area of Potential Effect
BAAQMD	Bay Area Air Quality Management District
Bakman	Bakman Water Company
BMP	Best Management Practices
BPS	Best Performance Standards
CAA	Clean Air Act
CalEEMod	California Emissions Estimator Modeling (software)
CalEPA	California Environmental Protection Agency
CalNAGPRA	California Native American Graves Protection and Repatriation Act
CARB	California Air Resources Board
CCAA	California Clean Air Act
CCR	California Code of Regulations
CDFW	California Fish and Wildlife
CDP	census-designated place
CEQA	California Environmental Quality Act
CH ₄	Methane
CNDDDB	California Natural Diversity Database
CO	Carbon Monoxide
CO ₂	Carbon dioxide
County	Madera County
CWA	Clean Water Act
DOC	(California) Department of Conservation
DPM	Diesel Particulate Matter
DTSC	Department of Toxic Substances Control
EFH	Essential Fish Habitat
EIR	Environmental Impact Report
EO	Executive Order
EPA	Environmental Protection Agency
FEMA	Federal Emergency Management Agency

FMMP.....	Farmland Mapping and Monitoring Program
FPPA.....	Farmland Protection and Policy Act
GHG	Greenhouse Gas
GIS	Geographic Information System
GWP	Global Warming Plan
HUC	Hydrologic Unit Code
IS	Initial Study
IS/MND.....	Initial Study/Mitigated Negative Declaration
km	kilometers
MBTA.....	Migratory Bird Treaty Act
MMRP.....	Mitigation Monitoring and Reporting Program
MND	Mitigated Negative Declaration
MOA	Memorandum of Agreement
NAAQS.....	National Ambient Air Quality Standards
NAHC.....	Native American Heritage Commission
ND	Negative Declaration
NMFS.....	National Marine Fisheries Service
NOx	Nitrogen oxides
NO ₂	Nitrogen Dioxide
O ₃	Ozone
PM ₁₀	Particulate Matter 10 Microns In Size
PM _{2.5}	Particulate Matter 2.5 Microns In Size
ppb	Parts Per Billion
ppm	Parts Per Million
Project.....	Rolling Hills Water Meter Project
PVC	Polyvinyl chloride
QSD	Qualified Sediment Developer
QSP	Qualified Sediment Practitioner
RHWS.....	Rolling Hills Water System
ROG	Reactive Organic Gas
RWQCB.....	Regional Water Quality Control Board
SHPO.....	State Historic Preservation Officer
SJVAB.....	San Joaquin Air Basin
SJVAPCD	San Joaquin Valley Air Pollution Control District

SO ₂	Sulfur Dioxide
SDWA	Safe Drinking Water Act
SR	State Route
SSA	Sole Source Aquifer
SSJVIC	Southern San Joaquin Valley Information Center
SWPPP	Storm Water Pollution Prevention Plan
SWRCB.....	State Water Resources Control Board
TAC	Toxic Air Contaminants
USACE.....	United States Army Corps of Engineers
USDA	United States Department of Agriculture
USEPA.....	United States Environmental Protection Agency
USFWS.....	United States Fish and Wildlife Service
µg/m ³	micrograms per cubic meter

CHAPTER 1 INTRODUCTION

Provost & Pritchard Consulting Group (Provost & Pritchard) has prepared this Initial Study/Mitigated Negative Declaration (IS/MND) on behalf of Bakman Water Company to address the environmental effects of the Rolling Hills Water Meter Project (Project). This document has been prepared in accordance with the California Environmental Quality Act (CEQA), Public Resources Code Section 21000 et seq. The State Water Resources Control Board (State Water Board) is the CEQA lead agency for this Project.

The site and the Project are described in detail in [Chapter 2 Project Description](#).

1.1 REGULATORY INFORMATION

An Initial Study (IS) is a document prepared by a lead agency to determine whether a project may have a significant effect on the environment. In accordance with California Code of Regulations Title 14 (Chapter 3, Section 15000, *et seq.*)-- also known as the CEQA Guidelines--Section 15064 (a)(1) states that an environmental impact report (EIR) must be prepared if there is substantial evidence in light of the whole record that the project under review may have a significant effect on the environment and should be further analyzed to determine mitigation measures or project alternatives that might avoid or reduce project impacts to less than significant levels. A negative declaration (ND) may be prepared instead if the lead agency finds that there is no substantial evidence in light of the whole record that the project may have a significant effect on the environment. An ND is a written statement describing the reasons why a proposed project, not otherwise exempt from CEQA, would not have a significant effect on the environment and, therefore, why it would not require the preparation of an EIR (CEQA Guidelines Section 15371). According to CEQA Guidelines Section 15070, a ND or *mitigated* ND shall be prepared for a project subject to CEQA when either:

- a. The IS shows there is no substantial evidence, in light of the whole record before the agency, that the proposed Project may have a significant effect on the environment, or
- b. The IS identified potentially significant effects, but:
 1. Revisions in the project plans or proposals made by or agreed to by the applicant before the proposed MND and IS is released for public review would avoid the effects or mitigate the effects to a point where clearly no significant effects would occur is prepared, and
 2. There is no substantial evidence, in light of the whole record before the agency, that the proposed Project as *revised* may have a significant effect on the environment.

1.2 DOCUMENT FORMAT

This IS/MND contains six chapters. [Chapter 1 Introduction](#), provides an overview of the Project and the CEQA process. [Chapter 2 Project Description](#), provides a detailed description of proposed Project components and objectives. [Chapter 3 Determination](#), the Lead Agency's determination based upon this initial evaluation. [Chapter 4 Environmental Impact Analysis](#) presents the CEQA checklist and environmental analysis for all impact areas, mandatory findings of significance, and feasible mitigation measures. If the Project does not have the potential to significantly impact a given issue area, the relevant section provides a brief discussion of the reasons why no impacts are expected. If the Project could have a potentially significant impact on a resource, the issue area discussion provides a description of potential impacts, and appropriate mitigation measures and/or permit requirements that would reduce those impacts to a less than significant level. [Chapter 5 Mitigation, Monitoring, and Reporting Program](#) (MMRP), provides the

proposed mitigation measures, implementation timelines, and the entity/agency responsible for ensuring implementation. **Chapter 6 References** details the documents and reports this document relies upon to provide its analysis.

The Air Quality and Greenhouse Gas Emissions Model, Biological Resources Information, Cultural Resources Information and Preliminary Engineering Report, are provided as technical **Appendix A**, **Appendix B**, **Appendix C** and **Appendix D**, respectively, at the end of this document.

CHAPTER 2 PROJECT DESCRIPTION

2.1 PROJECT BACKGROUND

2.1.1 Project Title

Rolling Hills Water Meter Project (Project)

2.1.2 Lead Agency Name and Address

State Water Resources Control Board
Division of Financial Assistance
1001 I Street, 16th Floor
Sacramento, CA 95814

2.1.3 Contact Person and Phone Number

Lead Agency Contact

Abbygayle Britton
Environmental Scientist
(916) 449-5990

CEQA Consultant

Provost & Pritchard Consulting Group
Amy Wilson, Environmental Project Manager
(559) 636-1166

2.1.4 Project Location

The Project site consists principally of the Rolling Hills unincorporated community within Madera County. A rural residential subdivision, located in southeast Madera County, approximately 150 miles southeast of Sacramento and 115 miles north of Bakersfield (see [Figure 2-1](#) and [Figure 2-2](#)). The community encompasses an area of approximately 390-acres (0.6 square miles).

2.1.5 General Plan Designation and Zoning

Table 2-1: General Plan Designation and Zoning District

Project Area	General Plan Designation	Zoning District
ONSITE	VLDR- Very Low Density Residential, CC-Community Commercial	RRS- Residential, Rural Single Family RRM-Residential, Rural Multi-Family CRM-Commercial, Rural Median Dist.
ADJACENT LANDS	LDR- Low Density Residential	GV-R: Gateway Village, Rural

2.1.6 Description of Project

Project Background and Purpose

The community of Rolling Hills, a census-designated place (CDP), is located in southeast Madera County along State Route 41 (SR 41), approximately two miles north of Fresno and 13 miles east of Madera as shown in [Figure 2-1](#). The community is in the unincorporated area of Madera County and covers an area of approximately 0.6 square miles.

The Rolling Hills Water System (RHWS), Water System Number CA2010009, became a permitted water system in 1976 and is privately owned and managed by the Bakman Water Company (Bakman). Bakman provides domestic and fire water service for 339 residential and commercial properties by the way of three (3) wells.

There are several challenges faced by the RHWS: lack of water meters at all water service connections, potential pressure and reliability concerns due to the lack of system looping, and the aging of certain system components causing poor performance and anticipated failure. Well No. 2 was constructed in 1981 and, therefore, the facilities are aging and much of the equipment has exceeded its 30-year life expectancy and needs to be replaced to ensure system supply reliability. The system's 333,000 gallon water storage tank also requires cathodic protection to repair some existing interior and exterior surface damage, and to ensure the tank reaches its full life expectancy.

Bakman purchased the RHWS in 2019 and one of the requirements of the acquisition is to have the system fully metered by 2023. According to Assembly Bill 2572 (AB 2572), all urban water suppliers are required to have a water meter installed by 2025, and while Bakman is not an urban water supplier with regard to the RHWS, the Bakman Water Company is considered an urban water supplier when considered in totality. As such, Bakman intends to comply with the metering requirement for the RHWS.

The existing RHWS distribution system lacks looping north of Avenue 11, which creates supply concerns in the case of a failure along an isolated segment of pipe, and pressure concerns due to dead-end mains. Additionally, the system mains were primarily constructed in the 1970s, which means they have exceeded their half-life expectancy (35 years).

The Well No. 2 site needs a full facility refurbishment including a new well pump and motor, piping and accessories, and a new motor control center and shade structure that is compatible with the existing mobile generator. The site also needs a new chlorine analyzer, sand separator, chlorination system, emergency eye wash station, and the various sitework required for the refurbished well site to be functional. While the hydropneumatics tank was replaced in 2012, it needs a new foundation to be set upon. A well investigation will be performed to determine if refurbishment of the well casing via a sleeve will be required. See the Preliminary Engineering Report (PER) in [Appendix D](#) for a site map of the well site and its various improvements. Well No. 2 does not currently require any additional treatment to produce potable water.

In March 2021, a tank assessment on the 330,000 gallon water storage tank was conducted by Superior Tank Solutions. It was found that in order to prolong the useable service life of the tank and maintain structural integrity, new cathodic protection methods would be required to prevent corrosion and future failure.

In summary, the problems in the RHWS are as follows:

- Lack of water meters

- Existing system is not looped causing for pressure, reliability, and stagnation concerns
- Many components of the water system are approaching 50 years in age or older
- Well No. 2 is approaching 50 years in age causing reliability and maintenance concerns
- Lack of cathodic protection for existing water storage tank

Project Description

The Project entails the construction of approximately 2,750 linear feet of 12-inch Polyvinyl chloride (PVC) water main in Avenue 11, and 2,750 linear feet of 8-inch PVC water main in Mountain View Drive and Adobe Way. The alignment of this water main will be located within the County right-of-way. Any existing water main in Avenue 11 will be abandoned in place. Additionally, new water meters and meter boxes will be installed at 339 properties within the RHWS. The improvements will all be incorporated into the existing RHWS, which is currently being fed by three active wells providing safe, clean drinking water. All proposed improvements can be seen in [Figure 2-2](#).

The Project also includes a full facility refurbishment of the Well No. 2 site, including the well pump and all other well site facilities that have exceeded their life expectancy. The well casing will be sleeved if determined necessary during a well investigation. The Project also includes the addition of cathodic protection to the water storage tank.

Construction Methods and Schedule

Excavation during construction would generate spoils that would be used as backfill. For all excavation in roadway areas, once filled and compacted, the roadways would be resurfaced to County standards. Excavations in bare ground areas would be resurfaced with hardscape (pavement or concrete) or revegetated with native grasses indigenous to the disturbed area or landscaped in accordance with County-approved building permit plans.

Construction of the Project would require equipment including, but not limited to: cranes, excavators, backhoes, front-end loaders, dump trucks, skid loaders, compactors, double transfer trucks for soil hauling, concrete trucks, concrete/industrial saws, rollers, and paving equipment. Equipment and staging areas for the pipeline activities would be determined by the contractor, if needed, and within the Project area. Construction activities would generally be limited to weekdays from 7 a.m. to 7 p.m. Nighttime construction is not expected to be necessary. Construction is expected to begin in the fall of 2022 and take approximately eight months of active construction time. Pipeline installation would take place within Avenue 11, Mountain View Drive and Adobe Way. During construction traffic control measures would be used to redirect traffic. Impacts to the existing roadways during construction will be temporary.

Project construction would involve the storage, use, and transport of small amounts of hazardous materials (e.g., asphalt, fuel, lubricants, and other substances) on roadways. Regulations governing hazardous materials transport are stated in Title 22 California Code of Regulations (CCR) and the California Vehicle Code (Title 13 CCR).

Operation and Maintenance

The new water system infrastructure would be maintained in the same way that staff operate and maintain the existing water system and associated infrastructure. Bakman Water Company is equipped with the necessary equipment, staff, training, and certifications to manage the RHWS and maintain the additional infrastructure being added by this Project. No additional staff would be needed as a result of this Project.

2.1.7 Project Alternatives

The preliminary engineering report suggested two potential alternatives to address the problem described in the Project Background and Purpose; ultimately Alternative 1 was selected and is described in the Project Description above.

Alternative 2 would consist of no project. Selecting this alternative would lead to Bakman Water Company being out of compliance with AB 2572 in 2025. Well No. 2 would continue to be in excess of 40 years old, and in need of repairs. The existing water system would continue to have potential pressure and supply issues, and the water storage tank would have a limited future life expectancy. A “No Project” alternative would not provide a solution to any of the stated problems.

2.1.8 Site and Surrounding Land Uses and Setting

Rolling Hills Water System is a water system located in Madera County, just two miles north of the City of Fresno and 13 miles east of Madera alongside SR 41. The Madera County General Plan has designated Rolling Hills as a mix of “Very Low Density Residential” and “Community Commercial” property. The Project is consistent with all Madera County General Plan goals, objectives, and policies for these types of areas. See [Figure 2-3](#) and [Figure 2-4](#) for the general plan designations and zoning, respectively.

Table 2-2: Existing Uses, General Plan Designation, & Zone Districts of Surrounding Properties

Direction from Project Site	Existing Use	General Plan Designation	Zone District
NORTH	Agricultural	OS-Open Space	GV-OS Gateway Village - Open Space
EAST	Agricultural	OS-Open Space	ARE-20 Agricultural, Rural, Exclusive (20 acre) District
SOUTH	Agricultural	OS- Open Space; LDR-Low Density Residential	G-MUC - Gunner Ranch Mixed Use
WEST	Agricultural	LDR-Low Density Residential	GV-R Gateway Village - Residential

2.1.9 Other Public Agencies Whose Approval May Be Required

The State Water Board, as the Lead Agency, has jurisdiction over the approval of this Project and would be requested to take action on the following:

- Adoption of the Mitigated Negative Declaration with appropriate findings; and
- Adoption of the Mitigation Monitoring and Reporting Program

Madera County may issue the following ministerial permits for the Project if and once the above listed actions are taken:

- Road Encroachment Permit

Other agencies, including but not limited to the following, may have authority to issue approvals or permits prior to Project implementation, including but not limited to:

- State Water Resources Control Board Notice of Intent for coverage under Statewide Construction Stormwater Permit
- State Water Resources Control Board, Division of Drinking Water, Domestic water Supply Permit Amendment
- San Joaquin Valley Air Pollution Control District, Indirect Source Review (Rule 9510)

Bakman has rights to operate, maintain and improve the components of the water system on private properties within the community; therefore, no additional permits or permissions will be required to install water meters on all services.

2.1.10 Consultation with California Native American Tribes

Public Resources Code Section 21080.3.1, *et seq.* (codification of AB 52, 2013-14)) requires that a lead agency, within 14 days of determining that it will undertake a project, must notify in writing any California Native American Tribe traditionally and culturally affiliated with the geographic area of the project if that Tribe has previously requested notification about projects in that geographic area. The notice must briefly describe the project and inquire whether the Tribe wishes to request formal consultation. Tribes have 30 days from receipt of notification to request formal consultation. The lead agency then has 30 days to initiate the consultation, which then continues until the parties come to an agreement regarding necessary mitigation or agree that no mitigation is needed, or one or both parties determine that negotiation occurred in good faith, but no agreement will be made.

The State Water Resources Control Board has not received written correspondence from Tribes pursuant to Public Resources Code Section 21080.3.1 requesting notification for the Project area.

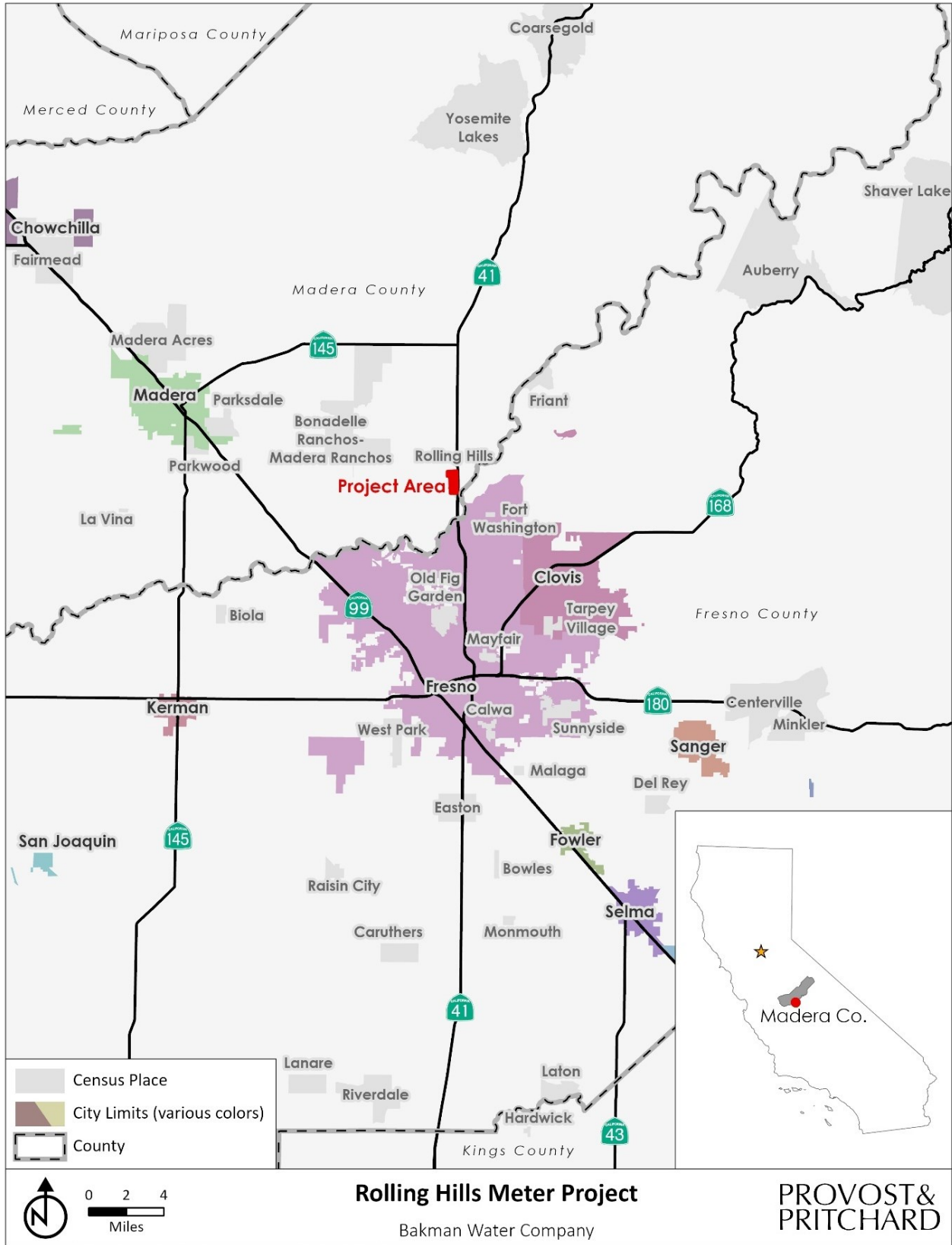


Figure 2-1: Regional Location

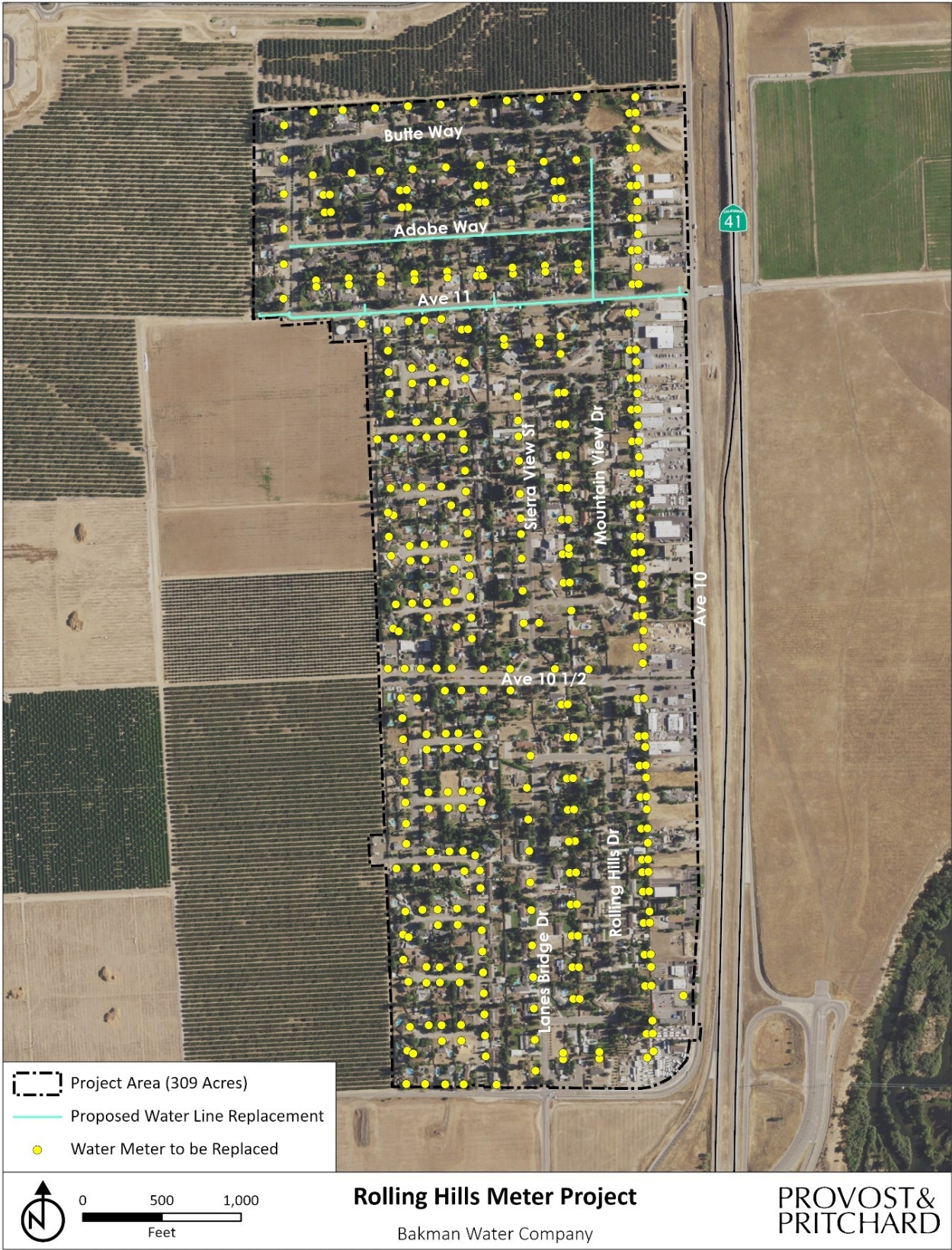


Figure 2-2: Site Plan

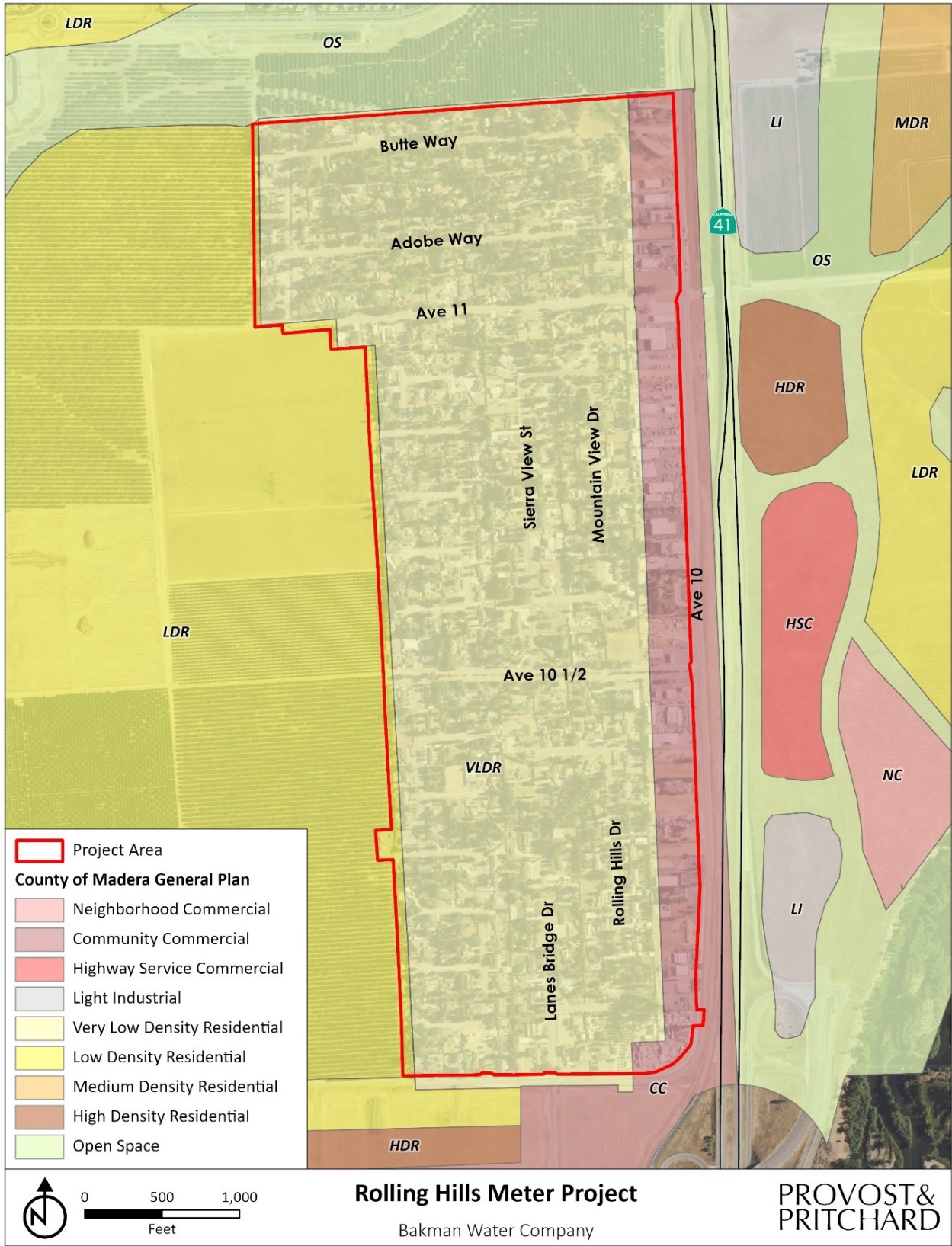


Figure 2-3: General Plan Land Use Designation Map

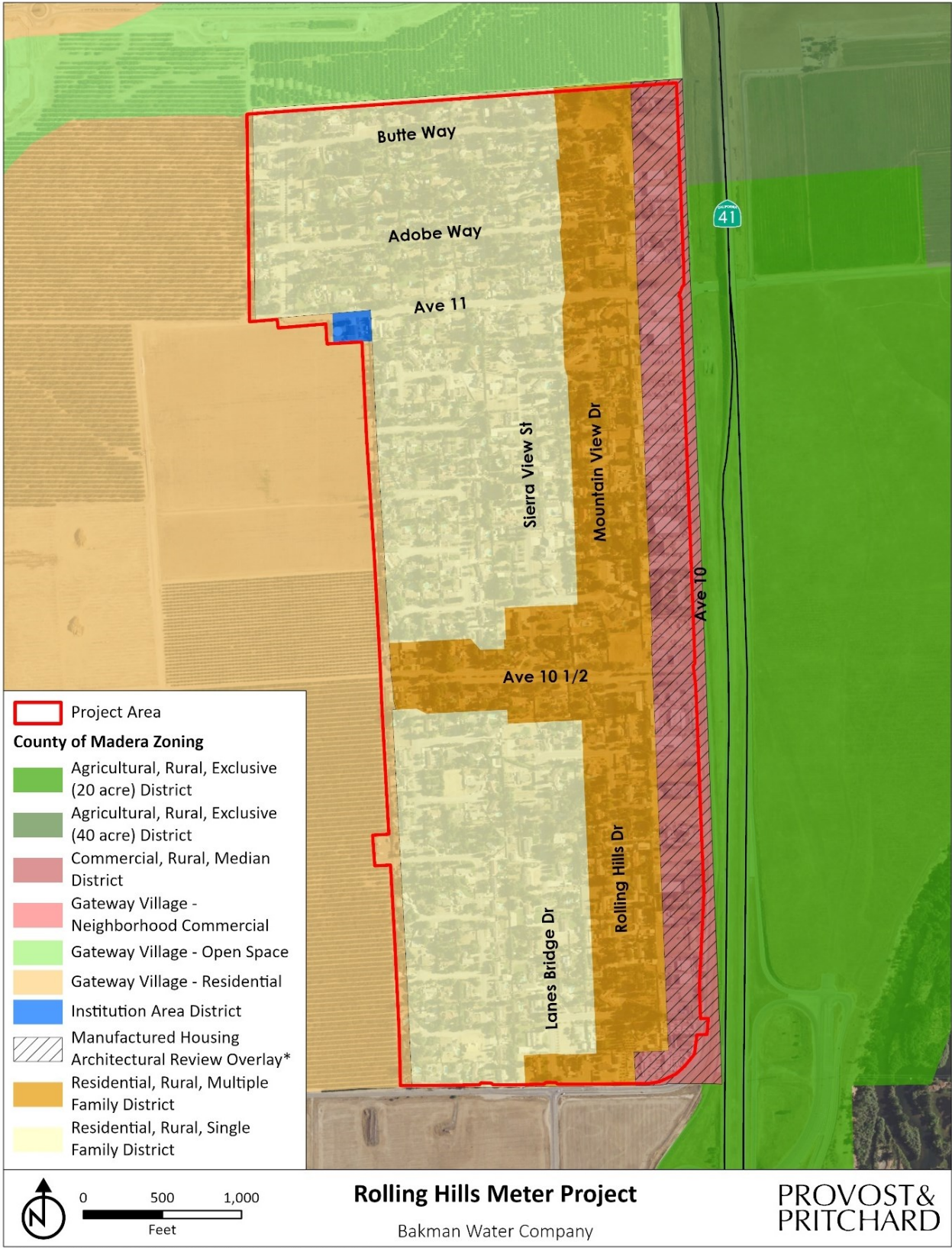


Figure 2-4 Zone District Map

CHAPTER 3 DETERMINATION

3.1 POTENTIAL ENVIRONMENTAL IMPACTS

As indicated by the discussions of existing and baseline conditions, and impact analyses that follow in this Chapter, environmental factors not checked below would have no impacts or less than significant impacts resulting from the Project. Environmental factors that are checked below would have potentially significant impacts resulting from the Project. Mitigation measures are recommended for each of the potentially significant impacts that would reduce the impact to less than significant.

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

The analyses of environmental impacts in **Chapter 4 Impact Analysis** result in an impact statement, which shall have the following meanings.

Potentially Significant Impact. This category is applicable if there is substantial evidence that an effect may be significant, and no feasible mitigation measures can be identified to reduce impacts to a less than significant level. If there are one or more “Potentially Significant Impact” entries when the determination is made, an EIR is required.

Less than Significant with Mitigation Incorporated. This category applies where the incorporation of mitigation measures would reduce an effect from a “Potentially Significant Impact” to a “Less than Significant Impact.” The lead agency must describe the mitigation measure(s), and briefly explain how they would reduce the effect to a less than significant level (mitigation measures from earlier analyses may be cross-referenced).

Less than Significant Impact. This category is identified when the proposed Project would result in impacts below the threshold of significance, and no mitigation measures are required.

No Impact. This category applies when a project would not create an impact in the specific environmental issue area. “No Impact” answers do not require a detailed explanation if they are adequately supported by the information sources cited by the lead agency, which show that the impact does not apply to the specific project (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).

3.2 DETERMINATION

On the basis of this initial evaluation (to be completed by the Lead Agency):

- ☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.
- ☒ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.
- ☐ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.
- ☐ I find that the proposed project MAY have a “potentially significant impact” or “potentially significant unless mitigated” impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.
- ☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Signature

Date

Bridget Binning, Senior Environmental Scientist
Printed Name/Position

CHAPTER 4 ENVIRONMENTAL IMPACT ANALYSIS

4.1 AESTHETICS

Table 4-1: Aesthetics Impacts

Except as provided in Public Resources Code Section 21099, would the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Have substantial adverse effect on a scenic vista?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

4.1.1 Environmental Setting and Baseline Conditions

The Project is located in southern Madera County in the Central San Joaquin Valley. Lands in the surrounding vicinity consist of relatively flat irrigated farmlands. Agricultural practices in the vicinity consist of row crop and orchard cultivation. The Project site is located within the Rolling Hills community which consists primarily of a residential neighborhood, with commercial uses on the eastern end of the Project area. The Project site is approximately 47 miles east of the Coastal Range and approximately 14 miles west of the foothills of the Sierra Nevada. Neither of these foothills or mountain ranges are typically visible from the vantage point of the Project site.

4.1.2 Impact Analysis

a) Have substantial adverse effect on a scenic vista?

No Impact. The primary scenic vista in the region is the Sierra Nevada foothills to the east. The Project would not interfere with public views of the Sierra Nevada foothills during construction or operation as all Project related activity would be temporary. Pipelines would be placed underground, and meter

placement would not obstruct any views in the area. Furthermore, the Project site does not stand out from its surroundings in any remarkable fashion. There would be no impacts.

- b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?

No Impact. There are no scenic highways located within the immediate vicinity of the Project site.¹ The Project would therefore not impact any scenic resources including but not limited to trees, rock outcroppings, or historical buildings affiliated with a scenic highway. Therefore, there would be no impact.

- 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?

No Impact. The Project site is located within a residential subdivision in Madera County. The proposed pipeline and water meters would be located primarily underground, and therefore would not degrade the existing visual character of the Project site or surroundings, and the improvements to the existing well and water storage tank would not substantially change the visual character of those water system components. The Project would not conflict with applicable zoning and other regulations that govern scenic value or quality. Therefore, there would be no impact.

- d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

No Impact. No new lighting in the area is proposed as part of the Project. Additional vehicular traffic after construction would be limited to operation and maintenance on an as-needed basis which would be performed during daylight hours, except in an unforeseen emergency situation. Therefore, the Project would not create a new source of substantial light or glare that would adversely affect day or nighttime views in the area or be inconsistent with existing conditions. Therefore, there would be no impact.

¹ (California Department of Transportation - Scenic Highways 2022) Accessed March 11, 2022.

4.2 AGRICULTURE AND FORESTRY RESOURCES

Table 4-2: Agriculture and Forest Impacts

Would the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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))?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Result in the loss of forest land or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

4.2.1 Baseline Conditions

The Project site is located in the community of Rolling Hills, a CDP, located in southeast Madera County along State Route 41 (SR 41), approximately two miles north of Fresno and 18 miles east of Madera. The community is in the unincorporated area of Madera County and covers an area of approximately 0.6 square miles. The Farmland Mapping and Monitoring Program (FMMP) for Madera County designates the project site as Urban and Built-Up Land. The surrounding area consists of Prime Farmland and Grazing Land.

Farmland Mapping and Monitoring Program (FMMP): The FMMP produces maps and statistical data used for analyzing impacts to California's agricultural resources. Agricultural land is rated according to soil quality and irrigation status; the best quality land is called Prime Farmland. The maps are updated every two years with the use of a computer mapping system, aerial imagery, public review, and field reconnaissance.

The California Department of Conservation's (DOC) 2016 FMMP is a non-regulatory program that produces "Important Farmland" maps and statistical data used for analyzing impacts on California's agricultural resources. The Important Farmland maps identify eight land use categories, five of which are agriculture related: prime farmland, farmland of statewide importance, unique farmland, farmland of local

importance, and grazing land – rated according to soil quality and irrigation status. Each is summarized below:

- **PRIME FARMLAND (P):** Farmland with the best combination of physical and chemical features able to sustain long term agricultural production. This land has the soil quality, growing season, and moisture supply needed to produce sustained high yields. Land must have been used for irrigated agricultural production at some time during the four years prior to the mapping date.
- **FARMLAND OF STATEWIDE IMPORTANCE (S):** Farmland similar to Prime Farmland but with minor shortcomings, such as greater slopes or less ability to store soil moisture. Land must have been used for irrigated agricultural production at some time during the four years prior to the mapping date.
- **UNIQUE FARMLAND (U):** Farmland of lesser quality soils used for the production of the state's leading agricultural crops. This land is usually irrigated but may include non- irrigated orchards or vineyards as found in some climatic zones in California. Land must have been cropped at some time during the four years prior to the mapping date.
- **FARMLAND OF LOCAL IMPORTANCE (L):** Land of importance to the local agricultural economy as determined by each county's board of supervisors and a local advisory committee.
- **GRAZING LAND (G):** Land on which the existing vegetation is suited to the grazing of livestock. The minimum mapping unit for Grazing Land is 40 acres.
- **URBAN AND BUILT-UP LAND (D):** Land occupied by structures with a building density of at least 1 unit to 1.5 acres, or approximately 6 structures to a 10-acre parcel. This land is used for residential, industrial, commercial, institutional, public administrative purposes, railroad and other transportation yards, cemeteries, airports, golf courses, sanitary landfills, sewage treatment, water control structures, and other developed purposes.
- **OTHER LAND (X):** Land not included in any other mapping category. Common examples include low density rural developments; brush, timber, wetland, and riparian areas not suitable for livestock grazing; confined livestock, poultry or aquaculture facilities; strip mines, borrow pits; and water bodies smaller than 40 acres. Vacant and nonagricultural land surrounded on all sides by urban development and greater than 40 acres is mapped as Other Land.
- **WATER (W):** Perennial water bodies with an extent of at least 40 acres.

4.2.2 Impact Analysis

a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?

No Impact. Pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency², the Project site is not considered Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, therefore the Project would not convert said Farmland to non-agricultural use. There would be no impact.

² (California Department of Conservation - Farmland Mapping & Monitoring Program 2022) Site accessed March, 2022.

b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?

No Impact. The Project site is not zoned for agricultural use and it is not subject to a Williamson Act agricultural land conservation contract (**Figure 4-1**). Therefore, the Project will not affect existing agriculturally zoned or Williamson Act contract parcels. There would be no impact.

c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?

No Impact. The Project site is not within the vicinity of a forest 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)). According to the Madera County General Plan, the Project area does not include any land used or designated for timber, forest land, or timber harvesting industry. Therefore, the Project would not conflict with existing zoning for, or cause rezoning of forest land. There would be no impact.

d) Result in the loss of forest land or conversion of forest land to non-forest use?

No Impact. As discussed above in Impact Assessment “c”, the Project is not within the vicinity of a forest 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)). According to the County of Madera General Plan, the Project area does not include any land used or designated for timber, forest land, or timber harvesting industry. Therefore, the Project would not result in the loss of forest land or conversion of forest land to non-forest use. There would be no impact.

e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?

No Impact. The Project would install new meters, new distribution mains, refurbish Well No. 2, and provide cathodic protection for the water storage tank. The Project would not involve additional changes to the existing environment that would change the nature of or location such that it would lead to conversion of farmlands to non-agricultural uses. Furthermore, the Project would not convert forest lands to non-forest uses. Therefore, there would be no impact.

4.2.3 Federal Cross-Cutting Topic

Farmland Protection Act

The Farmland Protection and Policy Act (FPPA) was enacted in 1981 to minimize the loss of prime farmland and unique farmlands because of federal actions that converted these lands to nonagricultural uses. The FPPA assures that federal programs are compatible with state and local governments, and private programs and policies to protect farmland³.

As defined by the FPPA, prime farmland is farmland that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops, and also is available for these uses. A unique farmland is land other than prime farmland that is used for production of specific, high-value food

³ (United States Department of Agriculture - NRCS Farmland Protection Policy Act 2022) Accessed May 2022.

and fiber crops; it has the special combination of soil quality, location, growing season, and moisture supply needed to economically produce sustained high quality or high yields of specific crops.

As previously concluded, the proposed Project is not located on land classified by the DOC as Prime Farmland, Farmland of Statewide Importance, Unique Farmland, or Farmland of Local Importance. These classifications recognize a land's suitability for agricultural production by considering the physical and chemical characteristics of the soil, such as soil temperature range, depth of the groundwater table, flooding potential, rock fragment content, and rooting depth. The classifications also consider location, growing season, and moisture available to sustain high-yield crops. Together, Important Farmland and Grazing Land are defined by the DOC as "Agricultural Land."

The proposed Project would be on land that is classified as "Urban and Built-up Land," (Figure 4-1) which consists of lands supporting uses such as; residential, industrial, commercial, construction, institutional, public administration, railroad and other transportation yards, cemeteries, airports, golf courses, sanitary landfills, sewage treatment, water control structures, and other developed purposes. The Project is located within developed Urban and Built-up Land, and therefore no farmland would be converted as a result of the pipeline and meter installation, well refurbishment, or addition of cathodic protection to the water storage tank. Therefore, the proposed Project would not conflict with the Farmland Protection and Policy Act or adversely affect prime or unique farmland.

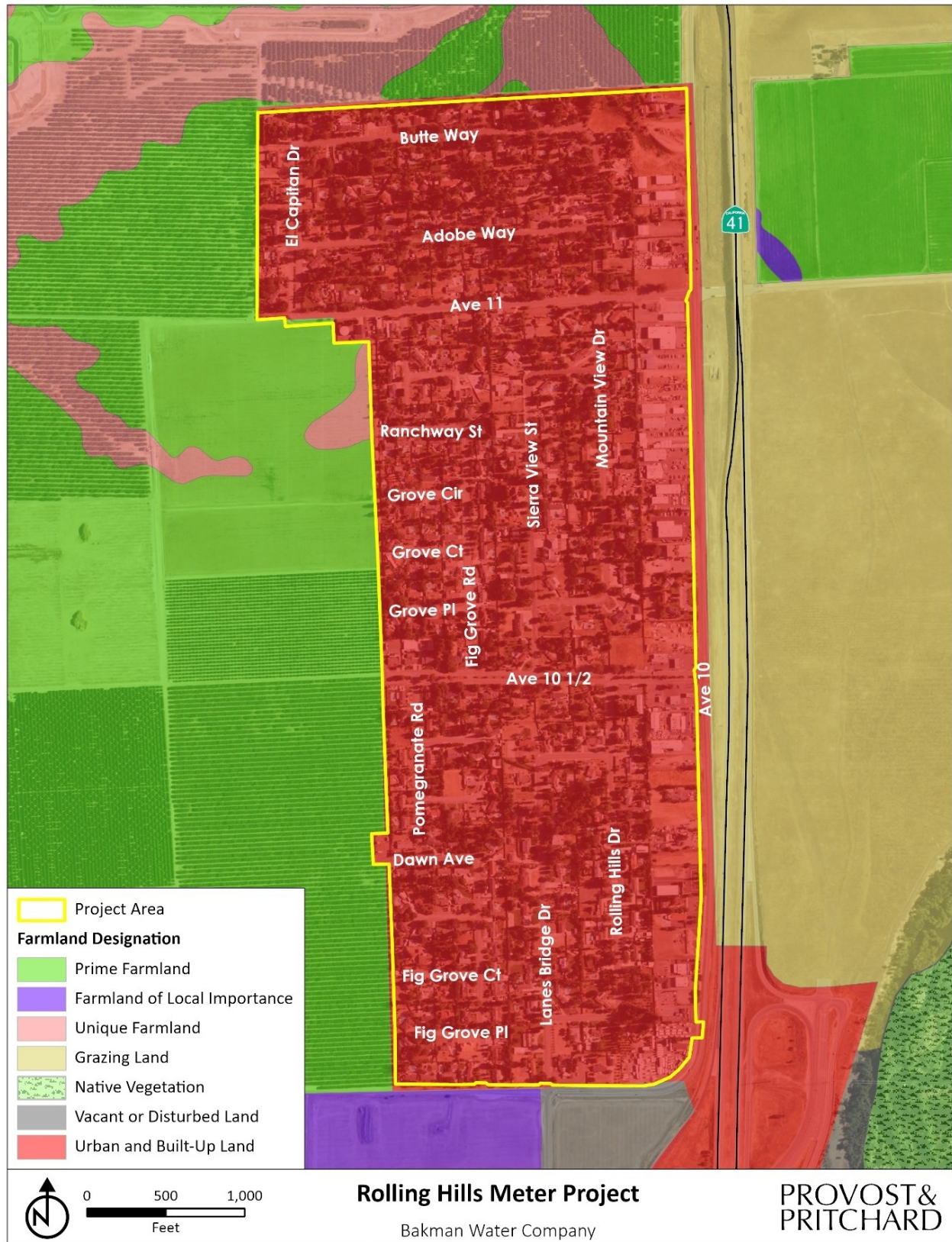


Figure 4-1: Farmland Map

4.3 AIR QUALITY

Table 4-3: Air Quality Impacts

Would the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Conflict with or obstruct implementation of the applicable air quality plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Expose sensitive receptors to substantial pollutant concentrations?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

4.3.1 Baseline Conditions

Under the California Clean Air Act (CCAA), the California Air Resources Board (CARB) is required to designate areas of the State as attainment, nonattainment, or unclassified with respect to applicable standards. An “attainment” designation for an area signifies that pollutant concentrations did not violate the applicable standard in that area. A “nonattainment” designation indicates that a pollutant concentration violated the applicable standard at least once, excluding those occasions when a violation was caused by an exceptional event, as defined in the criteria. Depending on the frequency and severity of pollutants exceeding applicable standards, the nonattainment designation can be further classified as serious nonattainment, severe nonattainment, or extreme nonattainment, with extreme nonattainment being the most severe of the classifications. An “unclassified” designation signifies that the data does not support either an attainment or nonattainment designation. The CCAA divides districts into moderate, serious, and severe air pollution categories, with increasingly stringent control requirements mandated for each category.

The United States Environmental Protection Agency (USEPA) designates areas for ozone, CO, and NO₂ as “does not meet the primary standards,” “cannot be classified,” or “better than national standards.” For SO₂, areas are designated as “does not meet the primary standards,” “does not meet the secondary standards,” “cannot be classified,” or “better than national standards.” However, the CARB terminology of attainment, nonattainment, and unclassified is more frequently used. The USEPA uses the same sub-categories for nonattainment status: serious, severe, and extreme. In 1991, USEPA assigned new nonattainment designations to areas that had previously been classified as Group I, II, or III for PM₁₀ based on the likelihood that they would violate national PM₁₀ standards. All other areas are designated “unclassified.”

The State and national attainment status designations pertaining to the San Joaquin Valley Air Basin (SJVAB) are summarized in [Table 4-4](#). The SJVAB is currently designated as a nonattainment area with respect to the State PM₁₀, ozone, and PM_{2.5} standards. The SJVAB is designated nonattainment for the National Ambient Air Quality Standards (NAAQS) 8-hour ozone and PM_{2.5} standards. On September 25, 2008, the

USEPA re-designated the San Joaquin Valley to attainment status for the PM₁₀ NAAQS and approved the PM₁₀ Maintenance Plan. California's ambient air monitoring network is one of the most extensive in the world, with more than 250 sites and 700 individual monitors measuring air pollutant levels across a diverse range of topography, meteorology, emissions, and air quality. Existing levels of ambient air quality and historical trends and projections in the Project are best documented by measurements made by these monitoring sites. The nearest monitoring site to the Project is Fresno-Sierra Skypark #2 location in the City of Fresno at 4143 W. Alluvial Avenue. The site measures O₃. The nearest monitoring site that measures PM₁₀, and PM_{2.5}, is the Clovis-N Villa Avenue location in the City of Clovis at 908 N. Villa Ave. Data presented in **Table 4-4** summarize monitoring data from the CARB's Aerometric Data Analysis and Management System for the Fresno-Skypark #2 location and the Clovis-N Villa Avenue location, published from 2018 to 2020.

Table 4-4. Ambient Air Quality Monitoring Summary

Air Pollutant	Averaging Time	Item	2018	2019	2020
Ozone	1-hour	Max 1 Hour (ppm)	0.100	0.097	0.116
		Days > State Standard (0.09 ppm)	4	2	8
	8-hour	Max 8 Hour (ppm)	0.087	0.084	0.095
		Days > State Standard (0.070 ppm)	30	9	19
		Days > National Standard (0.070 ppm)	27	9	18
		Days > National Standard (0.075 ppm)	13	3	11
Inhalable coarse particles (PM ₁₀)	Annual	National Annual Average (µg/m ³)	39.6	32.6	50.8
	24-hour	National 24 Hour (µg/m ³)	118.6	155.7	296.0
		Days > State Standard (50 µg/m ³)	14	11	114
		Days > National Standard (150 µg/m ³)	0	0	1
Fine particulate matter (PM _{2.5})	Annual	National Annual Average (µg/m ³)	14.3	-	18.4
	24-hour	24 Hour (µg/m ³)	82.3	39.1	193.7
		Days > National Standard (35 µg/m ³)	26	-	40

Table 4-5: Summary of Ambient Air Quality Standards and Attainment Designation

Pollutant	Averaging Time	California Standards*		National Standards*	
		Concentration*	Attainment Status	Primary	Attainment Status
Ozone (O ₃)	1-hour	0.09 ppm	Nonattainment/ Severe	—	No Federal Standard
	8-hour	0.070 ppm	Nonattainment	0.070 ppm	Nonattainment (Extreme)**
Particulate Matter (PM ₁₀)	AAM	20 µg/m ³	Nonattainment	—	Attainment
	24-hour	50 µg/m ³		150 µg/m ³	
Fine Particulate Matter (PM _{2.5})	AAM	12 µg/m ³	Nonattainment	12 µg/m ³	Nonattainment
	24-hour	No Standard		35 µg/m ³	
	1-hour	20 ppm	Attainment/ Unclassified	35 ppm	Attainment/ Unclassified
Carbon Monoxide (CO)	8-hour	9 ppm		9 ppm	
	8-hour (Lake Tahoe)	6 ppm		—	

Pollutant	Averaging Time	California Standards*		National Standards*	
		Concentration*	Attainment Status	Primary	Attainment Status
Nitrogen Dioxide (NO ₂)	AAM	0.030 ppm	Attainment	53 ppb	Attainment/ Unclassified
	1-hour	0.18 ppm		100 ppb	
Sulfur Dioxide (SO ₂)	AAM	—	Attainment	--	Attainment/ Unclassified
	24-hour	0.04 ppm		--	
	3-hour	—		0.5 ppm	
	1-hour	0.25 ppm		75 ppb	
Lead (Pb)	30-day Average	1.5 µg/m ³	Attainment	—	No Designation/ Classification
	Calendar Quarter	—		--	
	Rolling 3-Month Average	—		0.15 µg/m ³	
Sulfates (SO ₄)	24-hour	25 µg/m ³	Attainment	No Federal Standards	
Hydrogen Sulfide (H ₂ S)	1-hour	0.03 ppm (42 µg/m ³)	Unclassified		
Vinyl Chloride (C ₂ H ₃ Cl)	24-hour	0.01 ppm (26 µg/m ³)	Attainment		
Visibility-Reducing Particle Matter	8-hour	Extinction coefficient: 0.23/km-visibility of 10 miles or more due to particles when the relative humidity is less than 70%.	Unclassified		

* For more information on standards visit: <https://www3.arb.ca.gov/research/aqqs/aqqs2.pdf>

** No Federal 1-hour standard. Reclassified extreme nonattainment for the Federal 8-hour standard [date].

***Secondary Standard

Source: CARB ; SJVAPCD , accessed May 2022

4.3.2 Impact Analysis

4.3.3 Short-Term Construction-Generated Emissions

Short-term construction emissions associated with the Project were calculated using the California Emissions Estimator Modeling (software) CalEEmod, Version 2016.3.2. These output files can be found in [Appendix A](#). The sections below detail the methodology of the air quality and greenhouse gas emissions analysis and its conclusions.

The emissions modeling includes emissions generated by off-road equipment, haul trucks, and worker commute trips. Emissions were quantified based on anticipated construction schedules and construction equipment requirements provided by the Project applicant. All remaining assumptions were based on the default parameters contained in the model. Localized air quality impacts associated with the Project would be minor and were qualitatively assessed.

4.3.4 Long-Term Operational Emissions

Long-term operational emissions associated with the Project are estimated to be minimal in nature, and similar to existing conditions. Therefore, operational emissions were not analyzed.

4.3.5 Thresholds of Significance

To assist local jurisdictions in the evaluation of air quality impacts, the San Joaquin Valley Air Pollution Control District (SJVAPCD) has published the *Guide for Assessing and Mitigating Air Quality Impacts*. This guidance document includes recommended thresholds of significance to be used for the evaluation of short-term construction, long-term operational, odor, toxic air contaminant, and cumulative air quality impacts. Accordingly, the SJVAPCD-recommended thresholds of significance are used to determine whether implementation of the proposed Project would result in a significant air quality impact. Projects that exceed these recommended thresholds would be considered to have a potentially significant impact to human health and welfare. The thresholds of significance are summarized, as follows:

Short-Term Emissions of Particulate Matter (PM₁₀): Construction impacts associated with the proposed Project would be considered significant if the feasible control measures for construction in compliance with Regulation VIII as listed in the SJVAPCD guidelines are not incorporated or implemented, or if Project-generated emissions would exceed 15 tons per year (TPY).

Short-Term Emissions of Ozone Precursors (ROG and NO_x): Construction impacts associated with the proposed Project would be considered significant if the Project generates emissions of Reactive Organic Gases (ROG) or NO_x that exceeds 10 TPY.

Long-Term Emissions of Particulate Matter (PM₁₀): Operational impacts associated with the proposed Project would be considered significant if the Project generates emissions of PM₁₀ that exceed 15 TPY.

Long-Term Emissions of Ozone Precursors (ROG and NO_x): Operational impacts associated with the proposed Project would be considered significant if the Project generates emissions of ROG or NO_x that exceeds 10 TPY.

Conflict with or Obstruct Implementation of Applicable Air Quality Plan: Due to the region's nonattainment status for ozone, PM_{2.5}, and PM₁₀, if the Project-generated emissions of either of the ozone precursor pollutants (i.e., ROG and NO_x), PM_{2.5}, or PM₁₀ would exceed the SJVAPCD's significance thresholds, then the Project would be considered to conflict with the attainment plans. In addition, if the Project would result in a change in land use and corresponding increases in vehicle miles traveled, in the increase in vehicle miles traveled may be unaccounted for in regional emissions inventories contained in regional air quality control plans.

Local Mobile-Source CO Concentrations: Local mobile source impacts associated with the proposed Project would be considered significant if the Project contributes to CO concentrations at receptor locations in excess of the CAAQS (i.e. 9.0 ppm for 8 hours or 20 ppm for 1 hour).

Exposure to toxic air contaminants (TAC) would be considered significant if the probability of contracting cancer for the Maximally Exposed Individual (i.e., maximum individual risk) would exceed 10 in 1 million or would result in a Hazard Index greater than 1.

Odor impacts associated with the proposed Project would be considered significant if the Project has the potential to frequently expose members of the public to objectionable odors.

- a) Would the project conflict with or obstruct implementation of the applicable air quality plan? And;
- b) 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?

Less than Significant Impact. Estimated construction-generated emissions are summarized in **Table 4-6** below and will be less than the SJVAPCD established thresholds of significance. Construction-related air quality emissions are below the SJVAPCD Rule 9510 threshold to reduce construction emissions. Impacts will be less than significant.

Table 4-6. Unmitigated Short-Term Construction-Generated Emissions of Criteria Air Pollutants

Source	Annual Emissions (Tons/Year) ⁽¹⁾					
	ROG	NO _x	CO	PM ₁₀	PM _{2.5}	SO _x
2022	0.09	0.94	0.79	0.61	0.35	<0.01
2023	0.16	1.61	1.66	0.09	0.07	<0.01
Maximum	0.16	1.61	1.66	0.61	0.35	<0.01
SJVAPCD Significance Thresholds:	10	10	100	15	15	27
Exceed SJVAPCD Thresholds?	No	No	No	No	No	No

1. Refer to **Appendix A** for modeling results and assumptions. Totals may not sum due to rounding.

- c) Expose sensitive receptors to substantial pollutant concentrations?

Less than Significant Impact. Implementation of the Project would not result in the long-term operation of any major onsite stationary sources of TACs. However, construction of the Project may result in temporary increases in emissions of diesel particulate matter (DPM) associated with the use of off-road diesel equipment. Health-related risks associated with diesel-exhaust emissions are primarily associated with long-term exposure and associated risk of contracting cancer. As such, cancer risks associated with exposure of to TACs are typically calculated based on a long-term (e.g., 70-year) period of exposure. However, the use of diesel-powered construction equipment would be temporary and episodic.

Construction activities would occur over approximately eight months, which would constitute approximately 0.95 percent of the typical 70-year exposure period. The Project's pipeline trenching phase is estimated to be approximately 120 days and has the longest duration of any phase. Construction activity areas during this phase would be constantly changing as progress is made on pipeline and meter installation; thus, sensitive receptors would not be exposed to TACs for an extended amount of time. For these reasons and given the relatively high dispersive properties of DPM, exposure to construction-generated DPM would not be anticipated to exceed applicable thresholds (i.e., incremental increase in cancer risk of 10 in one million).

- d) Would the project result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

Less than Significant Impact. Land uses that commonly emit odorous compounds include dairies, agricultural uses, wastewater treatment plants, chemical plants, food processing facilities, composting, refineries, and fiberglass molding facilities. The Project includes improvements at a well site, installation of pipelines to deliver clean drinking water to residences, the installation of water meters, and the addition of cathodic protection to the existing water storage tank. None of these activities would result

in the emission of odorous compounds. The operational phase of the Project would not emit any odorous compounds. Impacts would be less than significant.

4.3.6 Federal Cross-Cutting Topic

Clean Air Act (CAA)

Under the federal CAA, federal actions conducted in air basins that are not in attainment with federal air pollutant standards (such as ozone and PM_{2.5} in the SJVAB) must demonstrate conformity with the SIP. Conformity to a SIP is defined in the federal CAA as meaning conformity to a SIP's purpose of eliminating or reducing the severity and number of violations of the national standards and achieving an expeditious attainment of such standards. The SJVAPCD has published Regulation IX, Rule 9110 (referred as the General Conformity Rule) that indicates how most federal agencies can make such a determination.⁴

The SJVAPCD specifies that a project is conforming to the applicable attainment or maintenance plan if it:

- complies with all applicable SJVAPCD rules and regulations,
- complies with all applicable control measures from the applicable plans, and
- is consistent with the growth forecast in the applicable plans.

The SJVAPCD does not require a detailed quantification of construction emissions unless the project's indirect source emissions are expected to increase pollutant emissions of ROG or NOx in excess of 10 tons per year. Because proposed Project construction would not exceed this threshold, the proposed Project would comply with the conformity criteria.

⁴ (SJVAPCD 2022)

4.4 BIOLOGICAL RESOURCES

Table 4-7: Biological Resources Impacts

Would the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

4.4.1 Baseline Conditions

A reconnaissance-level field survey of the Project's Area of Potential Effect (APE) (see [Figure 4-2](#)) and surrounding areas was conducted on March 16, 2022. The full written report of biological findings is contained in [Appendix B](#). The APE for biological purposes is 318 acres with a 50-foot buffer surrounding the Project. The field survey consisted of walking and driving the APE while identifying and noting land uses, biological habitats and communities, and plant and animal species encountered. Furthermore, the APE was assessed for suitable habitats of various wildlife species.

According to the California Natural Diversity Database (CNDDB), there are no recorded observations of natural communities of special concern with potential to occur within the Project area or vicinity.

Furthermore, no natural communities of special concern were observed onsite during the field survey. Photographs of the Project areas and vicinity are available in [Appendix B](#) at the end of this document.



Figure 4-2: APE Map

Special Status Plants and Animals

California contains several “rare” plant and animal species. In this context, rare is defined as species known to have low populations or limited distributions. As the human population grows, urban expansion encroaches on the already-limited suitable habitat. This results in sensitive species becoming increasingly more vulnerable to extirpation. State and federal regulations have provided the California Department of Fish and Wildlife (CDFW) and the United States Fish and Wildlife Services (USFWS) with a mechanism for conserving and protecting the diversity of plant and animal species native to California. Numerous native plants and animals have been formally designated as “threatened” or “endangered” under State and federal endangered species legislation. Other formal designations include “candidate” for listing or “species of special concern” by CDFW. The California Native Plant Society (CNPS) has its list of native plants considered rare, threatened, or endangered. Collectively these plants and animals are referred to as “special status species.” The field survey was conducted outside of the blooming season for most plants.

A thorough search of the CNDDDB for published accounts of special status plant and animal species was conducted for the *Lanes Bridge* 7.5-minute quadrangles that contain the APE, and for the 8 surrounding quadrangles: *Daulton*, *Little Table Mountain*, *Millerton Lake West*, *Friant*, *Clovis*, *Fresno North*, *Herndon*, and *Gregg*. These species, and their potential to occur within the APE, are listed in [Table 4-8](#) and [Table 4-9](#) on the following pages. Raw data obtained from CNDDDB is available in [Appendix B](#) at the end of this document. All relevant sources of information, as discussed in the *Study Methodology* section of this report, as well as field observations were used to determine if any special status species are known to be within the APE.

Table 4-8: List of Special Status Animals with Potential to Occur Onsite and/or in the Vicinity

Species	Status	Habitat	Occurrence within Project Site
American badger (<i>Taxidea taxus</i>)	CSC	Grasslands, savannas, and mountain meadows near timberline are preferred. Most abundant in drier open spaces of shrub and grassland. Burrows in soil.	Unlikely. Suitable burrows were absent during the biological survey. The disturbed habitats and soils onsite are not suitable for this species. Frequent human disturbance along with domestic dogs and cats in the area would deter this species from residing within the APE. The nearest observation of this species was recorded in 2017 within grassland habitat approximately 6 miles from the APE.
Blunt-nosed leopard lizard (<i>Gambelia sila</i>)	FE, CE, CFP	Inhabits semi-arid grasslands, alkali flats, low foothills, canyon floors, large washes, and arroyos, usually on sandy, gravelly, or loamy substrate, sometimes on hardpan. Often found where there are abundant rodent burrows in dense vegetation or tall grass. Cannot survive on lands under cultivation. Known to bask on kangaroo rat mounds and often seeks shelter at the base of shrubs, in small mammal burrows, or in rock piles. Adults may excavate shallow burrows but rely on deeper pre-existing rodent burrows for hibernation and reproduction.	Absent. The highly disturbed habitats of the APE and surrounding lands are largely unsuitable for this species. This species was not observed during the biological field survey and there are no recorded observations of this species on CNDDDB within the regional vicinity of the Project.
Burrowing Owl (<i>Athene cunicularia</i>)	CSC	Resides in open, dry annual or perennial grasslands, deserts, and scrublands with low growing vegetation. Nests	Unlikely. The presence of large trees and raptor perches makes this site unsuitable for burrowing owls. Ground squirrels and suitable burrows were scarce, and owl

Species	Status	Habitat	Occurrence within Project Site
		underground in existing burrows created by mammals, most often ground squirrels.	signs were not observed during the field survey. The nearest observation of this species was recorded in 2000 approximately 2 miles southeast of the Project.
California glossy snake (<i>Arizona elegans occidentalis</i>)	CSC	Inhabits arid scrub, rocky washes, grasslands, and chaparral. Prefers open areas with loose soil for easy burrowing.	Absent. The disturbed habitats of the APE and surrounding lands are unsuitable for this species. Furthermore, the APE is outside of the known range of this species. The only regional recorded observation of this species corresponds to a historic collection (1893) from an unknown location in the vicinity of Fresno.
California Horned Lark (<i>Eremophila alpestris actia</i>)	CWL	Frequents open habitats, including short-grass prairie, mountain meadows, open coastal plains, fallow grain fields, and alkali flats. Found primarily in coastal regions, including Sonoma and San Diego Counties.	Unlikely. The highly disturbed habitats of the APE and surrounding lands are largely unsuitable for this species. There is marginal foraging habitat south of Avenue 10, but the lack of suitable trees makes it not optimal for this species. The only regional observations of this species occurred 30 years ago immediately to the southwest of the APE.
California red-legged frog (<i>Rana draytonii</i>)	FT, CSC	Inhabits perennial rivers, creeks, and stock ponds with vegetative cover within the Coast Range and northern Sierra foothills.	Possible. Vernal pools are absent from the APE, but there is a wetted area within the APE that could provide breeding habitat for the species. There is also an open grassland used for grazing to the east of the APE which provides suitable upland habitat. This species was not observed during the biological field survey and there are no recorded observations of this species on CNDDDB within the regional vicinity of the Project.
California tiger salamander (<i>Ambystoma californiense</i>)	FT, CT, CWL	Requires vernal pools or seasonal ponds for breeding and small mammal burrows for aestivation. Generally found in grassland and oak savannah plant communities in central California from sea level to 1500 feet in elevation.	Possible. Vernal pools are absent from the APE, but there is a wetted area within the APE that could provide breeding habitat for the species. There is also an open grassland used for grazing to the east of the APE which provides suitable upland habitat. The nearest observation of this species corresponds to a location 0.5 miles east of the APE in 2001.
Coast horned lizard (<i>Phrynosoma blainvillii</i>)	CSC	Found in grasslands, coniferous forests, woodlands, and chaparral, primarily in open areas with patches of loose, sandy soil and low-lying vegetation in valleys, foothills, and semi-arid mountains. Frequently found near ant hills and along dirt roads in lowlands along sandy washes with scattered shrubs.	Unlikely. The disturbed habitats of the APE and surrounding lands are unsuitable for this species. The nearest recorded observation of this species corresponds to a historic (1893) collection 3 miles southwest of the APE.
Conservancy fairy shrimp (<i>Branchinecta conservatio</i>)	FE	Endemic to the grasslands of the northern two-thirds of the Central Valley. Found in large, turbid pools.	Unlikely. Vernal pools are absent from the APE, but there is a wetted area within the APE that could provide breeding habitat for the species. This species was not observed during the biological field survey and there are no recorded observations of

Species	Status	Habitat	Occurrence within Project Site
			this species on CNDDDB within the regional vicinity of the Project.
Crotch bumble bee (<i>Bombus crotchii</i>)	CCE	Occurs throughout coastal California, as well as east to the Sierra-Cascade crest, and south into Mexico. Food plant genera include <i>Antirrhinum</i> , <i>Phacelia</i> , <i>Clarkia</i> , <i>Dendromecon</i> , <i>Eschscholzia</i> , and <i>Eriogonum</i> .	Possible. Foraging and nesting habitat could be found within the APE and surrounding lands. This species was not observed during the biological field survey and the most recent recorded observation of this species was approximately 11 miles northeast of the APE in 1982.
Delta smelt (<i>Hypomesus transpacificus</i>)	FT, CE	This pelagic and euryhaline species is Endemic to the Sacramento-San Joaquin River Delta, upstream through Contra Costa, Sacramento, San Joaquin, and Solano Counties.	Absent. The APE is outside the known range for this species. Aquatic habitat is absent within the APE and the Canals/Ditches that flow past the APEs do not flow perennially and do not connect to the Delta. There are no recorded observations of this species on CNDDDB within the regional vicinity of the Project. This species is currently only found in the Sacramento-San Joaquin River Delta, upstream through Contra Costa, Sacramento, San Joaquin, and Solano Counties.
Double-crested Cormorant (<i>Phalacrocorax auratus</i>)	CWL	Colonial nester on coastal cliffs, offshore islands, and along lake margins in the interior of the state. Nests along coast on sequestered islets, usually on ground with sloping surface, or in tall trees along lake margins.	Absent. There is no suitable habitat for this species within the APE or surrounding areas. The only regional observation was recorded in 2012 approximately 8 miles the APE.
Foothill yellow-legged frog (<i>Rana boylei</i>)	CE, CSC	Frequents rocky streams and rivers with rocky substrate and open, sunny banks in forests, chaparral, and woodlands. Occasionally found in isolated pools, vegetated backwaters, and deep, shaded, spring-fed pools.	Absent. The APE is not at the elevation required for the species. The nearest regional observation was recorded in 1953 approximately 14 miles southwest of the APE.
Fresno kangaroo rat (<i>Dipodomys nitratoideus exilis</i>)	FE, CE	Inhabits open grassland habitats with chenopod scrub vegetation. Habitat conditions include friable, bare alkaline clay-based soils which are seasonally inundated. There are no known populations within this species historical range in Merced, Madera, and Fresno counties. The last recorded observation of a Fresno kangaroo rat in Fresno County was in 1992 at the Alkali Sink Ecological Reserve.	Absent. The highly disturbed habitats of the APE and surrounding lands are unsuitable for this species. The only recorded observation of this species was found within the Alkali Sink Ecological Reserve in 1992, approximately 30 miles southwest of the APE.
Giant gartersnake (<i>Thamnophis gigas</i>)	FT, CT	Occurs in marshes, sloughs, drainage canals, irrigation ditches, rice fields, and adjacent uplands. Prefers locations with emergent vegetation for cover and open areas for basking. This species uses small mammal burrows adjacent to aquatic habitats for hibernation in the winter and to escape from excessive heat in the summer.	Possible. There is a wetted area within the APE that provides suitable habitat for this species. There is also an open grassland used for grazing to the east of the APE which provides suitable upland habitat. This species was not observed during the biological field survey and there are no recorded observations of this species on CNDDDB within the regional vicinity of the Project.

Species	Status	Habitat	Occurrence within Project Site
Hardhead (<i>Mylopharodon conocephalus</i>)	CSC	Occurs in low- to mid-elevation streams in the Sacramento-San Joaquin drainage. Clear, deep pools with sand-gravel-boulder bottoms and slow-moving water is required. This species is often sympatric with Sacramento pikeminnow and Sacramento sucker. Hardhead are typically absent from streams occupied by centrarchids and from heavily altered habitats.	Absent. Suitable habitat is absent from the APE. The nearest observation was recorded in 1982 approximately 0.2 miles southeast of the APE.
Least Bell's Vireo (<i>Vireo bellii pusillus</i>)	FE, CE	This migratory species breeds in southern California. Breeding habitat consists of dense, low, shrubby, riparian vegetation in the vicinity of water or dry river bottoms. By the early 1980s, this species was extirpated from most of its historic range in California, including the Central Valley. This species now occurs exclusively along the coast of southern California (USFWS, 1998).	Absent. The APE is outside of the known current range of this species. The only regional recorded observation is from a historical record dated 1912 approximately 6 miles southeast of the APE.
Monarch Butterfly (<i>Danaus plexippus</i>)	FC	Roosts located in wind-protected tree groves (eucalyptus, Monterey pine, cypress), with nectar and water sources nearby. Larval host plants consist of milkweeds (<i>Asclepias</i> sp.). Winter roost sites extend along the coast from northern Mendocino to Baja California, Mexico.	Possible. Foraging habitat is present within the APE and surrounding lands. This species was not observed during the biological field survey, but the most recent observation of this species was approximately 4 miles northeast of the APE in 2022..
Northern California legless lizard (<i>Anniella pulchra</i>)	CSC	Found primarily underground, burrowing in loose, sandy soil. Forages in loose soil and leaf litter during the day. Occasionally observed on the surface at dusk and night.	Absent. Suitable habitat is absent from the APE. The only regional recorded observation is from 1880 approximately 3 miles away from the APE.
Pallid bat (<i>Antrozous pallidus</i>)	CSC	Found in grasslands, chaparral, and woodlands, where it feeds on ground- and vegetation-dwelling arthropods, and occasionally takes insects in flight. Prefers to roost in rock crevices, but may also use tree cavities, caves, bridges, and other man-made structures.	Unlikely. Ideal roosting habitat was absent from the APE. Individuals could potentially roost in trees or crevices of structures in the vicinity, although frequent disturbance in this region would make this unlikely. At most, this species could forage on flying arthropods over the adjacent orchard or canal during periods of inundation. The only recorded regional occurrence of this species was documented in 1979 approximately 12 miles northeast of the APE.
San Joaquin kit fox (<i>Vulpes macrotis mutica</i>)	FE, CT	Underground dens with multiple entrances in alkali sink, valley grassland, and woodland in valleys and adjacent foothills.	Unlikely. The highly disturbed habitats of the APE and fragmentation of the surrounding lands are unsuitable for this species. The only regional recorded observation of the species occurred in 1992 approximately 6 miles northwest of the APE.
Spotted bat (<i>Euderma maculatum</i>)	CSC	Roosts in cliffs, rock crevices, and caves. Forages over water and along washes. Feeds almost exclusively on moths.	Unlikely. The APE is outside of the known current distribution range of this species. Suitable roosting habitat is absent from the APE, and foraging habitat is marginal. The nearest observation of the species

Species	Status	Habitat	Occurrence within Project Site
			was recorded in 1970 approximately 7 miles from the APE.
Swainson's Hawk (<i>Buteo swainsoni</i>)	CT	Nests in large trees in open areas adjacent to grasslands, grain or alfalfa fields, or livestock pastures suitable for supporting rodent populations.	Possible. There are large trees in the APE that may provide suitable nesting habitat for the species; however, none were observed during the survey. The nearest recorded observation is from 2013 approximately 4 miles north of the APE. The most recent recorded observation is from 2017 approximately 6 miles north-northwest of the APE.
Tricolored Blackbird (<i>Agelaius tricolor</i>)	CT, CSC	Nests colonially near fresh water in dense cattails or tules, or in thickets of riparian shrubs. Forages in grassland and cropland. Large colonies are often found on dairy farm forage fields.	Possible. This species could potentially nest within the APE near the wetted area and could forage within the APE and in the neighboring cropland area. The nearest recorded observation is from 1974 approximately 3 miles southwest of the APE. The most recent recorded observation is from 2011 approximately 12 miles north-northwest of the APE. CNDDB classifies this species as possibly extirpated from the areas where they were previously recorded.
Valley elderberry longhorn beetle (<i>Desmocerus californicus dimorphus</i>)	FT	Lives in mature elderberry shrubs of the Central Valley and foothills. Adults are active March to June.	Unlikely. There were no elderberry species observed within the APE. The nearest and most recent recorded observation is from 1992 approximately 0.2 miles south of the APE. The only other recorded observation is from 1989 approximately 7 miles southwest of the APE.
Vernal pool fairy shrimp (<i>Branchinecta lynchi</i>)	FT	Occupies vernal pools, clear to tea-colored water, in grass or mud-bottomed swales, and basalt depression pools.	Unlikely. There are no vernal pools present within the APE or surrounding habitat. The nearest recorded observation is from 2009 approximately 0.2 miles south of the APE. The most recent recorded observation is from 2017 approximately 7 miles north-northwest of the APE.
Western mastiff bat (<i>Eumops perotis californicus</i>)	CSC	Found in open, arid to semi-arid habitats, including dry desert washes, flood plains, chaparral, oak woodland, open ponderosa pine forest, grassland, and agricultural areas, where it feeds on insects in flight. Roosts most commonly in crevices in cliff faces but may also use high buildings and tunnels.	Unlikely. Nesting habitat within the APE and surrounding areas is absent. At most this species could fly through or forage within the area. The nearest and most recent recorded observation is from 1994 approximately 7 miles north of the APE.
Western pond turtle (<i>Emys marmorata</i>)	CSC	An aquatic turtle of ponds, marshes, slow-moving rivers, streams, and irrigation ditches with riparian vegetation. Requires adequate basking sites and sandy banks or grassy open fields to deposit eggs.	Possible. A wetted area was identified in the APE that may provide suitable habitat for this species. However, the surrounding area is subject to high levels of disturbance which may make it unsuitable habitat for this species. The nearest recorded observation is from 2004 approximately 7 miles north-northwest of the APE. The most recent recorded

Species	Status	Habitat	Occurrence within Project Site
			observation is from 2016 approximately 8 miles southeast of the APE.
Western spadefoot (<i>Spea hammondi</i>)	CSC	Prefers open areas with sandy or gravelly soils, in a variety of habitats including mixed woodlands, grasslands, coastal sage scrub, chaparral, sandy washes, lowlands, river floodplains, alluvial fans, playas, alkali flats, foothills, and mountains. Vernal pools or temporary wetlands, lasting a minimum of three weeks, which do not contain bullfrogs, fish, or crayfish are necessary for breeding.	Possible. A wetted area was identified in the APE that may provide suitable habitat for this species. However, the surrounding area is subject to high levels of disturbance which may make it unsuitable habitat for this species. The nearest recorded observation is from 2016 approximately 0.2 miles northwest of the APE. The most recent recorded observation is from 2021 approximately 11 miles northwest of the APE.
Western Yellow-billed Cuckoo (<i>Coccyzus americanus occidentalis</i>)	FT, CE	Suitable nesting habitat in California includes dense riparian willow-cottonwood and mesquite habitats along a perennial river. Once a common breeding species in riparian habitats of lowland California, this species currently breeds consistently in only two locations in the State: along the Sacramento and South Fork Kern Rivers.	Absent. This APE is not within or nearby the known location where this species breeds. No willow-cottonwood trees were seen within the APE or surrounding areas. The nearest recorded observation of this species is from 1883 which occurred within the APE. The most recent recorded observation is from 1902 approximately 12 miles southwest of the APE and is presumed to be extirpated.

EXPLANATION OF OCCURRENCE DESIGNATIONS AND STATUS CODES

Possible: Species not observed on the site, but it could occur there from time to time.
 Unlikely: Species not observed on the site, and would not be expected to occur there except, perhaps, as a transient.
 Absent: Species not observed on the site and precluded from occurring there due to absence of suitable habitat.

STATUS CODES

FE	Federally Endangered	CE	California Endangered
FT	Federally Threatened	CT	California Threatened
FC	Federal Candidate	CSC	California Species of Concern
		CFP	California Fully Protected
		CWL	California Watch List
		CCE	California Endangered (Candidate)
		CR	California Rare

CNPS LISTING

1A	Plants Presumed Extinct in California.	2B	Plants Rare, Threatened, or Endangered in California, but more common elsewhere.
1B	Plants Rare, Threatened, or Endangered in California and elsewhere.		

Table 4-9: List of Special Status Plants with Potential to Occur Onsite and/or in the Vicinity

Species	Status	Habitat	Occurrence within Project Site
California jewelflower (<i>Caulanthus californicus</i>)	FE, CE, CNPS 1B	Found in the San Joaquin Valley and Western Transverse Ranges in sandy soils. Occurs on flats and slopes, generally in non-alkaline grassland at elevations between 230 feet and 6100 feet. Blooms February–April.	Absent. Required soils are absent and the APE and surrounding areas are frequently cultivated agricultural lands that are unsuitable for this species. The only recorded observation is from 1980 approximately 3 miles south of the APE and is presumed to be extirpated.
California satintail (<i>Imperata brevifolia</i>)	CNPS 2B	Although this facultative species is equally likely to occur in wetlands and non-wetlands, it is often found in wet springs, meadows, streambanks, and floodplains at elevations below 1600 feet. Blooms September – May.	Possible. A wetted area was identified in the APE that may provide suitable habitat for this species. The only recorded observation is from 1893 approximately 3 miles south of the APE.
Dwarf downingia (<i>Downingia pusilla</i>)	CNPS 2B	Found in vernal pools in valley and foothill grassland communities at elevations below 1600 feet. Blooms March – May.	Possible. A wetted area was identified in the APE that may provide suitable habitat for this species. The only recorded observation of this species is from 1979 approximately 4 miles northwest of the APE.
Greene’s tuctoria (<i>Tuctoria greenei</i>)	FE, CR, CNPS 1B	Found in the San Joaquin Valley and other parts of California in vernal pools within valley grassland, wetland, and riparian communities at elevations below 3500 feet. Blooms May – September.	Absent. The only recorded observation of this species is from 1937 approximately 8 miles southwest of the APE and is presumed to be extirpated.
Hairy Orcutt grass (<i>Orcuttia pilosa</i>)	FE, CE, CNPS 1B	Found in vernal pools in valley grassland, wetland, and riparian communities at elevations below 650 feet. Blooms May – September.	Possible. A wetted area was identified in the APE that may provide suitable habitat for this species. Critical habitat for this species is across Highway 41 to the east of the APE. The most recent recorded observation of this species is from 2017 approximately 11 miles northwest of the APE. The nearest recorded observation is from 1995 approximately 3 miles north of the APE.
Hartweg’s golden sunburst (<i>Pseudobahia bahifolia</i>)	FE, CE, CNPS 1B	Found in valley and foothill grassland and cismontane woodland communities in clay soils that are often acidic. Occurs predominantly on northern slopes, but also along shady creeks and near vernal pools at elevations between 300 feet and 650 feet. Blooms March – May.	Absent. Although the elevation of the APE meets the habitat requirements for this species, the required soils are absent in the APE and surrounding areas are frequently cultivated agricultural lands that are unsuitable for this species. The nearest recorded observation is from 2009 approximately 6 miles northwest of the APE. The most recent recorded observation is from 2010 approximately 8 miles north-northwest of the APE.
Hoover’s calycadenia (<i>Calycadenia hooveri</i>)	CNPS 1B	Found in valley and foothill grassland and cismontane woodland communities on exposed, rocky, barren soil at elevations between 300 feet and 1300 feet. Blooms June – September.	Absent. Cismontane woodland communities were not seen within or nearby the APE. Suitable habitat required by this species is absent from the APE and surrounding lands. The only recorded observation is from 2007 approximately 3 miles northwest of the APE.

Species	Status	Habitat	Occurrence within Project Site
Hoover's cryptantha (<i>Cryptantha hooveri</i>)	CNPS 1A	Presumed extirpated in California. Found in valley and foothill grassland and inland dunes in coarse sand at elevations below 250 feet. Blooms March – May.	Absent. Suitable habitat required by this species is absent from the APE and surrounding lands. The only recorded observation is from 1935 approximately 11 miles north of the APE and is presumed to be extirpated.
Madera leptosiphon (<i>Leptosiphon serrulatus</i>)	CNPS 1B	Found in openings in foothill woodland, often yellow-pine forest, and chaparral at elevations between 1000 feet and 4300 feet. Blooms April – May.	Absent. Suitable habitat required by this species is absent from the APE and surrounding lands. The elevation requirement of this species is not present within the APE. The nearest recorded observation is from 1922 approximately 4 miles south of the APE. The most recent recorded observation of this species is from 1967 approximately 9 miles northeast of the APE.
Munz's tidy-tips (<i>Layia munzii</i>)	CNPS 1B	Found in the San Joaquin Valley in alkaline clay soils; often along hillsides in alkali scrub and sometimes valley and foothill grassland. Occurs at elevations between 145 feet and 2625 feet Blooms March–April.	Absent. Suitable habitat required by this species is absent from the APE and surrounding lands. The only recorded observation of this species is from 1937 approximately 9 miles northwest of the APE.
Orange lupine (<i>Lupinus citrinus</i> var. <i>citrinus</i>)	CNPS 1B	Found in chaparral, cismontane woodland, and lower montane coniferous forest in rocky, decomposed granitic outcrops on flat to rolling terrain. Typically found in open areas, at elevations between 1250 feet and 5800 feet. Blooms April – July.	Absent. The elevation requirement of this species is not present within the APE. Required soils are absent in the APE and surrounding areas are frequently cultivated agricultural lands that are unsuitable for this species. The only recorded observation is from 2003 approximately 12 miles north of the APE.
Pincushion navaretia (<i>Navarretia myersii</i> spp. <i>myersii</i>)	CNPS 1B	Found in vernal pools in clay soils at elevations between 65-295 feet. Often associated with non-native grasslands. Blooms in May.	Possible. A wetted area was identified in the APE that may provide suitable habitat for this species. The only recorded observation of this species is from 2016 approximately 4 miles north of the APE.
San Joaquin Valley Orcutt grass (<i>Orcuttia inaequalis</i>)	FT, CE, CNPS 1B	Found in the eastern San Joaquin Valley and the Sierra Nevada foothills in vernal pools within valley grassland, freshwater wetland, and wetland-riparian communities at elevations below 2600 feet. Blooms April – September.	Possible. A wetted area was identified in the APE that may provide suitable habitat for this species. The nearest and most recent recorded observation is from 2017 approximately 2 miles north of the APE.
Sanford's arrowhead (<i>Sagittaria sanfordii</i>)	CNPS 1B	Found in the San Joaquin Valley and other parts of California in freshwater-marsh, primarily ponds and ditches, at elevations below 1000 feet. Blooms May–October.	Possible. A wetted area was identified in the APE that may provide suitable habitat for this species. The most recent recorded observation of this species is from 2014 approximately 7 miles northeast of the APE. The nearest recorded observation of this species is from 1954 approximately 2 miles south of the APE.
Shining navarretia (<i>Navarretia nigelliformis</i> ssp. <i>radians</i>)	CNPS 1B	Found in cismontane woodland and valley and foothill grassland communities, sometimes in vernal pools. Occurs at elevations between 200 feet and 3200 feet. Blooms May – July.	Absent. Cismontane woodland communities were not seen within or nearby the APE. Suitable habitat required by this species is absent from the APE and surrounding lands. The only recorded observation is from 1938 approximately 16 miles northeast of the APE.

Species	Status	Habitat	Occurrence within Project Site
Spiny-sepaled button-celery (<i>Eryngium spinosepalum</i>)	CNPS 1B	Found in the Sierra Nevada Foothills and the San Joaquin Valley. Occurs in vernal pools, swales, and roadside ditches. Often associated with clay soils in vernal pools within grassland communities. Occurs at elevations between 50 feet and 4160 feet. Blooms April–July.	Possible. A wetted area was identified in the APE that may provide suitable habitat for this species. The most recent recorded observation of this species is from September 2010 approximately 9 miles north of the APE. The nearest recorded observation is June 2010 approximately 3 miles north of the APE.
Succulent owl’s-clover (<i>Castilleja campestris</i> ssp. <i>succulenta</i>)	FT, CE, CNPS 1B	Found in vernal pools, often in acidic soils at elevations below 2500 feet. Blooms April – July.	Possible. A wetted area was identified in the APE that may provide suitable habitat for this species. Critical habitat for this species is across Highway 41 to the east of the APE. Vernal pool habitat and required soils are absent from the APE and surrounding areas are frequently cultivated agricultural lands that are unsuitable for this species. The most recent recorded observation of this species is from 2019 approximately 3 miles north of the APE. The nearest recorded observation of this species is from 1984 approximately 2 miles south of the APE.

EXPLANATION OF OCCURRENCE DESIGNATIONS AND STATUS CODES

Possible:	Species not observed on the site, but it could occur there from time to time.
Unlikely:	Species not observed on the site, and would not be expected to occur there except, perhaps, as a transient.
Absent:	Species not observed on the site and precluded from occurring there due to absence of suitable habitat.

STATUS CODES

FE	Federally Endangered	CE	California Endangered
FT	Federally Threatened	CT	California Threatened
FC	Federal Candidate	CSC	California Species of Concern
		CFP	California Fully Protected
		CWL	California Watch List
		CCE	California Endangered (Candidate)
		CR	California Rare

CNPS LISTING

1A	Plants Presumed Extinct in California.	2B	Plants Rare, Threatened, or Endangered in California, but more common elsewhere.
1B	Plants Rare, Threatened, or Endangered in California and elsewhere.		

4.4.2 Impact Analysis

- a) 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?

Less than Significant Impact with Mitigation Incorporated. Species identified as candidate, sensitive, or special status species in local or regional plans, policies, or regulations by CDFW or USFWS that have the potential to be impacted by the Project are California Horned Lark, California red-legged frog, California tiger salamander, Crotch bumble bee, giant garter snake, Monarch butterfly, Swainson's Hawk, Tricolored Blackbird, western pond turtle, western spadefoot, and special status plant species. Discussion and corresponding mitigation measures are provided below.

Project-Related Mortality and/or Disturbance of Nesting Raptors, Migratory Birds, and Special Status Birds

The APE contains suitable nesting and/or foraging habitat for a variety of ground and tree nesting avian species. It is anticipated that during nesting bird season, numerous species of birds could use the APE for nesting. California Horned Lark, Tricolored Blackbird, and Swainson's Hawks were deemed the only special status bird species possible to occur within the APE. Trees near the APE have the potential to host a multitude of nesting birds, and species such as Killdeer are known to build nests on bare ground or compacted dirt roads. Canada geese were observed during the survey, these birds are known to build nests on the ground near sources of water and in grasslands. Construction activities could disturb birds nesting within or adjacent to work areas, resulting in nest abandonment. The land surrounding the APE has eucalyptus trees large enough to provide suitable nesting habitat for Swainson's Hawk and other raptors. Raptors could also potentially use the ruderal area and surrounding agricultural areas for foraging. Construction activities that adversely affect the nesting success of raptors and migratory birds or result in the mortality of individual birds constitute a violation of State and federal laws and are considered a significant impact under CEQA. Birds nesting within the APE during construction have the potential to be injured or killed by Project-related activities. In addition to the direct "take" of nesting birds, nesting birds within the APE or adjacent areas could be disturbed by Project-related activities resulting in nest abandonment. Projects that adversely affect the nesting success of raptors and migratory birds or result in the mortality of individual birds are considered to be in violation of State and federal laws, and such impacts are considered potentially significant under CEQA.

Implementation of Mitigation Measures **BIO-1, BIO-2, BIO-3, and BIO-4** will reduce potential impacts to nesting raptors, migratory birds, and special status birds to a less than significant level under CEQA and will ensure compliance with State and federal laws protecting these avian species.

Project-Related Mortality and/or Disturbance of California Tiger Salamander

Project construction activities will result in temporary disturbance to an area that California tiger salamanders could potentially be living, breeding, or migrating through, and thereby could result in injury, mortality, displacement, disturbance, or inhibition of the movement of this species.

Mitigation measures are warranted and are identified in **Section 4.4.4** below. With implementation of mitigation measures **BIO-5, BIO-6, and BIO-7**, impacts to California tiger salamanders during construction would be less than significant.

Project-Related Mortality and/or Disturbance of Western Pond Turtle

Western Pond Turtle (WPT) habitat features for nesting, overwintering, dispersal, and basking include aquatic and terrestrial habitats such as ponded areas, irrigation canals, riparian, and upland habitat. WPT are known to nest in the spring or early summer within 350-feet of a water body, although nest sites as far away as 500 meters have also been reported. Noise, vegetation removal, movement of workers, construction, and ground disturbance as a result of Project activities have the potential to significantly impact WPT populations. Without appropriate avoidance and minimization measures for WPT, potentially significant impacts associated with Project activities could include nest reduction, inadvertent entrapment, reduced reproductive success, reduction in health or vigor of eggs and/or young, and direct mortality.

Mitigation measures are warranted and are identified in **Section 4.4.4** below. With implementation of mitigation measures **BIO-8**, **BIO-9**, and **BIO-10**, impacts to Western Pond Turtles during construction would be less than significant.

Project-Related Mortality and/or Disturbance of Giant Gartersnake

Habitats within the APE and surrounding area were determined to be suitable for giant garter snake. Construction activities occurring within occupied habitat could result in injury, mortality, displacement, disturbance, or inhibition of the movement of this species.

Mitigation measures are warranted and are identified in **Section 4.4.4** below. With implementation of mitigation measures **BIO-11**, **BIO-12**, and **BIO-13**, impacts to giant garter snake during construction would be less than significant.

Project-Related Mortality and/or Disturbance of Monarch Butterfly and Crotch Bumble Bee

Habitats within the APE and surrounding area were determined to be suitable for Monarch butterfly. Construction activities occurring within occupied habitat could result in injury, mortality, displacement, disturbance, or inhibition of the movement of this species.

Mitigation measures are warranted and are identified in **Section 4.4.4** below. With implementation of mitigation measures **BIO-14**, **BIO-15**, and **BIO-16**, impacts to Monarch butterfly and Crotch bumble bee during construction would be less than significant.

Project-Related Mortality and/or Disturbance of Western Spadefoot and California Red-legged Frog

Habitats within the action area and surrounding area were determined to be suitable for western spadefoot and California red-legged frogs. Construction activities occurring within occupied habitat could result in injury, mortality, displacement, disturbance, or inhibition of the movement of this species.

Mitigation measures are warranted and are identified in **Section 4.4.4** below. With implementation of mitigation measures **BIO-17**, **BIO-18**, and **BIO-19**, impacts to western spadefoot and California red-legged frog during construction would be less than significant.

Project-Related Mortality and/or Disturbance to Special Status Plant Species

The following special status plant species were identified to potentially occur within or adjacent to the APE: California satintail (Blooms Sept-May), dwarf downingia (Blooms March-May), hairy Orcutt grass (Blooms May-Sept), pincushion navarettia (Blooms May), San Joaquin Valley Orcutt grass (Blooms April-Sept),

Sanford's arrowhead (Blooms May-Oct), spiny-sepaled button-celery (Blooms April-July), and succulent owl's-clover (Blooms April-July). The survey of the APE was conducted outside of the blooming season for most of these plants and for suitable habitat. It is recommended a more detailed survey be conducted within the blooming season. Projects that adversely affect special status plants or result in the mortality of special status plants are considered to be in violation of State and federal laws, and such impacts are considered potentially significant under CEQA.

Mitigation measures are warranted and are identified in **Section 4.4.4** below. With implementation of mitigation measures **BIO-20**, **BIO-21**, and **BIO-22**, impacts to special status plant species during construction would be less than significant.

b) 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?

No Impact. There are no CNDDDB-designated "natural communities of special concern" recorded within the APE or surrounding lands. The APE consists of a rural residential neighborhood, and no riparian habitat is present. The APE is dominated by ornamental landscape and non-native vegetation. USFWS designated Critical Habitat is located across Highway 41 to the east of the APE, but will not be affected by the Project. There will be no impact.

c) Would the project 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?

Less than Significant Impact. A wetted area was identified within the APE at the time of the biological survey. No work will be occurring within or adjacent to the wetted area. It is recommended that exclusion fencing is installed to provide avoidance in this area. The nearest water source is the San Joaquin River located east of the APE and would be considered waters of the United States and waters of the State. The San Joaquin River is a natural water feature and is regulated by the U.S. Army Corps of Engineers (USACE) and Regional Water Quality Control Board (RWQCB) as a jurisdictional water. The Project would not affect the San Joaquin River.

Since construction would involve ground disturbance over an area greater than one acre, the Project will be required to obtain a Construction General Permit under the Construction Storm Water Program administered by the RWQCB. A prerequisite for this permit is the development of a Storm Water Pollution Prevention Plan (SWPPP) to ensure construction activities do not adversely affect water quality. Any impacts to wetlands would be less than significant.

d) 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?

No Impact. The residential/ruderal habitat of the APE and surrounding areas consist of fragmented spaces that are not likely to function as wildlife movement corridors. While the Project site and surrounding lands are very open and expansive, the Project is located in a region often disturbed by human activities and it is unlikely that this area would be utilized by wildlife species for movement. Therefore, construction would have no impact on the low potential of animal dispersion in the area. Therefore, the Project would have no impact on wildlife movement corridors, and no mitigation measures are warranted.

- e) Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

No Impact. The Project is consistent with the goals and policies of the Madera County General Plan. Designated critical habitat for two plant species; hairy Orcutt grass and succulent owl's-clover can be found across Highway 41, to the east of the APE. Critical habitat for these species does not occur within the APE and most of the habitat within the APE is unsuitable for these species. A wetted area was identified in the APE that may provide suitable habitat for some species, although individuals were not observed during the field reconnaissance survey. There will be no conflicts with any local policies or ordinances, and mitigation measures are not warranted. There would be no impact.

- f) 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?

No Impact. The Project is consistent with the goals and policies of the Madera County General Plan and there are no Habitat Conservation Plans covering the APE. There would be no impact.

4.4.3 Relevant Goals, Policies, and Laws

Federal Endangered Species Act

Regulations in the federal Endangered Species Act of 1973 and subsequent amendments govern the conservation of endangered and threatened species and the ecosystems on which they depend. USFWS and the National Marine Fisheries Service (NMFS) oversee the act. USFWS has jurisdiction over plants, wildlife, and resident fish, and NMFS has jurisdiction over anadromous fish, marine fish, and mammals.

Section 7 requires federal agencies to consult with USFWS and NMFS if they determine that a proposed project may affect a listed species, destroy, or adversely modify designated critical habitat. Under Section 7, the federal lead agency must obtain incidental take authorization or a letter of concurrence, stating that the project is not likely to adversely affect federally listed species. Section 7 requirements do not apply to nonfederal actions. Because the United States Environmental Protection Agency (USEPA) is the source of State Revolving Fund (SRF) monies that may be distributed to Bakman Water Company, funding through the SRF program may be a federal action covered by Section 7.

Appendix B presents a Biological Evaluation intended to provide the basis for compliance with Section 7 of the Endangered Species Act.

Section 9 prohibits take of any fish or wildlife species listed as endangered, including the destruction of habitat that prevents the species' recovery. "Take" is defined as any action or attempt to hunt, harm, harass, pursue, shoot, wound, capture, kill, trap, or collect a species. Section 9 prohibitions also apply to threatened species unless a special rule governing take was defined at the time the species became listed.

The take prohibition in Section 9 applies only to fish and wildlife species. However, Section 9 also prohibits the unlawful removal and possession, or malicious damage or destruction, of any endangered plant from federal land. Section 9 prohibits acts to remove, cut, dig up, damage, or destroy an endangered plant species in non-federal areas in knowing violation of any state law or in the course of criminal trespass. Candidate species and species that are proposed for or under petition for listing receive no protection under Section 9.

See discussion under Biological Resources Impact Analysis checklist item a.

Fish and Wildlife Conservation Act

The Fish and Wildlife Conservation Act (Act), approved September 29, 1980, declares that fish and wildlife are of ecological, educational, esthetic, cultural, recreational, economic, and scientific value to the Nation. The Act acknowledges that historically, fish and wildlife conservation programs have focused on more recreationally and commercially important species within any particular ecosystem, without provisions for the conservation and management of nongame fish and wildlife. The purposes of this Act are to encourage all federal departments and agencies to utilize their statutory and administrative authority, to the maximum extent practicable and consistent with each agency's statutory responsibilities and to conserve and to promote conservation of non-game fish and wildlife and their habitats. The Act authorizes financial and technical assistance to the States for the development, revision, and implementation of conservation plans and programs for nongame fish and wildlife. The Act defines "nongame fish and wildlife" as wild vertebrate animals in an unconfined state, that are not ordinarily taken for sport, fur or food, not listed as endangered or threatened species, and not marine mammals within the meaning of the Marine Mammal Protection Act. The original Act authorized \$5 million for each of Fiscal Years 1982 through 1985, for grants for development and implementation of comprehensive State nongame fish and wildlife plans and for administration of the Act.

See discussions under Biological Resources Impact Analysis checklist items a, b, and d above.

Migratory Bird Treaty Act

The Federal Migratory Bird Treaty Act (MBTA: 16 USC 703-712) prohibits killing, possessing, or trading in any bird species covered in one of four international conventions to which the United States is a party, except in accordance with regulations prescribed by the Secretary of the Interior. The name of the act is misleading, as it actually covers almost all bird's native to the United States, even those that are non-migratory. The MBTA encompasses whole birds, parts of birds, and bird nests and eggs. Additionally, California Fish and Game Code makes it unlawful to take or possess any non-game bird covered by the MBTA (Section 3513), as well as any other native non-game bird (Section 3800). See discussion under Biological Resources Impact Analysis checklist item a.

Magnuson-Stevens Fishery Conservation and Management Act

The Magnuson-Stevens Fishery Conservation and Management Act, as amended (16 USC 180 I), requires that Essential Fish Habitat (EFH) be identified and described in federal fishery management plans. Federal agencies must consult with NMFS on any activity that they fund, permit, or carry out that may adversely affect EFH. The EFH regulations require that federal agencies obligated to consult on EFH also provide NMFS with a written assessment of the effects of any action on EFH (50 CFR 600.920). NMFS is required to provide EFH conservation and enhancement recommendations to federal agencies. The statute also requires federal agencies receiving NMFS EFH conservation recommendations to provide a detailed written response to NMFS within 30 days of receipt, detailing how they intend to avoid, mitigate, or offset the impact of activity on EFH (Section 305[b][4][B]).

EFH is defined as those waters and substrates necessary to fish for spawning, breeding, feeding, or growth to maturity. For the purposes of interpreting the definition of EFH, "waters" includes aquatic areas and their associated physical, chemical, and biological properties that are used by fish, and may include areas historically used by fish where appropriate; "substrate" includes sediment, hard bottom, structures underlying the waters, and associated biological communities; "necessary" means habitat required to support a sustainable fishery and a healthy ecosystem; and "spawning, breeding, feeding, or growth to maturity" covers all habitat types used by a species throughout its life cycle. No EFH is on the Project site.

Clean Water Act

Section 404

Section 404 of the Clean Water Act (CWA) requires project proponents to obtain a permit from the United States Army Corps of Engineers before performing any activity involving a discharge of dredged or fill material into waters of the United States. Waters of the United States include:

- Navigable waters of the United States;
- Interstate waters;
- All other waters where the use or degradation or destruction of the waters could affect interstate or foreign commerce;
- Tributaries to any of these waters; and
- Wetlands that meet any of these criteria, or that are adjacent to any of these waters or their tributaries.

Many surface waters and wetlands in California meet the criteria for waters of the United States.

Section 402

CWA Section 402 regulates construction-related stormwater discharges to surface waters through the National Pollutant Discharge Elimination System program, which is administered by USEPA. In California, the State Water Resources Control Board is authorized by USEPA to oversee the program through the Regional Water Quality Control Boards (RWQCBs)-in this case, the Central Valley (Region 5) RWQCB.

Section 401

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

A wetted area was identified within the Project site at the time of the biological survey. No work will be occurring within or adjacent to the wetted area. It is recommended that exclusion fencing is installed to provide avoidance in this area.

4.4.4 Mitigation

Nesting Raptors, Migratory Birds, and Special Status Birds

BIO-1 **(Avoidance):** The Project's construction activities will occur, if feasible, between September 16 and January 31 (outside of nesting bird season) in an effort to avoid impacts to nesting birds. If all Project activities will occur outside of nesting bird season, no further mitigation is required.

BIO-2 **(Pre-construction Surveys):** If activities must occur within nesting bird season (February 1 to September 15), a qualified biologist will conduct pre-construction surveys for Swainson's Hawk nests onsite and within a 0.5-mile radius. These surveys will be conducted in accordance with the Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley (Swainson's Hawk Technical Advisory Committee 2000), and the Staff Guidance Regarding Avoidance of

Impacts to Tricolored Blackbird Breeding Colonies on Agricultural Fields (California Department of Fish and Wildlife 2015) or current guidance. The Swainson's Hawk survey will not be completed between April 21 to June 10 due to the difficulty of identifying nests during this time of year. The pre-construction survey would also provide a presence/absence survey for all other nesting birds within the APE and an additional 50-foot survey area, no more than seven (7) days prior to the start of construction. All raptor nests would be considered "active" upon the nest-building stage.

BIO-3 **(Establish Buffers):** On discovery of any active nests or breeding colonies near work areas, the biologist will determine appropriate construction setback distances based on applicable CDFW and/or USFWS guidelines and/or the biology of the species in question. Active Swainson's Hawk nests will receive a 0.5-mile buffer, active California Horned Lark nests will receive a 150-foot buffer, and active Tricolored Blackbird nests will receive a 200-foot buffer. Reduced buffer distances for Swainson's Hawk, California Horned Lark, and Tricolored Blackbird may be appropriate depending on site conditions and ongoing disturbance levels and would be discussed with CDFW, if warranted. Construction buffers will be identified with flagging, fencing, or other easily visible means, and will be maintained until the biologist has determined that the nestlings have fledged.

BIO-4 **(ITP):** In the event an active Swainson's Hawk nest, California Horned Lark nest, Tricolored Blackbird, or other nest is detected during surveys and cannot be avoided, consultation with CDFW will be warranted to discuss how to implement the Project and avoid take. If take cannot be avoided, take authorization through the acquisition of an ITP pursuant to Fish and Game Code section 2081, subdivision (b) is necessary to comply with CESA.

California Tiger Salamander

BIO-5 **(Avoidance):** The Project's construction activities will occur, if feasible, 350-feet from suitable aquatic and upland habitat of CTS as identified by a qualified biologist. The Project will install exclusion fencing 350-feet or more from the wetted area and upland habitat in the north-east corner of the APE to ensure California tiger salamanders do not enter the site during construction. Exclusion fencing materials, size, and placement should follow wildlife agency guidelines appropriate for the species.

BIO-6 **(Pre-construction Survey):** If activities must occur within 350-feet of suitable aquatic and upland habitat a qualified biologist will conduct a focused survey in accordance with the *USFW Interim Guidance on Site Assessment and Field Surveys for Determining Presence or a Negative Finding of the California Tiger Salamander* (United States Fish and Wildlife Service, 2003) or current guidance. If no California tiger salamanders are observed during the preconstruction survey, then construction activities may begin. If construction is delayed or halted for more than 30 days, another pre-construction survey for special status herpetofauna should be conducted. If the survey results in the identification of a special status species, the qualified biologist should determine if appropriate buffers can be implemented to avoid impacts to the individual(s).

BIO-7 **(Formal Consultation/ITP):** In the event CTS are detected during surveys and cannot be avoided, consultation with CDFW will be warranted to discuss how to implement the

Project and avoid take. If take cannot be avoided, take authorization through the acquisition of an ITP pursuant to Fish and Game Code section 2081, subdivision (b) is necessary to comply with CESA.

Western Pond Turtle

- BIO-8** **(Avoidance):** The Project's construction activities will occur, if feasible, 350-feet from suitable aquatic and upland habitat of WPT as identified by a qualified biologist. The Project will install exclusion fencing 350-feet or more from the wetted area and upland habitat in the north-east corner of the APE to ensure WPT do not enter the site during construction. Exclusion fencing materials, size, and placement should follow wildlife agency guidelines appropriate for the species.
- BIO-9** **(Pre-construction Survey):** If activities must occur within 350-feet of suitable aquatic and upland habitat a qualified biologist will conduct pre-construction surveys for WPT within the wetland and 350-feet surrounding it. Pre-construction surveys will be conducted in accordance with the *United States Geological Survey Western Pond Turtle (Emys marmorata) Visual Survey Protocol for the Southcoast Ecoregion* (United States Geological Survey, 2006) or current guidance. Surveys will be conducted outside of winter months (December–February). If no WPT are observed during the pre-construction survey, then construction activities may begin. If construction is delayed or halted for more than 90 days, another pre-construction basking survey for WPT will be conducted. If the surveys result in the identification of a special status species, the qualified biologist will determine if appropriate buffers can be implemented to avoid impacts to the individual(s) or if further surveys are required to avoid impacts to potential nesting sites.
- BIO-10** **(ITP):** In the event WPT are detected during surveys and cannot be avoided, consultation with CDFW will be warranted to discuss how to implement the Project and avoid take. If take cannot be avoided, take authorization through the acquisition of an ITP pursuant to Fish and Game Code section 2081, subdivision (b) is necessary to comply with CESA.

Giant garter snake

- BIO-11** **(Avoidance):** The Project's construction activities will occur, if feasible, 350-feet from suitable aquatic and upland habitat of giant garter snake as identified by a qualified biologist. The Project will install exclusion fencing 350-feet or more from the wetted area and upland habitat in the north-east corner of the APE to ensure giant garter snake do not enter the site during construction. Exclusion fencing materials, size, and placement should follow wildlife agency guidelines appropriate for the species.
- BIO-12** **(Focused Survey):** If activities must occur within 350-feet of suitable aquatic and upland habitat a qualified biologist will conduct a focused survey 30 days prior to the start of construction. Surveys would be conducted according to the *USFW Recovery Plan for the Giant Garter Snake (Thamnophis gigas)* (United States Fish and Wildlife Service, 2017) or current guidance. If no giant garter snake are observed during the focused survey, then construction activities may begin. If the survey results in the identification of this special status species, a qualified biologist will consult CDFW.

- BIO-13** *(Formal Consultation/ITP)*: In the event giant garter snake is detected during surveys and cannot be avoided, consultation with CDFW will be warranted to discuss how to implement the Project and avoid take. If take cannot be avoided, take authorization through the acquisition of an ITP pursuant to Fish and Game Code section 2081, subdivision (b) is necessary to comply with CESA.

Monarch Butterfly and Crotch Bumble Bee

- BIO-14** *(Pre-Construction Survey)*: A qualified biologist will survey the Project work area within seven (7) days prior to the start of Project activities to identify whether over-wintering or foraging habitats for Monarch butterfly or Crotch bumble bee are present on or within 100 feet of the Project work area. If no individuals or suitable habitat is observed, no further mitigation is required.
- BIO-15** *(Visual Surveys)*: If suitable habitat is identified buffer zones of 100 feet will be provided using exclusion fencing. If habitat cannot be avoided, a qualified biologist will conduct visual surveys for Monarch butterfly between October through May prior to Project activity. If habitat cannot be avoided, a qualified biologist will conduct visual surveys for Monarch butterfly between March 1 to September 1 prior to Project activity. Surveys will not take place when daytime temperatures are below 55 degrees Fahrenheit. If an individual or colony is observed, no Project activities will occur until CDFW has been consulted.
- BIO-16** *(Consultation with CDFW)*: The qualified biologist will consult with CDFW if a Monarch butterfly individual or a colony is observed. Work will not occur until a plan to protect the Monarch butterfly, including over-wintering colonies, has been submitted and approved in writing by CDFW. The qualified biologist will consult with CDFW if an individual Crotch bumble bee or a nest is observed. Work will not occur until CDFW determines distances for disturbance-free buffers, or a plan to protect the Crotch bumble bee, including over-wintering queens, has been submitted to and approved in writing by CDFW.

Western Spadefoot and California Red-legged Frog

- BIO-17** *(Avoidance)*: The Project's construction activities will occur, if feasible, 350-feet from suitable aquatic and upland habitat for western spadefoot and California red-legged frogs as identified by a qualified biologist. The Project will install exclusion fencing 350-feet or more from the wetted area and upland habitat in the north-east corner of the APE to ensure western spadefoot and California red-legged frogs do not enter the site during construction. Exclusion fencing materials, size, and placement should follow wildlife agency guidelines appropriate for the species. If activities must occur within 350-feet of suitable aquatic and upland habitat a qualified biologist will conduct a focused survey during the known peak breeding months for these species (February-March), prior to the start of construction.
- BIO-18** *(Focused Survey)*: If activities must occur within 350-feet of suitable aquatic and upland habitat a qualified biologist will conduct a focused survey during the known peak breeding months of this species (February-March), prior to the start of construction.

Surveys would be conducted according to *Revised Guidance on Site Assessments and Field Surveys for the California Red-legged Frog* (United States Fish and Wildlife Service, 2005) or current guidance. If no western spadefoot or California red-legged frog adults or larvae are observed during the focused survey, then construction activities may begin. If the survey results in the identification of this special status species, a qualified biologist will consult CDFW to determine if appropriate buffers can be implemented to avoid impacts to individual(s) during construction.

- BIO-19** **(Formal Consultation/ITP):** In the event western spadefoot and California red-legged frogs are detected during surveys and cannot be avoided, consultation with CDFW will be warranted to discuss how to implement the Project and avoid take. If take cannot be avoided, take authorization through the acquisition of an ITP pursuant to Fish and Game Code section 2081, subdivision (b) is necessary to comply with CESA.

Special Status Plant Species

- BIO-20** **(Pre-Construction Survey):** A qualified biologist will conduct a pre-construction survey for California satintail, dwarf downingia, hairy Orcutt grass, pincushion navarettia, San Joaquin Valley Orcutt grass, Sanford's arrowhead, spiny-sealed button-celery, and succulent owl's-clover, 30 days prior to the start of construction according to CDFW's Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities (California Department of Fish and Wildlife (CDFW) 2018) or current guidance for areas where ground disturbance will occur and prior to the start of construction. If no individuals or suitable habitat is observed, no further mitigation is required.
- BIO-21** **(Avoidance):** If any suitable habitat for special status plants are identified during a survey, a disturbance-free buffer and use of exclusion fencing will be placed around the area.
- BIO-22** **(Formal Consultation):** If rare plant individuals or populations or sensitive natural communities are detected within Project work areas during the pre-construction or focused botanical survey, and the plants cannot be avoided, the Project proponent will initiate consultation with CDFW and/or USFWS to determine next steps for relocation or to obtain an Incidental Take Permit (ITP).

4.5 CULTURAL RESOURCES

Table 4-10: Cultural Resources Impacts

Would the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Cause a substantial adverse change in the significance of a historical resource pursuant to in § 15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Disturb any human remains, including those interred outside of dedicated cemeteries?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

4.5.1 Baseline Conditions

Field Survey

An intensive cultural resources survey of the Rolling Hills Water Meter Project's area of potential effects (APE) was conducted by ASM Associate Archaeologists in March 2022. The field methods employed included intensive pedestrian examination of the ground surface for evidence of archaeological sites in the form of artifacts, surface features (such as bedrock mortars, historical mining equipment), and archaeological indicators (e.g., organically enriched midden soil, burnt animal bone); the identification and location of any discovered sites, should they be present; tabulation and recording of surface diagnostic artifacts; site sketch mapping; preliminary evaluation of site integrity; and site recording, following the California Office of Historic Preservation Instructions for Recording Historic Resources, using DPR 523 forms.

The cultural resources survey was conducted with parallel transects spaced at 15-meter intervals along the water distribution system pipeline route. No historical, unique archaeological, or tribal cultural resources of any kind were identified within the study area ([Appendix C](#)).

Records Search

In order to determine whether the study area had been previously surveyed for cultural resources, and/or whether any such resources have been previously recorded, an archival records search was conducted by the staff of the Southern San Joaquin Valley Information Center (SSJVIC). The records search was completed to determine: (i) if prehistoric or historical archaeological sites had previously been recorded within the study areas; (ii) if the project area had been systematically surveyed by archaeologists prior to the initiation of this field study; and/or (iii) whether the region of the field project was known to contain archaeological sites and to thereby be archaeologically sensitive. Records examined included archaeological site files and maps, the NRHP, Historic Property Data File, California Inventory of Historic Resources, and the California Points of Historic Interest.

According to the SSJVIC record search, six previous studies had covered portions of the APE and no cultural resources of any kind are known to exist within it ([Appendix C](#)).

Table 4-11: Previous Cultural Resource Studies

Report No.	Year	Author/Affiliation	Title
M-120	1987	Caltrans	Archaeological Survey Report for a Proposed Route Adoption, Audubon Dr to Route 45
M-135	1994	Unknown	Supplemental Historic Property Survey Report: Corridor Study & Route Adoption, N. Fresno & S. Madera Counties, California
M-204	1996	M.E. Clark	Archaeological Survey Report for Gateway Villages Element, Madera County, California
M-205	1995	WM. Moratto & B.P. Wickstrom	Archaeological Survey of N 3/4 of W 1/2 of Sec 4, State Route 41 at Ave 12, Madera County
M-290	1982	Caltrans	Archaeological Survey for Various Improvements to 06-MAD-41 PM 0.0/06.9
M-1094	2010	L. Leach-Palm et al.	Cultural Resources Inventory of Caltrans District 6 Rural Conventional Highways, Fresno, Kern, Kings, Madera and Tulare Counties

Native American Heritage Commission and Tribal Outreach

A record search of the Native American Heritage Commission (NAHC) Sacred Lands File was also completed by ASM. NAHC was provided with a brief description of the Project, a map showing its location, and requested that a search of the Sacred Lands File be conducted to determine if any Native American resources have been recorded in the immediate APE. The NAHC identifies, catalogs, and protects Native American cultural resources -- ancient places of special religious or social significance to Native Americans and known ancient graves and cemeteries of Native Americans on private and public lands in California. The results were negative for the presence of tribal cultural resources.

Additionally, the NAHC provided a current list of Native American Tribal contacts. The six tribal representatives identified by NAHC were contacted in writing via United States Postal Service in a letter mailed March 28, 2022, informing each Tribe of the Project, and asking about known tribal cultural resources in the APE. Follow-up letters and emails were also sent to the tribal contacts on the NAHC list which included the five tribes and individuals listed below. The Southern Sierra Mewuk responded, stating that the Project was out of their tribal territory. The North Fork Mono also stated that they had no concerns. No other responses were received ([Appendix C](#)).

1. Dumna Wo-Wah Tribal Government, Robert Ledger Sr., Chairperson
2. North Fork Mono Tribe, Ron Goode, Chairperson
3. North Fork Rancheria of Mono Indians, Gary Walker, Chairperson
4. North Valley Yokut Tribe, Katherine Erolinda Perez, Chairperson
5. South Sierra Miwuk Indian, William Leonard, Chairperson
6. Wuksache Indian Tribe/Eshom Valley Band, Kenneth Woodrow, Chairperson

4.5.2 Impact Analysis

a) Would the project cause a substantial adverse change in the significance of a historical resource pursuant to in § 15064.5?

Less than Significant Impact. The records search, pedestrian survey, Sacred Lands File search, and tribal outreach failed to identify any historical resources in the Project area. There are no known historical resources or historic properties within the Project APE. Construction will also take place within previously

disturbed public rights-of-way and along existing service connections. The Project therefore does not have the potential to result in adverse impacts or effects to historical resources or historic properties. Following California Code of Regulations section 15064.5(f), lead agencies are to make provisions for historical or unique archaeological resources accidentally found during construction. These provisions include immediate evaluation of the find by a qualified archaeologist. If the find is determined by the lead agency to be a historical or unique archaeological resource, contingency funding and a time allotment sufficient to allow recovering an archaeological sample or to employ avoidance measures will be provided. Further, the State Water Board includes standard measures in its funding agreements that proscribe the legal requirements that must be followed if historical resources are discovered during construction. Those standard measures include following 36 CFR 800.13 procedures for post-review discovery. Best management practice (BMP) **CUL-1** outlined in section 4.5.4 below, would further minimize impacts.

b) Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5?

Less than Significant Impact. As stated above, there are no known historical, unique archaeological, or tribal cultural resources within the Project APE and construction will take place within previously disturbed public rights-of-way and along existing service connections.

The NAHC and tribes with knowledge of the Project area did not identify archaeological resources. It is unlikely that the Project has the potential to result in significant impacts or adverse effects to cultural or historical resources, such as archaeological remains, artifacts, or historic properties. Further, the State Water Board includes standard measures in its funding agreements that proscribe the legal requirements that must be followed if significant archaeological or historical resources are discovered during construction. Those standard measures include following the 36 CFR 800.13 procedures for post-review discovery. The California Code of Regulations, cited above, also describes measures to be taken for accidental discovery. Following these measures, would further minimize impacts. BMP **CUL-1** outlined in **Section 4.5.4** below, would further minimize impacts.

c) Would the project disturb any human remains, including those interred outside of dedicated cemeteries?

Less than Significant Impact. No human remains were identified onsite and there was no evidence found in the course of preparing the cultural resources assessment that the area has been used as a cemetery or burial ground in the past. Regardless, it is possible that human remains may be present at subsurface levels. State law prescribes protective measure that must be taken in the event that human remains are discovered. Specifically, Section 7050.5 of the California Health and Safety Code requires that the County Coroner shall be immediately notified of the discovery and no further excavation or disturbance of the site or any nearby area may continue until the County Coroner has determined, within two working days of notification of the discovery, the appropriate treatment and disposition of the human remains. If the County Coroner determines that the remains are, or are believed to be, Native American, he or she is required to notify the NAHC in Sacramento within 24 hours. In accordance with California Public Resources Code, Section 5097.98, the NAHC must immediately notify those persons it believes to be the most likely descendant from the deceased Native American. The most likely descendant shall complete their inspection within 48 hours of being granted access to the site. The designated Native American representative would then determine, in consultation with the property owner, the disposition of the human remains. Compliance with state and federal law would ensure that less than significant impacts occur to any human remains that may be discovered on site. See BMP **CUL-2** in **Section 4.5.4**.

4.5.3 Federal Cross-Cutting Topic

National Historic Preservation Act

The National Historic Preservation Act of 1966 as amended created the National Register of Historic Places and extended protection to historic places of State, local, and national significance. It established the Advisory Council on Historic Preservation, State Historic Preservation Officer (SHPO), Tribal Preservation Officers, and a preservation grants-in-aid program. Section 106 directs federal agencies to take into account effects of their actions ("undertakings") on properties in or eligible for the National Register. Section 106 of the act is implemented by regulations of the Advisory Council on Historic Preservation (36 Code of Federal Regulations [CFR] Part 800).

The U.S. Department of the Interior criteria and procedures for evaluating a property's eligibility for inclusion in the National Register are at 36 CFR Part 60. The 36 CFR Part 800 regulations, implementing Section 106, call for consultation with the SHPO, Native American tribes, and interested members of the public throughout the Section 106 compliance process. The four principal steps are to:

- Initiate the Section 106 process (36 CFR Part 800.3);
- Identify historic properties, cultural resources that are eligible for inclusion in the National Register of Historic Places (36 CFR Part 800.4);
- Assess the effects of the undertaking to historic properties within the area of potential effect (36 CFR Part 800.5); and
- Resolve adverse effects (36 CFR Part 800.6).

Adverse effects on historic properties often are resolved through preparation of a Memorandum of Agreement (MOA), developed in consultation with Reclamation, the SHPO, Native American tribes, the Advisory Council on Historic Preservation, and interested members of the public. The MOA stipulates procedures that treat historic properties to mitigate adverse effects (36 CFR Part 800.14[b]).

No historic properties have been identified within the area of potential effects. Therefore, the proposed Project would not have an adverse effect on historic properties.

4.5.4 Best Management Practices

- | | |
|--------------|--|
| CUL-1 | Should historical resources or archaeological remains or artifacts be unearthed during any stage of Project activities, work in the area of discovery shall cease until the area is evaluated by a qualified archaeologist. The State Water Board will be contacted by the archaeologist within 72 hours of discovery with recommendations. The State Water Board will consult with the State Historic Preservation Officer on the find according to procedures codified in 36 CFR 800.13(b) |
| CUL-2 | State law prescribes protective measure that must be taken in the event that human remains are discovered. Specifically, Section 7050.5 of the California Health and Safety Code requires that the County Coroner shall be immediately notified of the discovery and no further excavation or disturbance of the site or any nearby area may continue until the Madera Coroner has determined, within two working days of notification of the discovery, the appropriate treatment and disposition of the human remains. If the Madera Coroner determines that the remains are, or are believed to be, Native American, he or she is required to notify the NAHC in Sacramento within 24 hours. In accordance with California Public Resources Code, Section 5097.98, the NAHC must immediately notify those persons it believes to be the most likely descendant from the |

deceased Native American. The most likely descendant shall complete their inspection within 48 hours of being granted access to the site. The designated Native American representative would then determine, in consultation with the property owner, the disposition of the human remains.

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4.6 ENERGY

Table 4-12: Energy Impacts

Would the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

4.6.1 Baseline Conditions

Current site operations require diesel and gasoline fuel to make maintenance visits, as necessary. Operational energy consumption is composed of electricity consumption to power the existing water production well and its associated appurtenances. There are no applicable State or local plans for renewable energy or energy efficiency applicable to the Project.

4.6.2 Impact Analysis

a) Would the project result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?

Less than Significant Impact. Fuel consumed by construction equipment would be the primary energy resource expended over the course of Project construction. The use of this energy would be temporary and only part of the construction phase of the Project. California Code of Regulations Title 13, Motor Vehicles, Section 2449(d)(2), Idling, limits idling times of construction vehicles to no more than 5 minutes, thereby precluding unnecessary and wasteful consumption of fuel because of unproductive idling of construction equipment.

Operational energy usage would remain very similar to baseline conditions, as the Project consists of the new pipeline, new water meters, well site improvements, and cathodic protection for the existing water storage tank, and does not involve the construction of any new wells. Impacts would therefore be less than significant.

b) Would the project conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

No Impact. California Code of Regulations 13 § 2485 prohibits the idling of commercial diesel equipment for greater than five minutes, and will ensure that energy usage remains efficient. Project operational energy consumption would be similar to current operations and maintenance activities require. There are no applicable State or local plans for renewable energy or energy efficiency applicable to the Project. Therefore, the Project would not conflict with State or local plans for energy efficiency or renewable energy. There would be no impact.

4.7 GEOLOGY AND SOILS

Table 4-13: Geology and Soils Impacts

Would the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
ii. Strong seismic ground shaking?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iii. Seismic-related ground failure, including liquefaction?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iv. Landslides?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Result in substantial soil erosion or the loss of topsoil?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of wastewater?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Directly or indirectly destroy a unique paleontological resource or site or unique geological feature?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

4.7.1 Baseline Conditions

Madera County is divided into two major physiographic and geologic provinces: the Sierra Nevada Range and the Central Valley. The Sierra Nevada physiographic province in the northeastern portion of the county is underlain by metamorphic and igneous rock. It consists mainly of homogenous types of granitic rocks, with several islands of older metamorphic rock. The central and western parts of the county are part of the Central Valley province, underlain by marine and non-marine sedimentary rocks. It is basically a flat, alluvial plain, with soil consisting of material shed by the uplifting of the mountains, as well as San Joaquin River alluvium in the western valley. Consolidated alluvium occurs at depths of 500 feet near the City of Madera, to approximately 20,000 feet in the western part of the county.

The foothill area of the county is essentially a transition zone, containing old alluvial soils that have been dissected by the west-flowing rivers and streams which carry runoff from the Sierra Nevadas. This gently rolling topography is broken in many areas by outcroppings of bedrock. Soils here are generally quite dense and compact.⁵

Using the United States Department of Agriculture Natural Resources Conservation Service soil survey of the Project area, a report of the onsite soils was generated and is provided in [Appendix B](#). Topical information sourced from that report is summarized below.

Geology and Soils

Six soil mapping units representing six soil types were identified within the APE and are listed in [Table 4-14](#). The soils are displayed with their core properties in the table below, according to the Major Land Resource Area of California 19 map area. All six soils are primarily used for grazing, wildlife habitat, and watershed areas.

Table 4-14: List of Soils Located Onsite and Their Basic Properties

Soil	Soil Map Unit	Percent of APE	Hydric Unit	Hydric Minor Units	Drainage	Permeability	Runoff
<i>Greenfield</i>	Coarse sandy loam, 0 to 3 percent slopes	0.2%	No	No	Well drained	Moderately rapid permeability	Negligible runoff
	Sandy loam, 0 to 3 percent slopes	19.5%	No	No	Well drained	Moderately rapid permeability	Slow to medium runoff
<i>Ramona</i>	Sandy loam, 0 to 3 percent slopes	68.3 %	No	Yes	Well drained	Moderately slow permeability	Slow to rapid runoff
<i>San Joaquin</i>	Sandy loam, 0 to 3 percent slopes	6.5%	No	Yes	Well drained	Very slow permeability	Medium to very high runoff
<i>Whitney and Rocklin</i>	Sandy loam, 3 to 8 percent slopes	0.8%	No	Yes	Generally Good	Moderately rapid permeability	Slow to medium runoff
	Sandy loam, 8 to 15 percent slopes	4.6%	No	Yes	Generally Good	Moderately rapid permeability	Slow to medium runoff

None of the major soil mapping units were identified as hydric, but four of the six minor soil mapping units are considered hydric. Of the four minor units considered hydric, they make up about 1% of the APE soils. A wetted area was found in the area identified as Whitney and Rocklin soil with 8 to 15 percent slopes and is discussed further below. Hydric soils are defined as soils that are saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions such that under sufficiently wet conditions, hydrophytic vegetation can be supported.

The complete Natural Resources Conservation Service Web Soil Survey report is available in [Appendix B](#) at the end of this document.

⁵ (Madera County General Plan Background Report 1995), Chapter 7 Safety, page 7-1, Accessed March 21, 2022.

Faults and Seismicity

The Project is not located within an Alquist-Priolo Earthquake Fault Zone and no known faults cut through the local soil at the site. The nearest fault is the Clovis Fault, located approximately 5 miles east of the Project Site. The San Andreas Fault, located approximately 75 miles west, is the dominant active tectonic feature of the Coast Ranges and represents the boundary of the North American and Pacific plates. The nearest major fault is the San Joaquin Fault, located 50.955-miles west of the Project site.

Liquefaction

The potential for liquefaction, which is the loss of soil strength due to seismic forces, is dependent on soil types and density, depth to groundwater, and the duration and intensity of ground shaking. Although no specific liquefaction hazard areas have been identified in Madera County, this potential is recognized throughout the San Joaquin Valley where unconsolidated sediments and a high water table coincide. It is reasonable to assume that due to the depth to groundwater within the southern portion of Madera County, liquefaction hazards would be negligible.

Soil Subsidence

Subsidence occurs when a large land area settles due to over-saturation or extensive withdrawal of ground water, oil, or natural gas. These areas are typically composed of open-textured soils, high in silt or clay content, that become saturated. The Project site is dominated by Greenfield and Ramona sandy loam soils, with a low to moderate risk of subsidence.

Dam and Levee Failure

Millerton Lake along with the Friant Dam is located approximately 9 miles northeast of the Project site. The Project site lies outside of the inundation area for the Friant Dam.

4.7.2 Impact Analysis

a) Would the project 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?

Less than Significant Impact. The Project site and its vicinity are located in an area traditionally characterized by relatively low seismic activity. The site is not located in an Alquist-Priolo Earthquake Fault Zone as established by the Alquist-Priolo Fault Zoning Act (Section 2622 of Chapter 7.5, Division 2 of the California Public Resources Code). The nearest major fault is the San Joaquin Fault, located 51-miles west of the Project site. Any impact would be less than significant.

- iii. Seismic-related ground failure, including liquefaction?

Less than Significant Impact. Liquefaction is a process which involves the temporary transformation of soil from a solid state to a fluid form during intense and prolonged ground shaking. Water-saturated areas with shallow depth to groundwater and uniform sands, loose-to-medium in density, are prone to

liquefaction. The Project site is not in a wetland area, not in an area where it is subject to 0.3 g acceleration or greater, and does not contain soils where liquefaction can occur due to coarseness or low clay content. Impacts would be less than significant.

iv. Landslides?

No Impact. As the Project is located on the valley floor, no major geologic landforms exist on or near the site that could result in a landslide event. According to the Madera County General Plan Background Report, the Project site is not within or near a region classified with a high landslide potential⁶. The local topography is essentially flat and level. There would be no impact.

b) Would the project result in substantial soil erosion or the loss of topsoil?

Less than Significant Impact. Earthmoving activities associated with the Project would include excavation, grading, and water infrastructure construction. These activities could expose soils to erosion processes and the extent of erosion would vary depending on slope steepness/stability, vegetation/cover, concentration of runoff, and weather conditions. Dischargers whose projects disturb one (1) or more acres of soil or whose projects disturb less than one acre but are part of a larger common plan of development that in total disturbs one or more acres, are required to obtain coverage under the General Permit for Discharges of Storm Water Associated with Construction Activity Construction General Permit Order 2009-0009-DWQ. Construction activity subject to this permit includes clearing, grading and disturbances to the ground such as stockpiling, or excavation, but does not include regular maintenance activities performed to restore the original line, grade, or capacity of the facility. The Construction General Permit requires the development of a SWPPP by a certified Qualified SWPPP Developer (QSD). Since the Project site has relatively flat terrain with a low potential for soil erosion and would comply with the State Water Resources Control Board requirements, the impact would be less than significant.

c) 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?

Less than Significant Impact. Soils onsite consist of the soils depicted on **Table 4-14**, which are classified as well drained and somewhat excessively drained, all with a very low runoff class. The Project site and surrounding areas do not contain substantial grade changes. Risk of landslides, lateral spreading, subsidence, liquefaction, and collapse are minimal due to the soil characteristics. The impact would be less than significant.

d) 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?

Less than Significant Impact. The Project does not propose a significant change in the local topography that would cause sloping. The construction of the Project would involve excavating portions of the Project site. The Project does not include the development of habitable structures or facilities that could be affected by expansive soils or expose people to substantial risks to life or property. Furthermore, the Project would be consistent with the California Building Standards Code. Any impacts would be less than significant.

⁶ (Madera County General Plan Background Report, 1995). Accessed March 14, 2022

- e) Would the project have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?

No Impact. Septic installation or alternative wastewater disposal systems are not necessary for the Project. There would be no impact.

- f) Would the project directly or indirectly destroy a unique paleontological resource or site or unique geological feature?

Less than Significant Impact. There are no known unique geological features on the Project site. While the Project will occur in the public right-of-way and in a rural residential subdivision, there is a remote possibility that unique paleontological resources could be destroyed as a result of excavation during construction activities. Best Management Practice **GEO-1** will be implemented in the event a paleontological resource is discovered during construction activity. Any impacts would be less than significant.

4.7.3 Best Management Practices

- GEO-1 (Unique Paleontological Resources)** If during construction a paleontological resource has been discovered, construction activities shall halt within a 50-foot radius of the discovery. A qualified paleontologist shall be consulted to determine if the paleontological resource is unique. If the resource is unique, the Project proponent shall cover all expenses to have the resource archived. If the resource is not unique, construction activity within the discovery shall be allowed.

4.8 GREENHOUSE GAS EMISSIONS

Table 4-15: Greenhouse Gas Emissions Impacts

Would the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

4.8.1 Baseline Conditions

Commonly identified GHG emissions and sources include the following:

Carbon dioxide (CO₂) is an odorless, colorless natural greenhouse gas. CO₂ is emitted from natural and anthropogenic sources. Natural sources include the following: decomposition of dead organic matter; respiration of bacteria, plants, animals, and fungus; evaporation from oceans; and volcanic out gassing. Anthropogenic sources include the burning of coal, oil, natural gas, and wood.

Methane (CH₄) is a flammable greenhouse gas. A natural source of methane is the anaerobic decay of organic matter. Geological deposits, known as natural gas fields, also contain methane, which is extracted for fuel. Other sources are from landfills, fermentation of manure, and ruminants such as cattle.

Nitrous oxide (N₂O), also known as laughing gas, is a colorless greenhouse gas. Nitrous oxide is produced by microbial processes in soil and water, including those reactions that occur in fertilizer containing nitrogen. In addition to agricultural sources, some industrial processes (fossil fuel-fired power plants, nylon production, nitric acid production, and vehicle emissions) also contribute to its atmospheric load.

Carbon dioxide equivalent (CO₂e) is the summation of CO₂, CH₄, and N₂O, multiplied by each greenhouse gases' global warming potential (GWP). For purposes of this analysis, CH₄ and N₂O are assigned a multiplier of 25 and 298, respectively, based on longevity in the atmosphere and the intensity of infrared absorbed. This is consistent with CARB's calculation and the 2007 Intergovernmental Panel on Climate Change (IPCC) fourth assessment report (AR4).

Water vapor is the most abundant, and variable greenhouse gas. It is not considered a pollutant; in the atmosphere, it maintains a climate necessary for life.

Ozone (O₃) is known as a photochemical pollutant and is a greenhouse gas; however, unlike other greenhouse gases, ozone in the troposphere is relatively short-lived and, therefore, is not global in nature. Ozone is not emitted directly into the atmosphere but is formed by a complex series of chemical reactions between volatile organic compounds, nitrogen oxides, and sunlight.

Aerosols are suspensions of particulate matter in a gas emitted into the air through burning biomass (plant material) and fossil fuels. Aerosols can warm the atmosphere by absorbing and emitting heat and can cool the atmosphere by reflecting light.

Chlorofluorocarbons (CFCs) are nontoxic, nonflammable, insoluble, and chemically unreactive in the troposphere (the level of air at the earth's surface). CFCs were first synthesized in 1928 for use as refrigerants, aerosol propellants, and cleaning solvents. CFCs destroy stratospheric ozone; therefore, their production was stopped as required by the Montreal Protocol in 1987.

Hydrofluorocarbons (HFCs) are synthetic chemicals that are used as a substitute for CFCs. Of all the greenhouse gases, HFCs are one of three groups (the other two are perfluorocarbons and sulfur hexafluoride) with the highest global warming potential. HFCs are human-made for applications such as air conditioners and refrigerants.

Perfluorocarbons (PFCs) have stable molecular structures and do not break down through the chemical processes in the lower atmosphere; therefore, PFCs have long atmospheric lifetimes, between 10,000 and 50,000 years. The two main sources of PFCs are primary aluminum production and semiconductor manufacture.

Sulfur hexafluoride (SF₆) is an inorganic, odorless, colorless, nontoxic, nonflammable gas. It has the highest global warming potential of any gas evaluated. Sulfur hexafluoride is used for insulation in electric power transmission and distribution equipment, in the magnesium industry, in semiconductor manufacturing, and as a tracer gas for leak detection.

There are uncertainties as to exactly what the climate changes will be in various local areas of the earth, and what the effects of clouds will be in determining the rate at which the mean temperature will increase. There are also uncertainties associated with the magnitude and timing of other consequences of a warmer planet: sea level rise, spread of certain diseases out of their usual geographic range, the effect on agricultural production, water supply, sustainability of ecosystems, increased strength and frequency of storms, extreme heat events, air pollution episodes, and the consequence of these effects on the economy.

Emissions of GHGs contributing to global climate change are largely attributable to human activities associated with the industrial, manufacturing, utility, transportation, residential, and agricultural sectors. About three-quarters of human emissions of CO₂ to the global atmosphere during the past 20 years are due to fossil fuel burning. Atmospheric concentrations of CO₂, CH₄, and N₂O have increased 31 percent, 151 percent, and 17 percent respectively since the year 1750 (CEC 2008). GHG emissions are typically expressed in carbon dioxide-equivalents (CO₂e), based on the GHG's GWP. The GWP is dependent on the lifetime, or persistence, of the gas molecule in the atmosphere. For example, one ton of CH₄ has the same contribution to the greenhouse effect as approximately 21 tons of CO₂. Therefore, CH₄ is a much more potent GHG than CO₂.

The Air Quality Output Files were prepared in May 2022, and are contained in [Appendix A](#).

4.8.2 Thresholds

In accordance with SJVAPCD's *CEQA Greenhouse Gas Guidance for Valley Land-use Agencies in Addressing GHG Emission Impacts for New Projects*⁷, proposed projects complying with Best Performance Standards (BPS) would be determined to have a less-than-significant impact. Projects not complying with BPS would be considered less than significant if operational GHG emissions would be reduced or mitigated by a minimum of 29 percent, in comparison to business-as-usual (year 2004) conditions. In addition, project-

⁷ (San Joaquin Valley Air Pollution Control District 2009) Accessed 22 February 2021.

generated emissions complying with an approved plan or mitigation program would also be determined to have a less-than-significant impact.

The Water Board has not adopted its own GHG thresholds or prepared a Greenhouse Gas Reduction Plan that can be used as a basis for determining project significance. The Water Board conservatively assesses GHG emissions using a numeric threshold approach adopted by the Sacramento Metro Air Quality Management District (SMAQMD), which requires construction emissions to not exceed 1,100 metric tons of CO₂-equivalent per year.

4.8.3 Impact Analysis

a) Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

Less than Significant Impact. Construction of the Project would result in GHG emissions from operation of both on-road and off-road equipment. As discussed previously, Project operations would require routine maintenance conducted by existing staff and would not be a source of new emissions, and therefore are not addressed further. As shown in **Table 4-16**, the Project would be below the SMAQMD thresholds for total Project emissions and well below the thresholds after amortizing the construction emissions. Therefore, the GHG emissions from the proposed Project would not have significant impacts on climate change.

Table 4-16. Short-Term Construction-Generated GHG Emissions

Year	Emissions (MT CO ₂ e) ¹
2022	146.5562
2023	315.4248
Total	461.981
Amortized over Life of Project (30 years)	15.3993
AB 32 Consistency Threshold for Land-Use Development Projects*	1,100
Exceed Threshold?	No

1. Refer to **Appendix A** for modeling results and assumptions. Totals may not sum due to rounding.

* As published in the Sacramento Metro Air Quality Management District's CEQA Air Quality Guidelines. Available online at CH2ThresholdsTable4-2020.pdf (airquality.org) Accessed September 2022.

b) Would the project conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

Less than Significant Impact. After Project construction, operational GHG emissions would consist of routine maintenance conducted by existing staff and would not generate any new emissions during operations compared to current conditions. The Project would provide a more reliable water system and water meters to residences whose current water sources do not meet safety standards. GHG emissions from the Project construction activities would be temporary and would not have a long-term impact on the state's ability to achieve the Scoping Plan's emission reduction targets for 2030 or beyond. Based on this, the Project would be consistent with the 2017 Scoping Plan and would not conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing GHG emissions; therefore, impacts would be less than significant.

4.9 HAZARDS AND HAZARDOUS MATERIALS

Table 4-17: Hazards and Hazardous Materials Impacts

Would the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
g) Expose people or structures, either directly or indirectly to a significant risk of loss, injury or death involving wildland fires?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

4.9.1 Baseline Conditions

Madera County has prepared a Hazardous Waste Management Plan (adopted January 1989) in accordance with Health and Safety Code Section 24135 et seq., which states that counties may prepare such plans "for the management of all hazardous waste produced in the county," as well as a plan for the siting of new facilities. County Hazardous Waste Management Plans are to be integrated with other local land use planning efforts. These plans were originally to be reviewed by the State Department of Health Services (DHS). Subsequent to the formation of the California Environmental Protection Agency (CalEPA) in 1991, County Hazardous Waste Management Plans are now to be submitted to the CalEPA's Department of Toxic Substances Control (DTSC).

Hazardous Materials

The Hazardous Waste and Substances Sites (Cortese) List is a planning document used by the State, local agencies, and developers to comply with CEQA requirements in providing information about the location of hazardous materials release sites. Government Code (GC) Section 65962.5 requires the California Environmental Protection Agency (CalEPA) to develop at least annually an updated Cortese List. DTSC is responsible for a portion of the information contained in the Cortese List. Other State and local government agencies are required to provide additional hazardous material release information for the Cortese List. DTSC's EnviroStor database provides DTSC's component of Cortese List data (DTSC, 2010). In addition to the EnviroStor database, the State Water Resources Control Board Geotracker database provides information on regulated hazardous waste facilities in California, including underground storage tank (UST) cases and non-UST cleanup programs, including Spills-Leaks-Investigations-Cleanups sites, Department of Defense sites, and Land Disposal program. A search of the DTSC EnviroStor⁸ database and the State Water Resources Control Board Geotracker⁹ performed on March 14, 2022 determined that there are no known active hazardous waste generators or hazardous material spill sites within the Project site or immediate surrounding vicinity.

Airports

The nearest active public airport is the Fresno Yosemite International Airport, approximately ten (10) miles southeast of the Project site. The nearest private airport is Sierra Sky Park Airport located 5.6 miles southwest of the Project Site.

Emergency Response Plan

The Madera County Office of Emergency Services coordinates the development and maintenance of the Madera County Emergency Operations Plan.

Sensitive Receptors

Sensitive receptors, consisting of residences, are located immediately adjacent to the Project.

4.9.2 Impact Analysis

a) Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

Less than Significant Impact. Project construction would involve the storage, use, and transport of small amounts of hazardous materials (e.g., asphalt, fuel, lubricants, and other substances) on roadways. Regulations governing hazardous materials transport are stated in Title 22 California Code of Regulations (CCR) and the California Vehicle Code (Title 13 CCR). The transportation of hazardous materials also is subject to other applicable local and federal regulations, which have been specifically designed to minimize the risk of upset during routine construction activities. The State agencies with primary responsibility for enforcing federal and State regulations, and for responding to hazardous materials transportation emergencies, are the California Highway Patrol and the California Department of Transportation (Caltrans). Together, these agencies determine container types to be used and license hazardous waste haulers for transportation of hazardous waste on public roads. Various local entities or

⁸ (California Department of Toxic Substances Control Envirostor 2020) Accessed March 2022

⁹ (State of California Water Resources Control Board - Geotracker 2022) Accessed March 2022.

agencies are generally delegated first responder responsibilities in the event of a hazardous material spill or release.

Construction and operation of the Project would be required by law to implement and comply with existing hazardous material regulations. Each of these regulations is specifically designed to protect public health through improved procedures for handling hazardous materials, better technology in equipment used to transport these materials, and a more coordinated, quicker response to emergencies. By implementing measures needed to be consistent with existing regulations, impacts would be less than significant.

b) 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?

Less than Significant Impact. The Project consists of refurbishing an existing well, replacing water pipeline, installing new water meters, and installing cathodic protection for an existing water storage tank. Power sources for operational purposes would be all electric. This infrastructure is not designed to convey or store hazardous materials. Project construction would temporarily involve the storage, use, and transport of small amounts of hazardous materials (e.g., asphalt, fuel, lubricants, and other substances) on roadways. Therefore, in the event of a reasonably-foreseeable upset or accident during construction or operational maintenance activities, minimal hazardous materials may be released into the environment. Construction and operation of the Project would be required by law to implement and comply with existing hazardous material regulations. By implementing measures needed to be consistent with existing regulations, impacts would be less than significant.

c) Would the project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

No Impact. The nearest school to the Project site is Stone Creek Elementary School located approximately half a mile north from the Project site. The Project would install a water distribution pipeline, new water meters, refurbish an existing well, and install cathodic protection for an existing water storage tank, and would not result in the routine use, transport or disposal of substantial quantities of hazardous materials. Therefore, the Project would not emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school. There would be no impact.

d) Would the project be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?

No Impact. The Project does not involve land that is listed as a hazardous materials site pursuant to Government Code Section 65962.5 and is not included on a list compiled by the DTSC. A search of the DTSC EnviroStor database and the State Water Resources Control Board Geotracker performed on March 14, 2022 determined that there are no known active hazardous waste generators or hazardous material spill sites within the Project site or immediate surrounding vicinity. There would be no impact.

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?

No Impact. The Project is not located within an airport land use plan. Sierra Sky Park Airport is 5.6 miles southwest of the Project site. Fresno Yosemite International Airport is located 10 miles southeast of the Project Site. Construction of the Project would not be a safety hazard for people working in the area. Operation of the well site would not generate excessive noise, and any construction noise would be temporary. There would be no impact.

f) Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

Less than Significant Impact. Madera County has an Operational Area Emergency Operations Plan¹⁰, that covers Madera County. The Project does not provide any physical barriers or disturb any roadways in such a way that would impede emergency or hazards response; all work conducted in public rights-of-way will require an Encroachment Permit from the County of Madera and a traffic control plan. Temporary traffic controls are required to comply with the Federal Highway Administration's Manual on Uniform Traffic Control Devices. Therefore, the Project would have less than significant impact.

g) Would the project expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?

No Impact. The Project is not located in or near state responsibility areas or lands classified as very high fire hazard severity zones¹¹. There would be no impact.

¹⁰ [636533672515870000 \(maderacounty.com\)](https://www.maderacounty.com/636533672515870000) Site accessed August 2022.

¹¹ (California Department of Forestry and Fire Protection - Fire and Resource Assessment Program (FRAP) 2022).

4.10 HYDROLOGY AND WATER QUALITY

Table 4-18: Hydrology and Water Quality Impacts

Would the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:				
i. result in substantial erosion or siltation on- or off-site;	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
ii. substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site;	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iv. impede or redirect flood flows?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

4.10.1 Baseline Conditions

The Project is located in Madera County, in the Central San Joaquin Valley, part of the Great Valley of California. Like most of California, the San Joaquin Valley experiences a Mediterranean climate. Warm, dry summers are followed by cool, moist winters. Summer temperatures often reach above 90 degrees Fahrenheit, and the humidity is generally low. Winter temperatures are often below 60 degrees Fahrenheit during the day and rarely exceed 70 degrees. The Central Valley receives an average of 12 inches of precipitation in the form of rainfall yearly, most of which occurs between October and March.

The Project site lies within the Root Creek-San Joaquin River and the Cottonwood Creek-San Joaquin River watersheds; Hydrologic Unit Code (HUC): 1804000108 and HUC: 1804000103, respectively. Within the site, there are also three subwatersheds: Scout Island-San Joaquin River, HUC: 180400010303; Buttonwillow Slough-Lone Willow Slough, HUC: 180400010803; and Root Creek, HUC: 180400010801. The nearest surface water is the San Joaquin River that runs by the southeast corner approximately 0.2 miles from the Project site. The Root Creek-San Joaquin River and Cottonwood Creek-San Joaquin subwatersheds are comprised of stormwater or snowmelt collected in upland areas which flows across the north-northwest border of Fresno and turns in the North direction to run alongside Highway 33. The San Joaquin River eventually reaches Modesto and empties into the San Francisco Bay. The Root Creek subwatershed and stream runs westward adjacent to the northern border of the Project area¹².

The Project lies entirely within the San Joaquin Valley-Madera subbasin of the San Joaquin Valley Groundwater Basin.¹³ There are no tributaries, or distributaries located within the site boundaries or adjacent to the site.

The water system supplies drinking water to the neighborhood through its groundwater wells within the neighborhood.

4.10.2 Impact Analysis

a) Would the project violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?

Less than Significant Impact. Construction activities may result in a potential impact through the erosion of soils and the build-up of silt and debris in runoff areas, however under California General Construction Permit 2009-0009-DWQ guidelines implementing a SWPPP, performed and approved by a qualified sediment practitioner (QSP) or a qualified sediment developer (QSD), would be required prior to construction, handling, and transportation of hazardous materials within the Project site area. In addition, construction activities could result in accidental spills of fuels, paints, and other hazardous materials entering storm drains and other runoff areas. Through a SWPPP carried out by the contractor and a QSP/QSD, the Project would design and utilize best management practices in order to stabilize any sedimentation and erosion from leaving the Project site. Therefore, impacts would be less than significant.

b) 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?

No Impact. The Project proposes to make improvements to an existing well site serving an existing community. About one mile of pipeline will be installed to provide a looped system that will provide better water pressure and reliability. Meters will be installed and are anticipated to reduce water consumption within the neighborhood. Cathodic protection will be installed for an existing water storage tank. The Project would not substantially interfere with groundwater recharge through the addition of impermeable surfaces. No planned growth is anticipated. There would be no impact.

¹² (United States Environmental Protection Agency 2022) Accessed May 2022

¹³ (State of California Department of Water Resources 2022) Accessed May 2022.

c) 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 which would:

- i. result in substantial erosion or siltation on- or off-site;

Less than Significant Impact. In order to minimize the possibility of substantial soil erosion or siltation, the Project would use construction BMP's and be required to complete a SWPPP. SWPPP's include mandated soil erosion control measures, which are developed to prevent significant impacts related to erosion caused by runoff during construction. Therefore, impacts would be less than significant.

- ii. substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site;

Less than Significant Impact. The Project will likely result in a very limited increase in impermeable surfaces, due to placement of water meters. Pipeline placement, well site repairs, and work on the existing water storage tank will not result in new impermeable surfaces. The Project will not substantially increase the rate or amount of surface runoff in a manner which would result in flooding on or off site. Impacts would be less than significant.

- 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?

Less than Significant Impact. There are no existing or planned storm drainage systems in the area. The Project will not impede or redirect flood flows, or provide substantial additional sources of polluted runoff. Site runoff will continue to flow as it has been within the neighborhood. Roads, grade, drainage flow patterns, and storm drain runoff areas that are disturbed by the Project would be repaired to pre-construction quality. These areas existed for these uses before the Project and would continue being utilized for their respective uses after the Project is completed. Therefore, impacts would be less than significant.

d) Would the project in flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundations?

No Impact. The Project is not located within any flood hazard, tsunami, or seiche zones that would cause the risk of released pollutants due to inundations. Therefore, there would be no impact.

e) Would the project conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

No Impact. The Project would not conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan. The installation of the new and replacement pipeline, water meters, storage tank improvements, and repairs to the well site would not impact water quality and would reduce water consumption. Therefore, there would be no impact.

4.10.3 Federal Cross-Cutting Topic

Flood Plain Management- Executive Order Number 11988

The Federal Emergency Management Agency (FEMA) designates flood hazard and frequency for cities and counties on its Flood Insurance Rate Maps. The proposed Project area is not within a designated 100-year floodplain, on a floodplain map, or otherwise designated by FEMA.

Rivers and Harbors Act

The Rivers and Harbors Act of 1899 prohibits construction of any bridge, dam, dike, or causeway over or in navigable waterways of the U.S., without Congressional approval. Under Section 10 of the Act, the building of any wharfs, piers, jetties, and other structures is prohibited without Congressional approval, and excavation or fill within navigable waters requires the approval of the Chief of Engineers. The USACE is authorized to issue permits for the discharge of refuse matter into or affecting navigable waters under Section 13 of the act.

The proposed Project would not be constructed in a location that would affect a navigable waterway, requiring permit or approval by USACE¹⁴.

Safe Drinking Water Act, Sole Source Aquifer Protection

The Safe Drinking Water Act (SDWA) required USEPA to establish criteria through which an aquifer may be declared a critical aquifer protection area. Since 1977, it has been used by communities to help prevent contamination of groundwater from federally funded projects. These aquifers are defined as "sole source aquifers." USEPA's Sole Source Aquifer (SSA) Program was established under Section 1424(e) of the SDWA. These are, essentially, aquifers that are the only drinking water supply for the population of a region.

SSA designation protects an area's groundwater resources by requiring USEPA to review all proposed projects within the designated area that will receive federal financial assistance. The SSA Program states that if USEPA determines an area to have an aquifer which is the sole or principal drinking water source for the area, that if contaminated would create a significant hazard to public health, a notice of that determination needs to be published in the Federal Register. After publication of any such notice, no commitment for federal financial aid may be applied for any project that the Administrator determines may contaminate the aquifer through a recharge zone, so as to create a significant hazard to public health (USEPA 2019).

The Project is not located in a Sole Source Aquifer¹⁵.

¹⁴ (United States Environmental Protection Agency 2022) Accessed March 2022

¹⁵ (United States Environmental Protection Agency 2022). Accessed March 2022

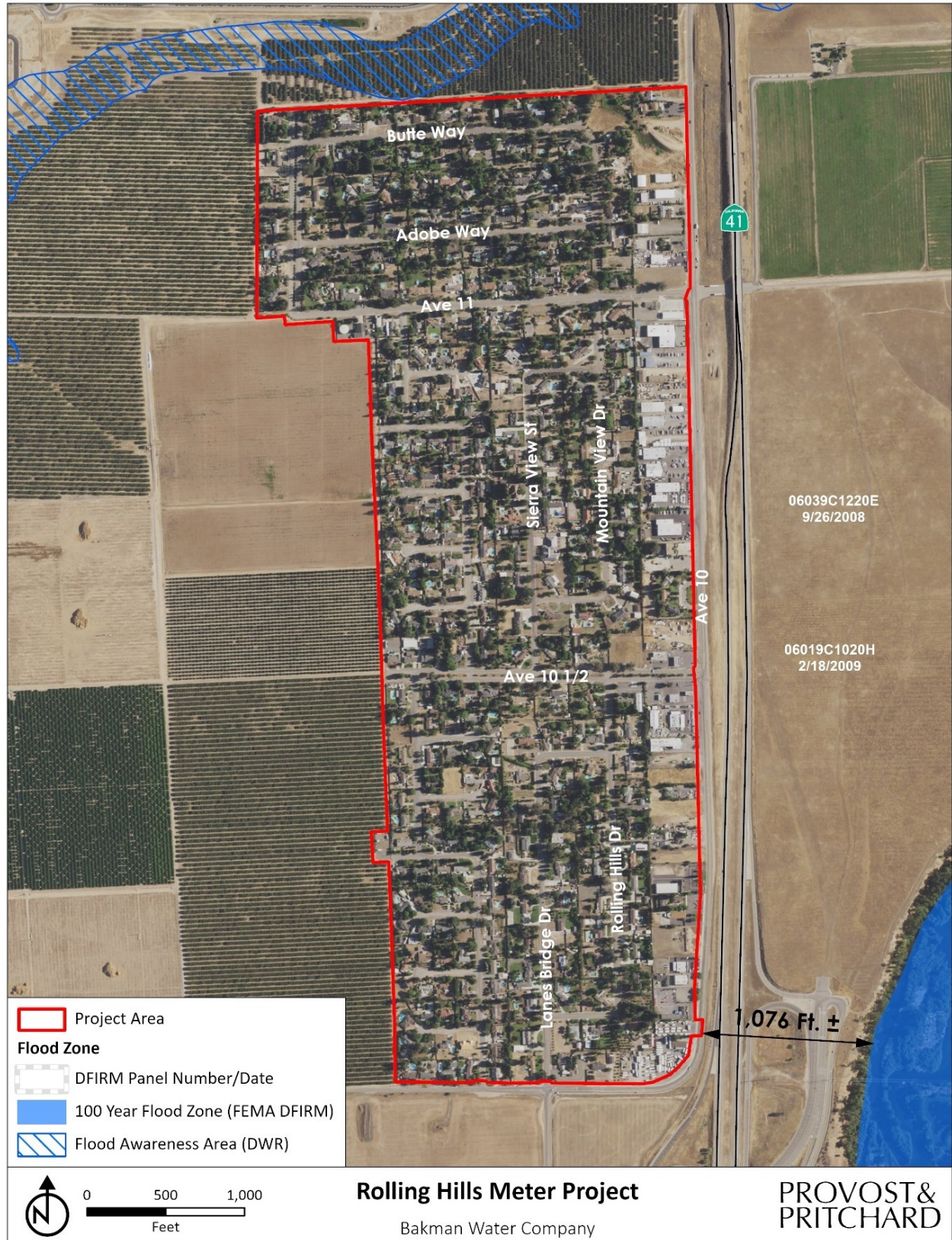


Figure 4-3: FEMA Map

4.11 LAND USE AND PLANNING

Table 4-19: Land Use and Planning Impacts

Would the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
f) Physically divide an established community?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

4.11.1 Baseline Conditions

The Project site is located in southeast Madera County along State Route 41. The Project site is currently a residential neighborhood. As found across the Central Valley in California, the Project site is surrounded by farmland and open space outside of urban planned areas.

General Plan Land Use Designations and Zone Districts are illustrated in [Figure 2-3](#) and [Figure 2-4](#), respectively.

4.11.2 Impact Analysis

a) Would the project physically divide an established community?

No Impact. The Project would not physically divide an established community. The Project would only consist of updating the existing water system in the Project site. No housing would be destroyed in order for the Project to be completed. The Project does not propose to vacate or abandon existing rights-of-way. Therefore, there would be no impact.

b) Would the project cause a significant environmental conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?

No Impact. The Project would not cause a significant environmental conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect. The Project would not be in conflict with any Madera County General Plan policies. Therefore, there would be no impact.

4.11.3 Federal Cross-Cutting Topic

Coastal Zone Management Act

The Coastal Zone Management Act was enacted in 1972. This act, administered by the National Oceanic and Atmospheric Administration, provides management of the nation's coastal resources. The California coastal zone generally extends 1,000 yards inland from the mean high tide line. The Project site is more

than 100 miles from the coastline. Therefore, the proposed Project would not conflict with the Coastal Zone Management Act.

4.12 MINERAL RESOURCES

Table 4-20: Mineral Resources Impacts

Would the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

4.12.1 Environmental Setting and Baseline Conditions

Extracted mineral resources in Madera County include aggregate (sand, gravel, and crushed stone), asbestos, copper, gold, iron, and silver. The most significant resource in terms of abundance, demand, and economic value, is aggregate. Sand, gravel, and crushed stone are building materials, and constitute crucial resources in a developing region.¹⁶

There are no known current or historic mineral resource extraction or recovery operations in the Project vicinity nor are there any known significant mineral resources onsite.

4.12.2 Impact Analysis

a) 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 Impact. The Project or implementation of the Project would not result in the loss of availability of a known mineral resource that would be of value to the region or residents. Furthermore, the Project area has not been designated as a locally important mineral resource recovery site by a general plan, specific plan or land use plan. There would be no impact.

b) 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?

No Impact. The Project site is not delineated on a local land use plan as a locally important mineral resource recovery site; therefore, the existence of the Project would not result in the loss of availability of any mineral resources. There would be no impact.

¹⁶ (Madera County General Plan Background Report 1995) Chapter 6 Agricultural and Natural Resources, page 6-9.
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4.13 NOISE

Table 4-21: Noise Impacts

Would the project result in:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Generation of excessive ground borne vibration or ground borne noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

4.13.1 Baseline Conditions

The Project is located in southern Madera County, dominated by agricultural production. SR 41 is the nearest highway, which is adjacent to the Project site to the east. The west side of the Project site borders along agricultural farmland plots. The City of Fresno city limit is located two miles south of the Project site. The community of Madera Ranchos is 1.32 miles north of the Project site. The City of Madera is located 10 miles northwest from Project site. The Fresno Yosemite International Airport is located 10-miles southeast, and the Sierra Sky Park Airport is located 5.6-miles southwest.

4.13.2 Impact Analysis

a) 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?

Less than Significant Impact. The construction phase of the Project will involve temporary noise sources, originating predominately from off-road equipment, such as backhoes, drilling rigs, scrapers, and tractors. The construction phase of the Project is estimated to last approximately eight months. The Project area is surrounded by agricultural lands, accustomed to noises associated with farm equipment. The Project would comply with the Madera County Noise Regulation Ordinance¹⁷. Operational maintenance activities would be on an as-needed basis with routine monitoring performed by existing staff and would not generate significant new noise. Any impacts would be mild and temporary and therefore, less than significant.

¹⁷ (Madera County Municipal Code 2022) Accessed May 2022.
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b) Would the project result in generation of excessive ground borne vibration or ground borne noise levels?

Less than Significant Impact. The construction phase of the Project will have excavation and grading as part of development of the new water pipeline for a duration of approximately eight (8) months. The Project is located within an area dominated by agricultural production, which includes the use of off-road equipment and ground-disturbing activities on a regular basis. Conditions created by Project-related construction activities would not vary substantially from the baseline conditions routinely experienced nearby. Impacts would be less than significant.

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?

No Impact. The nearest active public airport is the Fresno Yosemite International Airport, approximately ten (10) miles southeast of the Project site. The nearest private airport is Sierra Sky Park Airport located 5.6 miles southwest of the Project site. The Project site is not located within two miles of a public or public use airport. Therefore, there will be no impact.

4.14 POPULATION AND HOUSING

Table 4-22: Population and Housing Impacts

Would the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

4.14.1 Baseline Conditions

The Project is located within southern Madera County in a rural residential subdivision, approximately two miles north of Fresno. The Project is surrounded by agricultural lands, rural residential uses, and water infrastructure.

4.14.2 Impact Analysis

a) 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)?

No Impact. The Project would install new meters at existing residences, replace distribution mains, refurbish Well No. 2, and provide cathodic protection for the existing water storage tank. The Project improvements would serve the existing residences within the Rolling Hills community. No new services would be connected as part of this Project. Therefore the Project would not encourage population growth directly or indirectly, there would be no impact.

b) Would the project displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?

No Impact. No housing or habitable structures would be built, nor will any be removed as a part of this Project. Implementation of the Project will not result in displacement of people or existing housing. Therefore, there will be no impact.

4.14.3 Federal Cross-Cutting Topic

Environmental Justice Executive Order 12898

Executive Order (EO) 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, was issued in 1994. The EO directs federal agencies to identify and address the disproportionately high and adverse human health or environmental effects of their actions on minority and low-income populations, to the greatest extent practicable and permitted by law.

USEPA has developed a mapping and screening tool called EJSCREEN that uses nationally consistent data to identify minority or low-income communities. According to EJSCREEN, the proposed Project site is not in an environmental justice community¹⁸. In addition, the purpose of the Project would be to supply clean, reliable water to residents of the Rolling Hills community. Because the proposed Project would directly benefit the local community only, no disproportional health or environmental effect would be imposed on minority or low income populations. The proposed Project would not conflict with the purpose and objectives of EO 12898.

¹⁸ (Environmental Protection Agency - Environmental Justice Screening and Mapping Tool 2022) accessed March 2022.
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4.15 PUBLIC SERVICES

Table 4-23: Public Services

Would the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Fire protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Police protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Schools?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Parks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Other public facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

4.15.1 Baseline Conditions

Fire Protection: The proposed Project area would be served by the Madera County Fire Department, Station 9 (Rolling Hills) located within the Rolling Hills community.

Police Protection: The Project area receives public safety protection provided by the Madera County Sheriff station in the City of Madera.

Schools: Public school services are provided by Golden Valley Unified School District. Stone Creek Elementary in Madera Unified School District is located a half mile north of the Project site and serves the Project area. Stone Creek Elementary is the feeder school for Ranchos Middle School and Liberty High School which also service the Project area and are located approximately 8 miles from the Project site.

Parks: Madera County has several regional parks, as well as State and national parks, national forest, wilderness areas, and recreational lakes. Woodward Regional Park is the closest park, located approximately 5.8 miles south of the Project site.

4.15.2 Impact Analysis

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

No Impact. The Project would install water meters, replace a water pipeline, refurbish Well No. 2, and provide cathodic protection for the water storage tank, all of which serve an existing residential development. No new residences are proposed as part of this Project. Therefore, no additional public

services will be required in order to provide police or fire protection, nor educational or recreational opportunities, to the water infrastructure or its beneficiaries. There will be no impact.

4.16 RECREATION

Table 4-24: Recreation Impacts

Would the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

4.16.1 Baseline Conditions

Madera County has several regional parks, as well as State and national parks, national forest, wilderness areas, and other resources. The closest park to the Project is Woodward Regional Park, located in the City of Fresno, 2.7-miles southeast of the Project site.

4.16.2 Impact Analysis

a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?

No Impact. The Project proposes to improve existing water infrastructure. It would not increase the demand for recreational facilities or put a strain on existing recreational facilities. There would be no impact.

b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?

No Impact. The Project does not include recreational facilities, nor the construction or expansion of any existing or new recreational facilities. There is no housing or population growth associated with the Project that could result in accelerated substantial physical deterioration of any such facilities. There would be no impact.

4.17 TRANSPORTATION

Table 4-25: Transportation Impacts

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

4.17.1 Baseline Conditions

Madera County's circulation system consists of a roadway network that is primarily rural in character, with exception of the urbanized area surrounding the City of Madera, and various smaller communities located throughout the county. There are parts of six state highways that pass through Madera County: SR 99, SR 41, SR 49, SR 145, SR 152 and SR 233.

The Project is located in southern Madera County. The Project vicinity is dominated by agricultural farmland plots and Urban and Built-Up Land. State Route 41 is the nearest highway located directly east of the Project site. There are no public improvements proposed along the Project site boundary. Traffic generation after Project implementation would be minimal and dedicated to only maintenance on an as-needed basis.

4.17.2 Impact Analysis

a) Would the project conflict with a plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?

Less than Significant Impact. The Project site and the surrounding area lacks pedestrian and bicycle facilities. Transit service does not stop near the Project site. Pipeline installation would take place within Avenue 11, Mountain View Drive and Adobe Way. During construction traffic control measures would be used to redirect traffic. Impacts to the existing roadways during construction will be temporary. The Project will thus not conflict with plans, policies, or ordinances addressing the circulation system. Therefore, impacts will be less than significant.

b) Would the project conflict or be inconsistent with CEQA Guidelines section 15064.3 subdivision (b)?

Less than Significant Impact. Project operations will not generate additional vehicle miles traveled, as operations and maintenance trips are not anticipated to increase as part of the Project. Project

construction trips will be generated but will be temporary during the Project construction period. Impacts would be less than significant.

c) 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)?

No Impact. No new roadway design features are associated with the Project. As mentioned in Transportation Impact Analysis a and b above, all potential disturbances to roadways would be temporary. Therefore, there would be no impact.

d) Would the project result in inadequate emergency access?

Less than Significant Impact. As mentioned above in Transportation Impact Analysis check list items a, b, and c, the Project does not propose new roadway design features or permanent alterations to roadways. Any lane closures will require adequate noticing and signage to be placed in and near the Project construction area. The operational phase of the Project would have no effect on roadways or emergency access. Therefore, overall potential Project-related impacts to emergency access on local roadways would be considered less than significant.

4.18 TRIBAL CULTURAL RESOURCES

Table 4-26: Tribal Cultural Resources Impacts

Would the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Cause a substantial adverse change in the significance of a 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 the local register of historical resources as defined in Public Resources Code section 5020.1(k), or	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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 Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

4.18.1 Baseline Conditions

Public Resources Code section 21080.3.1, et seq. (codification of AB 52, 2013-14)

Public Resources Code section 21080.3.1, et seq. (codification of AB 52, 2013-14) requires that a lead agency, within 14 days of determining that it would undertake a project, must notify in writing any California Native American Tribe traditionally and culturally affiliated with the geographic area of the project if that Tribe has previously requested notification about projects in that geographic area. The notice must briefly describe the project and inquire whether the Tribe wishes to request formal consultation. Tribes have 30 days from receipt of notification to request formal consultation. The lead agency then has 30 days to initiate the consultation, which then continues until the parties come to an agreement regarding necessary mitigation or agree that no mitigation is needed, or one or both parties determine that negotiation occurred in good faith, but no agreement would be made.

No Tribes have requested Project notifications from the State Water Board for projects in Madera County. Therefore, the State Water Board did not send AB 52 Project notification letters to tribes. While no tribes

have requested notification pursuant to Public Resources Code section 21080.3.1, the State Water Board is still responsible for making a good faith effort to identify tribal cultural resources in the Project area. The State Water Board required a cultural resources report to be prepared that involved a records search of the California Historical Resources Information System, a Sacred lands File search from the NAHC, a pedestrian survey, and tribal outreach. No tribal cultural resources were identified as a result of the cultural resources investigation.

See Section 4.5 Cultural Resources for more detail on the cultural resources investigation.

4.18.2 Impact Analysis

a) 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:

- i. Listed or eligible for listing in the California Register of Historical Resources, or in the 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 Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.

No Impact. The State Water Resources Control Board, as the lead agency, has received no formal requests for consultation from California Native American tribes in the Project area pursuant to AB 52.

In addition, as a result of the Cultural Resource Investigation completed in May 2022 contained in **Appendix C**, no tribes identified known tribal cultural resources in the APE or requested consultation on the Project. Additionally, no pre-colonial archaeological or historic-era archaeological remains were identified. No impacts are expected to tribal cultural resources. Should pre-colonial archaeological sites be discovered during construction that could be considered tribal cultural resources, the best management practices outlined in CUL-1 shall be followed.

4.19 UTILITIES AND SERVICE SYSTEMS

Table 4-27: Utilities and Service Systems Impacts

Would the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

4.19.1 Baseline Conditions

The RHWS is comprised of three active wells, one inactive well that is not in use, and one destroyed well located within the Rolling Hills community.

4.19.1.1 Water Supply

The Project lies entirely within the Madera Groundwater Subbasin of the San Joaquin Valley Groundwater Basin.¹⁹ Declines in groundwater basin storage and groundwater overdraft are recurring problems in the Central Valley. Measures for ensuring the continued availability of groundwater to meet demands have been identified and planned in several areas of the county. The measures include groundwater conservation and recharge, and supplementing or replacing groundwater sources for irrigation with surface water.

¹⁹ (State of California Department of Water Resources 2022). Accessed March 15, 2022

4.19.1.2 Wastewater Collection and Treatment

No wastewater is currently generated by the existing facility. The existing residential subdivision is served by individual septic tanks. There are no existing or planned storm drainage systems in the Project area.

4.19.1.3 Landfills

The Mid Valley Disposal and Transfer is the closest landfill located approximately 16 miles south of the Project site. No significant solid waste will be generated during Project construction or operation.

4.19.2 Impact Analysis

a) 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?

No Impact. The Project itself is a water infrastructure replacement and refurbishment project. Environmental effects from the Project will be temporary or same as existing conditions, and no new or expanded wastewater treatment, storm water drainage, electric power, natural gas, or telecommunications facilities will be required as a result of the Project. There will be no impact.

b) Would the project have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?

No Impact. The Project would refurbish a well that serves the existing community. No new water consumption is anticipated due to the installation of water meters, the installation of pipeline, or the installation of cathodic protection for the water storage tank. There will be no impact.

c) Would the project result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?

No Impact. The Project will not generate wastewater, and thus no wastewater treatment capacity is necessary. There will be no impact.

d) 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?

Less than Significant Impact. The Project will generate solid waste during the construction process. Project operations are not anticipated to generate additional solid waste than what is already generated. Impacts will be less than significant.

e) Would the project comply with federal, state, and local management and reduction statutes and regulations related to solid waste?

Less than Significant Impact. The Project would be required to demonstrate compliance with all Madera County Solid Waste regulations. Impacts will be less than significant.

4.20 WILDFIRE

Table 4-28: Wildfire Impacts

If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Substantially impair an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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 uncontrollable spread of wildfire?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

4.20.1 Baseline Conditions

The Project is located in southern Madera County, approximately two miles north of the City of Fresno alongside SR 41. The Project site is in a flat urbanized area of the Central San Joaquin Valley. The Project would update existing water infrastructure in the Rolling Hills community. Work would consist of installing new meters, new distribution mains, refurbishing Well No. 2, and providing cathodic protection for the water storage tank. The Project is not considered to be population growth inducing and no habitable structures are being constructed as part of the Project.

According to CalFIRE the Project site is not zoned in a Local Responsibility Area or State Responsibility Area (SRA). The nearest SRA is four miles east of the Project site.

4.20.2 Impact Analysis

- a) If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project substantially impair an adopted emergency response plan or emergency evacuation plan?
- b) If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, 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?

- c) If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, 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?
- d) If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, 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?

No Impact. The Project is not located in or near state responsibility areas or lands classified as very high fire hazard severity zones²⁰ and therefore would not interfere with any emergency plans or expose people or structures to any significant risk. The surrounding area is predominantly agricultural and consists of flat and even terrain. There would be no impacts.

²⁰ (California Department of Forestry and Fire Protection - Fire and Resource Assessment Program (FRAP) 2022) Accessed March 2022.

4.21 CEQA MANDATORY FINDINGS OF SIGNIFICANCE

Table 4-29: CEQA Mandatory Findings of Significance

Does the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

4.21.1 Statement of Findings

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

Less than Significant Impact with Mitigation Incorporated. The analysis conducted in this IS/MND results in a determination that the proposed Project, with incorporation of mitigation measures, will have a less than significant effect on the environment. The potential for impacts to biological resources from the implementation of the proposed Project will be less than significant with the incorporation of the mitigation measures discussed in **Chapter 5 Mitigation, Monitoring, and Reporting Program**. Accordingly, the proposed Project will involve no potential for significant impacts through the degradation of the quality of the environment, the reduction in the habitat or population of fish or wildlife, including endangered plants or animals, the elimination of a plant or animal community or example of a major period of California history or prehistory.

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

Less than Significant Impact with Mitigation Incorporated. CEQA Guidelines Section 15064(i) States that a Lead Agency shall consider whether the cumulative impact of a project is significant and whether the effects of the project are cumulatively considerable. The assessment of the significance of the cumulative effects of a project must, therefore, be conducted in connection with the effects of past projects, other current projects, and probable future projects. The proposed Project will make improvements to an existing well site, add pipelines to the water system infrastructure, and add water meters to improve water quality and reliability. No additional roads would be constructed as a result of the Project, nor would any additional public services be required. The proposed Project is intended to improve water quality and reliability and would not result in direct or indirect population growth. Therefore, implementation of the proposed Project would not result in significant cumulative impacts and all potential impacts would be reduced to less than significant through the implementation of mitigation measures and basic regulatory requirements incorporated into future Project design.

c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?

Less than Significant Impact. The Project proposes to make improvements to an existing well site, add pipelines to the water system infrastructure, and add water meters to improve water quality and reliability. The Project in and of itself would not create a significant hazard to the public or the environment. Project implementation would improve water quality. Construction-related air quality/dust exposure impacts could occur temporarily as a result of Project construction. However, implementation of basic regulatory requirements identified in this IS/MND would ensure that impacts are less than significant. Therefore, the proposed Project would not have any direct or indirect adverse impacts on humans. This impact would be less than significant.

CHAPTER 5 MITIGATION, MONITORING, AND REPORTING PROGRAM

This Mitigation Monitoring and Reporting Program (MMRP) has been formulated based upon the findings of the Initial Study/Mitigated Negative Declaration (IS/MND) for the Project in the Rolling Hills community for the State Water Resources Control Board. The MMRP lists mitigation measures recommended in the IS/MND for the Project and identifies monitoring and reporting requirements.

Table 5-1 Mitigation, Monitoring, and Reporting Program presents the mitigation measures identified for the Project. Each mitigation measure is numbered with a symbol indicating the topical section to which it pertains, a hyphen, and the impact number. For example, AIR-2 would be the second mitigation measure identified in the Air Quality analysis of the IS/MND.

The first column of **Table 5-1 Mitigation, Monitoring, and Reporting Program** identifies the mitigation measure. The second column, entitled “When Monitoring is to Occur,” identifies the time the mitigation measure should be initiated. The third column, “Frequency of Monitoring,” identifies the frequency of the monitoring of the mitigation measure. The fourth column, “Agency Responsible for Monitoring,” names the party ultimately responsible for ensuring that the mitigation measure is implemented. The last columns will be used by the Lead and Responsible Agencies to ensure that individual mitigation measures have been complied with and monitored.

Table 5-1 Mitigation, Monitoring, and Reporting Program

Mitigation, Monitoring, and Reporting Program						
Item	Mitigation Measure	When Monitoring is to Occur	Frequency of Monitoring	Agency Responsible for Monitoring	Method to Verify Compliance	Verification of Compliance
Biological Resources						
Nesting Raptors, Migratory Birds, and Special Status Birds						
BIO-1	(Avoidance): The Project's construction activities will occur, if feasible, between September 16 and January 31 (outside of nesting bird season) in an effort to avoid impacts to nesting birds. If all Project activities will occur outside of nesting bird season, no further mitigation is required.	Prior to construction	Once	SWRCB	Submittal of construction schedule to SWRCB	
BIO-2	(Pre-construction Surveys): If activities must occur within nesting bird season (February 1 to September 15), a qualified biologist will conduct pre-construction surveys for Swainson's Hawk nests onsite and within a 0.5-mile radius. These surveys will be conducted in accordance with the Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley (Swainson's Hawk Technical Advisory Committee 2000), and the Staff Guidance Regarding Avoidance of Impacts to Tricolored Blackbird Breeding Colonies on Agricultural Fields (California Department of Fish and Wildlife 2015) current guidance. The Swainson's Hawk survey will not be completed between April 21 to June 10 due to the difficulty of identifying nests during this time of year. The pre-construction survey would also provide a presence/absence survey for all other nesting birds within the APE and an additional 50-foot survey area, no more than seven (7) days prior to the start of construction. All raptor nests would be considered "active" upon the nest-building stage.	Prior to construction	Once	SWRCB	Submittal of pre-construction survey report.	
BIO-3	(Establish Buffers): On discovery of any active nests or breeding colonies near work areas, the biologist will determine appropriate construction setback distances based on applicable CDFW and/or USFWS guidelines and/or the biology of the species in	On discovery of active nests or breeding colonies	Once	SWRCB	Verified in writing by a qualified biologist	

Mitigation, Monitoring, and Reporting Program						
Item	Mitigation Measure	When Monitoring is to Occur	Frequency of Monitoring	Agency Responsible for Monitoring	Method to Verify Compliance	Verification of Compliance
	question. Active Swainson's Hawk nests will receive a 0.5-mile buffer, active California Horned Lark nests will receive a 150-foot buffer, and active Tricolored Blackbird nests will receive a 200-foot buffer. Reduced buffer distances for Swainson's Hawk, California Horned Lark, and Tricolored Blackbird may be appropriate depending on site conditions and ongoing disturbance levels and would be discussed with CDFW, if warranted. Construction buffers will be identified with flagging, fencing, or other easily visible means, and will be maintained until the biologist has determined that the nestlings have fledged.					
BIO-4	(ITP): In the event an active Swainson's Hawk nest, California Horned Lark nest, Tricolored Blackbird, or other nest is detected during surveys and cannot be avoided, consultation with CDFW will be warranted to discuss how to implement the Project and avoid take. If take cannot be avoided, take authorization through the acquisition of an ITP pursuant to Fish and Game Code section 2081, subdivision (b) is necessary to comply with CESA.	On discovery of an active nest that cannot be avoided	Once	SWRCB	Record of ITP submitted to SWRCB.	
California Tiger Salamander						
BIO-5	(Avoidance): The Project's construction activities will occur, if feasible, 350-feet from suitable aquatic and upland habitat of CTS as identified by a qualified biologist. The Project will install exclusion fencing 350-feet or more from the wetted area and upland habitat in the north-east corner of the APE to ensure California tiger salamanders do not enter the site during construction. Exclusion fencing materials, size, and placement should follow wildlife agency guidelines appropriate for the species.	Prior to construction	Once	SWRCB	Biologist verifies buffer.	
BIO-6	(Pre-construction Survey): If activities must occur within 350-feet of suitable aquatic and upland habitat a qualified biologist will conduct a focused survey in accordance with the <i>USFW Interim</i>	Prior to construction	Once	SWRCB	Submittal of reconnaissance survey.	

Mitigation, Monitoring, and Reporting Program						
Item	Mitigation Measure	When Monitoring is to Occur	Frequency of Monitoring	Agency Responsible for Monitoring	Method to Verify Compliance	Verification of Compliance
	<i>Guidance on Site Assessment and Field Surveys for Determining Presence or a Negative Finding of the California Tiger Salamander</i> (United States Fish and Wildlife Service, 2003) or current guidance. If no California tiger salamanders are observed during the preconstruction survey, then construction activities may begin. If construction is delayed or halted for more than 30 days, another pre-construction survey for special status herpetofauna should be conducted. If the survey results in the identification of a special status species, the qualified biologist should determine if appropriate buffers can be implemented to avoid impacts to the individual(s).					
BIO-7	(Formal Consultation/ITP): In the event CTS are detected during surveys and cannot be avoided, consultation with CDFW will be warranted to discuss how to implement the Project and avoid take. If take cannot be avoided, take authorization through the acquisition of an ITP pursuant to Fish and Game Code section 2081, subdivision (b) is necessary to comply with CESA.	On discovery of CTS that cannot be avoided	Once	SWRCB	Record of ITP submitted to SWRCB.	
Western Pond Turtle						
BIO-8	(Avoidance): The Project's construction activities will occur, if feasible, 350-feet from suitable aquatic and upland habitat of WPT as identified by a qualified biologist. The Project will install exclusion fencing 350-feet or more from the wetted area and upland habitat in the north-east corner of the APE to ensure WPT do not enter the site during construction. Exclusion fencing materials, size, and placement should follow wildlife agency guidelines appropriate for the species.	Prior to construction	Once	SWRCB	Biologist verifies buffer.	
BIO-9	(Pre-construction Survey): If activities must occur within 350-feet of suitable aquatic and upland habitat a qualified biologist will conduct pre-construction surveys for Northwestern Pond Turtles (WPT) within the wetland and 350-feet surrounding	Prior to construction	Once	SWRCB	Submittal of reconnaissance survey.	

Mitigation, Monitoring, and Reporting Program						
Item	Mitigation Measure	When Monitoring is to Occur	Frequency of Monitoring	Agency Responsible for Monitoring	Method to Verify Compliance	Verification of Compliance
	it. Pre-construction surveys will be conducted in accordance with the <i>United States Geological Survey Western Pond Turtle (Emys marmorata) Visual Survey Protocol for the Southcoast Ecoregion</i> (United States Geological Survey, 2006) or current guidance. Surveys will be conducted outside of winter months (December–February). If no WPT are observed during the pre-construction survey, then construction activities may begin. If construction is delayed or halted for more than 90 days, another pre-construction basking survey for WPT will be conducted. If the surveys result in the identification of a special status species, the qualified biologist will determine if appropriate buffers can be implemented to avoid impacts to the individual(s) or if further surveys are required to avoid impacts to potential nesting sites.					
BIO-10	(ITP): In the event WPT are detected during surveys and cannot be avoided, consultation with CDFW will be warranted to discuss how to implement the Project and avoid take. If take cannot be avoided, take authorization through the acquisition of an ITP pursuant to Fish and Game Code section 2081, subdivision (b) is necessary to comply with CESA.	On discovery of WPT that cannot be avoided	Once	SWRCB	Record of ITP submitted to SWRCB.	
Giant garter snake						
BIO-11	(Avoidance): The Project's construction activities will occur, if feasible, 350-feet from suitable aquatic and upland habitat of giant garter snake as identified by a qualified biologist. The Project will install exclusion fencing 350-feet or more from the wetted area and upland habitat in the north-east corner of the APE to ensure giant garter snake do not enter the site during construction. Exclusion fencing materials, size, and placement should follow wildlife agency guidelines appropriate for the species.	Prior to construction	Once	SWRCB	Biologist verifies buffer.	
BIO-12	(Focused Survey): If activities must occur within 350-feet of suitable aquatic and upland habitat a	Prior to construction	Once	SWRCB	Submittal of Focused survey report.	

Mitigation, Monitoring, and Reporting Program						
Item	Mitigation Measure	When Monitoring is to Occur	Frequency of Monitoring	Agency Responsible for Monitoring	Method to Verify Compliance	Verification of Compliance
	qualified biologist will conduct a focused survey 30 days prior to the start of construction. Surveys would be conducted according to the USFW <i>Recovery Plan for the Giant Garter Snake (Thamnophis gigas)</i> (United States Fish and Wildlife Service, 2017) or current guidance. If no giant garter snake are observed during the focused survey, then construction activities may begin. If the survey results in the identification of this special status species, a qualified biologist will consult CDFW.					
BIO-13	(Formal Consultation/ITP): In the event giant garter snake is detected during surveys and cannot be avoided, consultation with CDFW will be warranted to discuss how to implement the Project and avoid take. If take cannot be avoided, take authorization through the acquisition of an ITP pursuant to Fish and Game Code section 2081, subdivision (b) is necessary to comply with CESA.	On discovery of giant garter snake that cannot be avoided	Once	SWRCB	Record of ITP submitted to SWRCB.	
Monarch Butterfly and Crotch Bumble Bee						
BIO-14	(Pre-Construction Survey): A qualified biologist will survey the Project work area within seven (7) days prior to the start of Project activities to identify whether over-wintering or foraging habitats for Monarch butterfly or Crotch bumble bee are present on or within 100 feet of the Project work area. If no individuals or suitable habitat is observed, no further mitigation is required.	Prior to construction	Once	SWRCB	Submittal of reconnaissance survey.	
BIO-15	(Visual Surveys): If suitable habitat is identified buffer zones of 100 feet will be provided using exclusion fencing. If habitat cannot be avoided, a qualified biologist will conduct visual surveys for Monarch butterfly between October through May prior to Project activity. If habitat cannot be avoided, a qualified biologist will conduct visual surveys for Monarch butterfly between March 1 to September 1 prior to Project activity. Surveys will not take place when daytime temperatures are below 55 degrees	Prior to construction	Once	SWRCB	Submittal of Visual survey report.	

Mitigation, Monitoring, and Reporting Program						
Item	Mitigation Measure	When Monitoring is to Occur	Frequency of Monitoring	Agency Responsible for Monitoring	Method to Verify Compliance	Verification of Compliance
	Fahrenheit. If an individual or colony is observed, no Project activities will occur until CDFW has been consulted.					
BIO-16	(Consultation with CDFW): The qualified biologist will consult with CDFW if a Monarch butterfly individual or a colony is observed. Work will not occur until a plan to protect the Monarch butterfly, including over-wintering colonies, has been submitted and approved in writing by CDFW. The qualified biologist will consult with CDFW if an individual Crotch bumble bee or a nest is observed. Work will not occur until CDFW determines distances for disturbance-free buffers, or a plan to protect the Crotch bumble bee, including over-wintering queens, has been submitted to and approved in writing by CDFW.	On discovery of a Monarch butterfly individual or colony.	Once	SWRCB	Record of consultation submitted to SWRCB.	
Western Spadefoot and California Red-legged Frog						
BIO-17	(Avoidance): The Project's construction activities will occur, if feasible, 350-feet from suitable aquatic and upland habitat for western spadefoot and California red-legged frogs as identified by a qualified biologist. The Project will install exclusion fencing 350-feet or more from the wetted area and upland habitat in the north-east corner of the APE to ensure western spadefoot and California red-legged frogs do not enter the site during construction. Exclusion fencing materials, size, and placement should follow wildlife agency guidelines appropriate for the species. If activities must occur within 350-feet of suitable aquatic and upland habitat a qualified biologist will conduct a focused survey during the known peak breeding months for these species (February-March), prior to the start of construction.	Prior to construction	Once	SWRCB	Biologist verifies buffer.	
BIO-18	(Focused Survey): If activities must occur within 350-feet of suitable aquatic and upland habitat a qualified biologist will conduct a focused survey during the known peak breeding months of this	Prior to construction	Once	SWRCB	Submittal of Focused survey report.	

Mitigation, Monitoring, and Reporting Program						
Item	Mitigation Measure	When Monitoring is to Occur	Frequency of Monitoring	Agency Responsible for Monitoring	Method to Verify Compliance	Verification of Compliance
	species (February-March), prior to the start of construction. Surveys would be conducted according to <i>Revised Guidance on Site Assessments and Field Surveys for the California Red-legged Frog</i> (United States Fish and Wildlife Service, 2005) or current guidance. If no western spadefoot or California red-legged frog adults or larvae are observed during the focused survey, then construction activities may begin. If the survey results in the identification of this special status species, a qualified biologist will consult CDFW to determine if appropriate buffers can be implemented to avoid impacts to individual(s) during construction.					
BIO-19	(Formal Consultation/ITP): In the event western spadefoot and California red-legged frogs are detected during surveys and cannot be avoided, consultation with CDFW will be warranted to discuss how to implement the Project and avoid take. If take cannot be avoided, take authorization through the acquisition of an ITP pursuant to Fish and Game Code section 2081, subdivision (b) is necessary to comply with CESA.	On discovery of western spadefoot and CA red-legged frogs that cannot be avoided	Once	SWRCB	Record of ITP submitted to SWRCB.	

CHAPTER 6 REFERENCES

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Appendix A: CalEEMod Output Files

Rolling Hills Meter Project - Madera County, Annual

Rolling Hills Meter Project

Madera County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	5.00	Acre	5.00	217,800.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.9	Precipitation Freq (Days)	51
Climate Zone	3			Operational Year	2023
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MW hr)	641.35	CH4 Intensity (lb/MW hr)	0.029	N2O Intensity (lb/MW hr)	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Meter and pipeline installation, well site improvements.

Construction Phase - Project will have 8 months active construction time. mostly be grading/trenching work.

Trips and VMT - building work will be minimal related to well repairs.

Construction Off-road Equipment Mitigation -

Table Name	Column Name	Default Value	New Value
tblGrading	AcresOfGrading	70.00	4.00
tblTripsAndVMT	WorkerTripNumber	91.00	15.00

Rolling Hills Meter Project - Madera County, Annual

2.0 Emissions Summary**2.1 Overall Construction****Unmitigated Construction**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2022	0.0940	0.9463	0.7984	1.6500e-003	0.5709	0.0424	0.6132	0.3097	0.0396	0.3493	0.0000	145.7365	145.7365	0.0328	0.0000	146.5562
2023	0.1603	1.6103	1.6571	3.5500e-003	0.0325	0.0665	0.0990	9.1400e-003	0.0625	0.0716	0.0000	313.9411	313.9411	0.0594	0.0000	315.4248
Maximum	0.1603	1.6103	1.6571	3.5500e-003	0.5709	0.0665	0.6132	0.3097	0.0625	0.3493	0.0000	313.9411	313.9411	0.0594	0.0000	315.4248

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2022	0.0940	0.9463	0.7984	1.6500e-003	0.2633	0.0424	0.3057	0.1412	0.0396	0.1807	0.0000	145.7364	145.7364	0.0328	0.0000	146.5560
2023	0.1603	1.6103	1.6571	3.5500e-003	0.0325	0.0665	0.0990	9.1400e-003	0.0625	0.0716	0.0000	313.9408	313.9408	0.0594	0.0000	315.4245
Maximum	0.1603	1.6103	1.6571	3.5500e-003	0.2633	0.0665	0.3057	0.1412	0.0625	0.1807	0.0000	313.9408	313.9408	0.0594	0.0000	315.4245

Rolling Hills Meter Project - Madera County, Annual

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	50.97	0.00	43.18	52.86	0.00	40.04	0.00	0.00	0.00	0.00	0.00	0.00

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	9-1-2022	11-30-2022	0.8073	0.8073
2	12-1-2022	2-28-2023	0.6347	0.6347
3	3-1-2023	5-31-2023	0.6227	0.6227
4	6-1-2023	8-31-2023	0.6224	0.6224
5	9-1-2023	9-30-2023	0.1240	0.1240
		Highest	0.8073	0.8073

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0186	0.0000	5.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	9.0000e-005	9.0000e-005	0.0000	0.0000	1.0000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0186	0.0000	5.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	9.0000e-005	9.0000e-005	0.0000	0.0000	1.0000e-004

Rolling Hills Meter Project - Madera County, Annual

2.2 Overall Operational**Mitigated Operational**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0186	0.0000	5.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	9.0000e-005	9.0000e-005	0.0000	0.0000	1.0000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0186	0.0000	5.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	9.0000e-005	9.0000e-005	0.0000	0.0000	1.0000e-004

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail**Construction Phase**

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Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	9/1/2022	9/28/2022	5	20	
2	Site Preparation	Site Preparation	9/29/2022	10/5/2022	5	5	
3	Grading	Grading	10/6/2022	10/17/2022	5	8	
4	Building Construction	Building Construction	10/18/2022	9/4/2023	5	230	
5	Paving	Paving	9/5/2023	9/28/2023	5	18	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 4

Acres of Paving: 5

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Rolling Hills Meter Project - Madera County, Annual

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Excavators	3	8.00	158	0.38
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Grading	Excavators	1	8.00	158	0.38
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Paving	Pavers	2	8.00	130	0.42
Paving	Rollers	2	8.00	80	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Grading	Graders	1	8.00	187	0.41
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Paving	Paving Equipment	2	8.00	132	0.36
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Building Construction	Welders	1	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	15.00	36.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

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3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Demolition - 2022**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0264	0.2572	0.2059	3.9000e-004		0.0124	0.0124		0.0116	0.0116	0.0000	33.9902	33.9902	9.5500e-003	0.0000	34.2289
Total	0.0264	0.2572	0.2059	3.9000e-004		0.0124	0.0124		0.0116	0.0116	0.0000	33.9902	33.9902	9.5500e-003	0.0000	34.2289

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3.2 Demolition - 2022**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.8000e-004	3.6000e-004	4.0500e-003	1.0000e-005	1.1900e-003	1.0000e-005	1.2000e-003	3.2000e-004	1.0000e-005	3.3000e-004	0.0000	1.0280	1.0280	3.0000e-005	0.0000	1.0287
Total	5.8000e-004	3.6000e-004	4.0500e-003	1.0000e-005	1.1900e-003	1.0000e-005	1.2000e-003	3.2000e-004	1.0000e-005	3.3000e-004	0.0000	1.0280	1.0280	3.0000e-005	0.0000	1.0287

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0264	0.2572	0.2059	3.9000e-004		0.0124	0.0124		0.0116	0.0116	0.0000	33.9902	33.9902	9.5500e-003	0.0000	34.2289
Total	0.0264	0.2572	0.2059	3.9000e-004		0.0124	0.0124		0.0116	0.0116	0.0000	33.9902	33.9902	9.5500e-003	0.0000	34.2289

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3.2 Demolition - 2022**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.8000e-004	3.6000e-004	4.0500e-003	1.0000e-005	1.1900e-003	1.0000e-005	1.2000e-003	3.2000e-004	1.0000e-005	3.3000e-004	0.0000	1.0280	1.0280	3.0000e-005	0.0000	1.0287
Total	5.8000e-004	3.6000e-004	4.0500e-003	1.0000e-005	1.1900e-003	1.0000e-005	1.2000e-003	3.2000e-004	1.0000e-005	3.3000e-004	0.0000	1.0280	1.0280	3.0000e-005	0.0000	1.0287

3.3 Site Preparation - 2022**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1355	0.0000	0.1355	0.0745	0.0000	0.0745	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	7.9300e-003	0.0827	0.0492	1.0000e-004		4.0300e-003	4.0300e-003		3.7100e-003	3.7100e-003	0.0000	8.3599	8.3599	2.7000e-003	0.0000	8.4274
Total	7.9300e-003	0.0827	0.0492	1.0000e-004	0.1355	4.0300e-003	0.1395	0.0745	3.7100e-003	0.0782	0.0000	8.3599	8.3599	2.7000e-003	0.0000	8.4274

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3.3 Site Preparation - 2022**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.7000e-004	1.1000e-004	1.2200e-003	0.0000	3.6000e-004	0.0000	3.6000e-004	1.0000e-004	0.0000	1.0000e-004	0.0000	0.3084	0.3084	1.0000e-005	0.0000	0.3086
Total	1.7000e-004	1.1000e-004	1.2200e-003	0.0000	3.6000e-004	0.0000	3.6000e-004	1.0000e-004	0.0000	1.0000e-004	0.0000	0.3084	0.3084	1.0000e-005	0.0000	0.3086

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0610	0.0000	0.0610	0.0335	0.0000	0.0335	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	7.9300e-003	0.0827	0.0492	1.0000e-004		4.0300e-003	4.0300e-003		3.7100e-003	3.7100e-003	0.0000	8.3598	8.3598	2.7000e-003	0.0000	8.4274
Total	7.9300e-003	0.0827	0.0492	1.0000e-004	0.0610	4.0300e-003	0.0650	0.0335	3.7100e-003	0.0372	0.0000	8.3598	8.3598	2.7000e-003	0.0000	8.4274

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3.3 Site Preparation - 2022**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.7000e-004	1.1000e-004	1.2200e-003	0.0000	3.6000e-004	0.0000	3.6000e-004	1.0000e-004	0.0000	1.0000e-004	0.0000	0.3084	0.3084	1.0000e-005	0.0000	0.3086
Total	1.7000e-004	1.1000e-004	1.2200e-003	0.0000	3.6000e-004	0.0000	3.6000e-004	1.0000e-004	0.0000	1.0000e-004	0.0000	0.3084	0.3084	1.0000e-005	0.0000	0.3086

3.4 Grading - 2022**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.4237	0.0000	0.4237	0.2319	0.0000	0.2319	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	7.7900e-003	0.0834	0.0611	1.2000e-004		3.7600e-003	3.7600e-003		3.4600e-003	3.4600e-003	0.0000	10.4219	10.4219	3.3700e-003	0.0000	10.5062
Total	7.7900e-003	0.0834	0.0611	1.2000e-004	0.4237	3.7600e-003	0.4274	0.2319	3.4600e-003	0.2354	0.0000	10.4219	10.4219	3.3700e-003	0.0000	10.5062

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3.4 Grading - 2022**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.3000e-004	1.4000e-004	1.6200e-003	0.0000	4.8000e-004	0.0000	4.8000e-004	1.3000e-004	0.0000	1.3000e-004	0.0000	0.4112	0.4112	1.0000e-005	0.0000	0.4115
Total	2.3000e-004	1.4000e-004	1.6200e-003	0.0000	4.8000e-004	0.0000	4.8000e-004	1.3000e-004	0.0000	1.3000e-004	0.0000	0.4112	0.4112	1.0000e-005	0.0000	0.4115

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1907	0.0000	0.1907	0.1044	0.0000	0.1044	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	7.7900e-003	0.0834	0.0611	1.2000e-004		3.7600e-003	3.7600e-003		3.4600e-003	3.4600e-003	0.0000	10.4219	10.4219	3.3700e-003	0.0000	10.5062
Total	7.7900e-003	0.0834	0.0611	1.2000e-004	0.1907	3.7600e-003	0.1944	0.1044	3.4600e-003	0.1078	0.0000	10.4219	10.4219	3.3700e-003	0.0000	10.5062

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3.4 Grading - 2022**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.3000e-004	1.4000e-004	1.6200e-003	0.0000	4.8000e-004	0.0000	4.8000e-004	1.3000e-004	0.0000	1.3000e-004	0.0000	0.4112	0.4112	1.0000e-005	0.0000	0.4115
Total	2.3000e-004	1.4000e-004	1.6200e-003	0.0000	4.8000e-004	0.0000	4.8000e-004	1.3000e-004	0.0000	1.3000e-004	0.0000	0.4112	0.4112	1.0000e-005	0.0000	0.4115

3.5 Building Construction - 2022**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0461	0.4216	0.4418	7.3000e-004		0.0218	0.0218		0.0206	0.0206	0.0000	62.5658	62.5658	0.0150	0.0000	62.9405
Total	0.0461	0.4216	0.4418	7.3000e-004		0.0218	0.0218		0.0206	0.0206	0.0000	62.5658	62.5658	0.0150	0.0000	62.9405

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3.5 Building Construction - 2022**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.2400e-003	0.0998	0.0225	2.7000e-004	6.4300e-003	2.8000e-004	6.7000e-003	1.8600e-003	2.7000e-004	2.1200e-003	0.0000	25.8757	25.8757	2.0500e-003	0.0000	25.9270
Worker	1.5700e-003	9.6000e-004	0.0110	3.0000e-005	3.2300e-003	2.0000e-005	3.2500e-003	8.6000e-004	2.0000e-005	8.8000e-004	0.0000	2.7755	2.7755	8.0000e-005	0.0000	2.7774
Total	4.8100e-003	0.1008	0.0334	3.0000e-004	9.6600e-003	3.0000e-004	9.9500e-003	2.7200e-003	2.9000e-004	3.0000e-003	0.0000	28.6512	28.6512	2.1300e-003	0.0000	28.7044

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0461	0.4216	0.4418	7.3000e-004		0.0218	0.0218		0.0206	0.0206	0.0000	62.5657	62.5657	0.0150	0.0000	62.9405
Total	0.0461	0.4216	0.4418	7.3000e-004		0.0218	0.0218		0.0206	0.0206	0.0000	62.5657	62.5657	0.0150	0.0000	62.9405

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3.5 Building Construction - 2022**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.2400e-003	0.0998	0.0225	2.7000e-004	6.4300e-003	2.8000e-004	6.7000e-003	1.8600e-003	2.7000e-004	2.1200e-003	0.0000	25.8757	25.8757	2.0500e-003	0.0000	25.9270
Worker	1.5700e-003	9.6000e-004	0.0110	3.0000e-005	3.2300e-003	2.0000e-005	3.2500e-003	8.6000e-004	2.0000e-005	8.8000e-004	0.0000	2.7755	2.7755	8.0000e-005	0.0000	2.7774
Total	4.8100e-003	0.1008	0.0334	3.0000e-004	9.6600e-003	3.0000e-004	9.9500e-003	2.7200e-003	2.9000e-004	3.0000e-003	0.0000	28.6512	28.6512	2.1300e-003	0.0000	28.7044

3.5 Building Construction - 2023**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1384	1.2659	1.4295	2.3700e-003		0.0616	0.0616		0.0579	0.0579	0.0000	203.9882	203.9882	0.0485	0.0000	205.2013
Total	0.1384	1.2659	1.4295	2.3700e-003		0.0616	0.0616		0.0579	0.0579	0.0000	203.9882	203.9882	0.0485	0.0000	205.2013

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3.5 Building Construction - 2023**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	7.4000e-003	0.2496	0.0604	8.7000e-004	0.0209	2.5000e-004	0.0212	6.0500e-003	2.4000e-004	6.3000e-003	0.0000	82.3342	82.3342	4.7500e-003	0.0000	82.4529
Worker	4.7300e-003	2.8000e-003	0.0326	1.0000e-004	0.0105	8.0000e-005	0.0106	2.8000e-003	7.0000e-005	2.8700e-003	0.0000	8.7044	8.7044	2.2000e-004	0.0000	8.7099
Total	0.0121	0.2524	0.0930	9.7000e-004	0.0315	3.3000e-004	0.0318	8.8500e-003	3.1000e-004	9.1700e-003	0.0000	91.0385	91.0385	4.9700e-003	0.0000	91.1628

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1384	1.2659	1.4295	2.3700e-003		0.0616	0.0616		0.0579	0.0579	0.0000	203.9879	203.9879	0.0485	0.0000	205.2011
Total	0.1384	1.2659	1.4295	2.3700e-003		0.0616	0.0616		0.0579	0.0579	0.0000	203.9879	203.9879	0.0485	0.0000	205.2011

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3.5 Building Construction - 2023**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	7.4000e-003	0.2496	0.0604	8.7000e-004	0.0209	2.5000e-004	0.0212	6.0500e-003	2.4000e-004	6.3000e-003	0.0000	82.3342	82.3342	4.7500e-003	0.0000	82.4529
Worker	4.7300e-003	2.8000e-003	0.0326	1.0000e-004	0.0105	8.0000e-005	0.0106	2.8000e-003	7.0000e-005	2.8700e-003	0.0000	8.7044	8.7044	2.2000e-004	0.0000	8.7099
Total	0.0121	0.2524	0.0930	9.7000e-004	0.0315	3.3000e-004	0.0318	8.8500e-003	3.1000e-004	9.1700e-003	0.0000	91.0385	91.0385	4.9700e-003	0.0000	91.1628

3.6 Paving - 2023**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	9.2900e-003	0.0917	0.1313	2.1000e-004		4.5900e-003	4.5900e-003		4.2200e-003	4.2200e-003	0.0000	18.0242	18.0242	5.8300e-003	0.0000	18.1699
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	9.2900e-003	0.0917	0.1313	2.1000e-004		4.5900e-003	4.5900e-003		4.2200e-003	4.2200e-003	0.0000	18.0242	18.0242	5.8300e-003	0.0000	18.1699

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3.6 Paving - 2023**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.8000e-004	2.9000e-004	3.3300e-003	1.0000e-005	1.0800e-003	1.0000e-005	1.0800e-003	2.9000e-004	1.0000e-005	2.9000e-004	0.0000	0.8902	0.8902	2.0000e-005	0.0000	0.8908
Total	4.8000e-004	2.9000e-004	3.3300e-003	1.0000e-005	1.0800e-003	1.0000e-005	1.0800e-003	2.9000e-004	1.0000e-005	2.9000e-004	0.0000	0.8902	0.8902	2.0000e-005	0.0000	0.8908

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	9.2900e-003	0.0917	0.1313	2.1000e-004		4.5900e-003	4.5900e-003		4.2200e-003	4.2200e-003	0.0000	18.0242	18.0242	5.8300e-003	0.0000	18.1699
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	9.2900e-003	0.0917	0.1313	2.1000e-004		4.5900e-003	4.5900e-003		4.2200e-003	4.2200e-003	0.0000	18.0242	18.0242	5.8300e-003	0.0000	18.1699

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3.6 Paving - 2023**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.8000e-004	2.9000e-004	3.3300e-003	1.0000e-005	1.0800e-003	1.0000e-005	1.0800e-003	2.9000e-004	1.0000e-005	2.9000e-004	0.0000	0.8902	0.8902	2.0000e-005	0.0000	0.8908
Total	4.8000e-004	2.9000e-004	3.3300e-003	1.0000e-005	1.0800e-003	1.0000e-005	1.0800e-003	2.9000e-004	1.0000e-005	2.9000e-004	0.0000	0.8902	0.8902	2.0000e-005	0.0000	0.8908

4.0 Operational Detail - Mobile**4.1 Mitigation Measures Mobile**

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	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Non-Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Non-Asphalt Surfaces	0.538002	0.031070	0.165172	0.112944	0.019161	0.005152	0.014100	0.100939	0.002742	0.001666	0.006956	0.001221	0.000876

5.0 Energy Detail

Historical Energy Use: N

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5.1 Mitigation Measures Energy

[illegible]

5.2 Energy by Land Use - NaturalGas

Unmitigated

[illegible]

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5.2 Energy by Land Use - NaturalGas**Mitigated**

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

5.3 Energy by Land Use - Electricity**Unmitigated**

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

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5.3 Energy by Land Use - Electricity**Mitigated**

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

6.0 Area Detail**6.1 Mitigation Measures Area**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0186	0.0000	5.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	9.0000e-005	9.0000e-005	0.0000	0.0000	1.0000e-004
Unmitigated	0.0186	0.0000	5.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	9.0000e-005	9.0000e-005	0.0000	0.0000	1.0000e-004

Rolling Hills Meter Project - Madera County, Annual

6.2 Area by SubCategory**Unmitigated**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	4.5400e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0141					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	5.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	9.0000e-005	9.0000e-005	0.0000	0.0000	1.0000e-004
Total	0.0186	0.0000	5.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	9.0000e-005	9.0000e-005	0.0000	0.0000	1.0000e-004

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	4.5400e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0141					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	5.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	9.0000e-005	9.0000e-005	0.0000	0.0000	1.0000e-004
Total	0.0186	0.0000	5.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	9.0000e-005	9.0000e-005	0.0000	0.0000	1.0000e-004

7.0 Water Detail

Rolling Hills Meter Project - Madera County, Annual

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

7.2 Water by Land Use**Unmitigated**

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

Rolling Hills Meter Project - Madera County, Annual

7.2 Water by Land Use**Mitigated**

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

8.0 Waste Detail**8.1 Mitigation Measures Waste****Category/Year**

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

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8.2 Waste by Land Use**Unmitigated**

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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Rolling Hills Meter Project - Madera County, Annual

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
----------------	--------	-----------	------------	-------------	-------------	-----------

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
----------------	--------	----------------	-----------------	---------------	-----------

User Defined Equipment

Equipment Type	Number
----------------	--------

11.0 Vegetation

Appendix B: Biological Evaluation

Biological Evaluation

BAKMAN WATER COMPANY

ROLLING HILLS METER PROJECT

APRIL 26, 2022

Rene De La Fuente, Biologist

PROVOST & PRITCHARD CONSULTING GROUP | 455 W. FIR AVE, CLOVIS CA 93611



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Appendix A: Photos of the Area of Potential Effect
Appendix B: CNDDB 9-Quad Search
Appendix C: IPaC Search
Appendix D: NRCS Soils Report

I. Introduction

The following technical report, prepared by Provost & Pritchard Consulting Group, in compliance with the California Environmental Quality Act (CEQA) includes a description of the biological resources present or with potential to occur within the proposed Rolling Hills Water Meter Project (Project) and surrounding areas, and evaluates potential Project-related impacts to those resources.

Project Description

The Project is located within the Rolling Hills community of Madera, in Madera County, California, approximately 2 miles north of Fresno and just west of Highway 41. The Project is directly west of the Highway 41 Business Road and north of Avenue 10 (See **Figure 1 and Figure 2**). The Project's Area of Potential Effect (APE) includes 318 acres with an additional 50-foot buffer surrounding the Project (see **Figure 3**). The Project involves the construction of approximately 2,750 linear feet of 12-inch polyvinyl chloride (PVC) water main on Avenue 11 and 2,750 linear feet of 8-inch PVC water main on Mountain View Drive and Adobe Way. The alignment of this water main would be located within the county right-of-way. Any existing water main on Avenue 11 would be abandoned in place. Additionally, 339 properties within the Rolling Hills Water System (RHWS) requires a new water meter and box. The improvements would all be incorporated into the existing RHWS currently being fed by three active wells providing safe, clean drinking water.

The Project would also consist of a full facility refurbishment of the Well No. 2 site including the well pump and all other well site facilities that have exceeded their life expectancy. The well casing would be sleeved if determined necessary during a well investigation. The Project would also include the addition of cathodic protection to the water storage tank.

Report Objectives

Construction activities such as that proposed by the Project could potentially damage biological resources or modify habitats that are crucial for sensitive plant and wildlife species. In cases such as these, development may be regulated by State or federal agencies, and/or addressed by local regulatory agencies.

This report addresses issues related to the following:

1. The presence of sensitive biological resources onsite, or with the potential to occur onsite.
2. The federal, State, and local regulations regarding these resources.
3. Mitigation measures that may be required to reduce the magnitude of anticipated impacts and/or comply with permit requirements of state and federal resource agencies.

Therefore, the objectives of this report are:

1. Summarize all site-specific information related to existing biological resources.
2. Make reasonable inferences about the biological resources that could occur onsite based on habitat suitability and the proximity of the site to a species' known range.
3. Summarize all State and federal natural resource protection laws that may be relevant to the Area of Potential Effect.
4. Identify and discuss Project impacts to biological resources likely to occur onsite within the context of CEQA and/or State or federal laws.

5. Identify and publish a set of avoidance and mitigation measures that would reduce impacts to a less-than-significant level (as identified by CEQA) and are generally consistent with recommendations of the resource agencies for affected biological resources.

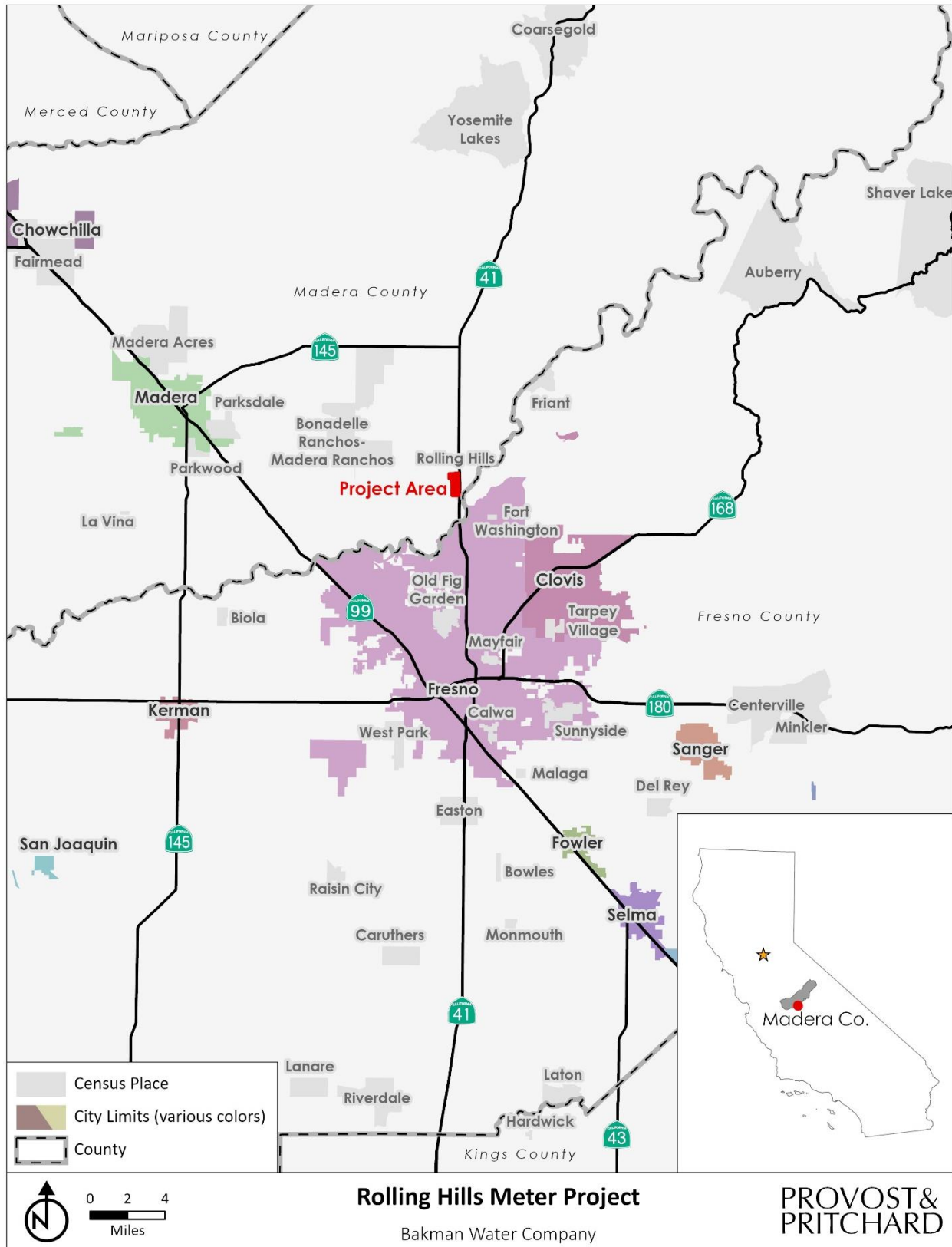


Figure 1. Regional Location

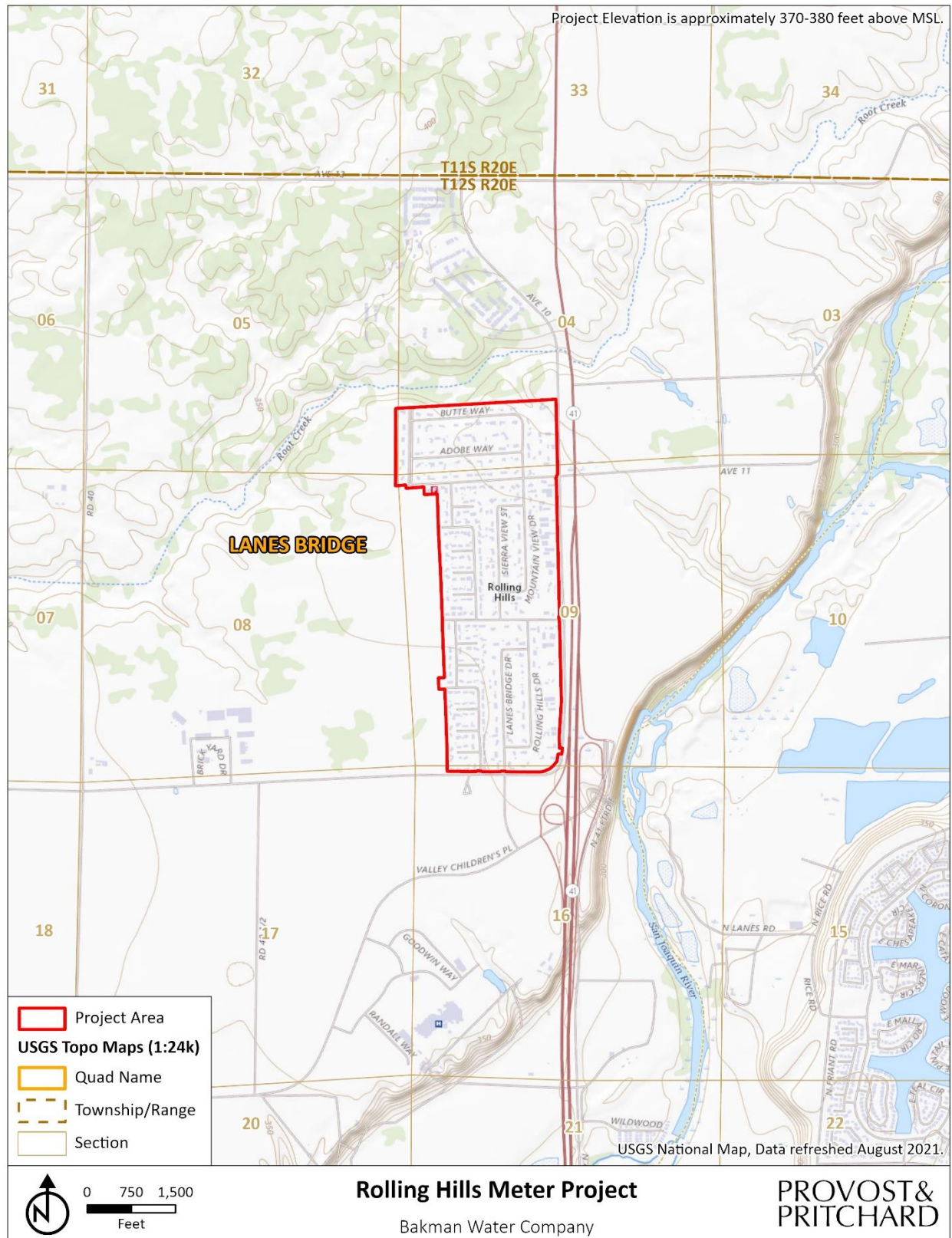


Figure 2. Topographic Quadrangle Map

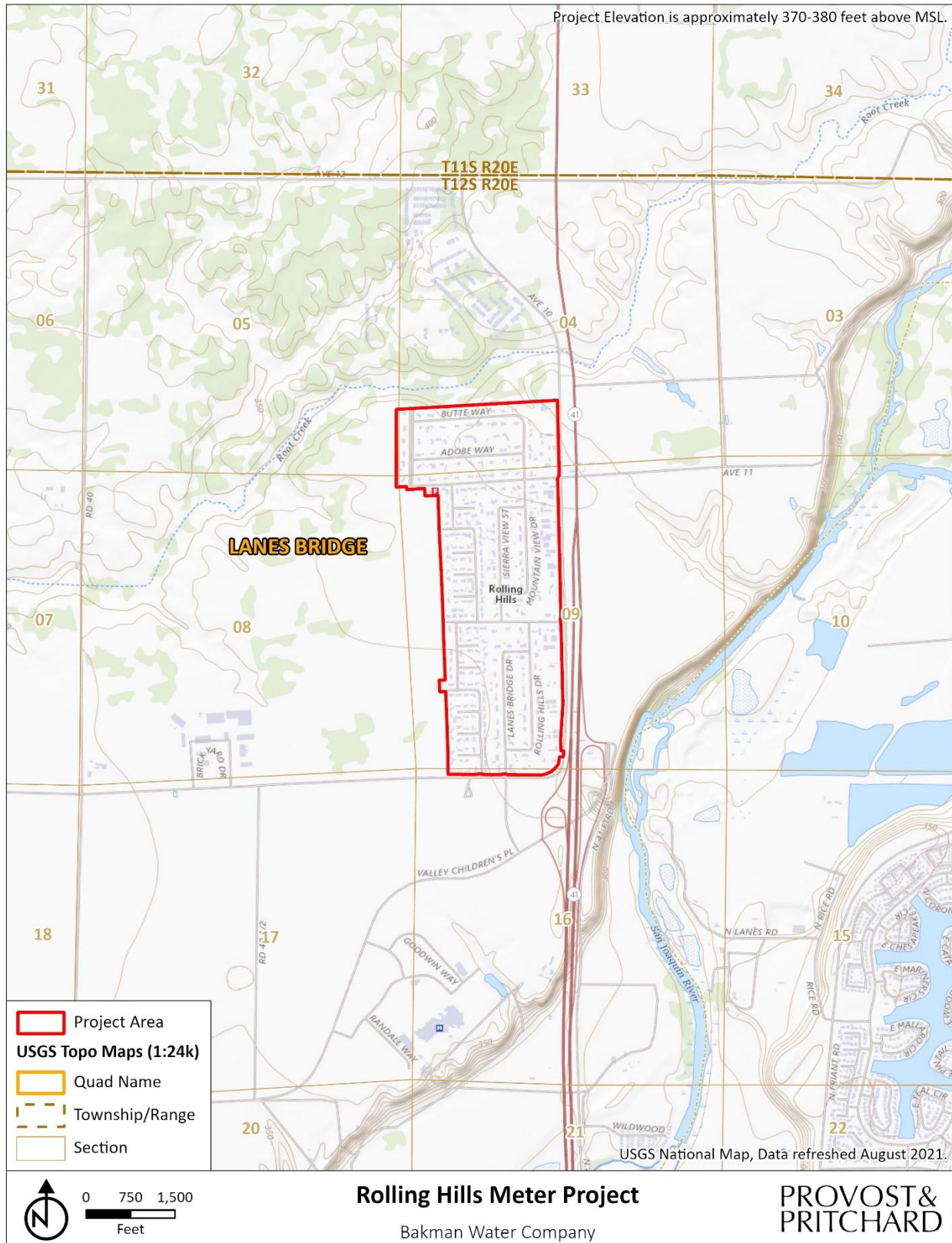


Figure 3. Area of Potential Effect

Study Methodology

A reconnaissance-level field survey of the APE (**Figure 3**) was conducted on March 16, 2022 by Provost & Pritchard biologist, Rene De La Fuente. The survey consisted of walking and driving thoroughly through the APE while identifying and noting land uses, biological habitats and communities, plant and animal species encountered and assessed for suitable habitats of various wildlife species.

The biologist conducted an analysis of potential Project-related impacts to biological resources based on the resources known to exist or with potential to exist within the APE. Sources of information used in preparation of this analysis included: the California Department of Fish and Wildlife (CDFW) California Natural Diversity Database (CNDDB); the California Native Plant Society (CNPS) Online Inventory of Rare and Endangered Vascular Plants of California; CalFlora's online database of California native plants; the Jepson Herbarium online database (Jepson eFlora); United States Fish and Wildlife Service (USFWS) Environmental Conservation Online System (ECOS); Information for Planning and Consultation (IPaC) system; the NatureServe Explorer online database; the United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) Plants Database; CDFW California Wildlife Habitat Relationships (CWHR) database; the California Herps online database; and various manuals, reports, and references related to plants and animals of the Central Valley Region.

The field investigation did not include focused surveys for special status species. The field survey conducted included the appropriate level of detail to assess the significance of potential impacts to sensitive biological resources resulting from the Project. Furthermore, the field survey was sufficient to generally describe those features of the Project that could be subject to the jurisdiction of federal and/or State agencies, such as the United States Army Corps of Engineers (USACE), CDFW, Regional Water Quality Control Board (RWQCB) and State Water Resources Control Board (SWRCB) and used to support the CEQA document.

II. Existing Conditions

Regional Setting

Topography

The APE is located within Madera County, north of the City of Fresno, California (see **Figure 1** and **Figure 2**). This area lies within the foothills of the Sierra Nevada Mountain Range adjacent to the San Joaquin Valley. The topography consists of rolling hills with elevations ranging from approximately 300 to 400 feet, with underlying rock formations of basalt and sandstone.

Climate

Like most of California, the APE experiences a Mediterranean climate. Warm, dry summers are followed by cool, moist winters. Summer temperatures range between 70- and 80-degrees Fahrenheit (°F), but often exceeds 90 °F in the upper reaches of the counties. Winter minimum temperatures are near 40 °F. The average annual precipitation is approximately 14 inches, falling mainly from October to April (Weatherspark, 2022)

Hydrology

A watershed is the topographic region that drains into a stream, river, or lake and can consist of many smaller subwatersheds. The APE lies within the Root Creek-San Joaquin River and the Cottonwood Creek-San Joaquin River watersheds; Hydrologic Unit Code (HUC): 1804000108 and HUC: 1804000103, respectively. Within the APE, there are also three subwatersheds: Scout Island-San Joaquin River, HUC: 180400010303; Buttonwillow Slough-Lone Willow Slough, HUC: 180400010803; Root Creek, HUC: 180400010801. The nearest surface water is the San Joaquin River that runs by the southeast corner approximately 0.2 miles from the APE. The Root Creek-San Joaquin River and Cottonwood Creek-San Joaquin subwatersheds are comprised of stormwater or snowmelt collected in upland areas which flows across the north-northwest border of Fresno and turns in the North direction to run alongside Highway 33. The San Joaquin River eventually reaches Modesto and empties into the San Francisco Bay. The Root Creek subwatershed and stream runs westward adjacent to the northern border of the APE (USEPA, 2019).

Soils

Six soil mapping units representing six soil types were identified within the APE are listed in **Table 1**. The soils are displayed with their core properties in the table below, according to the Major Land Resource Area (MLRA) of California 19 map area. All six soils are primarily used for grazing, wildlife habitat, and watershed areas.

Table 1. List of Soils Located Onsite and Their Basic Properties

Soil	Soil Map Unit	Percent of APE	Hydric Unit	Hydric Minor Units	Drainage	Permeability	Runoff
<i>Greenfield</i>	Coarse sandy loam, 0 to 3 percent slopes	0.2%	No	No	Well drained	Moderately rapid permeability	Negligible runoff
	Sandy loam, 0 to 3 percent slopes	19.5%	No	No	Well drained	Moderately rapid permeability	Slow to medium runoff
<i>Ramona</i>	Sandy loam, 0 to 3 percent slopes	68.3 %	No	Yes	Well drained	Moderately slow permeability	Slow to rapid runoff

Soil	Soil Map Unit	Percent of APE	Hydric Unit	Hydric Minor Units	Drainage	Permeability	Runoff
San Joaquin	Sandy loam, 0 to 3 percent slopes	6.5%	No	Yes	Well drained	Very slow permeability	Medium to very high runoff
Whitney and Rocklin	Sandy loam, 3 to 8 percent slopes	0.8%	No	Yes	Generally Good	Moderately rapid permeability	Slow to medium runoff
	Sandy loam, 8 to 15 percent slopes	4.6%	No	Yes	Generally Good	Moderately rapid permeability	Slow to medium runoff

None of the major soil mapping units were identified as hydric, but four of the six minor soil mapping units are considered hydric. Of the four minor units considered hydric, they make up about 1% of the APE soils (NRCS, 2022). A wetted area was found in the area identified as Whitney and Rocklin soil with 8 to 15 percent slopes and discussed further below. Hydric soils are defined as soils that are saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions such that under sufficiently wet conditions, hydrophytic vegetation can be supported.

The complete Natural Resources Conservation Service (NRCS) Web Soil Survey report is available in **Appendix D** at the end of this document.

Biotic Habitats

Residential/ruderal

The APE is primarily located on private property used for residential homes. The APE is dominated by widely spaced Ponderosa pine (*Pinus ponderosa*) and Jeffrey pine (*Pinus jeffreyi*) trees and ornamental plants. Herbaceous vegetation was dominated by oats (*Avena* spp.), Summer cypress (*Kochia scoparia*), Common fiddleneck (*Amsinckia menziesii*), and Hairy vetch (*Vicia villosa*).

The survey of the APE resulted in the identification of numerous bird species including Black Phoebe (*Sayornis nigricans*), California Scrub Jay (*Aphelocoma californica*), Canada Geese (*Branta canadensis*), Common Raven (*Corvus corax*), European Starling (*Sturnus vulgaris*), Mourning Dove (*Zenaidura macroura*), Northern Mockingbird (*Mimus polyglottos*), Red-tailed Hawk (*Buteo jamaicensis*), Song Sparrow (*Melospiza melodia*), Tree Swallow (*Tachycineta bicolor*), Turkey Vulture (*Cathartes aura*), and White Crowned Sparrow (*Zonotrichia leucophrys*). Other animal species seen within or near the APE include California ground squirrel (*Otospermophilus beecheyi*) and striped skunk (*Mephitis mephitis*).

The only stagnant water within the APE, at the time of the survey, included a wetted area in the northwest corner of the APE which is approximately 200 feet length by 50 feet wide and appeared to be at least 1-foot in depth. There were some hydric plant species that included sedge grass (*Carex* spp.), gum (*Eucalyptus* spp.), and willows (*Salix* spp.). An aquatic resources delineation was not performed to determine if this is considered an isolated wetland. The area seems to be fed by water from a storm drain on the east side of the Highway 41 Business Road. The National Wetland Inventory does not identify the wetted area as a wetland. The wetted area appeared to be at least one foot deep. Aquatic species observed in the wetted area included Pacific tree frog (*Pseudacris regilla*) and Canada Geese (*Branta canadensis*). Ground activity was also exhibited by Canada Geese, but nesting activities were not able to be confirmed during the reconnaissance survey.

The residential/ruderal habitat within the APE is heavily disturbed by automobile traffic, human foot traffic and provides moderate to poor quality habitat to a variety of wildlife, year-round. The APE possibly serves as

foraging habitat for birds, including raptors, during the day, as well as bats, skunks, and other nocturnal animals at night. Mitigation measures designed to avoid impacts to special status species are discussed in **Section III** of this report.

Representative photographs of the site at the time of the survey are presented in **Appendix A** at the end of this document.

Natural Communities of Special Concern

Natural communities of special concern are those that are of limited distribution, distinguished by significant biological diversity, or home to special status species. CDFW is responsible for the classification and mapping of all-natural communities in California. Just as the special status plant and animal species, these natural communities of special concern can be found within the CNDDDB. One wetted area was identified in the northeast corner of the APE but an Aquatic Resources Delineation has not been performed to determine if it is a wetland. This wetted area would be avoided during construction of the Project.

According to CNDDDB, there are no recorded observations of natural communities of special concern with potential to occur within the APE or vicinity. Additionally, no natural communities of special concern were observed during the biological survey.

Designated Critical Habitat of the APE

The USFWS often designates areas of “Critical Habitat” when it lists species as threatened or endangered. Critical Habitat is a specific geographic area that contains features essential for the conservation of a threatened or endangered species and that may require special management and protection. According to CNDDDB and IPaC, there are two designated critical habitats found within the APE and vicinity: Succulent owl’s-clover and San Joaquin Orcutt grass. Both species bloom in March, the month the survey was conducted, but the species were absent from the APE.

Wildlife Movement Corridors

Wildlife movement corridors are routes that animals regularly and predictably follow during seasonal migration, dispersal from native ranges, daily travel within home ranges, and inter-population movements. Movement corridors in California are typically associated with valleys, ridgelines, and rivers and creeks supporting riparian vegetation.

The residential/ruderal habitat of the APE and surrounding areas consists of fragmented spaces that are not likely to function as wildlife movement corridors.

Special Status Plants and Animals

California contains several “rare” plant and animal species. In this context, rare is defined as species known to have low populations or limited distributions. As the human population grows, urban expansion encroaches on the already-limited suitable habitat. This results in sensitive species becoming increasingly more vulnerable to extirpation. State and federal regulations have provided the CDFW and the USFWS with a mechanism for conserving and protecting the diversity of plant and animal species native to California. Numerous native plants and animals have been formally designated as “threatened” or “endangered” under State and federal endangered species legislation. Other formal designations include “candidate” for listing or “species of special concern” by CDFW. The CNPS has its list of native plants considered rare, threatened, or endangered. Collectively these plants and animals are referred to as “special status species.” This survey was conducted outside of the blooming season for most plants.

A thorough search of the CNDDB for published accounts of special status plant and animal species was conducted for the *Lanes Bridge* 7.5-minute quadrangles that contain the APE, and for the 8 surrounding quadrangles: *Daulton*, *Little Table Mountain*, *Millerton Lake West*, *Friant*, *Clovis*, *Fresno North*, *Herndon*, and *Gregg*. These species, and their potential to occur within the APE, are listed in **Table 2** and

Table 3 on the following pages. Raw data obtained from CNDDDB is available in **Appendix B** at the end of this document. All relevant sources of information, as discussed in the *Study Methodology* section of this report, as well as field observations were used to determine if any special status species are known to be within the APE.

Table 2. List of Special Status Animals with Potential to Occur Onsite and/or in the Vicinity

Species	Status	Habitat	Occurrence on Project Site
American badger (<i>Taxidea taxus</i>)	CSC	Grasslands, savannas, and mountain meadows near timberline are preferred. Most abundant in drier open spaces of shrub and grassland. Burrows in soil.	Unlikely. Suitable burrows were absent during the biological survey. The disturbed habitats and soils onsite are not suitable for this species. Frequent disturbance along with domestic dogs and cats in the area would deter this species from residing within the APE. The nearest observation of this species was recorded in 2017 within grassland habitat approximately 6 miles from the APE.
Burrowing Owl (<i>Athene cunicularia</i>)	CSC	Resides in open, dry annual or perennial grasslands, deserts, and scrublands with low growing vegetation. Nests underground in existing burrows created by mammals, most often ground squirrels.	Unlikely. The presence of large trees and raptor perches makes this site unsuitable for burrowing owls. Ground squirrels and suitable burrows were scarce, and owl signs were not observed during the field survey. The nearest observation of this species was recorded in 2000 approximately 2 miles southeast of the Project.
California glossy snake (<i>Arizona elegans occidentalis</i>)	CSC	Inhabits arid scrub, rocky washes, grasslands, and chaparral. Prefers open areas with loose soil for easy burrowing.	Absent. The disturbed habitats of the APE and surrounding lands are unsuitable for this species. Furthermore, the APE is outside of the known range of this species. The only regional recorded observation of this species corresponds to a historic collection (1893) from an unknown location in the vicinity of Fresno.
California Horned Lark (<i>Eremophila alpestris actia</i>)	CWL	Frequents open habitats, including short-grass prairie, mountain meadows, open coastal plains, fallow grain fields, and alkali flats. Found primarily in coastal regions, including Sonoma and San Diego Counties.	Unlikely. The highly disturbed habitats of the APE and surrounding lands are largely unsuitable for this species. There is marginal foraging habitat south of Avenue 10, but the lack of suitable trees makes it not optimal for this species. The only regional observations of this species occurred 30 years ago immediately to the southwest of the APE.
California tiger salamander (<i>Ambystoma californiense</i>)	FT, CT, CWL	Requires vernal pools or seasonal ponds for breeding and small mammal burrows for aestivation. Generally found in grassland and oak savannah plant communities in central California from sea level to 1500 feet in elevation.	Possible. Vernal pools are absent from the APE, but there is a wetted area within the APE that could provide breeding habitat for the species. There is also an open grassland used for grazing to the east of the APE which provides suitable upland habitat. The nearest observation of this species corresponds to a location 0.5 miles east of the APE in 2001.
Coast horned lizard (<i>Phrynosoma blainvillii</i>)	CSC	Found in grasslands, coniferous forests, woodlands, and chaparral, primarily in open areas with patches of loose, sandy soil and low-lying vegetation in valleys,	Unlikely. The disturbed habitats of the APE and surrounding lands are unsuitable for this species. The nearest recorded observation of this species corresponds to

Species	Status	Habitat	Occurrence on Project Site
		foothills, and semi-arid mountains. Frequently found near ant hills and along dirt roads in lowlands along sandy washes with scattered shrubs.	a historic (1893) collection 3 miles southwest of the APE.
Double-crested Cormorant (<i>Phalacrocorax auratus</i>)	CWL	Colonial nester on coastal cliffs, offshore islands, and along lake margins in the interior of the state. Nests along coast on sequestered islets, usually on ground with sloping surface, or in tall trees along lake margins.	Absent. There is no suitable habitat for this species within the APE or surrounding areas. The only regional observation was recorded in 2012 approximately 8 miles the APE.
Foothill yellow-legged frog (<i>Rana boylei</i>)	CE, CSC	Frequents rocky streams and rivers with rocky substrate and open, sunny banks in forests, chaparral, and woodlands. Occasionally found in isolated pools, vegetated backwaters, and deep, shaded, spring-fed pools.	Absent. The APE is not at the elevation required for the species. The APE is subject to human disturbance and does not contain suitable habitat. The nearest regional observation was recorded in 1953 approximately 14 miles southwest of the APE.
Fresno kangaroo rat (<i>Dipodomys nitratoide exilis</i>)	FE, CE	Inhabits open grassland habitats with chenopod scrub vegetation. Habitat conditions include friable, bare alkaline clay-based soils which are seasonally inundated. There are no known populations within this species historical range in Merced, Madera, and Fresno counties. The last recorded observation of a Fresno kangaroo rat in Fresno County was in 1992 at the Alkali Sink Ecological Reserve.	Absent. The highly disturbed habitats of the APE and surrounding lands are unsuitable for this species. The only recorded observation of this species was found within the Alkali Sink Ecological Reserve in 1992, approximately 30 miles southwest of the APE.
Hardhead (<i>Mylopharodon conocephalus</i>)	CSC	Occurs in low- to mid-elevation streams in the Sacramento-San Joaquin drainage. Clear, deep pools with sand-gravel-boulder bottoms and slow-moving water is required. This species is often sympatric with Sacramento pikeminnow and Sacramento sucker. Hardhead are typically absent from streams occupied by centrarchids and from heavily altered habitats.	Absent. Suitable habitat is absent from the APE. The nearest observation was recorded in 1982 approximately 0.2 miles southeast of the APE.
Least Bell's Vireo (<i>Vireo bellii pusillus</i>)	FE, CE	This migratory species breeds in southern California. Breeding habitat consists of dense, low, shrubby, riparian vegetation in the vicinity of water or dry river bottoms. By the early 1980s, this species was extirpated from most of its historic range in California, including the Central Valley. This species now occurs exclusively along the coast of southern California (USFWS, 1998).	Absent. The APE is outside of the known current range of this species. The only regional recorded observation is from a historical record dated 1912 approximately 6 miles southeast of the APE.
Northern California legless lizard (<i>Anniella pulchra</i>)	CSC	Found primarily underground, burrowing in loose, sandy soil. Forages in loose soil and leaf litter during the day. Occasionally observed on the surface at dusk and night.	Absent. Suitable habitat is absent from the APE. The only regional recorded observation is from 1880 approximately 3 miles away from the APE.

Species	Status	Habitat	Occurrence on Project Site
Pallid bat (<i>Antrozous pallidus</i>)	CSC	Found in grasslands, chaparral, and woodlands, where it feeds on ground- and vegetation-dwelling arthropods, and occasionally takes insects in flight. Prefers to roost in rock crevices, but may also use tree cavities, caves, bridges, and other man-made structures.	Unlikely. Ideal roosting habitat was absent from the APE. Individuals could potentially roost in trees or crevices of structures in the vicinity, although frequent disturbance in this region would make this unlikely. At most, this species could forage on flying arthropods over the adjacent orchard or canal during periods of inundation. The only recorded regional occurrence of this species was documented in 1979 approximately 12 miles northeast of the APE.
San Joaquin kit fox (<i>Vulpes macrotis mutica</i>)	FE, CT	Underground dens with multiple entrances in alkali sink, valley grassland, and woodland in valleys and adjacent foothills.	Unlikely. The highly disturbed habitats of the APE and fragmentation of the surrounding lands are unsuitable for this species. The only regional recorded observation of the species occurred in 1992 approximately 6 miles northwest of the APE.
Spotted bat (<i>Euderma maculatum</i>)	CSC	Roosts in cliffs, rock crevices, and caves. Forages over water and along washes. Feeds almost exclusively on moths.	Unlikely. The APE is outside of the known current distribution range of this species. Suitable roosting habitat is absent from the APE, and foraging habitat is marginal. The nearest observation of the species was recorded in 1970 approximately 7 miles from the APE.
Swainson's Hawk (<i>Buteo swainsoni</i>)	CT	Nests in large trees in open areas adjacent to grasslands, grain or alfalfa fields, or livestock pastures suitable for supporting rodent populations.	Possible. There are large trees in the APE that may provide suitable nesting habitat for the species; however, none were observed during the survey. The nearest recorded observation is from 2013 approximately 4 miles north of the APE. The most recent recorded observation is from 2017 approximately 6 miles north-northwest of the APE.
Tricolored Blackbird (<i>Agelaius tricolor</i>)	CT, CSC	Nests colonially near fresh water in dense cattails or tules, or in thickets of riparian shrubs. Forages in grassland and cropland. Large colonies are often found on dairy farm forage fields.	Unlikely. Though habitat for this species is absent within the APE, it could forage in the neighboring cropland area. The nearest recorded observation is from 1974 approximately 3 miles southwest of the APE. The most recent recorded observation is from 2011 approximately 12 miles north-northwest of the APE. CNDDDB classifies this species as possibly extirpated from the areas where they were previously recorded.
Valley elderberry longhorn beetle (<i>Desmocerus californicus dimorphus</i>)	FT	Lives in mature elderberry shrubs of the Central Valley and foothills. Adults are active March to June.	Unlikely. There were no elderberry species observed within the APE. The nearest and most recent recorded observation is from 1992 approximately 0.2 miles south of the APE. The only other recorded observation is from 1989 approximately 7 miles southwest of the APE.
Vernal pool fairy shrimp	FT	Occupies vernal pools, clear to tea-colored water, in grass or mud-	Unlikely. There are no vernal pools present within the APE or surrounding

Species	Status	Habitat	Occurrence on Project Site
(<i>Branchinecta lynchi</i>)		bottomed swales, and basalt depression pools.	habitat. The nearest recorded observation is from 2009 approximately 0.2 miles south of the APE. The most recent recorded observation is from 2017 approximately 7 miles north-northwest of the APE.
Western mastiff bat (<i>Eumops perotis californicus</i>)	CSC	Found in open, arid to semi-arid habitats, including dry desert washes, flood plains, chaparral, oak woodland, open ponderosa pine forest, grassland, and agricultural areas, where it feeds on insects in flight. Roosts most commonly in crevices in cliff faces but may also use high buildings and tunnels.	Unlikely. Nesting habitat within the APE and surrounding areas is absent. At most this species could fly through or forage within the area. The nearest and most recent recorded observation is from 1994 approximately 7 miles north of the APE.
Western pond turtle (<i>Emys marmorata</i>)	CSC	An aquatic turtle of ponds, marshes, slow-moving rivers, streams, and irrigation ditches with riparian vegetation. Requires adequate basking sites and sandy banks or grassy open fields to deposit eggs.	Possible. A wetted area was identified in the APE that may provide suitable habitat for this species. However, the surrounding area is subject to high levels of disturbance which may make it unsuitable habitat for this species. The nearest recorded observation is from 2004 approximately 7 miles north-northwest of the APE. The most recent recorded observation is from 2016 approximately 8 miles southeast of the APE.
Western spadefoot (<i>Spea hammondi</i>)	CSC	Prefers open areas with sandy or gravelly soils, in a variety of habitats including mixed woodlands, grasslands, coastal sage scrub, chaparral, sandy washes, lowlands, river floodplains, alluvial fans, playas, alkali flats, foothills, and mountains. Vernal pools or temporary wetlands, lasting a minimum of three weeks, which do not contain bullfrogs, fish, or crayfish are necessary for breeding.	Possible. A wetted area was identified in the APE that may provide suitable habitat for this species. However, the surrounding area is subject to high levels of disturbance which may make it unsuitable habitat for this species. The nearest recorded observation is from 2016 approximately 0.2 miles northwest of the APE. The most recent recorded observation is from 2021 approximately 11 miles northwest of the APE.
Western Yellow-billed Cuckoo (<i>Coccyzus americanus occidentalis</i>)	FT, CE	Suitable nesting habitat in California includes dense riparian willow-cottonwood and mesquite habitats along a perennial river. Once a common breeding species in riparian habitats of lowland California, this species currently breeds consistently in only two locations in the State: along the Sacramento and South Fork Kern Rivers.	Absent. This APE is not within or nearby the known location where this species breeds. No willow-cottonwood trees were seen within the APE or surrounding areas. The nearest recorded observation of this species is from 1883 which occurred within the APE. The most recent recorded observation is from 1902 approximately 12 miles southwest of the APE and is presumed to be extirpated.

Table 3. List of Special Status Plants with Potential to Occur Onsite and/or in the Vicinity

Species	Status	Habitat	Occurrence on Project Site
California jewelflower (<i>Caulanthus californicus</i>)	FE, CE, CNPS 1B	Found in the San Joaquin Valley and Western Transverse Ranges in sandy soils. Occurs on flats and slopes, generally in non-alkaline grassland at elevations between 230 feet and 6100 feet. Blooms February–April.	Absent. Required soils are absent and the APE and surrounding areas are frequently cultivated agricultural lands that are unsuitable for this species. The only recorded observation is from 1980 approximately 3 miles south of the APE and is presumed to be extirpated.
California satintail (<i>Imperata brevifolia</i>)	CNPS 2B	Although this facultative species is equally likely to occur in wetlands and non-wetlands, it is often found in wet springs, meadows, streambanks, and floodplains at elevations below 1600 feet. Blooms September – May.	Absent. Required soils are absent and the APE and surrounding areas are frequently cultivated agricultural lands that are unsuitable for this species. The only recorded observation is from 1893 approximately 3 miles south of the APE.
Dwarf downingia (<i>Downingia pusilla</i>)	CNPS 2B	Found in vernal pools in valley and foothill grassland communities at elevations below 1600 feet. Blooms March – May.	Absent. Required soils are absent and the APE and surrounding areas are frequently cultivated agricultural lands that are unsuitable for this species. The only recorded observation of this species is from 1979 approximately 4 miles northwest of the APE.
Greene's tuctoria (<i>Tuctoria greenei</i>)	FE, CR, CNPS 1B	Found in the San Joaquin Valley and other parts of California in vernal pools within valley grassland, wetland, and riparian communities at elevations below 3500 feet. Blooms May – September.	Absent. The only recorded observation of this species is from 1937 approximately 8 miles southwest of the APE and is presumed to be extirpated.
Hairy orcutt grass (<i>Orcuttia pilosa</i>)	FE, CE, CNPS 1B	Found in vernal pools in valley grassland, wetland, and riparian communities at elevations below 650 feet. Blooms May – September.	Absent. Required soils are absent in the APE and surrounding areas are frequently cultivated agricultural lands that are unsuitable for this species. The most recent recorded observation of this species is from 2017 approximately 11 miles northwest of the APE. The nearest recorded observation is from 1995 approximately 3 miles north of the APE.
Hartweg's golden sunburst (<i>Pseudobahia bahifolia</i>)	FE, CE, CNPS 1B	Found in valley and foothill grassland and cismontane woodland communities in clay soils that are often acidic. Occurs predominantly on northern slopes, but also along shady creeks and near vernal pools at elevations between 300 feet and 650 feet. Blooms March – May.	Absent. Although the elevation of the APE meets the habitat requirements for this species, the required soils are absent in the APE and surrounding areas are frequently cultivated agricultural lands that are unsuitable for this species. The nearest recorded observation is from 2009 approximately 6 miles northwest of the APE. The most recent recorded observation is from 2010 approximately 8 miles north-northwest of the APE.

Species	Status	Habitat	Occurrence on Project Site
Hoover's calycadenia (<i>Calycadenia hooveri</i>)	CNPS 1B	Found in valley and foothill grassland and cismontane woodland communities on exposed, rocky, barren soil at elevations between 300 feet and 1300 feet. Blooms June – September.	Absent. Cismontane woodland communities were not seen within or nearby the APE. Suitable habitat required by this species is absent from the APE and surrounding lands. The only recorded observation is from 2007 approximately 3 miles northwest of the APE.
Hoover's cryptantha (<i>Cryptantha hooveri</i>)	CNPS 1A	Presumed extirpated in California. Found in valley and foothill grassland and inland dunes in coarse sand at elevations below 250 feet. Blooms March – May.	Absent. Suitable habitat required by this species is absent from the APE and surrounding lands. The only recorded observation is from 1935 approximately 11 miles north of the APE and is presumed to be extirpated.
Madera leptosiphon (<i>Leptosiphon serrulatus</i>)	CNPS 1B	Found in openings in foothill woodland, often yellow-pine forest, and chaparral at elevations between 1000 feet and 4300 feet. Blooms April – May.	Absent. Suitable habitat required by this species is absent from the APE and surrounding lands. The elevation requirement of this species is not present within the APE. The nearest recorded observation is from 1922 approximately 4 miles south of the APE. The most recent recorded observation of this species is from 1967 approximately 9 miles northeast of the APE.
Munz's tidy-tips (<i>Layia munzii</i>)	CNPS 1B	Found in the San Joaquin Valley in alkaline clay soils; often along hillsides in alkali scrub and sometimes valley and foothill grassland. Occurs at elevations between 145 feet and 2625 feet Blooms March–April.	Absent. Suitable habitat required by this species is absent from the APE and surrounding lands. The only recorded observation of this species is from 1937 approximately 9 miles northwest of the APE.
Orange lupine (<i>Lupinus citrinus</i> var. <i>citrinus</i>)	CNPS 1B	Found in chaparral, cismontane woodland, and lower montane coniferous forest in rocky, decomposed granitic outcrops on flat to rolling terrain. Typically found in open areas, at elevations between 1250 feet and 5800 feet. Blooms April – July.	Absent. The elevation requirement of this species is not present within the APE. Required soils are absent in the APE and surrounding areas are frequently cultivated agricultural lands that are unsuitable for this species. The only recorded observation is from 2003 approximately 12 miles north of the APE.
Pincushion navarettia (<i>Navarretia myersii</i> spp. <i>myersii</i>)	CNPS 1B	Found in vernal pools in clay soils at elevations between 65-295 feet. Often associated with non-native grasslands. Blooms in May.	Absent. Vernal pool habitat and required soils are absent from the APE and surrounding areas are frequently cultivated agricultural lands that are unsuitable for this species. The only recorded observation of this species is from 2016 approximately 4 miles north of the APE.
San Joaquin Valley orcutt grass (<i>Orcuttia inaequalis</i>)	FT, CE, CNPS 1B	Found in the eastern San Joaquin Valley and the Sierra Nevada foothills in vernal pools within valley grassland, freshwater wetland, and wetland-riparian communities at elevations below 2600 feet. Blooms April – September.	Unlikely. Required soils are absent and the APE and surrounding areas are frequently cultivated agricultural lands that are unsuitable for this species. This species was absent during the field survey. The nearest and most recent recorded observation is from 2017 approximately 2 miles north of the APE.

Species	Status	Habitat	Occurrence on Project Site
Sanford's arrowhead (<i>Sagittaria sanfordii</i>)	CNPS 1B	Found in the San Joaquin Valley and other parts of California in freshwater-marsh, primarily ponds and ditches, at elevations below 1000 feet. Blooms May–October.	Unlikely. The elevation requirement of this species is present on the APE. However, required soils are absent from the APE and surrounding areas are frequently cultivated agricultural lands that are unsuitable for this species. The most recent recorded observation of this species is from 2014 approximately 7 miles northeast of the APE. The nearest recorded observation of this species is from 1954 approximately 2 miles south of the APE.
Shining navarretia (<i>Navarretia nigelliformis</i> ssp. <i>radians</i>)	CNPS 1B	Found in cismontane woodland and valley and foothill grassland communities, sometimes in vernal pools. Occurs at elevations between 200 feet and 3200 feet. Blooms May – July.	Absent. Cismontane woodland communities were not seen within or nearby the APE. Suitable habitat required by this species is absent from the APE and surrounding lands. The only recorded observation is from 1938 approximately 16 miles northeast of the APE.
Spiny-sepaled button-celery (<i>Eryngium spinosepalum</i>)	CNPS 1B	Found in the Sierra Nevada Foothills and the San Joaquin Valley. Occurs in vernal pools, swales, and roadside ditches. Often associated with clay soils in vernal pools within grassland communities. Occurs at elevations between 50 feet and 4160 feet. Blooms April–July.	Unlikely. Vernal pool habitat and required soils are absent from the APE and surrounding areas are frequently cultivated agricultural lands that are unsuitable for this species. The most recent recorded observation of this species is from September 2010 approximately 9 miles north of the APE. The nearest recorded observation is June 2010 approximately 3 miles north of the APE.
Succulent owl's-clover (<i>Castilleja campestris</i> var. <i>succulenta</i>)	FT, CE, CNPS 1B	Found in vernal pools, often in acidic soils at elevations below 2500 feet. Blooms April – July.	Unlikely. Vernal pool habitat and required soils are absent from the APE and surrounding areas are frequently cultivated agricultural lands that are unsuitable for this species. The most recent recorded observation of this species is from 2019 approximately 3 miles north of the APE. The nearest recorded observation of this species is from 1984 approximately 2 miles south of the APE.

EXPLANATION OF OCCURRENCE DESIGNATIONS AND STATUS CODES

Possible:	Species not observed on the site, but it could occur there from time to time.
Unlikely:	Species not observed on the site, and would not be expected to occur there except, perhaps, as a transient.
Absent:	Species not observed on the site and precluded from occurring there due to absence of suitable habitat.

STATUS CODES

FE	Federally Endangered	CE	California Endangered
FT	Federally Threatened	CT	California Threatened
		CSC	California Species of Concern
		CWL	California Watch List
		CR	California Rare

CNPS LISTING

1A	Plants Presumed Extinct in California.	2B	Plants Rare, Threatened, or Endangered in
1B	Plants Rare, Threatened, or Endangered in California and elsewhere.		California, but more common elsewhere.

III. Impacts and Mitigation

Significance Criteria

CEQA

General plans, area plans, and specific projects are subject to the provisions of CEQA. The purpose of CEQA is to assess the impacts of proposed projects on the environment prior to project implementation. Impacts to biological resources are just one type of environmental impact assessed under CEQA and vary from project to project in terms of scope and magnitude. Projects requiring removal of vegetation may result in the mortality or displacement of animals associated with this vegetation. Animals adapted to humans, roads, buildings, and pets may replace those species formerly occurring on a site. Plants and animals that are State and/or federally listed as threatened or endangered may be destroyed or displaced. Sensitive habitats such as wetlands and riparian woodlands may be altered or destroyed. Such impacts may be considered either “significant” or “less than significant” under CEQA. According to CEQA, Statute and Guidelines (AEP 2012), “significant 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 interest. Specific project impacts to biological resources may be considered “significant” if they would:

- Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the CDFW or USFWS;
- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the CDFW or USFWS;
- 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;
- Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors or impede the use of native wildlife nursery sites.
- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; or
- Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or State habitat conservation plan.

Furthermore, CEQA Guidelines Section 15065(a) states that a project may trigger the requirement to make a “mandatory finding of significance” if the project has the potential to:

“Substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, 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.”

Relevant Goals, Policies, and Laws

Madera County General Plan

The Madera County General Plan Policy Document (Madera County, 1995), contains the following goals and policies related to the Project:

Wetland and Riparian Areas

- Goal 5.D: To protect wetland communities and related riparian areas throughout Madera County as valuable resources.
- Policy 5.D.1. The County shall comply with the wetlands policies of the U.S. Army Corps of Engineers, the U.S. Fish and Wildlife Service, and the California Department of Fish and Wildlife. Coordination with these agencies at all levels of project review shall continue to ensure that appropriate mitigation measures and the concerns of these agencies are adequately addressed.
- Policy 5.D.3. The County shall require development to be designed in such a manner that pollutants and siltation will not significantly adversely affect the value or function of wetlands.
- Policy 5.D.4. The County shall require riparian protection zones around natural watercourses. Riparian protection zones shall include the bed and bank of both low and high flow channels and associated riparian vegetation, the band of riparian vegetation outside the high flow channel, and buffers of 100 feet in width as measured from the top of bank of unvegetated channels and 50 feet in width as measured from the outer edge for the canopy of riparian vegetation. Exceptions may be made in existing developed areas where existing development and lots are located within the setback areas.

Fish and Wildlife Habitat

- Goal 5.E: To protect, restore, and enhance habitats that support fish and wildlife species so as to maintain populations at viable levels.
- Policy 5.E.1. The County shall identify and protect critical nesting and foraging areas, important spawning grounds, migratory routes, waterfowl resting areas, oak woodlands, wildlife movement corridors, and other unique wildlife habitats critical to protecting and sustaining wildlife populations
- Policy 5.E.2. The County shall require development in areas known to have particular value for wildlife to be carefully planned and, where possible, located so that the reasonable value of the habitat for wildlife is maintained.

Vegetation

- Goal 5.F: To preserve and protect the valuable vegetation resources of Madera County.
- Policy 5.F.3. The County shall support the preservation of outstanding areas of natural vegetation, including, but not limited to, oak woodlands, riparian areas, and vernal pools.

Open Space for the Preservation of Natural Resources

- Goal 5.H: To preserve and enhance open space lands to maintain the natural resources of the county.

Policy 5.H.1. The County shall support the preservation and enhancement of natural landforms, natural vegetation, and natural resources as open space. To the extent feasible, the County shall permanently protect as open space areas of natural resource value, including wetlands preserves, riparian corridors, woodlands, and floodplains.

Threatened and Endangered Species

Permits may be required from the USFWS and/or CDFW if activities associated with a project have the potential to result in the “take” of a species listed as threatened or endangered under the federal and/or state Endangered Species Acts. Take is defined by the State of California as “to hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture or kill” (California Fish and Game Code, Section 86). Take is more broadly defined by the federal Endangered Species Act to include “harm” (16 USC, Section 1532(19), 50 CFR, Section 17.3). CDFW and USFWS are responsible agencies under CEQA and National Environmental Policy Act (NEPA). Both agencies review CEQA and NEPA documents in order to determine the adequacy of their treatment of endangered species issues and to make project-specific recommendations for their conservation.

Designated Critical Habitat

When species are listed as threatened or endangered, the USFWS often designates areas of “Critical Habitat” as defined by section 3(5)(A) of the federal Endangered Species Act (ESA). Critical Habitat is a term defined in the ESA as a specific geographic area that contains features essential for the conservation of a threatened or endangered species and that may require special management and protection. Critical Habitat is a tool that supports the continued conservation of imperiled species by guiding cooperation with the federal government. Designations only affect federal agency actions or federally funded or permitted activities. Critical Habitat does not prevent activities that occur within the designated area. Only activities that involve a federal permit, license, or funding and are likely to destroy or adversely modify Critical Habitat will be affected.

Migratory Birds

The Federal Migratory Bird Treaty Act (MBTA) (16 USC 703-712) prohibits killing, possessing, or trading in any bird species covered in one of four international conventions to which the United States is a party, except in accordance with regulations prescribed by the Secretary of the Interior. The name of the act is misleading, as it actually covers almost all bird’s native to the United States., even those that are non-migratory. The MBTA encompasses whole birds, parts of birds, and bird nests and eggs. Additionally, California Fish and Game Code makes it unlawful to take or possess any non-game bird covered by the MBTA (Section 3513), as well as any other native non-game bird (Section 3800).

Birds of Prey

Birds of prey are protected in California under provisions of Fish and Game Code (Section 3503.5), which states that it is unlawful to take, possess, or destroy any birds in the order Falconiformes (hawks and eagles) or Strigiformes (owls), as well as their nests and eggs. The bald eagle and golden eagle are afforded additional protection under the federal Bald and Golden Eagle Protection Act (16 USC 668), which makes it unlawful to kill birds or their eggs.

Nesting Birds

In California, protection is afforded to the nests and eggs of all birds. California Fish and Game Code (Section 3503) states that it is “unlawful to take, possess, or needlessly destroy the nest or eggs of any bird except as otherwise provided by this code or any regulation adopted pursuant thereto.” Breeding-season disturbance that causes nest abandonment and/or loss of reproductive effort is considered a form of “take” by the CDFW.

Wetlands and other “Jurisdictional Waters”

Natural drainage channels and adjacent wetlands may be considered “waters of the United States” or “jurisdictional waters” subject to the jurisdiction of the USACE. The extent of jurisdiction has been defined in the Code of Federal Regulations but has also been subject to interpretation of the federal courts. Jurisdictional waters generally include:

- All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;
- All interstate waters including interstate wetlands;
- All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce;
- All impoundments of waters otherwise defined as waters of the United States under the definition;
- Tributaries of waters identified in paragraphs (a)(1)-(4) (i.e., the bulleted items above).

As determined by the United States Supreme Court in its 2001 Solid Waste Agency of Northern Cook County v. United States Army Corps of Engineers (SWANCC) decision, channels and wetlands isolated from other jurisdictional waters cannot be considered jurisdictional on the basis of their use, hypothetical or observed, by migratory birds. Similarly, in its 2006 consolidated Carabell/Rapanos decision, the Supreme Court ruled that a significant nexus between a wetland and other navigable waters must exist for the wetland itself to be considered a navigable and therefore jurisdictional water. Furthermore, the Supreme Court clarified that the United States Environmental Protection Agency (USEPA) and the USACE will not assert jurisdiction over ditches excavated wholly in and draining only uplands and that do not carry a relatively permanent flow of water.

The USACE regulates the filling or grading of Waters of the United States. under the authority of Section 404 of the Clean Water Act. The extent of jurisdiction within drainage channels is defined by “ordinary high-water marks” on opposing channel banks. All activities that involve the discharge of dredge or fill material into Waters of the United States are subject to the permit requirements of the USACE. Such permits are typically issued on the condition that the applicant agrees to provide mitigation that results in no net loss of wetland functions or values. No permit can be issued until the RWQCB issues a Section 401 Water Quality Certification (or waiver of such certification) verifying that the proposed activity will meet State water quality standards.

Under the Porter-Cologne Water Quality Control Act of 1969, the SWRCB has regulatory authority to protect the water quality of all surface water and groundwater in the State of California (“Waters of the State”). Nine RWQCBs oversee water quality at the local and regional level. The RWQCB for a given region regulates discharges of fill or pollutants into Waters of the State through the issuance of various permits and orders. Discharges into Waters of the State that are also Waters of the United States require a Section 401 Water Quality Certification from the RWQCB as a prerequisite to obtaining certain federal permits, such as a Section 404 Clean Water Act permit. Discharges into all Waters of the State, even those that are not also Waters of the United States., require Waste Discharge Requirements (WDRs), or waivers of WDRs, from the RWQCB. The RWQCB also administers the Construction Storm Water Program and the federal National Pollution Discharge Elimination System (NPDES) program. Projects that disturb one acre or more of soil must obtain a Construction General Permit under the Construction Storm Water Program. A prerequisite for this permit is the development of a Storm Water Pollution Prevention Plan (SWPPP) by a certified Qualified SWPPP Developer. Projects that discharge wastewater, storm water, or other pollutants into a Water of the United States. may require a NPDES permit.

CDFW has jurisdiction over the bed and bank of natural drainages and lakes according to provisions of Section 1601 and 1602 of the California Fish and Game Code. Activities that may substantially modify such waters through the diversion or obstruction of their natural flow, change or use of any material from their bed or bank, or the deposition of debris require a notification of a Lake or Streambed Alteration. If CDFW determines that the activity may adversely affect fish and wildlife resources, a Lake or Streambed Alteration Agreement will be prepared. Such an agreement typically stipulates that certain measures will be implemented to protect the habitat values of the lake or drainage in question.

Potentially Significant Project-Related Impacts and Mitigation

Species identified as candidate, sensitive, or special status species in local or regional plans, policies, or regulations by CDFW or USFWS that have the potential to be impacted by the Project are the California tiger salamander, Swainson's Hawk, western pond turtle and western spadefoot. Discussion and corresponding mitigation measures are provided below.

Project-Related Mortality and/or Disturbance of California Tiger Salamander

Project construction activities will result in temporary disturbance to an area that California tiger salamanders could potentially be living, breeding, or migrating through, and thereby could result in injury, mortality, displacement, disturbance, or inhibit the movement of this species.

The Project proponent should ensure implementation of the following measures to avoid and minimize potential impacts to California tiger salamanders during construction:

Mitigation Measure BIO-1a (Pre-construction Survey): If activities must occur within 200 feet of suitable aquatic and upland habitat a qualified biologist would conduct pre-construction surveys within 14 days prior to the onset of construction activities. If no California tiger salamanders are observed during the preconstruction survey, then construction activities may begin. If construction is delayed or halted for more than 30 days, another pre-construction survey for special status herpetofauna should be conducted. If the survey results in the identification of a special status species, the qualified biologist should determine if appropriate buffers can be implemented to avoid impacts to the individual(s).

Mitigation Measure BIO-1b (Avoidance): If activities must occur within 200 feet of suitable aquatic and upland habitat the Project's construction activities will occur, if feasible, between May 1 and September 30 (outside of wet season) and 200 feet from suitable aquatic and upland habitat in an effort to avoid impacts to California tiger salamanders.

Mitigation Measure BIO-1c (Exclusion fencing): If the Project must occur within 200 feet of suitable habitat during the wet season (October 1 – April 30), the Project will install exclusion fencing around 100 feet from the wetted area in the north-east corner of the APE to ensure California tiger salamanders do not enter the site during construction. Exclusion fencing materials, size, and placement should follow wildlife agency guidelines appropriate for the species.

Mitigation Measure BIO-1d (Formal Consultation): If any California tiger salamanders are observed during construction, work will stop immediately. A qualified wildlife biologist, approved to handle and remove California tiger salamander will be called to identify and remove the species. If take of any individual California tiger salamanders occurs, USFWS should be notified immediately, and the qualified biologist should remain onsite as a monitor during construction activities to provide protection of the species.

Project-Related Mortality and/or Disturbance of Nesting Raptors, Migratory Birds, and Special Status Birds

The APE contains suitable nesting and/or foraging habitat for ground and tree nesting avian species. Canada geese were observed during the survey, these birds are known to build nests on the ground near sources of water and in grasslands. Although, no nests were observed at the time of survey, trees near the APE have the potential to host nesting birds. The land surrounding the APE has eucalyptus trees large enough to provide suitable nesting habitat for Swainson's Hawk and other raptors. Raptors could also potentially use the ruderal area and surrounding agricultural areas for foraging. Swainson's Hawk was deemed the only special status species possible to occur within the APE. Further, birds nesting within the APE during construction have the potential to be injured or killed by Project-related activities. In addition to the direct "take" of nesting birds, nesting birds within the APE or adjacent areas could be disturbed by Project-related activities resulting in nest abandonment. Projects that adversely affect the nesting success of raptors and migratory birds or result in the mortality of individual birds is considered a violation of State and federal laws and are considered a potentially significant impact under CEQA.

Implementation of the following measures will reduce potential impacts to nesting raptors, migratory birds, and special status birds to a less than significant level under CEQA and will ensure compliance with State and federal laws protecting these avian species.

Mitigation. The following measures would be implemented prior to the start of construction:

Mitigation Measure BIO-2a (Pre-construction Surveys): If activities must occur within nesting bird season (February 1 to September 15), a qualified biologist would conduct pre-construction surveys for Swainson's Hawk nests onsite and within a 0.5-mile radius. This survey would be conducted in accordance with the *Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley* (Swainson's Hawk Technical Advisory Committee, 2000) or current guidance. The pre-construction survey would also provide a presence/absence survey for all other nesting birds within the APE and an additional 50 feet around the Project boundary, no more than 7 days prior to the start of construction. All raptor nests would be considered "active" upon the nest-building stage.

Mitigation Measure BIO-2b (Avoidance): The Project's construction activities will occur, if feasible, between September 16 and January 31 (outside of nesting bird season) in an effort to avoid impacts to nesting birds.

Mitigation Measure BIO-2c (Establish Buffers): On discovery of any active nests or breeding colonies near work areas, the biologist will determine appropriate construction setback distances based on applicable CDFW and/or USFWS guidelines and/or the biology of the species in question. Construction buffers will be identified with flagging, fencing, or other easily visible means, and will be maintained until the biologist has determined that the nestlings have fledged or no longer dependent on the nest.

Project-Related Mortality and/or Disturbance of Western Pond Turtle

Habitats within the APE and surrounding area were determined to be suitable for western pond turtle, a California Species of Special Concern. Construction activities occurring within occupied habitat could result in injury, mortality, displacement, disturbance, or inhibit the movement of this species. The Project proponent should ensure implementation of the following measures in to avoid and minimize potential individual impacts to special status herpetofauna during construction:

Mitigation Measure BIO-3a (Pre-construction Survey): If activities must occur within 200 feet of suitable aquatic and upland habitat a qualified biologist would conduct pre-construction surveys within

14 days prior to the onset of construction activities. If no special status herpetofauna are observed during the preconstruction survey, then construction activities may begin. If construction is delayed or halted for more than 30 days, another pre-construction survey for special status herpetofauna should be conducted. If the survey results in the identification of a special status species, the qualified biologist should determine if appropriate buffers can be implemented to avoid impacts to the individual(s).

Mitigation Measure BIO-3b (Avoidance): The Project's construction activities will occur, if feasible, 200 feet from suitable aquatic and upland habitat of western pond turtles as identified by a qualified biologist.

Project-Related Morality and/or Disturbance of Western Spadefoot

Habitats within the action area and surrounding area were determined to be suitable for western spadefoot, a California Species of Special Concern. Construction activities occurring within occupied habitat could result in injury, mortality, displacement, disturbance, or inhibit the movement of this species. The Project proponent will ensure implementation of the following measures in to avoid and minimize potential individual impacts to special status amphibians during construction:

Mitigation Measure BIO-4a (Pre-construction Survey): If activities must occur within 200 feet of suitable aquatic and upland habitat a qualified biologist would conduct pre-construction surveys within 14 days prior to the onset of construction activities. If no special status herpetofauna are observed during the preconstruction survey, then construction activities may begin. If construction is delayed or halted for more than 30 days, another pre-construction survey for special status herpetofauna should be conducted. If the survey results in the identification of a special status species, the qualified biologist should determine if appropriate buffers can be implemented to avoid impacts to the individual(s).

Mitigation Measure BIO-4b (Avoidance): The Project's construction activities will occur, if feasible, 200 feet from suitable aquatic and upland habitat of western spadefoot as identified by a qualified biologist.

Implementation of mitigation measures **identified above** will avoid and minimize the Project's potential impacts to California tiger salamander, Swainson's Hawk (and all nesting birds), western pond turtle and spadefoot to a less than significant level under CEQA.

Less Than Significant Project-Related Impacts

Project-Related Impacts to Special Status Animal Species Absent From, or Unlikely to Occur on, the Project Site

Of the 23 regionally occurring special status animal species, 19 are considered absent from or unlikely to occur within the APE due to past or ongoing disturbance and/or the absence of suitable habitat. These species include: American badger, Burrowing Owl, California glossy snake, California Horned Lark, coast horned lizard, Double-Crested Cormorant, foothill yellow-legged frog, Fresno kangaroo rat, hardhead, Least Bell's Vireo, Northern California legless lizard, pallid bat, San Joaquin kit fox, spotted bat, Tricolored Blackbird, valley elderberry longhorn beetle, vernal pool fairy shrimp, western mastiff bat and Western Yellow-Billed Cuckoo.

Since it is highly unlikely that these species would occur onsite, implementation of the Project should have no impact on these 19 special status species through construction mortality, disturbance, or loss of habitat. Mitigation measures are not warranted.

Project-Related Impacts to Special Status Plant Species Absent From, or Unlikely to Occur on, the Project Site

Of the 17 regionally occurring special status plant species, 17 are considered absent from or unlikely to occur within the APE due to past or ongoing disturbance and/or the absence of suitable habitat. These species include: California jewelflower, California satintail, dwarf downingia, Greene's tuctoria, hairy Orcutt grass, Hartweg's golden sunburst, Hoover's calycadenia, Hoover's cryptantha, Madera leptosiphon, Munz's tidy-tips, orange lupine, pincushion navaretia, San Joaquin Valley Orcutt grass, Sanford's arrowhead, shining navarretia, spiny-sepaed button-celery, and succulent owl's-clover. Since it is highly unlikely that these species would occur onsite, implementation of the Project should have no impact on these 17 special status species through construction mortality, disturbance, or loss of habitat. Mitigation measures are not warranted.

Project-Related Impacts to Riparian Habitat and Natural Communities of Special Concern

There are no CNDDB-designated "natural communities of special concern" recorded within the APE or surrounding lands. Mitigation is not warranted.

Project-Related Impacts to Regulated Waters, Wetlands, and Water Quality

A wetted area was identified within the APE at the time of the biological survey. No work will be occurring within or adjacent to the wetted area. It is recommended that exclusion fencing is installed to provide avoidance in this area. The nearest water source is the San Joaquin River located east of the APE and would be considered waters of the United States and waters of the State. The San Joaquin River are natural water features and are regulated by USACE and RWQCB as a jurisdictional water.

Since construction would involve ground disturbance over an area greater than one acre, the Project will also be required to obtain a Construction General Permit under the Construction Storm Water Program administered by the RWQCB. A prerequisite for this permit is the development of a Storm Water Pollution Prevention Plan (SWPPP) to ensure construction activities do not adversely affect water quality.

Project-Related Impacts to Wildlife Movement Corridors and Native Wildlife Nursery Sites

The APE does contain features that would be likely to function as wildlife movement corridors. However, the APE and surrounding lands are very open and expansive, and it is unlikely construction would affect animal dispersion. Furthermore, the Project is located in a region often disturbed by human activities. Therefore, the Project would have no impact on wildlife movement corridors, and no additional mitigation measures are warranted.

Project-Related Impacts to Critical Habitat

Designated critical habitat for two plant species; hairy Orcutt grass and succulent owl's-clover are absent from the APE. Although critical habitat has been designated, the habitat within the APE is unlikely for these species and they were not observed during the field reconnaissance survey. The soils required for these plant species were absent from the APE. Therefore, there will be no impact to critical habitat, and mitigation measures are not warranted.

Local Policies or Habitat Conservation Plans

The Project appears to be consistent with the goals and policies of the Madera County General Plan. There are no known habitat conservation plans (HCPs) or a Natural Community Conservation Plan (NCCP) in the Project vicinity. Mitigation measures are not warranted.

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Appendix A: Photos of the Area of Potential Effect

BAKMAN WATER COMPANY
ROLLING HILLS METER PROJECT



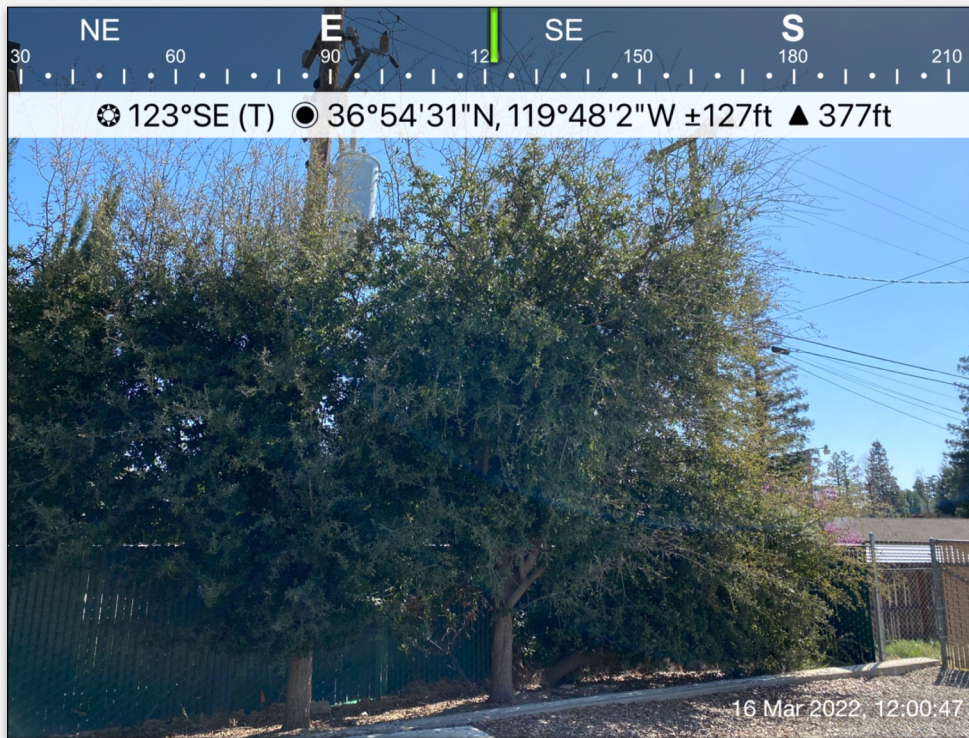
Photograph 1

Booster system at Well #1 by the Fire Station on Avenue 11.



Photograph 2

The tank for the booster system by the Fire Station on Avenue 11.



Photograph 3

Coast live oaks adjacent to the tank and the Fire Station by Well #1.



Photograph 4

Well #2 Site where renovations will be done. Gravel covers the ground at each of the well sites.



Photograph 5

Hydropneumatic tank at the Well #2 Site. Gravel provides ground cover for the well sites.



Photograph 6

View from Avenue 11/ Mountain View Drive where water main will extend to the Highway 41 business road.



Photograph 7

View down Avenue 11 where new water main will extend from tank and booster pump station by the Fire Station.



Photograph 8

Large eucalyptus tree provides nesting habitat for raptors. New 12” water main will run along Avenue 11 and a fire hydrant will be installed in the unoccupied lot.



Photograph 9

Northern view of the unoccupied lot where new fire hydrant and 6-inch gate valve will be located.



Photograph 10

View from Mountain View Drive, down Adobe Way where new water main will extend halfway down the road. Trees are large enough to support nesting birds and raptors.



Photograph 11

View down Mountain View Drive where new 8-inch water main will extend down two houses. Trees are large enough to support nesting birds and raptors.



Photograph 12

View from Mountain View Drive where 8-inch main and gate valve will be placed. This section will run south to Adobe Way.



Photograph 13

View of established wetland in an unoccupied lot within the APE, at the corner of Mountain View Drive and Butte Way. This unoccupied residential lot will be avoided during construction.



Photograph 14

Another view of the established wetland within the APE, at the corner of Mountain View Drive and Butte Way. This unoccupied residential lot will be avoided during construction.



Photograph 15

Photo taken looking west, halfway down Adobe Way where new 8" water main pipe will extend to. Trees are large enough to support nesting birds and raptors.



Photograph 16

Photo taken looking east, halfway down Adobe Way where water main extends from Mountain View Dr. Trees are large enough to support nesting birds and raptors.



Photograph 17

View from El Capitan Dr. and Adobe Way intersection where 8" gate valve will be located. Trees are large enough to support nesting birds and raptors.



Photograph 18

View from El Capitan Dr. and Avenue 11 intersection where water main will extend west and a fire extinguisher will be located at.



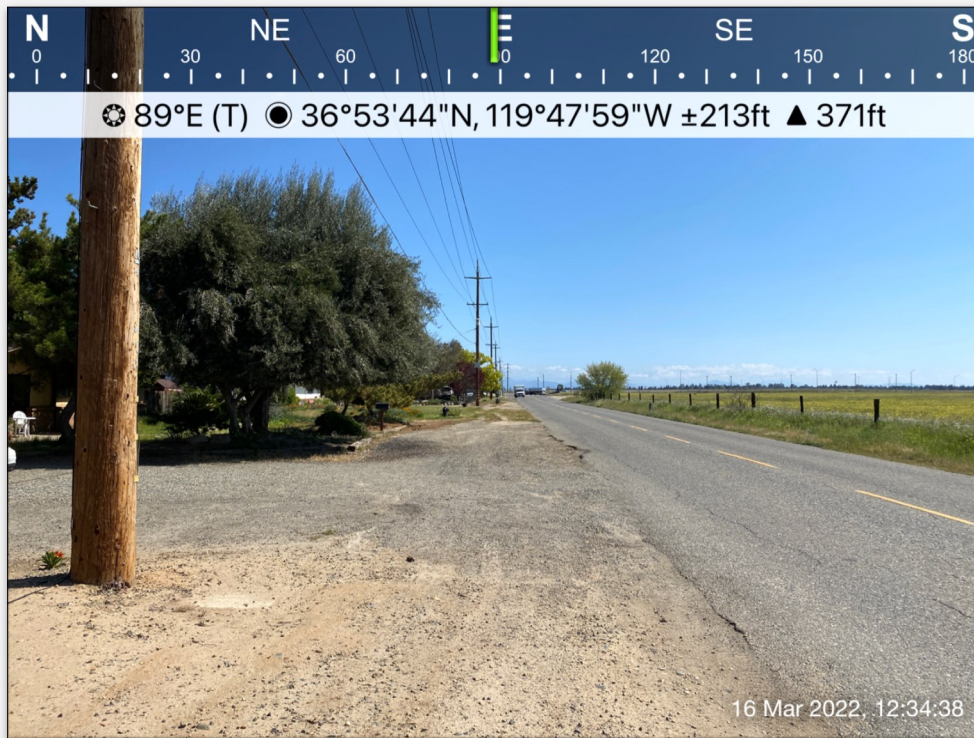
Photograph 19

Corner of Avenue 11 and El Capitan Dr. Where water main will extend down to Pomegranate Road.



Photograph 20

Intersection of Avenue 11 and Pomegranate Road where new water main will run down to the Mountain View Dr. intersection. Trees are large enough to support nesting birds and raptors.



Photograph 21

Southwest corner of APE from Avenue 10.



Photograph 22

Surrounding open grassland from the southwestern boundary of the APE.



Photograph 23

Surrounding land from the southwestern corner of the APE on Avenue 10.



Photograph 24

Surrounding land from southwest boundary of the APE on Avenue 10.



Photograph 25

View of surrounding land from western extent of the APE.



Photograph 26

View of the businesses within the APE.



Photograph 27

Surrounding land from northeastern extent of the APE along Highway 41 Business Road.



Photograph 28

South facing view down Highway 41 Business Road from northeast boundary of APE.

Appendix B: CNDDDB 9- Quad Search

BAKMAN WATER COMPANY
ROLLING HILLS METER PROJECT



Selected Elements by Common Name

California Department of Fish and Wildlife

California Natural Diversity Database



Query Criteria: Quad> IS >(Lanes Bridge (3611987)> OR >Daulton (3711918)> OR >Little Table Mtn. (3711917)> OR >Millerton Lake West (3711916)> OR >Friant (3611986)> OR >Clovis (3611976)> OR >Fresno North (3611977)> OR >Herndon (3611978)> OR >Gregg (3611988))

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
American badger <i>Taxidea taxus</i>	AMAJF04010	None	None	G5	S3	SSC
Antioch efferian robberfly <i>Efferia antiochi</i>	IIDIP07010	None	None	G1G2	S1S2	
black-crowned night heron <i>Nycticorax nycticorax</i>	ABNGA11010	None	None	G5	S4	
burrowing owl <i>Athene cunicularia</i>	ABNSB10010	None	None	G4	S3	SSC
California glossy snake <i>Arizona elegans occidentalis</i>	ARADB01017	None	None	G5T2	S2	SSC
California horned lark <i>Eremophila alpestris actia</i>	ABPAT02011	None	None	G5T4Q	S4	WL
California jewelflower <i>Caulanthus californicus</i>	PDBRA31010	Endangered	Endangered	G1	S1	1B.1
California linderiella <i>Linderiella occidentalis</i>	ICBRA06010	None	None	G2G3	S2S3	
California satintail <i>Imperata brevifolia</i>	PMPOA3D020	None	None	G4	S3	2B.1
California tiger salamander - central California DPS <i>Ambystoma californiense pop. 1</i>	AAAAA01181	Threatened	Threatened	G2G3	S3	WL
coast horned lizard <i>Phrynosoma blainvillii</i>	ARACF12100	None	None	G3G4	S3S4	SSC
Crotch bumble bee <i>Bombus crotchii</i>	IIHYM24480	None	None	G3G4	S1S2	
double-crested cormorant <i>Nannopterum auritum</i>	ABNFD01020	None	None	G5	S4	WL
dwarf downingia <i>Downingia pusilla</i>	PDCAM060C0	None	None	GU	S2	2B.2
foothill yellow-legged frog <i>Rana boylei</i>	AAABH01050	None	Endangered	G3	S3	SSC
Fresno kangaroo rat <i>Dipodomys nitratoideis exilis</i>	AMAFD03151	Endangered	Endangered	G3TH	SH	
great egret <i>Ardea alba</i>	ABNGA04040	None	None	G5	S4	
Great Valley Mixed Riparian Forest <i>Great Valley Mixed Riparian Forest</i>	CTT61420CA	None	None	G2	S2.2	



Selected Elements by Common Name
California Department of Fish and Wildlife
California Natural Diversity Database



Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Greene's tuctoria <i>Tuctoria greenei</i>	PMPOA6N010	Endangered	Rare	G1	S1	1B.1
hairy Orcutt grass <i>Orcuttia pilosa</i>	PMPOA4G040	Endangered	Endangered	G1	S1	1B.1
hardhead <i>Mylopharodon conocephalus</i>	AFCJB25010	None	None	G3	S3	SSC
Hartweg's golden sunburst <i>Pseudobahia bahiifolia</i>	PDAST7P010	Endangered	Endangered	G1	S1	1B.1
Hoover's calycadenia <i>Calycadenia hooveri</i>	PDAST1P040	None	None	G2	S2	1B.3
Hoover's cryptantha <i>Cryptantha hooveri</i>	PDBOR0A190	None	None	GH	SH	1A
Hurd's metapogon robberfly <i>Metapogon hurdi</i>	IIDIP08010	None	None	G1G2	S1S2	
least Bell's vireo <i>Vireo bellii pusillus</i>	ABPBW01114	Endangered	Endangered	G5T2	S2	
Madera leptosiphon <i>Leptosiphon serrulatus</i>	PDPLM09130	None	None	G3	S3	1B.2
midvalley fairy shrimp <i>Branchinecta mesoavallensis</i>	ICBRA03150	None	None	G2	S2S3	
moestan blister beetle <i>Lytta moesta</i>	IICOL4C020	None	None	G2	S2	
molestan blister beetle <i>Lytta molesta</i>	IICOL4C030	None	None	G2	S2	
Munz's tidy-tips <i>Layia munzii</i>	PDAST5N0B0	None	None	G2	S2	1B.2
Northern California legless lizard <i>Anniella pulchra</i>	ARACC01020	None	None	G3	S3	SSC
Northern Claypan Vernal Pool <i>Northern Claypan Vernal Pool</i>	CTT44120CA	None	None	G1	S1.1	
Northern Hardpan Vernal Pool <i>Northern Hardpan Vernal Pool</i>	CTT44110CA	None	None	G3	S3.1	
orange lupine <i>Lupinus citrinus</i> var. <i>citrinus</i>	PDFAB2B103	None	None	G2T2	S2	1B.2
pallid bat <i>Antrozous pallidus</i>	AMACC10010	None	None	G4	S3	SSC
pincushion navarretia <i>Navarretia myersii</i> ssp. <i>myersii</i>	PDPLM0C0X1	None	None	G2T2	S2	1B.1
San Joaquin kit fox <i>Vulpes macrotis mutica</i>	AMAJA03041	Endangered	Threatened	G4T2	S2	
San Joaquin pocket mouse <i>Perognathus inornatus</i>	AMAFD01060	None	None	G2G3	S2S3	



Selected Elements by Common Name

California Department of Fish and Wildlife

California Natural Diversity Database



Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
San Joaquin Valley Orcutt grass <i>Orcuttia inaequalis</i>	PMPOA4G060	Threatened	Endangered	G1	S1	1B.1
Sanford's arrowhead <i>Sagittaria sanfordii</i>	PMALI040Q0	None	None	G3	S3	1B.2
shining navarretia <i>Navarretia nigelliformis</i> ssp. <i>radians</i>	PDPLM0C0J2	None	None	G4T2	S2	1B.2
snowy egret <i>Egretta thula</i>	ABNGA06030	None	None	G5	S4	
spiny-sepaled button-celery <i>Eryngium spinosepalum</i>	PDAPI0Z0Y0	None	None	G2	S2	1B.2
spotted bat <i>Euderma maculatum</i>	AMACC07010	None	None	G4	S3	SSC
succulent owl's-clover <i>Castilleja campestris</i> var. <i>succulenta</i>	PDSCR0D3Z1	Threatened	Endangered	G4?T2T3	S2S3	1B.2
Swainson's hawk <i>Buteo swainsoni</i>	ABNKC19070	None	Threatened	G5	S3	
Sycamore Alluvial Woodland <i>Sycamore Alluvial Woodland</i>	CTT62100CA	None	None	G1	S1.1	
Table Mountain harvestman <i>Calicina mesaensis</i>	ILARAU8070	None	None	G1	S1	
tricolored blackbird <i>Agelaius tricolor</i>	ABPBXB0020	None	Threatened	G1G2	S1S2	SSC
valley elderberry longhorn beetle <i>Desmocerus californicus dimorphus</i>	IICOL48011	Threatened	None	G3T2	S3	
vernal pool fairy shrimp <i>Branchinecta lynchi</i>	ICBRA03030	Threatened	None	G3	S3	
western mastiff bat <i>Eumops perotis californicus</i>	AMACD02011	None	None	G4G5T4	S3S4	SSC
western pond turtle <i>Emys marmorata</i>	ARAAD02030	None	None	G3G4	S3	SSC
western ridged mussel <i>Gonidea angulata</i>	IMBIV19010	None	None	G3	S1S2	
western spadefoot <i>Spea hammondi</i>	AAABF02020	None	None	G2G3	S3	SSC
western yellow-billed cuckoo <i>Coccyzus americanus occidentalis</i>	ABNRB02022	Threatened	Endangered	G5T2T3	S1	

Record Count: 57

Appendix C: IPaC Search

BAKMAN WATER COMPANY
ROLLING HILLS METER PROJECT



United States Department of the Interior

FISH AND WILDLIFE SERVICE

Sacramento Fish And Wildlife Office

Federal Building

2800 Cottage Way, Room W-2605

Sacramento, CA 95825-1846

Phone: (916) 414-6600 Fax: (916) 414-6713



In Reply Refer To:

March 14, 2022

Project Code: 2022-0019679

Project Name: Rolling Hills Meter Project

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2))

(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

<http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF>

Migratory Birds: In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts see <https://www.fws.gov/birds/policies-and-regulations.php>.

The MBTA has no provision for allowing take of migratory birds that may be unintentionally killed or injured by otherwise lawful activities. It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures see <https://www.fws.gov/birds/bird-enthusiasts/threats-to-birds.php>.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit <https://www.fws.gov/birds/policies-and-regulations/executive-orders/e0-13186.php>.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Sacramento Fish And Wildlife Office

Federal Building

2800 Cottage Way, Room W-2605

Sacramento, CA 95825-1846

(916) 414-6600

Project Summary

Project Code: 2022-0019679

Event Code: None

Project Name: Rolling Hills Meter Project

Project Type: Water Supply Pipeline - Maintenance/Modification - Below Ground

Project Description: Bakman Water Company is upgrading the water meter system for the Rolling Hills Community in Madera County

Project Location:

Approximate location of the project can be viewed in Google Maps: [https://](https://www.google.com/maps/@36.9043281,-119.7969530164885,14z)

www.google.com/maps/@36.9043281,-119.7969530164885,14z



Counties: Madera County, California

Endangered Species Act Species

There is a total of 14 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

-
1. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
Fresno Kangaroo Rat <i>Dipodomys nitratoides exilis</i> There is final critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/5150	Endangered
San Joaquin Kit Fox <i>Vulpes macrotis mutica</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/2873	Endangered

Reptiles

NAME	STATUS
Blunt-nosed Leopard Lizard <i>Gambelia silus</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/625	Endangered
Giant Garter Snake <i>Thamnophis gigas</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/4482	Threatened

Amphibians

NAME	STATUS
California Red-legged Frog <i>Rana draytonii</i> There is final critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/2891	Threatened
California Tiger Salamander <i>Ambystoma californiense</i> Population: U.S.A. (Central CA DPS) There is final critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/2076	Threatened

Fishes

NAME	STATUS
Delta Smelt <i>Hypomesus transpacificus</i> There is final critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/321	Threatened

Insects

NAME	STATUS
Monarch Butterfly <i>Danaus plexippus</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9743	Candidate
Valley Elderberry Longhorn Beetle <i>Desmocerus californicus dimorphus</i> There is final critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/7850	Threatened

Crustaceans

NAME	STATUS
Conservancy Fairy Shrimp <i>Branchinecta conservatio</i> There is final critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/8246	Endangered
Vernal Pool Fairy Shrimp <i>Branchinecta lynchi</i> There is final critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/498	Threatened

Flowering Plants

NAME	STATUS
Fleshy Owl's-clover <i>Castilleja campestris ssp. succulenta</i> There is final critical habitat for this species. Your location overlaps the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/8095	Threatened
Hairy Orcutt Grass <i>Orcuttia pilosa</i> There is final critical habitat for this species. Your location overlaps the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/2262	Endangered
San Joaquin Orcutt Grass <i>Orcuttia inaequalis</i> There is final critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/5506	Threatened

Critical habitats

There are 2 critical habitats wholly or partially within your project area under this office's jurisdiction.

NAME	STATUS
Fleshy Owl's-clover <i>Castilleja campestris ssp. succulenta</i> https://ecos.fws.gov/ecp/species/8095#crithab	Final
Hairy Orcutt Grass <i>Orcuttia pilosa</i> https://ecos.fws.gov/ecp/species/2262#crithab	Final

IPaC User Contact Information

Agency: Provost & Pritchard Engineering Group
Name: Rene De La Fuente
Address: 400 E Main St
Address Line 2: 3rd Floor
City: Visalia
State: CA
Zip: 93291
Email: rdelafuente@ppeng.com
Phone: 5623602972

Appendix D: NRCS Soils Report

BAKMAN WATER COMPANY
ROLLING HILLS METER PROJECT



United States
Department of
Agriculture

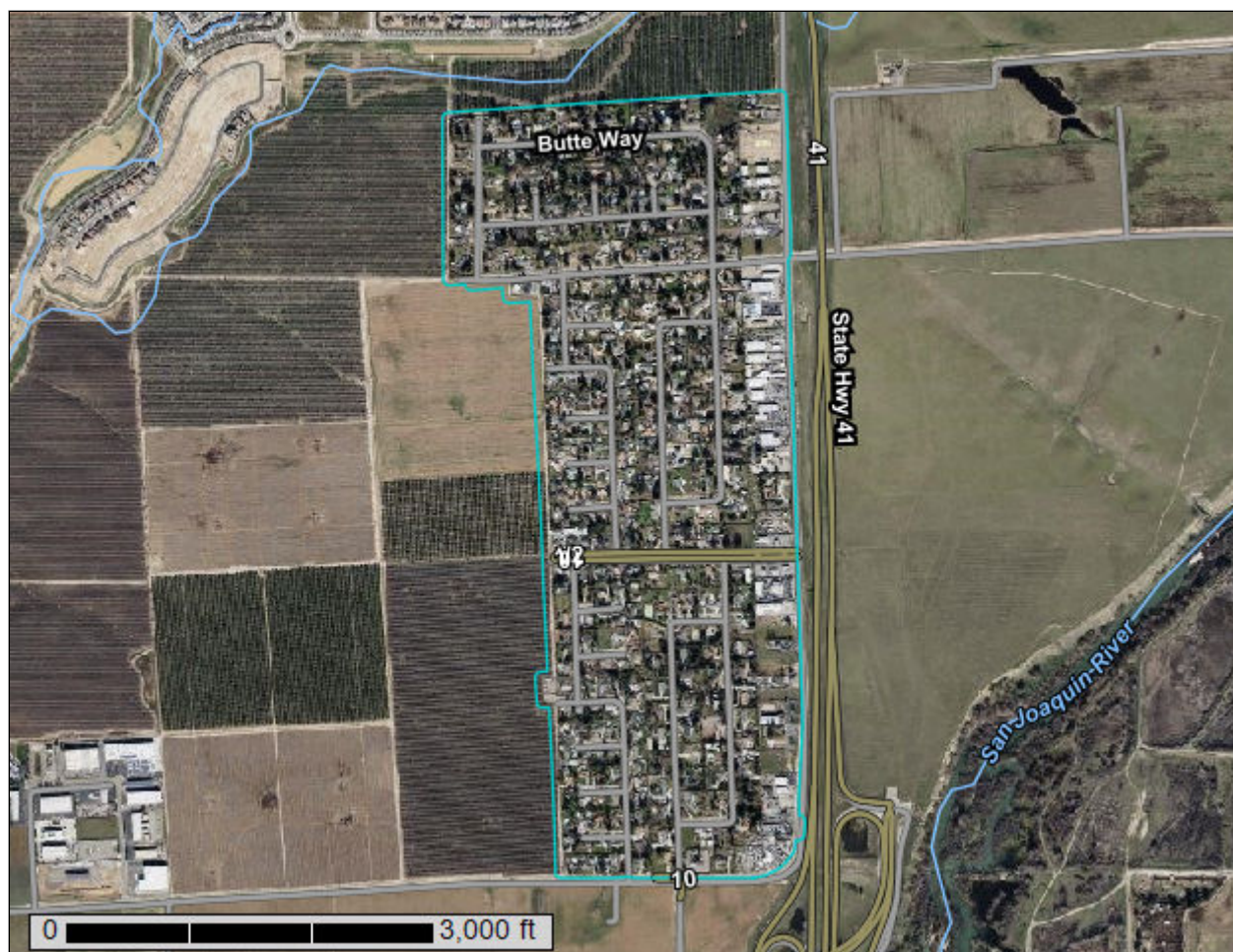
NRCS

Natural
Resources
Conservation
Service

A product of the National
Cooperative Soil Survey,
a joint effort of the United
States Department of
Agriculture and other
Federal agencies, State
agencies including the
Agricultural Experiment
Stations, and local
participants

Custom Soil Resource Report for **Madera Area, California**

Rolling Hills Meter Project



March 14, 2022

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (<http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/>) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (<https://offices.sc.egov.usda.gov/locator/app?agency=nrcs>) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

Custom Soil Resource Report

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report Soil Map



Custom Soil Resource Report

MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

 Soil Map Unit Polygons

 Soil Map Unit Lines

 Soil Map Unit Points

Special Point Features

 Blowout

 Borrow Pit

 Clay Spot

 Closed Depression

 Gravel Pit

 Gravelly Spot

 Landfill

 Lava Flow

 Marsh or swamp

 Mine or Quarry

 Miscellaneous Water

 Perennial Water

 Rock Outcrop

 Saline Spot

 Sandy Spot

 Severely Eroded Spot


 Sinkhole

 Slide or Slip

 Sodic Spot

 Spoil Area

 Stony Spot


 Very Stony Spot

 Wet Spot

 Other

 Special Line Features

Water Features

 Streams and Canals

Transportation

 Rails

 Interstate Highways

 US Routes

 Major Roads

 Local Roads

Background

 Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service

Web Soil Survey URL:

Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Madera Area, California

Survey Area Data: Version 15, Sep 7, 2021

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jan 21, 2021—Feb 1, 2021

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
GrA	Greenfield coarse sandy loam, 0 to 3 percent slopes	0.6	0.2%
GuA	Greenfield sandy loam, 0 to 3 percent slopes	64.3	19.5%
RaA	Ramona sandy loam, 0 to 3 percent slopes	225.4	68.3%
SaA	San Joaquin sandy loam, 0 to 3 percent slopes, MLRA 17	21.4	6.5%
WrB	Whitney and Rocklin sandy loams, 3 to 8 percent slopes	2.8	0.8%
WrC	Whitney and Rocklin sandy loams, 8 to 15 percent slopes	15.3	4.6%
Totals for Area of Interest		329.9	100.0%

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it

was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Madera Area, California

GrA—Greenfield coarse sandy loam, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: hk7d
Elevation: 100 to 3,500 feet
Mean annual precipitation: 9 to 20 inches
Mean annual air temperature: 63 degrees F
Frost-free period: 200 to 300 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Greenfield and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Greenfield

Setting

Landform: Alluvial fans
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from igneous, metamorphic and sedimentary rock

Typical profile

H1 - 0 to 23 inches: coarse sandy loam
H2 - 23 to 51 inches: sandy loam
H3 - 51 to 72 inches: stratified loamy sand to sandy loam

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: Rare
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 7.8 inches)

Interpretive groups

Land capability classification (irrigated): 1
Land capability classification (nonirrigated): 4c
Hydrologic Soil Group: A
Ecological site: R017XY904CA - Subirrigated Deep Alluvial Fans
Hydric soil rating: No

Minor Components

Hanford

Percent of map unit: 5 percent

Hydric soil rating: No

Ramona

Percent of map unit: 5 percent

Hydric soil rating: No

San joaquin

Percent of map unit: 5 percent

Hydric soil rating: No

GuA—Greenfield sandy loam, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: hk7j

Elevation: 100 to 3,500 feet

Mean annual precipitation: 9 to 20 inches

Mean annual air temperature: 63 degrees F

Frost-free period: 200 to 300 days

Farmland classification: Prime farmland if irrigated

Map Unit Composition

Greenfield and similar soils: 85 percent

Minor components: 15 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Greenfield

Setting

Landform: Alluvial fans

Landform position (two-dimensional): Toeslope

Landform position (three-dimensional): Talf

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Alluvium derived from igneous, metamorphic and sedimentary rock

Typical profile

H1 - 0 to 23 inches: sandy loam

H2 - 23 to 51 inches: sandy loam

H3 - 51 to 72 inches: stratified loamy sand to sandy loam

Properties and qualities

Slope: 0 to 3 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Runoff class: Very low

Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: Rare

Frequency of ponding: None

Custom Soil Resource Report

Available water supply, 0 to 60 inches: Moderate (about 7.8 inches)

Interpretive groups

Land capability classification (irrigated): 1

Land capability classification (nonirrigated): 4c

Hydrologic Soil Group: A

Ecological site: R017XY904CA - Subirrigated Deep Alluvial Fans

Hydric soil rating: No

Minor Components

San joaquin

Percent of map unit: 5 percent

Hydric soil rating: No

Hanford

Percent of map unit: 5 percent

Hydric soil rating: No

Ramona

Percent of map unit: 5 percent

Hydric soil rating: No

RaA—Ramona sandy loam, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: hk99

Elevation: 250 to 3,500 feet

Mean annual precipitation: 10 to 20 inches

Mean annual air temperature: 63 degrees F

Frost-free period: 230 to 320 days

Farmland classification: Prime farmland if irrigated

Map Unit Composition

Ramona and similar soils: 85 percent

Minor components: 15 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Ramona

Setting

Landform: Fan remnants

Landform position (two-dimensional): Backslope

Down-slope shape: Convex

Across-slope shape: Concave

Parent material: Alluvium derived from granite

Typical profile

H1 - 0 to 8 inches: sandy loam

H2 - 8 to 42 inches: sandy loam

H3 - 42 to 60 inches: sandy loam

Custom Soil Resource Report

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 7.9 inches)

Interpretive groups

Land capability classification (irrigated): 2s
Land capability classification (nonirrigated): 4s
Hydrologic Soil Group: C
Hydric soil rating: No

Minor Components

Madera

Percent of map unit: 10 percent
Hydric soil rating: No

San joaquin

Percent of map unit: 4 percent
Hydric soil rating: No

Unnamed

Percent of map unit: 1 percent
Landform: Depressions
Hydric soil rating: Yes

SaA—San Joaquin sandy loam, 0 to 3 percent slopes, MLRA 17

Map Unit Setting

National map unit symbol: 2vncw
Elevation: 90 to 520 feet
Mean annual precipitation: 9 to 17 inches
Mean annual air temperature: 62 to 64 degrees F
Frost-free period: 240 to 300 days
Farmland classification: Not prime farmland

Map Unit Composition

San joaquin and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of San Joaquin

Setting

Landform: Terraces, fan remnants
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Interfluve, tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from granite

Typical profile

Ap - 0 to 9 inches: sandy loam
Bt1 - 9 to 15 inches: sandy clay loam
2Bt2 - 15 to 21 inches: clay
2Bkqm - 21 to 37 inches: cemented material
2C - 37 to 79 inches: loam

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches; 19 to 25 inches to duripan
Drainage class: Moderately well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 in/hr)
Depth to water table: About 8 to 12 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 4.0
Available water supply, 0 to 60 inches: Very low (about 2.1 inches)

Interpretive groups

Land capability classification (irrigated): 4s
Land capability classification (nonirrigated): 4s
Hydrologic Soil Group: D
Hydric soil rating: No

Minor Components

Snelling

Percent of map unit: 5 percent
Landform: Terraces, fan remnants
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Interfluve, tread
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Alamo

Percent of map unit: 4 percent
Landform: Terraces, fan remnants
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Interfluve, tread
Microfeatures of landform position: Open depressions, open depressions
Down-slope shape: Linear
Across-slope shape: Linear

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Ecological site: R017XY902CA - Duripan Vernal Pools

Hydric soil rating: No

Unnamed, hydric

Percent of map unit: 1 percent

Landform: Terraces, open depressions on fan remnants

Landform position (two-dimensional): Toeslope

Landform position (three-dimensional): Interfluvium, tread

Microfeatures of landform position: Open depressions

Down-slope shape: Linear

Across-slope shape: Linear

Hydric soil rating: Yes

WrB—Whitney and Rocklin sandy loams, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: hkcg

Elevation: 200 to 1,500 feet

Mean annual precipitation: 15 inches

Mean annual air temperature: 61 degrees F

Frost-free period: 250 to 300 days

Farmland classification: Not prime farmland

Map Unit Composition

Whitney and similar soils: 41 percent

Rocklin and similar soils: 39 percent

Minor components: 20 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Whitney

Setting

Landform: Fan remnants

Landform position (two-dimensional): Backslope

Landform position (three-dimensional): Riser

Down-slope shape: Convex

Across-slope shape: Concave

Parent material: Alluvium derived from granite

Typical profile

H1 - 0 to 19 inches: sandy loam

H2 - 19 to 28 inches: fine sandy loam

Cr - 28 to 60 inches: weathered bedrock

Properties and qualities

Slope: 3 to 8 percent

Depth to restrictive feature: 28 to 32 inches to paralithic bedrock

Drainage class: Well drained

Runoff class: Medium

Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)

Custom Soil Resource Report

Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 3.5 inches)

Interpretive groups

Land capability classification (irrigated): 3e
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: C
Hydric soil rating: No

Description of Rocklin

Setting

Landform: Fan remnants
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Riser
Down-slope shape: Convex
Across-slope shape: Concave
Parent material: Alluvium derived from granite

Typical profile

H1 - 0 to 18 inches: sandy loam
H2 - 18 to 31 inches: loam
H3 - 31 to 32 inches: indurated
H4 - 32 to 60 inches: stratified coarse sandy loam to fine sandy loam

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: 31 to 32 inches to duripan
Drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 4.4 inches)

Interpretive groups

Land capability classification (irrigated): 3e
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: C
Ecological site: R017XY902CA - Duripan Vernal Pools
Hydric soil rating: No

Minor Components

Cometa

Percent of map unit: 10 percent
Hydric soil rating: No

San joaquin

Percent of map unit: 9 percent
Hydric soil rating: No

Unnamed, ponded

Percent of map unit: 1 percent

Custom Soil Resource Report

Landform: Depressions

Hydric soil rating: Yes

WrC—Whitney and Rocklin sandy loams, 8 to 15 percent slopes

Map Unit Setting

National map unit symbol: hkch

Elevation: 200 to 1,500 feet

Mean annual precipitation: 15 inches

Mean annual air temperature: 61 degrees F

Frost-free period: 250 to 300 days

Farmland classification: Not prime farmland

Map Unit Composition

Whitney and similar soils: 41 percent

Rocklin and similar soils: 39 percent

Minor components: 20 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Whitney

Setting

Landform: Fan remnants

Landform position (two-dimensional): Backslope

Landform position (three-dimensional): Riser

Down-slope shape: Convex

Across-slope shape: Concave

Parent material: Alluvium derived from granite

Typical profile

H1 - 0 to 19 inches: sandy loam

H2 - 19 to 28 inches: fine sandy loam

Cr - 28 to 60 inches: weathered bedrock

Properties and qualities

Slope: 8 to 15 percent

Depth to restrictive feature: 28 to 32 inches to paralithic bedrock

Drainage class: Well drained

Runoff class: Medium

Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Available water supply, 0 to 60 inches: Low (about 3.5 inches)

Interpretive groups

Land capability classification (irrigated): 3e

Land capability classification (nonirrigated): 4e

Hydrologic Soil Group: C

Custom Soil Resource Report

Hydric soil rating: No

Description of Rocklin

Setting

Landform: Fan remnants
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Riser
Down-slope shape: Convex
Across-slope shape: Concave
Parent material: Alluvium derived from granite

Typical profile

H1 - 0 to 18 inches: sandy loam
H2 - 18 to 31 inches: loam
H3 - 31 to 32 inches: indurated
H4 - 32 to 60 inches: stratified coarse sandy loam to fine sandy loam

Properties and qualities

Slope: 8 to 15 percent
Depth to restrictive feature: 31 to 32 inches to duripan
Drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 4.4 inches)

Interpretive groups

Land capability classification (irrigated): 3e
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: C
Ecological site: R017XY902CA - Duripan Vernal Pools
Hydric soil rating: No

Minor Components

Cometa

Percent of map unit: 10 percent
Hydric soil rating: No

San joaquin

Percent of map unit: 9 percent
Hydric soil rating: No

Unnamed, ponded

Percent of map unit: 1 percent
Landform: Depressions
Hydric soil rating: Yes

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Appendix C: Cultural Resources

This appendix has been redacted due to confidential information

Appendix D: Preliminary Engineering Report

Bakman Water Company

Preliminary Engineering Report

**Madera, CA
September 2022**

Prepared for:
Bakman Water Company
Fresno, CA

Prepared by:
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This report is prepared in accordance with State Water Resources Control Board, Division of Financial Assistance, Drinking Water State Resolving Fund Financial Assistance Application for construction funding. The content conforms to the outline provided for an Engineering Report in Attachment T1 of the Technical Package.

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Abbreviations

AB2572	Assembly Bill 2572
ADD	Average Day Demand
Bakman	Bakman Water Company
CDP	Census Designated Place
CEQA	California Environmental Quality Act
DDW	SWRCB, Division of Drinking Water
gpm.....	gallons per minute
LF.....	Linear Feet
MCL	Maximum Contaminant Level
MDD	Maximum Day Demand
O&M.....	Operations & Maintenance
PHD	Peak Hour Demand
PVC.....	Polyvinyl Chloride
RHWS	Rolling Hills Water System
STS.....	Superior Tank Solutions
SWRCB.....	State Water Resources Control Board
SR41.....	State Route 41
µg/L	micrograms per liter

Executive Summary

Project Information

Rolling Hills Water System is a water system located in Madera County, just 2 miles north of the City of Fresno alongside SR41. The water system is comprised of three active wells, a 330,000-gallon water storage tank with a booster pump system and has 339 connections that service approximately 793 customers. The distribution main within the system is primarily 6 and 8-inch polyvinyl chloride and asbestos cement pipe. Well 2 is aging and in need of repairs but still functioning, while Well 3 is currently being treated for arsenic contamination and Well 4 provides clean, safe drinking water without any additional treatment. The existing system currently has an adequate water capacity to meet the existing and potential future demands.

Problem Description

The challenges faced by the Rolling Hills Water System are understood to be threefold: lack of water metering on services, age of well 2 and its' associated facilities, and pressure issues from a lack of looping in the existing distribution main. The 330,000-gallon water storage tank is also in need of cathodic protection.

Consolidation Analysis

Consolidation with another entity does not solve the problems faced by the Rolling Hills Water System, therefore it is not a potential alternative or solution for the Rolling Hills Water System. More analysis on why consolidation is not a potential alternative is located in Section 3.

Alternatives Analysis

This problem poses only two alternative ways to approach the project. The first alternative is to install new meters, loop the distribution system, refurbish rehabilitate the Well No. 2 site, and provide cathodic protection to the water storage tank. This alternative includes the installation of water meters and boxes on all 339 service connections within the water system, as well as the construction of 2,750 Linear Feet (LF) of 12" PVC pipe and 2,750 LF of 8" pipe to complete the loop of the system. This alternative also includes a partial refurbishing of the Well No.2 facilities, with sleeving of the casing, new chlorine equipment, and a new eyewash station included as an optional alternative if needed. This alternative also includes the addition of cathodic protection to the existing 330,000-gallon water storage tank. This alternative solves all parts of the problem description, will increase the water conservation within the system, allow for consistent adequate pressure, and ensures water supply reliability.

The second alternative is to have no project.

Selected Project

The selected project is to install new meters, new distribution mains, refurbish Well No. 2, and provide cathodic protection for the water storage tank. This selected project is the only solution to the proposed problem. The selected project will result in the construction of 339 water meters, boxes, the construction of 5,500 LF of water main, the refurbishment of Well Site No. 2 includes the pumps, motors, site electrical, control center, sand separator, piping and appurtenances, and miscellaneous site work required for an operational well site, as well as the addition of cathodic protection to the existing water storage tank. New facilities, which did not previously exist at the Well No. 2 site include a site perimeter security system, drainage system utilizing dry wells, and hose bibs. Sleeving of the existing well casing, a new chlorine treatment system, and eyewash station will be included as an optional addendum to the project if deemed necessary during investigation of the well.

Selected Project Cost Estimate

The following is the project cost estimate for the proposed project.

Table ES-1. Total Project Cost Breakdown

Total Project Cost Breakdown	
Description	Estimated Costs
Non-Construction Costs	
Funding Administration	\$37,000
Construction Documents Preparation	\$206,000
Environmental Documents	\$44,000
Environmental Compliance	\$6,700
Bidding	\$10,000
Construction Staking	\$12,500
Construction Management	\$178,000
Labor Compliance	\$52,000
Bakman Expenses (Plan check fees, compaction and water testing costs)	\$51,000
Construction Costs	\$3,238,500
Contingency (20%)	\$767,140
Project Total	\$4,602,840

1 Background Project Information

1.1 Community Description

The community of Rolling Hills, a census-designated place (CDP), is located in southeast Madera County along State Route 41 (SR41), approximately 2 miles north of Fresno and 13 miles east of Madera as shown in **Figure 1-1**. The community is in the unincorporated area of Madera County and encompasses an area of approximately 390-acres (0.6 square miles). Statistics of the CDP are summarized in **Error! Reference source not found.**

Table 1-1. Rolling Hills CDP Statistics

Rolling Hills CDP Statistics	
Criteria	Value
Rolling Hills Population [1]	793
Rolling Hills Median Household Income [1]	\$108,571
Notes: [1] American Community Survey, 5-Year Estimates, 2015-2019	

The Rolling Hills Water System (RHWS), Water System Number CA2010009, became a permitted water system in 1976 and is privately owned and managed by the Bakman Water Company (Bakman). Bakman provides domestic and fire water service to 339 residential and commercial properties by the way of three (3) wells.

Based on the history of the community, the area is not expected to experience any significant growth.

1.2 Existing Facilities

According to system records, the system is comprised primarily of 6-inch and 8-inch water mains with 339 active unmetered residential and commercial customers, providing water to approximately 793 residents within Rolling Hills. The fire flow needs are covered by a 330,000 gallon tank and booster pump station connected to the system (providing 2,500 gallons per minute for 2 hours).

1.2.1 Water Supply Sources

The RHWS includes three active wells (Wells No. 2, 3, and 4), one inactive well (S&J Ranch Well), and one destroyed well (Well No. 1), all located within Rolling Hills as described in further detail below. Well locations are shown in **Figure 1-2**.

1.2.1.1 Well No. 2

Well 2, constructed circa 1981 to a depth of 700 feet, is located along SR41 in the rear of a private property parcel (APN 049-160-007) on the east side of the community. The well is equipped with chlorination equipment and produces water meeting drinking water standards. While the well still operates, the facilities are aging and much of the equipment has exceeded its 30-year life expectancy.

See **Figure 1-3** for the well site layout. The well site has a hydropneumatic tank that was replaced in 2002. The estimated capacity of the well was recently reduced from 400 gallons per minute to 200 gallons per minute (gpm). This reduction was originally put into place by the previous system operator to reduce the stress on the well casing that is feared to be failing. Well No. 2 discharges directly into the distribution system through a hydropneumatic tank and starts and stops based on the water storage tank water level.

1.2.1.2 Well No. 3

Well 3, constructed in 2013 to a depth of 245 feet, is located along Dawn Avenue (APN 049-490-027) on the west side of the community and includes an arsenic treatment system to lower levels of arsenic in the water produced by the well to levels below 10 micrograms per liter ($\mu\text{g/L}$), which is the State of California Maximum Contaminant Level (MCL) for arsenic. The well site, with the treatment system and blending tank, produces water below the MCL as shown by **Table 1-2**. The well currently operates at a flow rate of 500 gpm per the system operator. This well discharges directly to the 330,000 gallon water storage tank. The well has the capability to discharge directly into the distribution system but it not currently permitted to do so.

Table 1-2. Arsenic Sampling Results for Well 3

Arsenic Sampling Results for Well 3	
Date	Result ($\mu\text{g/L}$)
02/13/2020	5.4
03/02/2020	6.1
04/06/2020	3.3
05/04/2020	6.9
06/08/2020	3.2
07/06/2020	6.9
08/17/2020	5.5
09/08/2020	10
10/05/2020	6.9
11/02/2020	6.1
12/01/2020	7.7

1.2.1.3 Well No. 4

Well 4, constructed in 2020, is located along SR41 in the front of a private property (APN 049-223-005) approximately 2,900 feet north of Well No. 2. The well is equipped with chlorination equipment and produces water meeting drinking water standards. The well currently produces 400 gallons per minute per the system operator. Well No. 4 discharges directly into the distribution system and starts and stops based on the pressure within the system.

1.2.2 Water Storage

The system includes a 333,000-gallon bolted steel water storage tank located on the northwest portion of the community to provide for fire flow demands for the entire water system. The tank was

constructed in 2008. An assessment of the tank, conducted in early 2021, determined the tank needed cathodic protection to maintain its integrity. The tank provides for approximately 3.7 hours of fire protection at 1,500 gallons per minute (gpm). The water storage tank is filled primarily with water by Well No. 3 and/or the distribution system from Well 2 via a fill valve which opens when the tank is below maximum level, and the system pressure is above 50 psi.

1.2.3 Booster Pump Station

A booster pump station is located at the water storage tank site. The booster pump station consists of four 30-hp vertical turbine pumps that are controlled by VFDs. The booster pumps operate when the tank level is above the low-level set point to maintain system pressure. The fill valve closes when the booster pump station turns on. This cycling process ensures that the water in the storage tank does not stagnate during low demand periods.

1.2.4 Water Treatment

As mentioned above, Well 3 is currently being treated for levels of arsenic contamination in exceedance of the MCL. The treatment system consists of three treatment vessels containing equal parts of Anthracite and Green Sand. Gravel is used as a sub fill between the anthracite and green sand. Ferric Chloride and sodium hypochlorite is added to the water at Well 3 before the filtration process to help separate and remove the arsenic. The waste from this process is recycled back into the treatment process and the sludge is pumped and hauled out. Well 2 and Well 3 are currently being treated with chlorine at the wellhead, however per the water supply permit Well 4 does not require continuous chlorination at this moment.

1.2.5 Water Distribution System

The RHWS is comprised of approximately 56,500 linear feet (lf) of water mains ranging in diameters from six to eight inches and including asbestos cement (80%) and polyvinyl-chloride (PVC] 20%) mains constructed in the 1960s. The system provides water supply to the entire Rolling Hills community through 1-inch diameter unmetered water services. A large portion of the water mains are currently located in easements along the back of private properties. The northern most portion of the community has several non-looped segments. The existing distribution system can be seen in [Figure 1-2](#).

1.2.5.1 System Capacity

The existing system capacity is 1100¹ gallons per minute (gpm) between the three wells. The firm capacity of the system is 600² gpm. There is a 330,000 gallon water storage tank and booster pump system that can provide up to 2500 gpm of capacity during emergency fire flow events, for a total system capacity of 3600 gpm.

1.3 Existing Water System Demands

The Rolling Hills Water System currently provides water to approximately 339 connections serving up to 793 individuals. In 2020, the system documented a total of 131,403,869 gallons delivered.

¹ Well 2 = 200 gpm, Well 3 = 500 gpm, and Well 4 = 400 gpm

² Omitting Well 3 as the largest producing well to determine firm capacity.

1.3.1 Average Day Demand

Using the total system demand, the Average Day Demand is 250 gallons per minute (gpm), as shown in **Table 1-3**.

1.3.2 Maximum Day Demand

The County of Madera uses a Maximum Day Demand (MDD) factor of 2.6 for areas designated as Very Low Density Residential and 1.7 for areas designated as Commercial. The blended MDD factor for Rolling Hills is 2.51, assuming 33 commercial connections and 306 residential connections. Based on this value, the MDD for the system is 628 gallons per minute, as shown in **Table 1-3**.

1.3.3 Peak Hour Demand

The County of Madera uses a Peak Hour Demand (PHD) factor of 3.2 for areas designated as Very Low Density Residential and 2.4 for areas designated as Commercial. The blended PHD factor for Rolling Hills is 3.12, assuming 33 commercial connections and 306 residential connections. Based on this value, the PHD is 780 gallons per minute, as shown in **Table 1-3**.

1.3.4 Industrial and Commercial Users

The RHWS has approximately 33 commercial water users. The types of businesses the water system provides water for are as follows:

- Gas Stations and Convenience Stores
- Auto and Boat Sales
- Veterinary Hospitals
- General Office Spaces
- Recreational Facilities

1.3.5 Water System Demands

The Average Day Demand, Maximum Day Demand, Fire Flow Demand, and Peak Hour Demand are all summarized in **Table 1-3**.

Table 1-3. Summary of Water System Demands Versus Supplies

Summary of Water System Demands Versus Supplies				
Scenario Type	Peaking Factor	Demand (gpm)	Firm Supply (gpm)	Excess/Deficit [5] (gpm)
ADD	-	250	600	350 [850]
MDD	2.51[4]	628 [1]	600 + 229 from Storage Tank [6]	261 [701]
MDD + Fire Flow	-	3128 [2]	600 + 2,500 from Storage Tank	-28 [472]
PHD	3.12[4]	780 [3]	600 + 229 from Storage Tank [6]	109 [549]
Notes: [1] $2.51 * 250\text{gpm} = 628\text{ gpm}$ [2] $628\text{ gpm} + 2500\text{ gpm} = 3128\text{ gpm}$				

[3] $3.12 * 250\text{gpm} = 780\text{ gpm}$

[4] *Blended peaking factor based on 306 residential and 33 commercial connections with associated peaking values of 2.6 and 1.7, respectively.*

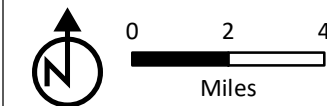
[5] *The total system capacity is 1100gpm; when Well 3 is utilized in supply versus demand analyses, there are no deficit conditions. Excess is shown in brackets when calculated with total system capacity.*

[6] *When not used for fire flow, the storage tank can provide 24 hours of flow at 229gpm.*

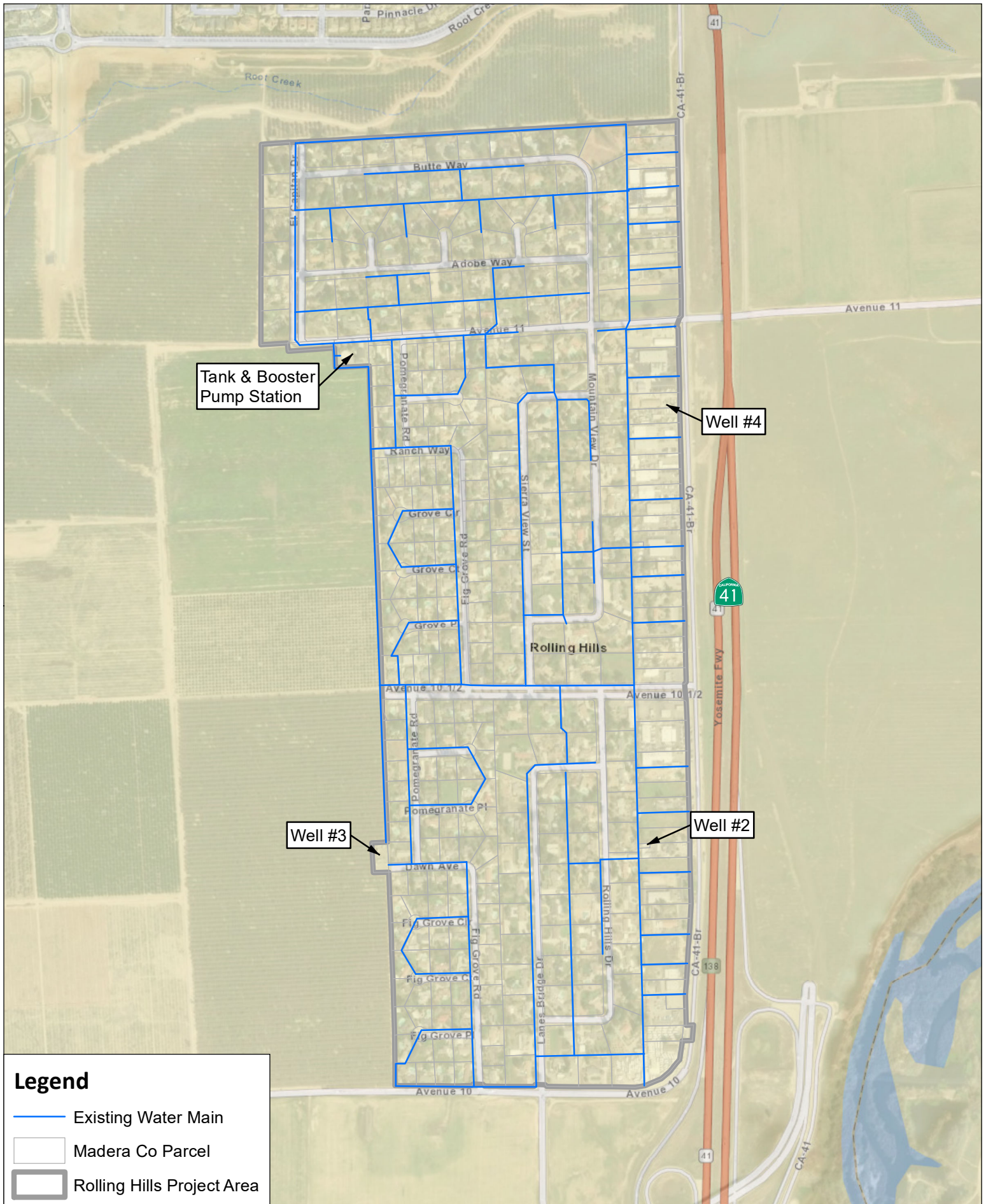
1.4 Existing Operations and Maintenance Practices

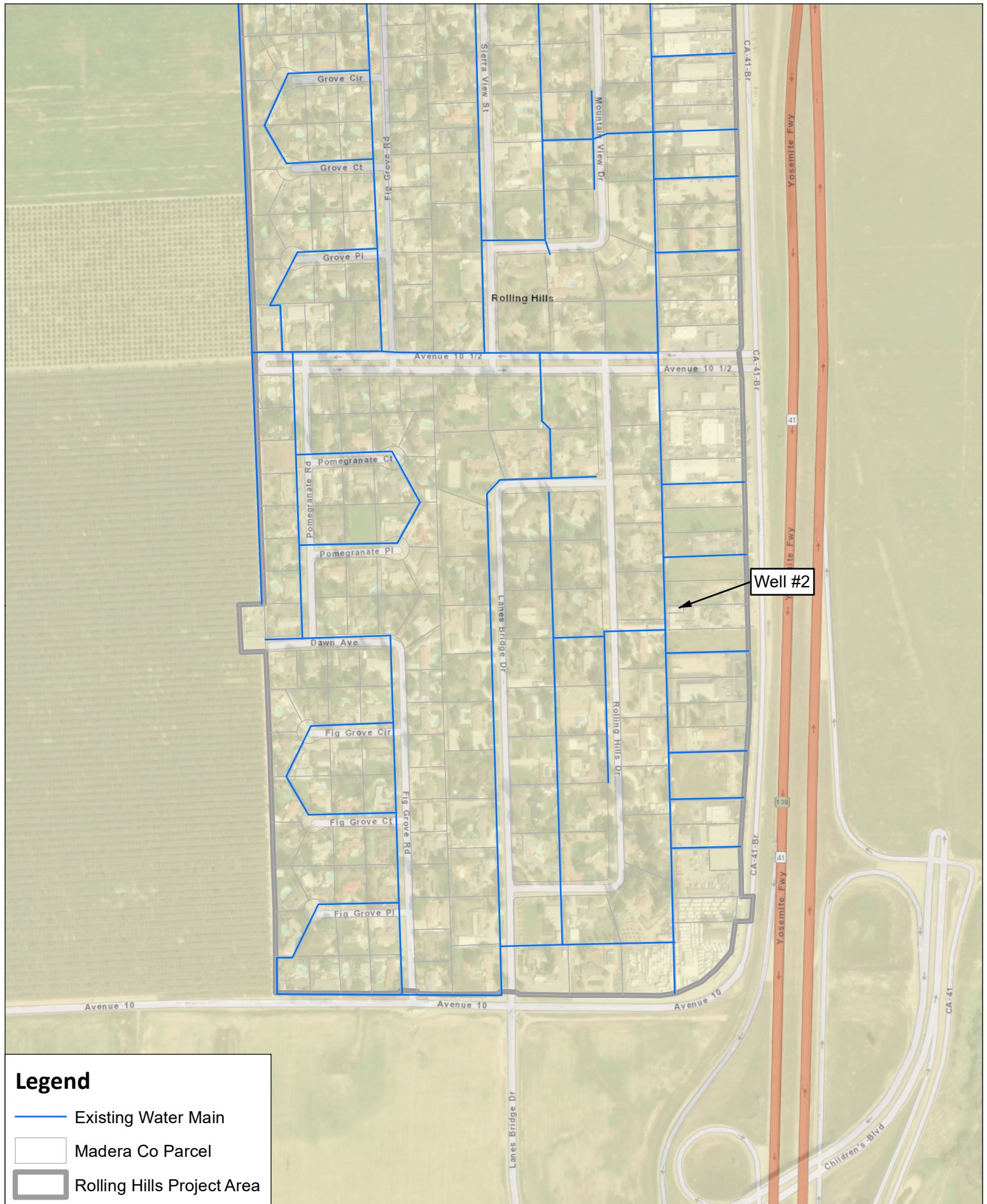
The Rolling Hills Water System has been owned and operated by Bakman since 2019. Bakman has multiple employees within its staff with years of experience of maintaining, repairing, and operating the Rolling Hills Water System, including 8 certified Distribution System Operators³ and 8 Water Treatment Operators. Bakman has a standard operating process that is utilized to ensure maintenance is occurring on a regular and proactive basis, and required operations activities are occurring such as sampling and testing per State requirements.

³ Bakman Water Company has four each of D2, D3, T2, and T3 operators.



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Legend

- Existing Water Main
- Madera Co Parcel
- Rolling Hills Project Area



0 250 500
Feet

Figure 1-3 - Well Site Schematic (Sheet 1 of 2)

Rolling Hills Meter Project - Bakman Water Company

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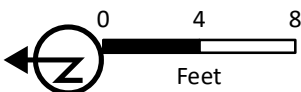
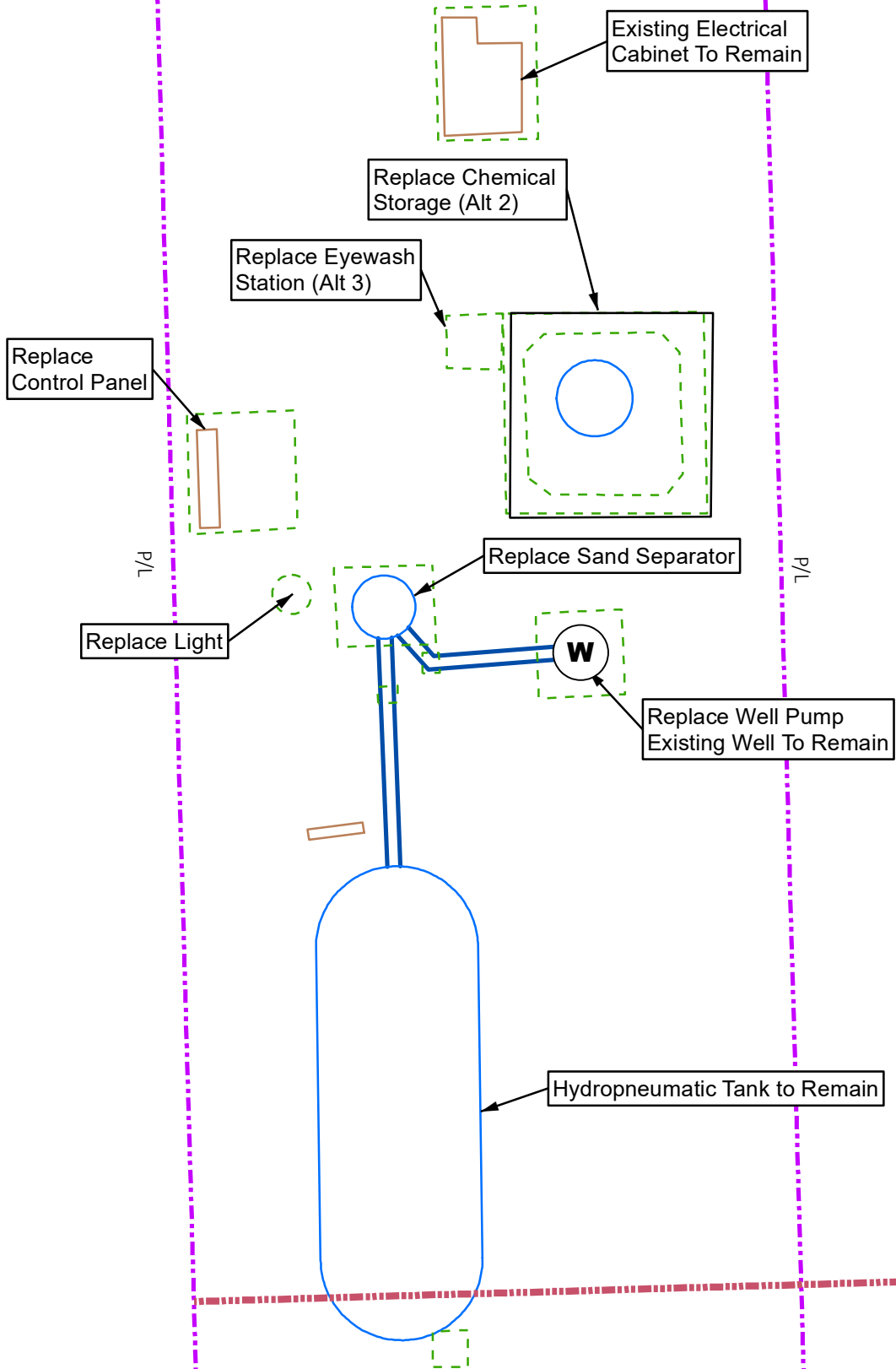


Figure 1-3 - Well Site Schematic (Sheet 2 of2)

Rolling Hills Meter Project - Bakman Water Company

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2 Problem Description

The challenges faced by the RHWS are generally threefold: lack of water meters at all water service connections, potential pressure and reliability concerns due to the lack of system looping, and the aging of certain system components causing poor performance and anticipated failure. Well No. 2 was constructed in 1981; the facilities have exceeded their 30-year life expectancy and should be replaced to ensure system supply reliability. As mentioned above, the system's water storage tank also requires cathodic protection to repair some existing interior and exterior surface damages, and to ensure the tank reaches its full life expectancy.

2.1 Water Meters

Bakman purchased the RHWS in 2019 and one of the goals following the acquisition is to have the system fully metered by 2023. According to Assembly Bill 2572 (AB2572), all urban water suppliers are required to have a water meter installed by 2025 and, while Bakman is not an urban water supplier with regard to the RHWS, the Bakman Water Company, as a whole is considered an urban water supplier when considered in totality. As such, Bakman intends to comply with the metering requirement for the RHWS to encourage water conservation.

2.2 System Configuration

The existing system lacks looping north of Avenue 11 which creates supply concerns in the case of a failure along an isolated segment of pipe and pressure concerns due to dead-end mains. There is also a concern of stagnating water creating water quality concerns in some of the dead-end mains.

2.3 Well No. 2 Site Rehabilitation

The Well No. 2 site needs a full facility rehabilitation including a new well pump and motor, piping and accessories, and a new motor control center and shade structure that is compatible with the existing mobile generator. The site also needs a new sand separator, and the various sitework required for the well site to be functional. While the hydropneumatic tank was replaced in 2012, it needs a new foundation to be set upon. A well investigation will be performed to determine if rehabilitation of the well casing via a sleeve will be required. See **Figure 1-3** for a site map of the well site and its various improvements. Well No. 2 does not currently require any additional treatment to produce safe drinking water.

2.4 Water Storage Tank Rehabilitation

In March 2021, a tank assessment on the 330,000 gallon water storage tank was conducted by Superior Tank Solutions (STS). It was found that in order to prolong the usable service life of the tank and maintain structural integrity, new cathodic protection methods would be required to prevent corrosion and future failure.

2.5 Problem Summary

In summary, the problems in the RHWS are as follows:

- *Lack of water meters*
- *Existing system is not looped causing for pressure, reliability, and stagnation concerns*
- *The water system is approaching 50 years in age*
- *Well No. 2 is approaching 50 years in age causing for reliability and maintenance concerns.*
- *Lack of cathodic protection for existing water storage tank to prevent corrosion.*

3 Consolidation Analysis

The stated problems for the RHWS do not include those that would be resolved via consolidation with another water system. The RHWS currently has an adequate supply of safe, reliable, drinking water and has no issues regarding redundancy with three active wells and a storage tank. The problem at hand, which is previously described as a lack of water meters, the lack of looping within the system, and facility age is not solved via consolidation with another water system therefore, it will not be considered further in this report.

It is important to note, however, that if consolidation were required or desired at a point in the future, there are several consolidation partners in the area to be considered:

- *The Root Creek Water District water system (CA2010016) is less than a half mile north of Rolling Hills and is a newly constructed water system serving the new development, Riverstone.*
- *The Valley Children's Hospital water system is approximately 1 mile south of RHWS, however it is a privately owned system and is unlikely to be willing to consolidate with RHWS, unless the hospital were to become a customer of RHWS.*
- *Lastly, the City of Fresno water system is approximately 2 miles south of RHWS, however it is in Fresno County, making it ineligible for consolidation with a water system in Madera County.*

4 Alternatives Analysis

The following is a discussion of potential project alternatives to address the problem described in Section 2; a description of each alternative along with discussion of some of the additional requirements is included.

4.1 Alternative 1: New Meters, Rehabilitate Well and Tank, and Looping Distribution Mains

4.1.1 Description

This alternative entails construction of new water main within the existing distribution system to enhance the loop of the system in the northern portion of the RHWS, metering of the water services, and rehabilitation of the Well No. 2 site and water storage tank, as follows:

- *Replacement and/or construction of new meters on all services and procurement of meter reading components.*
- *Construct water mains and associated appurtenances to provide looping in the north portion of the system.*
- *Rehabilitation of the Well No. 2 site and its associated facilities including a pump, sand separator, motor controls, site electrical and security, and associated site work. The existing hydropneumatic tank will be reused but will need a new foundation. Repair of the well casing will be included as a bid alternative item and will only be required if deemed necessary during the well investigation.*
- *A new prefabricated chemical storage shed, chemical tank, dosing pump, eyewash station and shower will be included as a bid alternative item and will only be required at the discretion of the Owner. The state of these existing items has been deemed adequate if chosen not to be replaced.*
- *Cathodic protection for the existing water storage tank.*

These components would resolve the stated problems discussed in Section 2 and would place Bakman in compliance with AB 2572 and is in line with one of their post-acquisition improvement goals of having the system fully metered by 2023.

4.1.2 Design Criteria

The following design criteria or design standards will be used for design and construction of the project components described above:

- *Meter installation would follow County and Bakman Water Company standards, as applicable.*
- *Water mains to be installed will be 8-inch and 12-inch C900 DR 18 PVC pipe; an option to use DIP will be noted in the construction documents with specific criteria, such as insufficient cover over top of pipe.*
- *Bakman standard practices for design and construction well site and tank components will be used, and improvements will comply with State regulations.*

4.1.3 Environmental Impacts

Unique environmental impacts that apply to this alternative include:

- *Noise will be generated during construction operations. Impacts to residents will be minimized through construction scheduling.*
- *Dust generation, disposal of materials, and other construction related impacts will be mitigated.*
- *The proposed project will be constructed within the limits of the community and will have no adverse impacts on surrounding areas.*

Regarding impacts to species, if the alternative were selected, the project would comply with the California Environmental Quality Act (CEQA) to determine impacts and any necessary mitigations.

4.1.4 Land Requirements

The alternative would not necessitate the acquisition of new land, as construction shall take place within the existing RHWS boundaries and County rights-of-way. Private parcels currently being served by the RHWS may be disturbed as water meters are installed on service connections; however, Bakman has rights to access those services connections for purposes such as this project.

The project will require an encroachment permit from the County to construct water mains within their right-of-way.

4.1.5 Construction and Site Considerations

It is not anticipated any construction or site considerations would negatively impact the ability of constructing this alternative. A majority of the project site would be accessible and does not pose challenges of access, however the Well No.2 site may pose some accessibility challenges due to overhead power lines and narrow alley access. The site size constraints may pose some challenges when relocating the existing hydropneumatic tank to construct a new pad. The construction procedures for new meters and distribution main would be accomplishable within the existing project boundary. The rehabilitation on Well No. 2 would require isolation from the water system during construction. The downtime of Well No. 2 will require the system to adjust operations practices to ensure water and pressure demands are met during construction. A construction plan will be required to make sure the residents served by the RHWS have access to drinking water during construction. This should be possible with two active wells.

4.1.6 Cost Estimate

The following table summarizes the cost of designing and constructing this alternative.

Table 4-1. Alternative 1 Project Costs

Alternative 1 Project Costs	
Item Description	Item Cost
Construction Cost	
Selected Project Costs	\$3,093,500
Bid Alternative 1 (Well Casing)	\$70,000
Bid Alternative 2 (Chemical Shed, Equipment)	\$60,000
Bid Alternative 3 (Eyewash Station/Shower)	\$15,000
Non-Construction Costs	
Funding Administration	\$37,000
Construction Document Preparation	\$206,000
Environmental Documents	\$44,000
Environmental Compliance	\$6,700
Bidding	\$10,000
Construction Staking	\$12,500
Construction Support Services	\$35,000
Construction Observation	\$143,000
Labor Compliance	\$52,000
Bakman Expenses (Plan check fees, compaction and water testing costs)	\$51,000
Contingency (20%)	\$767,140
Total	\$4,602,840

4.1.7 Advantages and Disadvantages

4.1.7.1 Advantages

The advantages of this alternative include providing a solution to all stated problems. The alternative provides a water meter for each service connection, accomplishing the goal that Bakman established upon purchasing RHWS, which is to have the system fully metered by 2023. This will help increase conservation of water within the RHWS. The alternative also increases reliability and pressure of the system by creating a loop and constructing a new 12" distribution main. This alternative also rehabilitates a well site that has exceeded its life expectancy and increases the lifespan of the existing water storage tank which will help the system maintain reliable water supply to meet all demand scenarios.

4.1.7.2 Disadvantages

This alternative does not entirely resolve the operational and maintenance challenges associated with having public water mains on private property.

4.2 Alternative 2: No Project

A “No Project” alternative would not provide a solution to any of the stated problems and is not considered further in this preliminary engineers’ report.

4.3 Alternative Evaluation and Selection

The selected project is Alternative 1, New Meters, Rehabilitate Well and Looped Distribution Mains, as it is the only solution that resolves all stated problems.

Table 4-2. Alternatives Comparison

Alternatives Comparison		
Alternative Name	Qualitative Comparison	Quantitative Comparison
Alternative 1: New Meters, Rehabilitate Well and Tank, and Looped Distribution Main	Advantages: resolves all urgent problems and provides a sustainable solution for the community. Disadvantages: Does not relocate water mains from private property to the County right-of-way	Project Costs: \$4,602,840 20 Year Life Cycle Cost Estimate: \$186,080 ⁴
Alternative 2: No Project	Advantages: none Disadvantages: Bakman would be out of compliance with AB2572 in 2025. Well No. 2 would continue to be in excess of 40 years old. The existing water system would continue to have potential pressure and supply issues. The water storage tank would have a limited future life expectancy.	Cost Estimate: \$0 Life Cycle Estimate: N/A

⁴ Annual increase in Operations & Maintenance costs (O&M) are estimated to be \$9,304 for staff time to read meters, yearly AMR server fee, and implementation of a meter replacement reserve program beginning after year 5. The life cycle cost utilizes this value at a 3% interest rate for 20 years.

5 Selected Project

The following sections describe the selected construction project in detail.

5.1 Project Description

As discussed above, the alternatives analysis has identified Alternative 1 as the selected project: the construction of new meters, looping of the water system, rehabilitation of Well No. 2, and addition of cathodic protection for the water storage tank.

The project would entail the construction of approximately 2,750 linear feet of 12-inch PVC water main in Avenue 11 and 2,750 linear feet of 8-inch PVC water main in Mountain View Drive and Adobe Way. The alignment of this water main will be located within the County right-of-way. Any existing water main in Avenue 11 will be abandoned in place. Additionally, 339 properties will require a new water meter, meter box, and transceiver. The project would also entail the rehabilitation of the Well No. 2 site including the well pump and all other well site facilities that have exceeded their life expectancy. The well casing will be sleeved if determined necessary during a well investigation. The project will also entail the addition of cathodic protection to the water storage tank. All proposed improvements can be seen in **Figure 5-1**.

5.2 Justification

The selected project will resolve all components of the problem described previously. The project will also loop the system to provide adequate pressure, replace aging facilities and infrastructure, and improve overall domestic and fire water supply reliability. There are no anticipated operational challenges caused by the project. There are no other alternatives that solve the previously stated problem. Meeting the post-acquisition goal for metering also helps encourage water conservation within the system and brings the system into compliance with AB 2572 which is not required but aligns with Bakman Water Company's overall conservation goals and efforts.

5.3 Operations & Maintenance Concerns

There are no operations and maintenances concerns associated with this project. Bakman Water Company is equipped with the necessary equipment, staff, training, and certifications to manage the RHWS and maintain the additional infrastructure being added by this project.

5.4 Local/County Planning Consistency

The Madera County General Plan has designated Rolling Hills as a mix of "Very Low Density Residential" and "Community Commercial" property. The project is consistent with all Madera County General Plan goals, objectives, and policies for these types of areas.

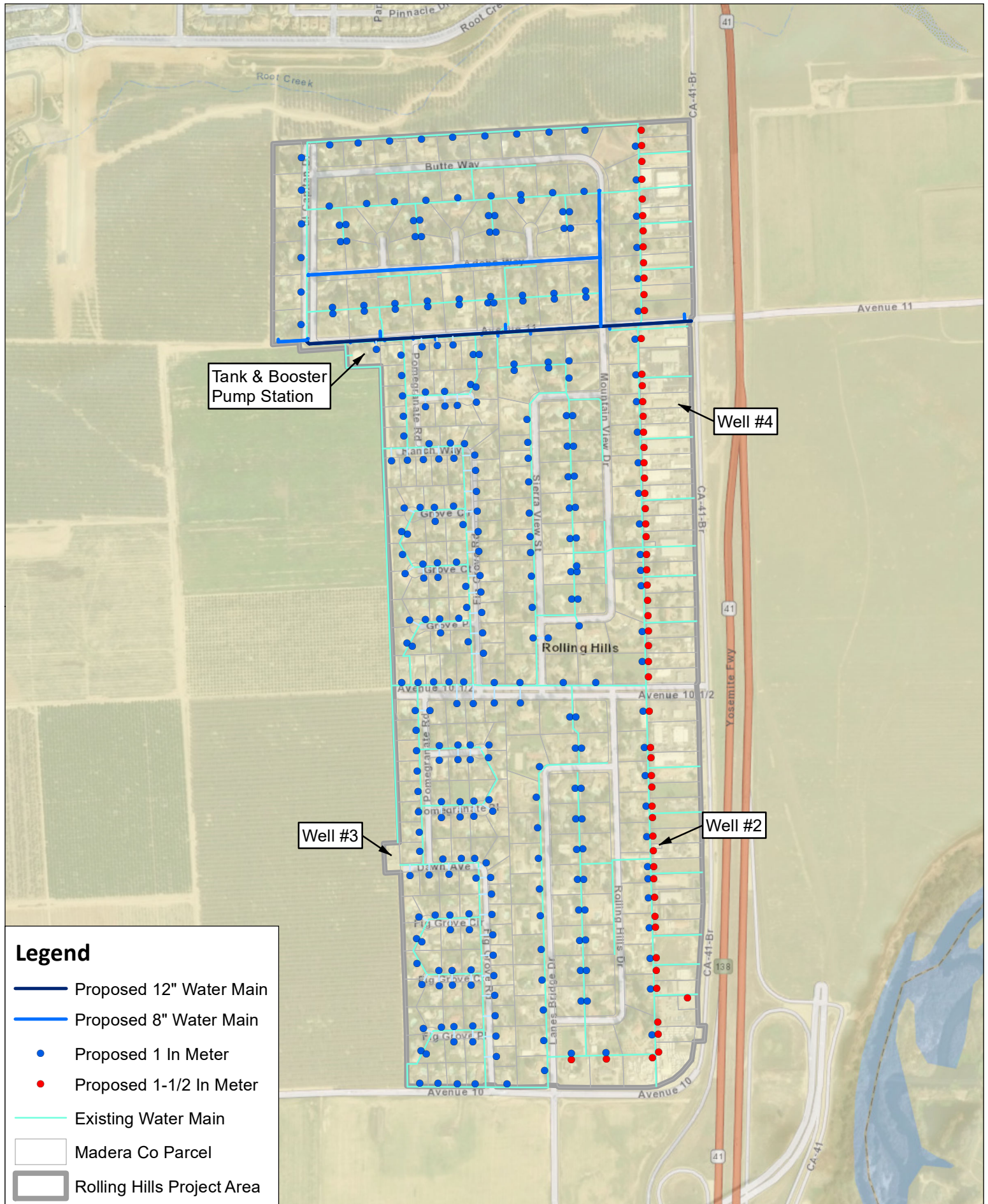


Figure 5-1 - Proposed System Schematic
 Rolling Hills Meter Project - Bakman Water Company

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5.5 Green or Resilient Components

This project involves the construction of approximately 339 water meters, which in turn will promote water conservation throughout the system. Water meters typically result in water savings of approximately twenty percent and allow for the system owner to easily implement demand management measures during drought years.

5.6 Consolidation Governance

The project does not include a consolidation component. The system will continue to be owned and operated by Bakman.

5.7 Land Acquisition

The Rolling Hills Water System improvements are to be constructed within public rights-of-way or on land owned by Bakman. Therefore, it is not envisioned land acquisition is needed for the Project.

Bakman will be required to obtain an encroachment permit from the Madera County Public Works Department to construct the proposed water system.

Bakman has rights to operate, maintain and improve the components of the water system on private properties within the community; therefore, no additional permits or permissions will be required to construct water meters on all services.

5.8 Conceptual Design

It is anticipated that the Project will include system replacement or construction consisting of the following:

- *2750 linear feet of 12" PVC water main*
- *2750 linear feet of 8" PVC water main*
- *306, 1" Water Meters and Boxes*
- *33, 1.5" Water Meters and Boxes*
- *2 Fire Hydrants*
- *Connection to existing water mains*
- *Replacement of various Well No. 2 Facilities*
- *Bid Alternative (Optional): Casing Sleeve of Well No. 2*
- *Cathodic Protection for 330,000 Gallon Water Storage Tank*

The ultimate pipe alignment will be determined during final design based on suitability for proposed conditions. The proposed facilities are shown in **Figure 5-1**.

5.9 Water Demand and Capacity Analysis

The selected project does not alter the existing water supplies or demands of the water system, therefore further analysis has not been included. Refer to the existing water demand and capacity analysis in Section 1 for information on average day, maximum day, peak hour, and fire flow demands.

5.9.1 Growth Projections and Future Water Demands

The community is largely developed; any additional demands are anticipated to be offset through water savings generated by the water meters proposed with this project. The supply capacity of this system already sufficiently meets its existing water demand.

5.9.2 Industrial and Commercial Users

The RHWS has approximately 33 commercial water users. The types of businesses the water system provides water for are as follows:

- *Gas Station/Convenience Store*
- *Auto and Boat Centers*
- *Veterinary Hospitals*
- *Recreation Facilities*
- *General Office Spaces*

5.10 Estimated Useful Life

The useful life of the proposed project components is shown in **Table 5-1**.

Table 5-1. Project Components Useful Life

Project Components Useful Life	
Description	Estimated Years
Water Meter and Box	50+
PVC Water Main	50+
Fire Hydrant	50+
Well No. 2 Improvements	30+
Tank Cathodic Protection	30+

6 Selected Project Cost Estimate

The project construction cost and Operations and Maintenance (O&M) costs are shown in **Table 6-1** and the total project cost breakdown is shown in the **Table 6-2**; a detailed engineer's opinion of probable construction costs is included in Appendix C.

Table 6-1. Project Construction Cost Breakdown

Project Construction Cost Breakdown	
Description	Estimated Costs
Total Project Cost	\$4,602,840
Eligible Project Cost	\$4,602,840
Annual Increase in O&M Costs [1]	\$9,304

Notes:

1. Include staff time to read meters, yearly AMR server fee, and implementation of a meter replacement reserve program beginning after year 5.

Table 6-2. Total Project Cost Breakdown

Total Project Cost Breakdown	
Description	Estimated Costs
Non-Construction Costs	
Funding Administration	\$37,000
Construction Documents Preparation	\$206,000
Environmental Documents	\$44,000
Environmental Compliance	\$6,700
Bidding	\$10,000
Construction Staking	\$12,500
Construction Management	\$178,000
Labor Compliance	\$52,000
Bakman Expenses (Plan check fees, compaction and water testing costs)	\$51,000
Construction Costs	\$3,238,500
Contingency (20%)	\$767,140
Project Total	\$4,602,840

7 Proposed Schedule

The following is the proposed schedule for the selected project.

Finalize Construction Documents	2 months
Agency Review	3 months
Construction Bid Process	3 months
Construction	8 months
Project Closeout	2 months
<u>Total Project Time (no land acquisition)</u>	<u>18 months</u>

Note: Project schedule begins upon execution of funding agreement.

8 Response to Climate Change

8.1 Vulnerability

The improvements proposed with the selected project are not vulnerable to climate change. The water mains will be in trenches several feet deep, which will protect them from flooding or drought impacts. Similarly, the water meters will be installed in meter boxes and they, along with the fire hydrants, are designed to be sufficiently robust to withstand inclement weather that might be associated with climate change.

The water system, as a whole, is vulnerable to impacts of climate change specifically related to declining groundwater levels in the aquifer causing wells to go dry or fail.

8.2 Adaptation

As noted above, the improvements associated with this project are not particularly vulnerable to climate change impacts, therefore no adaptations have been included.

Adaptation to possibly declining groundwater levels include water conservation; installation of water meters promotes water conservation by all users (more than 30% water demand reduction has been noted by Bakman in their system located in Fresno County, the metering project was completed in 2018.)

8.3 Mitigation

The improvements recommended by the selected alternative will help reduce greenhouse gas emissions through reduced pumping of groundwater wells. The reduced pumping stems from two benefits of the project:

- *Water conservation equates to less demands and less volume of water pumped into and around the water distribution system.*
- *Water conservation also equates to reduced quantities of groundwater used and, potentially, slowing or elimination of groundwater decline. Additional depth to groundwater requires more energy to extract groundwater supplies, by slowing or eliminating the decline of groundwater levels through conservation, additional energy needed to reach deeper supplies will be reduced or eliminated.*